VTT Technical Research Centre of Finland

Collaborative governance as a means of navigating the uncertainties of sustainability transformations: The case of Finnish food packaging

Sundqvist-Andberg, Henna; Åkerman, Maria

Document Version
Publisher's final version

Link to publication

Contents lists available at ScienceDirect

Ecological Economics
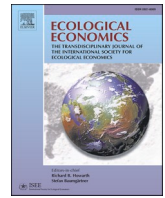
Collaborative governance as a means of navigating the uncertainties of sustainability transformations: The case of Finnish food packaging

Henna Sundqvist-Andberg [*], Maria Åkerman

VTT Technical Research Centre of Finland ltd, Finland

ABSTRACT

The use of disposable packaging is essential to the performance of global food systems, but it has led to global environmental problems. There is a recognised need for collaborative governance, because authoritative governance alone cannot push forward the systemic sustainability transformations required to resolve these challenges. In this qualitative case study, we apply interpretive policy analysis to study actors' motivations and experiences of deliberation. The aim is to understand how institutional ambiguities, caused by the intertwining of waste and food policies, shape collaboration around two different types of collaborative governance initiatives that address food packaging in Finland – the Plastics Roadmap and the Material Efficiency Commitment for the food industry. The results show that the deliberation is shaped by different sustainability narratives which have contradictory roles for food packaging. The contradiction arises from food and plastic policies which fail to properly address food packaging and its functions. By pointing to the importance of uncertainties in the governance of food packaging, our results emphasise the need to increase the understanding of institutional ambiguities related to policy topics that fall between the big policy debates. These ambiguities are nevertheless important and need to be addressed while attempting to achieve broader sustainability goals.

1. Introduction

The current food system is highly dependent on packaging to guarantee food safety, prevent food waste, and enable efficient logistics (Marsh and Bugusu, 2007). Despite its many benefits, however, packaging raises societal concerns at every stage of its life cycle (Sundqvist-Andberg and Åkerman, 2021), among them the ever-increasing generation of waste. The demand for disposable, single-use packaging is predicted to grow alongside our ongoing changes in eating habits and food delivery practices. Production of the packaging itself, however, only accounts for a minor share of global greenhouse gas emissions (5%) compared to the emissions of entire food systems (Crippa et al., 2021). The climate impacts of packaging use are acknowledged, but recent concerns revolve largely around aquatic and terrestrial pollution and littering. However, rather than being a packaging (material) problem, this systemic challenge addresses the entire food system due to the central role of packaging as an enabler of global value networks (Chakori et al., 2021). In response to these problems, the European Union (EU) has, for example, launched a plastics strategy (European Commission, 2018a) and delivered a single-use plastics directive (European

Commission, 2019) to govern the environmental problems caused by plastic packaging. These regulatory and policy measures have put pressure on companies involved in the food chain and packaging supply to make their practices more sustainable. To promote change and activate businesses to mitigate the negative environmental impacts of food packaging, many kinds of voluntary and collaborative measures have been initiated in European countries as part of both public and private policies (Sundqvist-Andberg and Åkerman, 2021).

While voluntary measures have traditionally been part of the toolbox of sustainability-oriented companies (Paton, 2000; Rhein and Sträter, 2021), in recent decades they have become an integral part of broader, collaborative sustainability governance efforts initiated by public actors (Lyytimäki et al., 2019; van den Hove, 2000). Various public-private agreements have been introduced to provide incentives for companies to take environmental actions beyond the regulatory requirements. These measures cover a wide range of activities, including green deals, pacts, commitments such as the European Plastics Pact (2020), the Courtauld Commitment in the UK (WRAP, 2021), and the New Plastics Economy Global Commitment (Ellen MacArthur Foundation, 2018) in the area of food packaging. A reason for the increasing popularity of

collaborative governance is the acknowledged failure of authoritative governance. Pushing forward systemic sustainability transformations will require actively engaging companies and other societal stakeholders in preparing and implementing public sustainability strategies (e.g., van den Hove, 2000). Collaborative governance approaches have therefore, unsurprisingly, been identified as part of the solution in solving complex sustainability problems like those created by the use of food packaging.

This article contributes to the academic discussion by adding further insight into the role of collaborative governance in complex sustainability issues. The governance of food packaging is an interesting and timely example of such an issue, because it functions at the interface of food and packaging materials production and environmental governance. Ordinary food packaging may seem a simple object to govern, but it has a major impact on food consumption cultures and behaviours, as well as enabling a wide range of lifestyles. Several factors may challenge the governance of sustainability, such as the inherent complexity of global food and waste management systems, path-dependencies, and insufficient economic incentives. Furthermore, the governance of food packaging is an issue where uncertainties related to policy goals, sustainability criteria, and potential technological and market developments create significant barriers to sustainability transformation (Sundqvist-Andberg and Åkerman, 2021).

Our particular interest is in the role of collaborative processes in navigating the uncertainties of sustainability transformation. We focus our study on actors' experiences of deliberation around two different types of collaborative governance initiatives that address food packaging in Finland. The first is a national plastics roadmap process led by the Ministry of the Environment; the second is a material efficiency commitment initiated by the food industry. Neither has food packaging as its main point of interest, although they address topical areas that have a direct impact on food packaging, including packaging design, waste management, and packaging recycling. The fact that food packaging is at the margins of these collaborative efforts provides an interesting starting point for the study. It creates particular uncertainties for actors who are trying to figure out and design their responses to the sustainability problems caused by food packaging in a context where policies and regulations mainly target either package waste and packaging materials in general, or food supply and food safety in particular.

We claim that in order to understand many of the barriers of sustainability transformations, there is a need to create more in-depth understanding of the uncertainties that arise when pushing forward sustainability transition at the margins of different dominating policy fields – in this case food and waste, and how these kinds of *institutional ambiguities* (Hajer, 2003) shape collaborative governance. The collaborative processes related to food packaging, but which do not directly address it, allow us to study *how actors try to formulate coherent policy narratives around food packaging* in a way that fits the existing policies and institutions and *what kinds of uncertainties the intertwining of different policy goals and narratives creates*. Thirdly, we are interested in *how actors explain their motivations to participate in the collaboration* and *how they deliberate uncertainties as part of collaborating* within the studied policy measures.

This paper presents the results of a qualitative case study of two parallel processes with partly the same stakeholders but different institutional settings in Finland during the period 2019–2021, which provides an interesting opportunity to investigate how different policy processes shape the collaboration on the sustainability transition of food packaging and actors' motivations to participate in this collaboration. We draw our methodological approach from interpretive policy analysis (Yanow, 2000, 2007), which provides us with tools to explore the sustainability narratives that shape deliberation. Finland presents an interesting context for our study, as it is a forerunner in sustainable development; and collaborative governance is an established approach for the implementation of policies aimed at sustainability transformations (Lyytimäki et al., 2019).

2. Literature: collaborative governance for sustainability transformations

As has been frequently underlined in the literature, sustainability transformations are driven by and linked to long-term sustainability targets that are often formulated in public policies or programmes. Thus, public policies have a focal role both in defining the goals and problem definitions of sustainability governance and in promoting them (Lindberg et al., 2018). While public policies do promote sustainability transformations, a wide range of institutional arrangements are needed for actual policy implementation. Collaborative approaches are called for, especially when dealing with complex, systemic problems that require the commitment and actions of several interdependent actors (Gray and Purdy, 2018), and are impossible to govern solely with regulatory policies (Jahn Hansen, 2006) due to the high costs of regulation and the inevitable politicisation of issues with conflicting and controversial interests (Ansell and Gash, 2007).

Due to the failures of authoritative governance, several deliberative and interactive modes of governance, including collaborative (Ansell and Gash, 2007), deliberative (Hajer and Wagenaar, 2003), and reflexive (Voß et al., 2006), have been suggested in the field of policy studies to formulate shared goals for public policies and to engage diverse societal actors in implementing and promoting them. The importance of multi-stakeholder collaboration, deliberation, and reflexivity has also been acknowledged in sustainability governance (Newig et al., 2007, 2018) and sustainability transition studies (e.g., Kemp and Loorbach, 2006; Loorbach, 2010; Rotmans et al., 2001). For example, in sustainability transition studies, the transition management approach emphasises the social construction of transitions through collectively envisioning, structuring, creating narratives, and giving meanings to ongoing long-term processes of change that entail socio-technical, ecological, cultural, and economic evolution (Loorbach et al., 2011). In addition, the importance of creating discursive spaces within particular 'transition arenas' that enable collective social construction is emphasised (Loorbach, 2010). As policy studies scholar Maarten Hajer has pointed out, policymaking is essentially about formulating such societal problems that existing institutions and policies can handle (Hajer, 1995). Therefore, with novel policy issues, the problems need to be designed so that policies can solve them. This puts the deliberative spaces in which policy problems are defined at the core of policymaking. They are particularly important in fields where no clear definition of issue is yet defined and characterised by institutional ambiguities (Hajer, 2003).

Hence, public-private collaboration for sustainability transformations have been studied in various research fields and from different approaches. In this article, we understand collaborative governance to be 'a governing arrangement where one or more public agencies directly engage non-state stakeholders in a collective decision-making process that is formal, consensus-oriented, and deliberative and that aims to make or implement public policy or manage public programs or assets' (Ansell and Gash, 2007:544). Instead of mere stakeholder participation or consultation, this type of governance entails multidirectional interaction and collaboration processes that engage 'a group of autonomous stakeholders interested in a problem or issue in an interactive deliberation using shared rules, norms, and structures, to share information and/or take coordinated actions' (Wood and Gray, 1991:11).

One of the drawbacks of collaborative, multistakeholder governance is that it is very time consuming for the participants, and the process of deliberation and negotiation includes many uncertainties (Dewulf and Biesbroek, 2018) and may be hampered by asymmetric power relations. Furthermore, its effectiveness is uncertain (Pellizzoni, 2004). Similarly, the environmental benefits of voluntary measures are much more uncertain than those of binding regulations (Pellizzoni, 2004). What is the motivation, then, for different societal actors to engage in collaborative governance and voluntary measures despite these downsides? There is a

considerable body of research literature that sheds light on the motivations of different actors to join in collaborative sustainability governance efforts. For example, Gray and Purdy (2018), who have studied the motivations of stakeholders to engage in collaborative governance efforts, have identified four types of business and NGO actor motivations: legitimacy-oriented, competency-oriented, resource-oriented, and society-oriented. Legitimacy-oriented motivations entail, for example, building reputation, image, and the social licence to operate, whereas resource-oriented motivations cover capacity building, gaining access to networks, securing monetary funds, and creating innovative products and markets. Competency-oriented motivations include gaining expertise, gaining awareness of complex problems, and identifying issues. Society-oriented motivations entail incentives to influence policy development as well as responding to activism related (local) problems.

While multistakeholder collaboration may create certain types of uncertainties, managing uncertainties related to environmental problems is, on the other hand, seen as the main reason for the need to rethink the goals of public participation (Funtowicz and Ravetz, 1993; Pellizzoni, 2001). Thus, managing uncertainties is identified as an integral part of environmental governance (Pellizzoni, 2004), and is also at the core of collaborative governance for sustainability. The aim of our study is to provide insight, based on empirical results, on how uncertainties pertaining to the sustainability goals of food packaging are negotiated, articulated, and addressed by actors engaged in collaborative governance efforts, and how these uncertainties shape such efforts. Fig. 1 summarises the theoretical framework of the study.

3. Methodology and data

Our study is based on a qualitative case study (Yin, 2014) of how actors perceive the possibilities offered by two different collaborative governance processes to have an impact on future pathways of food packaging in Finland, under the pressures of diminishing the use of plastics in packaging and increasing the general material efficiency of the food supply chain. A multi-data case study is particularly useful for analysing interdependencies between actor groups and social processes within their particular social context (Flyvbjerg, 2001). This makes it a relevant approach for investigating changing actor relations, interdependencies, and formulation of shared and separate goal settings and meanings for sustainable food packaging as part of designing and implementing voluntary governance measures. Drawing from the tradition of interpretive policy analysis (Yanow, 2000), our epistemological approach is interpretative: it is assumed that the access to reality is gained through social constructions such as language and shared meaning.

To gain an in-depth understanding of the studied governance processes, we collected and analysed policy documents and carried out thematic interviews. This data shed light on the policy processes that led to the design, adoption, and implementation of two voluntary and collaborative measures, namely the Material Efficiency Commitment for the food industry and the Plastics Roadmap for Finland covering the period from 2013/2016 to 2021. We understand these policy processes as windows that allowed us to investigate the conditions for collaborative governance in the ongoing sustainability transformation.

3.1. Data collection

We started our data collection by gathering and analysing gray data, including web pages, policy documents, and reports on the selected voluntary, collaborative public-private instruments. These documents provided us with a background understanding of the goals and design of the studied processes. Based on this background study, we designed a semi-structured interview guide (see Appendix A) and collected interview data that forms the primary data of this article. A semi-structured interview protocol was chosen to ensure sufficient flexibility and to obtain in-depth data on the subjects studied (Yin, 2014).

Purposive and iterative sampling (Drisko and Maschi, 2015) was applied to identify and select relevant interviewees. The identification of potential interviewees was based on the background study, and those selected to our study had been involved either in designing and/or the implementation of the instruments and had expertise in packaging-related issues. Interviewees were also asked during the interview to suggest other relevant experts for interview.

The selected interviewees included experts from the relevant ministries, industry associations, an intermediate organisation, producer responsibility organisations, and research organisations (see Appendix B). The primary data was gleaned from 17 semi-structured interviews with 20 interviewees conducted between December 2019 and March 2021, either in person or through videoconferencing. Two interviewers were present for 16 interviews and one interviewer for one interview. Two of the interviews were group interviews. The length of the interviews ranged from 41 to 115 min, with an average of 68 min. The interviews were recorded and transcribed.

3.2. Data analysis

The data analysis follows the tradition of interpretive policy analysis (Yanow, 2000, 2007). This type of policy analysis can develop rich information on context-specific policy issues and can be used to study policy debates and policy processes, as well as human artefacts that convey policy meanings (Yanow, 2007). Thus, the methodology suits our aims to understand how actors negotiate the meanings and goals of sustainable food packaging as part of the studied collaboration processes and their motivations for collaborative governance for sustainability.

In the first stage of the analysis, we investigated how different sustainability narratives define the sustainability of food packaging in the two different collaborative policy processes. The second part of the analysis focused on analysing what kind of uncertainties the contested sustainability narratives and related changes in the policy environment created for the actors, and how these uncertainties affected their motivation to participate in collaborative governance efforts.

The analysis started with qualitative content analysis and data coding. First, the interview transcripts were read through to gain a general understanding of the data. The next step included initial coding, which was done as open codes by using interpreted meanings. This was followed by summarising these codes into main themes and sub-themes relevant to the research questions. Due to the hermeneutic, iterative nature of the analytical meaning-making process, the research questions were refined when new knowledge was discovered during the coding and analysis stages. As a result, the following main thematic coding categories were formulated: 1) sustainability of packaging, 2) uncertainties related to sustainability transformation, and 3) stakeholder motivations.

A single researcher carried out the initial coding and thematic categorisation. To ensure reliability, the coding procedure and main categorisation were then agreed upon between both researchers and were used to code the rest of the data. To ensure flexibility in the coding frame, sub-themes could be elaborated, and new sub-categories added along the analysis process when necessary. The initial coding was done with NVIVO qualitative data analysis software. Finally, the coding frame and results were deliberated to gain consensus between the researchers

Collaborative sustainability governance

Collaborative governance and deliberation
(Ansell & Gash 2007, Hajer & Wagenaar 2003)

Motivations for collaboration
(Gray and Purdy, 2018)

Managing uncertainties and institutional ambiguity
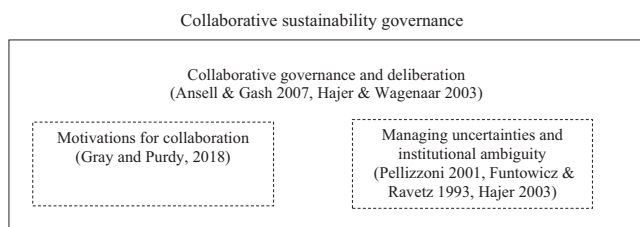(Pellizzoni 2001, Funtowicz & Ravetz 1993, Hajer 2003)

Fig. 1. Theoretical framework of the study.

and ensure coding consistency and reliability of the analysis. The coded data was then organised and further elaborated using an Excel spreadsheet.

During the coding of packaging sustainability-related themes, we noticed that the sub-themes (i.e., plastics, recycling, renewability, reuse, resource efficiency, and health and safety) formed a starting point for the sustainability narratives at play in the deliberative processes of the Material Efficiency Commitment and the Plastics Roadmap. Narrative analysis refers to a cluster of analysis methods that have been adopted in various ways in policy analysis (e.g., Berg and Hukkinen, 2011; Schlaufer, 2018). We applied a thematic approach (Riessman, 2008) to identify the coherent narratives and storylines created around the key sustainability problems, which connected actors, actions and changes and provided a plotline between separate events. By doing so, the narratives also identified the role of different actors and pathways towards solutions. In our analysis, we understand narratives as dominant stories, while storylines are seen as subordinate stories within the policy narratives. Both researchers participated in the iterative process of the narrative mapping and analysis. The coding stage resulted in six sub-themes and the process was continued until two logical key policy narratives, with four storylines, were formed with relevance and representativeness to the Material Efficiency Commitment and the Plastics Roadmap (see Fig. 2).

In line with the interpretive policy analysis (Yanow, 2000, 2007) approach, we understand the role of narratives as constructive. People use narratives to create coherent and understandable storylines in a complex and constantly changing environment. Most importantly, narratives are not merely tools to communicate and describe reality but rather create it by introducing new phenomena and defining which actors, actions, and contextual factors have significant roles in the storyline and which elements are excluded. Following the tradition of interpretive policy analysis (e.g. Yanow, 2007), we also acknowledge our role in the research not only through interaction with the subjects of the study during semi-structured interviews, but also as meaning-makers conducting the analysis. Furthermore, we also participated in the implementation of both voluntary instruments, used here as a frame of reference, through a publicly funded research project called Package Heroes. This close involvement enabled us to gain a better understanding of the context in which policy processes and deliberation take place, as suggested by Yanow (2007).

4. The cases: the material efficiency commitment and the plastics roadmap

4.1. The material efficiency commitment for the food industry

Material efficiency has attracted increasing attention in Finnish industrial policy discussions over the past 15 years. In 2013, the National Resource Efficiency Programme identified voluntary commitments as a means to achieve resource efficiency targets (MEE, 2014). Following on

from that, the Ministry of Economic Affairs and Employment launched the Roadmap for Material Efficiency Commitments (Österlund and Fast, 2016), which further triggered industry associations in the food industry and retail to proceed with a joint initiative for establishing a material efficiency commitment for the food industry. At a later stage, the industry association for the packaging sector joined the collaboration.

The first Material Efficiency Commitment (2019–2021) was set up as a pilot between three ministries (the Ministry of the Environment, the Ministry of Agriculture and Forestry, and the Ministry of Economic Affairs and Employment) and three sectoral industry associations (the Finnish Packaging Association, the Finnish Food and Drink Industries Federation, and the Finnish Grocery Trade Association). The commitment targets the whole value chain from food production to packaging and distribution and aims to improve profitability and reduce environmental impacts (Motiva, 2020a). The current instrument entails two levels of commitment: a high-level commitment between industry associations and ministries, and company-level commitments. At the high-level commitment, the signatories have set the following joint targets: 1) Improve profitability and sustainability through resource efficiency, and 2) Increase the awareness of opportunities and means of resource efficiency within the food value chain and among consumers. In addition, the high-level commitment entails sector-specific targets. The member companies of sectoral industry associations join in by making company-specific commitments, in which they determine their targets and ways to reach them.

By the end of 2020, 16 companies (seven food companies, four packaging material producers or converting companies, and five food retail companies) had made company-specific commitments (Motiva, 2020b). Food packaging-related actions include improvements in the processes and packaging design, including optimisation, lightweighting, and replacing fossil-based plastics with recycled or bio-based materials, with the dual aim of improving both material efficiency and recyclability (Finér and Merenheimo, 2020).

4.2. Plastics roadmap for Finland

In 2018 the Ministry of the Environment initiated a collaborative roadmapping process to find ways to achieve a more sustainable plastics economy in Finland. The collaboration process started when the Ministry of the Environment (2018, 2018b) appointed a multi-actor working group and an expert secretariat. A member of parliament chaired the working group, which consisted of representatives from different ministries, industry and trade associations, and non-governmental organisations (NGOs). The expert secretariat, led by a representative from the Ministry of the Environment, was responsible for writing the actual roadmap, and consisted of members from ministries, four government research institutions, and two government organisations for innovation funding. The wider society was engaged through stakeholder workshops, online consultation and the Citizens' Plastic Track (Ministry of the Environment, 2018).

PLASTICS ROADMAP FOR FINLAND

MATERIAL EFFICIENCY COMMITMENT

Narrative:
Plastics - from pure evil to necessary evil

Renewability storyline

Reuse storyline

Recycling storyline

Narrative:
A resource-efficient food chain with less food waste
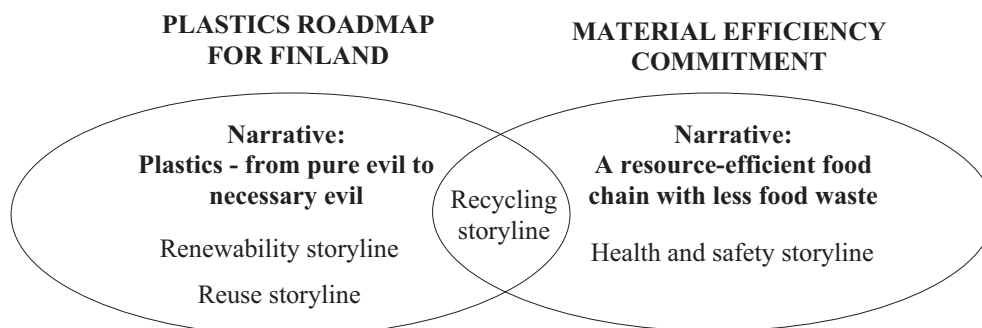
Health and safety storyline

Fig. 2. Sustainability narratives and their relations.

The main goals of the roadmap revolve around reducing and refusing the consumption of plastics, improving recycling and replacing plastics. The proposed actions aim to reduce the negative environmental impacts of plastic waste and litter, and target improving household plastic waste management and the efficiency of plastics recovery, recycling, and related product design. The roadmap strongly supports the uptake of the circular economy of plastics by creating favourable conditions for investments and innovation, as well as replacing non-renewable raw materials with bio-based and biodegradable alternatives. Some of the identified measures target food packaging either directly or indirectly (e.g., through improving plastic waste recovery and recycling, and investing in bio-based solutions). Suggested collaborative and voluntary actions include, for example, green deals to reduce the consumption of single-use containers for takeaway food and drinks.

Implementation of the roadmap started in 2019 and is ongoing. The policy actions relate to European strategies, such as the Strategy for Plastics (European Commission, 2018b) and for the circular economy (European Commission, 2015), as well as the implementation of the single-use plastics directive (European Commission, 2019). Institutionally, the Finnish Ministry of the Environment leads the implementation of the roadmap. However, a collaborative network, initially formed during the roadmapping process, is active in the implementation to speed it up, develop new measures, provide resources, strengthen the collaboration between implementers, stakeholders and citizens, and provide information about the plastics challenge and related solutions (Ministry of the Environment, 2019). The collaborative network is based on the previous multi-actor working group and expert secretariat and now consists of 24 organisations, including ministries, producer responsibility organisations, industry and trade associations, NGOs, selected citizens, and research organisations.

5. Contested sustainability narratives of the two collaborative processes

During the course of our interviews, it became clear that there was significant confusion among the actors over the meaning of sustainable food packaging and the specific policy goals related to making food packaging more sustainable. The confusion was over whether the sustainability of food packaging is mainly defined based on the goals of waste policies, material efficiency policies, and plastics policies, or whether it is aligned with the goals of sustainable food production and consumption. As a result of our analysis, we identified two key policy narratives through which our interviewees gave meaning to the sustainability of food packaging. Both narratives problematise different sustainability aspects and trace different storylines from the origins of the problem towards solutions. Consequently, the competing policy narratives also exclude different actors, actions, and events from the storyline. Therefore, depending on which of the narratives dominates the deliberative space, food packaging and actors engaged in food packaging find themselves in very different positions regarding their role in creating or solving the introduced sustainability goals. The narratives are not mutually exclusive, but clearly the two studied cases, the Plastics Roadmap and the Material Efficiency Commitment, leaned on and maintained somewhat different policy narratives, meaning that the argumentation within those collaborative processes followed a different logic and strategies of justification. In the following, we introduce the two policy narratives that shaped the deliberation in the studied processes: Plastics – from pure evil to necessary evil, and A resource-efficient food chain with less food waste. The collaborative processes shared a recycling storyline that strongly shapes both processes (see Fig. 2).

5.1. Plastics roadmap: plastics – from pure evil to necessary evil

The goal of the preparation and implementation of the national Plastics Roadmap was to bring multiple actors together to jointly create national measures for diminishing the harmful environmental impacts of plastics use. The starting point was the EU-level policy goals of reducing, replacing, and recycling plastics. The dominant narrative shaping the national roadmap process in Finland revolves around the politicisation and problematisation of plastic materials in general. In this narrative, the main issue to be solved is the increasing amount of plastic waste ending up in the oceans and in soil. Due to intense media attention, the topic has become a heated public issue over the last decade (e. g., Nielsen et al., 2019), and several of our interviewees found it problematic that the plastic discourse also dominates the public debate around food packaging. In recent years in public and policy discourse, plastics, especially single use, have not only gained negative connotations but have also become demonised: '*Food packaging was discussed in public through negation alone. That packaging and plastic is a bad thing.… That plastic is bad, from a Satan-type discussion*' (I11), as described by one interviewee. This has led to public campaigns and policies denouncing the use of plastics and aiming to reduce its consumption, and the national Plastics Roadmap was part of this broader policy debate.

However, the narrative has not been stagnant; it evolved through the deliberative processes of the Plastics Roadmap. From the start, the narrative stigmatised the use of plastics in general and thus also in food packaging, and it implied that plastics should be relinquished or replaced with other materials perceived as more sustainable. In fact, within the evil plastics narrative, we identified two different storylines offering pathways to a more sustainable future without increasing amounts of plastic waste. We label the first *towards renewability*. In this storyline, the plastics problem is basically defined around the climate impacts of producing fossil-based plastics and littering. Replacing fossil-based plastics with bio-based materials is presented as a solution. This storyline assigns the role of changemaker to the pulp and paper industry, among other producers of alternative bio-based materials, but brushes aside the fact that bio-based packaging, when made partly or entirely of (bio)-plastics, is likely to cause similar types of littering issues. This narrative is particularly appealing in the context of Finland, where production and innovation related to bio-based, particularly fibre-based, materials is of national importance and thus influences the political discourse: '*This desire to replace plastic with something else is a lottery win for Finland' (I17)*, as pointed out by one of the actors.

The renewability narrative is diversifying, and many actors raised concerns regarding the climate impacts of fibre-based single-use packaging and regarding the biodegradability, compostability, safety, and recyclability of new bio-based materials aimed at replacing single-use plastics. In addition, the renewability narrative is weakened by the somewhat blurred boundaries between renewable and non-renewable plastics. These boundaries are particularly relevant when defining the role of food packaging in the ongoing sustainability transformation. While renewable, fibre-based materials are seen as an alternative to fossil-based plastics, some interviewees highlighted that in reality, fibre-based food packaging is seldom a plastic-free alternative, as the packaging performance requires moisture and oxygen barrier layers made of fossil- or bio-based plastic materials, which are not biodegradable in ocean or soil.

Another solution-oriented storyline seeks to decrease the production of and need for packages by shifting towards reusable packaging. This narrative is more radical than the renewability narrative from the perspective of food packaging because it requires a more fundamental rethinking of the system of producing, distributing, and consuming food instead of just replacing one material with another. While *reuse* is seen to have gained importance in the EU's environmental policies, contestations and scepticism towards the mainstreaming of reusable food packaging are often expressed. Reuse is seen in a positive light, particularly by certain public servants who perceive reuse as an option to extend the packaging life cycle and reduce the generation of single-use packaging waste. However, this view is not shared by most interviewees, who raised concerns on food safety, scalability, and overall sustainability. To be successful, this storyline calls for food chain actors,

i.e., retailers and restaurant and catering businesses, to step in as changemakers.

The reuse and renewability storylines run alongside the evolving evil plastics narrative. The way the plastics narrative changed during the roadmapping process was considerable. This was pointed out by an interviewee:

'Now that the roadmap is complete, it's a completely different roadmap than what was first discussed in those preparatory groups. The starting point was that the use of plastic should be stopped in society, until it was discovered that it was the same as giving up on housing, transportation and consumer electronics, and then we started to think about the conditions under which society works.' (I7)

The changing narrative seeks to put plastics in a more positive light. For example, during the roadmap process, a collaborative information campaign called *I love muovi* (I love plastics) was established to encourage citizens to sort and recycle plastic packaging waste. The national broadcasting company Yle organised this campaign. Thus, alongside the negative impacts, the positive sustainability impacts of plastics gained importance. Plastics are durable, light, and cheap and enable containment and protection, particularly of perishable food-stuffs. Therefore, instead of being a pure evil, plastics are seen as a necessary evil. This was explained by one of the interviewees, who stated:

'Plastic has a clear place in this world. It is equally clear that there is a problem when the plastic gets into the wrong places. I see that the world will not be able to do without plastic in the future either.' (I2)

5.2. Material efficiency commitment: a resource-efficient food chain with less food waste

Whereas the evolving evil plastics narrative shaped the deliberation around the Plastics Roadmap process, the negotiations around the Material Efficiency Commitment leaned on a rather conservative policy narrative of resource efficiency. This narrative, which we call *A resource-efficient food chain with less food waste*, links the prevention of food waste and loss with food packaging and packaging waste reduction, highlighting the economic aspects alongside the environmental impacts of waste generation. It makes sense of sustainable food packaging, mainly in terms of *food waste, safety, and health* issues.

Instead of being just the villain of the story, in this narrative, food packaging is given the role of a solution that can reduce food loss and waste. Packaging plays a key role in protecting food; reducing food waste is thus a way to mitigate the food system's climate impacts, which are known to be much more severe than those of food packaging. In addition, when interpreted from the perspective of food-related public health issues, packaging also has a role to play in food consumption habits. As some interviewees point out, certain EU policies such as the SUP directive, which promotes the reduction of single-use, single-portion food packages, may lead to unhealthier eating habits through the purchase and consumption of larger package sizes. Therefore, as emphasised by one interviewee, food packaging should not be the first place to reduce single-use plastics.

The narrative thus offers a dual role for food packaging. On one hand, food packaging has a role to play in diminishing food loss and is therefore important for the solution to a defined sustainability problem. On the other hand, food packaging is also the villain. It is a cost factor and a cause of environmental burden. Previously, resource efficiency debates emphasised packaging lightweighting, but now the policy pressure is on improving packaging recyclability, which can be contradictory, as pointed out by one interviewee:

'In the past, the aim was to develop lighter plastic packaging without compromising its protection properties. Unfortunately, in terms of

recyclability, these packaging solutions with multilayer laminates are challenging for mechanical recycling.' (I7)

5.3. Shared storyline: recycling is the key to the solution

In addition to the two clearly distinct policy narratives, the preparation and implementation of the Plastics Roadmap and the Material Efficiency Commitment were also shaped by a storyline offering recycling as a key to overcoming sustainability problems. The recycling storyline currently dominates policy debates around the plastic waste issue and, following on from that, food packaging. A reason for this dominance is the strong emphasis that the EU puts on increasing the recycling rates of packaging waste in Europe in the near future. The shared storyline presents a simplistic pathway to sustainability, particularly as food packaging is still rather difficult to recycle.

'Food packaging is not really our packaging problem. We may have a large amount of some packaging material but if it is recycled well and successfully, then it is not a problem.' (I16)

The storyline is also conservative. Here, the system can largely remain as it is now, except for increasing recycling targets. Even though the use of recycled materials in packaging needs to be increased in general, this does not necessarily target food packaging, as recycling can be managed by downcycling material to other packing applications where safety demands are not as tight.

The recycling storyline emphasises the role of consumers as recyclers but downplays that of food packaging producers in solving sustainability problems caused by food packaging. In addition, the storyline requires that a functioning market for recycled plastic materials should be established, pointing the finger at both public and private actors. Table 1 summarises the sustainability narratives.

6. Caught between food and plastics policies: the uncertainties of food packaging transformation

6.1. Ambiguities in defining and measuring packaging sustainability

As the different sustainability narratives show, there are major ambiguities regarding how sustainable food packaging is defined in terms of the different policy goals. The lack of clarity on how to define and validate what is or could be a more sustainable packaging creates uncertainties in how to address public demand for diminishing environmental impacts, as emphasised by one interviewee:

Table 1
Summary of sustainability narratives.

Narrative	Problems	Villains	Solutions
Plastics – from pure evil to necessary evil	Negative environmental impacts of plastics use, including littering	Plastics, particularly single-use plastic (food) packaging	Reduction of plastics use Alternative bio-based packaging materials Packaging reuse Efficient recycling of plastic packaging waste Markets for recycled plastics
A resource-efficient food chain with less food waste	Resource inefficiency; food loss and waste, packaging waste	Food packaging that is a source of cost and pollution	Food packaging to protect food and reduce food loss and waste Better packaging design Efficient recycling of packaging waste

'Sustainability is constantly being talked about but we don't really have an unambiguous way to define or assess what is currently more or less sustainable' (I11)

As indicated by the contested sustainability narratives, the food packaging sector faces several external and internal demands, such as replacing plastics or improving packaging recyclability, that primarily target mitigating negative environmental impacts caused by packaging waste. However, several interviewees expressed concern over the lack of systemic understanding and evidence of such actions on sustainability. *'The big problem is that we don't really manage the overall impacts, including recyclability. There is a lack of information and overall understanding' (I13)*, stressed one interviewee. Another exemplified this ambiguity by noting:

'Packaging is not needed without a packaged product and on the other hand, if we change the packaging to be more recyclable, for example, but at the same time weaken its protective properties, food loss increases, which is undesirable. How do we balance this?' (I2)

On the other hand, this ambiguity also provides an opportunity for the actors to have an impact on how food packaging is included in national policymaking and in the material efficiency targets of food chain actors. Nevertheless, to have an impact on these debates, they need to argue through the dominant policy narratives.

6.2. Capricious regulatory changes and their implementation

The second source of uncertainty originates from the regulatory system, which is shaped by the existing policy narratives and thus reflects the contested definitions of the role of food packaging in the policy goals. During the period our data was collected, several ongoing regulatory processes influenced the Finnish food packaging sector. The main processes included implementation of the EU directive on single-use plastics (SUP) and of the National Waste Act following the EU waste framework and packaging and packaging waste directives. The interviews indicate that these simultaneous regulatory changes created a high level of uncertainty over the direction of desired changes in food packaging. We noted that many interviewees showed clear frustration and even irritation regarding the SUP directive and its fast implementation schedule, especially since the key definitions of the directive, like single-use and plastics, were still under preparation during the national implementation preparation phase. *'It is like preparing national laws blindfolded' (I13)*, said one interviewee. Another commented:

'No one has anything against it [solving the plastics crisis]*, and everyone wants to promote it. However, as the scope expanded that way, we started talking about the definition of plastic, and suddenly a year ago, cellulose was plastic... The problem is that the EU's criteria and definitions have been tightened up so that nothing is accepted.' (I6)*

As the above quote indicates, one source of frustration regarding the SUP directive was the broad definition of plastics to include also cardboard items with only a very thin polymer layer into the category of banned plastic objects. This interpretation delegitimised in an instant the role of the forest industry as a solution provider in the evil plastics narrative and took people by surprise. In addition, the uncertainties due to tightening or missing EU definitions have also complicated the deliberation around recycling. Several interviewees pointed out the lack of an EU-wide definition of basic terms, including packaging recyclability. In addition, regarding plastics recycling, only mechanical recycling complies with the current EU regulation.[1] Uncertainties exist

---

[1] In December 2021, the EC published a draft regulation on recycled plastic in food packaging (Recycled plastic materials and articles intended to come into contact with foods and repealing Regulation (EC) No 282/2008). If this regulation were to be adopted, it would make other types of recycling legal, like for example a combination of mechanical and chemical processes.

around whether this interpretation will remain.

'What is going to happen to recycling technologies is important. Above all, whether the Commission will stick to this current recycling policy, which means, for example, that the chemical recycling projects that our domestic company has carried out cannot be considered recycling according to the current interpretation. What happens to the interpretation is a big deal.' (I7)

This interpretation would have a direct impact on plastic food packaging, which often poses challenges with current mechanical recycling processes. In general, the prolonged state of uncertainty regarding future directions seems to create challenges for actors in terms of fostering sustainability transformation and for industries to progress.

7. Navigating uncertainties: motivations for collaborating in food packaging governance

At the time of the studied collaborative processes, regulations on (food) packaging were expected to tighten further. In addition, due to the ambiguity of sustainability narratives and capricious regulatory changes, some of the interviewed stakeholders were rightly concerned that the regulatory environment could become unfavourable to them. However, the motivations for collaborating in food packaging governance were more varied depending on how the stakeholders perceived the ongoing transformation and their role in it. When studying stakeholder motivations, we also identified that motivations are strongly connected to interpretations of what sustainability and related policy targets look like. The motivations also varied depending on the type of collaborative instrument.

7.1. Plastics roadmap

As described earlier, the Plastics Roadmap is a broad, participatory and strategic process. Several interviewees highlighted the role of participation in *influencing the target setting and implementation*. As the changing plastics narrative shows, the deliberation during the road-mapping process also changed the way plastics is discussed in this context.

While joint target setting and implementation formed part of the policy instrument design, it made the instrument prone to many kinds of lobbying activities. For example, the pleas of several innovative packaging start-ups for public research, development and innovation (RDI) investments to support developing alternatives to fossil-based plastics were considered in the roadmap. Another example was the New Plastics Centre initiative by the plastics industry. Some of the interviewed stakeholders felt that the plastics industry hijacked the original idea, which was to set up an impartial New Plastics knowledge network for creating political pressure to foster the uptake of innovative solutions to replace traditional fossil-based plastics.

Besides lobbying, the actors seemed to participate in order to *create joint targets, gain legitimacy and commit other stakeholders*, which has also been articulated as a target of the collaborative instruments, as emphasised by an interviewed ministry representative. Collaboration appears to be particularly relevant in overcoming complex sustainability problems, such as plastics-related challenges, that cannot be solved by a single actor. *'There is a need for a network of many actors, common goals and a common direction'* (I12), as pointed out by an interviewee. With particular relevance to the Plastics Roadmap process, several interviewees shared the urge to nudge systemic change forward. As one of them put it:

'I think everyone agrees that we have common challenges which we need to think up solutions for. Although there were people with very different views, it was constructive that everyone really felt that this is an important issue. We must find solutions together. Maybe it also started from the fact

that everyone understood that it was about making a systemic change.'
(I10)

Furthermore, the formation of these deliberative spaces is essential for creating a shared understanding and language among stakeholders.

In the current ambiguous regulatory situation, the stakeholder activities on *sharing knowledge, learning and building capacity* seem to have particular importance. Participation in voluntary actions enables actors to join or create networks through which they can exchange information, share best practices, and build capacity. Several interviewees pointed out that they felt they could gain first-hand policy and regulatory information, such as on the implementation of the SUP directive through public-private interaction, by participating in working meetings and events related to voluntary measures. This exchange of information also seems to benefit ministries, as they can gain information on recent RDI activities and get direct feedback on policy implementation.

Some of the informants perceived collaborative instruments as a way to *gain access to RDI project consortia and public research funding and even influence research directions*. Business actors and RDI organisations in particular acknowledged these types of activities as being relevant for gaining much-needed evidence and developing packaging solutions that could solve sustainability challenges. As described by an interviewee, '*The idea was that consortia would be formed in which companies could proceed with a research partner to study and develop these issues' (I2).*

7.2. Material efficiency commitment

Regarding the Material Efficiency Commitment, one of the key stakeholder motivations is to *comply with tightening EU policy targets on food and packaging waste* using a voluntary approach. For example, by committing to improve material efficiency through voluntary commitment, companies are seen to have incentives to improve packaging recyclability, which in turn strengthen the organisational capacity needed to comply with the packaging and packaging waste legislation, as pointed out by an interviewee (I3). Besides material efficiency and regulation on packaging and packaging waste, compliance with EU policies on the circular economy and directives on single-use plastics and food waste are significant for food packaging development, which appears to motivate participating stakeholders.

Also regarding this voluntary instrument, stakeholders seem to participate in order to *influence the target setting and implementation*. Stakeholders are keen to '*seek better predictability*' (I4) by influencing future directions through voluntary measures. For example, the industry associations proactively sought an opportunity to pilot the Material Efficiency Commitment model, in order to gain flexibility in target setting and avoid potential binding regulations on food waste and loss. Avoiding binding regulations particularly motivates business actors, as regulation is seen to be too rigid and slow in addressing the rapidly changing and complex operating environment that deals with food waste reduction and plastics crisis.

We identified that voluntary measures are also used to *show and take sustainability leadership*. This type of motivation seems to be particularly relevant for business actors in terms of the Material Efficiency Commitment. One participant emphasised that '*Our goal is to make the material efficiency work of the food industry and the packaging value chain more visible' (I4)*. The motivation to take part in voluntary commitments seems to derive from the perceived competition and potential competitive advantage. Industry renewal was expressed as a factor that motivates actors to participate and collaborate, as highlighted by an interviewee:

'The voluntary commitments such as green deals, Material Efficiency or plastic pacts are very important. It shows how interested the [plastic] industry is and its desire for renewal. That we are not such a mature industry that there would be no capacity for renewal. Yes, it can be found when encouraged.' (I12)

Sharing knowledge, learning, and building capacity also motivate stakeholders regarding the Material Efficiency Commitment. The creation of deliberative spaces allows actors to exchange information, learn, and create joint understanding. As pointed out by one interviewee:

"Companies wrestle with the same themes as they reflect and set their own goals. Especially regarding packaging, one will certainly think about what the realistic targets are, and as there are these different terms: 'recyclability', 'recyclable', 'recycled'. And what is meant by these and what is possible. This has certainly lowered the threshold for sparring with each other." (I4)

Participating in collaborative, voluntary measures is seen as a way to gain an understanding of packaging sustainability. According to one interviewee, '*One of the essential things we are looking for from this* [the collaboration] *is information on what is genuinely environmentally friendly packaging' (I3)*. Furthermore, fostering industry-level RDI activities and a renewal is also highlighted. As explained by one participant:

'…if through such a commitment we get food and packaging companies to work together and set development projects in motion, for example, then that can lead to progress at the industry level.' (I2)

8. Discussion and conclusion: managing uncertainties through voluntary collaboration

Political scientist Maarten Hajer has claimed that solving current environmental problems is often hampered by institutional ambiguity (Hajer, 2003). This kind of ambiguity is clearly present in the sustainability governance of food packaging. Institutional ambiguity is often introduced as an attribute of novel environmental issues entering the policy debates and not yet having clear regulatory or policy approaches or responsible authorities to address the problems. In the case of food packaging, ambiguity is not due to the novelty of the problem but rather to its marginality in relation to the key policy topics of the plastic waste crisis and food safety and the prevention of food waste. According to Hajer, institutional ambiguity means that in addition to finding solutions there is also a need to negotiate simultaneously new institutional rules and roles (Hajer, 2003). This means that contested policy narratives shaping the collaborative efforts gain increasing importance.

By pointing at the importance of institutional ambiguities in the governance of food packaging, our analysis provides a novel insight into the research debates aiming to find solutions for grand sustainability challenges. In addition, it contributes to the literature on environmental policy narratives addressing packaging and packaging waste. These topics are but a minor sub-topic within big policy debates like the circular economy (Leipold, 2021), food systems (Béné et al., 2019), and plastics (Palm et al., 2021), but are nevertheless important as they address specific issues that need to be resolved while promoting broader sustainability goals. The results show that the way stakeholders try to formulate coherent policy narratives around food packaging is influenced by several sustainability and policy-related uncertainties. As a common storyline, recycling is seen as a solution to environmental problems caused particularly by plastic packaging. However, this storyline does not challenge material use or require radical changes in consumption patterns, nor does it assume that recycled material should be used in the production of food packaging. Potential health and safety concerns related to the use of recycled plastics (e.g., Muncke, 2021) are solved by downcycling. While the circular economy is suggested as a main EU environmental policy narrative (Leipold, 2021), emphasis on the circular economy beyond material recycling is less evident in our study. However, in line with our findings, a recent policy study identifies material (in)efficiency and pollution among the key narratives within the European plastics policy debate (Palm et al., 2021).

The role of food packaging is contradictory in the different sustainability narratives – it is both a villain and a hero of the story. This

contradiction arises from food and plastics policies, which fail to properly address food packaging and its functions (Sundqvist-Andberg and Åkerman, 2021). One of the uncertainties shaping the sustainability transformation revolves around difficulties in knowing what is sustainable. Then again, capricious regulatory changes, particularly the implementation of the SUP directive, have further amplified the uncertainties that actors are facing.

Our results suggest that existing sustainability narratives shape deliberation formed within the collaborative processes of the Plastics Roadmap and the Material Efficiency Commitment. However, the narratives are not necessarily fixed, as shown by the evolution of the evil plastics narrative during the Plastics Roadmap negotiations. The deliberation may transform the narratives and thus change the way sustainability targets and the roles of actors in reaching them are discussed and justified. These kinds of shifts in narrative are important, as they show that deliberation created around collaborative governance initiatives is worth the effort and enables stakeholders to create joint targets and language and broaden their understanding of food packaging sustainability and can thus support them in navigating highly complex and uncertain sustainability transformation.

Our study also provides new insights into stakeholders' motivations to participate in collaborative efforts. In line with previous research, it shows that such motivations are versatile in terms of sharing information, building capacity, influencing target settings, and showing sustainability leadership to gain access to RDI networks. While these motivations fall under the existing typology of legitimacy-, resource-, and society-oriented motivations (see Gray and Purdy, 2018), our study

also indicates that stakeholders' motivations may change during collaborative processes along with changes in the deliberative setting. This indicates that in addition to clearly defined motivations, the institutional ambiguities related to controversial sustainability issues create an opportunity for stakeholders to impact the policy narratives that shape the deliberation, and potentially to actively redefine their own role in the transformation and take up the leadership.

To conclude, our qualitative study sheds light on how institutional ambiguities shape collaborative sustainability governance. By highlighting the importance of the issue in the governance of food packaging, our study emphasises the need to better understand institutional ambiguities related to policy topics that fall between big policy debates like the circular economy or food systems and plastics.

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.

Acknowledgements

Appendix A. Main interview themes

Type of organisation	Main interview themes
Ministry	Sustainable food packaging and related policies and instruments
	Collaboration and voluntary measures in sustainability transformations
	Material Efficiency Commitment for the food industry (if relevant)
	- background, goals and targets, actor roles, collaboration, renewal
	Plastics Roadmap (if relevant)
	- background, goals and targets, actor roles, process, collaboration, and the role of food packaging
Industry association	Sustainable food packaging
	Collaboration and voluntary measures in sustainability transformations
	Material Efficiency Commitment for the food industry (if relevant to the industry association)
	- background, goals and targets, actor roles, process, collaboration, renewal
	Plastics Roadmap (if relevant to the industry association)
	- background, goals and targets, actor roles, process, collaboration, and the role of food packaging
Intermediate organisation	Sustainable food packaging
	Material Efficiency Commitment for the food industry (if relevant to the industry association)
	- background, goals and targets, actor roles, process, collaboration
Producer organisation	Producer responsibility schemes for packaging
	Collaboration
	Sustainable food packaging and links to producer responsibility
	Plastics Roadmap (if relevant)
	- actor roles, process, and collaboration
Research organisation	Plastics Roadmap
	- background, goals and targets, actor roles, process, collaboration, and the role of food packaging

Appendix B. List of interviewees

Type of organisation	Interviewee role
Ministry 1	Programme Manager
Ministry 1	Senior Ministerial Adviser
Ministry 1	Ministerial Adviser
Ministry 2	Chief Specialist
Ministry 2	Ministerial Adviser
Ministry 3	Ministerial Adviser
Sustainable development company	Senior Expert
Sustainable development company	Expert
Sustainable development company	Expert

(continued)

Type of organisation	Interviewee role
Industry association 1	CEO
Industry association 2	CEO
Industry association 3	Chief Policy Adviser
Industry association 4	CEO
Industry association 5	Expert
Producer responsibility organisation	CEO
Producer responsibility organisation	CEO
Research organisation 1	Senior Scientist
Research organisation 1	Vice President
Research organisation 2	Senior Scientist
Research organisation 3	CEO

References

Ansell, C., Gash, A., 2007. Collaborative governance in theory and practice. J. Public Adm. Res. Theory 18, 543–571. https://doi.org/10.1093/jopart/mum032.

Béné, C., Oosterveer, P., Lamotte, L., Brouwer, I.D., de Haan, S., Pragera, S.D., Talsma, E. F., Khoury, C.K., 2019. When food systems meet sustainability – current narratives and implications for actions. World Dev. 113, 116–130.

Berg, A., Hukkinen, J.I., 2011. The paradox of growth critique: narrative analysis of the Finnish sustainable consumption and production debate. Ecol. Econ. 72, 151–160. https://doi.org/10.1016/J.ECOLECON.2011.09.024.

Chakori, S., Aziz, A.A., Smith, C., Dargusch, P., 2021. Untangling the underlying drivers of the use of single-use food packaging. Ecol. Econ. 185, 107063 https://doi.org/10.1016/J.ECOLECON.2021.107063.

Crippa, M., Solazzo, E., Guizzardi, D., Monforti-Ferrario, F., Tubiello, F.N., Leip, A., 2021. Food systems are responsible for a third of global anthropogenic GHG emissions. Nat. Food 2, 198–209. https://doi.org/10.1038/s43016-021-00225-9.

Dewulf, A., Biesbroek, R., 2018. Nine lives of uncertainty in decision-making: strategies for dealing with uncertainty in environmental governance. Polic. Soc. 37, 441–458. https://doi.org/10.1080/14494035.2018.1504484.

Drisko, J., Maschi, T., 2015. Content Analysis. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780190215491.001.0001.

Ellen MacArthur Foundation, 2018. Global Commitment - New Plastics Economy. https://www.newplasticseconomy.org/projects/global-commitment (accessed 9.27.21).

European Commission, 2015. Closing the Loop: An Ambitious EU Circular Economy Package, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committe of the Regions.

European Commission, 2018a. Plastic Waste: A European Strategy to Protect the Planet, Defend Our Citizens, 16 Janvier 2018 16–18.

European Commission, 2018b. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. A European Strategy for Plastics in a Circular Economy COM/2018/028 final.

European Commission, 2019. Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 on the Reduction of the Impact of Certain Plastic Products on the Environment. Off. J. Eur. Union L, p. 155.

European Plastics Pact, 2020. The European Plastics Pact. Bringing Together Frontrunner Companies and Governments to Accelerate the Transition toward Circular Plastics Economy. https://europeanplasticspact.org/ (accessed 9.16.20).

Finér, A., Merenheimo, T., 2020. Elintarvikealan materiaalitehokkuuden sitoumuksen tulokset 2019 Elintarvikealan materiaalitehokkuuden sitoumus : Ensimmäinen tulosraportointi.

Flyvbjerg, B., 2001. Making Social Science Matter: Why Social Inquiry Fails and how it Can Succeed Again. Cambridge University Press, Cambridge, UK.

Funtowicz, S.O., Ravetz, J.R., 1993. Science for the post-normal age. Futures 25, 739–755. https://doi.org/10.1016/0016-3287(93)90022-L.

Gray, B., Purdy, J., 2018. Collaborating for our future: multistakeholder partnerships for solving complex problems. In: Collaborating for Our Future: Multistakeholder Partnerships for Solving Complex Problems. https://doi.org/10.1093/oso/9780198782841.001.0001.

Hajer, M.A., 1995. The Politics of Environmental Discourse: Ecological Modernization and the Policy Process. Oxford University Press, New York.

Hajer, M., 2003. Policy without polity? Policy analysis and the institutional void. Policy. Sci. 36, 175–195. https://doi.org/10.1023/A:1024834510939.

Hajer, M., Wagenaar, H. (Eds.), 2003. Deliberative Policy Analysis. Understanding Governance in the Network Society. Cambridge University Press.

van den Hove, S., 2000. Participatory approaches to environmental policy-making: the European Commission climate policy process as a case study. Ecol. Econ. 33, 457–472. https://doi.org/10.1016/S0921-8009(99)00165-2.

Motiva, 2020a. Material Efficiency Commitment for Industry - Motiva. https://www.motiva.fi/en/solutions/material_efficiency/material_efficiency_commitment_for_industry (accessed 12.18.20).

Jahn Hansen, C., 2006. Urban transport, the environment and deliberative governance: the role of interdependence and trust. J. Environ. Policy Plan. 8, 159–179. https://doi.org/10.1080/15239080600772191.

Kemp, R., Loorbach, D., 2006. Transition management: a reflexive governance approach. In: Voss, J.-P., Bauknecht, D., Kemp, René (Eds.), Reflexive Governance for Sustainable Development. Edward Elgar, Cheltenham, UK, p. 457.

Leipold, S., 2021. Transforming ecological modernization 'from within' or perpetuating it? The circular economy as EU environmental policy narrative. Env. Polit. 1–23. https://doi.org/10.1080/09644016.2020.1868863.

Lindberg, M.B., Markard, J., Andersen, A.D., 2018. Policies, actors and sustainability transition pathways: a study of the EU's energy policy mix. Res. Policy. https://doi.org/10.1016/j.respol.2018.09.003.

Loorbach, D., 2010. Transition management for sustainable development: a prescriptive, complexity-based governance framework. Governance 23, 161–183. https://doi.org/10.1111/j.1468-0491.2009.01471.x.

Loorbach, D., Frantzeskaki, N., Thissen, W., 2011. A transition research perspective on governance for sustainability. In: European Research on Sustainable Development. Springer, Berlin Heidelberg, Berlin, pp. 73–89. https://doi.org/10.1007/978-3-642-19202-9_7.

Lyytimäki, J., Vikström, S., Furman, E., 2019. Voluntary participation for sustainability transition: experiences from the 'Commitment to Sustainable Development 2050'. Int. J. Sustain. Dev. World Ecol. 26, 25–36. https://doi.org/10.1080/13504509.2018.1460632.

Marsh, K., Bugusu, B., 2007. Food packaging? Roles, materials, and environmental issues. J. Food Sci. 72, R39–R55. https://doi.org/10.1111/j.1750-3841.2007.00301.x.

MEE, 2014. National Material Efficiency Programme - Sustainable Growth through Material Efficiency. Ministry of Employment and the Economy (MEE) publications.

Ministry of the Environment, 2018. Reduce and Refuse, Recycle and Replace – the Plastics Roadmap for Finland. (in Finnish). https://muovitiekartta.fi/userassets/uploads/2019/03/V%C3%A4henn%C3%A4-ja-v%C3%A4lt%C3%A4.-Kierr%C3%A4t%C3%A4-ja-korvaa.-Muovitiekartta-Suomelle.pdf.

Ministry of the Environment, 2018b. Letter of Establishment. Working Group for Preparing the National Plastic Road Map. YM7/052/2018. (in Finnish).

Ministry of the Environment, 2019. Letter of Establishment. Collaboration Network for Implementing the National Plastic Road Map. VN/3057/2019. (in Finnish)-ED7E663A_03DD_498E_B6D4_1C7238E70AF6-147383.pdf.

Motiva, 2020b. Liittyneet yritykset - Motiva. https://www.motiva.fi/ratkaisut/materiaalitehokkuus/materiaalitehokkuuden_sitoumukset/elintarvikealan_sitoumus/liittyneet_yritykset (accessed 12.18.20).

Muncke, J., 2021. Tackling the toxics in plastics packaging. PLoS Biol. 19 (3), e3000961 https://doi.org/10.1371/journal.pbio.3000961.

Newig, J., Voß, J.-P., Monstadt, J., 2007. Editorial: governance for sustainable development in the face of ambivalence, uncertainty and distributed power: an introduction. J. Environ. Policy Plan. 9, 185–192. https://doi.org/10.1080/15239080701622832.

Newig, J., Challies, E., Jager, N.W., Kochskaemper, E., Adzersen, A., 2018. The environmental performance of participatory and collaborative governance: a framework of causal mechanisms. Policy Stud. J. 46, 269–297. https://doi.org/10.1111/psj.12209.

Nielsen, T.D., Hasselbalch, J., Holmberg, K., Stripple, J., 2019. Politics and the plastic crisis: a review throughout the plastic life cycle. Wiley Interdiscip. Rev. Energy Environ. https://doi.org/10.1002/wene.360.

Österlund, H., Fast, E., 2016. Materiaalitehokkuuden sopimustoiminnan tiekartta – kehitysryhmän ehdotus. https://www.motiva.fi/files/11689/Materiaalitehokkuuden_sopimustoiminnan_tiekartta_2016_kehitysryhman_ehdotus.pdf.

Palm, E., Hasselbalch, J., Holmberg, K., Nielsen, T.D., 2021. Narrating plastics governance: policy narratives in the European plastics strategy. Env. Polit. 1–21. https://doi.org/10.1080/09644016.2021.1915020.

Paton, B., 2000. Voluntary environmental initiatives and sustainable industry. Bus. Strateg. Environ. 9, 328–338. https://doi.org/10.1002/1099-0836(200009/10)9:5<328::AID-BSE259>3.0.CO;2-Z.

Pellizzoni, L., 2001. Democracy and the governance of uncertainty: the case of agricultural gene technologies. J. Hazard. Mater. 86, 205–222. https://doi.org/10.1016/S0304-3894(01)00259-X.

Pellizzoni, L., 2004. Responsibility and environmental governance. Env. Polit. 13, 541–565. https://doi.org/10.1080/0964401042000229034.

Rhein, S., Sträter, K.F., 2021. Corporate self-commitments to mitigate the global plastic crisis: recycling rather than reduction and reuse. J. Clean. Prod. 296, 126571 https://doi.org/10.1016/J.JCLEPRO.2021.126571.

Riessman, C.K., 2008. Narrative Methods for the Human Sciences. Sage Publications, Thousand Oaks, CA.

Rotmans, J., Kemp, R., van Asselt, M., 2001. More evolution than revolution: transition management in public policy. Foresight 3, 15–31. https://doi.org/10.1108/14636680110803003.

Schlaufer, C., 2018. The narrative uses of evidence. Policy Stud. J. 46, 90–118. https://doi.org/10.1111/psj.12174.

Sundqvist-Andberg, H., Åkerman, M., 2021. Sustainability governance and contested plastic food packaging – an integrative review. J. Clean. Prod. 306, 127111 https://doi.org/10.1016/J.JCLEPRO.2021.127111.

Voß, J.-P., Bauknecht, D., Kemp, R., 2006. Reflexive Governance for Sustainable Development. Edward Elgar Publishing. https://doi.org/10.4337/9781847200266.

Wood, D.J., Gray, B., 1991. Toward a comprehensive theory of collaboration. J. Appl. Behav. Sci. 27, 139–162. https://doi.org/10.1177/0021886391272001.

WRAP, 2021. History of the Courtauld Commitment. https://wrap.org.uk/taking-action/food-drink/initiatives/courtauld-commitment/history-courtauld-commitment (accessed 9.16.20).

Yanow, D., 2000. Conducting Interpretive Policy Analysis. Sage Publications, Thousand Oaks, CA. https://doi.org/10.4135/9781412983747.

Yanow, D., 2007. Interpretation in policy analysis: on methods and practice. Crit. Policy Stud. 1, 110–122. https://doi.org/10.1080/19460171.2007.9518511.

Yin, R., 2014. Case Study Research: Design and Methods (Applied Social Research Methods), 5th ed. Sage Publications, Thousand Oaks, CA.