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# Contested discourses of a circular plastics economy in Europe: prioritizing material, economy, or society?

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#### ABSTRACT

The European Union has made the development of a circular economy one of the central ambitions of its Green Deal, in which plastics are a defined priority. Current policies, however, have drawn criticism that the narrow focus on techno-innovation opportunities and economic growth falls short of addressing multifaceted socio-ecological challenges, overlooks trade-offs between proposed solutions, and conceals conflicts of interest among different actors. This paper contributes to opening-up the critical political debate on the circular plastics economy using discourse analysis. Looking at how arguments are framed, which priorities are defined, and how actors take positions, we identify three circular plastics economy discourses in Europe: 'Plastic fantastic' (materialfocused), 'Circular economy will fly us to the moon' (plastics economy-focused), and 'Even plastic flowers are dead in this system' (socio-ecological systemsfocused). Our paper demonstrates that the circular plastics economy is inherently political and is actively imagined, built, and created through discursive mechanisms.

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KEYWORDS Circular economy; plastics; politics; discourse; EU

#### 1. Introduction

Plastics are omnipresent in today's world. Because of their durability, lightweight and flexibility in design, they became the primary choice for a broad range of applications. But the rapid increase in global plastic use over the last decades has also drawn wide attention to the negative impacts of plastics, such as marine pollution and its carbon footprint. The European Union's (EU) ambition of developing a circular economy (CE) by 2050, where plastic

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© 2023 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group. This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (http://creativecommons.org/licenses/by-nc-nd/4.0/), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent. is one of the priority areas, might open alternative ways to address these concerns but also evokes a series of new questions.

CE has become 'an indispensable part of the new EU industrial strategy' in the Green Deal (European Commission 2020) and gained its place in policy, business, and academia as a collection of ideas and strategies. It has been shaped within a nexus thinking in the EU, where a win-win logic for both economy and environment has framed challenges as opportunities and waste as resources (Kovacic *et al.* 2020). Although proponents of the CE argue that this way of thinking leads to increased efficiencies, critics problematise the reductionist approach that results in trading transformative agendas for incremental change (Ampe *et al.* 2019, Simoens and Leipold 2021). It is argued that the focus on opportunities for synergy silences the trade-offs and leaves room for simplistic ideas driven by techno-managerialism (Genovese and Pansera 2021).

The un-controversy created through the urgency of the environmental crisis and the mandate of continued economic growth promotes a depoliticised CE where societal and political implications, such as issues of justice and power relations, are often overlooked (Hobson and Lynch 2016). However, in the last few years, the social sciences literature on CE has brought increasing evidence that socio-political dynamics make a substantial difference in which circular economy and society becomes possible (Jaeger-Erben *et al.* 2021). It is highlighted that embracing the complexity of the CE is crucial for opening-up room for diverging perspectives and promoting more just and responsible futures (Friant *et al.* 2020).

Several scholars looked at diverging discourses on the CE. Such analyses are significant because they politicize the debate through demonstrating the plurality of ideas about what the CE entails and showing how discursive rationalities give directionality to outcomes, policies, and institutions (Hajer and Versteeg 2005). For example, Friant *et al.* (2020) identified four discourses of CE that are distinguished through, on the one hand, a holistic or segmented view on social, economic, technological, and political considerations and, on the other hand, actors' positions on the role of techno-innovations in socio-ecological challenges. Similarly, Bauwens *et al.* (2020) developed scenarios that reveal how different conceptualisations of the CE, based on the nature of their technologies and the configuration of the governance regime, lead to contrasting circular futures.

Uncovering how different actors from industry, policy, civil society, and research are actively positioning themselves and others in discursive categories is also crucial to re-politicise the CE debate (Hajer and Versteeg 2005). In the case of plastics, Palm *et al.* (2021) looked at policy narratives in the EU Plastics Strategy and identified four narratives at play: fossil feedstock dependency, resource inefficiency, pollution, and toxicity, each with a different group of victims, villains, and

heroes. Tilsted *et al.* (2022) showed how petrochemical incumbents strategically use their discursive power to accommodate pressures and to position themselves as solution providers. Mah (2021) argued that corporations across the plastics value chain included circularity in their agendas but used these strategies to intensify future markets of risky technologies and unsustainable plastics.

Building on the work of previous scholars, this paper responds to calls for more reflexive research on the CE that fosters a plurality of views (Kovacic *et al.* 2020, Friant *et al.* 2020). It aims to explore different discourses of the CE with a focus on plastics in Europe to unveil how the circular plastics economy (CPE) is inherently political and is actively imagined, built, and created through discursive mechanisms. Our findings present commonalities and divergences of the discourses based on how arguments are framed, how actors positioned themselves and others; and which future pathways have been presented. It also engages in a discussion on how discourse analysis contributes to the re-politicisation of the CPE debate. It does so by reflecting on what Hajer and Versteeg (2005) formulate as the contributions of discourse analysis to environmental politics: uncovering the contested notion of nature; showing how discourses shape policy priorities; exposing hidden assumptions and judgements; and demonstrating how power and knowledge intertwine.

This paper is structured as follows: Section 2 introduces the research design, sources of data, and the analytical framework. Section 3 presents the three discourses which are characterised by the following narratives: 'Plastic fantastic', 'Circular economy will fly us to the moon', and 'Even plastic flowers are dead in this system'. After the empirical analysis, Section 4 presents the discussion before concluding the paper with several remarks.

#### 2. Research design and methodology

This study applies the interpretive tradition in the social sciences (Foucault 1982, Dryzek 1997). This tradition assumes that realities are multiple and socially constructed: people make sense of their particular understanding of a phenomenon by telling stories and communicating with narratives (Hajer and Versteeg 2005). We use the Argumentative Discourse Analysis approach by Hajer (1995) where he defines discourses as 'an ensemble of ideas, concepts and categories through which meaning is given to social and physical phenomena, and which is produced and reproduced through an identifiable set of practices' (p.67). In this paper, we see discourses not as sole linguistic tools but as political processes in which a meaning-making process has the capacity to shape social practices, shift power balances, and impact institutions and policies (Hajer 2006).

We use discourse analysis both as a theoretical and an analytical framework that allows us to track how arguments are framed, how problems and solutions are defined, which strategies are developed, and which future pathways have been presented (Hajer 2006). Tracing the argumentative rationality brought into the discussions on CPE by different actors let us construct three discourses based on the scope of their emphasis: 'Plastic fantastic' (material-focused), 'Circular economy will fly us to the moon' (plastics economy-focused), and 'Even plastic flowers are dead in this system' (socio-ecological systems-focused). We present our analysis starting from the material level, expanding through the plastics economy level, and lastly to socio-ecological systems level.

Each discourse is presented in three parts: the first part introduces storylines, or 'condensed statements summarising complex narratives' (Hajer 2006, p. 69). Storylines consist of how plastics, CE, the single-use plastics (SUP) ban, and problems and solutions are portrayed in a particular discourse. We use words in *italics* to refer to the *short hands* in discussions: the main arguments used by discourse actors that assumes everybody else will understand what is meant (Hajer 2006, p. 69). Second, we present discourse coalitions, namely groups of actors who share a particular set of storylines. We then present assigned roles and positions of actors in each discourse. And finally, we show how the future is being imagined with diverse priorities and strategies, which we refer to as the future vision.

Our data collection ended in March 2022 and is based on document analysis, media, and interviews. We followed a fourfold process. First, to identify the actors who are actively engaging in the CPE debate we used the European news service EURACTIV. The platform delivers various actor positions with informed opinion pieces, interviews and reports specialising in EU policies. For our paper, we focused on the news articles under the Energy and Environment division. The commentaries provided a strong empirical base for our analysis, which was expanded through the official websites of the identified actors. As a second step, we collected the reports, position papers, and policy documents that mention circular plastics from these websites, using a snowballing approach.

Third, we used podcasts, online recordings of webinars, conferences, and panel discussions on CPE as sites of argumentative exchange to better understand not only the narratives but also the positioning of the actors themselves and others (Hajer 2006). Fourth, we conducted seven in-depth interviews that enabled us to cross-check our findings (Hajer 2006). Participants were selected from active industry associations, governmental institutions, and civil society organisations, based on the commentaries from EURACTIV (see Table 1).

As a next step, we analysed our data against a coding scheme using NVivo. We adopted an abductive logic (Yanow 2006) following previous interpretivist publications in CE (e.g. Ampe *et al.* 2019). This means that first, we started deconstructing different interpretations based on our prior

Numeric Code	Affiliation	Date
Interviewee 1 (I1)	European Environmental Bureau	08/06/2021
Interviewee 2 (I2)	Break Free From Plastic	11/06/2021
Interviewee 3 (I3)	Recycling Network Benelux	14/06/2021
Interviewee 4 (l4)	Plastics Europe	15/06/2021
Interviewee 5 (I5)	Pack4Food	22/06/2021
Interviewee 6 (l6)	European Youth Forum	25/06/2021
Interviewee 7 (I7)	European Parliament (The Greens)	25/06/2021

Table 1. Actors interviewed for insights.

Table	2.	Overview	of the	codina,	analysis,	and	integration	of the	findinas.

A – Open coding topics	B – Coding scheme for discourse analysis	C – Integration of the findings
Production	Approach to plastic	Storylines
Consumption	Approach to CE	Main arguments and
Pollution	Approach to SUP	metaphors
Plastic waste trade	Problems	
Bioplastics	Causes	
Fossil-fuel dependency	Positioning of actors	Actors
Toxicity	and roles	Discourse coalitions
International treaty		
Recycling	Future imaginaries,	Future vision
Pandemic	strategies and priorities	

knowledge of CE and plastics in an open coding phase, marking striking and relevant arguments under 10 topics (Table 2-A). After having an overview, we created a workable coding scheme to look for the building blocks of a discourse and came up with a final list of eight codes (Table 2-B). In total~700 documents were coded and analysed. As a third step, we combined analytical codes with thematic codes, which led us to construct three discourses presented in three subcategories (Table 2-C). The process of building three discourses was discussed with the authors of this paper several times to establish rigour, transparency, and representation.

#### 3. Discourses of circular plastics economy in Europe

This section presents the analysis of the three discourses in three parts: storylines, actor roles and positioning, and the future vision. A comparative summary is provided in Table 3 at the end of the section.

#### 3.1. Plastic fantastic

#### 3.1.1. Storylines

The first storyline of this discourse refers to plastics as an excellent material that 'can be developed with any combination of properties to accommodate almost any application one can think of' (Plastics Europe 2022a). Attractive

properties of lightweight, durability, and flexibility in design make plastics the number one choice to meet demands of society, from staying connected to playing sports, from eating fresh food to being treated in hospitals: thus making daily lives easier, safer, healthier, and more mobile (SusChem 2020). This central idea inspires the name of this discourse.

According to this storyline, plastics are *synonyms for resource efficiency* and are *game changers* in a resource-efficient, climate-neutral, and competitive CE in Europe (I4). Thus, it is crucial to extract the highest value in use and make sure these materials are recovered afterwards. Recycling comes out as the number one priority to keep the maximum possible resources in circles (I4). The *front-running* waste logistics, recycling, and collection schemes in Europe have been supported by the actors of this discourse to create a momentum for recyclers who are 'at the forefront of making plastics circular' (Plastic Recyclers Europe 2018).

The second storyline addresses plastic littering, which is considered to be a result of the irresponsible behaviour of consumers. Littering is seen as problematic not only because of the environmental damage it causes but also because valuable materials are getting lost in nature. Proponents of this discourse oppose any strong measures, such as bans or taxes (I5), and instead stress the need to educate consumers. The SUP directive is harshly criticised under this storyline as a gratuitous ban: blame should not be on the material itself but on the ignorance of consumers.

Europe voted for the SUP directive in 2019. At this moment, member states are translating this directive into national legislation to ban or reduce certain plastics. I find it a pity that this directive exists. Those plastics have functions, they protect quality and hygiene. I think they should have put more emphasis on the attitude of the consumers (I5).

If you go about the thought process that we need to reduce the plastic production just because there is littering, you are making a shortcut. Many people look from one side but forget the bigger picture. For this little problem, plastics are demonised, and we need to find solutions to this urgently (I4).

The second quote above brings us to the third storyline that problematises the *demonisation* of plastics. It is argued that there is a need to do *plastics rehab* in society (Ragaert 2019) and to think beyond *environmental folklore* (Acaroglu 2013). Environmental folklore refers to people's desire to protect the environment based on their experiences within society 'that are mostly the stories people take for granted and are not based on any scientific framework' (Acaroglu 2013). It is underlined that the misperceptions around plastics should be addressed by *turning to science* (I4). Life Cycle Analysis (LCA) is the most referred scientific tool to quantify multiple environmental impact categories including greenhouse gas emissions, human and ecological toxicity, and energy use. Numerous LCAs are used in this storyline to 'bust a bunch of myths' (Acaroglu 2013) and to demonstrate the comparative environmental advantage of plastics against other materials.

An example of the comparative LCAs referenced in this discourse is the study by the consultancy Trucost (2016). The report looks at the substitution of plastics with paper, cotton and glass in packaging and consumer products with the same performance. The main finding states that switching to alternatives would increase the environmental costs over three times and requires four times more materials by weight (p.7). The report concludes that the visible impacts of plastics on the environment are mostly the after-use phase, which overshadows manufacturing, energy use, and transportation stages, where plastics outperform other materials. This conclusion is frequently used in invitations to *end the blind war* against plastics in this storyline.

Lastly, it is claimed that the COVID-19 pandemic positively affected the public image of plastics and their *essential roles* for protection and hygiene, after being discredited in the last years because of pollution (I4). What is criticised is that the call from European Plastics Converters for postponement and lifting of the ban on SUP items is dismissed by the EU, risking the health and safety of millions of people.

#### 3.1.2. Actor roles and positioning

Actors of this discourse coalition are predominantly plastic producers, waste management companies, and plastic-applying organisations. Active ones include Plastics Europe, Plastic Recyclers Europe, and European Plastic Converters.

This discourse positions the plastics industry as committed to making changes toward CE (I4). They have been investing and innovating in cutting emissions and reducing waste for a long time and now, according to this discourse, the plastic industry has committed itself to circularity (Plastics Europe 2022b). Industry associations are producing facts and data transparently to support science-based policymaking and to better communicate the benefits of plastics to the public (I4).

On the other hand, consumers are mostly seen as irresponsible and ignorant in this discourse. It is the responsibility of policymakers to address the littering habits and promote recycling practices among the wider public, as well as improving the efficiency of collection, sorting, and recycling facilities. Civil society is called to 'stop being emotional and spreading false information; instead, they should listen to science and try to see the bigger picture' (I4). Training of all stakeholders is needed to acknowledge the essential role of plastics in addressing society's largest challenges (Plastics Europe 2022b).

#### 3.1.3. Future vision

This discourse frames CPE as a circularity at the material level.

According to this discourse, the production of plastics will increase to meet the demands of growing populations and economies (I4). Plastic will be the champion material that maximises efficiency and ensures sustainability while meeting the growth of the automotive, packaging, and housing sectors. Further advancements in its material properties will help the fight against food waste through functional packaging; better insulating buildings will keep increasing energy prices low and reducing the weight of cars will decrease the use of oil.

This discourse prioritises regaining the competitive advantage of the European plastic industry as value chains increasingly move to Asia. It will leverage its strengths in cutting-edge innovations in recycling technologies, alternative feedstock, intelligent materials, and renewable energy resources for manufacturing. Plastic producers already planned significant investments in chemical recycling technologies of EUR 7.2 billion for 2030 (Plastics Europe 2022a). It is trusted that this *game-changing* technology will complement mechanical recycling by treating waste streams that are either landfilled or incinerated; and will provide high-quality recycled feedstock for food-contact and pharmaceutical packaging (Plastics Europe 2022a).

According to this discourse, the commitments of the industry will need to be backed by an open mindset for innovation and respect for the technological neutrality principle (I5). Policymakers will need to create a supportive environment to embrace the developments in the plastics value chain and foster fair competition between the EU and other regions. A flexible balance is also important for an international treaty to avoid *regrettable substitutions* (Plastics Europe 2022b).

#### 3.2. Circular economy will fly us to the moon

#### 3.2.1. Storylines

The first storyline in this discourse addresses the fundamental flaws in the current linear plastics economy and its *negative externalities*. Although plastics are seen as the 'ubiquitous workhorse material of the modern economy' (EMF 2016, p. 1), it is argued that 'the way plastics are currently produced, used, and discarded fails to capture the economic benefits of a more circular approach and harms the environment' (EC 2018, p. 3). Actors of this discourse often report quantitative modelling results to support their ideas with numbers: 95% of the material value of plastic packaging, which is expected to be around USD 80–120 billion, is lost to the economy after a very short-use cycle, every year (EMF 2016). The annual cost of GHG from plastic production is rated to be USD 40 billion (EMF 2016). 150 million metric tons of plastics are estimated to be in the oceans and if

not addressed, there could be more plastic than fish by 2050 (EMF 2020). The sheer weight of *externalities* creates momentum toward *the ultimate solution*: making plastics economy circular with *moon-shot innovations*, which are targeted initiatives with a high potential for impact at scale (EMF 2016). This central idea inspires the name of this discourse.

It is now widely recognised that a circular economy approach is the only solution that can match the scale of the plastic pollution problem. It allows us to redesign the entire plastics system to not only overcome this global challenge, but to do so in a way that allows us to build better growth, and create solutions at speed and scale (EMF 2020, p. 4).

The second storyline presents CE as a *win-win* scenario: it promotes growth, creates jobs, and decouples economic activity from the consumption of finite resources. A USD 706 billion economic opportunity has been projected from the shift to a circular model where the value and utility of products are retained and waste is designed out (EMF 2016). It is argued that applying CE principles across the EU economy has the potential to increase the EU GDP by an additional 0.5% by 2030 and creating around 700,000 new jobs (EC 2020). Moreover, proponents of this storyline argue that the CE can also address resource security concerns that are exacerbated as a result of COVID-19 and the Ukraine War.

As a *regenerative growth model*, according to this storyline, CE not only treats the inefficiencies of the current plastics economy but also addresses the root causes of many global challenges like marine pollution and biodiversity loss (EMF 2020). Striking images of suffering animals and damaged ecosystems affected by plastic pollution captured public attention globally and created a demand for policy action. Particularly, single-use items that are much found on beaches are targeted at the European level and the SUP directive is welcomed in this storyline as being 'a much needed and timely action' (I3).

The third storyline underlines that innovation is the essential component to create the conditions under which a CPE can flourish: developing new technologies and business models are key to *turning today's challenges into opportunities* (EC 2018). It is argued that an efficient CPE requires reorganising the ways of production and consumption and demands action from every actor in the plastics value chain. Thus, actors of this discourse put greater importance in collaborative initiatives and business networks (e.g. EMF Global Commitment Network, Circular Plastics Alliance).

According to this storyline, it is necessary to reject the false dichotomy of upstream and downstream innovation strategies (EMF 2020). Designers and recyclers should realize that there is *no silver bullet solution* to transform the current plastics economy, so joint efforts are needed. In addition to creating an effective after-use plastics economy, actors in this storyline put growing

emphasis on considering elimination, reusability, durability, and repairability before material circulation. As 80% of a products' environmental impact is determined at the design phase, moving upstream would treat the root cause of the pollution problem and prevent waste from being created in the first place (EMF 2020).

#### 3.2.2. Actor roles and positioning

The discourse coalition predominantly consists of the European Commission, business consultancies, and plastic appliance organizations. Key actors include European Agencies, the Ellen MacArthur Foundation, and McKinsey & Company.

This discourse underlines that shifting from a linear to a CPE requires collaborative action, but businesses are the key players as determinants of the market (EMF 2016). *Untapped opportunities* wait for the ones that already embrace change: there is a *clear business case* in the progressive and irreversible transition to a CE (EMF 2016). Businesses who act fast to capitalize on novel models, designs and methods will *stay ahead of the curve*. On the other hand, businesses who get stuck in traditional linear models will face economic and reputational threats (EMF 2016).

This discourse puts the responsibility on policymakers to create significant incentives for circular business models to remove the cost advantage of linear practices. Policies should empower consumers/users and ensure they receive trustworthy guidance to make informed choices. According to this discourse, consumers are already aware of the problem and play a catalytic role in shifting the CPE, through engaging with sharing models, refill stations, and return schemes. Civil society actors nicely complete the picture by spreading awareness about plastic pollution and organising clean-up campaigns.

#### 3.2.3. Future vision

This discourse frames CPE as a question of circularity at an economy-wide level.

According to this discourse, businesses will drive the transitions with *moon-shot innovations* towards the *new normal of circularity* (EMF 2016). Pathbreaking developments like chemical marking, digital product passports as well as advances in e-commerce and delivery services will foster novel activities. The potential of digital technologies will be utilized for a smarter CE to track and map data on resources, value chains, and product information. Digital technologies will not only accelerate smart circularity but also a dematerialisation of the European economy.

Actors of this discourse are working to develop improved modelling tools, metrics, and indicators to clear the blurred view of opportunities of a CPE. Policymakers will create advanced certification schemes and trustworthy labelling for the areas of confusion (e.g. biodegradable plastics) to initiate consistency, fair competition between businesses, and a better consumer experience. Collection systems will be harmonized, and recycling capacity in Europe will be modernized to stir the market expansion for secondary materials. Chemical recycling will be used to complement mechanical recycling in hard-to-tackle waste streams and food-grade applications.

Decarbonization targets under the European Green Deal and the Paris Climate Agreement are taken seriously by the actors of this discourse, not only to reduce GHG emissions but also to decrease European dependence abroad. Extensive efforts will be needed to make novel technologies, such as capture and storage of CO2 (CCS) and electrified steam crackers, cost-competitive.

#### 3.3. Even plastic flowers are dead in this system

#### 3.3.1. Storylines

The first storyline of this discourse refers to plastics as unnatural, oil-based products, which are 'the tangible face of the climate crisis' and 'the fastest growing pollutant in the world' (I2). The actors of this discourse stress that humanity is currently operating outside the safe planetary boundaries for chemical pollution, with plastic pollution as a particular issue of high concern (Persson *et al.* 2022). It is argued that these *seemingly cheap materials* have tremendous non-quantified costs to society and the environment (Rethink Plastic 2022). This central idea inspires the name of this discourse.

This storyline problematizes the overwhelming volumes of global plastics production and the fact that production is projected to triple by 2050 (Persson *et al.* 2022). Referring to the ongoing expansion of production capacity by the petrochemical industry, it is argued that there is a pursuit for a *deeper carbon lock-in* with plastics (Bauer and Fontenit 2021). As a result of ambitious global targets of decarbonisation, oil and petrochemical industries are now 'betting their future growth prospects on demand for plastics' (Carbon Tracker 2020, p. 1). However, this is seen as contradictory to the Paris Agreement and European net-zero ambitions of 2050 (I2).

The second storyline is based on criticism of the business-centred and technocratic CE strategies. According to the actors of this discourse, *business-led circularity is a myth*: corporations with vested interests in making profits should not have the leading role in addressing social and environmental problems (Mah 2021). By shifting the perception of waste from the concern of environmental policy to economic opportunity in CE policy frameworks, the European Commission gave considerable agency to incumbent industrial actors (Leipold 2021). It is argued that some of these actors might turn CE into a 'technocratic project for future-proofing capitalism against environmental threats' (Mah 2021, p. 3).

The third storyline underlines that the impacts of plastics are spread across society but disproportionately fall on the poor and vulnerable communities in the world. One particular area of concern is the irresponsible and

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toxic plastic waste trade, which is also referred to as *waste colonialism* (Liboiron 2021) where European countries are criticised for shifting the burden of their overconsumption in the forms of waste, pollution, and toxicity to vulnerable communities 'whilst touting themselves as environmental leaders' (GAIA 2019, p. 10).

It ends in the yards of waste pickers, who are left to deal with the problem that wealthy countries have failed to solve. Exporting countries send their recycling overseas without knowing or caring whether it is recycled or not, what the environmental and health impacts are, or who is bearing the brunt of these effects. What matter is that whatever they manage to export counted toward their recycling rates (GAIA 2019, p. 11).

This storyline celebrates the advances in a global plastics treaty at the latest UN Environment Assembly resolution (UNEA-5.2). It is seen as a unique opportunity to build progressive coordination and partnership between countries to address present and inter-generational environmental injustices. Internationally binding instruments that tackle the full lifecycle of plastics with measures to reduce unnecessary production and consumption will be welcomed. According to the actors of this discourse, the process itself, whether being an inclusive, right-based one or not, will decide the ambition of the treaty (Rethink Plastic 2022).

The last storyline in this discourse raises scepticism on how the CE can lead to sustainability. It refers to the CE as something *necessary but not sufficient* (I2). Actors question one of the foundations of the European CE Agenda, namely the possibility of absolute decoupling of economic growth from environmental pressures and resource consumption. This discourse underlines the problem of entropy and points out that only around 12% of the material input was recycled in the EU in 2019 at the scale of the whole economy (European Environment Agency 2021). Matching the recycled material to the input processes or extending the durability and longevity of products would create a very *slow economy instead of a continuously growing one* (Zero Waste Europe 2020).

#### 3.3.2. Actor roles and positioning

The actor coalition of this discourse predominantly consists of civil society organisations, research institutes, and several local governments. Key actors include Break Free From Plastics Movement, Rethink Plastic Alliance, Zero Waste Europe and City of Amsterdam.

Actors of this discourse lack confidence in industrial actors. They argue that industry lobbyists use their technical expertise, economic power, and access to the highest levels to push their agendas in political circles (I2). Therefore, capacity building for policymakers to put strong regulatory frameworks and enforcement in place is needed. This is crucial to ensure that not only economic but also social and environmental aspects are addressed fairly, distant from *hypocritic promises* (I2).

In terms of policy, recent developments at the European level have been found promising. For example, explicit reduction targets for packaging in the second CE Action Plan and the right to repair in the European Green Deal have been welcomed after 40 years of end-of-pipe focused waste legislation (I7). Despite this, there is scepticism about the dichotomy between the policies and the action: EU policymakers are invited to *walk the talk* for a transformative change through legislative measures and targeted action (Friant *et al.* 2021).

Lastly, actors of this discourse champion the actions of civil society. Especially the successful campaigns of the global network Break Free From Plastic have been celebrated for directing significant attention of people, politicians and businesses to the *plastic crisis*. It is argued that these campaigns have led to creating *new frames of accountability*: putting the industry on the defensive and environmentalists on the offensive (I7).

#### 3.3.3. Future vision

This discourse frames CPE as a question of circularity at the level of socioecological systems.

According to this discourse, *expensive distractions to* the *CE* such as CCS and chemical recycling should be avoided: investing in CCS for municipal waste incinerators might exacerbate a lock-in in incinerators, while chemical recycling (i.e. plastic to fuel or chemicals) might reinforce a linear economy. Biobased plastics might play an important role in a fossil-free future, but clear definitions are needed to avoid *green-washing*. Because of potential land conflicts, food security issues and colonization histories, environmental justice should be prioritised while promoting bio-plastic alternatives.

Actors of this discourse call for absolute reductions in resource extraction, production, and consumption to downsize the socio-economic metabolism and lower the pressure on the planet (Zero Waste Europe 2020). Sufficiency-oriented lives are favoured over materialistic, consumption-oriented life-styles. It is argued that an increasing number of people are willing to move into a more fulfilling way of living which is based on wellbeing instead of throughput (I6). Changing the 'everyday normal' is important part of this systemic change for example, boosting the practices of reuse and making single-use abnormal.

This discourse envisions a future that is a shift from a linear, unfair, polluting economy to a circular, toxic-free and fair society. The term *circular society* is referred to as an alternative circularity approach that envisions socio-ecological transformation beyond growth-focused and market-motivated techno-fixing solutions (Jaeger-Erben *et al.* 2021). Particular attention will be paid to societal prosperity, participation, and redistribution of wealth and power. The monetary-based capitalist value definitions will

	(1) Plastic fantastic	(2) CE will fly us to the moon	(3) Even plastic flowers are dead in this system
Approach to plastics	Game changer material with fantastic properties, the synonym of resource efficiency	Workhorse material of the modern economy, unrivalled functions at low-cost	The biggest unnatural polluter in the world, tangible face of the climate crisis
Approach to CE	Necessary for a resource-efficient and competitive Europe	Win-win: decoupling, better growth, jobs	Necessary but not sufficient, skepticism on social implications
Approach to SUP ban	Pity, wrong direction to take	Needed, timely action	Tip of the iceberg
Problems	The global competitive position of the European	Inefficiencies of the existing plastics system,	Technocratic, business-led circularity visions
	plastic industry	environmental externalities	Increasing production
	Demonization of plastics	Resource security	Environmental injustices
	Waste and pollution	Waste and pollution	Waste and pollution
Causes	The shift of value-chains to Asia	Linear economic model	
	Misperceptions of public	Scarcity of natural resources in Europe	Restricted fossil markets
	Irresponsible behavior of consumers	Problematic plastics in the market	Waste colonialism
			Wellbeing tied to growth
Discourse coalition	Main actors include Plastics Europe, European	Main actors include European Commission, Ellen	Main actors include Break Free From Plastic,
	Plastic Converters	MacArthur Foundation	Zero Waste Europe
Actors' positioning,	Industry/business: Committed, already investing	Industry/business: Main actors and (moon-shot)	Industry/business: Push for future carbon lock-
division of roles	in cutting-edge technologies	innovators of CPE transitions	in with plastics
	Policy: Need to support market players without	Policy: Need to incentivize front-runners and	Policy: Need to regulate effectively, time to
	creating barriers	systemic innovation without overregulating	walk the talk
	Consumer: Utility-maximisers, irresponsible, need	User: Rational choicer, ready to adapt to new	Citizen: Performers of social practices, envision
	to be educated	business models	a just circular society
	NGO: Emotional, ignoring facts, can't see the	NGO: Completes systemic change	NGO: Essential to create accountability for the
	bigger picture		plastic crisis
Future vision	Better material	Better plastics economy	Better socio-ecological system

Table 3. Comparative summary of three discourses.

proactively be challenged to recognise multi-dimensional value-creation through many forms of work such as care work and community work (ibid.). A post-growth-oriented circular society will actively strive for the well-being of both humans and non-humans (Bauwens 2021).

#### 4. Discussion

Our analysis demonstrates the existence of contested views on a CPE in Europe. What is problematised, how priorities and solutions are set, and which roles are assigned to different actors create the contrast between discourses. Actors who share particular storylines form discourse coalitions to set strategic actions that serve their interest and to reproduce or fight against given bias. We argue that the narratives of the second discourse (CE will fly us to the moon) are the most influential in the conceptualisation of the CPE as well as in institutional and organisational practices in Europe. It perpetuates the dominant ecological modernisation idea in policy circles (e.g. in the EU Green Deal) to build a win-win scenario of decoupling through technological innovations and new business models (Leipold 2021). A depoliticised version of the CPE is being promoted through avoiding contested knowledge, silencing uncertainties, masking conflicts of interest, reducing circularity to technocratic management and transferring agency from governments to corporates (Kovacic *et al.* 2020).

For an explicit discussion on re-politicising the CPE debate through our findings, we draw on Hajer and Versteeg's (2005) study on the contribution of discourse analysis to the field of environmental politics. We discuss our findings in line with four points raised by these scholars on the usefulness of discourse analyses for revealing underlying political dynamics: the contested notion of nature; the deliberately limited process of thought and policy priorities; hidden assumptions and judgements; and the intertwining of power and knowledge. We share our reflections on these points, while comparing the three discourses.

The first contribution of discourse analysis to the field of environmental politics lies in the appreciation of nature as a contested notion (Hajer and Versteeg 2005). Our analysis confirms that each discourse assumes a different way of relationship with nature. The first one sets that relationship in an extractive way: nature is out there externally to provide resources for humans. It should be managed by experts using modern technologies to convert these resources into commodities. The second one refers to nature as ecosystem services that provide economic value beyond extractable resources. It sets conservation and planning targets based on monetary value assigned through quantitative models. The third discourse builds a relationship with nature that is beyond economic gains. It tends to adopt a cooperative and caring way of interaction that brings along appreciation

and inspiration. The interpretations of material/non-material interactions with nature by different actors inherently shape environmental decision-making and are conditioned by underlying power relations on whose nature counts (Berghofer *et al.* 2022).

Secondly, Hajer and Versteeg's (2005) state that 'discourses shape what can and cannot be thought, delimit the range of policy options and thereby serve as precursors to policy outcomes' (p.178). If we take the production and consumption of plastics in relation to the role of consumers as an example, the three discourses show differences in what can be thought and addressed. The first discourse argues that increasing production of plastics follows the rising demand of growing populations and economies. Consumers are seen as utility-maximisers and plastics provide the best resource efficiency to meet their demands. Accordingly, economic incentives appear to be key policies to shape consumption patterns. On the other hand, the second discourse calls for a shift in the production mindset through redesigning products and services. It sets a goal to eliminate problematic plastics (e.g. non-recyclable) but does not demand a reduction in general consumption. Instead, it promotes a shift towards innovative models that deliver the same functionalities. According to the second discourse, consumption patterns are a result of rational choices of consumers, so empowerment tools should be used by policymakers to shape these patterns. The third discourse argues that the production of plastics must substantially decrease because the planetary boundaries are already exceeded. Underlying norms, practices and power dynamics that maintain unsustainable plastic consumption should be addressed. Consumers are performers of social practices that are shaped by infrastructure, skills, and emotions. So, policy interventions should target the interplay between everyday practices and socio-structural contexts such as addressing drivers of food-on-the-go lifestyles for a reduction in single-use packaging (Rabiu 2022). Discourses exert what to include in or exclude from political agendas, thus, they give directionality to the policy outcomes that are experienced by all.

The third contribution point presented by Hajer and Versteeg's (2005) is the analysis of assumptions, bias and judgements in the discourses and practices, drawing largely from the work of Dryzek (1997). Dryzek argues that discourses embody power by conditioning the perceptions and values, which advance some interests over others. In the case of CPE in Europe, the narrative of growth might be 'the largest elephant in the room' (Friant *et al.* 2020, p. 4). It is left unquestioned: the problem is rather defined as how to decouple GDP growth from material footprint and environmental pressures. Despite an expanding body of empirical evidence against absolute decoupling, the proponents believe in technological advancements and large-scale circular strategies on helping to achieve that goal (Bauwens 2021). These actors hardly mention the problem of entropy in recovery strategies or the rebound effects of sharing economy practices. In our analysis, these narratives are dominant in the first and the second discourses, while the third discourse openly states that CE is inherently incompatible with an evergrowing economy. It argues that closing and narrowing loops would require a downscaled, slow economy as opposed to a productivist one (Friant *et al.* 2020). Moreover, a post- or degrowth-oriented circular economy and society disputes the definition of societal prosperity through material consumption and economic activities, thus challenging capitalist value definitions (i.e. based on monetary added value creation and destruction). Instead, it seeks multi-dimensional concepts of value creations that nourish care, solidarity, participation, and connectivity with nature (Jaeger-Erben *et al.* 2021). It envisions an economic reorganisation where wealth, knowledge, power, and technologies are distributed more fairly and (im)material resources serve exclusively for social well-being within planetary boundaries (ibid.).

The last contribution to the field is the application of Foucault's governmentality (1991) to the study of environmental politics. Governmentality is used to identify the modern arrangement of power to govern that is distributed across various sites (Hajer and Versteeg 2005). In the case of CPE, a closer look at the indicators and standards are particularly relevant in the understanding of the mode of governance dominating CE policies in Europe. Cited in Kovacic et al. (2020, p. 112), Turnhout et al. (2014) propose the term 'measurementality' (to extend Foucault's term governmentality) to signify the 'art of neoliberal governance' that privileges scientific techniques for assessing the environment in standardized units. What is to be measured or left out is decided by experts through scientific argumentation while silencing societal disputes. In the CE for plastics, indicator development and standard setting processes require highly technical knowledge in multiple areas (e.g. chemistry, modelling) where corporates exert considerable influence using information asymmetries (Mah 2021). These intensify eco-modernist discourses in European policy-making that tend to pursue a depoliticised, technocratic management of environmental resources. These ideas are mirrored in the first and the second discourses. Actors of these discourses frame circularity in terms of industrial activity and economic growth with a technology-centred idea of innovation, therefore, promoting governing through command, control, and monitoring. The third discourse, on the other hand, argues that moving towards a just circular economy and society would require going beyond what can be measured through quantitative forms of knowledge. Circularity indicators and standards that stabilise Euro-centric focus and undermine global environmental justice with technical debates about measurement and data availability, are criticised (Kovacic et al. 2020). Actors of the third discourse call for creativity and improved transformation capabilities by asking: how can society develop and grow in quality (e.g. purpose, solidarity, empathy) in a more equitable way, rather than in quantity?

### 5. Conclusion

In conclusion, this study shows that the CPE is inherently political and is actively imagined, built, and created through discursive mechanisms. It is crucial to recognise power struggles over how problems are defined, solutions are presented, and how actors position themselves and others. Arguments around plastics might sound technical and factual but they are also meaningful and suggestive as shown in the contested understandings of a CPE in Europe.

We hope that our analysis of different discourses on CPE may help shape the practices, policies, and strategies in a more reflexive, responsible, and accountable way. That might be possible through critical introspection by every actor (from industry, policy, civil society, research) and being explicit about the choices they make, including their assumptions and limitations (Kovacic *et al.* 2020). A further step towards socially just and environmentally sustainable CPE in the EU requires, on the one hand, engaging with plurality of ideas and trying to govern in complexity, on the other hand, narrowing, slowing, redistributing, and democratizing resource cycles in implementation.

Lastly, it is crucial to mention that division of a highly ambiguous and fluid debate on plastics into three categories involves inevitable simplification. Narratives used or strategies proposed in these discourses are not mutually exclusive, and there are differences in the shades of arguments within each discourse (e.g. variety of post-growth visions within the third discourse). The analysis is intended to provide a structured overview of such a complex societal debate in the hope to avoid deadlocks and stimulate pluralist discussions. Future research can look at the recent developments including the United Nations global plastics treaty and the European Parliament vote passing a full ban on plastic waste exports, in relation to how actors (re)position themselves and whether new discourses emerge because of these rapidly changing landscapes.

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