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Assembling plastic policy objects in the making of the EU Single-Use Plastics Directive

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Plastics are everywhere we look. While plastic plays a major role in the global economy, rising environmental concerns have created an imperative to regulate plastic materials. In 2018, the European Commission published the European Union (EU) plastics strategy, a first-of-its-kind targeting plastic as a 'policy object' external to other legislation. Part of its action plan is the so-called Single-Use Plastics (SUP) Directive, which focuses on ten selected plastic objects—those most commonly found on European beaches. However, under close scrutiny, plastic seems to be anything but a clear-cut regulatory category. In this paper, we investigate how plastic manifests as an EU policy object through and for the SUP Directive. We follow the SUP Directive and the assemblage of 'plastic policy objects' through the regulatory spaces of the European Commission and the European Parliament. In these regulatory spaces, 'plastic policy objects' are assembled in specific ways that raise questions regarding their ontological politics. The paper is based on analyses of EU documents (directives, impact assessments, working documents, reports) and minutes of debates in EU parliament, as well as participations in stakeholder events.

Introduction

> "This can't continue. We need to be ready to change the way we think about single-use plastic."[1]

This is the key message of a European Commission's (EC) campaign. Globally, there have been initiatives to regulate plastics at different levels. Initiatives in numerous countries are lobbying towards the ban of single-use plastic shopping bags or of plastic microbeads that are used in cosmetic and personal care products. There is a growing need to act and to regulate plastics in society.

Currently, it seems obvious that we should be concerned about the accumulation of plastics in the environment and its multiple impacts. However, historically, it was only in the 1970s that the use of plastics started to be framed as an environmental issue. The first fully synthetic plastic was manufactured in the early 20th century and since the mid-20th

century, plastics have come to represent prosperity, unlimited access to certain goods and a democratic mass culture (Meikle 1995). Plastic could replace materials such as ivory or jade and opened the possibility "to create a world brighter and clearer than any previously known" (Yarsley and Couzens 1945). While our lives changed in ways that would not have been possible without plastics[2], triggering an ever-increasing production and consumption of plastics, concerns and questions about the impacts of plastics on our lives also started to increase.

We have reached a tipping point—"This can't continue"—as the European Commission's campaign rightfully claims. This translates to the need for actions to tame plastics and reorganise plastics in societies by regulating them. However, plastics are incredibly multiple and abundant. They exist in diverse forms and chemical compositions; they are present in practically every context, from household to industry, and they have the capacity to transform—they can be recycled and reused or they breakdown into microplastics.[3] Plastics play a major role in the European Union's (EU) economy since the EU plastics industry, from producers to converters, employs approximately 1.5 million people across the EU (EPRS 2017). At the same time, they challenge the ways we understand pollution by breaking down into microplastics and releasing chemicals that can have strong effects at low doses (Liboiron 2016).

Plastic is a material with a complex and rich sociocultural history. Therefore, regulating plastics cannot occur in a vacuum and needs to address the coexisting, multiple sociomaterial entrenchments that are shaped by and shape the very meaning of plastic. Materials are not a passive background on which politics or culture happens; instead, they are 'vibrant matter' (Bennett 2010)—they shape and are shaped by their own politics. This leads us to ask "when and how plastics as materials *become* political. Through which material processes and entanglements do plastics... give shape to political concerns?" (Gabrys, Hawkins, and Michael 2013, 5). The material properties of plastics are central to their material agency, as Liboiron (2016) has articulated in the case of microplastics, where the sizes of particles are crucial since they determine, for example, which animals can ingest them and the effects they may have on them.

Regulating plastics is thus a complex yet pressing imminent step that involves considering the environmental, economic, chemical and other events that occur simultaneously on national and international landscapes. In this paper, we take the EU as an example to investigate how plastics enter policy realms; specifically, we follow the making of the Single-Use Plastics (SUP) Directive (Directive EU 2019/904) to shed light on the challenges regulatory actions face when addressing 'plastic objects'.

Plastics in EU policy

The green paper, "On a European Strategy on Plastic Waste in the Environment," published by the European Commission in 2013, initiates discussions on plastics as a separate issue of concern in the EU policy framework, beyond basic waste or packaging legislation. This green paper seeks "to launch a broad reflection on possible responses to the public policy challenges posed by plastic waste which are at present not specifically addressed in EU waste legislation" (EC 2013, 3). This is the first attempt of the EU to turn plastics into a 'policy object' (Mellaard and Van Meijl 2017), a distinct matter of concern.

While the initial motivation to regulate plastics was rooted in concerns about plastic waste—as addressed in the 2013 green paper—we also encountered plastics soon after, in the framework of the EU circular economy model, as a potentially valuable material for industrial processes[4] (EC 2015). While it would be interesting to critically evaluate the broader concept of a circular economy (Kovacic, Strand, and Völker 2019) and what it means for plastics, the following analysis will focus specifically on understanding how the SUP Directive transformed plastics into a policy object.

The EU circular economy plan demanded a separate regulatory and legislative focus on plastics. In 2018, a year after China banned imports of plastic waste, the **EU plastics strategy** was published by the European Commission (EC 2018b). Stressing that "too often, the way plastics are currently produced, used and discarded fails to capture the economic benefits of a more 'circular' approach and harms the environment", policy-makers advocated "[r]ethinking and improving the functioning of such a complex value chain" (5).

Neither this strategy nor the green paper on plastics and the EU circular economy plan have legislative power. They are communication documents identifying where legislative actions should take place. Beyond general waste legislation, there are two legislative directives that specifically focus on *plastic objects*. In 2015, the EU directive for the reduction in consumption of the lightweight carrier plastic bag entered into force, setting EU-wide national targets for annual consumption that should be achieved by member states through economic instruments. For example, charging for lightweight carrier plastic bags at the point of sale, a widely implemented instrument across the EU. The second directive, which will be the focus of our analysis, is the SUP Directive, which regulates the ten single-use plastic products that are most commonly found on European beaches and fishing gear. It enforces seven different measures—from bans to extended producer responsibility measures—that the member states need to adopt between July 2021 and 2030 (EPC 2019).

Following the SUP Directive

In this section, this paper details how the EU SUP Directive managed to assemble "a fragmented domain of views, attitudes and practices in a coherent manner" (Mellaard and Van Meijl 2017, 330) using an object-centred approach. This means that we aim to understand **how plastic had to be shaped in specific ways to manifest as an EU policy object in the framework of the SUP Directive.** We follow the making of the SUP Directive as it moves across EU regulatory spaces. As critical policy studies scholars have pointed out, policies are not "simply instrumental governmental tools", and we need to approach them as "actants that have agency and that change as they enter into relations with actors, objects and institutions" (Shore, Wright, and Però 2011, 20). Therefore, we adhere to an interpretive approach to policy while 'following the policy' through its translations and assemblages (Peck and Theodore 2012; Clarke et al. 2015). In our case, we follow the making of the SUP Directive through the publicly available materials (documents, debates) produced by the European Commission and the EU Parliament.

STS scholars have attempted to understand the roles objects play by following their enactments and multiplicity as ontological endeavours (Asdal and Hobæk 2016; Mol 2002; Mellaard and Van Meijl 2017; Hawkins 2001). In line with this, Mellaard and Van Meijl (2017) propose an object-oriented approach to policy, "which makes it necessary to know how objects come into being and to explore their ontology" (330). However, in their case, their 'policy object' is domestic violence, which from a material perspective essentially differs from the policy objects followed in this paper. Plastics, because of their challenging materiality, offer a very interesting case for focusing on policy objects from a sociomaterial perspective. Shove (2007) highlights that the relationship between objects and materials is *co-constitutive*: "What materials 'are' and how they are seen depends, in large part, on exactly what they are made into" (114). If we invert this process, it means that what these policy objects 'are' and how they are enacted depends on what they are made of. We see that the regulatory efforts of the EU to transform plastic into a 'policy object' means regulating *objects made of plastic.* The policy objects targeted by legislation are *objects made of plastic*—from the lightweight plastic carrier bag to the items regulated under the SUP.[5]

To explore the enactments of these 'policy objects', we will look at the specific 'policy assemblages' that create them (Mellaard and Van Meijl 2017). "Policies are not simply 'transferred', they are reinterpreted as they travel across cultural boundaries" (Shore, Wright, and Però 2011, 20). In STS language, this means that a policy, as it moves, is not just transferred but is reassembled and translated, reworked and remade as it enrols different actors, issues and concerns. We will thus explore the emergence of different concerns regarding how items regulated under the SUP become a problem as the policy moves from the documents of the European Commission to debates in the European Parliament. Changing arenas also means that different plastic policy objects become the

centre to debates on identifying problems and respective solutions. Therefore, even if the SUP Directive assumes a singular reality that needs to be restrained and regulated, we have to attend to the different realities that the respective assemblages of the directive create (Law and Singleton 2014).

However, to follow the enactment of policy objects through different assemblages and to make sense of emerging multiplicity, we need to articulate the spaces that matter to our analysis and define how to move through these (Law and Mol 2002). **Accordingly, in this paper, we will follow plastic through two of the spaces where these policy assemblages were/are made and reflect on how policy objects are enacted in them.** Asdal and Hobæk (2016) emphasise the need to explore such 'assembling practices' in institutions and sites where ordinary politics occur. Following this argument, we conceptualise both the European Commission and the European Parliament as **regulatory spaces where policy assemblages happen and where policy objects are brought into being with them.**

Here, using the notion of regulatory space is essential; following Löw (2008), we want to be attentive to the relational and action-oriented aspects of space. Space is produced through action and in turn shapes the possibility of action. This draws our attention to two kinds of spatial practices: spacing and synthesis. The former points to "relational ordering", to the continuous (re)arrangement of different entities, whether humans, institutions, value orders, or material objects. Synthesis then sensitises us to the connections between these entities, a practice that is deeply entangled with perceptions, valuations, and classifications. In other words, a regulatory space is created through the assembly of policy, is co-constructed with the policy objects and actors involved and therefore does not pre-exist them. Space is thus not solely tied to the physical place of an institution— e.g., the commission or the parliament in Brussels or in Strasburg—and thus the assembling does not simply happen 'in it'. Therefore, regulatory spaces are not fixed but fluid entities. However, in contrast to space, we identify place as a fixed geographical location with its own sociocultural weight, which impacts the conceptualising of plastic regulation and the understanding of the position actors speak from. Place thus has to be seen in conversation with the construction of a regulatory space (Gieryn 2008).

The paper thus explores the assemblages of plastics, experts, evidence, policy actors, industries, places of use, circulations and national interests in the different spaces where the SUP Directive is manifested and where plastic is turned into a policy object. We will show that while the policy object seems clear, namely, 'plastic', the question of what exactly to regulate is one that is repeatedly posed in the spaces where the policy is being (re)configured. Concretely, we explore two different policy spaces. The first is the European Commission, which is responsible for drawing up proposals for new EU legislation and implementing policy decisions. The European Commission was central to framing

plastics as a matter of concern requiring policy-making. The second policy space is the European Parliament, the EU's law-making body, where we will demonstrate that the European Commission's proposal had to withstand the scrutiny of players from different national contexts with disparate networks.

In the following section, we start by increasing understanding regarding the wider dynamics at work in the EU's framing of the plastic problem. After presenting our material and method of analysis, we present our analysis. In doing so, we explore different moments in the negotiations, showing the struggles to define the problem and to identify what is to be regulated and how while accounting for the relevant geographies. As we will see, the question of regulating plastics is not simply about controlling a clearly defined entity. Plastic is certainly, even though it may seem so, far from being a clear-cut regulatory category. In fact, with each piece of legislation, 'plastic' is altered and takes a new shape. The SUP Directive therefore has a performative character; we aim to investigate it as an ontological project (Mol and Law 1994), whereby every new legal instrument and administrative rule brings a new kind of plastic policy object into being.

Methods and materials

Our analysis is based on EU documents that relate in one way or another to the SUP Directive. These are essential, as EU institutions tend to densely document most of their works and use these documents to communicate them. Following Asdal (2015), we suggest that documents do "not simply describe an external reality 'out there': Documents also take part in working upon, modifying, and transforming that reality" (74). This means that these documents not only describe the policy objects but also assemble and enact them.

We have gathered more than 200 publicly available documents on plastics regulation in the EU: directive proposals, impact assessments, working staff documents, factsheets, briefings, opinion reports, legislative proposals, adopted texts, procedure files, reports, annexes and summaries, etc. Focusing on the SUP Directive, we deeply analysed 25 of these documents, all published by EU actors, and the research reports cited in these. Additionally, two video debates in the EU Parliament and the textual minutes of the debates were analysed. We also attended two EU stakeholder events on the SUP Directive and its implementation, from which slides, notes and other documents were collected. Our analysis is based on interpretative policy analysis methodology, which unfolds the constructions of meanings rather than representations of reality (Wagenaar 2011). Moving away from a positivist analysis of policy, we approach our materials with ethnographic sensitivity using the approach of other critical policy studies scholars (Fischer et al. 2015).

Analysis

In the following section, we trace how the SUP Directive manifests through the publicly available materials of the European Commission and the European Parliament. We do so by engaging with six different moments when plastic policy objects were brought into being and regulatory actions were taken.

What is the problem with plastics?

To consider any type of action means, first, to define what the problem is, then to shape it in a way that it becomes a solvable problem (Fujimura 1996) and finally to craft a problem-solution package that fits potential policy interventions. The first step of the SUP Directive proposal was therefore to define the 'plastic problem', a process in which the European Commission took a central role. It provides this definition in its opening statement, stressing that "the amount of plastic marine litter in oceans and seas is growing, to the detriment of ecosystems, biodiversity and potentially human health, and causes widespread concern" (EC 2018c, 1). Indeed, marine litter and specifically plastic marine litter have been widespread environmental concerns for many years. Numerous initiatives at the local, regional and global levels are in place to address this problem. Plastics are reportedly found everywhere, from the deepest ocean in Antarctica to the beach of an uninhabited Greek island. Plastic waste could be envisioned as a new, unwanted marine species (De Wolff 2017).

However, plastics also carry a material particularity. They appear in the form of visible pollution as objects on a beach that can be seen by the naked eye and identified as "matter out of place" (Douglas 1966). Pictures of plastics in the sea, of plastics entangled with seals and seagulls, and of plastics in the stomach of a salmon all demonstrate the issue of plastic marine litter. They are transformed into witnesses in the European Parliament when, for example, a politician during the debates on the SUP Directive in March 2019 holds up a picture of plastic entangled with sea life while saying "The plastic you use once tortures the oceans forever." He adds that "we should be ashamed of the species that are suffocating from our culture of waste" (EP 2019, our translation). While this is part of the regime that makes the plastic problem visible, plastics are also invisible. Microplastics, i.e., small plastic fragments (smaller than 5 mm), become entangled in ecosystems and bodies, creating what has been described as plastic smog (Liboiron 2016).

Plastic marine litter, whether visible plastics on a beach or as invisible plastic pieces in bodies of water, has become an intensively discussed matter of concern. The SUP Directive aims to tackle this specific part of 'the plastic problem'—plastic marine litter—and the justification for this regulation is articulated immediately: "Plastic makes up 80-85% of the total number of marine litter items, measured through beach counts. Single Use Plastic (SUP) items represent about half of all marine litter items found on European

beaches by counts" (EC 2018c, 1). This sentence already goes quite far in shaping the prob-
lem—marine and beach litter can be counted and therefore have the power to count when
making an argument. Where do these numbers come from? A common way to measure
marine litter is through a marine beach litter survey, a "reasonable indicator for what is
found at sea (floating and non-floating) as well" (EC 2018a, 7). A beach thus becomes the
boundary space between land and marine environments. A beach is a space for leisure and
the space of potential littering, marking the boundary between the land—the space inhab-
ited by humans—and the sea. A beach thus becomes a nature/culture hybrid space where
plastic marine pollution becomes perceptible, showing traces of plastic production, con-
sumption and use.

The beach survey protocol used for the SUP Directive is based on the work of the
Joint Research Centre (JRC), which collects data on marine litter under the Marine Strat-
egy Framework Directive (MSFD) (Commission 2018a). Protocols for collecting and as-
sessing marine litter data with a special section focused on beach marine litter were pub-
lished by the European Commission and the JRC in 2013 as the "Guidance on Monitoring
of Marine Litter in European Seas". The protocol starts by selecting the beaches/sites
where counting happens based on criteria such as their length, if they are subjected to
other clean-up activities, if they are located near a river, which could be a land input
source, and their accessibility (JRC 2013, 38). On each of the chosen sites, a minimum 100-
metre section is marked, and the collection and identification of items begins. There is a
'master list of litter categories', i.e., a classification system to count different materials and
items found on a beach, which aids the counting of each littered item found. For example,
in the 'artificial polymer materials' category, "4/6-pack yokes, six-pack rings" are catego-
rised with the number tag G1 (JRC 2013, 117).

These classifications, counting practices and accounting exercises thus manifest the
plastic problem; they allow us to differentiate between litter and plastic litter and to justify
that plastics comprise the core of the marine litter problem and need political attention;
in other words, they make plastic marine litter a policy object.

How to assess the harm of an object?

Plastics found in marine environments, whether on a beach, seabed or sea surface, are
identified as 'the problem' to be solved. However, while the problem status of plastics is
often simply affirmed, the questions of what exactly their harm is, who is affected by them
and how this can be measured remain open for discussion. The problematic impacts of
plastic on marine environments are manifold, as stated in the SUP Directive proposal cit-
ing a JRC Report:

> *Marine litter impacts organisms at different levels of biological organization and habi-*
> *tats in a number of ways namely: through entanglement in, or ingestion of, litter items*

by individuals, resulting in death and/or severe suffering; through chemical and micro-bial transfer; as a vector for transport of biota and by altering or modifying assemblages of species. Marine litter is a threat not only to marine species and ecosystems but also carries a risk to human health and has significant implications to human welfare, im-pacting negatively vital economic sectors such as tourism, fisheries, aquaculture or en-ergy supply and bringing economic losses to individuals, enterprises and communities. (EC 2018a, 14)

This passage already points to the multiplicity of the 'plastic problem' at stake. The harm that plastic marine litter can create thus depends on what gets assembled into the prob-lem package and which relationships in this assemblage are assumed to be essential. In-deed, a single plastic item found on a beach can produce chemical harm, physical harm and economic harm—all at the same time. Thus, from this accounting exercise, which points to diverse forms and sizes, one key question emerges: What should be regulated in response to what kind of problem?

The SUP Directive addresses 'the plastic problem' by regulating the ten most com-monly found plastic products on European beaches, identified in the studies of the JRC. This selection means that neither the type of material nor the shape of plastics is being problematised but rather how *often* these items are found and *how they have been used* before arriving on a beach. Indeed, the European Commission's impact assessment in the SUP Directive proposal underlined that the exact impacts of different plastic litter "will be related with different features of the plastic waste such as weight, shape, location of emis-sions or likelihood of ingestion" (EC 2018a, 17). However, as also highlighted, it is very dif-ficult to determine these impacts, and there is currently no available research on these aspects. Additionally, it was clear that 'rankings' relying on the number of items/fragments found on a beach would not reflect the degree of risk at stake, "as items with lower occur-rence frequency might exhibit a larger risk than some with a higher occurrence frequency" (JRC 2016, 22). Thus, the plastic items on beaches are transformed into policy objects simply because of their frequencies of occurrence, independent of their specific material, chemical and physical properties.

Comparing this to chemical regulation helps us to understand the challenge of such an object-centred approach. In chemicals regulation, a threshold approach is used, mean-ing that a chemical, once present beyond a certain concentration that has been harmful in laboratory tests, is regulated. While this approach works in many cases, it has also been challenged in regard to understanding the chemical pollution by plastic additives that act as endocrine disruptors, since they can have effects from long-term low doses (Liboiron 2016). This also points to the complexities of regulatory processes.

In regard to plastic objects, there is indeed no established and agreed upon way *to measure the harm of an object.* There is no threshold-based approach that would measure how 10 plastic bottles on the beach do not cause harm but 20 could. The European

Commssion's Impact Assessment states this very clearly: "it is not possible to provide a statistical analysis of the relative harm caused by each of the Top 10 SUP items individually. An item may make up 5% of plastic marine litter, but it is not possible to say whether it causes more or less than 5% of harm; whilst it is possible to state that it accounts for a share of the overall harm." (EC 2018a, 18). In short, the relation between abundance and harm might not be linear, yet abundance seems to be the chosen way to define this problem and propose solutions.

Finally, even if specific properties of plastic objects can be identified as potentially harmful to humans or animals, this does not automatically lead to the inclusion of these objects in the SUP Directive. While the "case of a turtle having ingested a drinking straw which then became lodged in the animal's nostril" (EC 2018a, 19) has been used to demonstrate that the plastic straw is rightfully on the list of objects to be regulated, the reverse conclusion is not applied. For example, the six-pack rings used for beverage cans are not included, even though they become entangled with animals and cause suffering or even suffocation.

Making plastic policy objects placeless

How do certain kinds of evidence allow certain kinds of policies and, in turn, what kinds of policies require which kinds of evidence? Much of the plastic marine litter found on a beach does not necessarily originate from the place where it is found. This means that it is not automatically the act of littering that makes an area more polluted than others. Strong currents can direct plastic marine litter to specific geographical locations that then become more affected than others. Understanding where items or fragments come from is a very complex procedure, leading to the exclusions of such evidence from the standard protocols of most studies. As noted in the JRC report, "There is no information about litter items being dropped locally versus beached items, though this denotes a significant different policy need." (JRC 2016, 22). This means that if the protocol for categorising plastic litter on a beach would require an assessment of whether these items are coming via the sea or the land, the policies to address certain items might be different. For example, plastic straws or cigarette butts are very likely to have been used locally, while other items could most likely come from other places. However, the evidence used to demonstrate a problem also directs the development of solutions. Evidently, if we do not account for where these items come from, then addressing their direct sources will not be included in a problem-solution package.

This also means that 'the beach' becomes a placeless space when considering it through the lens of the SUP Directive. It is a space where flows of objects and fragments become perceptible, where counting and accounting can be performed. Concrete

geographies of the uses of plastic items and their traces throughout the world are thus ignored by the SUP Directive, even though a vision of these flows is present in its background:

> *Not all marine litter in European seas or beaches originated in the European Union, although European sources are significant (see Annex 3). Plastics are found on all beaches of European Seas. The majority of items found on a beach in Texel, the Netherlands, originated from the Netherlands or neighbouring regions. European countries bordering the Baltic and North Sea are likely to be the origin of plastic found there, but of course, all plastic coming from Europe either ends up in Europe's waters or in waters elsewhere in the world. Indeed, marine litter can travel large distances, even as far as the Artic. (EC 2018a, 7)*

A concrete geographical location is therefore irrelevant; it does not matter where a particular beach is located; it matters that it is a European beach. This makes the EU the space where the marine litter problem needs to be solved through regulation. When regulating specific objects, the places where they are found, used, or produced will not be considered. It does not matter if a plastic cup was found on a beach in southern Italy or northern Sweden; what matters is how this item figures in the beach count protocols. Plastic objects are thus detached from their local networks of production, use and even from the specific places where they are found, becoming SUP marine litter found on a European beach. SUPs are thus not just problems for coastal regions but for the EU as a political space that has to respond to their challenges.

Avoiding identifying specific sources of plastic pollution and embracing a regulation that does not ask 'where does this plastic object come from?' is also in line with how plastic is framed as "playing an important role in our economy and daily lives" (EC 2018a, 3)—*our* economy, meaning the EU economy. This is repeated several times in the EU plastics strategy and connects the SUP Directive with the idea of transforming the EU economy into a circular economy. At the same time, the EU feels the pressure to act, as single member states have begun to regulate specific plastic items (such as plastic bags in supermarkets), which could lead to a regulatory patchwork that could ultimately impact the EU economy. This was articulated in the impact assessment in the following way:

> **Member States are taking national action against single use plastic.** *France has banned plastic cups and plates, Italy and France are banning plastic cotton buds, the UK wants to ban straws, joined by the Brussels region recently, and other countries like Ireland and Portugal are considering measures. The EU must act now to ensure these diverse actions do not fragment the single market. Businesses need a level playing field, with clarity and legal certainty, and the possibility to develop economies of scale for new markets and alternative materials. (EC 2018a, 5)*

Different regulations were considered potentially threatening to the free transport and sale of goods in the EU, thus triggering the urge to create a common regulatory framework.

In short, "The initiative aims at preserving the internal market from fragmentation, which is – by essence – one of the key objectives of the Union" (EC 2018a, 36).

The complexity of connecting the problem to specific places and the apparent pressure to protect the single EU market thus identified the EU as the regulatory space that needs to address 'the plastic problem'.

When plastics get emplaced

Even though plastic policy objects are enacted as placeless through the SUP Directive proposal and its accompanying documents, when shifting to the EU Parliament, the networks and places of plastic production and use are exposed. The plastic products to be regulated are made somewhere, and their production contributes not only to the EU economy but also to member state economies as well as to more local economies. The EU Parliament is a very different space than the commission. While the European Commission has one member from each member state, the EU Parliament has 751 members who are directly elected by member state populations and are organised in political alliances according to their positions on the political spectrum. Therefore, they are representatives of nation states, and this is addressed explicitly in the debates of the European Parliament.[6] Frédérique Ries, rapporteur of the SUP Directive in the EU Parliament outlined this tension as follows:

> *I clearly do not have the same line of reasoning as certain members who, by means of deletions and derogations, are attacking the very heart of our text and trying to save plates or cutlery made in southern Italy, or German balloons. I would like to make it clear that the text makes no provision whatsoever for banning balloons and attacking, as I have read again today, the pleasure of children. This type of argument is Euroscepticism (EP 2018, our translation).*

This quote unambiguously points to the fact that the stakes comprise not only plastics, marine environments or human health but also the idea of a single Europe that is capable of acting as one political entity, side-lining local/national interests in the name of a larger goal—the achievement of UN Sustainable Development Goal 14, which advocates conservative and sustainable uses of the oceans and sea and marine resources (EPC 2019).

In the EU Parliament, national interests become entangled with regulating plastics, challenging EU's enactment as a placeless space of regulation. The frictions between the EU economy and national economies become clearly visible:

> *Plastic must be collected and recycled, not prohibited, and it is not yet possible to replace it. Have you rightly reduced the use of paper with the obligation of digital, to then oblige the use of paper for plates and glasses? But what's the point? Do you do it for your companies in Northern Europe? The only companies that will really be affected are the Italian ones, of which you cannot beat the quality, and then resort to these means.*

This is an attack on Italy when we are finally raising our heads in Europe! Vice-President
Timmermans, Commissioner Moscovici, look at the data! (EP 2018, our translation)

This quote from an Italian representative exemplifies that plastic products have geographies, challenging the idea of a single EU economy as presented in the European Commission's Directive proposal and supported by other members of parliament. Places of plastic production are thus made perceptible and connected to national or local interests.

Even though there is a promise that in the logic of a circular economy, new kinds of jobs will be created to replace those lost by ending certain plastic productions, this is too vague to address specific regional/local interests. Therefore, we find frequent examples that show how plastic products have geographies and how particular places will therefore be affected more than others. Jobs will be lost in some places and created in others. Therefore, by making the places of plastic policy objects perceptible in the EU Parliament, some members demonstrate their national interests in and their scepticisms towards the EU as a fair regulatory space. At the same time, they show that the plastic economy is not just a single economy but that there are multiple economies in place and at work.

Defining plastic policy objects

To regulate material plastic objects means to define, and to define means to render certain things visible while making others invisible. The directive defines a single-use plastic product as one "that is made wholly or partly from plastic and that is not conceived, designed or placed on the market to accomplish, within its lifespan, multiple trips or rotations by being returned to a producer for refill or reuse for the same purpose for which it was conceived" (EPC 2019, 3). The directive thus addresses objects that are 'made to be wasted' (Hawkins 2013), that are designed to be used only once. Single-use plastics become an ontological category, tied not to an essential property but to a clear-cut assumption of use.

While this might sound straightforward, the directive highlights the multiple boundary drawing exercises that are involved and integrate a further dimension—the concrete context of single use. Wet wipes, for example, fall under the regulation when used for personal purposes but not if they are employed in industrial/professional contexts. Food containers are probably the best example to show the effort needed to describe a seemingly straightforward *policy object*. They fall under the directive if a food is consumed immediately out of the container with no further preparation (e.g., cooking). However, at the same time, the policy excludes "beverage containers, plates and packets and wrappers containing food" (EPC 2019, 17) from the category of food containers. In other words, the SUP Directive does not address the many different qualities a container can have; containers can differ in shape, size, chemical composition, and colour. The same container is included

in the SUP Directive when filled with takeaway food but excluded when containing vege-tables to be sold in a supermarket.

The assembly of policy objects becomes an ontological task, negotiating the objects themselves, in this case, through how they are intended to be used and through the con-texts of their use. Plastic objects defined and categorised through beach surveys, which make plastic marine litter a perceptible matter of concern, are not defined in the same way in the legislative text of the directive that attempts to resolve this exact issue. What is categorised as a food container when found on a beach and what is categorised as a food container in the directive are two different ontological categories.

Finding Solutions

The SUP Directive outlines seven diverse measures ranging from consumption reductions to market restrictions, product design requirements, marking requirements, extended producer responsibility, separate collection objectives and awareness-raising measures that need to be accomplished by member states for different SUP products. However, there are few details about how these are to be achieved. This involves translating the di-rective into practice through its implementation into member state legislation. For exam-ple, on the consumption reduction targets that need to be accomplished by member states for SUP beverage cups and food containers, neither the degree of reduction nor how this should or could be achieved is specified. These measures could provide reusable al-ternative items or SUP items sold at the points of sale, and if "alternatives that are re-usa-ble- or do not contain plastic" are available, then SUP items can be removed from a mar-ket.

However, the cross-cutting argument is that these products be banned only from markets where "suitable and more sustainable alternatives [for SUP products] that are also affordable are readily available" (EPC 2019, 4). This is the case, for example, with straws and cutlery, where reusable alternatives or items made of paper or wood already exist. In contrast, when these alternatives are not available, such as in the case of tobacco product filters, other alternative measures, such as extended producer responsibility schemes, are proposed until innovative solutions make other solutions available.

More broadly, finding solutions also means redefining responsibilities regarding specific plastic objects. Deciding what needs to change is also identifying where a problem is located. The 'plastic problem' becomes perceptible through marine litter on a beach. However, as it is difficult to trace the origins of such litter, it is far from evident where to locate the problem or the solution. It might be argued that the issue of marine litter is simply an issue of littering. However, the struggles around the SUP Directive show the complexities of identifying and ascribing responsibility. Single use, as we have shown, is not described as something defined by human activity related to a specific plastic object

but as a feature inscribed in an object itself. This in turn translates to the need to change these inscriptions. Providing reusable items is one way of addressing this issue. Another is changing product requirements, such as plastic caps and lids that need to be attached to their containers or plastic bottles that will need to contain recycled plastic. In this case, it is not a must to move away from single-use plastics but to use recycled plastics, which support the idea of the circular economy.

The other measures included in the directive aim to inform consumers through proper labelling of SUP products and awareness-raising campaigns how to properly dispose of an SUP product and about available SUP alternatives. In these cases, the responsibilities are shifted to consumers, assuming that proper waste management systems are in place and that if consumers are informed, they will do their part, leading to a clear reduction in plastic litter. Furthermore, assuming that alternatives are always better than SUP products and that knowledge about alternatives is already available, better communication is staged as *the* solution. Raising awareness, indeed, is the measure that clearly addresses the most SUP products of any in the directive—'informing consumers' is a dominant trope. It is rehearsed in virtually every discussion and conversation about SUP products[7].

This attractiveness of information/awareness campaigns as solutions to the complex plastic problem needs a closer consideration. First, we see the performance of a classical deficit model approach to "the public". If people are informed about plastic and its use and understand what is at stake, they will act accordingly. Responsibility is thus shifted from producers to consumers: they are considered capable of shaping a market through (not) buying specific plastic items (after being informed accordingly), and they should engage in recycling in segments where plastic is still available/needed. We see little reflection on more profound changes the market should integrate, on the need for a deeper understanding of the complexity of the issue at stake among all involved actors, on the complex challenges brought about by a sometimes-naive replacements/alternatives discourse, and on the kinds of waste management systems that are actually in place.

Conclusions

Regulating plastic is complex; it is ontologically complex. Plastics have chemical, physical, social, economic and environmental impacts. Plastic is a material and a product. How plastic is regulated thus reflects and redefines what plastic is and what it can become in the future. Making plastic a policy object means fixing plastic in a particular form, creating specific plastic policy objects with adapted networks around them. In doing so, pre-existing networks that these objects are part of and emerge from become visible and challenge this process. Becoming a policy object is thus not just about use, nor is it just about the

types of plastics or the chemicals added, or even where plastics are found. It is the simultaneous collective of these.

Stating that plastic is multiple does not mean that we cannot do anything about it. However, we must be aware that when regulating SUPs through the directive, the plastic objects at stake are defined in a quite different way when the problem is formulated than during the development of potential solutions. As we have shown in this paper, SUP products are being problematised by first accounting for their presence on specific beaches and then rendering them placeless by generically labelling them as European. When negotiating solutions for SUPs, these plastic policy objects are thus reconfigured, embedded into specific networks and tied to places of production and use. They are classified as problematic because they are made to be single use, not because they are used once. We thus identified an important rupture between the making of a problem and the developing of its respective solutions.

This is also visible in how the measures proposed in the directive are outlined. What is actually being problematised in the SUP Directive is the abundance of SUP products on specific beaches, not the actual features of these objects. The EU plastics strategy as a whole thus aims to solve the problem by suggesting alternatives and recycling. SUP products are banned in cases where alternatives are already available. These alternatives can be products made from materials as diverse as wood or 'hopefully degradable' plastics. There is much discussion on the legislation of biobased and biodegradable plastics, yet currently, these materials have not been legally addressed in a coherent manner[8], although this has been promised in the new Green Deal of the EU. We thus have a typical situation—a waiting game. Industries are waiting for the EU to publish new legislation, and the EU is waiting for industries to invest in innovative materials so it knows what needs to be regulated. Finally, while the abundance of plastic objects is staged as the key problem, its solutions mainly envisage replacement and partly rest on better management—a substantial intervention into consumption patterns does not seem to be an option.

As our analysis has also shown, the regulation of SUP products in the regulatory spaces of the EU is an exercise in ontological politics, a "politics that has to do with the way in which problems are framed" (Mol 2002, viii); specifically, how plastic policy objects are shaped and defined through their abundance and their particular kinds of uses. It is a politics about how "lives are pushed and pulled into one shape or another" (Mol 2002, viii) through how the plastics industries, the jobs they provide and the livelihoods of people working in these sectors are brought into the networks of plastic policy objects.

Finally, it concerns not only the ontological politics of plastic policy objects but also the ontological politics of "the EU". Perhaps challenging the SUP Directive through national interests has underlined, and even purposely constructed, agendas of making parts of the networks perceptible to block the regulations. However, in the aftermath of Brexit

and the ongoing and reoccurring crises the EU is facing, the ontology of the EU as a regulatory space is one that is debated, renegotiated and redefined. Therefore, regulating plastic policy objects in the regulatory spaces of the EU is a performance of the EU itself, enacting the EU as one entity in the documents of the European Commission while challenging this perception of the EU in the debates of the European Parliament.

1. https://www.bereadytochange.eu/en/campaign/

2. Just think of all the plastic needed for electronics or Western medicine.

3. Microplastics are small plastic particles, usually described as pieces of plastic less than 5 mm in size, that have been found in oceans, soil, lakes, rivers and the atmosphere (Lechner et al. 2014; Driedger et al. 2015)

4. It is also referred to as the 'new plastics economy'.

5. The picture is more complex with microplastics and oxo-degradable plastics. It is interesting that in the case of microplastics, plastic is being experienced through not what it is made into but rather what it is decomposing into. Although interesting, the focus of this paper is not on microplastics and their regulation but the regulation of plastic objects through the SUP Directive.

6. Even if, officially, their role is not to defend national interests.

7. See, for example, the campaign of the EC on "The seductive power of single-use plastics" with hashtag #ReadyToChange.

8. There is only legislation banning oxo-degradable plastics from the EU market.

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