UiO : Det juridiske fakultet

Towards an effective global plastics treaty

A legal analysis of treaty design elements to promote participation and effectiveness

Kandidatnummer: 218

Leveringsfrist: 1. juni, 2023

Antall ord: 39 636

Innholdsfortegnelse

Abbreviations

CBD	Convention of Biological Diversity
CBDR	Common but Differentiated Responsibilities
COP	Conference of the Parties
COSIS	Commission of Small Island States on Climate Change and International Law
CPR	Common pool resource
EU	European Union
FOA	Food and Agriculture Organization of the United Nations
GEF	Global Environmental Fund
GESAMP	The Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection
GPA	The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities
ICJ	International Court of Justice
IMO	International Maritime Organisation
INC	Intergovernmental Negotiations Committee
IPCC	Intergovernmental Panel on Climate Change
ITLOS	International Tribunal for the Law of the Sea
MARPOL	International Convention for the Prevention of Pollution from Ships
NAP	National action plan
NDC	Nationally determined contribution
NOAA	National Oceanic and Atmospheric Administration
OECD	Organisation for Economic Co-operation and Development
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNEA	United Nations Environmental Assembly
UNEP	United Nations Environmental Programme
UNESCO-IOC	United Nations Educational, Scientific and Cultural Organization-Intergovernmental Oceanographic Commission
UNFCCC	United National Framework Convention on Climate Change
VCLT	1969 Vienna Convention on the Law of Treaties

1 INTRODUCTION

1.1 Plastic pollution – scientific, legal and political status

Plastic pollution is one of the greatest environmental challenges of our time. Much like anthropogenic emissions of greenhouse gasses have skyrocketed since humans discovered how to optimize and streamline our industrial processes, plastic pollution has been on the rise ever since humans started producing this diverse and useful material on a large scale in the 1950s.[1] Since then, annual production of plastics increased nearly 230-fold to 460 tonnes in 2019.[2] The reason behind this massive growth in production and consumption is that plastics are cheap to produce and have a wide range of desirable qualities, making it useful for the creation of household items, building materials, healthcare equipment, electronics, and many other products. Humans have in the last few decades become increasingly dependent on plastic polymers[3], and going one day, or even one hour without utilizing an item that is wholly or partially made of plastics seems virtually impossible. Out of the sixteen items currently on my desk, only three of them do not contain any kind of plastic polymer. The qualities of plastics make it a formidable material to use in food preservation, that in turn may minimize food waste and the light weight of plastic packaging saves energy in transportation. However, the various qualities of plastics that have made it so beneficial for humans have also contributed to creating a major pollution crisis.

Plastics make up over three quarters of total quantities of marine debris.[4] It is estimated that up to 23 million tonnes of plastic leaks into waterways and oceans annually.[5] Especially wasteful is the production of plastic items that are made to be discarded only after a single use, e.g., packaging, single use cutlery, straws and other items. Over the last couple of decades, studies have shown that plastics are found in every environment on earth, including ones that we have until recently considered largely untouched by impacts of human activity, such

[1] Gayer et al. (2017)

[2] Ritchie and Roser (2018)

[3] «Plastic forms a large part of the category of materials called polymers, or long-chain molecules, which includes plastics, textiles, adhesives, explosives and rubbers. (…) Most of the commercial polymers are synthetically produced from ethylene and propylene gas, which are both product streams of the refining process of fossil fuels such as crude oil, natural gas or coal in the petrochemical industry», Sadan and De Kock (2020) p. 10 All plastics are thus polymers, but not all polymers are plastics.

[4] Secretariat of the Convention on Biological Diversity (2016) p. 11

[5] UNEP (2016-b) p. 6

as Antarctica.[6] Plastic litter finds its way into food chains, and a total of 557 species are observed with entanglement in, and/or ingestion of marine plastic debris.[7] Plastics have also been found in a variety of food items, water and soil.[8] Recently, scientist found plastics in human breast milk, placentas, and blood stream.[9] The accumulation of plastic pollution in the environment happens because plastics do not easily biodegrade, instead they gradually break down into smaller pieces, creating micro- and nano-plastics.[10]

Plastic pollution causes deaths of marine animals through entanglement and may impact their health as well as our own in ways we are still unaware of. Plastic poses risks to human health both through exposure to plastic particles, as well as through the added chemicals.[11] Microplastics and nano-plastics are a special challenge as they break down to particles small enough to enter food chains.[12] Because plastics are not biodegradable, accumulation of plastic waste in foods chains and the environment is a real concern. Further, plastic pollution causes economic loss in areas where the economy is dependent on tourism by being a visible polluter on beaches.[13] It can also cause harm to infrastructure. In 2015 in Ghana, plastic waste blocked drains and caused flooding that tragically resulted in approximately 150 human deaths.[14]

Plastic pollution is a complex environmental challenge for several reasons. Firstly, it is a transboundary issue at core. One of the reasons being that plastic products, as well as plastic waste, is being traded across state boundaries all across the world. But even if the trade in plastics would stop this second, plastic pollution would still be transboundary. This is rooted in the basic natural processes and geographic features like waterways flowing through several countries, as well as ocean currents and wind transporting matter.[15] When a country produces

[6] Aves et al. (2022)

[7] Kuhn et al., (2015)

[8] Sewwandi et al. (2023)

[9] Regusa et al. (2022), Regusa et al. (2021) and Leslie et al. (2022)

[10] «Plastics may oxidize when exposed to UVB radiation, but such a process can take decades to centuries in natural soils. This process takes even longer in the marine environment, and may be interrupted by the fact that plastics get ingested or that bacteria, algae and other organisms or substances , making the surface area reachable to the UVB radiation smaller.» (Worm (2017))

[11] Azoulay et al. (2019) p. 1

[12] Cheng et al. (2023)

[13] Deloitte (2019) p. 8

[14] Hinshaw (2015)

[15] UNEP (2021) p. 18

and consumes plastics within its territory that end up in the waterways and find their way either to other countries territory or the ocean, it creates a transnational externality.[16] While the polluting country will surely be harmed by the pollution itself, a substantial part of the pollution will travel outside its borders and become a problem for another nation. The same is true for microplastics that are shown to travel great distances.[17] If consumers in one country use products that release microplastics into the sewage, without filtering them out before they find their way into the environment, at least a partial transnational externality will likely occur. A complicating factor is that plastic pollution travels not only to other countries than where it is produced or consumed, it also affects areas of the ocean beyond national jurisdiction.

Further, because of the great diversity of plastic products and their utilization areas, plastics enter the environment through many different routes, making it crucial to apply a diverse set of control measures to tackle the issue. It is for instance important to acknowledge that plastic pollution travelling across the oceans affects both in-land and marine environment, but the sources of pollution are mainly land-based.[18] As chapter 3 of this this thesis will show, there is only one global instrument that addresses pollution from land-based sources.

A report from 2020 titled "Breaking the Plastic Wave" estimates that if no meaningful action is taken, the annual flow of plastics into the ocean will triple by 2040 to 29 million metric tons per year, equivalent to 50kg of plastics per metre of coastline worldwide.[19] As a consequence of this, as well as the aforementioned risks associated with widespread plastic pollution, marine plastic debris, including microplastics, have been emphasized to be amongst issues of global importance by the United Nations Environmental Assembly (UNEA). The need for urgent action has been highlighted in several UNEA resolutions since its first session in 2014.[20] However, as with many other issues that call for systematic change and financial resources, while everyone agrees that we need to minimize plastic pollution, it is difficult to agree upon solutions. Currently, plastic regulation is fragmented on most levels. There is an array of

[16] UNEP (2021) p. 29 and Meijer et al. (2021)

[17] Fazey et al. (2016)

[18] UNEP (2021) p. 15

[19] PEW Charitable Trusts and SystemIQ (2020) p. 11

[20] See UNEA resolutions on marine plastic litter and microplastics, among others UNEP (2014-a), UNEP (2016-a) and UNEP (2017) as well as UNEP (2019-a) on environmentally sound management of waste

measures being implemented on both national and regional bases, and several global agreements touch upon plastics, with a few having direct obligations towards plastic pollution as well (see chapter 3). The current governance model is however not able to sufficiently manage this issue.[21] Dealing with an externality that impacts all of the world's countries is certainly not an easy task. There is now momentum in the international community to try to manage this pollution crisis. However, the way in which plastic pollution should be controlled is a highly contested matter.

1.2 The objective and research question

This thesis is mainly concerned with the general lessons that the international community should consider when seeking to manage plastic pollution on a global scale. The goal is not to produce an outline or a blueprint of how a new plastic management regime should look like. Instead, this thesis seeks to draw from knowledge and experience of other environmental issues that have been addressed on a global level, in order to find useful guidance for managing plastic pollution globally. Looking at the current status of environmental governance on the global scale, it is clear that the global community has not "cracked the code" on effectively managing environmental challenges, including pollution. Many international environmental agreements have not managed to reach wide participation, many struggle with compliance and many do not have the necessary elements to address their objective sufficiently. It is thus valuable to further explore how agreements addressing environmental challenges, especially the ones with a global dimension, should be structured and designed.

The main research question of this thesis is the following: What are the necessary legal design elements of a new plastics treaty that promote both participation and effectiveness?

The objective of this thesis is thus finding elements within the new treaty that will get as many states as possible to join the treaty, without sacrificing its effectiveness. In this thesis special attention will be given to the issue of participation – whether wide participation in the new treaty is needed, whether it is possible to gain wide participation and at the same time implement stringent control measures, in addition to the concrete design elements within the treaty that may encourage states to join the treaty (see chapter 4). To be able to address these

[21] UNEP (2021) p. 14

issues, it is necessary to examine the challenge in front of us as well as the context. Plastic pollution has certain elements that are alike other environmental challenges, as well as factors that make it unique. One possible method to map the elements of this specific issue, as used in chapter 2 of this thesis, is exploring the similarities and differences between plastic pollution and other environmental issues, with the respective global agreements to govern them. This will both provide inspiration to management methods and styles possible to implement in the plastics treaty, as well as examples of concrete control measures. In order to provide context and map the efforts the global community has engaged in so far, an overview of how plastic pollution is regulated on the global scale currently will be provided (see chapter 3). Additional to the main research question above, a partial research question will be provided in the beginning of every chapter in order ease the navigation within the thesis.

1.3 Scope and limitations

This thesis is mainly concerned with the global dimension of plastic pollution. When exploring the current management regime in chapter 3, national and regional regulations will not be closely examined, but only briefly referred to. This is because the primary object of interest in this thesis is the issue on the global scale and addressing the inner workings of international environmental law. As will be shown later in the thesis however, the regional dimension of plastic pollution may be important to address and utilize as well.

Further, the thesis is concerned with finding guidance towards effective management of the plastic pollution crisis. There is, however, many ways in which one can measure the success of an instrument – whether an international agreement is "successful" or "effective" is not a self-explanatory concept, as there are several definitions of success or effectiveness.[22] An international agreement can be regarded as successful if it attracts a desired participation level. Alternatively, it can be considered successful if the parties reach certain targets as set out in the agreement (but perhaps not sufficiently influencing the underlying issue). An alternative definition of success may demand a change in states' behaviour, one that would not have been there if not for the agreement although this is a success criteria which is difficult to measure and evaluate. In his discussion of successful treaties, Barrett (2005-a) points to the Helsinki Protocol as a treaty that likely made little difference, as states did what they would have done

[22] Young (1999) p. 3

unilaterally regardless of the treaty.[23] Another measure for success or effectiveness of international agreements, and the one that this thesis recognizes as the ultimate, final goal of an international plastic pollution agreement, is the achievement of its objective that targets the underlying issue. While this thesis focuses on how an international agreement can be structured and designed to ensure its success, both in terms of achieving participation and reaching the objective, it is worth noting that the success of an international agreement does not exclusively depend on the treaty itself. Sometimes, as Barrett (2005-a) illustrates by pointing to the negotiations of the Montreal Protocol, luck, timing as well as other factors may come into play to some degree.[24] This being the case, it is even more important to be aware of the pitfalls and possibilities regarding architecture and design of an international agreement. Effectiveness of a treaty may also be affected by the institutional structure around it. While this thesis mainly focuses on the single legally binding agreement to be negotiated between states, a treaty, it is possible that states will choose to establish a whole treaty regime. A regime in this context refers to the treaty, as well as the institutional bodies constructed within and around it, a potential financial structure, such as funds etc., decision-making procedures and other elements. A regime structure may promote effectiveness, although it may come with the implication of a higher degree of bureaucracy. A definition of an international regime as described by Krasner is a «set of implicit or explicit principles, norms, rules, and decision-making procedures around which actors' expectations converge in a given area».[25]

A state choosing to participate in an international agreement is the first step in contributing to a collective action that the global community has agreed upon as necessary. However, cooperation in the form of participation is not enough – states must also comply with the agreement and its provisions. Compliance and enforcement are difficult issues for global agreements, simply because of how our global society is organised – it consists of sovereign states that cannot be forced into compliance by a higher authority. States can of course be persuaded to act a certain way by other members of the global society, using more or less morally sound measures, depending on their political and financial status in the global society. But there is no higher entity, like a world government, that can enforce behaviour and implement sanc-

[23] Barrett (2005-a) chapter 1.4

[24] Before the adaption of the Montreal Protocol, the EC presidency was switched from UK to Belgium, the latter being in favour of stricter controls that likely impacted the success of the protocol.

[25] Krasner (1982) p. 186

tions on a state. “Though much energy is expended in negotiating allocations—that is, in dividing up the pie—this aspect of negotiation should not be of prime importance. It is more important that a treaty be able to promote participation, enforce compliance, and stop leakage. Unless a treaty can do these things, there will be no pie for the parties to divide.”[26] This thesis is thus mainly concerned with participation in the plastics treaty.

1.4 Methodology

The main theme of this thesis is international environmental law. Legal methodology will be used to interpret legal texts such as treaties, which will be explained in broader detail in chapter 3.1.

In order to be able to freely explore the vast material on crafting international environmental agreements, this thesis will not be limited to drawing from literature and perspectives from the field of law only. Ideas and insights by scholars from fields of political science, international relations and economics will be utilized and referenced, simply because crafting an international agreement is not only a matter of law. Knowing the dynamics of global politics as well as acknowledging that economic and social considerations often steer the will and vigour of state leaders to cooperate is crucial. Management of environmental resources have for many decades captured the interest of scholars, both in the discipline of law, political science and economics. The findings and lessons learned can be utilized across the different disciplines. Valuable knowledge on how states behave in different situations shared by professors in political economy and resource economy can be drawn upon when designing legal instruments to manage environmental challenges.

A methodological challenge faced in the research and writing of this thesis has largely been associated with the fact that the subject of this thesis is very much so under development. The global plastics treaty is being negotiated at the very moment this thesis is being delivered, and apart from the UNEA Mandate as well as some informational documents produced by the UNEP’s working group, there are no legitimate legal sources to draw from. There is a mass of general literature on international treaties and regimes, as well as a fair amount of literature on international environmental law and environmental challenges that have been addressed for

[26] Barrett (2005-a) chapter 4.2

several decades already, such as climate change. The literature on legal management of pollution, and specifically plastic pollution, is however rather scarce. In the past decade, the issue of plastic pollution has certainly captured more attention and evidence articles and reports on the scientific dimension have been produced on a much broader scale than before. Some legal literature has emerged as well but is still very much lacking. This thesis thus seeks to contribute to the growing body of literature and research concerned with managing plastic pollution on a global scale.

1.5 Outline

In chapter 2, context will be provided for the further discussion of managing plastic pollution as an international environmental issue. Chapter 2 will begin with a brief general discussion of whether there are set design principles to be found for agreements managing environmental challenges, whether tailored agreements are the only solution or if there is a middle-ground approach that may be helpful in designing international environmental agreements. As a natural extension of this discussion, chapter 2.2 will take a closer look at the issue of plastic pollution through a comparative lens. In order to distinguish some key elements of the issue of plastic pollution, other environmental challenges with their respective international agreements to address them will be examined. Similarities and differences will be highlighted, and inspiration will be drawn from the wide array of design elements within the environmental treaties. Chapter 3 will largely be dedicated to an overview of how plastic pollution is currently regulated within international environmental law. The chapter will provide some concluding notes on the current management regime, and briefly comment the need for a new international treaty to address plastic pollution. Chapter 4 will dive deeper into the concrete subject of architecture and design elements of a new plastics treaty. Chapter 4.2 will explore a selection of elements from the UNEA Mandate and discuss the options available for architecture and objective of the treaty, the possible ways of implementing national action plans within the treaty, how the principles of the Rio Declaration, especially the principle on common but differentiated possibilities may be relevant for plastic pollution, as well as briefly explore the concept of life cycle approach in dealing with plastic pollution. Chapter 4.3 will briefly discuss the generally accepted trade-off of depth vs. participation in international cooperation as well as the issue of free-riding and how plastic pollution may distinguish itself from other environmental challenges when it comes to free-riding. Finally, chapter 4 will discuss a selection of participation incentives that would not compromise on the depth of the plastics treaty.

2 CONTEXT

This chapter will aim to set the scene for the management of an environmental challenge such as plastic pollution. Firstly, the notion of set design principles for solving environmental challenges will be explored briefly. Ultimately concluding that there is no one-size-fits-all approach to international agreements seeking to address environmental issues, an alternative approach in the form of "institutional diagnosis" will be explored. As a natural continuation of this discussion, the second part of this chapter will seek to map some key elements of plastic pollution by comparing it to other global environmental challenges. The international treaties in place to deal with these challenges will serve as an inspiration for future management of plastic pollution. The questions this chapter will seek to answer are the following:

i. Are there set design principles for addressing environmental challenges that will guarantee an effective management of the issues?

ii. What are the key elements of the issue of plastic pollution?

2.1 Set design principles vs. tailored treaties

When it comes to design of treaties and treaty regimes dealing with environmental problems, two main perspectives emerge. One of them is the notion that it is possible to conclude certain specific design principles that an agreement governing environmental challenges should apply for the agreement to be "successful". Such generalization is attractive for several reasons. If one is able to identify universal design principles to implement in agreements dealing with different environmental challenges and managing different common resources, a great deal of resources would be saved both in terms of time, money and energy spent on constructing, negotiating and concluding environmental agreements. An alternative perspective is to view every environmental challenge and common pool resource as perfectly unique, demanding of a special analysis and design of the agreement dedicated to managing it. It is an approach that applies a "one-size does not fit all" perspective to designing treaties. While it may produce treaties that are more in line with the challenges they are meant to solve, this approach is not as attractive in the terms of effectiveness, as it would naturally be more resource consuming than a cookie-

cutter approach. A middle ground between these, introduced by Young (2002) as "institutional diagnosis" is however possible, and will be explored briefly.

These perspectives are examined in this thesis because they may offer useful insights to the current shaping of the plastic pollution agreement. Plastic pollution is a critical issue that needs a solid governance regime. By diving into the literature of environmental governance, one can hope to find guidance of how the new agreement should be shaped. The international environmental treaties that have been concluded by the global community thus far are highly variable in their effectiveness of reaching their objective and solving the underlying issue. It is clear that we have not solved the challenge of creating robust global institutions and treaties to effectively deal with environmental challenges. A brand-new treaty offers great challenges, but also great possibilities to experiment with different approaches, implement design elements from different regimes and possibly along the way find fruitful approaches that may be used to deal with other environmental challenges.

2.1.1 Design principles for managing local common pool resources applied on global plastic pollution

The natural departure point for looking at set design principles is the one suggested by political scientist and economist Elinor Ostrom. Ostrom's studies of common pool resources (CPRs) on a local scale led her to the conclusion that these resources were best regulated locally. Ostrom proposed eight design principles that were meant to be applied to regimes managing the commons, a sort of a "one size fits all" solution: (1) clearly defined boundaries, (2) congruence between the appropriation rules and the regulated environment, (3) decisions are made collectively by participation in modifying the operational rules, (4) regular monitoring of users and resource conditions, (5) graduated sanctions to deter participants, (6) conflict resolution mechanisms that are accessible and low-cost, (7) minimal recognition of rights by external authorities, (8) nested enterprises/multilevel governance.[27]

Ostrom's research universe encompassed small-scale CPRs, and as a political economist she was concerned about the economic governance of resources. Applying economic considerations

[27] Ostrom (1990) p. 90

and insights when looking to manage resources or environmental challenges is often a key component, also when states are looking to create international agreements. An illustrative example is the Montreal Protocol that likely was able to secure such broad participation and quick cooperation because of an economic analysis conducted by the United States that predicted great economic benefits if the issue of ozone depletion was managed as opposed to not.[28]

Common pool resources can be defined as "natural or man-made resource systems that are large enough to make the exclusion of potential users from obtaining benefits prohibitively costly, and the benefits obtained from its consumption by one individual user are sub-tractable from those available to other potential users".[29] One could look at the issue of plastic pollution through an ecosystem-focused lens. A clean marine environment could be viewed as a public good, a resource. Although discharge of plastic waste into the environment, including the marine environment, is not an action of "obtaining benefits" in the traditional sense of a common pool resource, one could apply an analogic perspective to it. As with extraction of resources from a common pool, there will be less of the benefit – less of the clean environment – the more other actors engage in the activity that is discharge of plastic waste. Further, it is virtually impossible to exclude others from the activity of discharging plastic waste into the marine environment. However, this perspective addresses single common pools at a time – here the marine environment – but the marine environment is only one of the environments/ecosystems affected by plastic pollution. As we have already seen, a more holistic perspective on the issue is needed. As Young (2002) points out, some environmental challenges are more accurately viewed as externalities – a situation where the appropriators are not a homogenous group affected by the disintegration of the environment, but can avoid the impacts either by moving or implementing adaption measures.[30] Plastic pollution could thus be regarded as an externality of a common pool resource that is a clean marine environment, or the capacity of the ocean to absorb plastic waste. It is practically impossible to prevent or exclude actors, states, companies and consumers from disregarding or otherwise releasing plastic waste into the ocean, thus making the resource non-excludable. Regarding rivalry/subtractability as a trait of common pool resources, it is true that the more plastic pollution one actor releases, the more of the oceans capacity of receiving

[28] Barrett (2005-a) chapter 8.5
[29] Ostrom (1990) p. 2
[30] Young (2002) p. 143

pollution decreases. Ocean's capacity of receiving the pollution could thus be described as subtractable. Clean oceans and air are however usually defined as public goods – in contrast to common pool resources, public goods are non-rival/non-subtractable, meaning that there is not less of the good for one actor if another one uses it. In practical terms, this is also the case for plastic pollution. While we can, as illustrated above, look at the ocean's capacity to receive pollution as limited, it is not limited in the terms that an actor can release a corresponding amount less waste/pollution because another member of the group released a certain amount. Even if the ocean's capacity to function in a balanced way or recover is overloaded, members of the world's society are not prevented from polluting more. A clean marine environment or clean air would thus be more of a public good, than a common pool resource. Because of the non-subtractable nature of these goods, the impacts the pollution is causing them could be regarded as negative externalities.

The economic concept of externality is used to explain impacts of behaviours that give rise to certain environmental challenges. A negative externality occurs when the behaviour of one actor impacts another in a negative manner. The cost or loss stemming from the behaviour is external to the actor causing the loss when no measures are implemented to make the actor internalize these costs or loss. The deaths of seabirds as a consequence of entanglement from fishing gear disregarded by a fishery is an externality. The same goes for runoff water from a textile factory containing microplastics that are released into the nearby river. While states, consumers and companies create negative externalities on the global scale by polluting the global public goods like the marine environment and air with plastics, the issue of plastic pollution also has another dimension to it that separates it from issues like climate change that truly directly affect a public good like the atmosphere. As mentioned above, plastic pollution also impacts the environment on the local and regional scale, thus not quite fully fitting to be described purely as an externality. Further, because environmental problems are heterogeneous, it may be counterproductive to strictly categorize them in a specific problem structure. As Young (2002) points out, "no characterization may be objectively correct", but underscores that the choice of perspective will have significant consequences.[31] He explains that CPR problems call for self-regulation and trust building among actors, while externalities require establishment of external regulatory mechanisms and sanctions. It is interesting to consider the implications on issues that have elements from different categories like plastic pollution.

[31] Young (2002) p. 16

The implication of universal design principles is that the environmental problems in question are homogeneous, at least to a certain degree, relating to factors or elements that are relevant to the designing of a governance regime. It is thus appropriate to investigate whether factors in local and global commons are somewhat homogenous. Young describes it in terms of "problem of scale", explaining that the question is whether the principles can be scaled up from small to large, and ultimately global scale.[32] Stern (2011) offers some valuable insights regarding local versus global scale.[33] While local commons concern a delimited number of appropriators within a regional scope, ranging from tens to a few thousands, the global commons concern billions of people all over the world. And while depletion of local resources is a consequence of intentional action to extract a resource with visible direct depletion, the degradation on the global level is often perceived much less direct and more distant. This is a result of the fact that on the global scale, the appropriators of a resource are not usually the same group of people that suffer from the degradation, as opposite to the local level where negative externalities remain within the community of users. Further, users on the local scale usually have common cultural context, while the global resources are shared and used by people from all cultures, political- and economic systems and political ideologies which may make it hard to arrive to common understandings of solutions or even the issue itself. Stern (2011) also notes that because the scale of local resources are considerably smaller, they tend to be able to regenerate in a short enough time to enable learning and knowledge building from experiences. This is much harder with global scale resources as they may be non-renewable on the human time scale.[34]

While some have argued that several of Ostrom's principles may be applied on a larger scale, potentially applying different combinations of design principles to facilitate successful management of various common poor resources,[35] others have emphasized the significant differences between local and global commons, and the need to adjust Ostrom's principles to fit the global scale better. Stern (2011) examines the applicability of Ostrom's principles on global commons in his article, as summarized below.

[32] Young (2002) p. 139

[33] Stern (2011)

[34] Stern (2011)

[35] Shin (2021) sought to examine the possibility to apply Ostrom's design principles to larger commons, specifically studying cooperation regarding international river basins.

First and foremost, Stern (2011) sees it as a redundant exercise to apply the principle of defining boundaries for resources and appropriators for global commons. Commons like the earth`s climate or the marine environment, the latter especially outside national jurisdiction, do not render themselves to division and definition. Moving forward, devising rules congruent with the regulated environment or ecosystem may be more applicable to global commons. While the ecological conditions for global commons may be extremely complex to specify, or even have adequate scientific knowledge of, it is possible and important to use the information one has about a resource to shape the rules accordingly. This is highly complicated, but just as important to do for practices that degrade ecosystems and the environment, like plastic pollution. Young (2002) points to mismatches between ecosystem properties and treaty regime attributes as a key issue in international governance.[36] Any knowledge we do have about the relevant ecosystem's processes and properties is crucial to have in mind when designing governance rules. The properties of the relevant pollutant are imperative to have in mind as well. For certain environmental issues, including plastic pollution, the ways and scale in which the pollutant is produced and utilized as well as its role in the global market is essential to consider to effectively regulate production, consumption, and the final treatment. Further, to allow users to participate in developing the rules may be a lot more complex on the global scale as one is dealing with potentially billions of users. This would be difficult on a logistical level, as well as a principle - the fact that the degradation may be far removed from the actual major appropriators, might make it difficult to engage them in designing rules to protect the commons. On the local / regional scale for managing plastic pollution however, this principle may lend itself somewhat better to be implemented. Stern (2011) argues further that while it is important to ensure monitoring on the global scale, it is much more difficult to implement. Monitors should be independent from the appropriators because of the conflict of interest between appropriators and the affected parties to whom the monitors would be responsible to. Appropriators are in the best positions to monitor, but also has interest to underreport. Difficulty arises here because any monitoring system would be dependent on the appropriators themselves to provide information, and potentially funds to monitor. Monitoring would further need to be global to avoid leakage. Difficulties assessing which activities should be monitored as well as technical struggles are also among the challenges related to this design principle. Furthermore, Stern (2011) argues that accessible and low-cost conflict mechanisms and accessibility to impose graduated sanctions are important, but difficult to achieve on the global scale as the parties may live in different countries

[36] Young (2002) p. 65

with different legal systems and regimes. This is just as relevant for the issue of plastic pollution as it is for other global challenges. The fact that the pollution also affects areas beyond national jurisdiction makes it even more challenging. Lawsuits before national courts for environmental damage done across state boundaries are on the rise, but it is important to note that this is hardly an accessible or low-cost mechanism. Stern (2011) further points out that implementing the principle of having a minimal recognition of rights by external authorities permitting the users to devise their own rules and operating with nested layers of organization may not only be difficult on the global scale, but potentially counterproductive. Stern (2011) explains that lower-level governments, companies, and other users, having the opportunity to externalize the cost of the degradation they cause, make it necessary to restrict local autonomy in certain ways. He further argues that lower-level actors may not possess the knowledge and resources to take sufficient action without help. Because of the nature of the issue of plastic pollution, it is relevant to take a closer look at this argument. It is certainly relevant for the global dimension of plastic pollution to acknowledge that the major appropriators operating in the industry pollute rivers, the ocean and soil, and view plastic pollution an externality that they do not have to integrate in their cost-and-benefit analysis. As mentioned before however, the regional and local dimension of plastic pollution may make some design principles that typically seem irrelevant for global environmental challenges applicable after all. The fact that lower-lever actors on their own may not have the capacity, knowledge or resources to take sufficient action is not an argument against these design principles, but as Stern himself argues, a reason to adjust the principle. Higher-lever authorities should enable lower-level actors to be able to take the actions to remedy the issue. States should provide resources for research on how to better manage waste so that municipalities may implement the measures. Municipalities should provide residents with the tools to act in the correct manner, for instance by providing waste collection services and/pick-up points for textiles that are composed of plastics to be managed in a sound manner. On a larger scale, the global community of states should cooperate to share technological know-how so that each state has the knowledge to implement measures suited for their circumstances. A nested layer organisation is further likely a fruitful approach for a challenge like plastic pollution also because it enables actors to make use of a variety of measures on the scale that is most suitable. The two latter principles will be especially relevant in a two-level management structure proposed in chapter 4.3.

The review of Ostrom's design principles in light of the different challenges on the global scale shows that the principles need significant adjustments to apply to global issues. Young (2002)

points out that "the level of heterogeneity on the larger class of environmental problems is high enough to cast grave doubts on an assumption to the effect that what holds for small-scale CPRs will hold for other classes of problems involving environmental changes".[37]

Another set of design principles are found in environmental governance literature talking about transformational approach, comprising of four design principles: (1) high inclusivity/broad participation, (2) little to no stringent obligations, (3) management instead of enforcement and (4) decision making rules requiring near unanimity. These design principles will not be discussed in detail in this thesis, other than refer to discussion by Downs et al. (2000) which concludes that the transformational approach design principles, while theoretically able to deliver on at least some of the promises in certain cases of environmental challenges, may prove ineffective or even counterproductive in others.[38]

As such, it may be concluded that the local and global scale of environmental problems offers great differences, currently making it unfruitful to look for design principles that are transferable across the scale. Downs et al. (2000) argues that there is "no reliable technology for telling us what design strategy is best for a given set of circumstances".[39] Along the same lines, Barrett (2005-a) in his analysis of the Montreal Protocol and the lessons to be learned from it, emphasizes the sentiment that merely copying the design of an international treaty dealing with one issue and applying it to another, is not a fruitful path.[40] He illustrates this by showing that the Kyoto Protocol, in great degree designed after the Montreal Protocol, did not inherit the success of its predecessor.[41] This is simply because of the differences between the challenge of managing ozone depleting substances, and the challenge of managing greenhouse gasses, as well as important factors surrounding the issues differing greatly. Young (2002) concludes that "One size does not fit all when it comes to the creation of effective environmental regimes; design principles derived from a study of some member of the larger universe of problems run the risk of failing to produce the desired outcomes or leading to highly insufficient results when applied to others."[42]

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[37] Young (2002) p. 171
[38] Downs et al. (2000) p. 508
[39] Downs et al. (2000) p. 468
[40] Barrett (2005-a) chapter 1.1
[41] Barrett (2005-a) chapter 15.1
[42] Young (2002) p. 175

2.1.2 Institutional diagnosis

In line with the conclusion above, Young (2002) argues that "Variance among environmental problems at all levels of social organization is sufficient to cast serious doubt on any effort to apply a single set of design principles without intimate knowledge of the character of specific problems and a concerted effort to construct arrangements well adapted to individual cases."[43] As an alternative, he discusses the need to take into account the special characteristics of an environmental challenge. Young explores the notion of each problem being perfectly unique, needing a tailored solution to be able to produce positive results in dealing with the issue at hand.[44] Compatibility between the ecosystem or issue at hand and the governance arrangements created to manage these ecosystems or issues is the main focus in this kind of an approach.[45] However, the bio-geophysical and socioeconomic elements of an ecosystem or environmental issue that are essential to take into account, and the institutional approaches necessary to reach a satisfactory compatibility may not be easy to define. While best practices of dealing with homogeneous cases may be possible to develop over time, the problem of fit truly becomes a challenge the more heterogeneous cases are. Classifying whether a case is homogeneous or heterogeneous may present great difficulties in itself.[46] Knowledge of the structures, processes and linkages of an ecosystem need to be acquired and mapped and the implications of these need to be interpreted.[47] Ozone depleting substances and greenhouse gasses all affect atmospheric contents and are closely tied to industrial production. However, it is crucial to acknowledge that ozone depleting substances only consists of a relatively small economic sector and alternatives are cheap to produce, while other greenhouse gasses have a far broader reach across whole economic sectors and alternative energy production is not yet developed enough or involves costly investments. Similarly, while both oil spills and plastic discharge affects the marine environment, plastic pollution will not be sufficiently managed by an equivalent governance regime to MARPOL. Although the two types of pollutions have some things in common, as noted in chapter 2, plastics flows into the marine environment are more varied and spread out.

[43] Young (2002) p. 162
[44] Young (2002) p. 59
[45] Young (2002) p. 59
[46] Young (2002) p. 21
[47] Young (2002) p. 61

As Young (2002) further argues, there is a lack of systematic procedures to identify and map the different elements of environmental challenges with the aim of pairing them with suitable institutional design elements.[48] Young (2002) does not take it upon himself to propose an exhaustive method of mapping ecosystem properties, but illustrates the idea by presenting three sections of ecosystem properties that should be interpreted with the aim of matching the institutional design elements – structures, processes and linkages.[49] Structures refers to the complexity within the ecosystem and its elements, homogeneity and interdependence among individual elements. Processes refers to factors like productivity, growth, stabilization, change and linkages include boundary conditions and transboundary interaction. He further argues that mismatches between environmental problems and the institutional arrangements created to manage them generally stem from lack of knowledge, institutional constraints and rent-seeking behaviour.[50]

Furthermore, as if the identifying and mapping properties of a single ecosystem was not intricate enough, the exercise would be even more complex when the goal was to deal with an environmental issue that affects several ecosystems, such as plastic pollution. Because pollution may enter different ecosystems in different ways and affect the ecosystems differently, mapping of properties to match with institutional regime attributes would soon prove to be a rather complex task. The alternative would be simplifying the issue and reducing it to only managing pollution in one ecosystem. While this might make the creation of a new governance regime less complicated by not addressing the practicalities of the challenge, such an approach would not be satisfactory as it would ignore the need for a holistic perspective. This alternative seems additionally unsatisfactory if one was to dive deeper into the philosophy of modern ecology and its views of the concept of ecosystems. It nurtures the idea that ecosystems are social constructs and in nature everything is related to everything, meaning that any approach based on strictly dividing the wholeness of the earth's natural environment is inherently dismissive of the complexities of the issue.[51] Furthermore, it is not only the ecosystem properties that need mapping. The mechanisms and ways in which human behaviour and systems interact with the environment and creates the issue are essential to map – socioeconomic elements and properties of the

[48] Young (2002) p. 21
[49] Young (2002) p. 61
[50] Young (2002) p. 56
[51] Young (2002) p. 59

challenge are just as important as the environmental properties in creating successful arrangements. The reasons for why plastics are being discarded into rivers and dumpsites are crucial to identify if we ever hope to solve the issue of plastic pollution. So is the technological status of possible alternatives for plastics, as well as the challenges regarding recycling. This further illustrates that addressing a challenge like plastic pollution through an ecosystem-lens might provide more difficulties than benefits.

Young (2002) argues that neither the perspective of design principles, nor the perspective that each environmental issue is perfectly unique is fruitful.[52] Instead he recommends an intermediate approach, namely institutional diagnosis. This approach seeks to identify features of an environmental challenge that can be understood as "diagnostic conditions", with the goal of pairing them with a suitable design implication. As a middle ground of the two approaches examined above, institutional diagnosis seeks to essentially break down environmental issues with the goal of identifying elements that need to be afforded special consideration in a systematic manner. But instead of trying to find a unique design element for every significant element of every environmental issue, institutional diagnosis seeks to generalize to a certain degree. For instance, challenges that have the diagnostic condition of functional interplay call for the design implication coordination mechanism, and diagnostic condition of political and socioeconomic systems call for design implication flexibility.[53] While Young (2002) himself explains that the approach is not meant to apply as a generalized prescription across the whole universe of environmental issues, the approach provides a somewhat systematic procedure that can be used as a starting point.

2.2 A comparative perspective on the issue of plastic pollution

As has already illustrated in this thesis thus far, the issue of plastic pollution is complex. There are many uncertain variables that come from a lack of empirical data. Thus far it is not clear how plastics impact living organisms in the long term or if these substances ever completely disappear in the environment or simply continue to break down into gradually smaller pieces. Further research is thus required in this field. Enhancing the complexity of the issue further are

[52] Young (2002) p. 175

[53] Young (2002) p. 178

uncertainties regarding management of plastics on a political scale, as well as the judicial dimension.

As concluded in the section above, there is no one-size fits all approach readily available for managing environmental challenges through international agreements. This means that we need to analyse and map the environmental challenge before us to be able to address it. Identifying some key elements of the issue at hand is thus valuable. Looking to other environmental challenges with their corresponding governance regimes is a useful exercise in that context as it provides a starting point through a comparative lens. Comparing the issue of plastic pollution to other environmental challenges will serve as an illustrative tool to map the key elements of plastic pollution. For the purpose of this thesis, a comparative approach will further serve as a point of inspiration for a new plastics treaty. The method used in this chapter is established to identify some key elements of an environmental issue, and briefly explore how these elements are regulated within international law. The specific challenges included in this analysis are selected to illustrate certain elements of plastic pollution.

2.2.1 Mercury pollution and the Minamata Convention on Mercury[54]

Mercury is in the top ten chemicals of major public health concern according to the World Health Organization, and mercury poisoning has caused tens of thousands of people to suffer from what is now known as the Minamata disease.[55] Mercury is used in products like thermometers, barometers, fluorescent lamps as well as a catalyst in chemical industry, for instance in gold mining.

The objective of the Minamata Convention on Mercury, having entered into force in 2017, is "to protect human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds".[56] The Convention is thus aimed at regulating one specific substance. It includes provisions that address the entire life cycle of mercury, from the direct mining of mercury,[57] to controls and reduction of the use of mercury in products,[58] as well as

[54] Minamata Convention
[55] WHO (2017)
[56] Minamata Convention art. 1
[57] Minamata Convention art. 3 para 3 and 4, art.
[58] Minamata Convention art. 3

use, release and emissions of mercury in various processes and industries.[59] Its provisions also address the export, import,[60] safe storage and sound disposal of mercury in the waste stage.[61] The Convention also includes a deadline for a complete phase-out of certain products containing mercury by the year 2020, with a possible exemption for countries that request it.[62] The manufacture, import and export of a wide array of products containing mercury was to be prohibited by the Parties, but there is to date no overview of how many Parties have complied with the phase-out timeline.[63] The Convention implements an evaluation mechanism to keep track of its progress in reaching its objective, and provides for the possibility of amending the agreement with additional mercury compounds to control.[64] Further, the Convention provides a mechanism for financial assistance on implementation through the Global Environmental Facility Trust Fund.[65] An implementation and compliance Committee is established and tasked with examining individual and systematic issues regarding implementation and compliance, as well as making recommendations as appropriate to the Conference of the Parties.[66]

Just like plastics, mercury is a material that was used in a variety of different products, but its use in everyday consumer goods and industry was nowhere as wide as for plastics. Regulating a material that we depend on so strongly may be more challenging than regulating a material that is used in relatively limited degree. Further, the negative effects on human health connected to mercury pollution were well known and documented when the Convention was negotiated, especially in the light of the tragic fates so many humans and animals suffered from mercury poisoning leading to the Minamata disease in the previous decades. The situation is different for plastic pollution as the effects on human health are currently still highly uncertain. It is however worth noting that the risks associated with mercury poisoning were unknown for many decades as well, all while the substance was used in various products and processes.[67] It is

[59] Minamata Convention art. 5 para 2 and 3, 6, art. 8
[60] Minamata Convention art. 3 para 6 and8
[61] Minamata Convention art. 10 and 11
[62] Minamata Convention art. 6
[63] Minamata Convention art. 4 para 1. and Annex A
[64] Minamata Convention art. 22
[65] Minamata Convention art. 13 para 5,6 and 7
[66] Minamata Convention art. 15
[67] Barrett (2010)

therefore worth considering – as in line with the precautionary principle,[68] and considering the damage done by plastics to animals and ecosystems already – implementing more stringent measures than the current state of evidence might give reason to. The idea of regulating the full life cycle is further something that is emphasized in the mandate of the new global plastic treaty, as will be discussed more in chapter 4.2. Using examples from the Minamata Convention for potential control measures within the plastics treaty may be useful, including reduction on production, use and disposal at its final stage. An element that may complicate the matter of regulating plastics similarly to mercury is that a complete ban on plastics is likely not feasible or even desirable – plastics are a useful material that contributes to minimizing food spoilage as well as provides for many other benefits. This means that a more nuanced approach for plastic regulation will be needed. While a complete ban may not be suited for plastics, a ban on use of plastics in certain products or certain compositions of polymers may still be desirable.

2.2.2 Climate change and the Paris Agreement

Greenhouse gasses are emitted through different processes, both natural and as a consequence of human activities such as industrial activities, release of different chemicals into the atmosphere, farming, cultivating, and most importantly burning of fossil fuels.[69] Carbon dioxide and methane are the two most widely emitted greenhouse gasses. They contribute to the concentration of these gasses in the atmosphere that in turn cause the overall temperature on earth to rise.[70] Scientists predict that the consequences of this development include more extreme weather, droughts, ocean acidification, as well as other changes in the climate and different ecosystems that may have adverse effects on humans and animals. [71]

The UN Climate Change Convention with its Kyoto Protocol, as well as the Paris Agreement regulate anthropogenic greenhouse gas emissions, meaning several substances that can be categorized as greenhouse gases. While the UNFCCC is a framework Convention and has a general, inclusive definition of greenhouse gasses,[72] the Kyoto protocol provided an exhaustive list

[68] The precautionary principle, as reflected in Principle 15 of the Rio Declaration provides that "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental damage."

[69] IPCC (2014) p. 6

[70] IPCC (2021) p. 4

[71] IPCC (2022) p. 13

[72] UNFCCC art. 1 nr. 4

of controlled gasses in its Annex A. The Paris Agreement aims for the Parties to "reach global peaking of greenhouse gas emissions" without specifying which ones. The Agreement is to be interpreted in light of the UNFCCC, so the same wide definition likely applies. The climate regime has over the past couples of decades been through a few rounds of trial and error regarding the style of management. The UNFCCC, as a framework Convention aims to "stabilize greenhouse gas concentrations" without providing any concrete obligations for the Parties.[73] The Kyoto Protocol applied stringent obligations of emission reductions,[74] but only for some of the Parties.[75] The Kyoto Protocol has been generally regarded as a failed effort in regard to reducing greenhouse gas emissions.[76] The Paris Agreement applies a new management style. The Agreement itself obligates Parties to communicate their goals for emission cuts through Nationally Determined Contributions (NDCs) but does not actually legally obligate the Parties to reach them.[77] Instead, the Agreement leans on transparency and assistance mechanisms to incentivise states to comply and fulfil their ambitions.[78] It is thus a sort of a hybrid style of management between no concrete obligations and stringent control measures.

Plastic pollution and climate change are both environmental issues that have emerged as a consequence of collective human action. An important way in which plastic pollution differs from climate change is that for climate change, the quantity of the public good – the public good being an unpolluted atmosphere – is equal to the sum of the levels supplied by all countries. Greenhouse gasses accumulate in the atmosphere, a common space shared by every nation in the world. This means that no matter where a greenhouse gas is emitted, it all goes into a joint global pot. Thus, it does not matter if two or twenty-two countries emit a certain amount of greenhouse gases, and it does not matter where in the world these countries are. The atmosphere is affected in the same way. Plastic pollution however, while undoubtedly transnational, is influenced by how much pollution is released where. Places that are hotspots for plastic waste

[73] UNFCCC art. 2

[74] Kyoto Protocol art. 2 and 3

[75] Only Annex I parties under the UNFCCC were subject to obligations under the Kyoto Protocol. Annex I consisted of developed country Parties that were member of the OECD in 1992, as well as countries with economies in transition.

[76] Napoli (2012)

[77] Paris Agreement art. 3 and art. 4 para 2

[78] E.g. Paris Agreement art. 4 para 8 and art. 13

discharge into the nature often find themselves to suffer most from the plastic pollution.[79] Rivers and other waterways, as well as the ocean, have certain flows that affect where the plastic pollution travels to. Winds that may carry plastic particles flow certain ways as well. Thus, for a country sharing a waterway with a neighbouring country, it does in fact matter whether the plastic enters the environment in the neighbouring country rather than a country on the other side of the planet. It follows that the regional and local dimensions are more prominent for an issue like plastic pollution than climate change. It may thus be easier for countries to commit to managing and halting plastic pollution, as it will benefit themselves considerably and noticeably. Managing one's plastic waste discharges will likely benefit oneself regardless of what the rest of the countries do. This is contrary to cutting down on greenhouse emissions. If one country cuts down on its emissions considerably, but another country increases its emissions accordingly, the result evens out, and no overall benefit regarding the emissions will be created. In cases like these, countries' behaviour will likely depend on what others do, a situation that may be prone to a gridlock.

Further, it was until relatively recently highly contested whether the temperature rise and climate changes taking place were results of human activities, as it is known that fluctuations in average temperatures across the earth have occurred previously as a natural part of the earth's climate cycles. This is contrary to plastic pollution as there is no doubt that it is the consequence of human action. Plastics do not occur organically in nature – they are a human made substance that, when disregarded, accumulates in the environment. This, combined with the fact that there are no natural processes that may absorb plastic waste, as it is not bio-degradable, puts more pressure on the global community to manage the issue. Apart from breaking down to smaller particles, we know that the plastic waste is not going anywhere within . For greenhouse gas emissions, the same is not true.[80] There are many natural processes that contribute to absorbing such gasses, like trees and the oceans absorbing carbon dioxide and storing it.

[79] Philippines, India and Malaysia are the top three countries who's mismanaged plastic waste finds its way into the ocean, see Meijer et al. (2021). Research has found that rather than the level of plastic consumption and production being the decisive factors of likeliness for a state to discharge plastics into the sea, it is countries with smaller geographical area, longer coastlines, high rainfall and poor waste management systems that are more likely to discharge plastic waste into the environment. These countries' economies largely depend on both fisheries and tourism. Littered up beaches for instance may have negative impacts on the tourism industry.

[80] A bacteria that consumes and is able to break down and metabolize plastics has been discovered by a team of Japanese researchers in 2016, see Yoshida et al. (2016)

Plastic pollution, and many of its effects, are also more visible than many effects of climate change. Emission of greenhouse gasses causing climate change becomes visible through extreme weather, droughts that contribute to wildlife fires, among others, but it is never clear how much and which emissions of greenhouse gasses caused such an occurrence, or if the occurrence would have happened regardless of the emissions. When large chunks of waste consisting of fishing gear, plastic bottles and other items end up on a beach, we know that it is a direct result from human activity. All this may thus contribute to putting direct pressure on the world's nations, potentially making it easier to push states to manage plastic pollution, do their part and cooperate. There might be a better chance of getting countries to agree to more stringent control measures.

A common trait that climate change and plastic pollution share is the layered temporal dimensions. –They have both accumulated over time, and will likely generate effects for decades, if not centuries to come. Further, both plastics and activities that contribute to emissions of greenhouse gasses like fossil fuel burning are deeply ingrained in our everyday life. There are big, powerful industries standing behind both issues, and they are even functionally intertwined as virgin plastics are indeed produced using fossil materials. Plastics generate 3.4% of global greenhouse gas emissions, 90% of them coming from the production and conversion from fossil fuels.[81]

While the two issues are functionally intertwined, they do, as shown above, differ considerably in many ways. Blindly following the Paris Agreement's management style and design, for instance, would likely not benefit the plastic pollution treaty. Utilizing the regional dimension of plastic pollution, as well as the strong incentive for states to cooperate and do their part should be at the forefront of the negotiators' minds.

2.2.3 Depletion of the ozone layer and the Montreal Protocol

The concentration of ozone molecules in the earth's stratosphere, widely referred to as the ozone layer, absorbs the sun's harmful ultraviolet radiation, thus having an essential function for the human health.[82] A thinning of the ozone layer would cause more of the sun's UV radiation to

[81] OECD (2022) p. 134

[82] Ritchie (2023)

reach the earth, potentially leading to more cases of skin cancer, eye cataracts and impaired immune systems as well as impacting agricultural yields and fish-stocks by interrupting the marine food chain.[83] In the 1970s, scientists discovered that certain substances, known as chlorofluorocarbons (CFCs), could cause the breakdown of ozone molecules in the stratosphere.[84] CFCs were at the time widely used substances in aerosol sprays, as insulators in refrigerators, coolant in air conditioners, foams, asthma strays, fire extinguishers, styrofoam coffee cups and in solvents.

The Vienna Convention for the Protection of the Ozone Layer was signed in 1985 and entered into force in 1988.[85] It is a framework Convention laying out certain objectives and principles, but it does not require countries to take any actions to protect the ozone layer. This may have contributed to the fact that it was the first ever treaty signed by every country involved, even if there was considerable uncertainty regarding the scientific facts of the issue. Measurements did not in fact record any thinning of the ozone layer (except over Antarctica, a seasonal occurrence which scientists at the time considered a special case, and for which there were numerous theories). Moreover, there was no evidence that CFCs were responsible. Finally, there was no sign of increased ultraviolet radiation actually reaching the Earth.[86] However, the potential for harm was certainly there – the production and use of CFC's had increased considerably, and if the theory developed by the scientists was correct, the depletion of the ozone layer would be substantial enough to cause serious harm.[87] In 1987, the world's leaders signed the Montreal Protocol that entered into force in 1989. The Protocol limited production and consumption of CFCs, requiring a cut down by half for a number of them by 1999. The Vienna Convention with its Montreal Protocol is deemed one of the most successful international environmental regimes to date.[88]

Ozone depleting substances have several things in common with plastics. Both are chemical compounds that are inexpensive to produce and widely used. The approach of the Montreal Protocol was to focus the control on production and consumption, as opposed to the use of

[83] Bais et al. (2017)

[84] It is not CFCs that are the problem per se, it is the fact that these substances would break down and release chorine, that would in turn break down ozone, see Salawitch et al. (2019) p. 19

[85] Vienna Convention

[86] Benedick (1997) in Barrett (2005-a) chapter 8

[87] Barrett (2005-a) chapter 8.2

[88] UNEP (2019-b)

CFCs (consumption being defined as production plus imports minus exports). Barrett (2005-a) explains that this created a scarcity value for the existing CFCs and provided incentives for their collection for the purpose of reuse.[89] This also made it unnecessary to substitute CFCs prematurely. This approach may be valuable for plastics as well. Firstly, there are enormous amounts of plastics that are already produced.[90] As noted by the OECD, boosting the plastic markets are important to promote collection, recycling, and re-use.[91] Aiming the control measures at production and consumption may be an important component in achieving this. Secondly, it is emphasized by many actors that merely finding a substitute material for plastics should not be the sole solution to the issue.[92] Incentivizing collection of already produced plastics may thus lower the need for substitutes, encouraging actors to alter the way in which they produce and consume plastics instead of merely transitioning to another polluter. It would also encourage actors to contribute to the clean-up of the plastic waste in the environment, as well as provide incentive to make sure that no more plastics enter the environment.

Further, scientific uncertainty of some sorts regarding the issue is common for both ozone depletion and plastic pollution. While the scientific uncertainty concerns different sides of the two issues, the Montreal Protocol shows that stringent control measures are not unreachable even in the presence of scientific uncertainty. However, an important factor for the successful cooperation towards the Montreal Protocol, as described by Barrett (2005-a), can be afforded to a cost-benefit analysis that indicated massive potential benefits if the issue was dealt with through cooperation, as opposed to unilaterally.[93] Such a cost-benefit analysis, considering the wide spectrum of factors influencing plastic pollution and its potential regulation, would be highly complex. This is especially true because the potential benefits of managing versus not managing plastics are at this point impossible to measure, there being no scientific evidence that fully outlines the risks tied to plastic pollution for human and animal health. There have been efforts by some actors to calculate the costs of plastic pollution, but none that are able to map the actual costs and benefits in full.[94]

[89] Barret (2005-a) chapter 8.11

[90] In 2015, it was estimated that 8300 million metric tons of plastic had been produced since 1950s, see Geyer et al. (2017)

[91] OECD (2018) p. 94

[92] Peake (2020) p. 3

[93] Barrett (2005-a) chapter 8.6

[94] UNEP (2021) p. 14-15 and WWF (2021)

A potentially important factor that contributed to the effective management of production of CFCs within the Montreal Protocol was the relatively limited number of CFC producers at the time. Eighteen chemical companies accounted for most of the world's production of the CFCs. One single company, namely DuPont, stood behind a quarter of the global CFC production.[95] And when DuPont finally, after many years of lobbying against control of CFCs, positioned itself behind a ban (as it was in their interest because of new business opportunities around substitute substances were secured), the rest of the industry followed suit.[96] The United States then truly became a leader negotiator behind a ban, and a phase-out in the Montreal Protocol became a reality. Counting on a similar positive enforcement from the industry regarding plastics is likely in vain, but the forces behind the shift in the industry are worth keeping in mind. There was a massive civil movement and pressure on governments to manage the depletion of the ozone layer, something that eventually made it clear for the industry that a phase-out was inevitable. Further, the fact that substitutes to CFCs that did not deplete the ozone layer were available was crucial. We cannot count of the same type of possibility for plastics. While there are already many initiatives to develop alternatives to plastics for certain uses, there needs to be more solid incentives for the industry to invest in developing alternatives or alter the ways of production. Instead of trying to copy the track that ultimately led to a phase-out of CFCs, the important lesson to be learned here is that industry will invest in development of technologies that are necessary to keep businesses profitable. While viable substitutes for plastics are likely not on the horizon, or as mentioned above not necessarily desirable, we can count on industry investing in developing new technologies only if there are sufficient incentives for it. For plastics, this could be substitute materials for some uses, phase-out of plastics from certain products, change in the chemical build-up of plastic products and new design choices to adapt to global standards and demands. A tight cooperation with industry is thus key.

2.2.4 Persistent organic pollutants and the Stockholm Convention

Persistent organic pollutants (POPs) are organic compounds that are resistant to degradation and accumulate in soils, water, atmosphere and in the cells of living organisms for long periods

[95] L.A. Times Archives (1988)

[96] Barret (2005) chapter 8.11

of time.[97] These chemicals have adverse effects on human health and the environment. Some of them are known carcinogens and many are capable of interfering with the hormonal systems of living organisms, causing development defects, chronic illnesses and death.[98] Examples of POPs are pesticides like dieldrin used to control termites, textile pests and insects living in agricultural soils, insecticides like toxaphene used on cotton, grain, fruits, vegetables and nuts as well as for tick and mite control in livestock, as well as solvents, pharmaceuticals and industrial chemicals, some of them man-made and some occurring naturally.[99] POPs, much like plastics, can be transported over long distances because of their persistence and resistance to biological degradation, and are thus a highly transnational issue.[100]

The current management efforts of POPs are focused on banning use and production through the Stockholm Convention on Persistent Organic Pollutants adopted in 2001.[101] It requires the Parties to prohibit and/or eliminate production, use, import and export of intentionally produced POPs listed in its Annex A,[102] and restrict other POPs listen in Annex B.[103] The placement in the respective annexes is dependent on how harmful the POP is considered. Parties are to reduce and eliminate unintentional production of selected POPs as well.[104]

Plastics has many of the same properties that many POPs have – they persist and accumulate in the environment and organisms because of lack of degradation.[105] The concrete health risks associated with plastics accumulating in living organisms are currently not mapped.[106] There is however no reason to assume that potential adverse effects on human and animal health are not associated with plastic bioaccumulation. Some studies have already indicated adverse effects on hormones in plankton that may have impact on the reproductive systems of the organisms.[107] Further, some polymers such as bisphenol A (BPA), widely used in plastic water bottles and food containers have been shown to have estrogen-mimicking, hormone-like properties and

[97] Miniero (2008)
[98] E.g. Xu et al. (2002), Ennour-Idrissi et al. (2019), Park et al. (2020) and EPA (2002)
[99] UNEP (n.d.-b)
[100] Park et al. (2020)
[101] Stockholm Convention
[102] Stockholm Convention art. 3 para 1. (a)
[103] Stockholm Convention art. 3 para 1. (b)
[104] Stockholm Convention art. 5
[105] Worm et al. (2017)
[106] Thiele and Hudson (2021)
[107] Yuan et al. (2022)

accumulate in humans.[108] This could indicate that regulating plastics within the Stockholm Convention could be an alternative. What is more, POPs are present in many plastic products in order to give plastics certain desired properties, for instance flame retardants like polybrominated diphenyl ethers (PBDEs). This contributes to unintentional releases of POPs, thus making the two issues interconnected.

As Worm et al. (2017) points out however, certain elements separating plastics from POPs render it necessary to regulate plastics in a more nuanced way. For instance, better options for recycling and safe disposal are available for plastics than many POPs. The fact that there are thousands of combinations of polymers and additives used in manufacturing different plastic products also make it necessary to consider a somewhat different management style than POPs.[109] The design elements used in the Stockholm Convention could however serve as inspiration for the plastics treaty, seeing how the two issues are not only similar in many ways, but also linked. For instance, classifying certain plastics as hazardous substances with correlating measures of management such as phase-outs or restrictions on production is an alternative.[110]

2.2.5 Marine pollution from ships and MARPOL

Marine oil pollution from ships received a considerable amount of attention as a consequence of several substantial oil spills such as the one caused by Torrey Canyon in 1967. The incident resulted in catastrophic environmental damage, including death of approximately 15,000 sea birds as well as many other marine organisms.[111] This accident was the catalyst for adopting The International Convention for the Prevention of Pollution from Ships (MARPOL), a Convention to prevent both operational and accidental oil pollution from ships.[112] MARPOL has evolved over time, also including other substances, such as sewage and garbage. Plastic waste is included in MARPOL's Annex V dealing with pollution by garbage from ships (see chapter 3.2.3). Measures addressing oil pollution in MARPOL are however interesting to look to as an inspiration for the management of plastic pollution in the marine environment. This is because plastics enter the marine environment from ships not only as waste, but also for instance fishing

[108] Cimmino et al. (2020)
[109] Worm et al. (2017)
[110] Rochman et al. (2013)
[111] Safety4sea (2019)
[112] Safety4sea (2019)

gear, as microplastics from paint and others. Especially measures in the form of technical standards for oil tankers within the Convention have been regarded as successful.

The 1978 MARPOL Protocol was amended with a mandatory equipment standard that required oil tankers of a certain size to be fitted with segregated ballast tanks, a design that was to mitigate oil leakage from the vessel.[113] What made this approach a success, was that the technical equipment standard was combined with an easy and effective compliance control mechanism. It focused on preventing non-compliance in the first place by creating obstacles that were difficult to overwin because many actors were involved in building, approving and insuring new tankers. It also shifted much of the burden of monitoring to non-governmental actors.[114] Under MARPOL, any ship trying to enter the port of a MARPOL State Party may be subject to an inspection. What was more, any Party to MARPOL was required to detain a ship that was in violation of the Treaty rules. The Convention further permitted the port state to deny access to tankers that did not satisfy the design requirements. Compliance of this equipment standard is close to perfect, a stark contrast to the performance standards in MARPOL and OILPOL.[115] Michell (1994) argues that the reason for this is that discharge standards, being performance standards in nature, were difficult to enforce as those who were likely to detect violations did not have the authority to enforce the rules, while those who had the authority were limited by practical difficulties in detection. This example illustrates that technical standards can be used as a tool to change state behaviour by focusing on primarily changing the behaviour of other actors, as well as indirectly allocating burdens of monitoring to non-governmental actors. As we will see later in this thesis, enforcement of international treaties is difficult because of state sovereignty. Designing treaties that are self-enforcing is therefore important. A treaty that employs measures that are not practically difficult to monitor the implementation of and that gives the authority of enforcement to those who are interested in enforcing a treaty (in this case, port states who would most likely suffer from potential oil leakages were able to detain and deny access to ships in violation with the rules) will be self-enforcing.[116] Employing global technical standards for plastic pollution would likely be a more complex affair because of the wide range of polymers and plastic products being produced. Still, shifting the focus to producers and implementing enforcement mechanisms that somewhat lighten the governments' burden, like a

[113] MARPOL Annex I Regulation 19
[114] Mitchell (1994) p. 172-173
[115] Ibid. p. 291
[116] Barrett (2005-a) chapter 9.8.2

marking scheme, may be of interest on the global scale. This would be a relatively simple first step, easy to implement, as well as efficient if combined with an effective clause for minimum participation, see chapter 4.3.3. Depending on what the technology standards would be imposed on and how, compliance control and monitoring would have to be implemented in a suitable manner. While MARPOLs technology standard was easy to monitor and control because it was imposed on ships that needed to stop at ports of other countries, technology standards aimed at reducing plastic pollution would most likely have to be imposed domestically.[117] However, plastics enter the environment in a wide array of ways, making regulating more complicated. It would not be enough to implement one relatively simple technical standard like MARPOL does. Technical standards can however be one of many other measures in addressing the issue. One could think of standards regarding design and marking of fishing gear, design and composition of plastic products and others. Policy makers would have to take scientific evidence of plastic sources and pathways into account and implement standards where they would function most effectively.

2.3 Outline of the key elements of plastic pollution

In the section above, plastic pollution has been compared to a variety of different environmental issues with the goal of identifying elements that this issue consists of. This section will provide a summary of the findings as well as comments regarding the implications of the elements identified.

The first important element of plastic pollution is that it is a transnational issue that arises from collective action. It is thus essential that all, or at least almost all countries participate in addressing it. All countries contribute to plastic pollution to some degree, even if accumulation of plastic waste in the environment may be greater in certain parts of the world. Avoiding free-riders is thus essential. Because of the strong local and regional dimension of plastic pollution this might potentially be easier than for other environmental challenges. Not only does plastic pollution affect all countries across the globe, it also greatly impacts areas beyond national jurisdiction, like the oceans and Antarctica. This makes cooperation regarding the issue even more important.

[117] As Barrett (2005-a) points out in chapter 15.3, compliance enforcement is almost unnecessary – once enough countries adopt a standard, no one will have an incentive to break from it

Further, because of their non-biodegradability, plastics accumulate in the environment, and depending on the polymer and additive combination can be highly durable and thus capable of travelling long distances by water or air. Even if successful measures to halt pollution were implemented today, together with vigorous clean-up efforts, the waste that has already found its way into the environment will likely stay there for generations to come, potentially causing issues for future generations. The historic context of plastic pollution may further complicate the cooperation efforts among the world's countries. The global North has historically, in line with its early economic development produced and discarded large quantities of plastic waste, but also implemented better waste management in the last few decades.[118] On the other hand, the global South, has likely contributed to less plastic pollution historically, but is currently discarding large amounts of plastic waste into the environment.[119] There are clear incentives for all world's national to cooperate in solving this issue – the effects are clearly visible and costly for the world's nations, and there are no natural processes that can help us get rid of the problem.

When identifying key elements of the issue of plastic pollution in the journey of creating a way of managing it, it is essential to acknowledge that plastic is a cheap and widely used material. It has given rise to a huge industry valued at 593 billion USD in 2021,[120] which is spread across many manufacturers and producers of plastics itself, as well as producers that use plastics in their various products.[121] There is currently no readily available substitute for plastics that is equally cost efficient while still providing the same benefits in such a wide range of uses. Creating change in this context will not only take motivation and goodwill, but strategic thinking. For instance, close cooperation with the industry is necessary.

Further, the degree to which plastics as a material is able to impact human and animal health continues to be uncertain as science is still in its infancy on the subject. The wide range of

[118] Ritchie and Poser (2018)

[119] Ibid.

[120] Statista Research Department (2023)

[121] Only in the US, there were 1005 plastic and resin manufacturing businesses as of January 2022, as reported by Statista Research Department (2023-b)

sources and pathways of plastic pollution are currently not sufficiently mapped either, contributing to the gap of knowledge regarding impacts of plastic pollution.[122] Studies relating to costs of plastic pollution, as well as cost-benefit analysis are also complex and largely lacking. Barrett (2005-a) argues that this is an important factor in whether states will agree to cooperate.[123] There is however no doubt that plastic pollution is a human-made problem, potentially making it easier to agree on the need to manage the issue.

Because of the complexities outlined in this section, no single model of management style to completely manage plastic pollution will likely be sufficient. Not only can plastics be compiled of thousands of combinations of polymers, additives and chemicals, the material is so useful that complete bans are likely not desirable. There are also good options for recycling and reuse of the material that in itself need not be harmful to the environment.[124] This calls for a nuanced approach that is inevitably more complex than a blanket ban or phase-out.

As part of the journey of finding optimal and efficient ways of managing plastic pollution, it is essential to be aware of how the global community has addressed the issue thus far. This will aid the creation of a governance regime that compliments the current management efforts, as well as creates and utilizes synergies between different environmental issues. For this purpose, the next chapter will map the current regulation of plastic pollution on the global scale.

3 THE CURRENT REGULATION

3.1 Questions and method

In this chapter, the current international regulation framework addressing plastics will be explored. Instruments that address plastics and plastic waste directly or implicitly will be examined. Regional instruments of special interest will be mentioned shortly as well. National instruments and policies fall outside the scope of this thesis and will not be explored. The scope of the instrument in relation to plastics will be explored and potential shortcomings and challenges for managing plastics within the respective treaty/regime will be addressed briefly. This

[122] National Oceanography Centre (2021)

[123] Barrett (2005-a) chapter 8.9

[124] Non-toxic plastics will only be harmful to the environment if they become a pollutant by finding their way into nature. As noted above, some plastics may however be harmful to humans, animals and the environment in use as well if they release toxic chemicals.

analysis will serve as a background for the assessment that will be conducted in the final section of this chapter of whether a new multilateral treaty addressing plastic pollution is needed. Thus, the research questions I will seek to answer in this chapter are the following:

i. How is plastic pollution currently regulated in international law?

ii. Is there a need for a new multilateral treaty to address plastic pollution?

The international agreements mentioned in this chapter and this thesis in general, will be interpreted using the principles laid out in the 1969 Vienna Convention on the Law of Treaties (VCLT), articles 31- 33.[125] The general rule of interpretation provided in article 31 is that the treaty shall be interpreted "in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose". The Convention offers a text-focused interpretation method, meaning that it is the written text of the treaty that is the main element of interpretation. The text is to be interpreted within its ordinary meaning, unless it is established that the Parties intended a term to have a special meaning.[126] The context, object and purpose of a term are relevant interpretation elements. In certain circumstances, subsidiary means of interpretation may also be used.[127] Interpretation of customary law, however, is more challenging, partly because of the contested nature of the subject. Discussion of whether binding international customary law even exists have largely occupied the discussion field for decades. The nature of the process of establishing custom that has evolved gives some scholars reason to dismiss the need for interpretation of customary law altogether.[128] For the purposes of this thesis, the establishment and interpretation of customary rules will not be purposefully separated or debated. The generally accepted method of establishing the existence of a customary rule will be used. The two elements needed to establish a customary rule are 1) state practice and 2) opinio juris.[129] In imprecise terms, it means that customary norms are created by state practice accepted as law by states.

[125] VCLT

[126] VCLT, article 31 para 4

[127] VCLT, article 32

[128] See a discussion on this in Merkouris (2022)

[129] Sands and Peel (2018) p. 119

Guiding the assessment of whether a new multilateral treaty is needed will be the existing instruments' ability to address the plastic pollution problem in a holistic way. The idea of a circular approach to regulate plastic pollution has become more popular in the last few years. This concept will be explored in more depth in chapter 4.2., but an imprecise summary of the main goal of a circular approach in any context is striving towards sustainability, both in production and consumption. The goal is to keep materials at the highest possible value along the value chain as well as aiming to use less materials altogether. With the concept of circularity, one seeks to reduce consumption and production, promote re-use, repurposing, recycling, as well as manage waste soundly and sustainably. The degree in which the existing regime applies a holistic and potentially circular approach will be discussed in the final part of this chapter.

3.2 Regulation of plastic pollution in international law

3.2.1 Introduction

To date, there is no single legally binding international agreement designed with a primary objective of preventing plastic pollution on land or in the marine environment through the entire plastics lifecycle. There are a handful of agreements that address pollution, from various sources, but none dedicated to plastic pollution specifically. There are several global agreements that in some way may contribute to reducing plastic waste in the environment by trying to reach their own objective. This is rooted in what Young (2002) calls functional interdependencies.[130] The treaties may be linked functionally, in either bio-/ geophysical or socioeconomic terms, as they in some way affect each other's respective areas. Plastic pollution is one of many types of existing pollutants, and efforts to curb certain chemical pollutants entering the environment may also have consequences on the plastic pollution flows. In the same way, efforts to manage different kinds of waste and their transboundary movement may result in impacts on plastic waste pollution. An agreement that addresses the well-being of marine ecosystems in general terms may also result in rules or practices that impact the plastic flow into the environment. On the flipside, it is likely that efforts with a primary objective to curb plastic waste flow into the environment will grant plenty of consequence in functionally linked issues. E.g., technical standards for plastic products may impact what chemicals can be used in production and may therefore affect the level of discharge of such chemicals into the environment, either positively or negatively. Measures aimed at developing the market for recycled plastics may lessen

[130] Young (2002) p. 23

the need for virgin plastics and therefore fossil fuels but may at the same time contribute to more shipping of plastic waste, potentially leading to increase in emissions of greenhouse gasses. Hence, it is essential to be aware of potential consequences that different policies and measures may lead to. Further in this chapter a brief analysis of the existing global and regional regulation of plastic pollution will follow.

3.2.2 Global instruments

3.2.2.1 United Nations Convention on the Law of the Sea (UNCLOS)

The United Nations Convention on the Law of the Sea sets out a legal framework to manage all activities carried out in the world's oceans and seas. Its objective is to facilitate international communication, promote the peaceful use of the seas and oceans, the equitable and efficient utilization of their resources, the conservation of their living resources, and the study, protection, and preservation of the marine environment.[131]

While the preamble and article 192 reveals a general obligation for states "to protect and preserve the marine environment", more concrete obligations relating to pollution of the marine environment are found in the Convention's article 194, as illustrated below.

UNCLOS article 1(4) defines "pollution of the marine environment" as "introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities". The provisions in UNCLOS relating to pollution will hence include plastics released into the oceans, as they are a "substance" introduced by humans into the marine environment. Plastic litter and microplastics in the ocean would also fulfil the requirement of it resulting, or likely resulting in deleterious effects mentioned in the article as science keeps providing increasing amounts of evidence regarding the dangers both humans, animals and ecosystems are facing because of plastic pollution.[132]

[131] UNCLOS, Preamble

[132] See chapter 1 on a summary of current scientific consensus regarding the effects and potential effects on plastics in humans, animals, and the environment chapter

In accordance with article 194, State Parties are to take "all measures (…) necessary to prevent, reduce and control pollution of the marine environment from any source", and this shall be done using "the best practicable means at their disposal and in accordance with their capabilities".[133] This describes what is known as a due diligence standard of care. The concrete content of such a due diligence standard may however be difficult to pinpoint in precise terms. It is an obligation of conduct, rather than result, as expressed by the International Tribunal for the Law of the Sea's (ITLOS) Seabed Disputes Chamber in its advisory opinion in 2011.[134] All sources of pollution in the marine environmental shall be dealt with, the article expressively naming "release of toxic, harmful or noxious substances, especially those which are persistent, from land-based sources, from or through the atmosphere or by dumping", as well as pollution from vessels, and installations and devices operating in the marine environment. "Toxic, harmful or noxious substances" would include plastic litter, as well as microplastics. Plastic pollution stems mainly from land-based sources, but also originates from ships both operationally and by dumping,[135] meaning that UNCLOS covers all sources of plastic pollution of the marine environment. States are thus obligated to take action to prevent, reduce and control plastic pollution. In prevention lies action to be taken to ensure that plastics do not end up in the environment in the first place – e.g., by ensuring a sufficiently safe waste management. Reducing pollution entails taking action to minimize the pollution that has already occurred, for instance through clean-up efforts. It is further not enough to implement measures just for the sake of it, if they have no impact on the prevention, reduction and control. The states shall take "all" measures that are necessary to accomplish this. This obligation is however somewhat limited by the fact that these actions shall be taken through "best practicable means at their disposal" and "in accordance with their capabilities". This basically limits the obligations to those actions that provide the most benefit or causes the least damage at a cost that is reasonable.

Article 194 further underscores that measures dealing with pollution shall include "those necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life".[136] This indicates that

[133] UNCLOS, article 194(1)
[134] ITLOS (2011), para 110
[135] UNEP (2021) p. 50-51
[136] UNCLOS, article 194(5)

measures to address plastic pollution, including the pollution that is documented to cause harm to endangered species like turtles and migratory birds are required from State Parties.[137]

The obligations under UNCLOS relating to protection of the marine environmental and pollution control are not detailed in nature, something that is to be expected from a general framework convention. The Convention does however provide many tools to potentially elaborate on the general obligations relating to specific sources of pollution in articles 207 (from land-based sources), 210 (by dumping), 211 (from vessels flying their flag or of their registry), 212 (from and through atmosphere) as well as pollution connected to seabed activities (article 208) and activities in the Area (article 209). The states are to, inter alia, adopt national laws and regulations for dealing with pollution of the marine environment,[138] as well as harmonize their efforts,[139] and cooperate in establishing global efforts to protect and preserve the marine environment. UNCLOS also includes extensive options regarding enforcement in respect to different pollution sources in articles 213 – 222. Article 146 of the Convention on protection of human life may also be relevant in the case of plastic pollution, as more and more scientific studies conclude that plastics may pose serious risks to human life and health.[140]

UNCLOS is the only international instrument that provides legally binding obligations for States relating to prevention, reduction and control of pollution from land-based sources. The Convention's wide scope gives wide opportunities to regulate plastic pollution within its regime. The above-mentioned articles give solid initial obligations to states relating to pollution, therein plastic. It also contains a rather sophisticated compliance mechanism, allowing disputes to be brought to the International Court of Justice, the International Tribunal on the Law of the Sea, or a tribunal constituted under UNCLOS.

With the currently unsuccessful management of widespread plastic pollution, one may argue that the lack regulation on plastic pollution globally, as well as unsatisfactory results from the domestic regulations that exist, represent a breach in the State Parties' compliance with the mentioned UNCLOS obligations. While the obligation in article 207(1) is designed to demand

[137] Among endangered wildlife that consume and get entangled in plastic waste include the Pacific loggerhead sea turtles and Hawaiian monk seals, see Matiddi et al. (2017)

[138] UNCLOS, articles 207(1), 210(1) and 211(1)

[139] UNCLOS, articles 207(1), 210(1) and 211(1)

[140] UNEP (2021) p. 32 - 37

effort, more than results (states shall adopt laws "to prevent, reduce and control pollution of the marine environment", rather than the obligation being that states shall prevent, reduce and control pollution), other obligations in the Convention are worded in a manner that invites effort that is result-oriented. Article 207(2) expresses that states "shall take other measures as may be necessary to prevent, reduce and control" pollution. Furthermore, the general obligation in article 194 obliges states to take "all measures" that are "necessary to prevent, reduce and control pollution of the marine environment from any source". It is suggested however, that this provision may be limited because of its reference to 'internationally agreed rules, standards and recommended practices and procedures", as these more often than not are lacking, making the due diligence standard broad and rather undefined.[141]

Moreover, the somewhat vague obligations in UNCLOS are hard to monitor compliance with and non-compliance may be challenging to pinpoint. How diligent does a state have to be to fulfil the obligation of taking all necessary measures? Tackling the whole plastic pollution issue is not a job for one or a couple of states, so how much a single state should do to be in compliance with UNCLOS may be hard to establish. And while dispute settlement within the UNCLOS regime is available and rather advanced, it is dependent on a state bringing up a dispute against another. This may be ill suited for a challenge like the plastic pollution where the sheer accumulation of the states' lack of action is what leads to the severeness of the issue. Establishing liability, or even the fact of the damage occurred may be difficult. Furthermore, the dispute mechanisms have a reputation of being slow and expensive.[142] There being no less-confrontational non-compliance mechanisms within UNCLOS, non-compliance is difficult to handle. Common non-compliance mechanisms in other MEAs base themselves on monitoring and reporting on concrete actions (e.g., production and consumption of ozone-depleting substances in the Montreal Protocol) bringing us back to the lack of concrete, easily measurable obligations within UNCLOS relating to handling pollution.[143]

[141] Carlini and Kleine (2018) p. 234-244

[142] Churchill (2016)

[143] UNCLOS does have a limited reporting system, but it is reserved only to certain limited matters (e.g. certain kinds of baselines, maritime boundaries, and the outer limits of the EEZ and continental shelf (see Arts. 16, 47(9), 75, 76(9) and 84). These are to be reported to UN Secretary General, who in any case does not have the power to review the information for compliance with the UNCLOS.

However, as UNCLOS addresses pollution in the marine environment from all sources, it does suggest itself as a relevant candidate for a framework convention that plastic pollution could be addressed within. This could for instance be done by adopting a new implementing agreement, such as the Agreement relating to the implementation of Part XI, 1995 United Nations Fish Stocks Agreement or the recently concluded BBNJ Agreement.[144] The main advantage of this approach is that State Parties would not have to start completely from scratch, with the use of time and resources that implies – the objectives and principles under the UNCLOS would follow a new agreement. Moreover, an agreement like this may be ratified by states that are not parties to the UNCLOS as well, e.g., the USA and Turkey. There is however a risk that a new agreement under an already existing regime may inherit some of the less fortunate features of it as well, for instance the UNCLOS' tendency of vagueness or some states' reluctance to join the original agreement. The lack of implementation of Article 207(4) by fourteen of the eighteen Regional Seas Programmes regarding establishing global and regional rules and standards to combat land-based pollution threatens a similar laggard effort in an implementation agreement under UNCLOS.[145] Further, a brand-new agreement would present nearly a clean slate for co-operation between states, as much as such a thing is possible in the global community. More importantly, UNCLOS does not cover plastic pollution in other environments than the marine. Even though much of plastic debris eventually finds its way into the oceans and will therefore be covered by UNCLOS, some plastic debris stays in our rivers, lakes and soil, potentially able to affect health of both humans and the environment. The pollution not affecting the ocean will fall outside the scope of UNCLOS as well as a potential implementing agreement under UNCLOS. The need to regulate plastic pollution in all ecosystems and environments suggests that a new agreement under UNCLOS may not lend itself to the holistic governance model that is needed.

It has also been suggested to include management of plastic pollution within the new the international Treaty on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (BBNJ).[146] A suggestion like this certainly makes sense consider-

[144] European Commission (2023)

[145] Raubenheimer and McIlgorm (2017) p. 3

[146] Tiller and Nyman, 2018

ing the amounts of plastic pollution entering ocean areas beyond national jurisdiction and accumulating there in massive quantities.[147] It is thus crucial that a new agreement addressing plastic pollution establishes mechanisms not only regarding new plastic flows from areas within states jurisdiction, but also provides provisions aimed at cleaning up the areas beyond national jurisdiction. This is in line with the sentiment expressed in the chapter XI of UNCLOS, defining the Area and its resources as "the common heritage of mankind".[148] However, regulating plastic pollution in the BBNJ may contribute to the piecemeal fashion that the current regulation consists of. The BBNJ Agreement was finally concluded on March 4th 2023 and only mentions plastics in its preamble; "Recognizing the need to address, in a coherent and cooperative manner, biodiversity loss and degradation of ecosystems of the ocean, due to (…) pollution, including plastic pollution, and unsustainable use". If the goal is to regulate plastic pollution through a holistic and circular approach, it may be an advantage to gather the management into one dedicated treaty.

The United Nations Fish Stocks Agreement includes obligations for States to minimize pollution, waste, discards, and catch by lost or abandoned fishing gear (article 5(f)). This is relevant to plastics as most of the modern fishing nets and other gear is made from plastics and is a major contributor of plastic pollution in the marine environment.[149] It is estimated that 2963 km^2 of gillnets, 75,049 km^2 of purse seine nets, 218 km^2 of trawl nets, 739,583 km of longline mainlines, and more than 25 million pots and traps are lost to the ocean annually.[150] The Agreement further provides that States shall set requirements for marking of fishing gear for the purposes of identification for vessels flying their flags in accordance with uniform and internationally recognizable vessel and gear marking systems.[151] The agreement currently has 92 Parties, including the European Union.[152] Its main mechanisms of implementation is through establishment of regional fishery management organizations (RFMOs).[153] Many of these organizations have established measures addressing abandoned, lost or otherwise discarded fishing gear

[147] Plastic waste in the ocean, including areas beyond national jurisdiction, are present in various densities, but a few specific areas have accumulated greater density of plastic waste resulting in so-called «garbage patches». These patches consist of plastic waste, both microscopic and of larger size up to 50 years old, and the waste is accumulating rapidly, see Lebreton et al. (2018)

[148] UNCLOS art. 136

[149] UNEP (2021) p. 38

[150] Richardson et al. (2022)

[151] The United Nations Fish Stocks Agreement art. 18 para 3 (d)

[152] UN (n.d.)

[153] The United Nations Fish Stocks Agreement art. 8 para. 1

(ALDFG), including prohibition of the use of certain gear and/or gear marking requirements. Overall, however, the measures taken to address ALDFG between the RFMOs, as well as Member States are fragmented.

Another possible option to obtain a clarification on the scope and content of obligations relating to managing plastic pollution may be to request an Advisory Opinion from the International Tribunal for the Law of the Sea (ITLOS).[154] While ITLOS may have jurisdiction to address this issue, as plastic pollution is causing severe issues for the oceans' ecosystems, several potential hurdles rise to the surface upon exploring this option further. Firstly, an appropriate authorized body would have to request an Advisory Opinion from ITLOS, which could be any intergovernmental organization as long as it is authorized by or in accordance with the international agreement in question.[155] An example of such an agreement being established is the Agreement for the Establishment of the Commission of Small Island States on Climate Change and International Law (COSIS),[156] that empowered the Commission to request advisory opinions from ITLOS, which the Commission did on 12 December 2022.[157] [158]A similar approach would most likely be needed by states wanting to request an Advisory Opinion by ITLOS relating to obligations regarding plastic pollution, which would certainly be time costly. Moreover, an advisory opinion would not be able to provide the level of detail for the obligations needed to sufficiently manage plastic pollution, but rather a guidance on where states may set the bar and ambition, which could serve or disserve a future agreement dealing with plastic pollution, depending on the stance ITLOS would take.

[154] ITLOS (1997), article 138 para 2.
[155] As established by ITLOS (2015) paras 58–60
[156] COSIS Agreement (2021)
[157] COSIS Agreement (2021)
[158] COSIS (2022)

3.2.2.2 The Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 (London Convention) and its 1996 Protocol (the London Protocol)

The London Convention of 1972 and its 1996 London Protocol aims to deal with vessel-sourced pollution, meaning pollution stemming from ships, aircraft, platforms, or other man-made constructions at sea.[159] Its main purpose is to prevent deliberate dumping of waste or other matter into the marine environment. The Protocol obligates states to "eliminate" pollution by dumping or incineration at sea.[160] Under the London Protocol there is a general prohibition on the dumping of any waste or other matter at sea, except for those wastes listed in Annex I.[161] Dumping of substances and materials not mentioned in the reverse list – such as plastic – is prohibited. This would include plastic waste, as well as other plastic matter.

Interestingly, article 1 of the Convention reveals a somewhat wider scope as states "shall individually and collectively promote the effective control of all sources of pollution of the marine environment(…)".[162] "Pollution" is in turn defined as "introduction, directly or indirectly, by human activity, of wastes or other matter into the sea which results or is likely to result in such deleterious effects as harm to living resources and marine ecosystems, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities." in the Protocol's article 1 para 10.

Discharge of plastic waste from vessels by dumping is clearly within the Convention's scope. The definition of "pollution" opens up for discharge through other means than dumping as well, as "introduction" has a further reach. It would also include plastic pollution washed into the sea both from marine- and land-based sources, including through rain, rivers, streams etc. This would include dumping or any other release into the environment both "directly" into the marine environment, but also "indirectly". Likewise for microplastics released into the environment through sewage, and the microplastics eventually finding their way into the marine environment. The wording indicates that it is forbidden for states to cause or allow plastic pollution from any source. However, apart from these general provisions with language indicating a

[159] London Convention art. III para 2

[160] London Protocol art. 2, although elimination shall happen «where practicable»

[161] London Protocol art. 4 para 1 (1)

[162] Same formulation found in the London Protocol (1996), art. 2

wider scope, the Convention's main aim is to control pollution through dumping of waste, including plastics. It does not regulate other sources of pollution than dumping in its provisions.

A review from 2015 showed that certain matter which is exempted from the ban on dumping, like dredged material and sewage sludge have a high chance of containing microplastics, and thereby be introduced into the marine environment through these streams.[163] This may shine light on one of the issues of having plastic pollution be regulated only through agreements where plastics as a material with its special properties is not the main focus. The intricate ways our consumption of plastics leads to its leaking in the environment need special consideration. The London Convention has received relatively little support, with only 87 Parties to the Convention and only 47 Parties to the Protocol.[164]

3.2.2.3 International Convention for the Prevention of Pollution from Ships (MARPOL)

Another global agreement that addresses vessel-sourced pollution is the International Convention for the Prevention of Pollution from Ships from 1973 (revised in 1978). As the name would suggest, the Convention's objective is to deal with pollution of the marine environment from ships.[165] The Convention regulates pollution by discharge of harmful substances or effluents containing such substances in contravention of the Convention.

Most relevant for plastic pollution is Annex V to the Convention that specifically addresses pollution by garbage from ships and applies to all ships.[166] Annex V specifies the distances from land and the manner in which garbage may be disposed of. The most important feature of the Annex is the complete ban on discharge of all garbage from ships into the marine environment, including all plastics that the Annex addresses explicitly.[167] Fishing gear, being one of

[163] IMO (2016) p. 3

[164] IMO (n.d.)

[165] MARPOL art. 1

[166] MARPOL, Annex V, regulation 2 and MARPOL, article 2(4) "to all vessels of any type whatsoever operating in the marine environment, from merchant ships to fixed or floating platforms to non-commercial ships like pleasure crafts and yachts."

[167] Ban on discharge of plastics was a part of Annex V since its adoption in 1973, while inclusion of all other garbage, followed with a revision in 2011, unless provided otherwise (exceptions in certain circumstances for food waste, animal carcasses, cargo residues and cleaning agents), see he Marine Environment Protection Committee's resolution MEPC.201(62).

the main sea-based sources of plastic pollution, is included.[168] So are plastic bags, and plastic garbage bags, as well as incinerator ashes from plastic products. Furthermore, if other garbage is mixed with plastic waste, it shall all be treated as it were plastics.[169] Some exemptions apply, including "the accidental loss of synthetic fishing nets", disposal necessary for safety and escape from damage of the ship.[170]

Furthermore, a revised version of the Annex sets requirements for a Garbage Management Plan for ships of a certain size. The plan should outline the procedures for minimizing, collecting, storing, processing and disposing of garbage. According to the 2012 Guidelines for the Development of Garbage Management Plans, the plans should be cost-effective, environmentally sound and employ a combination of complementary techniques, including reduction at source, reusing or recycling, onboard processing (treatment) and discharge to a port reception facility. Relating to this, Annex V regulation 8 requires governments to provide adequate port reception facilities for garbage.[171] The Annex further provides requirements for a garbage record plan and a garbage record book for ships of a certain size. This shows that the MARPOL regime seeks out a more holistic and sophisticated approach to waste management than a simple ban on discharge. This is a welcome sentiment. Annex V has garnered broad support with a total of 155 governments, representing 98,64% of the world shipping tonnage, having ratified Annex V as of October 2022.[172]

MARPOL has been celebrated to be a widely successful treaty, especially having major positive impacts on pollution of the sea by oil.[173] It is however not as clear that provisions regarding other waste, including plastics, can celebrate equivalent success. In general, there is little data assessing the effectiveness and compliance with MARPOL. While the reporting requirements are relatively easy to measure compliance with, they do little to tell us whether the application

[168] MARPOL, Annex V, regulation 3(1)(a) «(…)synthetic ropes, synthetic fishing nets and plastic garbage bags(…)"

[169] MARPOL, Annex V, regulation 3(2)

[170] MARPOL, Annex V, regulation 6

[171] The IMO's Marine Environment Protection Committee have issued procedure guidance for reporting alleged inadequacies in reception facilities, see MEPC/Circ.469/Rev.1 (2018), and have adopted guides for port reception facility providers and users to ensure the successful implementation and use of reception facilities, the inadequacy of which have been a "long-standing problem", see Marine Environment Protection Committee (2018)

[172] IMO (2023)

[173] Riviera (2008) and UNEP et al. (1990) p. 22

of MARPOL results in less pollution in the marine environment. This is due to the difficulties in accurately measuring the level of plastic litter in the marine environment. Bergmann et al. (2015) suggests that while some mitigation measures may be effective in reducing the proportional amount of plastic litter entering the environment, it may just not be enough considering the constant increase in the production rate of new plastic products that ultimately become waste.[174]

The Convention sets out that States shall establish regulations and appropriate sanctions for non-compliance with the Treaty's provisions, in article 4 (1) and (4). Any ship that is subject to the Convention may be inspected at a port of an offshore terminal of a Party. This is a monitoring measure that is unusually considered too intrusive for international environmental agreements.[175] MARPOL article 6 (1) further obliges State Parties to co-operate in detecting violation and enforcement of its provisions and article 11 requires that Parties communicate information to IMO regarding the implementation of the Convention.

A study from 1991 indicated that there were serious gaps in the State Parties reporting regarding application of the Convention, i.e., discharges of oil or other harmful substances.[176] This makes it harder to measure the effectiveness of the Treaty towards its objective. For reports regarding discharge of garbage specifically, only two countries had sent in reports in 1991 about discharges. This low number could be caused by an array of reasons, e.g., the fact that Annex V first entered into force 1988, or that countries had not detected or reported discharges. The study indicates that some State Parties may not be in compliance with article 6(1) that requires them to use all appropriate and practicable measures of detection of release of harmful substances. There is after all no way of making sure that the information sent in by the State Parties is correct, and no way within the Convention of sanctioning State Parties for not sending in the required information.[177] A study by the Dutch environmental organization The Werkgroep Noorszee in 1989 concluded that there was little chance that ships would be detected in the case of an unlawful discharge at sea. In case of the discharge being discovered, there was much left to be desired in terms of bringing them to justice and giving penalties that were sufficient.[178]

[174] Bergmann et al. (2015) p. 15
[175] MARPOL, article 6 (2)
[176] Peet (1992), p. 277-295
[177] Peet (1992) p. 286
[178] Werkgroep Noordzee (1989) in Peet (1992) p. 292

Lack of sanctions make this provision-wise wide and robust treaty toothless and completely at mercy of the State Parties will of reporting and reporting correctly.

The Convention surely establishes a solid regime to manage release of plastic waste from ships into the marine environment. The compliance mechanisms could be developed further to hold countries accountable to a greater degree, such as consequences for not reporting and enrolling requirements for marking. All in all, though, the control measures in the Treaty seek to establish a holistic approach within its scope. The Annex V Guidelines adopted by the IMO in 2012 encourage shipping companies to limit the generation of waste on ships in the first place, but these Guidelines are not legally binding.

Some have argued that extending MARPOL to land would yield positive results for land-based pollution, particularly the sentiment of strict liability for the polluter.[179] With solid mechanisms to ensure accountability, MARPOL principles on land would also be easier to measure compliance with as the problems related to areas beyond any states' jurisdiction would not arise. Problems related to proof that especially arise with potential crimes in the seas, would be easier to deal with in land as well. Practically speaking however, an "extension" of MARPOL to land-based sources would likely have to happen outside MARPOL, in a new treaty or under UNCLOS for instance, as the Convention's objective is aimed at tackling vessel-sourced pollution, not land-based pollution. Adopting the same principles and designing control measures after the blueprint of the successful provisions in MARPOL in a new instrument is of course possible. The lessons learned from the successful regulating of oil leakage from tankers as illustrated above are especially interesting.

3.2.2.4 The Convention on the Law of Non-Navigational Uses of International Watercourses[180]

The International Watercourses Convention regulates the use of international watercourses and their waters for non-navigational purposes. Its article 21 obligates Parties to "prevent, reduce and control pollution". Pollution of an international watercourse is defined as "any detrimental alteration in the composition or quality of the waters of an international watercourse which

[179] First Class Sailing (2018)

[180] The International Watercourses Convention

results directly or indirectly from human conduct" and would include plastic litter and microplastics. Watercourse states shall also take "all measures with respect to an international watercourse that are necessary to protect to and preserve the marine environment".[181]

While the scope of the Convention would lend itself to entail obligations to prevent plastic pollution entering international waterways, the Convention has only 37 Parties and thus has little chance of impacting the common effort on a great enough scale to make the difference needed.[182]

3.2.2.5 The Basel Convention on the Controls of Transboundary Movements of Hazardous Waste and their Disposal[183]

The Basel Convention of 1989 is aimed at reducing the movement of hazardous wastes between nations by requiring Prior Informed Consent (known as the PIC procedure) from the import state before the waste can be exported.[184] It also prohibits all trade of hazardous waste and other waste with non-parties. Its objective as outlined in the Preamble is "to protect, by strict control, human health and the environment against the adverse effects which may result from the generation and management of hazardous wastes and other wastes".

The Convention has its own definitions of the term "hazardous wastes" and "other wastes" found in the various articles and annexes. Plastics was until recently not explicitly defined in any of these. It was not considered "hazardous waste" (Annex I/III), nor "other waste" (Annex II) under the Convention. Plastics could have been included as "Y46 Wastes collected from households", but then only the plastic waste that was collected. Plastic waste that was discarded directly into the street or rivers, would not be included. Another option would have been for a

[181] The International Watercourses Convention, article 23

[182] UN (n.d.)

[183] Basel Convention

[184] The PIC procedure consists of: (1) notification from the exporting country, (2) consent and issuance of a movement document by both parties, (3) transboundary movement of the waste, and (4) confirmation of waste disposal.

State Party to define miscellaneous waste as "hazardous waste" in their own domestic legislation. That waste would then be considered "hazardous waste" under the Convention as well.[185] Otherwise, "solid plastic waste" was among the non-hazardous waste in Annex IX, thereby outside the scope of the Convention.

In 2019 however, the fourteenth meeting of the Conference of the Parties to the Basel Convention adopted the Plastic Waste Amendments to clarify how various types of plastic waste is regulated within the Convention.[186] The new amendments became effective as of January 2021 and are binding for all 190 Parties to the Convention.[187] The amendments do not imply a ban on plastic waste, but rather clarifies how different types of plastics wastes are to be dealt with within the Convention, either becoming subject or not to the PIC procedure.[188] Certain plastics were added to Annex VIII, thereby presumed to be "hazardous waste" and subject to the PIC procedure.[189] Certain types of plastic waste were included in the Annex IX, to be presumed as non-hazardous and therefore not subject to the PIC procedure.[190] [191] Plastic waste, including mixtures of such waste, that are not covered by either of the mentioned Annexes, was further included in the Annex II that defines "other waste", thereby subject to the PIC procedure.[192]

This means that the scope of the Convention regarding plastic waste is now clearer, making it easier to control movement of such waste. Almost all plastic waste transactions involving Basel Parties that do not qualify as uncontaminated single-polymer waste will be subject to the Treaty

[185] Basel Convention, article 1.1(b) that defines hazardous waste as "(a) Wastes that belong to any category contained in Annex I, unless they do not possess any of the characteristics contained in Annex III; and (b) Wastes that are not covered under paragraph (a) but are defined as, or are considered to be, hazardous wastes by the domestic legislation of the Party of export, import or transit"

[186] The Conference of the Parties to the Basel Convention (2019)

[187] UNEP (n.d.-i)

[188] At their fourteenth meeting, the Conference of the Parties to the Basel Convention also established the Plastic Waste Partnership. This is a voluntary partnership open to all member States, with the objective to "to mobilise business, government, academic and civil society resources, interests and expertise to improve and promote the environmentally sound management (ESM) of plastic waste at the global, regional and national levels and to prevent and minimize its generation". The Partnership has so far elected 23 pilot projects to be implemented by governments the private sector, civil society and the Basel and Stockholm Convention Regional Centers.

[189] Basel Convention, annex VIII, new entry A3210

[190] Basel Convention, annex IX, new entry 3011

[191] Among the plastic waste not subject to the PIC procedure are those almost exclusively consisting of polymers like PET (polyethelene terephthalate), polyethylene and polypropelene, waste alsmost exclusevly consisting of one cured resin or condensation product like urea formaldehyde resins and epoxy resins as well as an arrey of otherwastes almost exclusively consisting of certain polymers, see UNEP (n.d.-c)

[192] Basel Convention, annex II, new Y48

rules applicable to transfers of hazardous waste. Furthermore, the new amendments mean that trade of plastics with non-parties is prohibited, except for where member States establish agreements with non-parties as provided in Annex XI. The Convention further addresses plastic waste by requiring Parties to ensure that the generation of hazardous wastes is kept to a minimum (article 2(a)) and that there are adequate disposal facilities available for the environmentally sound management of hazardous and other wastes. What entails "environmentally sound management" is defined in the Basel Convention article 2.8: "taking all practicable steps to ensure that hazardous wastes or other wastes are managed in a manner which will protect human health and the environment against the adverse effects which may result from such wastes ".[193]

The Basel Convention relies strongly on the Parties establishing their own measures to implement and comply with the Treaty. The PIC procedure is a solid mechanism for monitoring transboundary movements but may not function as intended in practice because of lack of technical, administrative and financial resources in State Parties, particularly the developing State Parties.[194] Furthermore, there are no mechanisms to enforce liability in case of a Party not following the required PIC procedure, thereby being involved in illegal movement or environmentally damaging transfer of waste. The Basel regime lacks monitoring and enforcement mechanisms which may potentially affect States' compliance.

Moreover, the Convention does not require State Parties to adopt uniform domestic definitions of the important terms under the Convention. This means that there could be certain confusion and uncertainty relating to what plastics will be defined as "hazardous waste" versus non-hazardous waste under the Convention. The amendments stipulate that the difference will rely on whether the plastic waste is "almost free from contamination and other types of waste" and consists "almost exclusively" of one polymer or resin.[195] Experience from rules around electric waste in the Convention shows that the linguistic ambiguities may give rise to major challenges relating to the legal clarity of definitions under the Convention, partially because of the voluntary nature of the technical guidelines established under the Convention.[196] This is an important point to make note of for a future plastics treaty. Linguistic ambiguities have the potential to

[193] Further guidance is to be found in the various technical guidelines established under the Convention, UNEP (n.d.-k)

[194] Krueger (1998) p. 123

[195] Basel Convention, Annex II, VIII and IX, supra note 4

[196] Khan (2020) p. 200-205

create uncertainties and may contribute to lessening the success rate of a common objective. In the same line of thought, definitions of what plastic waste is and how the different polymers and types of plastic waste should be addressed and controlled should be a part of the treaty, for example within a technical annex. This would aid the creation and maintenance of a uniform global approach.

The Basel Convention is the most comprehensive international tool to date addressing waste management. However, it offers only a small part of the solution to the plastic problem as it deals with a very limited window of the life cycle of plastics. While it is a solid treaty for its scope, it is fundamentally insufficient to deal with the larger problem at hand.

3.2.2.6 The Stockholm Convention on Persistent Organic Pollutants[197]

The Stockholm Convention on Persistent Organic Pollutants prohibits or restricts the production and use of persistent organic pollutants (POPs), a type of particularly hazardous chemicals, with the objective of protecting human health and the environment.[198] Additionally, the Convention requires that waste consisting of or containing POPs is managed in an environmentally sound matter.[199]

Several of the pollutants listen in the Convention's Annexes are relevant to plastics as they are added to plastic products to give them certain properties. Brominated diphenyl ethers (BDEs) for instance, listed in the Convention's annex A, are added to plastics to make it flame retardant. Polychlorinated biphenyls (PCBs), which are often detected in marine plastic litter at a high concentration due to the adhesive property of plastics are listed in Annex A and C.[200] The Convention thus contributes to sound management of plastic waste that include these chemicals, reducing the chances of potential human and environmental exposure of the regulated chemicals. The reach of the Convention to plastics and plastic waste is however limited to the chemicals that are listed as POPs. Further, the Convention includes some exceptions regarding the

[197] The Stockholm Convention
[198] The Stockholm Convention art. 1
[199] The Stockholm Convention art. 6
[200] UNEP (n.d.-d)

listed chemicals.[201] The Convention has achieved nearly universal participation with its 196 Parties.[202]

3.2.2.7 The Convention on Biological Diversity (CBD)

The Convention of Biological Diversity has an almost universal reach with its 196 Parties.[203] Its aim is to conserve biological diversity.[204] The Convention does not directly mention pollution control, but State Parties have adopted several decisions relating to marine litter as it poses a serious threat to various marine species. These include voluntary practical guidance on preserving biodiversity and habitats (Annex).[205] Pollution was also addressed in the Aichi Biodiversity Targets,[206] but these were widely accepted as not reached by their goal year 2020.[207] Plastic as a pollutant was not mentioned specifically in the targets. The Parties have however recently adopted a Post-2020 Global Biodiversity Framework that include 23 action-oriented targets that Parties undertake in the period until 2030.[208] Under target 7, the Parties are to "Reduce pollution risks and the negative impact of pollution from all sources by 2030, to levels that are not harmful to biodiversity and ecosystem functions and services, considering cumulative effects, including: (…) (c) by preventing, reducing and working towards eliminating plastic pollution." The inclusion of specifically plastic pollution in the Framework illustrates that it has been acknowledged as an important factor in the deterioration of healthy ecosystems. The Frameworks adopted by the Parties are however not legally binding agreements, meaning that it is in practice completely dependent on the ambitions and actions of states.

[201] While the main rule in the Stockholm Convention is that POPs are not to be recycled, recovered, reclaimed or reused, there has been an exception for the BDEs listed in Annex A, allowing State Parties to recycle articles that contain these chemicals until 2030. It was later discovered that BDEs have been detected in products that are not subject to flammability requirements, suggesting that the presence of these chemicals was unintentional. Parties were urged to ensure that BDEs are not introduced into articles in which the presence of these chemicals would pose a risk of human exposure, in particular consumer products such as children's toys.

[202] UNEP (n.d.-j)

[203] Secretariat of the Convention on Biological Diversity (n.d.)

[204] CBD art. 1

[205] The Conference of the Parties to the CBD (2016)

[206] Aichi Biodiversity Targets (2010), Stategic Goal B, Target 8 and Target 10

[207] Secretariat of the Convention on Biological Diversity (2020) p. 4

[208] The Conference of the Parties to the CBD (2022)

3.2.2.8 The Convention on Migratory Species of Wild Animals (The Bonn Convention)

The Bonn Convention aims to facilitate cooperation between states regarding the conservation of migratory species, including marine animals, turtles, fish, and seabirds.[209] Plastics pose serious risks in relation to entanglement and ingestion to a wide range of marine species, including migratory species.[210] Minimizing and managing plastic waste is therefore relevant to the conservation of such species.

The Conference of the Parties to The Convention has adopted several resolutions on the management of marine debris, the first one in 2011.[211] A new resolution was adopted in 2014, in which the Parties underscored the knowledge gaps regarding the impact plastic pollution has on migratory species, encouraged Parties to use standardized mythologies in monitoring programmes and invited measures like levies on single-use bags, deposit refund schemes and obligations for the use of reusable items at events for prevention of debris. It further encouraged Parties to address the issue of abandoned, lost or otherwise discarded fishing gear and underscored the importance of public awareness and education campaigns.[212] Another resolution was subsequently adopted in 2017 to follow up on newly acquired knowledge about plastic debris and its sources, pathways and impacts.[213] It especially sheds light on ghost-gear and microplastics and calls Parties to establish and implement policies, frameworks and measures dealing with waste consistent with circular economy concept as well as cooperate on clean-up actions. The Resolution also invites Parties to incorporate quantitative targets of relevance to marine debris as well proposes an array of measures to implement in partnership with the private sector and civil society, such as deposit refund schemes, extended producer responsibility, phase-out of disposable plastics and microplastics in a variety of products among others.

[209] The Bonn Convention art. II
[210] The Conference of the Parties to the Convention on Migratory Species (2017)
[211] The Conference of the Parties to the Convention on Migratory Species (2011)
[212] The Conference of the Parties to the Convention on Migratory Species (2014)
[213] The Conference of the Parties to the Convention on Migratory Species (2017)

3.2.3 Customary law

Legal obligations and norms may arise from bilateral- or multilateral treaties and agreements, but also through a less direct and motivated process, namely custom. Customary international law consists of rules that come from "state practice generally accepted as law" and exist independent of treaty law.[214] Whether a norm, a rule or a principle has acquired status of a custom obligation, may be difficult to establish. Even more difficult is to pinpoint the precise contents of the rule at any given time as custom is not stagnant, but rather evolves. As identified by Article 38(1)(b) of the Statute of the International Court of Justice, constituting customary international law is "evidence of a general practice accepted as law", meaning state practice and opinio juris.[215] [216]

Principle 21 of the Stockholm Declaration and Principle 2 of the Rio Declaration, expressing the 'no harm' doctrine is widely regarded to have achieved the status of an international customary legal obligation.[217] [218] The doctrine admits that states have sovereignty over their natural resources, as well as a responsibility not to cause transboundary environmental damage, applying to both other states and to areas beyond national jurisdiction.[219] This principle has also been expressed in several environmental cases before international courts and tribunals, the first one of them being the Trail Smelter Arbitration,[220] and later elaborated on by the International Court of Justice in the Gabčíkovo–Nagymaros and Pulp Mills cases.[221]

Relating to pollution, including plastic pollution and its transboundary nature, one may argue that states have a positive responsibility to prevent plastic litter flowing outside of their territory into the oceans or into the territory of other states through different waterways and air. Plastics may be consumed and the waste subsequently disregarded (or enter the environment in another

[214] Alam et al. (2013), p. 17

[215] Statute of the International Court of Justice

[216] Sands and Peel (2018) p. 119

[217] Alam et al. (2013) p. 72

[218] ICJ (1996) p. 22 par 29

[219] Principle 21 Stockholm Declaration

[220] "(…)under the principles of international law, as well as of the law of the United States, no State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein, when the case is of serious consequence and the injury is established by clear and convincing evidence", United States v. Canada p. 1955

[221] Hungary v. Slovakia and Argentina v. Uruguay

matter) in the territory of one state, and then travel across boundaries into the territory of another state. The plastic debris may cause environmental harm in the receiving state, something that could give rise to the argument that the polluting state, by being passive or not diligent enough, is violating the 'no harm' doctrine. According to the 'no harm' doctrine, a state is to prevent, reduce and control the risk of environmental harm to other states, implying a due diligence obligation as expressed by the ICJ in the Pulp Mills case.[222]

Neither principle 21 of the Stockholm Declaration, nor the underlying doctrine itself is however precise enough to outline the exact actions states must take regarding plastic pollution. What exactly is a state obligated to do according to the principle? Is it to not cause "serious consequence" as expressed in the Trail Smelter case? What kind and degree of harm would then constitute "serious consequence" in any particular case? It is therefore likely unfruitful to look for concrete obligations within the doctrine. There is however a strong case for arguing that remaining passive would be violating the 'no harm' doctrine, with potential consequences of liability, although classic issues like establishing causation would likely complicate this.[223] In practice, one sees that the no-harm principle rather provides a normative context to further negotiations between states than a substantive, enforceable rule.[224]

In regard to addressing plastic pollution on a global scale, this could translate into an obligation for states to cooperate with each other to manage plastic pollution in a way that halts the environmental damage it is currently causing and will be causing in the future. Cooperation in itself has been recognized as a "fundamental principle" in international environmental law,[225] contained in Principle 19 of the Rio Declaration.[226] It is widely recognized to be customary international law.[227] What such an obligation entails, in light of a state's sovereign right to act in its own interest and choose to enter or not enter into agreements with other states, is uncertain. It is surely not an obligation of result, but of conduct, much like the due diligence obligation

[222] Argentina v. Uruguay p. 14 para 101

[223] Percival (2010) p. 42

[224] Barrett (2005-a) chapter 5

[225] Ireland v United Kingdom, para 82

[226] «States shall provide prior and timely notification and relevant information to potentially affected States on activities that may have a significant adverse transboundary environmental effect and shall consult with those States at an early stage and in good faith." (Principle 19 of the Rio Declaration)

[227] Craik (2020) p. 10

within the no harm principle. States would not be obligated to join a treaty to manage plastic pollution, but they might be obligated to engage in meaningful negotiations.

The duty of preventative action was declared to be a "principle of general international law" by the arbitral tribunal in the Iron Rhine case and further confirmed by the ICJ in the Pulp Mills. Article 3 of the draft Articles on Prevention of Transboundary Harm from Hazardous Activities (2001) by International Law Commission requires states to "take all appropriate measures to prevent significant transboundary harm or at any event to minimize the risk thereof".[228] Much like the due diligence obligation of preventing harm, the principle of preventative action focuses on the effort, rather than the result.[229] However, this principle potentially obligated states to engage in additional efforts to minimizing damage and risk of damage, applying not only in territories of other states and areas beyond national jurisdiction, but also within own state territory.[230] Action is further to be taken at an early stage, if possible before damage has occurred. In the context of pollution, including plastic pollution, this principle can be understood as an obligation to not only manage existing pollution, e.g., through clean-up efforts, but to actively prevent damaging pollution, as well as the risk of it. For plastic pollution, this would be efforts to avoid plastics ending up in the environment and risking causing harm and damage. While the instinctual first step to addressing this is sound waste management, it is possible that the obligation to prevent damage also entails addressing plastics at an earlier stage in the value chain, because simply addressing waste management is likely not a sustainable solution. Focusing on minimizing consumption and production would be a part of such efforts. Further, it may entail obligations to ban certain types of polymers and additives to plastic products that pose risk of harm and damage if they were to end up in the environment.[231]

As Barrett rightly put it however: "Custom can only give a kind of gentle guidance. It can tell countries that they have an obligation to cooperate and that allocations should be "equitable", but it cannot do much more than this. The remedy for a particular transnational externality must instead be determined by the states affected by it, through negotiation."[232] Addressing complex

[228] International Law Commission (2001)

[229] Sands and Peel (2018) p. 210

[230] Ibid. p. 212

[231] Banning certain chemicals and additives that are connected to potential harm also before entering the environment for instance may also be a apart of the obligation to prevent harm in this context.

[232] Barrett (2005-b), p. 1460

environmental challenges like climate change, biodiversity loss, as well as plastic pollution is better suited through multilateral environmental treaties, than custom.[233]

3.2.4 General principles of international environmental law

There are certain fundamental principles within international law that are general in the sense that they apply to all states and all activities affecting the environment, as confirmed by the arbitral tribunal in the Iron Rhine case.[234] [235] While these principles, much like custom rules, render themselves to be difficult to pinpoint the precise legal status of, some of them are assumed to have gained status of custom. With this follow the difficulties relating to the precise contents and parameters of the principle or the rule.[236]

The principle of state sovereignty and responsibility to not cause harm is a general principle of international environmental law, as well as custom (see above). Several other general principles that are considered fundamental within international environmental law may possibly be of guidance to states in the pursuit of a management solution to plastic pollution.

The precautionary principle is outlined in the Rio Declaration Principle 15, essentially stating that uncertainty and lack of complete scientific knowledge shall not be used as a reason to postpone or not implement measures to prevent environmental harm. This principle is especially important in the context of plastic pollution, where the potential harm and damage to human health, ecosystems and animals is still highly uncertain. Microplastics especially has attracted a lot of attention in the past decade, and while they have been found in animals, even the most remote environments, as well as human blood, the impacts of microplastics are still unknown. While some small-scale laboratory studies have suggested potential disturbances in the balance of hormonal systems,[237] reliable studies on the impacts of microplastics in humans are still non-existent. The precautionary principle demands that in spite of this, states take action and implement measures to prevent potential environmental harm. How extensive such measures should be however would still be up for question as cost-effectiveness is a consideration – costly

[233] Rajamani and Peel (2021)
[234] Belgium v. Netherlands, para 223
[235] Sands and Peel (2018) p. 198
[236] Sands and Peel (2018), p. 198
[237] Darbre (2020)

measures that may prevent minimal harm or serious harm that is unlikely to occur may not be reasonable.

Further, an obligation to carry out environmental impact assessments has been developed within international environmental law and was referred to as a "requirement under general international law" by the ICJ in the Pulp Mills case.[238] A state is to undertake such an assessment "where there is a risk that the proposed industrial activity may have a significant adverse impact in a transboundary context, in particular on a shared resource",[239] making it a prerequisite for an exercised due diligence. It was however noted by the Court that international law did not "specify the scope and content" of an EIA. In a later case, Nicaragua v. Costa Rica, the ICJ noted that this obligation does not only concern industrial activities, but "applies generally to proposed activities which may have a significant adverse impact in a transboundary context."[240] The implications of this obligation in regard to plastic pollution is however not clearcut. A lack of sufficient waste management for instance is likely not a "proposed activity". One could argue that an approval by a state to build a textile factory that may release microplastics into the environment qualifies as a "proposed activity". How thorough such an assessment should be in regard to releases and risks of transboundary harm is not clear.

The above-mentioned principle of cooperation is considered to be another general principle of environmental law, alongside principle of sustainable development, the polluters pays principle and the principle of common but differentiated responsibilities which will be briefly discussed in chapter 4.2. As illustrated, some of these principles can offer valuable guidance in states' approaches and efforts in dealing with the challenge of plastic pollution both unilaterally and in cooperation with the global community. It is however uncertain whether these principles give rise to more general obligations of action, for instance in the individual states' conduct when negotiated a plastics treaty.[241]

[238] Argentina v. Uruguay para 204
[239] Argentina v. Uruguay para 204
[240] Nicaragua v. Costa Rica para 104
[241] Sands and Peel (2018) p. 198

3.2.5 Voluntary international agreements and standards

Along with the binding legal agreements addressing plastic pollution in some way, there is a wide range of voluntary international efforts supporting reduction and elimination of plastic pollution. Among these are the FAO Code of Conduct for Responsible Fisheries,[242] a voluntary code providing standards of good practice for everyone involved with and working in fisheries and aquaculture. The Code prescribes that efforts to protect marine habitats from pollution should be adopted. While the Code is not legally binding in itself, it could become de facto binding for instance through the application of UNCLOS that refers to "internationally agreed rules" in its article 194 (see above). Further, the Honolulu Strategy: A Global Framework for Prevention and Management of Marine debris, developed by UNEP and National Oceanic and Atmospheric Administration (NOAA) is an effort based on goals and strategies optimized to facilitate worldwide cooperation.[243] The three overarching goals of the Honolulu strategy are: (a) Reduced amount and impact of land-based litter and solid waste introduced into the marine environment, (b) Reduced amount and impact of sea-based sources of marine debris including solid waste, lost cargo, ALDFG, and abandoned vessels introduced into the sea and (c) Reduced amount and impact of accumulated marine debris on shorelines, in benthic habitats, and in pelagic waters. These three goals are accompanied by a set of strategies and potential actions to go along with them.

Efforts to unify methods and standards of data collection are developed by, among others, UNEP with its Guidelines on Survey and Monitoring of Marine Litter providing standardized operational guideline for monitoring programmes and marine litter surveys.[244] UNEP's Marine Litter: a Global Challenge provides a number of recommendations for the 13 participating Regional Seas programmes, including the development of a Regional Action Plan or strategy to deal with marine pollution and underlining that mitigation should be global but coordinated at the regional level and implemented at the national level.[245]

The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) established in 1995 is other voluntary efforts supporting management

[242] FAO (1995)
[243] The Honolulu Strategy (2011)
[244] UNEP/IOC Guidelines on Survey and Monitoring of Marine Litter
[245] Marine Litter: A Global Challenge

of plastic pollution.[246] Group of 7 and Group of 20 have also engaged in the issue by adopting action plans addressing marine litter. The Oceans Plastic Charter by G7 and others provides a framework to prevent mismanagement of plastic waste and ensure that design of plastics are made to be recovered, reused and recycled.[247] The charter has been signed by more than 20 countries and 50 businesses and organizations worldwide.

The Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) has supported multiple working groups on various components of plastics and microplastics in the ocean which is managed by the United Nations Educational, Scientific and Cultural Organization-Intergovernmental Oceanographic Commission (UNESCO-IOC) and UNEP. The key objective for the latest working group (2017–2018 period) is to develop guidelines for the terminology and methodologies for sampling and analysis of macro and micro plastics, which has long been identified as a key gap or challenge.[248]

While non-binding, these voluntary agreements provide important support for states, industry and other non-governmental actors. They encourage putting in place or adhering to established standards and enable activities that promote a life cycle approach to managing plastics.

3.2.6 Regional agreements

There are several regional agreements addressing plastic pollution as well. Some of them are designed to tackle plastic pollution specifically, and some may impact plastic pollution indirectly. The objectives of the latter group include preventing, reducing and controlling pollution in the marine environments, like the several Regional Seas Conventions. One of them, and the first one, is the 1976 Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) that aims to "prevent, abate and combat pollution" from ships, aircraft and land-based sources, as well as "protect and enhance the marine environment" in the Mediterranean Sea Area.[249] In 2013, the Mediterranean countries adopted the Regional Plan for Marine Litter Management in the Mediterranean of the Barcelona Convention – the first legally binding regional plan for marine litter management at European

[246] UNEP (n.d.-e)
[247] The Oceans Plastic Charter
[248] GESAMP (n.d.)
[249] Barcelona Convention art. 4

Regional Seas Level.[250] Regional conventions relating to management of waste or hazardous waste, like the Bamako Convention, may impact plastic waste flows as well.[251]

Within the EU, plastic pollution has received a lot of attention and several policy structures, regulations and standards directly aimed at tackling waste and plastic waste are in place. In 2015, the European Commission adopted the Circular Economy Action Plan that established measures covering the entire products lifecycle – from production and consumption, to waste management and market for secondary raw materials.[252] The 2018 EU Plastics Strategy outlined the need for a legislative proposal on single-use plastics.[253] The Single-use Plastics Directive was subsequently passed in 2019.[254] The Directive focuses on ten of the most commonly found plastic items in European coastal areas, including straws, cotton buds and single-use cutlery, and seeks to reduce and ultimately eliminate leakage of these items into the environment. The Directive obligates EU States to ensure that manufacturers, producers, retailer, importers and sellers adhere to the various measures in the Directive. The measures include product bans, design requirements, targets for collection and recycling, EPR obligations and awareness-raising measures. Other Directives that may influence plastic pollution flows are the EU Packaging and packaging Waste Directive,[255] and the EU Port Reception Facility Directive.[256]

Other regional efforts aimed at combating plastic pollution include a Regional Action Plan on Marine Litter management (RAPMaLi) for the wider Caribbean Region.[257] This plan addresses litter issues in the wider Caribbean basin, supported by the UN's Caribbean Environment Programme. Similarly, the Northwest Pacific Action Plan (NOWPAP) contributes to the global action program that aims to protect the marine environment from land-based activities in the Northwest Pacific Region.[258] NOWPAP has developed regional activity centres, including a

[250] UNEP (n.d.-f)

[251] Others include the Bucharest Convention, Helsinki Convention and OSPAR Convention

[252] European Commission (n.d.-a)

[253] European Commission (n.d.-b)

[254] EU Directive 2019/904

[255] EU Directive 94/62/EC

[256] EU Directive 2019/883 on port reception facilities for the delivery of waste from ships sets out measures seeking to ensure that more waste is delivered on shore. Among other things, it requires EU Member States to ensure a fee system in order to ensure a right of delivery without any additional charges based on the volume of waste delivered.

[257] UNEP (2014-b)

[258] UNEP (1994)

coastal environment assessment centre and an emergency preparedness centre to address plastic pollution and other environmental issues within the region.

3.3 Conclusion

As illustrated in this chapter, plastic pollution on a global scale is currently regulated in a highly piecemeal fashion. UNEP has described the current framework managing plastic pollution as "fragmented".[259] Global plastic production is increasing and is estimated to reach a cumulative of 34 billion tons by 2050.[260] In lack of more effective management than is in place today, plastic pollution may increase accordingly, projected to triple by 2040.[261] The existing instruments that address plastic pollution focus mainly on regulation of plastic waste, such as MARPOL and Basel, instead of addressing the issue at an earlier stage of the value chain. This means that the existing and later developed management arrangements will not be able to keep up with the increasing number of plastic products being produced that eventually end up as plastic waste. A circular approach is needed, meaning that new arrangements must control not only waste, but also production and consumption. Managing an environmental challenge by addressing the earlier stages of its value chain is used in the ozone regime for instance.

As shown above, there are already considerable efforts being devoted to regional cooperation that addresses the issue. States are also, with varying vigour and success, implementing unilateral measures to curb plastic pollution. A number of countries such as Ireland, Rwanda, Kenya, Chile have implemented complete bans of plastic bags, several other countries have also introduced complete or partial bans for plastic bags, single uses items and packaging. Germany and Norway both have successful deposit return schemes in place for plastic bottles. Many of the measures have only been implemented in the last few years. As such, it may not be fair to conclude that the current regulation regime is not effective in addressing the issue. It is however worth noting that for transnational environmental problems like plastic pollution, both global and regional cooperation is key. Unilateralism is often considered to not suffice in dealing with externalities because of the states' lacking incentives to act in light of behaviours of other

[259] UNEP (2021) p. 19

[260] UNEP (2021), p. 15, the cumulative plastic production between 1950 and 2017 is estimated to be 9,200 million tons.

[261] UNEP (2021) p. 14

states.[262] As we will see later in this thesis, plastic pollution might have an advantage in terms of getting states to act in face of an externality, because plastic pollution is not a pure externality. It is in states' own interest to curb plastic pollution. Even so, because plastic production, consumption and pollution engage markets on global scale and affects ecosystems across borders, unilateral measures or even regional measures alone are unlikely to be able to solve the problem of plastic pollution. International management, in combination with unilateral and regional management is necessary. It is also important to ensure that unilateral and regional efforts are not negated by continued pollution in other regions.[263]

Other than creating a whole new treaty, there are several possible alternatives to the current regulation arrangement. A new implementation agreement under UNCLOS could be possible, but as already discussed it would likely not have the needed mandate to regulate plastic pollution outside of the marine environment or establish an agreement regulating the whole plastic lifecycle. A new plastics protocol under the London Convention is another option, as it mandates regulation of marine pollution from all sources. However, much like UNCLOS, managing plastic pollution in other ecosystems falls outside the scope of the regime, as would creating an agreement managing the whole lifecycle of plastics.

To be able to regulate plastic pollution through a truly holistic manner, addressing the entire life cycle from design to final treatment, a new agreement mandating this kind of regulation is needed. Admittedly, there is currently no lack of treaties and the treaty congestion one sees in international law, including international environmental law, may be an argument against a whole new treaty managing plastic pollution.[264] However, addressing the problem of plastic pollution under the existing framework would require massive coordination efforts in regards to targets, implementation, monitoring, reporting ad compliance measures.[265] A treaty that addresses all dimensions of the issue, marine- and land based sources as well as chemical control simultaneously is necessary.[266] The issue of plastic pollution, as briefly illustrated in chapter 2, has several attributes that makes it a fairly unique case, calling for an agreement that takes these factors into account. Further, a new agreement should be complimentary to the already existing

[262] Barrett (2005-a) chapter 3.2
[263] Raubenheimer and McIlgorm (2017) p. 2
[264] Sands and Peel (2018) p. 105
[265] UNEP (2017) p. 10
[266] Tessnow-von Wysicki and P. Le Billon (2019) p. 99

regimes as overlapping and at times conflicting legal and policy mandates are a reoccurring theme in international environmental law.[267]

In the next chapter, I will examine the possible options for the architecture and design elements for a new treaty, explore the UNEA mandate for a new legal agreement addressing plastic pollution, as well as discuss different treaty mechanisms to incentivize countries' participation in the plastics treaty.

4 ARCHITECTURE AND DESIGN ELEMENTS

4.1 Introduction

As concluded in the chapter above, plastic pollution on the global scale is currently addressed in a piece-meal fashion, lacking a holistic perspective on the issue and in general applying a linear perspective on managing plastics as a material. Today's governance regime lacks a dedicated treaty and has shown itself to be insufficient in addressing plastic pollution in a satisfactory manner in terms of protecting the environment and humans against various associated risks.[268] The world's nations have decided that a dedicated treaty is the next step in attempting to manage plastic pollution. Plastics are thus one of the few substances that will be afforded its own treaty.[269] This might serve as a point illustrative of the complexity of the issue at hand. As such, now that a global treaty to address plastic pollution is on its way, it is crucial to be mindful of how the agreement will be crafted in order tackle this complex challenge. The research questions I will seek to answer in this chapter are the following:

i. What are the architecture style options for a new plastics treaty?

ii. Is it possible for a treaty to achieve wide participation without sacrificing depth?

[267] Scott (2011)

[268] UNEP (2021) p. 14

[269] International environmental agreements tend to regulate ecosystems (e.g. UNCLOS regulating the marine environment), overarching problems (e.g. UNCCC for climate change), or groups of materials (e.g. Stockholm Convention regulating persistent organic pollutants), rather than one specific material. Mercury is one of the few substances that is regulated in its own dedicated regime, through the Minamata Convention on Mercury.

iii. What are the design elements that may incentivise participation in a new plastics treaty without sacrificing its effectiveness?

The first point that must be addressed when designing the treaty regime is the fundamental order of our international society. Because of the decentralization of authority in the international sphere, states must cooperate to find solutions to transnational environmental problems. State sovereignty renders it impossible for one government or institution to impose obligations on other states that they themselves have not agreed to. Nor is there a world government or a higher authority to enforce an agreement between states. This makes it difficult to deal with transnational externalities in a way prescribed by the Coase theorem.[270] Therefore, there must be a strong enough incentive for a state to join an international agreement, in this thesis referred to as participation incentives. States must subsequently also comply with the agreement's obligations, calling for compliance incentives.

The primary objective of this chapter is to find a way to incentivize states to join a plastics treaty, instead of choosing to free-ride. Free-riding means that a state chooses not to cooperate in the collective endeavour of tackling an environmental challenge by not joining an international agreement, but still being able to reap the benefits of such an agreement. For instance, if a state decides not to join a plastics treaty that requires from its parties to implement various measures aimed at reducing plastic pollution in the world's oceans, including areas beyond national jurisdiction, the state in question may still be able to enjoy the benefits of other states' efforts in the form of there being less plastics in the ocean. This would be the case regardless of whether the state itself has either implemented only unilateral measures, or none at all. Free-riding is attractive because a state is able to enjoy the positive impacts of the commitments and behavioural changes of other states. It is however an issue for treaties that has a goal of reaching a large number of participants.[271] To be able to tackle an issue which most of the world's countries participate in creating, such as plastic pollution, it is essential to attract as broad participation as possible. As will be discussed below though, the innate nature of the issue of plastic

[270] Guzman (2005)

[271] Barrett's theory illustrates that there is a complicated system to deterring free-riding in agreements addressing issues where cooperation would yield great gain. The appeal to free-tide is great, and so is the incentive to punish the free-riders. However, the threat of punishment will harm the punishers themselves, therefore the threat of punishment might not be credible. A threat that is not credible, is little use. See Barrett (2005-a), chapter 7.20, "For a global resource, non-participation by just one country will normally affect all the others very little, making only small punishments credible."

pollution itself may give some incentives for states to join a treaty. Nevertheless, the negotiating states have an array of different options available when it comes to the architecture of the treaty, the design elements and control measures. All of these are elements that may impact states' willingness to join a new treaty.

In this chapter, I will seek to identify viable options for the architecture of a new treaty to address plastic pollution, as well as design elements that may incentivize states to join the treaty. The analysis will be guided by issues that typically arise when one seeks to regulate environmental problems through international agreements, specifically relating to design. The specific features of the issue of plastic pollution, as mapped in chapter 2, will further be used to align the design elements to fit with the specific challenge at hand. I will start off this chapter by briefly exploring the UNEA mandate concluded by the UN Member States in March 2022. The mandate indicates some elements that the new plastic treaty may have and I will specifically explore the mandate's guidelines on architecture, treaty objective national action plans, principles, and circular approach. In doing so, I will also explore the possibilities for implementing these elements in the new plastics treaty.

4.2 Exploring the UNEA mandate

After many years of groundwork by various states and stakeholders, the UN Member States came to a landmark agreement in March 2022 to start negotiating a new agreement to tackle plastic pollution.[272] This was a hugely anticipated and welcome step towards controlling a major polluter of the world's oceans and overall environment. The UNEA Resolution "End plastic pollution: towards an international legally binding instrument", adopted in Nairobi at the fifth session of UNEP set out a mandate to convene an intergovernmental negotiating committee (INC) to begin its work towards "an international legally binding instrument on plastic pollution, including in the marine environment". The ambition is for the work to be concluded by the end of the year 2024. The mandate is not a legally binding agreement between any states but is typically an important guidance in the negotiation process and formulation of a treaty text. The states participating in the negotiations may ultimately choose a differing path regarding any of the elements prescribed in the mandate. It is nevertheless an important starting point for the intergovernmental negotiating committee and thus interesting to examine.

[272] UNEP (2022-a)

4.2.1 Architecture and design

The architecture and design of a treaty can be a contested matter among negotiating states. The reason is that these components may be described as the foundational grounds of a treaty. It will largely impact what kind of obligations, if any, states will subject themselves to. It may be decisive for whether states will want to bind themselves to the treaty, and if so, whether they will then comply with its obligations. Further, architecture and design choices decided upon early in the creation of a convention are difficult to reverse and can have significant and far-reaching implications for the agreement. It is thus essential to afford the subject great consideration when crafting a treaty. When it comes to the nature of the agreement, the mandate calls for a "legally binding instrument". The mandate does not decide what kind of structure and architecture the instrument should have. This means that the negotiating states stand rather free regarding the structure of the treaty. It is thus relevant to explore the options available.

The different ways of structuring an international agreement, the overview of which is not intended to be exhaustive, is what I intend to refer to when I talk about the "architecture" of a treaty. It means the structuring and "organization of the constituent parts of a legally binding instrument that enables those parts to function as a whole".[273] What is meant by "design" of a treaty in a broader meaning in this thesis, is the way in which the agreement is meant to look like on the level "above" the architecture – including the objective, the type and nature of the control measures, the way in which the treaty seeks to alter behaviour (if at all), potential implementation assistance, monitoring mechanisms etc.

The main models of architecture described in the following section are not mutually exclusive and a combination of the features mentioned is possible, as well as other models altogether. Parties can decide upon a framework plus protocol structure, like The Vienna Convention for the Protection of the Ozone Layer. This kind of a convention creates a regime outline and may include some general obligations, objectives that the parties have agreed upon as well as other elements. The specific regulations and measures would be found in the following protocol(s), here the Montreal Protocol on Substances that Deplete the Ozone Layer. Another example of a framework plus protocol treaty structure is The UN Framework Convention on Climate Change

[273] UNEP (2010) para 2

with the following Kyoto Protocol. An important consequence of this kind of structure is that the convention and the protocols must be ratified separately. This can either be a pro or a con depending on the specific issue at hand and the political context. Where the issue at hand requires broad cooperation and will demand significant change is states' behaviours, potentially having major impact on their industries, production and economy, a step-by-step cooperation process may be less threatening. It may be more likely to attract participation in the treaty than an all-or-nothing approach of a single instrument containing obligations that may seem too heavy all at once. A structure with a framework convention supplemented with protocols would also be more flexible in light of evolving science regarding plastic pollution, see chapter 2.

A different option is to adopt a treaty that itself includes substantive control measures – obligations for states to take specific actions or reach specific goals or targets, a so-called specific treaty. One can choose between a treaty that includes all the specifications or a more concise variation with the technical specifications and details in annexes. The convention and the annexes are one integrated part of a whole and do not have be adopted separately. Yet another option is to adopt a so-called umbrella convention. Such a convention is concise in its form, and does not provide substantive measures, but leaves them to be described in affiliated annexes. Finally, countries can opt for a treaty that does not employ protocols or annexes at all, but include all of the control measures as well as the technical details in the main body of the treaty. The latter form is however rarely used, as it can easily lead to unnecessarily long treaties that may be difficult to navigate.

The UNEA mandate does not specify what kind of structure the "international legally binding instrument on plastic pollution" should have. It does however indicate some provisions that the INC is to include in the treaty. For instance, the mandate's para 3 specifies provisions of the type which would facilitate a treaty regime building, such objective of the treaty in letter (a), as well as letters (g) and (h) to "assess" the implementation and effectiveness of the instrument in reaching the objective, "specify" arrangements for assistance in letter (n) and "address" compliance in letter (p).[274] Point 3 does not decide that concrete obligations and measures supporting the objective is to be included in the agreement but decides to "develop" and "promote"

[274] Other provisions are to "promote" sustainable production and consumption of plastics (b), "promote" national and international cooperative measures(c), "promote" research into approaches (o) as well as "encourage" cooperation and coordination (k) and "increase" knowledge.

national action plans. Parties are to "consider" obligations, see para 4 of the mandate. The negotiating states could thus choose to establish a framework convention without concrete measures in the framework body, but rather in following protocols for instance. The mandate decides that the instrument "could" include "both binding and voluntary approaches".[275] This opens the possibility for a specific treaty as well – a treaty with substantive provisions in the treaty body.

Some more guidance regarding the architecture of the new treaty is provided in a document issued prior to the first INC in November 2022 by the UNEP Secretariat, outlining the options for the structure of the plastic treaty.[276] The two broad options proposed in this document were a) a specific treaty and b) a framework treaty. UNEP highlights that a pro of a specific treaty model is the ease with which the parties may adapt to changing circumstances by amending or adjusting annexes or amend the convention body. The main pro of a framework treaty is the fact that the parties may address the issue at hand in an incremental manner, without having to wait for consensus on all appropriate measures. This seems like an especially important factor for a treaty addressing as complex of an issue as plastic pollution that is meant to be concluded after only two years of negotiations. The chances of a large number of parties being able to consent on a specific model treaty with additional annexes within such a tight timeframe seem slim.

However, there is some empirical evidence that treaties designed after a framework model have generated a lesser degree of cooperation than other models of agreements.[277] Others claim that the framework model is the superior way of structuring international environmental agreements, as it may address the challenges with the international legislative process, serving as a catalyst for the further law-making process.[278] [279] Yet others acknowledge that while the framework model can contribute in remedying challenges with fragmentation and enable parties to respond to scientific and technical changes, the model alone will not overcome bigger issues regarding

[275] UNEP (2022-a)
[276] UNEP (2022-b)
[277] Downs et al. (2000)
[278] Bodansky (2010) p. 186
[279] Brunnee and Toope (1997) p. 28

cooperation and political hindrances.[280] As UNEP expressed in its document outlining the options for structure of the plastic treaty, the success of a framework convention is dependent on the parties' willingness to negotiate and adopt subsequent protocols.

Ultimately, while the architecture of the plastics treaty should be carefully considered, it will likely not be the decisive factor for whether the treaty will end up being regarded as successful or not. The type of control measures, design elements regarding implementation, financial and technical support and compliance will likely be of a greater significance. The fact that the mandate calls for a "binding" instrument may however indicate that voluntary approaches, or legally non-binding norms, principles or goals alone may not suffice. This is already implicit in point 3 letter (n) where INC is to "specify" arrangements for assistance – a provision that would bind parties to certain obligations to offer assistance. Whether this would be a substantive or procedural obligation is unclear but would have great significance in how it would be implemented. A substantive obligation would call for a concrete goal or target of the level of assistance that is to be provided, thus making it more clear for states what to expect, both ones that are to offer and receive assistance. A procedural obligation could for instance entail an obligation to provide information on projected levels of finance or technology support/transfer – or a reporting obligation on how much support has been made available in a given period. This way the obligation would not be tied to the providing of the funds itself. It is thus clear that an "empty" treaty only providing non-binding norms, goals and objectives is not an alternative in line with the mandate. However, vague commitments to offer assistance without any facilitation of the further action would in practice pose a risk of empty promises. The same goes for other provisions with ambiguous language that potentially weaken the perceived legal bindingness of a provision, e.g. formulations "as appropriate", "as far as possible" etc.

4.2.2 Objective of the treaty

The objective of a treaty is an important element to consider as it will largely define the mandate and scope of the agreement. It will also guide the interpretation of a treaty, as provided in the Vienna Convention on the Law of the Treaties, article 31.[281] Further, states may not act in a

[280] Winkler (2019)

[281] As illustrated by Jonas and Saunders (2020), the term «object and purpose» used in the VCLT has a somewhat ambiguous definition. This issue will not be discussed here, as the term «objective» is used in a narrower meaning and is understood as the «intention», «goal» or «raison d'être» of the treaty.

way that would «defeat» the «object and purpose» of the treaty after signing the agreement.[282] While some treaties have an article dedicated to specifying the objective(/s) of the instrument, others have no such provisions and the objective can be implicitly inferred from the preamble. The UNEA mandate stipulates that the INC is to «specify the objectives of the instrument», meaning that the plastics treaty likely will include a specific provision dedicated to the (potentially several) objectives. The mandate does not offer guidance as to what these objectives could be, although some direction can be found in the mandate's wording that the INC is to develop an international legally binding instrument «on plastic pollution, including in the marine environment» and that it should be «based on a comprehensive approach that addresses the full cycle of plastic». The mandate also affirms the need to take immediate action "towards the long-term elimination of plastic pollution in marine and other environments, and to avoid detriment from plastic pollution to ecosystems and the human activities dependent on them". It is important that the objective of a new treaty is broad enough to be able to address the issue of plastic pollution in a comprehensive manner, but not so broad as to risk losing its legitimacy among states. A broad-ranging, poorly defined objective may leave parties in doubt about what is expected of them. It may also suggest an overly high price of sovereignty to be given up if a state was to join. While it is the control measures that will determine what exactly is expected from the parties, the objective should be as concrete and realistic as possible as not to leave any doubt about the collective goal to which the parties have agreed to. On the flipside however, the objective should not be so concrete as to seriously limit the scope of the treaty and the potential for a dynamic treaty.

A working document by the INC proposes three possible statements for the objective of the instrument: "(a) End plastic pollution; protect human health and the environment from its adverse effects throughout the life cycle of plastic, (b) Protect human health and the environment from the adverse effects of plastic pollution throughout the life cycle and (c) Reduce the production, use and discharge of plastics across their life cycle, including through the promotion of a circular plastics economy with a view to ending plastic pollution by X year and protecting human health and the environment from its adverse effects."[283] All of these suggestions are fairly concrete, although the final objective would likely benefit from using parts of each of them. Alternative (a) proposes a very specific long-term goal of ending plastic pollution, which

[282] VCLT art. 18

[283] UNEP (2023-b)

provides the treaty with a wide enough scope to implement a variety of measures, a feature that is missing from suggestion (b). Alternative (c) also offers the same long-term goal of ending plastic pollution, but additionally includes a deadline by which the goal should be reached. This is a further concretizing of the goal and may provide a certain sense of urgency, although the suggestion at the same time uses a slightly weaker language: "with a view to ending plastic pollution" as opposed to simply "to end plastic pollution by X year". Suggestion (c) also highlights reduction of "production, use and discharge of plastics across their lifecycle" as the first, and seemingly primary objective, the goal to end plastic pollution following as a consequence, rather than the primary goal itself. The treaty would likely benefit from a specific long-term goal, such as the ending of plastic pollution by a given year as a primary objective, followed by partial goals and actions, such as the reduction of production, use and discharge of plastics across their lifecycle. The language used should however not limit the parties to the actions and partial goals described in the objective in order to facilitate potential further development of a dynamic treaty.

4.2.3 National action plans

Moving forward, the mandate puts great emphasis on national action plans as a core component of the new treaty. The Parties are to "develop, implement and update" national action plans that will reflect the Parties' "country-driven approaches to contribute to the objective of the instrument".[284] This formulation may hint to the instrument establishing a bottom-up type of approach, where it will specify the objective but the manner in which the objective will be reached is up to the contributions that the Parties decide to put forward. Further, the instrument is to "promote national action plans to work towards the prevention, reduction and elimination of plastic pollution, and to support regional and international cooperation".[285]

While this mechanism puts great emphasis on the domestic dimension of addressing the issue, national action plans do not need to be evidence of a treaty that leaves the Parties to their own devices in reaching a general overall objective of the agreement. A treaty could establish a mechanism that binds the Parties to their respective NAPs. The downside of such an approach would be that Parties may potentially be too careful with their ambition level and only commit

[284] UNEP (2022-a)
[285] UNEP (2022-a)

to modest targets and actions. However, if accompanied by specific overall objectives and targets as well as mechanisms aimed to unify and hold Parties accountable, national action plans could prove to be an important and solid measure within the plastics treaty. Some countries have already developed and started implementing national action plans for managing plastic pollution using different approaches,[286] but coordination is needed if they are to serve the collective goal of addressing plastic pollution through a circular approach successfully. Experience from other international environmental agreements shows that affording parties great flexibility in establishing national action plans potentially comes at the expense of comparability. For instance, the CBD requires its Parties to develop National Biodiversity Strategy and Action Plans (NBSAPs) using the Aichi Biodiversity Targets as a flexible reference. However, it failed to specify the targets Parties should use and has thus weakened the comparability of the plans.[287] [288] Under the new Kunming-Montreal Global Biodiversity Framework however, the Parties are to revise and update their NBSAPs ”reflecting, as applicable, all the goals and targets of the Kunming-Montreal Global Biodiversity Framework” in accordance with a template provided in the decision.[289] The Parties have thus taken a step towards standardization of national reports, although the means of verification are still incomplete. Lack of guidelines on how Parties are to design the plans, coordination on measurement units and methods will make the plans difficult to compare and summarize in order to account for overall action and progress. The Paris Agreement requires its Parties to prepare nationally determined contributions (NDCs) for emission cuts and while mechanisms like progression are an important step in holding the Parties accountable, issues have already risen with the Parties turning in contributions using different approaches making comparability difficult. If the national action plans do not use the same types of measurement units and approaches to define targets, it is virtually impossible to create a holistic overview and make predictions. It also makes data collection and analysis more difficult. Thus, flexibility mechanisms to account for national priorities and circumstances like national action plans should be accompanied by mechanisms to ensure progression, transparency, policy coherence and measurability.[290]

[286] E.g., Thailand’s Ministry of Natural resources and Environment (2020), «National Action Plan on Plastic Waste Management 2021–2030» and The Norwegian Ministries (2022) «Norwegian Plastics Strategy»

[287] Conference of the Parties to the Convention on Biological Diversity (2010)

[288] Rubenheimer and Urho (2020) p. 66, 67

[289] Conference of the Parties to the Convention on Biological Diversity (2022) nr. 6, 7 and Annex I

[290] Rubenheimer and Urho (2020) p. 70

Although the mandate is not legally binding, national action plans will likely have a role in the new plastics treaty as it can be a useful instrument for the Parties to assess their status on the issue, capabilities and priorities. National action plans could however be combined with other types of management styles. Combining national action plans, whether they would be binding or not, with other models of mechanisms and control measures could make for a convention that is able to address the issue at hand in a successful manner while leaving some autonomy for the Parties as well. The mechanism of national action plans may for instance be combined with collective goals or targets, utilizing so called incentive mechanisms to encourage states to reach them. This approach allows actors to choose how to reach targets and goals and do it in an effective matter that maximizes the benefits (/minimizes costs). The treaty could for instance provide targets relating to degree of recycling of plastics consumed but leaving the specific control measures up to the Parties.[291] An approach moving further away from a "top-down" model would be to formulate the goals in even more general terms such as to "implement sound waste management" or even more flexible goal of "eliminating plastic waste flows into the environment" and leaving the concrete measures up to the Parties, potentially providing a menu of regulatory options, like the Minamata Convention on Mercury. A somewhat different approach using targets and goals would be to negotiate differentiated goals and targets, although this might be challenging for states to agree upon.

Another type of measures are the so-called command-and-control measures that require actors to take specific actions. An example of an environmental agreement which incorporates command-and-control measures is MARPOL with its requirement for oil tankers to be equipped with segregated ballast tanks. A somewhat similar mechanism of requiring countries to implement certain design standards for plastic products has been suggested by UNEP, expressing that "agreed measures on product design would reduce the challenges of managing plastic waste, which often occurs in a region other than where the products were designed."[292] These types of measures leave less flexibility to the parties but can be combined with national action plans. The treaty could for example provide a design standard requirement or require a ban on certain plastic products, polymers and additive combinations, and parties could themselves supplement

[291] Recycling contributes to turning plastic waste into a resource, making it possible to use it again, and is thus an important component of the plastics circular economy model, although not ale sufficient to deal with the issue of plastic pollution, see Ellen Macarthur Foundation (n.d.-a)

[292] UNEP (2022-b)

this with binding or non-binding targets, for instance relating to the degree of recycled plastics used in plastic products.

4.2.4 Principles

The mandate refers to the principles of the Rio Declaration on Environmental and Development,[293] both reaffirming the Rio Principles and calling for the instrument to "take into account" the principles as well as "national circumstances and capabilities".[294] The Rio Declaration, adopted by 178 UN Member States in 1992, represents a "series of compromises between developed and developing countries and a balance between the objectives of environmental protection and economic growth".[295] It endorses 27 principles recognizing the indivisibility of humans and the Earth. The principles acknowledge the centrality of human beings to the concerns of sustainable development (principle 1), the sovereign right of states to exploit their natural resources, although limited by the responsibility to not cause damage to the environment of other states (principle 2), as well as the right to sustainable development (principle 3), with environmental protection as an integral part of such a process (principle 4). Principle 8 encourages elimination of "unsustainable patterns of production and consumption", a focal point in developing a management arrangement using a circular approach (see below).

Principle 7 in the Rio Declaration underscores that States have "common but differentiated responsibilities" when it comes to conserving, protecting, and restoring the health and integrity of the Earth's ecosystem. "Common" implies that the responsibility is shared by every State, while "differentiated" underscores that not all countries shall contribute equally. The principle crystallised provisions in earlier agreements that encouraged and incentivized universal participation and cooperation by using differentiated standards and grace periods as well as financial mechanisms to aid covering some of the costs incurred by implementing treaty obligations.[296] Already twenty years earlier, The Stockholm Declaration (1972) endorsed "taking into account the circumstances and particular requirements of developing countries and any costs which may emanate from incorporating environmental safeguards into their development planning and the

[293] The Rio Declaration (1992)
[294] UNEP (2022-a) para 3
[295] Sands and Peel (2018) p. 41
[296]Sands and Peel (2018) p. 43

need for making available to them, upon their request additional technical and financial assistance for this purpose."[297]

Traditionally, CBDR has especially had a role within the climate change management sphere as the contributions to the global greenhouse gas emissions historically have been uneven between "developed" and "developing" States.[298] The UNFCCC was the first multilateral environmental agreement that included the CBDR principle unambiguously in those words, article 3(1) providing that "[t]he Parties should protect the climate system (…) on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities". The principle thus charges developed nations with more responsibility as they historically have had a higher impact on the environment due to processes of industrialisation and having greater financial and technological capacity. The notion of differentiation was truly embraced by the Kyoto Protocol that did not include any obligations for developing countries (or more precisely non Annex I countries) to reduce their emissions, arguably at the expense of the "common responsibility"-part of CBDR. What is more, the implementation of obligations by developing countries has in some agreements made contingent by the developing countries providing financial resources to support this.[299]

It is thus interesting to consider how CBDR is relevant in the case of plastic pollution. Both developing and developed countries contribute to plastic pollution of the environment, though in different ways. While production and consumption of plastics per capita is greater in developed countries,[300] the direct discharge of plastic waste into the environment is greater in developing nations,[301] each of them thus contributing to the issue in different ways.[302] High-income countries have and still are exporting parts of their plastic waste to mid-and low- income countries with poor waste management infrastructure leading to high levels of mismanaged waste.[303] Thus there is a historical dimension to plastic pollution that may be relevant for the CBDR principle as well.

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[297] The Stockholm Declaration (1972)

[298] UNFCCC Preamble

[299] UNFCCC art. 4 nr. 7

[300] Two-thirds of the world's plastics are consumed within OECD countries and China, see OECD (2022)

[301] Meijer et al. (2021) estimates that as much as up to 80% of plastic waste emitted into the ocean comes from Asia, on the top of the list being Philippines, Malaysia and Sri Lanka (Ritchie and Roser (2018))

[302] Ritchie and Roser (2018)

[303] Ritchie (2022)

The CBDR principle is however not exclusively intended to acknowledge the historic aspect of an issue – this is just one part of the principle. The current situation of an issue and a state's capabilities and circumstances are also key factors within the principle. Illustrative of this are the privileges UNCLOS grants to developing and fish-dependent nations due to geographical and economic differences between countries.[304] The UNEA mandate references "national circumstances and capabilities", a formulation likely borrowed from the phrase "common but differentiated responsibilities and respective capabilities, in light of different national circumstances", first adapted in the Paris Agreement to symbolize the shift from a purely historic perspective on emissions, to a perspective considering current situation as well.[305] [306] The formulation may likely be used to draw focus away from the ever-contested part of the CBDR principle, which is the historic dimension of it and aimed to draw attention to the current situation. This is extremely important for being able to manage plastic pollution on a global scale as not only does the issue of plastic pollution manifests in different ways across the globe, the capacities and priorities of the world's nations are widely differing.

The UNEA Mandate further implicitly acknowledges the CBDR principle by "recognizing that the effective implementation of some legal obligations under the instrument will depend on the availability of capacity-building and adequate financial and technical assistance".[307] However, making the obligation to implement the treaty by developing countries dependent on financial aid provided by developed countries has the potential to create a gridlock and hinder the important notion of a "common" responsibility. This is especially important because the whole dichotomy of "developed" and "developing" countries is currently contested as well, being that many states that were considered developing or economies in transition have experienced substantial growth in the last two decades. While the above quoted part of the Mandate does not refer to "developed" and "developing" countries, the Mandate does acknowledge this dichotomy in its para 2., stating that "some legal obligations arising out of a new international legally binding instrument will require capacity-building and technical and financial assistance in order to be effectively implemented by developing countries and countries with economies in transi-

[304] UNCLOS art. 69, 70

[305] The Paris Agreement (2015) Preamble, article 2 para 2., article 4 para 3.

[306] Voigt and Ferreiera (2016) p. 66

[307] UNEP (2022-a) point 3 (n)

tion“. While this dichotomy may be difficult to leave behind, the notion of the ”common” responsibility to tackle this issue should be the main focus. Making some countries’ legal obligations dependent on other countries’ willingness to provide assistance may not serve the goal of an effective treaty. This is not to say that financial assistance and technology transfers should not be a part of the treaty, on the contrary. The importance of financial assistance and technology transfer as a form of implementation assistance will be discussed below. If such dependence is established, the developed countries’ obligations to provide assistance should be specified and outlined in order to avoid unnecessary stagnation in implementing the treaties provisions.

Differentiation can also be done in many other ways, depending on the types of control measures the treaty implements. For instance, the Montreal Protocol grants developing states more time to implement the phase out of CFCs.[308] If certain additives or combinations of polymers were to be prohibited in the plastics treaty, a certain grace period could be granted to developing countries. The 1990 Amendment to the Montreal Protocol created a Multilateral Fund for the Implementation of the Montreal Protocol, an option that would likely be suitable for the plastics treaty as well.[309] Taking into account national circumstances also includes taking into account the specific issues a state is facing in regard to the environmental challenge. As discussed above, different countries are struggling with different aspects of plastic pollution. Taking these differences into account is thus an important part of “national circumstances and capabilities”. A new treaty model that has the potential to address these differences on a regional level will be proposed and discussed below. This management model would further fit into the development towards more tailored and nuanced differentiation that Rajamani and Peel (2021) point out as desired, rather than one based on the well-known yet contested dichotomy of ”developed” and ”developing” countries.[310]

The Rio Declaration is not a binding treaty, and the Rio Principles are thus not legally binding. Some of the principles are however considered custom and some represent emerging customary rules. The main objective of the Declaration and Principles is to “provide guidance as to future legal development”.[311] The inclusion of a reference to the Rio Principles is rather standard for environmental treaties and mandates for treaties and was thus a natural point to include in the

[308] Montreal Protocol art. 5
[309] The London Amendment (1990) art. 10
[310] Rajamani and Peel (2021) p. 17
[311] Sands and Peel (2018) p. 41

UNEA Mandate for the plastics treaty, especially as plastic pollution is an issue caused by anthropogenic action and has several dimensions parallel with economic development. It is however important that the plastics treaty utilizes the principle of CBDR and ”national circumstances and capabilities” in a way that focuses on cooperation, ”common” responsibility and finding solutions that fit the different challenges that counties are facing. Focusing exclusively on what other states should be doing and making implementation or compliance conditional on other states' behaviour could lead the negotiations down an unfortunate path.

4.2.5 Life cycle approach

The mandate highlights the need for the instrument to be based on a “comprehensive approach that addressed the full life cycle of plastics”. This sentiment is in line with the recent change of perspective regarding plastic waste – going from a traditional linear approach of “take, make, waste” to what is called a circular / life cycle approach.[312] Whereas the linear approach views waste as the final stage of the life cycle of plastics and the measures intended to deal with pollution are focused on this final stage (such as waste management), the concept of circularity is focused on reuse, recycling, remanufacturing of the materials, ultimately eliminating waste and pollution. The manner in which the design, production, consumption and waste management of plastics have been conducted since the start of its mass production in the late 1950s has been driven by a linear approach. With around 6300 billion tons of plastic produced in total, only a fracture, around 9 per cent, is estimated to have been recycled.[313] The overwhelming majority of plastics is disregarded in landfills, rivers or incinerated. This means that in order to achieve a circular economy for plastics, a complete turnaround in how we think of this incredibly versatile and useful material in needed.[314]

The mandate calls for the new instrument to “promote sustainable production and consumption of plastics through, among other things, product design and environmentally sound waste management, including through resource efficiency and circular economy approaches”.[315] The language here, calling for promotion, does not require any kind of obligation or enforcement relating to the concepts lined up. Promotion can thus be done in several ways. The instrument

[312] Ellen Macarthur Foundation (n.d.-b)
[313] Gayer et al. (2017)
[314] Ellen Macarthur Foundation (n.d.-b)
[315] UNEP (2022-a) nr. 3.(b)

could do this through provisions of weaker legal status by using less committal language, for instance ”welcoming” or ”encouraging” states to take measures towards sustainable production and consumption. Alternatively, the instrument could include provisions of stronger legal status by using language implying binding obligations, such as deciding that states ”shall as far as possible” take measures developing these approaches. Promotion could also include mechanisms facilitating the move towards sustainable production and consumption through technology transfers, financial and technological assistance as well as research and development of knowledge for best practices and such.[316]

The circular economy concept has been around for decades and is concerned with keeping resources within the economy, creating a closed-loop system in order to prevent or greatly reduce waste. What is more, in practice, the circular approach was the dominant model until the end of 19th century – humans were concerned with resources, that were scarce, being used and subsequently reused or left to decay naturally. “Rags were reused to make paper, manure and sewage became fertilizer, animal bones had numerous uses, in glues and smelling salts or for whitening beet sugar, fats were used in candle making, and so on.”[317] It was the industrial revolution, by generating cheap energy and making it possible to exploit raw materials efficiently and cheaply, that allowed humans to view materials and things as more easily accessible and in fact not scarce. A linear approach became more common for producers and the regular consumer. However, with economic shifts caused by wars, environmental issues and others, a different approach to the linear one was sought out. While circular efforts can be found all over the globe throughout the 20th century, circular economy is considered to have been truly defined in the 1970s by several contributors, including Walter Stahel, as well as John T. Lyle. Considered the father of circular economy by some, Stahel explains that ”The linear model turned services into products that can be sold, but this throughput approach is a wasteful one. [...] In the past, reuse and service-life extension were often strategies in situations of scarcity or poverty and led to products of inferior quality. Today, they are signs of good resource husbandry and smart management”.[318]

[316] Sustainable consumption and production is defined as “the use of services and related products, which respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of future generations” (Ofstad et al. (1994))

[317] Aggeri (2021) p. 10 - 13

[318] The Ellen MacArthur Foundation (2013)

Circular economy is driven by three principles, as described by the UNEP circularity platform: (1) eliminating waste and pollution, (2) circulating products and materials at their highest value and (3) regeneration of nature.[319] The circular approach highlights the importance of the design phase in order to move towards these principles, meaning that the way in which we design and produce plastic products is a critically decisive factor for the rest of the products lifetime. It has been estimated that up to 80% of a products environmental impact is determined already during the design phase.[320] Manufacturing products that are easy to collect and recycle is an important step in a sustainable production, as is elimination of problematic and unnecessary plastic products, including toxic additives.[321] This relates strongly to all three of the principles driving the circular economy concept. Further, environmentally sound waste management is important to address in order to make sure that firstly, as little waste as possible is produced, and the secondly, that the waste produced is handled in an environmentally sound manner.[322] This is a crucial point because as some have suggested, existing mitigation measures that may be effective in proportionally reducing the discharge of plastic waste into the environmental, are not sufficient at dealing with the overall pollution problem in light of the ever-increasing amount of plastics produced, ultimately leading to more plastic litter that is at risk of entering the environment.

The mandate calls for the instrument to "promote" sustainable production and consumption. This is a somewhat ambiguous formulation that may only lead to the instrument acknowledging the need for sustainable production and consumption, or possibly encouraging the states to strive towards it. The states do however have a lot of room to potentially choose to include more stringent measures, as well as facilitative mechanisms. The mandate calling for the instrument to be based "on a comprehensive approach" however may imply that at least parts, if not the whole circular approach would be incorporated in the treaty.

[319] Ellen Macarthur Foundation (n.d.-c)

[320] European Commission (n.d.-a)

[321] UNEP (n.d.-g)

[322] Mismanaged waste is the number one source of plastic pollution, OECD (2022) p. 14

4.3 Free riding and participation incentives

When an environmental challenge has proved itself to be difficult to tackle through purely unilateral measures, like plastic pollution, cooperative approaches may be suitable to apply. This is especially relevant for challenges that have transnational dimensions to them, like plastic pollution. Achieving cooperation in solving an environmental problem may however not be simple. As described above, by being self-governing entities, countries cannot be made to cooperate. Through their leaders, they have to agree to join treaties themselves.[323] Cooperation does not only entail joining a treaty – countries must also decide to adhere to the potential obligations that a treaty sets forth – they must choose to comply. While this thesis largely focuses on cooperation through joining treaties, incentives to cooperate may affect both participation and compliance.[324] It is argued that participation should in fact be the main focus of any treaty negotiation, simply because participation may be harder to achieve than compliance, as it requires more substantial punishments that in turn are less credible. [325] "A treaty that sustains real cooperation must deter non-compliance and non-participation. The latter is harder to achieve; it requires more substantial punishments, and these will generally be less credible. Participation should therefore be a main focus of any treaty negotiation."[326]

Scientific theory which explores mechanisms of our global society does not provide simple answers on why countries may decide to cooperate or not. Most theories base their models on the assumption that countries largely follow the basic prerequisite of economic theory – being rational actors who will act in the way that will lead to the greatest benefit.[327] Other reasons like the notion of some kind of moral obligation, doing "the right thing" or not wanting to be an outsider are explored in theory as well, but will not be addressed in this thesis.[328] Instead, measures to avoid free-riding and incentivize participation in treaties will be explored largely

[323] Joining a treaty typically involves these two steps: signing the treaty, which expresses the consent of the negotiated text of the treaty and subsequently ratifying the treaty, which makes the treaty legally binding for the respective country and obligates it to implement its provisions. The former step however also creates an obligation for the state to refrain from acts that would defeat the objective and purpose of the treaty, see the Vienna Convention on the Law of Treaties (1969) art. 18 (a). In this thesis, the referral to "joining" or "participating" in a treaty will not distinguish between these two stages.

[324] Schmidt (1998)

[325] Barrett (2005-a) chapter 14

[326] Barrett (2005-a) chapter 14

[327] Rajamani and Peel (2021) p. 406

[328] Rajamani and Peel (2021) p. 407

based on theory assuming that countries will act in a way that benefits them in the greatest way. This in itself is not a simple concept to grasp. A ”benefit” for a country may not only be a relatively short termed economic benefit – cooperating in order to keep up a friendly relationship with other countries that may benefit the country in other fields or later along the line is likely one of many types of strategic behaviour utilized by the world’s leaders.[329]

4.3.1 Deep and narrow vs. shallow and broad treaties

As noted above, free-riding is important to avoid in order to ensure a broad cooperation between the world’s nations. When broad participation is the goalpost, it is appropriate to ask just how far states should go in order to facilitate this. Literature on international law talks about there being a trade-off between depth of cooperation and participation.[330] This means that there might be a critical choice states have to make between achieving a treaty with broad participation that is shallow/soft in its substantive obligations and a treaty that commit states to deeper/harder obligations but achieve less participation. Downs et al. (2000) presents an example of the former by referring to an international environmental agreement for the Mediterranean area, explaining that: “The Mediterranean Plan achieved consensus by eliminating any meaningful restrictions on dumping and providing no enforcement mechanism for those minimal targets and restrictions that were agreed to. As a result, it has been an embarrassing failure.”[331]

To clarify, participation in a treaty here means ratification, not pure participation in negotiations. A “hard” or “deep” treaty refers to a treaty that imposes unambiguous legally binding obligations on states, requiring them to reach specific targets or take specific actions in order to reach the treaties’ objective, potentially with monitoring and/or non-compliance mechanisms in place. A “soft” or “shallow” treaty on the other hand may offer less stringent obligations or perhaps only norms, principles and goals that are not legally binding, looser or no monitoring and ambiguous or no compliance mechanisms.

One might assume that a treaty imposing hard obligations and leaving less room for vagueness and unambiguity seems favourable to states in their endeavour to tackle a certain challenge. But

[329] Rajamani and Peel (2021) p. 406

[330] See Bernauer et al. (2013) and Rajamani and Peel (2021) p. 416

[331] Downs et al. (1996) p. 396

such treaty obligations impose implementation costs, as well as potential credibility and reputation costs if the country fails to comply with its obligations, factors that may act as a deterrent. If a treaty contains enforceable monitoring and non-compliance mechanisms, there is a risk of countries viewing it as giving up a part of their sovereignty, flexibility, and autonomy.[332] Therefore, states may be more hesitant to ratify agreements that set forth clear and stringent legally binding commitments. This may be especially true for states whose behaviour and plans for future behaviour are less in line with the treaty's objectives and demands. On the other hand, "softer", less clear obligations that are not formulated in a way to indicate a legally binding commitment may appeal even to states whose behaviour is not in line with the treaty's objective and goal.[333] There may be many reasons why a state would want to ratify a "soft" treaty that it has little intentions on faithfully acting in accordance with. It may see it as an opportunity to receive reputational benefits for little cost, for instance.

There are varying opinions regarding which of the two options is preferable for international environmental treaties. While Downs et al. (1996) assumes that it may actually be more beneficial to aim for a lower but deeper cooperation,[334] and shows to both Montreal Protocol and MARPOL as examples of successful treaties that started off without universal membership, Barrett argues that broad but shallow treaties are in many cases preferable to narrow and deep.[335] As shown above in chapter 2, the transformational tpproach points to broad participation as one of the fundamentally important elements of a new treaty.[336]

Interestingly enough however, Bernauer et al. (2013) have found that there is no empirical evidence to support the assumption that deeper treaties with harder substantive measures equal a lesser level of participation.[337] It is obvious that involving a great number of states in negotiations and the process of developing a new treaty may entail difficulty in reaching consensus or compromises. However, Bernauer et al.'s research leads us to the conclusion that to achieve the goal of deterring free-riding by reaching a high degree of participation, it is not obvious that one has to sacrifice more stringent legally binding provisions, monitoring and compliance-

[332] Bernauer et al. (2013) p. 12, 13

[333] Von Stein (2008) p. 248

[334] Downs et al. (1996) p. 399

[335] Downs et al. (1996) p. 399

[336] Downs et al. (2000) s. 502

[337] Bernauer et al. (2013) researched how various design components in 200 international environmental treaties affected the rate of ratification.

mechanisms. A strategic choice of designing a treaty with less stringent measures, counting on the fact of it attracting a higher level of ratifications may be futile.

4.3.2 Free-riding as a challenge for the plastics treaty

Free-riding is an issue for treaties that have a goal of reaching a large number of participants, as a contrast to treaties that wish to deter participation.[338] For tackling an issue like plastic pollution in which most of the world's countries are participating in the creation of and where the aim of a treaty is to supply a public good, i.e. environment free from plastic pollution, it is essential to attract as broad participation as possible. It is further argued that participation should be the main focus of a treaty negotiation as it may be harder to achieve than compliance.[339]

In order to avoid countries free-riding, the necessary elements to incentivize participation in a treaty need to be identified. Participation can be promoted through various design elements that for instance lower the costs of participation or raise the costs of non-participation.[340] Barrett (2005-a) talks about self-enforcing treaties – a term he uses to describe treaties with elements that incentivize countries to participate (and comply), rather than free-ride. Barrett (2005-a) outlines three main characteristics that a treaty needs to be self-enforcing; it must be individually rational, collectively rational, as well as "fair".[341]

Individual rationality, he explains, is made necessary by the fact of state sovereignty. Since a state may choose whether to join a treaty or not, and comply with it or not, the "right choice" of joining and complying has to be a rational one to the state. A state should not gain by withdrawing or by not complying. Furthermore, the threat of punishment for deviations (withdrawals/non-participation) has to be credible. Collective rationality entails that parties may not gain collectively by changing the treaty. This does not mean that the goal is a stiff, non-dynamic treaty, on the contrary. Collective rationality aims to avoid a renegotiation of the treaty by the community of states because they might see the aggregate gain increase with renegotiation.

[338] E.g. treaties intended to manage common property resources, such as the fur seals managed by the North Pacific Fur Seal Treaty (1911)

[339] Barrett (2005-a) chapter 14

[340] Barrett (2005-a) chapter 14

[341] Barrett (2005-a) Preface and Acknowledgements

Aggregate gain for the community of states does not necessarily mean that the objective of a treaty is reached to a greater extent or more effectively. It might on the contrary entail weaker commitments for parties in exchange for a larger pay out of some sorts. The treaty must also be "fair". Barrett (2005-a) explains this as the parties perceiving the treaty as legitimate.[342] What elements need to be present within a treaty, as well as within the negotiations and conclusion of a treaty to be legitimate will not be discussed in detail here.

While free-riding is a significant challenge in global environmental management, it is worth considering the elements of plastic pollution that may impact this challenge in negotiations of an international agreement to address this particular issue. In the following section, a new management model will be proposed for the global plastics treaty that, while somewhat unusual, may have an array of benefits for addressing the challenge of plastic pollution.

While plastic pollution is a transnational issue in several ways, as it was concluded in chapter 2, it also has a significant local and regional dimension to it. This is a feature of the issue that is important to consider and exploit as it may create incentives for states to take action and cooperate in a broader degree than regarding other environmental challenges. Accumulation of plastic pollution is very much so influenced by where the plastic waste discharge into the environment takes place. While plastic waste flows on the global scale are still uncertain, we do know that countries that struggle with managing waste, including plastic waste, and discharge it into their waterways and dumpsites, suffer greatly with river pollution and plastic litter washing up on the beaches.[343] Merely depending on other countries doing their part, even if this includes clean-up of areas beyond national jurisdiction, will not be sufficient to solve the challenges faced by countries that pollute themselves. The incentive to free-ride on efforts to tackle plastic pollution may thus be lesser than for other environmental issues where the free-rider issue is prominent, like emissions of greenhouse gases. Countries are thus dependent on implementing management measures themselves, be that waste management or others, depending on the special national challenges faced by the respective country. Incentives to join and bind themselves to a multilateral treaty, instead of simply implementing unilateral measures, will be discussed below.

[342] Ibid.

[343] Schachter (2022) p. 2

Extending on the previous point, the fact that different nations and regions face different challenges in dealing with plastic pollution, as well as have widely different starting points, makes it relevant to consider how this can be addressed within an international legal agreement.[344] One option is of course to give parties great flexibility in implementing measures that they see fitting because, as the UNEA mandate states, countries know their national circumstances best themselves. The treaty itself could for instance give overall targets to be reached but leave the concrete measures up to the Parties, likely combined with an accountability measures like national action plans and monitoring. However, this approach may afford too much flexibility to Parties, and fail to utilize the regional dimension of the issue. As it happens, many countries that deal with the same type of challenges regarding plastic pollution are found in the same regions. The global scale of the issue further ensures that the challenges each country is dealing with likely are the same or at least very similar to the challenges one or several other countries deal with. Looking for solution in a cooperative manner may thus be more resource efficient. Encouraging cooperation should be a focal point of the global treaty. It is however interesting to consider whether a more integrated cooperative approach would be possible and desirable to implement.

Countries could negotiate an overarching multilateral treaty that addresses plastic pollution on a global scale, as the UNEA Mandate calls for. The treaty may including objectives, definitions, collective overall targets and measures that benefit from being implemented on a global level, such as potential bans on hazardous chemicals in plastics and bans on mixing many polymers and additives in products that make them harder to recycle, managing pollution in areas beyond national jurisdiction as well as financial mechanisms. The treaty could further create a second regulation level within the global agreement, consisting of regional hubs of countries that have similar challenges and would benefit from closer cooperation. This would enable implementation of measures that are fitting for a smaller scale than global, encourage and enable cooperation as well as accountability. It would also provide a layer of process-based legitimacy to the agreement,[345] and thus aid countries, especially smaller island states and developing countries, in being able to consider their circumstances and assess their priorities. Countries may be more likely to comply with measures they themselves have agreed upon with others in similar situations instead of being potentially overrun by more powerful and influential countries. Compliance is more likely to occur if Parties feel as they have had a say in the obligations they are

[344] PEW Charitable Trusts and SystemIQ (2020) p. 11

[345] Bodansky (1999) p. 603

committed to. Knowing that there is a real possibility to address and prioritize specific issues the states are struggling with may also impact the desire to join a treaty. The notion of surrendering some autonomy may not seem as drastic. While not a completely new model, this is an unusual approach in international environmental conventions. The UNEP Regional Seas Programme with its Regional Seas Conventions is based on a somewhat similar thought – to utilize the regional dimension of conserving the marine and coastal environment.[346] The model proposed here however, seeks to integrate the regional cooperation with the global, creating a layered governance structure. Promoting and facilitating regional cooperation within a global treaty would make it possible to benefit from the global dimension of the treaty, e.g. potential financial assistance and technological transfers. Further, it would ensure that the issue of plastic pollution is dealt with in a more unified manner than if regional cooperation was relied upon without the global dimension of the treaty. The global layer of the treaty will also serve to address challenges related to areas beyond national jurisdiction. It will be easier to address plastic pollution through a circular approach if most of the participants and their special challenges can be viewed under one lens, applying a holistic perspective of the issue.

4.3.3 Participation incentives

A treaty addressing plastic pollution might not suffer as much from the free-rider problem as treaties addressing climate change for instance, because of the local and regional dimension of the issue. Nevertheless, the plastics treaty will need to include some participation incentives as countries may also choose to simply implement unilateral measures to a degree that they think is sufficient to manage the issue locally. Literature in international environmental law concerned with participation in treaties tend to highlight the above discussed depth/strength dichotomy. It is argued that design elements limiting a treaties' strength and stringency are used to encourage participation, such as flexible commitments, reservations, opt-out clauses and others. As shown above however, the treaty's depth does not necessarily have to be compromised on in order to achieve wide participation. This thesis is therefore mostly concerned with design elements that encourage participation without necessarily sacrificing depth.

[346] UNEP (n.d.-h)

A management model within the treaty that establishes certain privileges for parties would create an incentive for states to join the agreement. A privilege should create some kind of a benefit, a way in which the parties would regard it to be individually rational to join, rather than free-ride.

4.3.3.1 Implementation assistance

A mechanism that is considered important in order to incentivize participation, especially in light of countries enjoying differing levels of capabilities and capacities, is financial assistance, especially in the form of implementation assistance. Implementation assistance is a widely used element in environmental treaties as a participation incentive, especially aimed at incentivizing developing countries to join international agreements.[347] Joining a treaty, ratifying it and implementing its control measures may be rather costly for a country. For instance, developing and implementing national action plans would require resources, meaning a Party would have to allocate some of its budget to this. In order to make sure that countries who may not have the means necessary to join and implement a treaty are not hindered to join by financial obstacles, assistance can be provided. This is key for treaties with a goal of achieving wide participation, like the plastics treaty.

Implementation assistance can be provided by developed countries to developing countries to cover the costs incurred that are directly related to implementation of the treaty. We find this kind of mechanism in many environmental agreements, including the Montreal Protocol. The Montreal Protocol was the first multilateral environmental agreement that introduced these types of financial incentives, considered radical at the time.[348] The financial mechanism in the Montreal Protocol which was added by the 1990 Amendments is almost compensatory in nature and provides financial assistance by meeting "all agreed incremental costs" to the relevant Parties.[349] The Protocol also established the Montreal Multilateral Fund that finances projects relating to institutional strengthening and technical assistance in order to meet the incremental costs incurred by developing countries in implementing the Protocol which requires that states move towards more ozone-friendly technologies and phase out ozone-depleting substances. The

[347] E.g. UNFCCC (1992), art. 3.1; CBD (1992) art. 18.2 and 19.2; Convention to Combat Desertification (1994), art. 5(a) and 6(b); Kyoto Protocol (1997), art 10; Stockholm Convention (2001), art 13.

[348] Sands and Peel (2018) p. 288

[349] The London Amendment (1990) art. 10 (1)

Fund was a successful tool to persuade China and India to join the Montreal Protocol.[350] Establishing a fund that provides financial aid to countries enabling them to implement national legislation relating to the treaties' objectives may be an important step, regardless of whether the treaty includes concrete control measures or applies a more general management model of providing overall targets and goals.[351] The Parties could alternatively agree to entrust the Global Environmental Fund (GEF) to be the operational entity of the financial mechanism within the treaty. The latter option would allow for synergies between plastic pollution and other types of pollution and environmental challenges to be exploited. It is also known that the GEF has contributed to raising greater resources for projects than other funds established for specific purposes.[352]

Bernauer et al.'s (2013) study relating to depth and strength of treaties mentioned above found that positive incentives in the form of assistance provisions, as well as some dispute resolution mechanisms "have a significant and substantial positive effect on participation".[353] The study shows that assistance for developing countries significantly increase the rate of ratifications. Implementation measures like financial and technical assistance help to lower the costs that a treaty may impose on a state, something that is likely an important factor in whether a country is willing to bind itself to an international agreement or not.[354] UNEP's Mandate for the plastics treaty further underlines that implementation of some of the legal obligations set forth by the treaty "will depend on the availability of capacity building and adequate financial and technical assistance", and calls the INC to "specify arrangements" for capacity building and technical assistance, technology transfer on mutually agreed terms, and financial assistance".[355] For developing countries and economies in transition, a financial assistance in the form of capacity building and technology transfers within the plastics treaty will entail a real incentive to join the participate rather than focus and rely on unilateral measures to tackle plastic pollution. Implementation assistance is meant to cover the incremental costs, and capacity and technology

[350] Rajamani and Peel (2021) p. 416

[351] See also The 1973 CITES Trust Fund that supports the development of CITES-related legislation and for conducting national wildlife trade policy reviews, see CITES (n.d.)

[352] Rajamani and Peel (2021) p. 942

[353] Bernauer et a. (2013) p. 2

[354] Barrett (2005-a) chapter 8.5 suggests that one of the main reasons that the USA was so postive towards ratify the Montreal Protocol was the overwhelming indicator in the costs and benefits analysis for eliminating

[355] UNEP (2022-a) point 3 (n)

received to implement the treaty will potentially benefit the states beyond the agreement as well.

On the flipside, it is important that a participation incentive for some does not become a disincentive to participate for others. If developed countries are obligated to provide financial funds for implementation assistance and other mechanisms within the treaty, it may potentially impact their decision to join the treaty negatively. Therefore, it is important to explore other ways that a financial mechanism within the treaty can be designed and funded. Firstly, the contested dichotomy of developed/developing countries may need to be revised and possibly replaced by different terms. The treaty could for instance make funds, including implementation assistance, available for "countries in need" or "especially vulnerable states". Secondly, the financial mechanisms could be funded in an array of different ways – through potential payments that Parties submit as part of the control measures, whether that would be a levy or tax, or through a fund with a broad donor base. Potential funding stemming from trade measures within the treaty may also be a possible source of funding (see below).[356]

Further, implementation assistance does not have to be purely financial aid. New types of implementation assistance are on the rise, for instance in the climate change regime. An inhouse body to aid Parties with implementation and compliance, namely the Implementation and Compliance Committee has been established under the Paris Agreement regime.[357] The goal of this type of implementation assistance to address challenges Parties may have with implementing the agreement, other than the financial aspects of the issue. A mechanism like this focuses on facilitation rather than sanctioning and may be an important addition to the traditional implementation assistance in form of financial aid.

4.3.3.2 Dynamic treaty

Another relevant side of States joining international agreements to consider is the longevity of such agreements in light of the ever-changing circumstances of economy, science, technology

[356] New, innovative ways of funding have started to emerge as seen at COP27, with the establishment of a new Loss and Damage Fund that may potentially revise the traditional donor and receiver pools, as well as implement modern ways of financing the fund. How exactly the fund will be operationalized is not decided yet, and will be addressed by a Transitional Committee, see Conference of the Parties and Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (2022)

[357] Paris Agreement (2015) art. 15 para 1 and 2

etc. Design elements to ensure that a treaty can be adjusted along with changing circumstances would provide a type of flexibility that does not sacrifice depth. As mentioned above, joining an international environmental agreement often has a certain sovereignty cost for a state. State leaders are well aware that circumstances change, whether that be economic, scientific or technical. Lack of any kind of flexibility within a treaty may potentially seem like too rigid of a deal to participate in and in practice, a further enforcement of the sovereignty cost for a state. Some authors argue that a possibility of renegotiating a treaty would have a de-stabilizing effect in the case where it is triggered by defecting behaviour in the past, rather than unforeseen changes.[358] However, a dynamic treaty does not have to go so far as to facilitate complete renegotiation of its provisions. It can simply allow for adjustments in line with certain changing circumstances. This would in fact appeal to the collective rationality of states and could keep states from renegotiating or withdrawing from treaty.

As noted previously in chapter 2, scientific evidence surrounding consequences and the specific harms on plastic pollution is still in its infancy. The negotiators of the new plastics treaty will thus likely not have all the information necessary to fully consider the implications of the provisions or lack of provisions in the treaty. To be able to address plastic pollution in a comprehensive way, it is important that the treaty can keep up with advancement in scientific evidence, technological developments as well as potential changes within the issue of plastic pollution itself. The importance of taking into account the latter is illustrated by the Montreal Protocol, in which the reduction rates agreed upon in 1987 were supposedly already obsolete by the time the Protocol entered into force in 1989.[359] In order to keep up to date with changing circumstances and to avoid that the agreement's provisions become obsolete, the Protocol provides for assessments of its control measures, based on the "available scientific, environmental, technical, and economic information". The UNEA Mandate for the plastics treaty requests that the treaty include provisions "To periodically assess the effectiveness of the instrument in achieving its objectives".[360]

Rajamani and Peel (2021) describes three design elements that are used in international environmental treaties to keep them up to date; the first one being the establishment of institution

[358] Schmidt (1998)
[359] Rajamani and Peel (2021) p. 418
[360] UNEP (2022-a) para 3 (g)

arrangements, like meeting of the parties, with the task to keep the focus on the issue as well as make decisions to ”elaborate, supplement, or amend the treaty”.[361] The second design element is inclusion of provisions that require assessment of the agreement and its effectiveness, such as the above-mentioned Article 6 of the Montreal Protocol. The third design element to ensure a dynamic agreement is the segregation of its detailed provisions, ones that are likely to need revision and updates, for instance by placing them in annexes, which tend to be easier to amend and revise than the treaty text itself. This is the approach used in the Montreal Protocol where ozone-depleting substances that are subject to the phase-out are placed in annexes, that indeed have been amended many times to include additional substances. The same type of approach is implemented in the Stockholm Convention on Persistent Organic Pollutants.[362] The same type of approach could be used for a potential phase-out or ban of certain polymers, additives or combinations of polymers. Depending on the architecture of the treaty that States will agree upon, annexes can be used to more easily update the treaty to changing information, as they usually do not require affirmative consent of a state to be bound. Most such agreements however give states the possibility to opt-out of regulatory decisions with which they disagree to, as to not infringe the notion of sovereignly, although such an option is not given to states within the adjustment process of the Montreal Protocol.

4.3.3.3 Trade measures

Another type of measure that has the potential of creating a privilege is trade restrictions. Trade restrictions can be used to promote participation by creating a privilege for the parties, the privilege being the opportunity to trade certain products, materials or substances with other parties. On the flip side, one is raising the cost of staying out.[363] A prime example of such a mechanism is the Montreal Protocol. It prohibits its Parties to import ozone depleting substances from and export to non-parties, thus creating a privilege for the Parties of being able to trade. The plastic treaty could potentially implement such a mechanism for instance for polymers.[364] However, such a mechanism does not guarantee to function as a participation incentive in itself. As Barrett

[361] Rajamani and Peel (2021) p. 418

[362] The Convention requires a detailed scientific assessment in order for new chemicals to be added to the list of controlled substances the Annex, art. 8

[363] Rajamani and Peel (2021) p. 416

[364] Trade restrictions within an environmental treaty may rise concerns regarding rules in already existing trade agreements between signatories, such as within the GATT/WHO regime, see Sand and Peen (2018) p. 843. This issue will however not be addressed further in this thesis.

(2005-a) points out, it will only work after the treaty has already achieved a certain level of participation, enough that other countries see it beneficial to join, a so-called tipping point.[365] Trade restrictions with non-parties should thus be combined with a mechanism of minimum participation requirement for the treaty to enter into force. A minimum participation clause is important when using trade restrictions, as deterring free-riding through a trade ban will be highly costly for signatories in the case of low participation. That way a minimum participation clause protects signatories from being bound by a treaty with restrictions which harms them in the case of low participation. If a minimum participation clause is set at a point that can function as a tipping point, it serves the signatories greatly. On the other hand, one risks that the incentive to sign is just not high enough, and the treaty never ends up entering into force.[366] A minimum participation clause further has the benefit of ensuring a sufficient level of reciprocity in regulatory treaties (treaties with concrete control measures), and political credibility in constitutive treaties (framework treaties with little to no concrete control measures).[367] A clause like this can either set a requirement of a certain number of countries ratifying it to enter into force, or it could require that a certain amount of pollution is covered by a participating state in order to enter into force.[368] How a minimum participation requirement should look for the plastics treaty and what level of participation should be required will not be further discussed in this thesis.

Building on this point, a certain level of participation – which is referred to as a tipping point, would have to be reached as a prerequisite, meaning that other incentives to participate would be necessary to implement first. For instance, a treaty could potentially establish a scientific hub, financed through a fund or otherwise, to research the different dimensions and gaps in the current knowledge on plastic pollution and the conditions around it. Research on harms related to plastic pollution, mechanisms addressing the issue in a resource effective manner as well as technology development could potentially create an incentive for states to join the treaty by offering access to data, evidence and research materials first. Another option could be establishing, or using an existing, fund that may help countries with investment in new technologies

[365] Barrett (2005-a) chapter 12.10

[366] Ibid.

[367] Rajamana and Peel (2021) p. 412

[368] Kyoto Protocol that required ratification by fifty-five states representing 55% of developed country greenhouse gas emissions while MARPOL required ratification by fifteen states representing at least 50% of global shipping tonnage.

relating to waste collection, management, recycling, plastic substances etc. A mechanism ensuring mutual technology sharing would provide a privilege for parties as well. Privileges like these will ensure that countries see a benefit to joining the treaty, instead of free-riding and only possibly implementing some unilateral measures. These mechanisms thus create an incentive to join the treaty, making it individually rational for a country to participate.

4.4 Current status of the plastics treaty

Currently, as this thesis is being delivered, representatives of UN Member States and many stakeholders are gathered in Paris, France for the second negotiation round of the global plastics treaty, as the Meeting of the Intergovernmental Negotiations Committee (INC-2). The first negotiation round was conducted in Punta del Este, Uruguay 28 November to 2 December 2022. No policy-based decisions were concluded at INC-1 but a broad range of topics were addressed by the delegates. Scope, objectives, structure and potential elements of the instrument as well as procedural topics were addressed. Most delegations expressed preference for comprehensive approach on plastic pollution encompassing the full life cycle of plastics (although the definition of "lifecycle" is yet to be agreed upon), as well as an objective to "protect environment and human health from plastic pollution, and ultimately end plastic pollution,".[369] Delegates had divergent views on structure, some in preference of a specific treaty with legal obligations and some of a framework treaty driven by national action plans, the role of the latter mechanism within the treaty being contested among the delegates. Means of implementation, including capacity building, technical assistance and finance were addressed and regarded as important elements within the treaty by many. Monitoring, as well as scientific and technical cooperation were addressed as well, with some delegations calling for the establishment of a dedicated subsidiary scientific body in order to facilitate cooperation on an equal footing. Stakeholder participation, as well as final provisions were addressed as well.

Some countries, including the US and Saudi Arabia, are currently pushing towards a management model similar to the Paris Agreement, with a bottom-up approach focused on the individual efforts of countries rather than universal rules.[370] [371] On the other side, the High Ambition Coalition (HAC) to end plastic pollution, led by Norway and Rwanda and joined by a number

[369] Earth Negotiations Bulletin (2022)
[370] Earth Negotiations Bulletin (2022)
[371] Geddie and Volcovici (2022)

of other countries including Canada, France, Germany and Great Britain are advocating for a treaty that includes "global sustainability criteria and standards for plastics".[372]

On the agenda for INC-2 are, among other things, procedural decisions like election of the INC Bureau, adopting the Rules of Procedure, including the contested articles on voting.[373] [374] Other topics that need addressing are identification of the objective, substantive provisions including core obligations and voluntary approaches, means of implementation, including financial assistance and implementation measures, including the role national action plans may have.[375]

The Mandate calls for the INC to conclude its work by the end of 2024 – an ambitious timeline for any treaty, but especially for one addressing such a complex and multi-dimensional issue as plastic pollution. Most treaties take five to ten years to negotiate, meaning that delegates will have to be willing to cooperate efficiently and compromises will likely have to be made, especially regarding some of the more contested matters. Subsequent to conclusion of the INC, UNEP will convene a diplomatic conference to adopt the outcome and open the treaty for signature.

5 Conclusion

The issue of plastic pollution is a complex one – scientific uncertainty is widely present across many aspects of the topic, the pollution sources are many, the material itself is cheap to produce, and infinitely useful but possesses qualities that make it a dangerous pollutant that is now present everywhere – in nature and in our bodies. A linear perspective has ruled our thinking and behaviour around production and consumption of plastics for many decades and a complete change of pace and restructuring of the way we handle the material is needed to deal with the problem that we have created. With plastic production estimated to increase, with little to no regulations around composition of plastics and additives making it difficult to recycle, and lacking sound waste management in many countries, a life cycle approach is long overdue and needs to be implemented in order to avoid further damage to the environment and human health.

[372] High Ambition Coalition to End Plastic Pollution
[373] UNEP (2022)
[374] UNEP (2023-a)
[375] UNEP (2023-b)

Plastic pollution has both global, regional and local dimensions, but it is clear that the unilateral and regional measures implemented thus far, as well as some efforts on the global scale which have led to a fragmented and incomplete governance system are insufficient to curb the issue. Global cooperation based on a holistic approach with as many countries involved as possible is needed. Ensuring wide participation in an international treaty to address plastic pollution is key but need not be done by sacrificing depth in the form of strong obligations and stringent control measures. This thesis has examined a handful of design elements that could be implement in a global treaty in order to encourage participation without necessarily sacrificing depth. Incentivising participation may be done by offering the Parties to a treaty certain privilege that non-parties cannot enjoy. A design element that is considered key in order to incentivise participation, especially among developing countries is implementation assistance, both in the traditional terms of covering incremental costs of implementation, but other assistance as well, such as capacity building as well as a potential body within the treaty with the task to facilitate implementation and compliance. Such a participation incentive should not however turn into a disincentive for other countries, meaning that the funding of such a mechanism should not be dependent exclusively on donations from developed countries. New and innovative ways of funding are on the rise and should be explored to ensure sufficient funds being raised as well as high participation in the treaty by all states. Another design element that may incentivise participation is facilitating change, evolvement and adjustment within the treaty to take changing circumstances into account. Trade measures are another design element with potential to create an incentive by offering privileges, for instance only allowing trade of certain substances or products between Parties and prohibiting Parties to engage in trade with non-parties. This kind of privilege is however dependent that the treaty initially achieves a certain level of participation in order to function as a participation incentive.

A global approach to curbing plastic pollution should further exploit the significant regional dimension of the issue and facilitate cooperation among countries with similar challenges related to plastic pollution. This can be done by the treaty encouraging cooperation or facilitating it to a greater or lesser degree. In this thesis, a model consisting of two governance levels is proposed in order to exploit the benefits of both the global and regional dimension of the issue. The global agreement could include objectives, definitions, overall targets, financial mechanisms as well as implement measures that are beneficial to implement on a global level, such

as bans of toxic additives. The global treaty could function as an umbrella, establish the institutional framework, including a secondary regulation level that directly facilitates cooperation on a regional bases for instance.

The UNEA Mandate for a plastics treaty has given the world new hope towards managing this overwhelming pollution issue on our hands. The treaty must be able to get countries to cooperate and compromise in a way that addresses the issue at hand sufficiently. The Mandate provides the countries with the option to shape the treaty rather freely, and the end result will depend on the willingness and vigour of countries to change the way in which production and consumption of plastics have been viewed before. Further, the Mandate calls for the work of the International Negotiation Committee to be finished by the end of the next year, a highly ambitious timeline that may not necessarily serve the overall objective. While the very short timeline illustrates the urgency of the issue, it may be important to take more time to negotiate this treaty in order to properly address this very complex issue. A rushed paper tiger treaty could not only be little help towards addressing the issue but may even be counterproductive. No matter how the new plastics treaty ends up looking, it is clear that a lot of work stands before us to stop the plastic wave from sweeping us away.

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