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# Not more than the sum of its parts: de-centered norm dynamics and the governance of plastics

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## ABSTRACT

Plastic use is an important, yet multidimensional environmental challenge, targeted by a large range of initiatives and governance approaches worldwide. It is yet unknown, however, whether the different anti-plastic dynamics ultimately lead to effective plastic governance. Some case studies of plastic bags and microbeads show that the existent regulatory variance can result in effective governance, but these findings cannot be transferred to plastics as a whole. Based on the theoretical framework of norm research, we analyze properties of anti-plastic norms and the agency linked to them. Our findings indicate ‘de-centered norm dynamics’ that evolve around very different problematizations, values and behaviors linked to plastic, and which are thus unlikely to result in a coherent or complementary form of plastics governance.

**KEYWORDS** Plastic; Pollution; Norm Dynamics; Activism; Business; Global Governance

## Introduction

Since the beginning of its production less than a century ago, the world has become quickly inundated with plastic. Generally, plastic products, its waste and debris are now found everywhere. Plastics have many positive uses, such as for hygienic reasons in food packaging or in medical products, but also as a handy alternative to traditional materials, like wood, glass or metal. However, the negative, global effects of plastics have recently become widely apparent. For example, massive maritime plastic pollution endangers wildlife at land or sea due to ingestion or entanglement, while small plastic particles entering the food chain and contaminating soils potentially endanger human health (e.g. UNEP 2016, 2018a). In response to these problems, plastic regulation has recently emerged in many countries and there have even been efforts to establish regulation on a global level. Moreover, the problems of plastic use have been normatively addressed by different actors, from multiple geographic locations, with various causes and targets, aiming at different forms of governance. This mirrors UNEP’s (2018b, p. 16) assessment of the plastics problem

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that ‘there is no single, one-size-fits-all solution to the current plastic crisis. Governments, businesses and individuals will all play a major role in weaning society from its dependence on a material that continues to cause havoc in the environment.’ This growth in regulatory activities is driven by an increasing awareness for the harmful consequences of plastic pollution, which may signify the beginning of a global norm dynamic in environmental politics, comparable to climate change or biodiversity (e.g. Berny and Rootes 2018). Is the world turning against plastics by establishing norms against their use? Here, we examine whether the recent wave of plastic regulation contributes to the establishment of a new global norm and effective global plastics governance.

To do so, we draw on the concept of ‘norm dynamics,’ which refers to processes initiated by normatively motivated actors who contest established social behavior and promote normative change. Norm change is the envisaged result of norm dynamics and would signify a new social behavior that is widely accepted and supported by adequate legislation worldwide (Finnemore and Sikkink 1998). Norm dynamics are studied in many issue areas of global governance, including environmental politics and plastics governance. Recent studies in this field, however, have been restricted to governmental action on plastics (Xanthos and Walker 2017, Knoblauch *et al.* 2018) or to specific plastic products (Clapp and Swanston 2009, Clapp 2012, Winston 2018, Dauvergne 2018a). Given these different foci, these studies vary largely in their findings, particularly with regard to the central properties of promoted norms, as well as in their analysis of actors and their roles. Due to their rather linear understanding of norm dynamics, they at least implicitly share the assumption that different bottom-up, and loosely coupled sectoral approaches will ultimately spur effective plastic governance.

Here, we contribute to this existing literature by comparing the findings and by widening the analysis to include norm dynamics that are caused by other actors and related to different plastic products. As a result, our analysis shows that existing assumptions about the effectiveness of anti-plastics norms are wildly optimistic and must be questioned, due to what we term ‘de-centered norm dynamics.’ This concept is derived from more recent assessments of norms in International Relations (IR) research, which have debated the nature of norms, agency in norm dynamics, and diffusion patterns (Bloomfield 2015, Zimmermann 2017, Wiener 2018). These assessments recognize that existent norm dynamics include a highly diverse set of anti-plastic norms, promoted by different actors with varying roles, across different units and levels. Using this research, we argue that the de-centered norm dynamics of plastics lack some centralized normative properties regarding problems, values and behavior but also lack centralized agency or roles, and we claim that this deficiency is likely to impact norm effectiveness. In contrast to other environmental regimes that arrange diverse instruments of governance around a shared normative aim, plastic governance lacks such a common, normative core as an anchor for the

diversity of activities. Hence, de-centered norm dynamics differ from similar environmental governance processes, e.g. in climate policy, where regime complexes or polycentric governance structures are considered effective (e.g. Abbott 2010, Jordan *et al.* 2018).

To examine these de-centered norm dynamics and their implications for plastic governance, we first introduce the environmental impact of plastics. We then present the development of norm research in IR and compare its central analytical categories with research on anti-plastic dynamics and plastic governance. Juxtaposing the findings of those studies shows the very different conclusions they draw. Subsequently, we analyze the norm dynamics around plastics. Drawing on documents and policy statements, as well as on existing literature, we examine the properties of anti-plastic norms and the agency involved. Our conclusions suggest that, while de-centered norm dynamics may open up new ways of establishing global norms, even in the absence of global regulation, the outcome of this process does not necessarily present an effective solution to environmental problems. This finding thus questions current accounts of plastic regulation as rather optimistic.

### Plastic pollution: different aspects of a global problem

The basic problem with plastic is its ubiquity with regard to production, usage and disposal. First produced in the 1930s, plastic has become a successful product integrated in almost all areas of modern life, with an annual production of 400 million metric tons in 2018 alone (Dauvergne 2018b). At the end of the life cycle, estimates suggest that, of all plastic used worldwide, 9% is recycled, 12% is incinerated and 79% ends in landfills or the natural environment, including oceans (Geyer *et al.* 2017). Estimates state oceans were littered with around 5 to 13 million metric tons of plastic in 2010, and the annual amount has grown in the years since (Vince and Hardesty 2016, McDevitt *et al.* 2017). First evidence of this pollution was presented in the early 1970s (Stoett 2016).

Environmental governance also needs to consider the different materials constituting plastics – often compound mixtures – and their different sizes (Brennholt *et al.* 2018, Dauvergne 2018b). So-called micro-plastics are defined as smaller than 5 mm, either by design (‘primary microplastics’) or through breakdown (‘secondary microplastic’), which can also include textiles and tire abrasion. Preventing the pollution from micro-plastics is nearly impossible due to their many sources, their persistence in the environment and their inability to be filtered out by existing wastewater filters (Browne 2015, Xanthos and Walker 2017, Dauvergne 2018b). As a consequence, micro-plastics litter aquatic systems and are ingested by fish, corals and seabirds, affecting humans through the food chain (Thompson 2015). Further problems exist due to even smaller plastic pieces, ‘nanoplastics’, that may even pass cell walls (Dauvergne 2018a). Moreover, pollution problems are not only caused by the

plastic particles themselves, but also by the chemicals involved in their production (McDevitt *et al.* 2017, Vidal 2018).

The different applications of plastic, and the varying problems linked to its production, consumption, recycling, and substitution result in a large number of possible regulations. These include prohibitions, taxes, consumer incentives, and technical standards. The first plastic products to be targeted – and often banned – in many countries are plastic bags. Bags are cheap, single-use products that are often disposed outside of collection systems. Regarding production, a growing number of countries are regulating so-called microbeads, banning them in ‘rinse-off’ forms, like shower gels, but allowing them in lipsticks, creams, and deodorants (Clapp and Swanston 2009, Xanthos and Walker 2017, Dauvergne 2018b). Some regulators target the consumption of plastic, legislating against single-use plastics, like straws or plastic cutlery, due to their short lifespan of use compared to their long-term environmental impact (UNEP 2018a). Targeting the end of the lifecycle of plastics, governance also includes technical standards for waste management to help increase recycling and enable more effective water filtering. Besides regulatory incentives via legislation, non-state actors also target plastic pollution, for instance when consumers boycott product lines, when activists collect litter on shores, or when producers develop new product lines, like ‘bioplastics’ with supposed greater biodegradability (UNEP 2018a).

### Norm research and global plastic governance

IR research defines norms as ‘standards of behavior for actors with a given identity’ (Finnemore and Sikkink 1998, p. 891), and related studies have often focused on the dynamics by which norms are generated, disseminated and implemented. Norm research acknowledges the dynamics and contestation inherent in policy-processes, and the diverse set of actors engaged in different stages and roles, but its main accentuation has changed over time. Early norm research focused on a specific class of actors, so-called norm entrepreneurs, to explain norm dynamics, and it depicted a division of labor according to the different roles of actors, usually with non-governmental organizations (NGOs) or international organizations as ‘norm makers’ targeting states as ‘norm takers.’ Classic examples in the field are human rights NGOs or international organizations involved in diffusion processes (Risse *et al.* 1999). Such diffusion processes are initiated by norm entrepreneurs: dissatisfied with the status quo, they try to persuade states to evaluate existing behavior as ‘wrong’ and to promote novel types of behavior – for instance via prohibitions or other regulations. Norm entrepreneurs strategically frame a problem and propose political solutions, thus turning normative dynamics into regulatory action (Finnemore and Sikkink 1998, Wunderlich 2013). Norm promotion can be carried out by diverse actors, ranging from NGOs and their networks (Finnemore and Sikkink 1998) to states and transnational corporations (Flohr *et al.* 2010).

While early norm research has been important for outlining normative and regulatory dynamics, it has faced critique from interactionist perspectives, in particular for its essentialized understanding of norms and for its rather linear understanding of norm diffusion. As critical accounts (Epstein 2012, 2014) emphasize, these global diffusion patterns are often exemplified by liberal or 'Western' ideas, thus diffusing usually from the global North to the South. Simultaneously, critique (e.g. Acharya 2004, Zimmermann 2017) has outlined that such norm research perceives norms as distinct, stable and thus essentialized, assuming empirical variation in agency rather than in meanings – despite the fact that these global norms are interpreted against very different local or national backgrounds. Following from this critique, more recent norm research (e.g. Sandholtz and Stiles 2008, Krook and True 2010) conceptualizes the development of norms as an ongoing, dynamic process, in which actors constantly engage with norms by stabilizing, reforming, reinterpreting or abandoning them. Current accounts (e.g. Acharya 2011, Bloomfield 2015) also introduce a broader understanding of norm-related agency that moves beyond pure norm makers and takers. Here, actors also engage in maintaining the status quo by referring to local norms and practices that oppose global norms. They thus act as 'antipreneurs,' using the same strategies as norm entrepreneurs but with different intentions. Furthermore, a focus on contestation has led to a conceptual innovation in norm research through claims that norms must be defined as contested in nature, thus suggesting that contestation or change is just as expected as normative stability (e.g. Wiener 2018, Deitelhoff and Zimmermann 2018). Conflict and lack of cohesiveness in norm dynamics are therefore more central in this line of research and show that a large number of actors involved in norm dynamics can result in an equally large number of interpretations, sometimes even leading to disagreement. In short, normative frameworks are not equally accepted across scales and units. Some aspects of norms and rules might be reinterpreted or rejected in some contexts, even while still being part of the same normative dynamic.

Existing research on plastics governance has relied on norm research, in particular when assessing two cases of international norm diffusion: plastic bags (Clapp and Swanston 2009, Winston 2018) and microbeads in cosmetics (Dauvergne 2018a). Another study (Clapp 2012) has focused on the role that industry actors play within local, national and regional dynamics, with an empirical focus on plastic waste, specifically the use of plastic bags and bottles. These studies built on many ideas of early norm research. However, they miss the opportunity to apply more recent approaches in norm research that deliver a more contested and complex picture of norms. These approaches would offer an overarching perspective to the very different findings of these studies.

A first difference in existing studies concerns the question what exactly the norm is, what properties and content can be linked to it and whether we face a single norm or multiple norms against plastic. Clapp and Swanston (2009) as

well as Dauvergne (2018a) address ‘anti-plastic norms’ in the plural, but they each empirically focus on a single case, bags or microbeads, respectively, while Clapp (2012, p. 199) argues that ‘an antiplastic norm and associated regulatory measures have arisen,’ indicating a single, broad anti-plastic norm as an umbrella for different dynamics and regulations. They all share an understanding of norms as rather fixed and stable, traveling from one location to another and thus causing change through diffusion. Analyzing plastic bags in a framework of so-called norm clusters, Winston introduces an alternative, more dynamic understanding of norms. Norm clusters are ‘distinct but acceptable combinations’ of a problem, related values and behavior, representing ‘a looser and less determinate collection of interlocking norm components’ (Winston 2018, p. 647). As Winston (2018) argues, the norm cluster regarding plastic bags is based on a single problem, the bags themselves, and on one behavior, their ban, but that it varies largely in values to justify this behavior, including environmental concerns, issues of wastewater infrastructure and religious beliefs. In contrast, Clapp and Swanston (2009) highlight variance in behavior concerning plastic bags, resulting in the question of how to adequately interpret the normative dynamics against plastics, and in particular the quantity of norms we face, their properties and scope.

A second difference concerns how the studies examine agency in norm dynamics. While Winston (2018) only addresses states, Clapp and Swanston and also Dauvergne ascribe norm entrepreneurship and antipreneurship to NGOs and business actors. Clapp and Swanston (2009) conclude that industrial actors opposed stricter regulation, like the banning of plastic bags, with industry antipreneurship framing products as environmentally friendly and establishing counter-narratives that focus on better recycling. The industry also filed lawsuits against local authorities in order to demand environmental assessments before legislating against plastic bags and bottled water (Clapp 2012). In comparison, Dauvergne’s (2018a) findings on the role of the cosmetic industry in microbeads regulation are less univocal. Despite attempts of cosmetic producers to exclude specific products from stricter regulations and to find legal loopholes for microbeads, his account shows that they nonetheless also played an important entrepreneurial role by accelerating the disuse of microbeads and by excessively using normative frames. The industry’s motivation, however, is not only aligned with ecological concerns, but also with other considerations, like market position and image (Dauvergne 2018a). Apparently, agency and roles are ambiguous rather than clear-cut, leaving broader questions of norm entrepreneurship still unanswered.

Taken together, the existing studies present different conclusions with regard to the specific normative properties, agency, and roles involved in plastic governance (see Table 1). In the following, we use these categories to integrate existing studies into a broader perspective of de-centralized norm research.

**Table 1.** Existing norm research regarding the reduction of plastic pollution.

| Study                    | Problem                                       | Properties of Norms   |   |  | Roles and Agency |
|--------------------------|---|---|---|--|------------------|
|                          |   | Value   | Behavior  |  |                  |
| Clapp and Swanson (2009) | Plastic shopping bags in the environment      | Different values, from environmental and infrastructure issues to religious necessities | Mostly bans on shopping bags  | Governments as entrepreneurs, industry as antipreneurs   |                  |
| Clapp (2012)             | Plastic packaging (bags and bottles) as waste | Avoidance of plastic waste  | Mostly bans on bags and bottles   | Governments as entrepreneurs, industry as antipreneurs   |                  |
| Dauvergne (2018a)        | Microbeads in the environment                 | Environmental protection  | Bans or voluntary self-restraint of microbeads in specific regions and products | NGOs (and to some extent also industry) as entrepreneurs |                  |
| Winston (2018)           | Plastic shopping bags                         | Different values, from environmental and infrastructure issues to religious necessities | Bans on shopping bags   | States as strategic norm takers                          |                  |



## Examining the properties of norms in anti-plastic dynamics

Properties of norms are not fixed, but ambiguous – with regard to the problems they address, the values they represent as well as the behavior that follows from adhering to norms. Regarding problems, norms against plastic do not converge towards one shared problematization of plastic, as current norm entrepreneurs refer to four different understandings. In the first problematization, plastic is considered a highly problematic material in general, no matter which form, product, or specific polymer. Due to its persistence, plastic is viewed as a threat for the environment and, subsequently, for human health. Activists (The Last Plastic Straw 2018) emphasize that plastic should be replaced by other materials and that overall consumption must decrease. Such changes would ultimately reduce plastic waste and limit its environmental effect. In the second problematization, only specific products, like bags, microbeads or single-use plastics, are problematized. This is visible in the normative dynamics against the use of straws, which are used for only a few minutes but can last for hundreds of years as litter. It is estimated that 500 million plastic straws are used in the US every day (Graham 2018). Yet, normative actors problematize straws for different reasons, for instance because of their non-recyclability, their potential for decomposing into microplastic or their questionable use in general (The Last Plastic Straw 2018). Third, problematizations of plastics can focus on specific features, like added chemicals or plastic wastes. For example, the health risks of chemical additives in plastics, specifically their toxicological effects and physical impacts, are widely discussed (Vidal 2018, ECHA 2019). The fourth problematization focuses neither on the material nor the product as such, but on problems of plastic pollution and littering. Even in this case, pollution is considered a problem for a variety of reasons. Plastic bags can pose a threat to animals or clog drains, whereas other products pollute water and affect the food chain. Thus, we can see that plastic is problematized against the background of specific values, for instance the concern over high consumption levels or over the environment and its protection. This also implies that the ‘problems’ and ‘values’ that inform plastics governance are linked and not clearly separated, as other accounts suggest (Winston 2018).

Values are derived from normative convictions and sources, and a closer look at efforts to govern plastics shows that they lack one overarching, normative core. For instance, early regulations on plastic bags referred to quite different values. While Germany and Denmark addressed ecological values in regulations of the early 1990s, Bangladesh, Ireland, South Africa and India also referred to other concerns (Xanthos and Walker 2017). As Winston (2018, p. 651) observes, the norm cluster regarding plastic bags is based on values as diverse as the need to ‘ensure flood drainage,’ ‘preserve sacred cows,’ ‘reduce airborne toxins’ and ‘build tourism’ and ‘national image.’ But even the simple idea of ‘valuing the environment’ implies considerable variation. Environmental values can differ

according to specific locations, for instance local, national or global environments – and one might be preferred over the other, thus representing competing rather than complementary values. Values can also refer to different objects of valence, like the protection of specific animals, rivers or oceans. Sometimes, the environment is only valued as a means to another end, for instance to improve market performance for businesses with more sustainable goods, or to preserve specific environments for tourism.

Research on anti-plastic norms has so far identified bans and prohibitions as the central reaction of governments, yet other varied behavior results from the different problems and values depicted above. While bans are common, so are levies, taxes and voluntary agreements between public and private partners. As UNEP (2018a) reports, bans on plastic bags are the predominant instrument in Africa, Central and South America and Oceania, while Asian governments rely on bans and economic instruments evenhandedly. In North America, sub-national regulation on bags exists, whereas in Europe, governments have predominantly introduced economic instruments, including public-private agreements. Microbeads have been banned in many places, too. After some US states began banning microbeads in care products in 2014, the federal government banned their sale and manufacture in the *Microbead-Free Waters Act* of 2015 (Xanthos and Walker 2017). Sweden has also led an initiative for a coordinated ban of microbeads at the European level by 2020, joined by Finland, France, Iceland, Ireland, Luxemburg and Norway, and the UK, Italy and New Zealand have announced that they will begin similar legislation (Roscam Abbing 2017a, 2017b).

Due to multiple problematizations and values, different actors bring forth different reactions to plastics, namely, to improve recycling or to abstain from them. UNEP's 'Clean Seas' (2018) campaign, for example, addresses a broad range of stakeholders, but also requests members to take a pledge on the use of plastics: 'Say no to straws, remember my reusable bags, use a refillable water bottle, bring my own take-out containers, choose products with no or less plastic packaging and avoid products with microbeads.' This strategy of targeting individual consumers and industry is shared by environmental NGOs. For instance, the Plastic Pollution Coalition established a campaign against plastic straws ('The Last Plastic Straw' 2018), which is a bottom-up approach to educate about the 'absurdity of single use plastic'. This campaign also encourages local businesses to phase out plastic straws, and provides a database of plastic-free cafes, restaurants and bars. Business actors often focus on recycling as the core contribution to anti-plastic dynamics. For example, industry initiatives like 'This Is Plastics' (2018a) or 'Marine Litter Solutions' (2018) lobby for better waste management infrastructure, especially in the global South. This is complemented by a joint partnership between the US-based environmental NGO, 'Keep America Beautiful,' and corporations from the plastics, packaging and food industry. Their common campaign, 'I Want To Be Recycled' (2018),

problematizes littering and the mismanagement of plastic waste, and advocates an increase in general levels of recycling in the US.

Reactions to anti-plastic dynamics are contested, too: thus Starbucks has faced persistent critique for using single-use articles with low recycling rates. When the company announced it would phase out plastic straws and test a plastic lid as a replacement for straws (Starbucks 2018), this too was targeted as a new plastic problem. In an open letter, the NGO network 'Break Free From Plastic' (2018a) impugned the new lid's recycling qualities, and even questioned whether it would be recycled at all. These reactions show feedback loops in the relationship between problems, values and behavior that have not yet been analyzed in existing research on plastic norms.

Analyzing the properties of the 'anti-plastic norms' in more detail thus reiterates central assumptions of newer norm research: normative properties are multifaceted, and there is no single, overarching norm related to clear-cut problems, values, and behavior. Instead, our analysis of plastics shows significant differences across these three dimensions, signaling a de-centered norm dynamic.

### Examining roles and agency in anti-plastic norm dynamics

Normative dynamics against plastics also show greater diversity in agency than existing research on plastic governance assumes. Research on plastic bags (Clapp and Swanston 2009) has explained dynamics around bans as emerging from coordinated interests of industry actors. For example, whereas the US plastic bag industry has successfully lobbied against a ban at the national level, Bangladesh's plastic industry was too weak compared to the older jute industry, which favored a ban that was ultimately adopted nationally. This power-based argument on business as norm antipreneurs does not apply to all cases, however. For instance, German supermarket chains banned plastic bags from their shops and introduced levies for thin fruit and vegetable bags ahead of binding regulation (Rahn 2019), showing that businesses are not necessarily opponents of anti-plastic dynamics.

This variance in roles and agency is also visible with regard to microbeads, where complex normative dynamics between NGOs, governments and industry unfold over time. In 2012, the anti-plastic NGO 'Plastic Soup Foundation' began raising public awareness against microbeads in aquatic systems with their 'Beat the Microbead' campaign. This campaign included a label for plastic-free cosmetics, an app to scan cosmetics for ingredients, and even strategic Twitter communications (Beat the Microbead 2017, 2019). Although the campaign successfully shamed the cosmetic industry, business itself was keen to phase-out microbeads in some products (Dauvergne 2018a). While reaching out to the public, cosmetic companies emphasized that they have already voluntarily phased out microbeads even before the legislation was

enforced. Indeed, major US companies stopped using microbeads in 2014 and 2015, about two years before the national ban came into effect. They explicitly acknowledged that environmental protection from microplastics is an important issue (Johnson and Johnson 2017, Unilever 2018) and aim for stricter monitoring of the ecological performance of their products (Colgate-Palmolive 2018). The European trade association, Cosmetics Europe, representing over 4,500 companies, has emphasized its members' contribution and norm entrepreneurship, ultimately assessing a decrease in the use of microbeads by 97.6 percent in the years 2012–2017 (Cosmetics Europe 2018). However, this industry-support for banning microbeads has been highly selective: from the start, a definitional difference was made between two groups of products – 'rinse-off products' like toothpastes or cleansing soaps, and 'leave-on products' like make-up or creams. While the industry agreed to ban microbeads in the former, where beads are immediately washed out and could easily be replaced by natural alternatives, it lobbied hard to keep beads in the latter product category. All in all, there is no overarching norm entrepreneurship of business actors in reducing microbeads across countries, firms or products. Corporations acknowledged and over-performed environmental norms in the US and Europe, where consumers were critical. Yet, they kept their production schemes intact for unbranded products and in developing country markets. Therefore, norm entrepreneurship by the industry has helped maintain an eco-friendly image, but at very low costs and with a highly selective focus (Dauvergne 2018a).

Norm dynamics against plastics do not indicate clear roles of entrepreneurship and antipreneurship for specific sets of actors. On the contrary, NGOs, governments and industry actors address a wide spectrum of values, suggest different forms of norm-compliance and target various actors. While bans on plastic bags and microbeads have often been assessed in the literature, states have introduced a range of additional measures to accentuate their norm-entrepreneurship against plastic. For instance, Costa Rica 'aims to be the first country in the world to eliminate single-use plastics by 2021' (UNEP 2018a, p. 25), while other governments are considering banning single-use plastics in the near future, among them Canada, Australia, the UK and India (Canada 2018, Carrington 2018, Zhou 2018). Regional or international governmental organizations have fuelled norm dynamics in their own way. While UNEP's campaigns have merely symbolic power, the United Nations Environmental Assembly (UNEA) adopted a first resolution on marine plastic litter in 2014 and established an international expert group to prepare further steps (Smith 2019). In 2019, UNEA debated whether to prepare a binding agreement regarding the plastic pollution of oceans, but this proposal was ultimately not adopted (Laville 2019). The European Union has initiated several measures against plastics and especially littering. The European Commission intends to regulate single-use plastic via market

restriction for cotton swabs, cutlery, plates, straws, drink stirrers and sticks for balloons (European Commission 2018a), and the ‘EU Strategy for Plastic in the Circular Economy’ aims at new ways to design, produce, use and recycle plastics (European Commission 2018b). With a view to health and environmental effects, the European Chemicals Agency has recently considered a restriction of microplastic (ECHA 2019).

Many civil society organizations support activities against plastic, further diversifying measures and targets of norm-entrepreneurship. For instance, the US-based network ‘Break Free From Plastic’ (2018b) aims to trace local plastic packaging waste back to international brands. Its audit toolkit for ‘clean-up activities’ includes instructions for systematic waste collection and for social media communication using a specific hashtag to indicate, and thus shame, producers of litter. It even encourages consumers to send collected litter back to the polluting industry. In addition, Greenpeace US asks its supporters to sign a petition addressed to the industry, rejecting the idea of consumer responsibility for plastic pollution. As their mission statements reads: ‘We have been told that the individual should simply recycle away the billions of tons of plastics corporations produce and that it will make the difference needed to sustain our planet. We have been told a lie. [...] At Greenpeace, we think the industry plays a larger role than individuals’ (Greenpeace US 2018). In contrast, Greenpeace UK uses more direct pressure on decision-makers. In addition to its extensive lobbying of companies in direct exchange, it also targets governments and political actors in its anti-plastic campaign materials: ‘We are calling on big corporations to act to reduce their plastic footprint – and stop producing excessive plastic packaging that is designed to be used once then thrown away. We are also calling on governments to act to tackle this problem, by creating closed loop systems that allow us to recover and reuse materials rather than waste them’ (Greenpeace UK 2018). The decision to ban a wide array of single-use plastics in the UK can be considered a huge achievement for NGOs and for Greenpeace in particular.

Business actors join the group of norm entrepreneurs, often with an emphasis on recycling and waste management: a growing number of plastics associations – from 47 in 2001 to 74 in 2018 – have signed a declaration which includes a pledge against marine pollution and which calls for ‘responsible use’ of plastics. The initiative also funds educational projects, exchange between relevant stakeholders concerning best practices in recycling, and even research projects (Marine Litter Solutions 2018). Business sometimes straightforwardly support this agenda. For instance, after the UK government deliberated a ban on straws, some businesses underlined that they were already phasing out plastic (Costa Coffee 2018), while others considered applying these changes in their overseas operations, too (Atkin 2018).

Contrary to these entrepreneurial activities, research on plastic bags has underlined the role of businesses as norm antipreneurs. Such antipreneurship

extends beyond businesses and includes contestation and outright opposition by different actors. The industry-sponsored campaign ‘This Is Plastics’ (2018b) presents plastic as helpful and beneficial, for instance by linking packaging to normative ideas on reducing food waste. For instance, its campaigning materials note that ‘there are many reasons why food is wasted, but a crucial factor is the way it looks. Of the almost 50% of food wasted, about one-third is thrown away because of its appearance. [...] Plastic can help prevent this food waste by making food look and taste fresher longer’ (This Is Plastics 2018b). In addition to business campaigns that promote the benefits of plastics, some governmental actors have turned out to be the most enthusiastic proponents. Several US-state governments have used their legislative powers to establish ‘bans on banning.’ For example, Michigan, Idaho, Arizona and Missouri introduced regulations that prohibit ‘local governments from regulating or restricting the use of disposable plastic items’ (UNEP 2018a, p. 23). Also, the most recent international negotiations have shown that the US, under the Trump administration, has repeatedly performed an antipreneurial role. For instance, when Japan, Norway and Sri Lanka introduced plans for a binding regulation to stop plastic pollution in the ocean, a small minority of states, led by the US, successfully prevented any binding language – even in an associated ministerial statement (Laville 2019). Similarly, when the parties of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal agreed on a binding amendment that ‘aimed at restricting shipments of hard-to-recycle plastic waste to poorer countries’ (Holden 2019) in May 2019, the US opposed it.

In sum, the agency and roles of actors in plastic governance are not uniform and cannot be categorized solely along the lines laid out in the existing literature on plastic bags and microbeads. Different types of actors can be entrepreneurs or antipreneurs, and significant overlap exists. Moreover, actors have ambiguous roles in different contexts and with regard to different plastic products, showing again a de-centeredness of norm dynamics against plastics.

### **Conclusions: de-centered norm dynamics and plastics governance**

De-centered norm dynamics represent a mosaic of simultaneous processes. We identified four elements of de-centeredness. First, norm dynamics are de-centered with regard to the problem. Different plastic products or phases in the product cycle result in different problems, including infrastructure issues, religious matters and environmental concerns. Second, norm dynamics are de-centered regarding values, relying on references to conservation, health and sustainable consumption. Third, normative dynamics suggest a range of different behaviors following the problematization of plastics, including bans on plastics, plastic reduction and wastewater management. Fourth, norm

dynamics are de-centered with regard to agency, with different types of actors being norm entrepreneurs and antipreneurs in different contexts (see Table 2).

Drawing on single cases of plastic bags or microbeads, the existing assessments on effective plastic governance seem rather optimistic. Despite differences in detail, those studies stress an assumption of effective implementation of anti-plastic norms in a web of plastic governance: norm dynamics regarding plastics are considered ‘successful’ (Clapp and Swanston 2009, p. 328) because their outcome ‘demonstrates the power of highly fragmented, bottom-up governance’ (Dauvergne 2018a, p. 14). These assumptions reflect a somewhat uniform, linear idea of norm diffusion and internalization that is common in early norm research. Having assessed the diversity of norm dynamics in detail, we expect that de-centeredness remains a problem for effective plastics governance since anti-plastic dynamics form neither a shared problematization nor common normative backgrounds against which collective behavior emerges. Moreover, non-linear dynamics create broad avenues for diffusion that also includes loops, contestation, and gaps. Accordingly, some forms of pollution are not addressed at all, for instance the abrasion of plastic tires, fibers of clothing or plastic dust, which form nanoparticles that are found in cities and may cause harm inhaled. This gap is a telling consequence of de-centered norm dynamics, where actors can focus on one isolated problem while neglecting other, potentially more important ones. Here, more systematic analysis is needed on why NGOs do not engage with these issues (Carpenter 2007), how governments generally structure problems for their policies (Hoppe 2018) and what different roles actors, including scientists, have (Turnhout *et al.* 2008).

In addition, analyzing the behavior of norm entrepreneurs in these de-centered norm dynamics gives further reason to doubt effective plastic governance. Governments show largely inconsistent behavior, in many cases only focusing on the regulation of specific products, and sometimes

**Table 2.** The de-centeredness of anti-plastic norm dynamics.

| Properties of Norms   |   |   |  |
|---|---|---|--|
| Problems  | Values  | Behaviors   | Roles and agency   |
| Plastic pollution, infrastructure complications, religious concerns, animal welfare, health risks, trade of unrecyclable plastics | Environmental protection, religious beliefs, economic aspects, avoidance of plastic entry into the food chain, health safety, sustainable trade, reduction of unnecessary plastic, support for zero waste, improvement of recycling | Diverse regulations from bans and levies to taxes for different plastic products, consumer activism and zero waste, extension of recycling capabilities | Norm entrepreneurs: (sub-)national authorities, industry, NGOs, networks<br>Norm antipreneurs: industry, specific states |

even outright resisting stricter rules. In addition, international regulatory activities remain largely absent. Debates inside the UNEA, initial legislation with the Basel Convention and initiatives by the European Chemicals Agency have faced shortcomings: either they did not end in binding global agreements and thus lack international authority, or they address plastics as one fraction of a broader problem, e.g. chemicals or waste (Raubenheimer *et al.* 2018). Some researchers debate international treaties with a limited scope on specific products or focus on multiple activities regarding a specific environment (e.g. Vince and Hardesty 2018, O'Neill 2019). Yet, even if these solutions are implemented, they do not overcome the de-centeredness of norm dynamics. Also, NGOs reveal gaps in their targets by predominantly focusing on the behavior of consumers, while governments and industry are not necessarily pressured to establish binding regulation or change their own behavior. Lastly, the industry promoted early microbead abstinence and supported recycling worldwide. However, examples of greenwashing and antipreneurship impugn the rate of change in the respective industries. The conditions under which business actors choose entrepreneurship rather than antipreneurship in environmental politics need further examination: Recent studies (Raubenheimer and McIlgorm 2017) have scrutinized whether the Montreal Protocol and its multi-stakeholder emergence could serve as a model for regulatory dynamics regarding plastic, and further research could systematically investigate whether industry support is based on the availability of alternative materials and on low costs for changing production. This would have implications for plastics governance because, for example, abrasion of plastic tires contributes much to pollution, but alternatives are either not available or not cheap. Thus, we can expect that industry support for changing behavioral patterns will be low.

Our assessment takes place while plastics governance is still a nascent field of environmental governance. Based on norm research, we have shown that approaches emphasizing de-centeredness in norm dynamics are well equipped to analyze plastics governance but ultimately counter expectations regarding effectiveness. As it stands, anti-plastic dynamics are an incoherent mosaic of simultaneous processes by various actors that lack a common understanding of central problems, relevant values and appropriate behavior. Although our findings do not preclude the emergence of a more integrated and effective governance, plastics governance is currently not more than the sum of its different parts.

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