Recent progress towards achieving an international plastics convention

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Abstract

This paper identifies that plastic is not only a severe environmental problem, but also a global existential risk that needs greater prioritising in global policy. While issues of macro-scale pollution are increasingly well-known, the role of plastic in other areas such as micro-scale contamination, and the strain plastic production places on global resource limits, enjoys less attention. Focusing on recent data and new or emerging developments, I examine the extent to which a binding international convention on plastics can be considered critical in addressing the many problems caused by plastic and plastic packaging. I argue for the need to understand the problems of plastic holistically and solve them in the same way; by recognising that treaties and conventions are just one critical step among others. Business-led innovations towards circular economies and other emergent, self-organising movements are of equal importance. These other developments represent both near-term solutions, achievable before a convention will be realised, and the precursory steps necessary for creating a binding, international plastics convention.

Introduction

The human use of plastic poses an extreme environmental problem. Approximately 70 per cent of Earth's surface environment is aquatic (US Geological Survey, 2016), and in those plentiful oceans plastic and plastic packaging creates the most significant and persistent pollution. Under a business-as-usual scenario, by 2050 the oceans will contain more plastic than fish (Ellen MacArthur Foundation & World Economic Forum, 2017). Recent research suggests that only 13 per cent of our marine environments remain as true wildernesses untouched by human impacts (Jones et al., 2018). Alarmingly, however, this figure entirely fails to account for microplastics (fragments of plastic <5 mm long), the quantities and locations of which are unknown, and which are an emerging field of study (National Oceanic and Atmospheric Administration, 2018).

This paper argues that plastic is not only a severe environmental problem, but also a global existential risk that needs greater prioritising in global policy. Further arguments about the extent to which global policy should be prioritised are explored within the case study of a proposed binding, international convention on plastics, which serves as an example of a global policy response.

Assessing policy first requires a holistic understanding of the issues it will affect, however. This paper begins by examining plastic production and use across a range of contexts to provide a broad assessment of its impacts and problems. I then examine to what extent a binding international convention on plastic use can be considered as the most important next step in combatting these issues, highlighting numerous barriers to a convention's success that suggest a more multifaceted approach may be ideal. I conclude by arguing that although important, a binding convention requires other precursory steps to occur first, and that an ideal approach to this issue is one that likely incorporates multiple solutions simultaneously.

Understanding the plastics problem holistically

Recent research suggests microplastic contamination is more widespread than anticipated, highlighting how deep and pervasive the problem of plastic pollution has become. One study sampled salt brands around the world and found that 92 per cent of them contain microplastics (Kim et al., 2018). This study follows the slightly earlier finding of widespread global contamination in a range of consumer products, including 81 per cent of sampled tap water (Kosuth et al., 2018). Macro-sized plastics meanwhile contribute to large-scale pollution such as the Great Pacific Garbage Patch, one of the ocean's largest accumulations of plastic, estimated at 1.6 million square kilometres in size – twice the area of New South Wales (Lebreton et al., 2018).

Plastic packaging is an issue of growing popularity, and of significance within the broader question of plastic use. Over a quarter of all plastic is used for packaging and a staggering 86 per cent of it will not be recycled, resulting in the loss of USD 80–120 billion annually in value, and creating a conservatively estimated USD 40 billion in environmental damage (Ellen MacArthur Foundation & World Economic Forum, 2017; World Economic Forum, Ellen MacArthur Foundation & McKinsey & Company, 2016). A narrow focus on plastic packaging alone, however, is not enough to solve the problems of plastic use, since it comprises only a quarter of all use. Additionally, we often cannot tell one type of plastic pollution from another. In the case of microplastic contamination, it is 'very hard or even impossible' (Veiga et al., 2016, p. 9) to tell whether the plastic originated as packaging or in some other form.

With such low recycling rates, it remains likely that packaging contributes significantly to global plastic pollution. This likely includes microplastic contamination. The often small and lightweight properties of packaging make it 'particularly prone to escaping collection systems and ending up in the natural environment, especially in emerging economies where most of the leakage occurs' (Ellen MacArthur Foundation & World Economic Forum, 2017, p. 17). While packaging is clearly a significant area of concern, it must be seen as part of a larger issue involving variables which are still not fully understood, such as microplastic contamination.

Beyond the profound and pervasive degradation of our oceans and food sources, the necessity of fossil fuel feedstocks in a range of plastic production, and plastic's contribution to climate change through greenhouse gas (GHG) emissions are equally large concerns. Under a business-as-usual scenario, by

2050 plastic production will require 20 per cent of global oil production and consume 15 per cent of the world's annual carbon budget (Ellen MacArthur Foundation & World Economic Forum, 2017).

Plastic is polluting our food and drinking water, our bodies, our oceans and land. It is straining uniquely important resources like oil and consuming far too much of our carbon budget (Ellen MacArthur Foundation & World Economic Forum, 2017). The threats posed by plastic use are so severe they can be considered cumulatively as an existential risk to both our species and our planet. Existential risks are an overriding sustainability concern, and arguably therefore a global priority (Bostrom, 2013). In recognition of this and other factors, some have proposed the creation of a global convention on plastics use.

Towards a plastics convention

A good example of a global policy response to plastic comes from two academics at the Heinrich Böll Foundation (HBF), a progressive German think tank. They are key among those who have argued the need for an international plastics convention to address the problems of plastic:

> A global convention that tackles plastic pollution where it originates, fosters innovation for more sustainable plastics, and supports countries in enhancing their domestic waste collection and recycling systems. It is the necessary next step and should have priority, rather than focusing on the Sisyphean task of cleaning up entire oceans while millions of tons of plastic waste keep streaming into them. (Simon & Schulte, 2017, p. 7)

Their characterisation of clean-up projects as Sisyphean is perhaps inaccurate, as is the narrow language in their report which gives priority to a convention and treats it as '*the* necessary next step' (emphasis added). The Ocean Cleanup project (2018), for example, is just one engineering solution that offers a potential 50 per cent reduction in the Great Pacific Garbage Patch's size over just five years. Solutions such as this that operate (for now) outside the realm of convention, deserve better consideration. Indeed, the authors' misstep here emphasises the broader need for the kind of multi-solution approach given to 'wicked problems' like plastic; one that does not ultimately prioritise a single solution (Harris et al., 2010). This point is evidenced elsewhere in their focus on the sources of waste and improving recovery rates of plastic. While important, 30 per cent of all plastic still cannot currently be recycled (Ellen MacArthur Foundation & World Economic Forum, 2017).

The difficulty of recycling all plastics represents an immediate and obvious barrier to increasing recycling rates and limiting plastic pollution. As the report admits, innovation will be required. Their examination of innovations focuses on the weaknesses of so-called 'sustainable alternatives' to plastic, such as downgrading (replacing plastic with paper, glass, etc), a suggested 'innovation' that would increase environmental costs from $139 billion to $533 billion annually (Trucost, 2016).

Notably, while the HBF report identifies a range of workable innovations, these include many already being undertaken by industry bodies such the American Chemistry Council (ACC), which represents

and works with a range of important private sector stakeholders such as the primary producers of plastic and their transnational corporate consumers. The ACC-led Materials Recovery for the Future (MRRF) group, for example, involves some of the world's largest plastic-using businesses and plastic producers, including Procter & Gamble, Target, Dow Chemical, PepsiCo, Nestlé USA, The American Plastics Industry Association, and Chevron (Materials Recovery for the Future, 2018). They are *already* working in concert, focusing on recycling and innovations in sustainable plastic alternatives, just as the HBF report desires.

As the above examples indicate, much progress is likely to be realised before a global policy in the shape of a convention begins to form. As the authors again admit:

> a plastics convention is not assumed to replace all other existing efforts, but to complement them: To establish a legally binding roof on top of the many strategies, action plans, and partnerships out there. (Simon & Schulte, 2017, p. 7)

This approach is even more evident in their framework of five essential features or 'pillars' required for it to succeed (Figure 1).

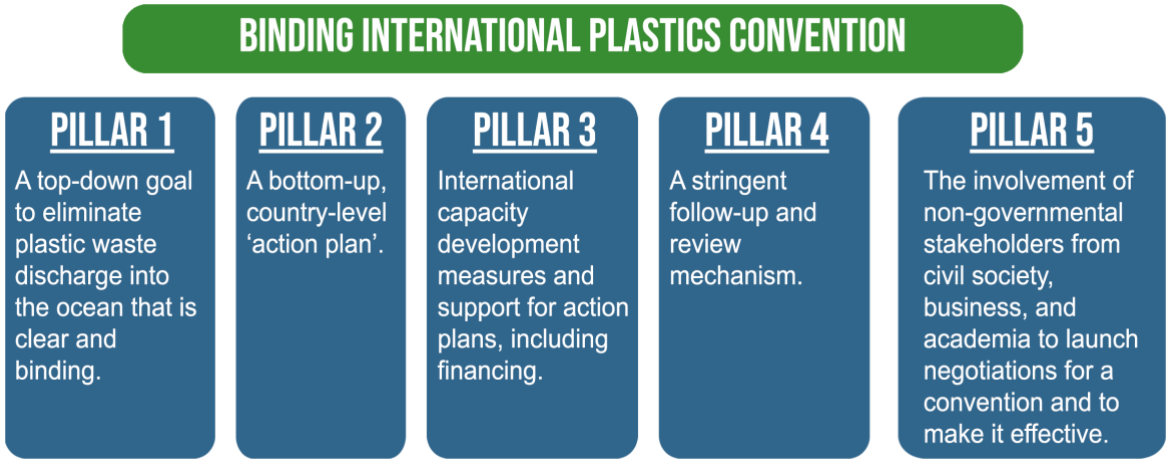

Figure 1: Five pillars of success.

Source: Adapted from Simon & Schulte, 2017, p. 9.

Notably, involvement from other bodies is deemed as critical to the *formation* of the convention as well, and not just its overall effectiveness (Pillar 5). This pillar represents perhaps the first step, and one currently underway. This part of their blueprint has proven prescient only a year later.

The Ellen MacArthur Foundation (EMF) has long studied the issue of plastics and plastic packaging, and in late 2018 began the work of establishing exactly the kind of body described in HBF's approach. This combines academia, civil society, and business, and can help launch negotiations for a convention with the UN. They are building 'a new coalition of businesses and governments united behind a world-leading set of circular economy commitments tackling plastics waste' (Ellen MacArthur Foundation, 2018). Like the ACC-led group mentioned earlier (MRRF) their business partners include primary

producers, as well as large transnational corporate consumers of plastic such as Coke, Walmart, Unilever, Pepsi Co, L'Oréal, Evian, and Nestlé.

Importantly, the EMF is also working with Erik Solheim, UN Environment Executive Director, and the UN Environment body more broadly, hoping to build on recent agreements such as the G7 Ocean Plastics Charter (Group of Seven, 2018), which failed to secure even non-binding commitments from the US and Japan. The involvement of key businesses, governments and the UN gives us perhaps the best chance yet for a global and binding convention. However, there are some barriers to a truly inclusive, cross-institutional and multi-solution approach.

Barriers to a convention

The EMF's coalition is largely guided by their latest research, outlined in the *New Plastics Economy* report (Ellen MacArthur Foundation & World Economic Forum, 2017). This paper has already come under some criticism from other groups. Unfortunately, this includes the ACC-led MRRF mentioned earlier, arguably a key ally going forward. Disagreements between these groups are hardly fundamental, and instead relate to what areas to focus efforts and resources on (Russell, 2017). The early split is nonetheless concerning if a truly inclusive, multi-stakeholder coalition is to be created. The MRRF, with its focus on recovery and recycling, is also arguably close in conceptual alignment with the HBF plan – something that could help in the creation of a convention.

Another deeper issue in regard to the regulation of plastics is that of economic growth. As Alier (2009) states bluntly: 'economic growth is not compatible with environmental sustainability' (p. 1099). It can be argued that a plastic convention alone still cannot solve the underlying issues of plastic production, because they are inherently tied to global consumption trends that are, in turn, a product of the capitalist, neoliberal model of endless economic growth. Only once in the past 50 years has plastic production abated, and that was following the 2008 Global Financial Crisis (Figure 2).

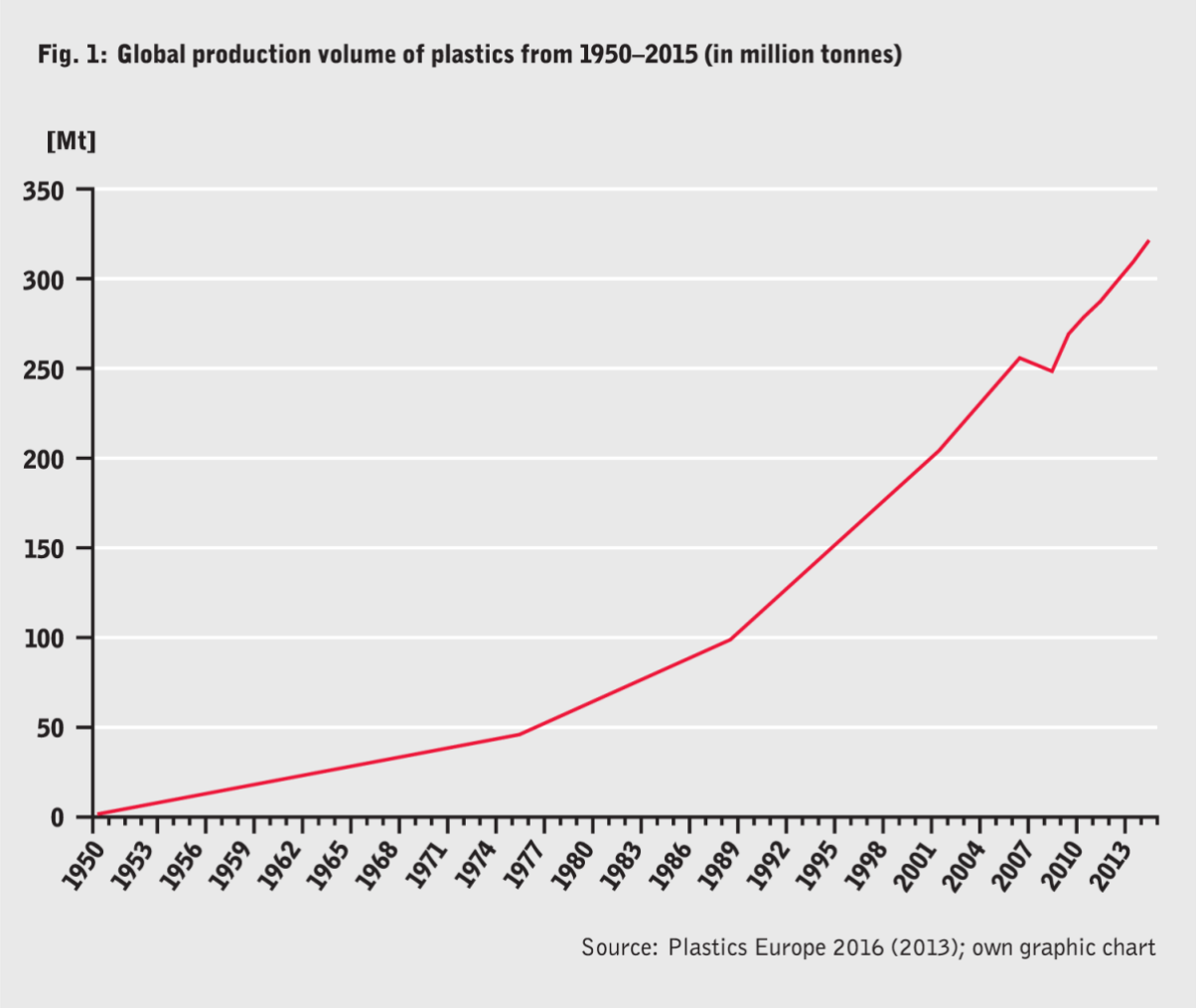

Figure 2: Global production volume of plastics 1950–2015 (in million tonnes).

Source: Simon & Schulte 2017, p. 13.

This was a period of unexpected and forced economic growth, one Alier embraced as a 'a welcome change' (p. 1099). So long as economic growth remains, companies and consumers that benefit from it (including those represented in these emerging coalitions) will resist fundamental changes to the status quo and continue to produce and consume plastic. Global economic paradigms of growth – reinforced by the powerful triumvirate of corporate media, corporate think tanks and corporate capture of political processes – represent a formidable 'system-preserving power' (Han, 2015), and thus a barrier to conventions being able to positively shape and address the problem of plastics. The only thing to have slowed this paradigm so far was a dramatic economic downturn: forced degrowth.

Larger structural barriers to global conventions, such as dominant economic paradigms of endless capitalist growth, may represent an important counterpoint to HBF's argument for a convention. Structural changes to global economic systems are difficult for a convention alone to tackle. However, the inclusion of key private sector players and bodies like the EMF is encouraging. Although not quite a degrowth model, the circular economy models espoused by the EMF are at least *partially* focused on

managing growth more sustainably. The same can be said for other groups' efforts as well. For example, sustainably managed growth can also be achieved by capturing value from waste and therefore drawing economic growth from extant (currently underutilised or wasted) resources. As stated earlier, plastic packaging alone represents some USD 80–120 billion in lost value annually (World Economic Forum, Ellen MacArthur Foundation & McKinsey & Company, 2016).

Structural challenges and looming crises related to them also present an opportunity for the kind of paradigm change Naomi Klein and others argue is necessary to achieve a sustainable global economy. The International Monetary Fund recently warned that the global economy remains critically vulnerable to another financial crisis, and that should another happen, the same level of quantitative easing and government bailouts of key financial institutions will not be possible (IMF, 2018). Alier's 'welcome change' of forced economic degrowth may return once more. The last economic crisis precipitated a dramatic rise in the interest of corporate social responsibility and sustainability more generally, as corporations struggled to increase efficiency and capture value from novel revenue streams (Benn et al., 2014). A similar crisis could potentially accelerate the creation of a convention, while simultaneously increasing the economic value of other innovations in waste recovery, recycling, and plastic alternatives. The interplay between crisis and opportunity is present here as it is within climate change: 'one of the great things about climate change is it's a great tool for bringing down the capitalist system' Naomi Klein was once paraphrased as saying (Krien, 2017, p. 89). The same may be true of plastics.

Conclusion

This paper concludes that while a convention is a critical goal, it will likely come in the medium–long term, after what will likely be some lengthy and contentious debate between stakeholders over goals, priorities and targets. Meanwhile, in the current and near-term, these same business-led innovations will continue in different directions, all of which are arguably equally important. The ACC and partners will focus on materials recovery and sustainable alternatives, whereas the EMF coalition will focus on promoting circular economy models. Other projects like Ocean Cleanup that combine philanthropy and engineering solutions will continue to offer sustainability gains in yet other areas such as environmental restoration.

A convention therefore isn't perhaps *the* next step, but something closer to a final step – one that consolidates the gains made by these groups and facilitates their successes elsewhere through capacity building measures (Pillar 3, from Figure 1). This aspect of the convention could be particularly effective in rolling out proven solutions for countries where the source of pollution is strong but the capacity to address it is weak. The creation of a plastics convention therefore is critical, but heavily complemented by equally important approaches, many of which will precede the formation of a convention, and even make such a thing possible in the first place.

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