



# The actors of the Swiss plastic system: An analysis of beliefs and interests

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## ABSTRACT

Technological innovation has led to many new challenges for contemporary democracies, including the emergence of new policy areas. The present study investigates the problem of macro- and micro-plastic pollution, which has lately been progressively receiving political attention. Nevertheless, little is known about how political actors interact in such technical and less politicized policy areas. Hence, the investigation focuses on the actors' belief systems and the coalitions of the Swiss plastic system based on a content analysis and twelve semi-structured interviews conducted with the main organisations. The analyses provides evidence for the emergence of three main coalitions: the environmental, the industrial, and the public coalition. According to the environmental coalition, measures should be taken at the beginning of the plastics' life cycle; the industry coalition emphasises the benefits derived from recycling and voluntary agreements, whereas the public service coalition maintains that waste-to-energy plants still represent the most suitable solution. The findings offer important implications for both the scientific debate and practitioners. On the one hand, new insights are provided on the dynamics of a developing policy sub-system, through the lenses of the Advocacy Coalition Framework (ACF); on the other hand, from a practical point of view, useful implications are discussed regarding the political acceptability of possible future measures on how to tackle plastic pollution in Switzerland.

## 1. Introduction

The pollution by macro- and micro-plastics has increasingly attracted attention in recent years as plastic waste is pervading coasts, rivers, lakes and landfills, posing thus a threat to a number of ecosystems (Singh and Sharma, 2016). As indicated by Rillig et al. (2019), the pollution of rivers with microplastics might be a serious concern since it is being transported into oceans and landfills. Additionally, plastic's demand has risen at disproportionate rates due to its low cost, flexibility of use, and light weight. Nonetheless, plastic waste needs several decades to degrade and the impact on the environment, of some chemicals employed in its production, has still not been assessed. Moreover, not only is there evidence of the presence of microbes in microplastics (Zettler et al., 2013), but also of the existence of chemical additives in the plastic, which may have an adverse effect on human health (Rist et al., 2018).

In response to this potential hazard, several governments and the international community have decided to take action (Basel Convention, 2019). By way of example, the European Union (EU) has decided to apply a set of measures that aim to address plastic pollution. Indeed, in 2015, the EU implemented a restriction of lightweight plastic bags and

in March 2019 it voted for a ban on ten single-use plastic, which was executed by all Member States in July 2021 (European Commission, 2018). In Switzerland, plastic pollution issues have also gained a great deal of importance and have been the subject of several motions and parliamentary questions. Although the relevance of this policy issue has significantly increased in the last years, little attention has been paid to it (for an exception see Duygan et al., 2018). While it is true that both PET bottles recycling technology and the organisations under examination have an extended history (see Westermann, 2013), the general public awareness of the detrimental effects of plastic pollution on the environment and human health is a relatively new development (e.g., Mederake and Knoblauch, 2019; Henderson and Green, 2020; Nielsen et al., 2020). Accordingly, it is less surprising that coalitions of the plastic system are not widely known. Indeed, in Switzerland, prior studies have only investigated political coalitions in climate policies (Ingold, 2011; Ingold and Varone, 2012), energy (Markard et al., 2016; Blake et al., 2020) and water policy (Weible et al., 2016; Metz, 2017; Fischer and Ingold, 2020). Moreover, according to Peng et al. (2017), more research is needed to identify the drivers of the plastic system, namely the "politics" behind this system and consequently also the political acceptance of measures tackling plastic pollution.

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Thus, the present paper seeks to address the aforementioned research gap by focusing the attention on the actors involved in this field and the coalitions that they form. In doing so, the research concentrates on the Swiss case by analysing its plastic industrial system in terms of actors' beliefs as well as economic and political interests. The latter choice was due to Switzerland's not well-defined plastic system, whose issue surrounding it has only very recently reached the political agenda. Moreover, Switzerland has had the reputation, at least in the literature on the comparative analysis of environmental policies (Jänicke and Weidner, 2002), of being a pioneer country in the field of waste management. Notwithstanding, Switzerland is lagging behind in Europe in the field of plastic waste management. Thus, the study of this apparent paradox allows for a better understanding of certain factors likely to favour or, on the contrary, to impede the introduction of the new paradigm of the circular economy in waste management policies.

There are three main goals for this study. The first entails identifying the essential participants within the plastic supply chain: production, use, recycling, and elimination. Second, it calls for a description of the belief systems and interest structures that define the major players involved in the plastic system. Lastly, it involves understanding how their attitudes might help us to better grasp whether different policy tools are politically acceptable. By focusing on these goals, deeper knowledge is acquired of how coalitions are formed and composed, how they interact with one another, and the overall interests at stake.

To understand the actors and their beliefs, the Advocacy Coalition Framework (ACF) is applied, which is a theoretical approach examining policy processes (Sabatier, 1998). Precisely, it analyses the perceptions, the values and the cognitive boundaries of coalitions' actors (Markard et al., 2016). Empirically, the study relies on a document analysis and interviews of 12 key stakeholders of the Swiss plastic system. The analysis suggests the existence of three major coalitions: the environmental coalition, the industry coalition and the public service coalition. Firstly, according to the environmental coalition, measures should be taken upstream. Hence, they underline the need to regulate the system especially in the production phase. Moreover, this coalition believes that a more proactive attitude from the retailers' side can be beneficial in tackling plastic pollution. Secondly, the industry coalition emphasises the benefits that arise from recycling; however, although they strongly prefer voluntary agreements, they are sceptical about plastic bans. Finally, the public service coalition affirms that, given the technical difficulties surrounding recycling, waste-to-energy plants still represent the most suitable solution. Despite being in different coalitions, they all highlight the need for improvement in terms of plastic management technology. Nevertheless, it is important to stress that, while a certain degree of coordination was taken into consideration, the coalitions were mainly elaborated based on the actors' belief system.

Accordingly, the study is structured by firstly exhibiting the theoretical concept of the ACF in section 2, followed by the presentation of the study's design in section 3. Section 4 exposes the empirical results and analysis, which is further discussed in the fifth section. The concluding section highlights some policy recommendations that could emerge from the findings and also insists on the limitations of the study, which call for future research.

## 2. Theoretical framework

The ACF was elaborated at the end of the 1980s to grasp the essential characteristics of "top-down" and "bottom-up" approaches within the policy implementation literature (Sabatier, 1998). This framework attempts to explain changes in public policy by trying to "establish the policy subsystem as a common scale for analysis, by guiding the analyses of beliefs among actors in coalitions, and by offering some theoretical rationale for processes of learning and policy change" (Henry et al., 2014, p.307). According to Sabatier (1998), policy subsystems are composed by different actors, who are involved in a policy issue, such as the environment, and who attempt to influence a public policy related to

this domain.

Generally, the ACF detains five core premises (Sabatier, 1988). First, it asserts how technical and scientific information is playing a pivotal role within a policy process. Second, it can also be used to analyse policy changes over a time perspective of at least ten years and within a particular geographic scope. Third, it assumes that the policy-making process occurs primarily among actors who regularly seek to influence policy decisions within a particular public policy subsystem (Markard et al., 2016). Next, its premise is that actors are grouped into one or more advocacy coalitions, whose members share a set of normative beliefs and that they act together to translate their beliefs into a public policy (Sabatier, 1998). More specifically, the ACF not only includes interest groups, administrative agencies, and parties, but also journalists, analysts, researchers, and others who deal with the policy at stake.

The focal point of the ACF is therefore the actors' belief system that structures the coalitions in a specific policy subsystem. Specifically, according to this approach, belief systems can be divided in a three-level hierarchy. The *deep core beliefs* are the fundamental normative beliefs that are extremely difficult to change. They contribute to structure and frame the *policy core beliefs*, which embed both normative and empirical beliefs related to a policy domain or a subsystem (Jenkins-Smith and Sabatier, 1994). These beliefs are derived from fundamental values, basic perception concerning the importance of an issue, and its sources (Sabatier, 1998). Zafonte and Sabatier (1998) specify that members within a coalition tend to share policy core beliefs and therefore are more prone to coordinate with one another to implement a desired policy. Although these beliefs are well anchored, they are more malleable when compared with the first set of beliefs. Ultimately, the *secondary aspects* are a narrower group of beliefs, which can be seen as specific measures that help to achieve policy goals. Given their instrumental characteristics, they are likely to be subject to fewer negotiations among actors and consequently more susceptible to changes. Hence, a coalition seeks to influence policies pertaining to its core beliefs. However, a coalition will remain true to its beliefs while in power, showing a consensus on policy core beliefs, while adapting the secondary aspects through policy-oriented learning<sup>1</sup> (Sabatier, 1998).

According to the ACF, changes in the core features of a policy might happen only in response to either an exogenous shock or a structural change (Sabatier and Weible, 2007). The former occurs following a macro-economic change, the rise of a new systemic governing coalition, a change in the public opinion or a policy decision coming from other subsystems. A clear example is the Fukushima nuclear disaster, which had a considerable impact on the public acceptance of nuclear energy, leading to a radical change in energy policies in many countries. Indeed, Switzerland, like Germany, has decided to stop using nuclear power once the end of the nuclear power plant life cycle will be reached (Jahn and Korolczuk, 2012). A structural change occurs following an internal event that underpins the failure of a policy subsystem and thus questioning the policy core beliefs of the dominant coalition (Weible et al., 2009). This transformation is thus defined as a "major change" entailing a fundamental shift in policy goals. For example, Sabatier and Weible (2007) argue that the Santa Barbara oil spill, one of the worst oil spills in US history, was mainly the fault of the actors involved in the petroleum sector. Accordingly, this event clarified several problems surrounding this domain, creating thus a wave of new environmental legislations.

Another determining factor behind policy changes is the resources of a coalition (Albright, 2011; Knoepfel, 2018). Notably, the ACF argues that having resources at their disposal allows coalitions to have a more significant impact on the policy process. Sabatier and Weible (2007) classify six types of resources: formal legal authority to make policy decisions, information, financial resources, leadership, public opinion on the coalition, and mobilising troops. Additionally, Knoepfel et al.

<sup>1</sup> Expert-based information affects policy indirectly by slowly altering the beliefs of policy actors in a process called "policy-oriented learning" (Weible 2008).

(2011) suggest including four further resources: human resources, interactive resources, which entail a higher degree of organisation, time and the infrastructural resource. Nevertheless, an external shock has a direct resonance on resources by redistributing or concentrating them (Weible, 2006).

The ACF also assumes that actors have bounded rationality, given that they are hindered by both cognitive and time limitations (Sabatier, 1998). Actors of a coalition tend to perceive a policy problem through their prior beliefs, the so-called biased assimilation, leading them to analyse the problematic only through its lenses. This phenomenon leads to avoiding dissonant information and joining actors with the same beliefs by building mutual trust (Sabatier and Weible, 2007) and therefore distrusting other coalitions, which inevitably creates conflict among different alliances. Overall, during a decision process, coalitions tend to rely on heuristics and ignore part of the general information (Sabatier, 1998), which underpins the stability of a coalition. Moreover, according to Sabatier (1998), a policy subsystem might have between one and four coalitions. The latter is due to the belief system involving value priorities, perceptions important to causal relationships, and perceptions concerning the efficacy of various policy instruments. This framework has been actualised with other variables so as to consider the specificities characterising institutional regimes (Sabatier and Weible, 2007). For instance, the level of both consensus and venue openness within a political system affects the strategy of a coalition. Indeed, the more there is a consensus among coalitions, the more they tend to find a compromise with competitive coalitions. Simultaneously, Fischer (2015) claims that higher levels of open venues enable more cooperation among the actors involved in the decision-making policy, which might result in the creation of dominant coalitions. Consequently, in order to better comprehend the plastic subsystem in Switzerland, these specificities will be accounted for.

### 3. Research design

Given the recent public attention that plastic pollution has gained in Switzerland, it seems of particular importance to better examine this country, which has been considered a frontrunner in waste management (Jänicke and Weidner, 2002). However, as far as the collection and resource of plastics is concerned, Switzerland seems to be lagging behind many European countries. It is therefore interesting to analyse this case to understand which elements may or may not lead towards a more circular economy.

Notwithstanding, a limitation of a single-case study is its generalisation, which is why the first and main aim of the research is to obtain a detailed analysis of the situation; whereas, its generalisation is investigated as a second step,

The analysis is empirically divided in three parts. Firstly, the major actors involved in the four processes of the industrial plastic system, including production (producers, importers and retailers), utilisation process (consumer associations), recycling (recycling associations and industry), and elimination (incineration industry, storage facilities) were identified through a document analysis (newspaper, scientific articles and parliamentary interventions). Concretely, all Swiss level umbrella associations representing the sectors involved in the four process, as well as the leading producers and retailers, were identified. Subsequently, the actors were confirmed through interviews by using the snowball and reputational methods. In addition, other categories of actors were considered; namely, the public sector (federal, cantonal and especially the communal level), NGOs which addressed the issue of plastics, the energy umbrella association and one among the largest companies in the energy field, major research centres working with plastic pollution or waste management (e.g. Empa), and finally the six most important political parties. Thus, we were able to elaborate a list of 35 important actors in this field (cf. Fig. 1), whose relevancy was finally confirmed through interviews with experts from public administration and academics.

Second, the positioning strategy of Hoffmann-Lange (2018) was applied to reduce the number of key actors (see online Appendix A). One or two actors were chosen for each functional category of actors with a leading position in their field and the most explicit, strong, and clear position on the subject (NGOs, political parties, private and public companies, etc). Moreover, it was decided, when possible, to select umbrella associations representing the interest of particular sectors (e.g. IG Detailhandel Schweiz, KUNSTSTOFF.swiss, Swiss Recycling, Association électrique suisse, Fédération romande des consommateurs). A party qualified as centre-right (FDP.The Liberals) and a party qualified as centre-left (The Green Party) were selected as they best illustrate the major partisan differences on the plastic issue within the political field. In addition, Greenpeace was chosen as a representative of an NGO, while two actors of the production process (Proderma and Nestlé) were incorporated, as well as one actor of the elimination process (Helvetia Environnement). Additionally, since municipalities execute many waste management tasks, the "Association suisse Infrastructures communales (ASIC) was included. Considering the major role of municipal waste incinerators in the elimination process, the ASSED<sup>2</sup> (Association suisse des exploitants d'installations de traitement des déchets) was also interviewed. Ultimately, the Empa (the Swiss Federal Laboratories for Materials Science and Technology), which possess a broad technical and scientific knowledge on plastics, was also reached. In total, 12 actors were interviewed either by phone or in person, while IG Detailhandel Schweiz was interviewed by written form.

Third, the beliefs system of the short-listed stakeholders were analysed by means of positions documents, parliamentary interventions, and interviews with representatives.

Although some questions were adapted to be more specific to the context of the organisation or stakeholder, the interviews were mainly conducted following the structure of a common questionnaire that was elaborated to facilitate the identification of the actors' belief: deep core beliefs and, most importantly, policy core beliefs. Indeed, as illustrated by Fenger and Klok (2001, p.164): "[p]olicy core beliefs are the fundamental 'glue' of coalitions" and thus they represent a crucial step in the present analysis. Moreover, according to this framework, it is possible to find some consistency among the different types of beliefs in the same coalition and their level of coordination. For this purpose, the questionnaire is divided into four parts (see online appendix B). In the first section, the fundamental views of the interviewees are the focus. The second segment concentrates on the respondents' beliefs about the Swiss plastic system (policy core beliefs), while the third part centres on the actors' point of view regarding the secondary aspects. Finally, to directly examine the links between the stakeholders, the last section is prompted on explicit questions regarding the relations between the actors; for instance, "whom does your institution/organisation/party disagree most frequently on plastic management issues with?" Consistent with ACF, this final step is a further contribution to the discovery of possible coalitions.

### 4. Empirical analysis

The present analysis is divided in four parts; the first three parts correspond to the deep core policy beliefs, policy core beliefs and secondary aspects, while the final part is dedicated to discovering the links between the actors.

Following the analysis, three coalitions with specific interests and beliefs regarding the plastic management policy can be outlined (cf. Fig. 2). A first set of actors (Fédération romande des consommateurs

<sup>2</sup> Although this association is composed by 45% of private companies, the majority of the members are in public hands. Moreover, the ASSED comes under this category since it includes, aside from other waste facilities, all waste incineration facilities (MWI), which are not only companies under public law, but their shareholding is mainly composed of municipalities (Sofies SA, 2017).

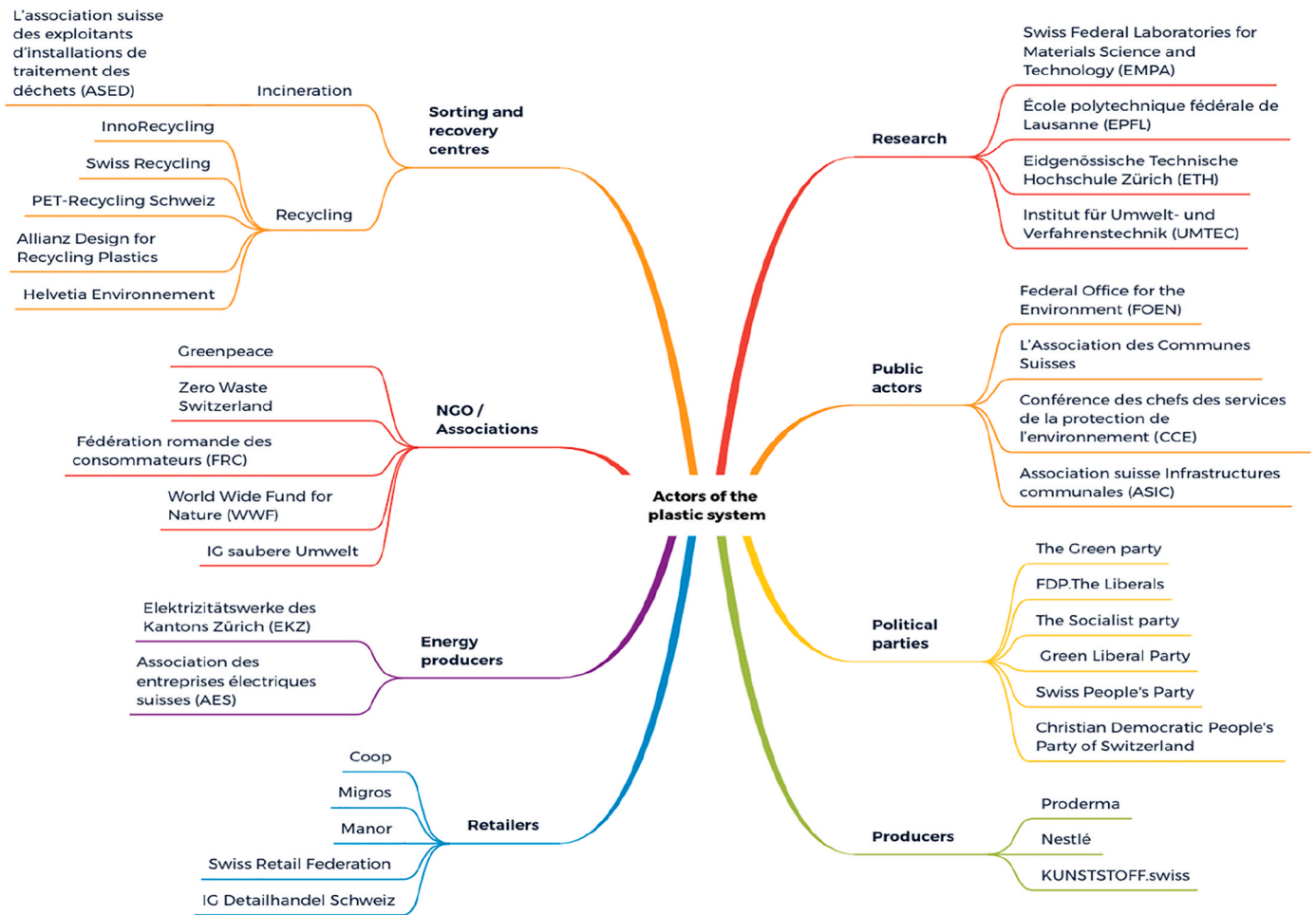


Fig. 1. Actors of the Swiss plastic system.

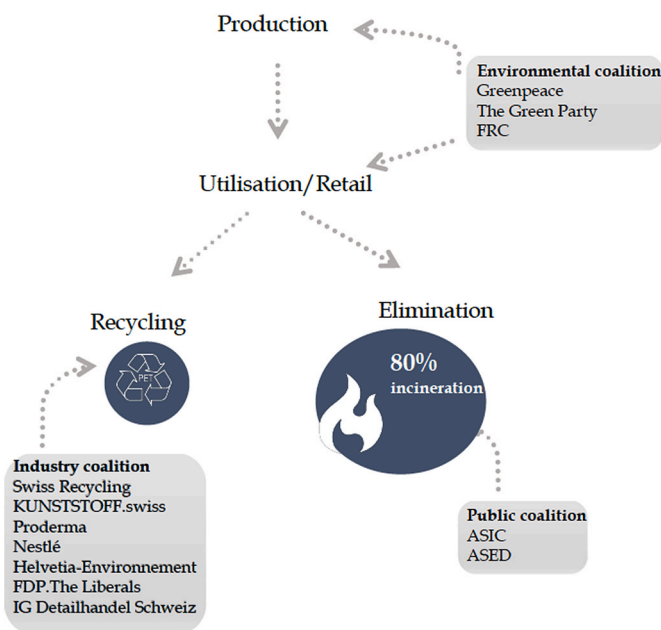


Fig. 2. The focus of actors' beliefs. Source: Mendez (2020)

(FRC), Greenpeace and the Green Party) emphasise the problems located at the upstream part of the plastic life cycle (production and retail). Nonetheless, given their similarity in terms of policy beliefs, which will be widely discussed in the next section, they will be referred to as *environmental coalition*. The industry (Proderma, Nestlé, KUNSTSTOFF.swiss, Helvetia Environnement, Swiss Recycling) and FDP.The Liberals – i.e. *the industry coalition* – express similar beliefs on the plastic management policy by especially accentuating the potential behind plastics recycling. Contrary to the environmental coalition, they did not place emphasis on the measures located upstream. Lastly, the *public service coalition* encompasses the ASED<sup>3</sup> and the ASIC and indicates a higher reticence vis-à-vis recycling, while stressing the necessity to consider both economic and environmental aspects. Finally, the actor representing the research (Empa) does not fall into one of these coalitions as, during the interview, they not only did not express a clear position, but they also stressed the need for a comprehensive improvement in the three layers of the value chain. Overall and interestingly, some beliefs are shared among coalitions, such as the need for improvement in terms of plastic management technology.

<sup>3</sup> Although this association is composed by 45% of private companies, the majority of the members are in public hands. Moreover, the ASED comes under this category since it includes, aside from other waste facilities, all waste incineration facilities (MWI), which are not only companies under public law, but their shareholding is mainly composed of municipalities (Sofies SA, 2017).

#### 4.1. Analysis of the deep core beliefs

A first analysis of the normative values (deep core beliefs) already shows some divergences and similarities between actors. In order to understand these values, actors were asked whether they were in favour of economic growth or degrowth, collective or individual responsibility<sup>4</sup> regarding plastic pollution, and state intervention or economic competitiveness.

As illustrated in Fig. 3, Greenpeace, FRC and the Green Party argue that economic growth should be either stabilized or reduced, whilst highlighting the importance of state intervention. As for who has the primary responsibility for tackling the problem of plastic pollution, they cite both producers and consumers, although they put more emphasis on producers. On the contrary, actors coming from the private sector tend to oppose government intervention and favour economic growth. Additionally, they also assign responsibility for macroplastic pollution to both consumers and producers, even though the significant responsibility of consumers is stressed when it comes to littering. Interestingly, FDP.The Liberals adds that due to the clear increase of public environmental concerns, both politicians and public authorities need to address this issue more frequently.

Moreover, the ASIC and the ASED are more in favour of state intervention compared to the previously mentioned actors while attributing the responsibility of macroplastic pollution to both producers and consumers. Ultimately, in contrast with the environmental coalition, the importance of taking into account both the economy and the ecological aspects regarding new plastic waste policies is stressed.

#### 4.2. Analysis of the policy core beliefs

To allow a more fluent analysis of the policy core beliefs, this sub-chapter is divided into four stages representing each step of the plastic industry process: (1) production and utilisation/retail, (2) collection and sorting, as well as (3) recycling and (4) elimination.

##### 4.2.1. Production and utilisation/retail

According to Greenpeace, the FRC and the Green Party, it is necessary to primarily focus on the reduction of plastic production in order to tackle plastic pollution. As stressed by Greenpeace (2019), plastic extraction and its refining are highly contributing to climate change. Furthermore, the NGO claims that when this process is not carefully controlled, it can also release toxic pollutants directly in the environment. The following passage from a parliamentary intervention encapsulates the Green Party's standpoint: "[t]here is hence considerable potential for improvement in the plastic management field, but this can only be achieved if measures are taken upstream: the vast majority of plastic packaging today is not designed to be selectively reused or recycled. "Eco-design" and "design for recycling" should therefore be promoted." (Thorens Goumaz, 2018).<sup>5</sup> Among the main argument to reduce upstream production, Greenpeace also underlines the essential role that retailers could play in the reduction of plastic packaging; in detail, they assert that, along with a diminishment of single-use plastics, an increase in reuse and refill schemes could be part of a possible solution. For instance, the FRC opposes the production of bioplastics, which have a negative ecological balance, and warns against the misleading proposals of producers and retailers regarding plastic substitutes. The association also mentions the case of the oxo-biodegradable plastic bags, which even though they degrade faster when compared to other types of plastics, the time required may not be short enough and they also decompose into microplastic. Awareness of this phenomenon

<sup>4</sup> By individual responsibility, it is meant the consumer's responsibility, while collective responsibility is associated with companies and the State.

<sup>5</sup> 18.3196 Parliamentary intervention: Comment assurer à l'avenir une gestion écologique, efficiente et économiquement viable des matières plastiques ?

incidentally led to the prohibition of oxo-plastics by the EU and more recently by the Swiss Parliament.

Moreover, the industry coalition is also mentioning the challenges on the production level, however it emphasises these challenges to a lesser extent while stressing the benefits of plastic recycling and the subsequent need to improve its technology. Concretely, the actors in the coalition cite several commitments and actions that they have decided to establish following the increasing consumer awareness in this field. For instance, Nestlé, Proderma and KUNSTSTOFF.Swiss signal their willingness to foster the use of mono-material packaging while avoiding complex combinations, which renders plastic recycling more difficult. Moreover, IG Detailhandel Schweiz states in the interview that "[a] more promising approach is therefore needed to simplify the existing diversity and complexity of packaging materials/plastics." Likewise, the association asserts that technical progress in this field will allow a lower use of plastics in the future. Helvetia Environnement also believes that there is a growing awareness among leading plastics manufacturers and IG Detailhandel Schweiz explains that they are also trying to curb the use of plastics. As an example, the latter actor mentions the agreement among retail industries on phasing-out lightweight plastic bags through voluntary agreements (charging for plastic bags). Nevertheless, it is also sceptical about restricting the use of plastics, by highlighting the fact that higher environmental standards are linked with higher prices, which would have the effect of discouraging consumers from buying their items. Additionally, it is also claimed that plastic alternatives might also affect negatively the environment.

Finally, the Empa, the ASIC and the ASED assert that the current situation does not indicate that there will be a reduction of plastic use; indeed, as illustrated by the ASED: "[t]he increasing demand for plastic materials characterising our globalised society ensures the maintenance of this situation." Moreover, according to the ASED, the regulation of plastic design needs to be done on a global scale as the vast majority of plastic is produced abroad.

##### 4.2.2. Collection and sorting

The collection and sorting of plastics is also a controversial issue; namely, the private sector underlines the fact that Switzerland is characterised by different collection systems, which may harm the quality of the collection. Thus, the private sector promotes a greater coordination among collection and sorting actors. Specifically, KUNSTSTOFF.Swiss, Nestlé, Proderma and FDP.The Liberals are in favour of a large number of collection points while endorsing closer cooperation between retailers and communal infrastructure. In combination with this belief, IG Detailhandel Schweiz claims that returning PET beverage bottles in retailers' shops is practical in its current form because it allows the reverse logistics of the retailers to be used optimally. The ASIC and the FRC share the same opinion with regard to the collection process. In their view, the task of collecting plastic packaging should not fall exclusively under the responsibility of municipalities, but rather in conjunction with retailers. The ASIC clearly states that "[a]ny collection of plastic bottles by the public authority should be maintained if necessary, as a complement to the retail collection supply" (ASIC, 2014, p.2). Moreover, Greenpeace adds that if municipalities provide collection points for plastics (other than PET) in the future, the retail trade should finance them. However, according to Helvetia Environnement, the problem lies in the fact that the market is extremely scattered when it comes to the sorting process which is why in order to achieve a profitable system of sorting and recycling, the market should be centralised.

##### 4.2.3. Recycling

Concerning the recycling of plastics, Greenpeace affirms that it would be technically feasible to increase its rates, but is sceptical about the ecological and economic consequences. The core principle of Greenpeace is to reduce the production of plastics and to invest in solutions centred on reuse and refill. Moreover, Greenpeace also adds that the recovery of materials from recycling is very difficult considering the

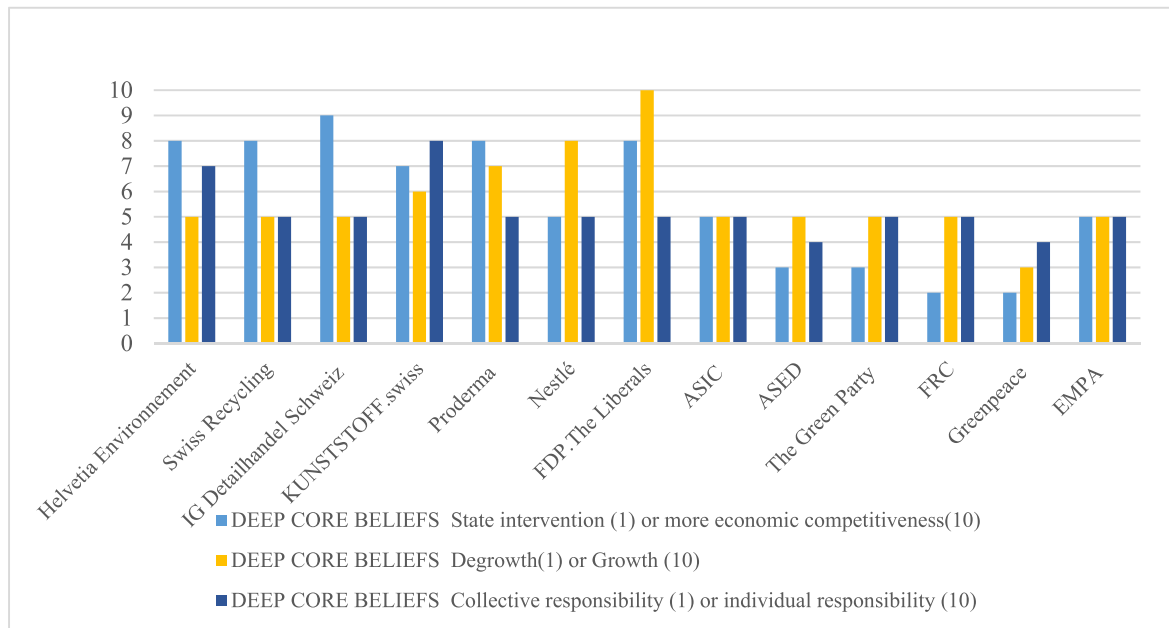


Fig. 3. Results of the deep core beliefs.

plastic variety. The FRC and the Green Party take a slightly different stand by indicating that they are in favour of the three “R”: *reduce, reuse and recycle*. Indeed, the FRC summarises the idea as follows: “[w]e are in support of a greater reuse, reduction and recycling of plastics, even though the presence of the so-called mixed plastics sets great limitations to plastics recycling”.

As already mentioned, the private sector (IG Detailhandel Schweiz, Proderma, Nestlé, KUNSTSTOFF.Swiss, Swiss Recycling and Helvetia Environnement) and FDP.The Liberals have strongly put emphasis on recycling by arguing that it is a crucial step for Switzerland if it intends to lead towards a more circular economy. Moreover, the FDP.The Liberals indicates that an increase in plastics recycling is likely to happen, as long as the private-public partnership will improve; indeed, as Nestlé affirms, “alone we cannot achieve an improvement”.

Nevertheless, although limitations of this practice are recognized, Proderma and KUNSTSTOFF.Swiss underline the multiple uses of plastics once recycled, such as plastic granulates. The same rhetoric holds for Helvetia Environnement and FDP.The Liberals who declared, in 2019,<sup>6</sup> that “plastics can also be recovered outside incineration plants, e.g. in cement works”.

As for the public sector (ASIC and ASED), concerns regarding plastics’ recycling are expressed. On the one hand, they explain that the recycling of plastics is often not possible due to the mixed plastic composition and, when it is, plastics tend to be downcycled. On the other hand, the ASED claims that increasing recycling rates is essentially an idea spread by the plastic industry to continue to produce plastics; indeed, “[w]e are told by retailers and plastic producers to continue to consume because afterwards there would always be a way to recycle plastics” which is why the association still suggests that incineration is overall a fairly clean solution. The latter idea is shared by the Empa, which asserts that energy recovery is still a good option, as some plastic mixtures are not pure enough to be recycled.

#### 4.2.4. Elimination

The private sector tends to stress the interests of waste-to-energy plants in preserving the current situation. This is explained by their

<sup>6</sup> Motion 19.3727 Peter Schilliger “Promouvoir l’économie circulaire, corriger une réglementation erronée”.

need of plastic supply, since its burning unlocks the chemical energy stored in plastic waste and uses it to create fuel. According to Helvetia Environnement, given the lower prices of incinerating plastics waste, this system currently results to be more rentable than recycling. Therefore, this respondent claims that if we want to invert the trend and increase the recycling rates, the cost of recycling needs to be reduced. Furthermore, it is argued that the energy sector has also an interest in maintaining the status quo because waste-to-energy plants produce energy (electricity and heating). Likewise, Greenpeace mobilises arguments against the incineration of plastics by stating: “by the end of 2019 alone, globally, plastic production and burning will emit the equivalent of 189 coal-fired power plants” (Greenpeace, 2019). In general, the FRC indicates that waste-to-energy plants need to be reorganised on a national level given their current overcapacity; indeed, “[n]owadays incinerators try to fill their entire capacity by importing waste: measures need to be taken.” As previously mentioned, the ASED and ASIC suggest that, by not only considering the economy but also the environmental aspects, this system continues to represent a good option.

#### 4.2.5. Who is responsible?

Greenpeace asserts that producers and retailers are responsible for the pollution by macroplastics, while a minor accountability is to be attributed to consumers (individual responsibility). According to the Green Party and the FRC, both citizens and industries are responsible for the plastic pollution. Albeit, in their opinion, industries have more room for manoeuvre to change the situation. Contrariwise, Proderma, KUNSTSTOFF.Swiss, Swiss Recycling, FDP.The Liberals and Helvetia Environnement stress the role of consumers; however, Proderma, Nestlé and KUNSTSTOFF.Swiss mention their share of responsibility by asserting, “the industry must also do its best to reduce the use of plastic”. IG Detailhandel Schweiz moves slightly away from this idea by stating that there is not just a single actor who is to blame for, whereas the ASIC and the ASID associate plastic pollution with both producers and consumers by affirming that also the public infrastructure needs to play its role.

When it comes to microplastic pollution, however, almost the totality of the interviewees claim that it is very difficult to determine who is responsible as this problem has only recently come to the forefront. Indeed, they based their reasoning on the latest reports elaborated by research centres. Nonetheless, a distinction can be made as IG

Detailhandel Schweiz indicates that “there is still no scientific research on the health effects of microplastics and dissolved polymers”,<sup>7</sup> but at the same time it considers that environmental pollution by microplastics as an issue that needs to be addressed and investigated. In contrast, the motion deposited by Balthasar Glättli<sup>8</sup> from the Green Party, has clearly asked for an implementation of an interdiction of certain microplastics, which has been denied by the parliament.

#### 4.3. Analysis of the secondary aspects

The present section will first present the actors’ opinions on voluntary measures and State regulation. Subsequently, two examples of secondary aspects have been chosen and are presented in detail; namely, the deposit-refund systems and the single-use plastics ban.

##### 4.3.1. Voluntary initiatives vs. state regulation

There is a range of strategies to choose from regarding the instruments addressing the plastic pollution problem. Respondents were asked to express their preferences regarding voluntary initiatives compared to government regulation.

Results show that both Greenpeace and the FRC affirm to encourage more regulatory intervention, by arguing that few voluntary initiatives actually work. The Green Party indicates a slightly higher support for voluntary initiatives, claiming that their efficacy depends on the issue at stake. According to the latter party, the “PET system” is a clear illustration of a successful voluntary initiative. Similarly, industries’ actors (Helvetia Environnement, Nestlé, KUNSTSTOFF.swiss, Swiss Recycling, Proderma) and FDP.The Liberals argue to be more inclined to sustain voluntary initiatives for two main reasons. First, voluntary initiatives examine the specific characteristics of the actors as they are tailor-made or, as stressed by Proderma, “more creative”. Second, the public pressure is so high that the plastic business has understood the pivotal importance of sustainability. Indeed, KUNSTSTOFF.Swiss highlights in its annual report that “it is much better to prevent plastics from entering the environment by means of voluntary commitments and in cooperation with the authorities” (Swiss Plastics, 2018). Moreover, it should be underlined that FDP.The Liberals and Helvetia Environnement clearly mention the essential role of the government in designing the guidelines; nevertheless, they also conclude that voluntary initiatives regarding waste collection and recycling should not be restricted too much by the municipal solid waste monopoly of the state.

The opinions of the ASED and the ASIC regarding voluntary initiatives are similar to those of the environmental coalition; namely, they support regulatory interventions if the private economy fails to do so. Ultimately, the ASED greets the collection of plastics in some municipalities however it argues that the quantity remains too small.

##### 4.3.2. Deposit-refund systems and single use plastics ban

The present study wanted to understand the actor’s point of view regarding the EU’s Single-Use Plastics Directive (EU: 2019/904). Results show that, although most of the actors share the view that this measure might have a positive impact as it raises the subject of plastic pollution to the political level, they also indicate concerns about this policy by identifying different problems. For instance, the FRC and Greenpeace suggest that the substitution of plastics with other materials (paper, bioplastics or paperboard) might shift the problem and provide no solution. Moreover, all the actors claim that this ban tackles just a small part of the problem; indeed, conforming to this reasoning, the ASED, the ASIC and Proderma assert that these measures do not reflect a proper plastic management policy as they only resolve the problem on the

<sup>7</sup> *Prise de position. “Les microplastiques et les polymères dissous dans les cosmétiques et les lessives” (2019).*

<sup>8</sup> *Motion 16.3586 “Interdire les microplastiques pour protéger nos lacs et rivières, les mers et océans et notre santé”*

surface.

Nestlé, IG Detailhandel Schweiz, and Swiss Recycling clearly stand against the deposit-refund systems. In fact, they allege that this measure would be counterproductive and therefore not accepted by either the consumers or the retailers due to its higher cost. In November 2019 the national councillor Alois Gmür (The Centre Party of Switzerland) launched a parliamentary initiative<sup>9</sup> regarding the introduction of a deposit fund on beverage packaging. Interestingly, the initiative received broad support among MPs: 34 national councillors from left to right signed it, including the president of the Farmers’ Union, FDP.The Liberals’ leader, the president of the Centre party and a Green National Councillor. They all argued that a deposit-refund system would attach more value to waste packaging, making it worthwhile to collect bottles and cans and return them to the point of sale. Moreover, the deposit-refund system has already anchored in the Swiss legal system for reusable glass packaging and it could easily be broadened to other types of materials (Brunner, 2020). Swiss Recycling, however, disagrees, by arguing that such a system might compromise the higher recycling quotes of beverage packaging (Swiss Recycling, 2019). According to this association, the latter system will lead to a loss of many collection points, thereby jeopardising the sorting and recycling of plastic bottles. The environmental coalition argues throughout the interview that they see both the deposit-refund schemes and the reusable systems as one of the solutions to be supported; Greenpeace particularly stresses in its report (Greenpeace, 2019) that this is the most sustainable way of reducing plastic pollution as it actually reduces the demand for plastics. Nonetheless, it is also argued that “[t]here is no silver bullet, one-size set all including all options for new reusable/refillable packaging that will be applicable to every company, product or geography.”

#### 4.4. Interactions between the actors

With the purpose of further studying the links between the actors, the latter group was asked about whom they viewed as allies and adversaries. The answers are conforming to the results of the analysis. Indeed, actors from the private sector, FDP.The Liberals and the recycling industry tend to have substantial contacts with each other. Interestingly, every actor of the private sector has asserted to be regularly in touch with Swiss Recycling. The same holds for the FRC, Greenpeace and the Green Party. Additionally, the FRC considers environmental NGOs and political parties, especially the Green Party, as allies within this sub-system. In a more implicit fashion, Greenpeace also conceives big cities as allies. The ASIC and the ASED affirm to have regular links with each other but also with other actors. The ASIC appears to have an unstable relation with Swiss Recycling stating that sometimes they are in agreement, while other times they are not; namely, they have had some diverging views regarding the quality of plastics recycling. Moreover, the ASIC appears to have also different opinions in relation to the Green Party’s ideals given that the former not only considers environmental interests but also economic ones. It is also worth mentioning that IG Detailhandel Schweiz and FDP.The Liberals illustrate that the communication between public and private sector is needed since cantons and municipalities are important players in the waste management field. Finally, both research institutes and universities have been cited by almost every actor, which might suggest that they represent a more neutral actor.

## 5. Discussion

This analysis shows that the FRC, Greenpeace and the Green Party tend to be environmentally oriented. Their discourse relies on the fact that plastic pollution is a threat to our ecosystem and that plastic

<sup>9</sup> *19.470 parliamentary initiative: Instauration d’une consigne sur les boissons en canettes et en bouteilles.*

production is not conformed to the net zero CO<sub>2</sub> emissions society to be implemented until 2050. According to them, the problem already begins with the production level; specifically, plastic production contributes to the emission of greenhouse gases into the atmosphere. Accordingly, they argue that plastic industries should take a higher share of responsibility. In conjunction with this reasoning, the [Ellen MacArthur Foundation \(2016\)](#) has also stressed the need to confront every process of the production chain by placing great emphasis on a better design for plastic. As illustrated in [Table 1](#), they not only support regulatory changes and policy interventions, but they also uphold other measures like reuse, refill and, especially, a reduction in production. Moreover, according to them, retailers can play a crucial role in reducing the number of plastics since they are the link between consumers and producers. Notably, they claim that this could be accomplished through the implementation of reusable and refill systems, which has been encouraged in the European Union plastic strategy ([European Commission, 2018](#)). In their opinion, state regulation is more adequate compared to voluntary initiatives since it provides a comprehensive regulatory framework, while enforcing compliance. Furthermore, in line with its pro-European ideology, the Green Party argues that it is crucial to have a common framework with the EU so as not to create frictions.

The industry coalition ([Table 2](#)) has put forward several economic interests while underlying the essential role of recycling. Notably, Switzerland has a strong dependence on the world market, which puts pressure on its plastic industries to operate in a fast and flexible way while preserving a very competitive edge. Consequently, actors of the plastic industry, especially small-medium size enterprises (SMEs), are reluctant about a sudden change in the present system that might engender higher production costs and incertitude. However, they tend to urge for more sustainable strategies, since they are aware of the increasing public concern regarding plastic pollution. Nevertheless, their emphasis on recycling is a clear evidence of it. Their focus on recycling might also be explained by the fact that higher recycling rates would enable them to maintain the current production and utilisation of plastics, while curbing plastic waste, but not energy use. In agreement with this argument, [Nielsen et al. \(2020\)](#) claims that there is an emerging awareness of how keeping plastics in the loop through increased recycling and reuse may benefit both the economy and the environment. Nonetheless, it is important to note that increasing recycling is certainly not an easy path. Indeed, due to the low quality of certain plastic packaging, recycling can be very complicated ([Hahladakis and Iacovidou, 2018](#)). Generally, voluntary agreements are advocated for, and coalitions are sceptical about plastic bans, which is in line with the study of [Dreger \(2008\)](#). They contend that since the plastic system's industries are more knowledgeable in their particular industry, they are better equipped to judge the most effective course of action.

It needs to be stressed that, also within the industry coalition, there are different interests and priorities. For instance, KUNSTSTOFF.Swiss and Nestlé mentioned the importance of increasing ecologically designed packaging, while Proderma expressed its concerns regarding the potential loss of competitiveness. However, these divisions are not striking given that multinational companies can better absorb the costs that such a strategy could generate.

The public service coalition ([Table 3](#)) emphasises the necessity of considering both economic and environmental factors when dealing

with this matter. Correspondingly noteworthy, they stress the underlying role of private companies in the creation of plastic pollution. Specifically, they argue that who places plastics into the market should also be engaged in its collection. Moreover, they tend to foster plastic regulation rather than voluntary initiatives. In view of the dichotomy recycling or incineration, they clearly criticised the existing conditions of recycling by assessing that the technical difficulties surrounding it represent a major obstacle. Hence, they tend to advocate for a status quo claiming that waste-to-energy facilities still constitute the best available option; specifically, not only do they eliminate plastics but they also produce energy (electricity and heat). Similarly, [Duygan et al. \(2018\)](#) found that waste recovery plants tend to be relatively conservative regarding the treatment of plastic sheets in Switzerland. Although there are differing views on this matter, a study from the Netherlands ([Gradus et al., 2017](#)) found that incineration can still be a viable option if done effectively (with filters), particularly because recycling plastics requires a lot of energy and because the process results in the material's quality being degraded or down-cycled. Finally, the analysis suggests that the Empa is a relatively neutral actor, and thus it might represent a policy broker. Nonetheless, it is still too soon to specify its role.

## 6. Conclusions and policy implementations

Overall, it is still too early to have a solid assessment of the actors' belief system given that the salience related to plastic pollution has just recently gained prominence. However, the present exploratory research revealed the emergence of some trends that can lead to draw a couple of preliminary conclusions. First, it has been observed the presence of three factions with their specific focal point within the plastic production process. The environmental coalition underlines the need to regulate the system from the grass roots, that is, from the production process. Moreover, although sceptical about the recycling of plastics, they consider it better than the actual incineration solution. Lastly, they stressed the considerable need for change in retailers' habits. As for the industry coalition, it has largely emphasised the opportunities resulting from plastics' recycling, stating that this might reconcile economic and ecological interests. Finally, the public service coalition warns against rushed conclusions about the recycling of plastic.

By providing a first glimpse of the main actors' position with a certain weight in the Swiss plastics scene, this study offers the opportunity to envision a combination of model policies with seeming ease in gaining political acceptance. Following the analysis, an increase in the upstream regulation can improve several problems encountered by actors. Given that SMEs can rely less on economies of scale, it is important to consider that increasing environmental standards could expand their production costs. For this reason, measures should also be considered to compensate for these losses. Additionally, a better coordination between the actors in charge of the collection and sorting of plastic would optimise its functioning. Concretely, a proposal that appealed to a large majority of actors was the necessity for greater cooperation between retailers and public infrastructures. Moreover, the interviewed stakeholders do not unanimously support a complete ban on single-use plastic; however, their posture seems to indicate that they could agree on a solution that aims to reduce the use of single-use plastic through negative economic incentives (already present for some products on a

**Table 1**  
Environmental coalition.

Stakeholder	Deep core beliefs	Policy core beliefs	Secondary aspects
Greenpeace Fédération romande des consommateurs (FRC) The Green Party	Rather state intervention; either maintaining the status quo or degrowth; support collective responsibility	Measures need to be taken upstream: sceptical about recycling; reduction of the incineration rate	Reduction of plastic production; higher state regulation  Reduction of plastic production; both voluntary agreements and general standards



**Table 2**  
Industry coalition.

Stakeholder	Deep core beliefs	Policy core beliefs	Secondary aspects
Helvetia Environnement Swiss Recycling IG Detailhandel Schweiz KUNST-STOFF. swiss	Rather higher economic competitiveness; neither growth nor degrowth; individual and collective responsibility	Reduce the diversity of plastics; higher private-public cooperation in the collection and sorting; higher recycling rates; elimination is still an option, but need to be reduced.	Prefer voluntary initiatives; the EU plastic ban gives a strong message; improving design for recycling Prefer voluntary initiatives; the EU strategy can be applied but proportionally; improving design for recycling
Nestlé	Neutral; growth; individual and collective responsibility		Prefer voluntary initiatives; the EU gives a strong message; improving design for recycling
Proderma FDP.The Liberals	Rather higher economic competitiveness; growth; individual and collective responsibility		Prefer voluntary initiatives; against restrictions; improving design for recycling

**Table 3**  
Public service coalition.

Stakeholder	Deep core beliefs	Policy core beliefs	Secondary aspects
L'Association suisse Infrastructures communales (ASIC) L'Association suisse des exploitants d'installation de traitement des déchets (ASED)	Rather state intervention; neither growth nor degrowth; collective responsibility	Collection in conjunction with retailers; improving the quality of plastic production; concerns about plastics recycling; incineration is still the best option	Higher state regulation; EU ban does not reflect a proper measure improving plastics eco-design

voluntary base). Consistent with this analysis, it appears that the industrial and environmental coalitions are in favour of increasing recycling rates of plastics (other materials than PET). Financial incentives may therefore help to encourage innovation in plastic recycling, which can lower its costs. Additionally, as the European Union has already noted, it may be crucial to foster the investor confidence in order to address the economic sustainability of recycling plastics. Finally, all the actors stated a clear need for improvement of plastic management technology.

These findings contribute to early research on the types of attitudes and interests surrounding the plastic system, whilst also giving useful insights that contribute to a first assessment of the political acceptability of potential future measures. Therefore, this analysis is beneficial in offering workable directions. This being said, political opinions and positions on the subject of plastic pollution, and how to confront it, can evolve rapidly; hence the relevance of these results will have to be reassessed regularly.

Overall, this study helps to describe the dynamics of a nascent policy subsystem, but further research over a longer time horizon and a deeper understanding of the coordination mechanisms at play in coalitions are still needed. Indeed, as stated by Barnes et al. (2016), boundaries of a coalition may not only be smoother than expected, but also more flexible over time. Additionally, the actors' beliefs were the primary focus of this study, which may have provided a hint as to which solutions could be the most popular. Nevertheless, who among the coalitions is more powerful is still up for debate. Future research is therefore required to identify the key players in this subsystem whilst also taking into consideration other countries.

## APPENDIX A. ACTORS INTERVIEWED

Actor	Type	Legal Structure
Helvetia Environnement	Waste-to-energy plant	Public Limited Company
Swiss Recycling	Interest group of the Swiss recycling system	Association
IG Detailhandel Schweiz	Retail Trade	Association
KUNSTSTOFF.Swiss (formerly Swiss Plastics)	Interest group of the Swiss plastic industry	Association
Greenpeace	NGO	NGO

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Accordingly, although the advent of plastic pollution creates new frameworks and continues to raise further issues in coordination, this analysis might be useful to reduce conflicts in this field, while enlightening the interests at stake. Lastly, it should be recalled that formulation of sustainable policy recommendations asks for the adoption of a system understanding (Haupt and Hellweg, 2019). In other words, not only is there the need to take the whole system and players into account, which this study contributes to, but also the importance to assess further the implications of policy recommendations within the broader system; especially the question of burden-shifting towards other countries or towards the use of other materials.

### CRedit authorship contribution statement

**Laura Gatto:** Data curation, Writing- Original draft preparation, Visualization, Investigation. **Pirmin Bundi:** Supervision, Review & Editing, Validation. **Stéphane Nahrath:** Conceptualization, Methodology, Software. **Dunia Brunner:** Writing- Reviewing and Editing.

### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### Data availability

The data that has been used is confidential.

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Actor	Type	Legal Structure
Association suisse des exploitants d'installations de traitement des déchets (ASED)	Interest group of the waste-to-energy plants	Association
Association suisse Infrastructures communales (ASIC)	Public actor representing the infrastructure of municipalities and cities	Association
Association des Entreprises électriques suisses	Interest group of the Swiss electric system	Association
Swiss Federal Laboratories for Materials Science and Technology (Empa)	Research	Association
Fédération romande des consommateurs (FRC)	Interest group of the consumers	Association
The Green Party	Political party	Association
FDP.The Liberals	Political party	Association
Nestlé	Industry (Production)	S.A
Proderma	Industry (Production)	S.A

**APPENDIX B. Interviews with the most important stakeholders**

CONTEXT						WP3 QUESTIONS	
P	NGO	PA	IG	R	PP	As you might know, the EU has just implemented a ban on single-use plastic. What does your institution/organization/party think about the plastic strategy in general? How does it manage this subject ?	Introduction questions
P	NGO	PA	IG	R	PP	What is your role within your institution/organization/party?	How to weight the respondent's response? Who are the Stakeholders and what kind of actors are they?
<b>DEEP CORE BELIEFS</b>						What are the systems of beliefs and the representations of the actor's interest?	
P	NGO	PA	IG	R	PP	According to you, is your organisation/institution/party a) more in favour of a higher state intervention in the economy (1) or of a higher competitiveness in the market (10)? b) more in favour of economic degrowth (1) or economic growth (10)? c) more in favour of collective responsibility (1) (companies and the public administration or of individual responsibility (10)?	Which actors have a similar belief system?
		PA				According to you, is your institution in favour of more or less centralisation of the decision-making powers (political, administrative, and financial).	
P	NGO	PA	IG	R	PP	What are the main values on sustainability that your organisation/ institution/party wants to put forward?	
P	NGO	PA	IG	R	PP	To what extent do you consider that environmental issues are a pivotal issue for your organisation/institution/party?	
<b>POLICY CORE BELIEFS</b>						What are the systems of beliefs and the representations of the actor's interest?	
P						What is the role of your company within the industrial plastic system (production, retail, recycle, end of the cycle)?	
					PP	What are the propositions of your party on the plastic management policy?	
		PA			PP	What are currently the key challenges in this domain for both the cantonal and the local authority?	
P	NGO	PA	IG	R	PP	What are the challenges behind the production, the utilisation and the elimination of plastic in Europe? And more precisely in Switzerland?	
P	NGO	PA	IG	R	PP	Does your organisation/institution/party think that expanding plastic recycling could be feasible in the next 10 years? If yes how?	
				R		According to your organisation/institution/party, is waste energy recovery cost-effective?	
P	NGO	PA	IG	R	PP	Does your organisation think that reducing the production of plastic could be feasible in the next 10 years? If yes how?	
				R		How would your institution explain the plastic pollution problem in Switzerland? And when compared to other countries in Europe?	
P	NGO	PA	IG	R	PP	According to your organisation/institution/party, who is responsible for the macroplastic pollution in the Swiss ecosystem? And for the microplastic pollution?	
<b>SECONDARY ASPECTS BELIEFS</b>						What are the systems of beliefs and the representations of the actor's interest?	
						What kind of influence do coalitions have on plastics management policies?	
P	NGO	PA	IG	R	PP	According to your organisation/institution/party, should retail companies and public entities provide collection points for plastic packaging? In both cases why?	
P (retailer)						What does your organisation think about the implementation of collection points for plastic? Do you think that, given the high use they should be increased?	
P	NGO	PA	IG	R	PP	Does your organisation consider that voluntary initiatives are more efficient in this area? Why?	
P						Have you already applied some of them in this area? If yes which ones?	
<b>QUESTION THAT AIM TO ANALYSE THE COOPERATION AMONG THE ACTORS</b>							

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CONTEXT						WP3 QUESTIONS
						How are coalitions formed within this political subsystem and how do they position themselves within the plastic management policy? Did actors collaborate and form causal coalitions because of the similarities in their belief system
P	NGO	PA	IG	R	PP	Whom does your institution/organization/party have more contact within the plastic management field with?
P	NGO	PA	IG	R	PP	Whom does your institution/organization/party regard as important allies within this domain?
P	NGO	PA	IG	R	PP	Whom does your institution/organization/party disagree most frequently on plastic management issues with?
P	NGO		IG	R	PP	Do you collaborate with cantonal or local entities?
<b>CONCLUSIONS</b>						
P	NGO	PA	IG	R	PP	In general, what do you think should be improved in this field in Switzerland?
P	NGO	PA	IG	R	PP	Do you have something more to add or do you want to talk about something in particular?
P	NGO	PA	IG	R	PP	Could you please indicate the important actors (firms, research entities, NGO's, public entities) of the Swiss plastic management sector? Who are the Stakeholders and what kind of actors are they?

Note: P: Private organisation, PA: Public administration; IG: Interest group, R: Research.

**APPENDIX C. Actors' beliefs**

Stakeholders	Deep core beliefs			Policy core beliefs				Secondary aspects			
	State intervention (1) more economic competitiveness (10)	Degrowth (1) growth (10)	Collective responsibility (1) individual responsibility (10)	The production and use	Collection and sorting	Recycling	Elimination	Voluntary initiatives - State intervention	Ban on single-use plastics	Ban on oxo-degradable plastics	Increasing eco-design
Greenpeace	2	3-4	3-4	Measures need to be taken at the upstream level	Retailers are responsible for a large part of plastic waste, so they should either organise or finance the sorting	<b>Sceptical</b> about its economic and ecological consequences	Against the burning of plastics	"Few voluntary initiatives actually work"	A first step but it might shift the problem	Clearly against it	The real answer is a reuse of plastic packages and a reduction of plastic production.
Fédération romande des consommateurs (FRC)	2	5	5	Measures need to be taken at the upstream level	Private and public actors shall provide collection points	Favour of the 3R: refill, reuse and recycling <b>However: technical problems</b>	Organise the elimination on a national level in order to limit the import of waste.	"Few voluntary initiatives actually work"	A first step but it might shift the problem	Clearly against it	Improving plastic eco-design and design for recycling
The Green Party	3-4	5	5	Measures need to be taken at the upstream level	Private and public actors shall provide collection points	Favour of the 3R: refill, reuse and recycling. <b>However: technical problems</b>	Increase the recycling rate while lowering the incineration rate	Sometimes yes (PET). However, we need general standards.	We agree with this instrument	Clearly against it	Improving plastic eco-design and design for recycling
Helvetia Environnement	8	5	7	Growing awareness of plastic producers regarding plastic pollution	Collecting plastic waste where they are produced. The sorting of plastic needs to be centralised	Increase the recycling rates	Decrease the incineration rates	More in favour of <b>voluntary initiatives</b>	We agree with this instrument	Strategies to limit it	Improving design for recycling
Swiss Recycling	8	5	5	A need for a better plastic production (eco-design)	The collect should be reserved to municipalities	Representing the recycling interests	Decrease the incineration rates	More in favour of <b>voluntary initiatives</b>	Give a strong message	Against it	Very important in order to increase recycling rates
IG Detailhandel Schweiz	9	5	5	Simplify the diversity of plastic packaging. <b>However, plastic is still useful</b>	We have to evaluate if it is the case to collect new type of plastic waste	It is necessary to increase recycling rates	This is one solution, but in the future we prone more recycling	More in favour of <b>voluntary initiatives</b>	<b>Proportioned</b> measures based on the EU directives are supported	In favour of a reduction of plastic bags	Help to simplify the existing diversity and complexity of plastic packaging
KUNSTSTOFF.Swiss (formerly Swiss Plastics)	7	6	8	Simplify the diversity of plastic packaging. <b>However,</b>	Larger number of collection points: higher cooperation between retailers and	It is necessary to increase recycling rates	This is one solution, but in the future, we promote more recycling	More in favour of <b>voluntary initiatives</b>	There is already the extended producer responsibility,	Oxo-degradable bags lead to problems in recycling	Foster the use of mono-material packaging

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Stakeholders	Deep core beliefs			Policy core beliefs				Secondary aspects			
	State intervention (1) more economic competitiveness (10)	Degrowth (1) growth (10)	Collective responsibility (1) individual responsibility (10)	The production and use	Collection and sorting	Recycling	Elimination	Voluntary initiatives - State intervention	Ban on single-use plastics	Ban on oxo-degradable plastics	Increasing eco-design
Proderma	8	7	5	<b>plastic is still useful</b> Simplify the diversity of plastic packaging. But we don't see another valuable alternative	communal infrastructures Larger number of collection points: higher cooperation between retailers and communal infrastructures	It is necessary to increase recycling rates	This is one solution, but in the future, we promote more recycling	More in favour of <b>voluntary initiatives</b>	no need for a ban. Does not reflect a proper plastic management policy	Increasing when <b>possible</b> the plastic quality	A major challenge is to use fewer resources while maintaining product quality
FDP.The Liberals	8	10	5	A better eco-design in order to increase the recycling rates	Larger number of collection points: higher cooperation between retailers and communal infrastructures	It is necessary to increase recycling rates	Plastics can also be recovered outside incineration plants	More in favour of <b>voluntary initiatives</b>	We are usually against restrictions	We are usually against restrictions	Better eco-design in order to increase the recycling
Nestlé	5	8	5	The industry must also do its best to reduce the use of plastics	Larger number of collection points: higher cooperation between retailers and communal infrastructures	It is necessary to increase recycling rates	There are several interests in incineration plants: we promote more recycling	More in favour of <b>voluntary initiatives</b>	Gives a strong message	Increasing when <b>possible</b> the plastic quality	Improving plastic eco-design and design for recycling
Association suisse Infrastructures communales (ASIC)	5	5	5	Indicators do not suggest a future decrease in plastic production.	The task of collecting plastic packaging should not fall exclusively under the responsibility of municipalities, but in conjunction with retailers	Express their concerns regarding plastics recycling.	This system continues to represent a <b>good option</b>	More in favour of <b>state intervention</b>	Do not reflect a proper plastic management policy.	Increasing the plastic quality	Improving plastic eco-design on the international level
Association suisse des exploitants d'installation de traitement des déchets (ASED)	2-3	5	2-3	In favour of <b>a reduction of plastics</b> , but indicators do not suggest a future decrease in plastic production.	The task of collecting plastic packaging should not fall exclusively under the responsibility of municipalities, but in conjunction with retailers	Increasing the rates of recycling is essentially an <b>idea spread by the plastic industry</b>	This system continues to represent a <b>good option</b>	More in favour of <b>state intervention</b>	Do not reflect a proper plastic management policy.	Increasing the plastic quality	Improving plastic eco-design on the international level
Swiss Federal Laboratories for Materials Science and Technology (Empa)	5	5	5	Improve the quality of the production. Indicators suggest a future increase in plastic production.	-	More research on recycling. <b>However: technical problems</b>	As it is now, energy recovery is still a good option	-	-	Under analysis	This might increase the quality of plastics and enable more recycling

APPENDIX D. Interactions between the actors

	Helvetia Environnement	ASIC	ASED	Empa	Swiss Recycling	IG Detailhandel Schweiz
RATHER AGREE	<ul style="list-style-type: none"> <li>PET-Recycling Schweiz</li> <li>Swiss Recycling</li> </ul>	<ul style="list-style-type: none"> <li>The cantons</li> </ul>	<ul style="list-style-type: none"> <li>Cities</li> <li>Serbeco</li> </ul>	We collaborate with several actors coming from different fields, but I would not define them as "allies" or "enemies."	<ul style="list-style-type: none"> <li>Retailers</li> </ul>	<ul style="list-style-type: none"> <li>PET-Recycling Schweiz</li> </ul>

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	Helvetia Environnement	ASIC	ASED	Empa	Swiss Recycling	IG Detailhandel Schweiz	
RATHER DISAGREE	<ul style="list-style-type: none"> <li>Producers</li> <li>The State to a certain extent</li> <li>The cantons</li> </ul>	<ul style="list-style-type: none"> <li>Swiss Recycling</li> <li>Fachverband Kunststoffrecycling</li> <li>Sometimes with</li> <li>The Green Party</li> </ul>	<ul style="list-style-type: none"> <li>Cand-landi Vaud</li> <li>Tridel</li> <li>Actors providing bags for the collection of plastics</li> </ul>		<ul style="list-style-type: none"> <li>Other actors related to recycling</li> <li>Producers (Nestlé, Proderma)</li> <li>Retailers</li> <li>Incinerators</li> </ul>	<ul style="list-style-type: none"> <li>Enterprises specialised in the sorting and recycling of plastics</li> <li>The recycling industry</li> <li>Packaging manufacturers</li> </ul>	
	Greenpeace	FRC	The Green Party	Proderma	KUNSTSOFF. Swiss	Nestlé	FDP.The Liberals
RATHER AGREE	<ul style="list-style-type: none"> <li>NGO against resource waste</li> <li>Some large enterprises</li> <li>Political parties</li> </ul>	<ul style="list-style-type: none"> <li>NGO</li> <li>Political parties (among which the Green Party)</li> </ul>	<ul style="list-style-type: none"> <li>NGO</li> <li>Political parties (PS)</li> <li>Public administration</li> <li>Research</li> <li>Greenpeace</li> <li>WWF</li> <li>FDP.The Liberals</li> </ul>	<ul style="list-style-type: none"> <li>Swiss Recycling</li> <li>KUNSTSOFF.</li> <li>FOEN</li> <li>Research</li> </ul>	<ul style="list-style-type: none"> <li>FOEN/BAFU</li> <li>IG Detailhandel</li> <li>Swiss Recycling</li> </ul>	<ul style="list-style-type: none"> <li>Swiss Recycling</li> <li>Retail trade</li> <li>Consumers</li> <li>Supplier</li> </ul>	<ul style="list-style-type: none"> <li>Swiss Recycling</li> <li>IG Detailhandel</li> <li>Federal administration</li> </ul>
RATHER DISAGREE	<ul style="list-style-type: none"> <li>Producers of fast-moving consumer goods</li> <li>Retailers</li> </ul>	<ul style="list-style-type: none"> <li>Politics</li> <li>Retailers</li> </ul>	<ul style="list-style-type: none"> <li>SPP</li> <li>Actors in favour of a conservative economy</li> </ul>	–	<ul style="list-style-type: none"> <li>Greenpeace</li> <li>Media</li> </ul>		<ul style="list-style-type: none"> <li>Greenpeace (even though in this area we are quite open)</li> </ul>

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