



Strengthening plastic governance: Towards a new global convention

Plastic pollution is a serious and rapidly growing environmental and health problem that will stay with us for centuries. The current governance landscape is fragmented and leaves gaps so large that up to 13 million tonnes of plastic enter the oceans every year. On land and in the ocean, plastic waste causes considerable damage. None of the existing frameworks is capable of addressing the major land-based sources of plastic pollution. It is necessary to negotiate a new international treaty that regulates the production and ensures the environmentally sound disposal of plastics. While a new convention will not in itself solve the problem of plastic pollution, the problem will not be solved without a binding international agreement. Such a convention must become the anchor institution of a multi-dimensional approach. It needs to work in conjunction with, and go beyond, existing local and global, voluntary and binding, marine and land-based efforts. It is time to craft a binding agreement that can spearhead action on all levels.

The plastic revolution and its downsides¹

Everyday life is almost unimaginable without plastic. It is used for packaging foods and other goods, for clothing, toys, smartphones, and cars. Plastic is cheap, lightweight, durable, and can come in uncountable varieties. It is also a very profitable and sizeable business: Plastic manufacturers currently generate an annual turnover of about US\$750 billion, and they have been recording strong growth for decades due to strong demand. Apart from manufacturers, the

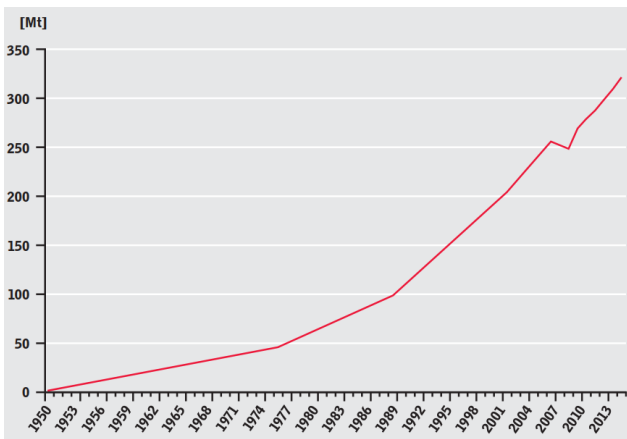
trade and retail sectors likewise rely heavily on plastic packaging, and consumers carry home conveniently wrapped bread, apples, and cookies, thereby vast quantities of plastic waste. In 2015, 322 million tonnes of plastic were produced (Plastics Europe 2016). This figure is expected to double by 2030, and then double again by 2050 (Ellen MacArthur Foundation 2016).

The downside of this boom is plastic waste that ends up in the environment in huge quantities, causing both environmental and economic damages. Pieces of plastic can nowadays be found almost everywhere: Most visible are giant patches in the ocean with high density of plastic waste floating on the surface

¹ This article is a condensed update of a more detailed study published as Simon/Schulte 2017. Thanks go to the Heinrich Böll Foundation for financial support of both publications.

and slowly sinking to the seafloor. Since almost all plastics do not biodegrade, they disintegrate into ever smaller pieces. Researchers from the LITTERBASE project found that at least 1,503 species are affected by marine litter.² They become entangled in macroplastic and may suffocate, or they mistake microplastic for food and ingest it (GESAMPT 2015). In this way, it enters the food chain and ultimately ends up in human stomachs. Plastic particles are found in remote glacial lakes, in Arctic sea ice, in deep sea sediments, and in many products intended for human consumption (Worm et al. 2017). In short: Plastic is everywhere, and it won't go away naturally for centuries.

Figure 1: Global production volume of plastic 1950 - 2015



Source: Simon/Schulte 2017: 13.

The sum of all plastic ever produced is 8.3 billion tonnes, of which 6.3 billion tonnes have already become waste (Geyer et al. 2017). Only 9% of this has been recycled, another 12% incinerated, and 79% having been put to landfill or ended up in the environment uncontrolled. Between 4.8 and 12.7 million tonnes per year are leaking into the world's oceans (Jambeck et al. 2015). Large rivers are a major transmission channel of mismanaged plastic waste from land into the sea. Just 10 rivers are accounting for up to 95% of river-to-sea transmissions (Schmidt et al. 2017), but other sources contribute significant amounts as well.

The excess of plastic packaging, along with lacking and leaky waste disposal systems

brings with it problems beyond harmed ecosystems. Especially in developing countries, plastic waste can clog sewage systems, which enhances the risk of flooding during heavy rainfall. It can build small ponds of water and create ideal breeding conditions for mosquitoes, thus increasing the risk of spreading vector-borne diseases.

However, the problem with plastic does not begin at the end of the pipe, but rather starts much earlier, at the design and production stage. Plastics are produced from chemicals sourced almost entirely from fossil fuels. Large oil and gas companies are key players in the market, and thus plastic production is regionally concentrated where there's availability of cheap feedstock (CIEL 2017). The production of plastic from fossil resources releases some 400 million tonnes of CO₂ per year, as the European Commission (2017) estimates. The plastic economy is thus a major contributor to climate change. If plastic production quadruples until 2050 as estimated, it would account for 20% of global oil consumption and consume 15% of the carbon budget that would allow us to stay within a Two degrees world (Ellen MacArthur Foundation 2016: 17).

Numerous economically important sectors are directly or indirectly affected by marine litter, though more often than not, they contribute significantly to the problem in the first place (CBD 2016; GESAMP 2015). It has been found that those sectors incurring the greatest economic costs are tourism, fisheries, and shipping (Watkins et al. 2015). One study estimates the damage related to marine debris at US\$1.26 billion per year for the 21 countries of the Asia-Pacific Economic Cooperation (APEC), with the tourism sector bearing the largest share of the costs, at US\$622 million (McIlgorm et al. 2011). While these numbers may serve as some indication, the full economic costs of marine plastic litter are not easily quantified, and many uncertainties remain (GESAMP 2015). Apart from losses due to direct damages, the unrealised economic potential of a more sustainable plastic economy provides another compelling argument for action. The Ellen MacArthur Foundation (2016) estimates that up to \$120 billion is

² <http://litterbase.awi.de/>

currently lost annually due to single-use packaging and lack of reuse and recycling.

While the majority of plastic litter found in the ocean stems from developing countries and emerging economies, developed countries also have considerable room for improvement. Although Europe likes to see itself as a frontrunner in sustainable development, its waste disposal systems are far from perfect and less than 30 percent of plastic waste collected in the EU is recycled. Furthermore, when China announced its ban of many waste imports towards the end of 2017, including plastic waste, this immediately created a very challenging situation for the EU and the US, which export large amounts of scrap plastics to China and lack domestic recycling capacities.

Gaps in the existing governance landscape

A number of binding and voluntary frameworks address with plastic pollution, though none of these has emerged as the main forum to tackle the problem, and likewise none has the mandate or means to do so.

The *Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter*, also known as the London Convention of 1972, was the first international agreement on wastes entering the marine environment. It initially allowed some dumping of wastes, until it was amended by the London Protocol, which prohibits all dumping. The protocol entered into force in 2006, and thus far counts 45 parties. In its so-called “reverse list”, it names materials that are exempted from the no-dumping rule. As plastics are not listed in the list, they are de jure prohibited (Chen 2015).

The *International Convention for the Prevention of Pollution from Ships* (MARPOL) of 1973 (amended in 1978) is the main international convention to protect the marine environment from sea-based pollution. Though Annex V from 1983 prohibits ships dumping plastic and other wastes into the sea, compliance with the provisions remains problematic (Chen 2015). Furthermore, MARPOL does not tackle land-based sources.

The *United Nations Convention on the Law of the Sea* (UNCLOS) in its current form entered into force in 1994 and counts 167 parties. The Convention does not specifically mention plastic but defines dumping as “any deliberate disposal of wastes or other matter from vessels, aircraft, platforms or other man-made structures at sea” (UNCLOS, Art. 1(5)(a)(i)). The Convention calls on states to protect and preserve the marine environment and obliges them to take land-based pollution and pollution from ships into account, but it has no stringent rules to ensure this is done.

The *Basel Convention*, with its provisions on minimising hazardous and other wastes and demands for sound disposal facilities, is in principle capable of providing a framework for regulating plastic waste globally (European Commission 2013: 19). Two approaches are thinkable for extending the Basel Convention: The first is changing core elements of the convention so that it applies to all plastic wastes and for all parties, a process which requires strong commitment from all parties to the convention. The second option is negotiating an amendment, which would need to be ratified by interested parties before entering into force. At present, it seems unlikely that either option will be pursued. Refurbishing the Basel Convention is thus not a promising strategy to fill the huge regulatory gaps in global governance on plastic pollution.

Voluntary measures addressing marine litter are missing the point

The G7 took up plastic pollution at the 2015 Summit, where governments agreed on the G7 Action Plan to Combat Marine Litter, and committed in the Leaders' Declaration “to priority actions and solutions to combat marine litter [...], stressing the need to address land- and sea-based sources, removal actions, as well as education, research and outreach.” The G20 expanded on this during the 2017 Summit, agreeing on an Action Plan on Marine Litter. It comprises seven “areas of concern” and entails a list of 41 “potential policy measures”. While laudable in principle, in practice it has to be questioned whether the politically non-binding

commitments will lead to measurable reductions in plastic pollution.

The predominant focus on voluntary actions could also be seen at the UN Oceans Conference in New York in June 2017. 181 voluntary commitments dealing with plastic were issued, out of 1,407 overall pledges to safeguard the seas. Further voluntary frameworks include the Honolulu Strategy and the associated Global Partnership on Marine Litter (GPML), and the Clean Seas Campaign launched by UN Environment in 2017. While these are noteworthy efforts and should continue, they have thus far shown little effectiveness in limiting the amount of plastic waste that is discharged into the environment.

To take on the flood of plastic pollution, it must be tackled at its sources, and these are mostly to be found on land. It will not suffice to improve waste collection and recycling. An absolute reduction in global plastic production may also be needed, not the least to reduce greenhouse gas (GHG) emissions. Plastic that cannot be avoided or substituted must be designed and produced more sustainably, used more sparingly, applied more purposefully, and finally be collected without exception and reused wherever possible. This will not happen on its own. It requires a common and binding global framework of action. The rationale for an international treaty lies in the transnationality of global plastic pollution. For the environment and certainly for our marine ecosystems, it does hardly matter where exactly plastic waste is not properly collected and disposed of. Once it finds its way into the environment, it will likely end up in the ocean and be carried across the globe. An internationally binding treaty should thus pursue the goal of eliminating plastic waste discharge into the environment, as a necessary condition to keep the oceans clean. This is hardly possible without limiting the production of plastics in the first place.

Key elements of a plastic convention

Five core elements are considered essential for a global plastics convention in this paper. The *first* is a binding goal targeting the problem at its

source. At the very least, it should be a goal to eliminate plastic pollution of the environment. A more ambitious option would be to link that to a second goal of limiting and reducing the production of virgin plastic, thereby contributing significantly to mitigating climate change. *Second*, achieving this goal requires substantial implementation efforts, which should be outlined in national action plans (NAPs) comprising a set of measures, drawing from a toolbox to select those that are most applicable to national circumstances. *Third*, this combination of top-down goal setting and bottom-up implementation strategies should be accompanied by the provision of capacity development measures, including a knowledge exchange framework and a funding mechanism to improve waste collection systems and encourage infrastructure improvements as well as technological innovation (for a range of options, see Ellen MacArthur Foundation 2016). A *fourth* element should be a stringent follow-up and review mechanism to assess the implementation plans, to monitor progress and to enable learning from both successes and failures. *Fifth* and finally, plastic pollution will not successfully be curbed by national governments alone; it will also require significant efforts from non-governmental stakeholders, and thus a global plastic convention should build extensively on multi-stakeholder participation in both decision-making and implementation.

First, regarding the overall goal, this should be framed so that it addresses the problem head on. One relatively strong option would be to eliminate plastic waste discharge into the environment. This would require a significant overhaul of all existing waste systems, and in many cases also necessitate the build-up of functioning systems. A weaker, but probably politically more readily acceptable option, would be to eliminate discharge into the oceans, which would give countries more leeway as it would allow an unspecified, yet probably considerable amount of plastic waste to continue to leak out of the waste collection system. The very weakest option would be in the form of a vision, or it could take the form of a more hands-on approach.

Second, the goal of a plastics convention needs to be implemented on the national level. One way would be to set a global cap on plastic production, at least from virgin feedstock, and subsequently reduce the amount of plastic being produced while simultaneously requiring strong waste collection systems and recycling quotas. Raubenheimer and McIlgorn (2017) propose to model a plastic convention on the Montreal Protocol. In particular, they argue it should employ a "preventive approach in which the role of industry and the plastics supply chain is central. [...] In particular, the use of virgin material must be constrained and the use of post-consumer materials promoted." The production cap is an especially politically difficult step to achieve as it will be met with considerable resistance. However, if a plastic convention would contain such a provision, it would send a strong signal that the world is going to seriously tackle the problem of plastic pollution. Another option would be to merely offer a range of available tools and leave it to governments to decide how to achieve the goal. Thus, a top-down goal that is legally binding and requires the elimination of environmental plastic waste pollution would be combined with a bottom-up and voluntary approach establishing a set of measures in line with each country's specific needs and conditions. Plastic bag bans, bans on microbeads in cosmetic products, promotion of recycling or innovation for more sustainable alternatives could be part of such a toolbox.

Third, a capacity development support system equipped with a financing mechanism should be set up to foster the establishment and improvement of waste collection and recycling systems, to promote innovation through knowledge exchange and technology transfer. The international community will need to provide sufficient funding to assist emerging and developing countries to build up and enhance their waste collection and recycling systems. The largest portion of the funds would have to come from governments. However, taking the "polluter pays" principle seriously would mean holding the plastic industry accountable, and introducing a tax on virgin plastic production. This would not

only generate revenues for implementing the convention, but also incentivize recycling over producing new plastic.

Fourth, compliance with the binding goal will need to be strictly monitored to ensure the effectiveness of a global plastics convention. This requires an effective review and follow-up process. The first step would be to assess the quality of national implementation plans. The next step would then be to review to what extent these plans are being implemented and what the effects on plastic production, use, waste collection, recycling, and discharge are.

Fifth, carving out a new governance framework on plastic pollution requires substantial participation by and contribution of non-state actors. Implementation efforts by governments must be complemented by, and undertaken jointly with, efforts from non-governmental stakeholders including civil society organisations, businesses, and academia.

Launching a process at UNEA3

The third UN Environment Assembly (UNEA) is taking place in Nairobi, Kenya from 4-6 December 2017. UNEA3 should launch an open ended working group. It can be assumed that it would take until UNEA4 in 2020 to agree on establishing an intergovernmental negotiating committee (INC), which will take at least another three years to carve out the major cornerstones of the convention. It would take another two to four years for the convention to enter into force, so that it would begin to take effect some time before 2030 (see also UN Environment 2017a: 143-144).

Some additional steps can and should be taken at UNEA3 that could support possible future negotiations but still allow governments to take an alternative route, an important feature to facilitate their agreement. Among these steps is the broadening of the resolution planned on marine litter to cover plastic pollution, including land-based sources and effects (CIEL 2017).

A critical and engaged civil society is needed to push governments and call for an ambitious outcome. The BreakFreeFromPlastic Coalition, the Zero Waste network, the Plastic

Soup Foundation, the Surfrider Foundation, CIEL, IPEN and numerous other NGOs are already pushing for stronger action. While business engagement is necessary to come up with innovative solutions that work on the ground, corporate influence in the negotiation process by plastic manufacturers should be carefully watched and must be severely restricted.

Conclusion and recommendations

The global plastic economy is a massive business that can expect further strong growth in the future. Despite increasing turnover, investment in waste collection and recycling systems and in innovation for more sustainable solutions has not occurred on a scale necessary to prevent a global environmental problem that will stay with us for centuries.

Previous efforts to deal with this challenge have been unsuccessful in stopping and reversing the massive flow of plastic waste into the environment, causing significant ecological and economic damages. One major shortcoming is that the problem is predominantly framed as one of oceanic pollution. While marine litter is an important aspect of plastic pollution, this focus shifts attention away from the major land-based sources and underlying socioeconomic practices that caused the problem in the first place.

The global plastic governance landscape is fragmented, and no institution has emerged as the central forum for dealing with the major sources of the problem. Binding agreements either tackle only a fraction of the problem or have loopholes that prevent them from having a stronger effect. Voluntary initiatives are lacking teeth and commitment to address the major land-based sources of plastic pollution.

A new international convention dealing with plastic is necessary to address the problem. A first step should be taken at UNEA3, in the form of an open-ended working group open to all stakeholders with the mandate to assess the option of a legally binding agreement. At UNEA4 in 2020, an intergovernmental negotiation

committee could be established to carve out the details of a future convention. This agreement should be based on the goal of eliminating plastic waste discharge into the environment and probably even capping and reducing virgin plastic production. It should entail mechanisms for capacity development including a funding mechanism, a national action plan mechanism for domestic implementation, a follow-up and review process, and meaningful multi-stakeholder involvement.

Although a fringe idea a few years ago, and still new when we published our study in spring 2017, the proposal for a plastic convention has already gained considerable traction. It can now be found in UNEA background documents (UN Environment 2017a), a growing number of academic articles and comments (Raubenheimer/McIlgorm 2017; Borrelle et al. 2017; Worm et al. 2017), and has been referred to in position papers issued by civil society organizations (EIA/CIEL 2017; IPEN 2017). It appears the debate about a new environmental treaty focusing on plastic is taking off.

Experience from existing agreements and their negotiation processes reveals that a new plastic convention will certainly have its gaps and weaknesses, loopholes and other shortcomings. It will take many years to be negotiated, enter into force, and be implemented. A plastic convention must be designed as part of a multi-dimensional and multi-level approach, linking public and private actors, binding regulatory and voluntary schemes, land-based and ocean-centred activities.

A new international convention will not in itself solve the problem of global plastic pollution. But at the same time, the problem will not be solved without a convention that contains strong goals, embodies clear rules and brings everyone on board. An international treaty is the key element lacking in global plastic governance today, and it is time to create the binding framework that is needed to make a sustainable plastic economy possible.

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