

Norway's Food Waste Reduction Governance: From Industry Self-Regulation to Governmental Regulation?

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The scale of food waste across Europe is alarming, and its reduction has recently been identified as an important public policy issue. However, effective solutions require initiative and action both from the government and the food industry. What are the drivers of industry self-regulation in this area? We provide an in-depth analysis of the emergence and evolution of Norway's food waste reduction governance. In 2017, food sector companies signed a Voluntary Industry Agreement on food waste reduction, but as of 2021, a shift towards a binding law is increasingly likely. With outcome-explaining process tracing, we test three hypotheses, identifying causal factors and mechanisms that explain the emergence of the Agreement, and apply a typology of (self-)regulation to show how different actors and mechanisms played an important role in different phases of the process. We find that, initially, food waste reduction governance was clearly industry-led. However, societal and political pressure was necessary for institutionalizing self-regulation and its timing. We also note that despite Norway's tradition for co-regulation, in the wake of the Agreement, lawmakers continued to pressure the government for a binding law, with a clear move from initial industry self-regulation towards state-steered regulation.

Introduction

Food governance is becoming increasingly hybrid – a function of the interplay between national food safety regimes and third-party certification programs, frequently beyond state boundaries (Verbruggen & Havinga 2017). It is increasingly challenged by, complemented with or even transformed into private governance systems promoted by various non-governmental and corporate actors (Chatzopoulou 2015; Verbruggen & Havinga 2017).

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Existing literature on food governance has given much attention to food safety issues such as (un)healthy food marketing to children (Smithers et al. 2014; Kunkel et al. 2015) or food quality standards and healthy diets (McCluskey & Winfree 2009; Seferidi et al. 2021). However, food safety is not the only matter at stake in the sector.

Food waste is a relatively recently identified public policy issue, which sees growing political interest, considerable consumer and NGO mobilization, as well as attention from the food industry itself (Papargyropoulou et al. 2014; Aschemann-Witzel et al. 2015). Its current global scale is catastrophic; estimates suggest that at least 30% of food grown worldwide is lost before reaching the consumer (GO-Science 2011; FAO 2015). Target 12.3 of the Sustainable Development Goals (SDGs), posits that policymakers should ‘by 2030, halve per capita global food waste at the retail and consumer levels’ (SDG 2015). The May 2020 ‘Farm to Fork’ strategy, developed as an element of the European Green Deal, mainstreams food waste reduction into the core of the European Union’s (EU) sustainability agenda.

Food waste reduction and food safety governance vary significantly. Whereas the latter undeniably falls in governmental competences to maintain standards adequate for protecting public health, food waste reduction relates to stable value chains and concurring, identifiable market failures, and there is almost universal agreement among stakeholders that wasting food is wrong – morally, economically and environmentally. A closer look, however, reveals a more ‘wicked’ problem as a range of different actors, and institutions with diverse underlying perspectives drive food waste reduction tools.

The natural response in the field of public policy is that state-designed regulation is needed. While there is considerable variation in food waste reduction performance among countries, sectors and stages in the value chain, regulations are often lacking, as are deeper problem diagnoses and even reliable data. As a result, the policy landscape is fragmented and reductions are largely insufficient (Principato 2018). It can also be noted that food waste governance is an experimentalist policy arena practised at the national level as it is inherently linked to local food system production, climate, lifestyles food habits and norms (Szulecka et al. 2019).

The alternative to top-down regulation is building food waste reduction governance through voluntary self-regulation by the food industry itself. Such self-regulation emerged in the UK in 2005 (WRAP 2018), followed by various voluntary agreements, and pilot projects are now underway in Hungary, Spain, Germany and the Netherlands (REFRESH 2018). However, ambitious food waste reduction measures can be costly for companies, and as in the case of any additional constraining obligation, we might expect companies to try and avoid it.

We are interested in the drivers of food waste governance, and the emergence of industry self-regulation. Is it primarily led by state actors (executive or legislative), by societal pressure and civil society actors, or by the industry itself? The intuitive assumption about the emergence of self-regulation is that it would be driven by legislative threat or public/civil society pressure. However, tracing the decision-making process can help disentangle different causal factors in different phases.

To shed light on this, we look at the evolution of Norway's food waste governance, in the runup to the 2017 'Industry Agreement on Reduction of Food Waste' in which Norwegian food sector companies set up voluntary reduction targets, and in its wake. What explains the emergence of industry self-regulation? We ask who the key actors are, what causal mechanisms explain the outcome and what form of (self-)regulation is visible at the different stages of the process.

We begin by discussing the shadow of hierarchical authority in which food waste reduction governance occurs, and by presenting types of industry self-regulation. We then present three hypotheses about the main drivers of self-regulation: legislative threat, public pressure and corporate responsibility. After presenting our materials and methods, we continue with the empirical section – a process-tracing analysis of the emergence and evolution of food waste governance since the issue was first identified. Next, we discuss the findings, elucidating our hypotheses with empirical evidence, and identifying three phases in which different drivers, causal mechanisms and modes of self-governance dominate.

Theoretical Framework and Hypotheses

Over the past half century, governance has increasingly become 'a system of co-production of norms and public goods' where different kinds of actors are involved (Bartolini 2011, 8). Already in the mid-1990s, Scharpf noted that in most western democracies 'the unilateral exercise of state authority has largely been replaced by formal or informal negotiations [...] between governmental actors and the affected individuals and organizations' – negotiations which nonetheless occur 'under the shadow of hierarchical authority' (Scharpf 1994, 41). This move beyond traditional top-down and centralized steering leads to the hybridization of governance that allows the production of multidimensional order 'within the state, by the state, without the state, and beyond the state' (Levi-Faur 2012, 1). It was noted that 'in the more effective governance systems many governance functions may be delegated' (Peters 2012, 6), and in many domains 'delegation' no longer implies creating specialist governmental agencies or applying subsidiarity and ceding power and resources to local government. It means engaging actors beyond public administration, within the business sector and civil society.

This might even lead to public and private sides exchanging and blending resources (Peters & Pierre 1998).

Private industrial actors and organized interest groups are increasingly charged with or take initiative to design regulation by and for themselves. Industry *self-regulation* is a mode of governance based on 'a regulatory process whereby an industry-level, as opposed to a governmental or firm-level, organization sets and enforces rules and standards relating to the conduct of firms in the industry' (Gupta & Lad 1983, 417). This makes it 'one form of sectoral governance, in which private actors design industry guidelines outside the governmental decision-making arena' (De Nevers 2010, 220). Such non-hierarchical coordination builds on deliberate compliance (Börzel 2010). Although industry self-regulation resembles other contractual arrangements between private actors, it has a collective nature and occurs within a broader socio-political and normative context. The preferred outcomes for industry are assumed to start with no regulation, then self-regulation, followed by co-regulation, and finally legislation implementing a regulatory framework (Héritier & Eckert 2008). However, even in that increasingly decentralized mode of governance, the shadow of hierarchy looms, and the state retains the power to review the policy choices of organized interests that may subsequently be written into binding law or converted into binding decisions. The government may share its resources, nudge, assist and encourage, but ultimately it has the power 'to approve and to ratify' as well as to 'disapprove, and hence the ability to insist on bona-fide negotiations, and to frustrate blatantly opportunistic stratagems' (Scharpf 1994, 41).

This means that self-regulation in the shadow of hierarchical authority can take different forms, depending on who takes the regulatory initiative (industry or government), who motivates it, and whether public authorities will be interested in more direct engagement and binding outcomes. Boddewyn (1985) listed five modes stretched between the opposing poles of regulation and self-regulation: *Pure Regulation*, *Mandated Self-Regulation* (where the government orders an industry to regulate), *Negotiated Self-Regulation* (voluntary, but overseen by governmental authority), *Co-opted Self-Regulation* (where the industry involves governmental and public actors of its own will) and *Pure Self-Regulation* (as well as the sixth option, *Self-Discipline*, which means designing new norms and rules on the level of a single firm) (compare Black 2001). However, for self-regulation to emerge, regulatory preferences for industry must be fairly homogeneous (Meyer 2013), firms need to agree that they gain from cooperation with their competitors. Here a considerable role lies within the industry associations (Eisner 2004).

The self-regulation capacity of decentralized actors is mostly welcome in complex problems such as environmental and climate change governance, where it is difficult to agree on means, definitions and evaluation frameworks

(Rittel & Webber 1973). The question of food waste reduction is an issue area where governmental actors need to rely on data and inside knowledge coming from the industry itself. The increased scope and growing complexity of public policy issues creates a significant challenge for the finite resources and capacity of public administration, making it 'more dependent on societal actors to achieve goals' (Klijn 2008, 506). Governmental actors are 'unable to muster the knowledge required to shape effective instruments of intervention' and need to 'depend on the expertise and knowledge of private and local actors' (Héritier & Rhodes 2011, x). Apart from knowledge and the capacity to obtain information, governance modes relying on private actors can increase effectiveness, and no less importantly, bring about quick decisions, in stark contrast to the often long legislative procedures (Héritier & Eckert 2008).

Some governments seek to stimulate the involvement of private actors, such as firms and NGOs, and encourage private actors to address issues voluntarily, e.g., environmental harms (Börzel 2011; Héritier & Lehmkuhl 2011; van der Heijden 2012). The shadow of hierarchical authority implies that the state maintains meta-governance capabilities that can enhance the capacity of self-regulating actors (Sørensen 2012), ensuring coordination in governance through 'soft' tools like negotiation, diplomacy and more informal modes of steering (Rhodes 2012).

At the same time, self-regulatory mechanisms underpinned by state intervention can prove more resilient and effective than self-regulation in isolation (Gunningham & Rees 1997). Some studies find that industry self-regulation is implemented more quickly and is more effective and efficient than the 'threat of traditional, inefficient regulation' by governments and parliaments (Lyon & Maxwell 2003), and is thus a good thing (Gunningham & Rees 1997; Anton et al. 2004). Self-regulation may simply circumvent the risk of more ambitious and costly public policy and be visibly weaker than comprehensive governmental alternatives (Kunkel et al. 2015; Stimel & Sekerka 2018).

Industry self-regulation can work in isolation (within the industry) or in response to external pressure. Public authorities may provide positive (benefits) or negative (threatening penalties) incentives for self-regulation. Scholars working on environmental issues have noted how industrial actors often propose voluntary, bottom-up self-regulation when there is an observed problem which might otherwise lead to public regulation being imposed on the sector, due to governmental or societal/consumer pressure (Allen 2004; Hauffer 2013; Meyer 2013). Legislative threats spur more effective implementation of voluntary agreements (Héritier & Eckert 2008).

If imposing additional requirements and burdens on the industry are costly, why would companies, whom we understand as rational actors aimed primarily at profit maximization, decide to self-regulate? This is the

question that motivates our research on the particular case of Norwegian food waste reduction governance, where food industry actors agreed to voluntary goals and rules in 2017. What explains that outcome? And what mode of self-regulation, following Boddewyn's categorization, occurred?

We can distinguish three potential drivers of self-regulation: emphasizing the influence of the state/public administration, consumer and societal pressures, and finally the industry itself. Governmental intervention or rather the possibility of governmental involvement may be a direct push (Maxwell et al. 2000; Reid & Toffel 2009; Töller 2017), with self-regulatory actions a means to forestall the *legislative threat*. Segerson and Miceli (1998) discussed that the effect of environmental voluntary agreements on environmental quality could be positive or negative depending on the level of legislative threats and bargaining powers of both regulators and firms. If the threat is significant, industry voluntary agreements might have a positive impact on environment protection and realize cost savings for both regulators and firms at the same time and vice versa. The threat of legislation, rather than the legislations itself 'plays a remarkable role in controlling behaviour, in creating and setting incentives', wrote Halfteck (2008, 629), noting that 'implicit in the threat is the inverse promise that the legislator will forgo the threatened legislation' if the recipients of the threat meet the demands.

Therefore, we propose the first hypothesis, H1: *Industry actors engage in self-regulation to prevent implementation of additional or future binding legislation*. We would then expect to see Mandated or Negotiated Self-Regulation (Boddewyn 1985), with significant presence of governmental and legislative actors.

Our second hypothesis (H2) points to social pressures, or anticipated consumer reactions, as a driver of self-regulation (King 2008). This is pertinent for the food industry, which sees various combinations of public relations threats and concerns about possible litigation consumer action that might affect sales (Sharma et al. 2010). The risk of social mobilization or activist pressure through boycotts, shareholder activism and media campaigns in raising the costs of doing business is a key factor that spurs industry to self-regulate (Hauffer 2013). At the same time, by responding to public pressure, the industry aims to improve its reputation. We hypothesize that the *industry actors engage in self-regulation in response or in anticipation of consumer pressure and NGO demands*. We expect the process to take the form of Co-opted Self-Regulation, following Boddewyn's typology.

The third hypothesis (H3) embraces the idea that something must be done to tackle the problem that emerged gradually among the industry's decision-makers, perhaps because they realize that current practices are 'wrong' and in conflict with existing or newly acquired values, following the 'logic of appropriateness' (March & Olsen 2011). Sometimes an industry

may decide to regulate itself because ‘governments are involved too little’ (Sharma et al. 2010, 242). In our case, this translates to the view that wasting food is considered ethically unacceptable, and this is related to norms of Corporate Social Responsibility (CSR). However, a change in ideas may also be linked to purely rational calculations and the ‘logic of consequences’, e.g., that food waste represents an additional cost or market failure. Striving for legitimacy and social embeddedness determines acceptable behaviour. According to Sammeck (2012), this has roots in a transaction cost approach to self-regulation, a new institutional economics concept explaining motivation for firms to voluntarily self-regulate to reduce current and future transaction costs. Empirically, separating actions driven by ‘consequence’ and ‘appropriateness’ may be virtually impossible, but it is important to bear in mind that economic and moral gains can go together. In this case, H3: *Industry actors engage in self-regulation when economic or reputational costs of doing so outweigh the costs of not doing so.* As the main driver of this process is the industry itself, we expect to see Pure and/or Co-Opted Self-Regulation, possibly preceded by company-level Self-Discipline (Table 1).

Methodology

We test all hypotheses in our process-tracing analysis of the emergence and evolution of food waste governance leading to its institutionalization in the industry agreement and the feedback that it generated. We are interested in actors, causal mechanisms and modes of (self-)regulation dominant throughout the process. Single case studies can provide high conceptual validity and the possibility of closely examining the hypothesized role of causal mechanisms (George & Bennett 2005), and they allow using within-case evidence to develop and test hypotheses – particularly useful in our analysis. The key to maintaining high quality and rigor lies in developing case-specific *observable implications* of theories and testing them through empirical analysis (Bennett & Checkel 2014).

We start with an inductive media analysis, to move to rigorous process-tracing, understood as ‘the examination of intermediate steps in a process to make inferences about hypotheses on how that process took place and whether and how it generated the outcome of interest’ (Bennett & Checkel 2014, 6). Our approach within the analysis itself is an *outcome-explaining process-tracing* (Beach & Pedersen 2013), as we seek to account for the most plausible and minimally sufficient explanation for the outcome in all three distinctive phases of the self-regulation process. A similar research design for testing hypotheses in phases of self-regulation in voluntary environmental agreements has been applied by H eritier and Eckert (2008). As Bennett and Checkel emphasize, the key difference between rigorous process-tracing and mere narrative is the generation of testable hypotheses

Table 1. Hypotheses and Mechanisms Explaining Self-Regulation

Hypothesis	Type of (self)-regulation	Causal mechanism	Key actors	Observable implications
H1: Push from the state Private actors engage in self-regulation to prevent implementation of additional or future governmental regulations	Mandated or Negotiated	(i) Legislative threat	Ministries, political parties	Public involvement, politicians or public administration taking lead role, outbidding industry proposals, visible pressure on the industry
H2: Push from society Private actors engage in self-regulation in response to NGO demands and consumer pressure	Co-opted	(ii) Anticipation of consumer pressure, shaming	Civil society organizations, individual activists	Increased mobilization, activist initiatives outbidding industry, greater media attention, pressure on industry
H3: Push from within the industry Private actors engage in self-regulation when costs of doing so outweigh the costs of not doing so and to avoid transactions costs at the industry-level	Pure Self-Regulation or Co-opted Also Self-Discipline	(iii) Loss reduction (economic) (iv) Mindset change (normative) (v) Reputational spill-over effects	Industry organizations and companies	Industry taking a lead role, outbidding or outpacing other proposals, focus on market failure and efficiency (iii), focus on the problem as new and/or ethically problematic (iv), focus on joint reputation (v)

Note: Authors' own elaboration based on the review of voluntary environmental governance arrangements.

and their operationalization through observable implications (which we have done in the previous section).

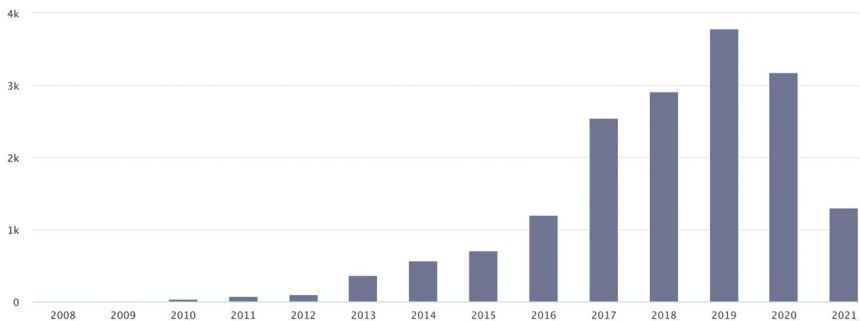
The evidence for our analysis is gathered through expert interviews and a desktop analysis of policy and scholarly literature. We conducted the data collection between 2017 and 2021. It involved an extensive literature review, document analysis, media analysis (using the Norwegian media database Atekst), and thirty-five in-depth semi-structured interviews with representatives from industry, companies, political parties, ministries, NGOs and a research institute (see Table S1 in the Appendix). We have identified all actors active in food waste discourse in Norway in our desktop research and snowball sampling and contacted relevant experts/organizations for semi-structured expert interviews. The interviews were recorded, transcribed and remain with the authors.

Analysis: The Emergence and Evolution of Norway's Food Waste Governance

Food waste began to be publicly discussed in Norway around 2007. In the 2010s it became increasingly visible; there have been discussions among industrial actors, NGO campaigns, political parties, attention from the media, academia and local waste management strategies. Figure 1 shows the steady rise in media attention since 2007, with over 16,000 articles mentioning food waste in the period 2008–2021.

The Norwegian food industry was the first to pay closer attention to the problem (Boffey 2017). Both the ethical aspects and corporate responsibility were brought forward, with an emphasis on the earlier successes of the industry. The normative aspect was accompanied by considerable attention to the material side: 'Waste had become expensive, a burden for the industry' (I6).

Figure 1. Atekst Analysis, Media Coverage of Food Waste ('Matsvinn') with Numbers of Articles in Norway (from 1 January 2008 to 18 May 2021).



Industry actors were also the pioneers in diagnosing the scale and nature of food waste in Norway: 'The initiatives always came from the industry' (I2). Already in 2008, when hardly any media attention was discernible, the food-retailing sector proposed a pre-project on food waste (I3), resulting in a conference held that year. The grocery-wholesaling giant NorgesGruppen 'challenged' the Confederation of Norwegian Enterprise (NHO) to create a comprehensive project to start tackling food waste, and to examine problems with overly strict expiry-date marking (I2). NorgesGruppen and the 'ethical business model' and vision of its chairman Sverre Leiro were central there (I6). Leiro began promoting a clear sustainability strategy with three pillars: climate protection, waste reduction, and packaging reduction.

The comprehensive project kicked off in 2010 as *ForMat* (literally: ForFood), an institutionalized partnership platform headed by representatives of the food and beverages section of the Confederation of Norwegian Enterprise (NHO), the Norwegian Grocery Sector's Environmental Forum (DMF), the Grocery Producers of Norway (DLF) and the Norwegian Packaging Association. The Ministry of Agriculture and Food, and the Environment Agency acting on behalf of the Ministry of Climate and Environment, participated as observers (Stensgård & Hanssen 2015).

Through *ForMat*, the food industry started to collect statistics on food waste along the value chain. First reduction initiatives included changing food product labelling ('use by' was changed to 'best before') and smaller packaging alternatives. At the food store stage, reducing prices was encouraged instead of take-2-pay-for-1 campaigns. Consumers were targeted with awareness-raising campaigns and practical information on how to keep food fresh, how to buy enough food and shop less frequently, how to re-use leftovers, etc.

As the problem became mainstream, new actors joined the political discussion, launching various initiatives. The *ForMat* final report listed individuals, 32 food-industry companies, four relevant ministries and other actors, including certain NGOs (notably FIVH, see below), some municipalities and political parties (KrF) (*ForMat* 2016) as crucial actors collaborating on food waste reduction within the project. Research institutions (e.g., Østfold Research, now NORSUS) were important for data collection, necessary to diagnose the problem (*Matvett* 2016).

Paradoxically, the industry project made the dramatic scale of food waste evident for the Norwegian authorities and society. It also showed that it requires a complex solution and joint responsibility as selective measures can merely shift the problem in the value chain by lowering food waste in one place by contributing to the food waste elsewhere (Devin & Richards 2018). In the spring of 2012, the NGO 'Future in our Hands' (FIVH: *Framtiden i våre hender*) launched a series of food waste reduction articles and events. While the industry revealed the food waste data, which

raised public awareness, the industry was also arguably slow and selective in addressing the problem in the early ForMat period.

Many new actors from industry and civil society as well as public-sector institutions joined with individual campaigns and initiatives. Oslo City Mission opened the first foodbank in Oslo in 2013; soon eight others followed. Blue Cross Norway and the Salvation Army began actively working on redistribution. Attention to food waste donation is important, and as stated by an expert, 'in other European countries you have a stronger [...] system, and culture for redistribution. [T]hat is something we hopefully will develop and become better at' (I3).

Several municipalities started working together with FIVH in a MatVinn project aimed at reducing consumer food waste (Jenssen 2017). Later on (around 2016), FIVH was particularly vocal in advocating binding state regulations on food waste at the national level, collecting 25,000 signatures in a petition for a Norwegian food waste law (FIVH 2018). Before 2016, food waste law was barely mentioned at all in Norwegian media, but in 2016 only, there were almost 180 articles discussing the issue.

National policymakers were not particularly active in those initial stages, and there was no consistent governmental strategy focused on food waste. The issue changed only slowly. In August 2013, the Ministry of Climate and Environment prepared the National Waste Management and Prevention Plan 'From Waste To Resources', mentioning food waste reduction together with biogas production (Hanssen & Gaiani 2016).

Analysis of all political party programmes 2013–2017 showed that food waste was important only for two, mostly due to ethical and environmental consequences of food waste: the Christian Democrats (KrF) and the Green Party (MdG). However, in the programmes for 2017–2021 and 2021–2025, with the issue consolidated in the political debate, eight out of nine parties noted the necessity of reducing food waste, but differed in terms of targets and proposed solutions. Only the libertarian-populist Progress Party (FrP) did not mention food waste in its programmes.

In addition, external developments started to influence the Norwegian food waste debate. In April 2015, French policymakers presented ambitious proposals for a national policy against food waste, a law requiring big French supermarkets to donate food that was approaching the best-before date (Mourad 2015). Both Norwegian legislators and NGO activists look to France as a source of policy inspiration. A Christian Democratic politician attested in a media interview that 'we want to propose a food waste law similar to what France has done' (Sandberg 2016, 10), while an activist interviewee indicated that 'we looked into the French food waste law to see if there was something in that could be implemented in Norway [...] We concluded that we can't just adopt it as it is, because it won't work in Norway [...] but we think there are elements in it that could benefit Norway' (I4).

Another external but very important factor was the SDGs adopted by world leaders in September 2015. ‘Definitely, the sustainability goals are our framework, and also set the framework for what we are to reach with making a law’, a legislator told us (I8). Concrete targets for food waste reduction were accepted by all Norwegian actors, with a clear reference point for measuring their effectiveness.

The ForMat network paved the way for industry self-regulation, with an *Agreement of Intent to Reduce Food Waste* signed on 7 May 2015 (Regjeringen 2015). Only two ministries had acted as observers in the ForMat project, but five ministries and eleven industry organizations signed the Agreement of Intent, which also stated that a more concrete industry agreement should follow around summer 2016. The issue was visibly getting much more political attention. In October 2016, three members of the Norwegian Parliament representing the opposition Christian Democracy formally asked the Norwegian government ‘to investigate and possibly propose a food waste law including the food industry and groceries’ (Stortinget 2016). Politicians’ involvement can be directly related to the slowing down of the self-regulation process: ‘it was getting there slowly [...] [the proposal was showing that the industry] needs to push up and make things happen’ (I8). KrF expressed appreciation for the industry agreement but emphasized the necessary pace of reductions, strengthening the redistribution effect and normative perception of the agreement vs. the law.

I believe the agreement is very good. [But] we wanted to make the agreement stronger by putting it within the framework of a law, especially when it comes to redistribution [...] [When it’s a law [...] it changes the thinking (I8).

On 10 January 2017, the Parliament unanimously agreed to request the government to evaluate expiration-date marking, food waste law, and waste reduction work with municipalities (Stortinget 2016, 2017). Arguably, this was a moment when the legislative threat first began to loom, coupled with increasing bottom-up societal pressure. A public opinion survey showed that 60.8% of the Norwegian population supported a binding law; 11.6% were opposed (Stortinget 2016), which may be the result of FIVH and other NGO’s campaigning, as well as the fact that the ForMat project did not achieve its waste reduction goals. However, it would be a mistake to equate a legislative action initiated by a minority opposition party with a direct legislative threat, because the most relevant ministry – the Ministry of Agriculture and Food – remained in the hands of the Progress Party, most visibly opposed to imposing any additional obligations on the industry.

The parliamentary process pressed for the postponed industry agreement; ‘part of the intention was to get the industry to act on its promises and introduce specific measures for tackling food waste’ (I8). According to

the 2015 Agreement of Intent, these should have been part of a new industry agreement scheduled for the summer of 2016. That did not happen and could be explained by the fact that it took time for all involved parties to agree on the definition of food waste and to collect reliable statistics and indicators to make concrete reduction goals.

In 2016, a parliamentary nutrition committee asked the government to evaluate the possible impacts and necessity of introducing a food waste law, meant to strengthen the bottom-up voluntary process with binding state regulation. Governmental experts began working on the question; meanwhile, industry made its belated move.

The *Industry Agreement on Reduction of Food Waste* was finally signed on 23 June 2017 by industry representatives and the same five ministries. The first 34 companies joined on 26 September (Matvett 2019). The new agreement was clearly more detailed and featured a main reduction target of 50% by 2030, further subdivided into two intermediary targets: 15% by 2020 and 30% by 2025 (Regjeringen 2017). The signatories are diverse companies, from processing firms, retailers and caterings to chain restaurants. The Agreement can be seen in the context of earlier examples of co- and self-regulation and patterns of collaboration between the state and private actors, which some experts called 'a Norwegian model'. 'This is part of the tradition, we do this on public health, and nutrition and we do this on food waste' (I6).

Around the time of the Industry Agreement negotiations, another industry initiative started with a project *KuttMatsvinn2020* (Cut Food Waste), developed for the hospitality sector, aimed at achieving a 20% reduction in food waste by 2020 (KuttMatsvinn 2018). The idea was to make that sector 'catch up' with the other actors and join the industry agreement: 'so after three years hopefully, they will be more or less at the same level as the manufacturers and the retailers' (I2). The participants in *KuttMatsvinn2020* together achieved food waste reduction of 15% or 390 tons between 2017 and 2019 (Matvett 2020).

After the new industry agreement was in place, the government finally produced the analysis that had been commissioned in 2016. In September 2017 the final evaluation issued by the Ministry of Agriculture and Food stated that the Industry Agreement was a sufficient first step in Norway's emerging food waste governance, putting binding regulation on hold:

[...] It is considered that there is no need for a food waste law now. There are positive results with food waste reduction based on the current means. These means are expected to be expanded and strengthened in the follow-up of the industry agreement. (Landbruks og matdepartementet 2017)

Further, the evaluation report stated that introducing a food waste law would entail practical and economic challenges for the food industry and the authorities. As the Industry Agreement had entered into force only recently, it was deemed natural to follow up and await the results before considering introducing a law on food waste. This was in line with earlier governance experiences, for instance, the Norwegian government already had a draft of regulations on marketing food to children in 2012, but has chosen a simultaneously negotiated self-regulatory regime (Vaale-Hallberg & Lindbach 2016, 654). Similarly, Norwegian industry created a NOx Fund for emission reduction measures when the authorities wanted to impose NOx tax in 2008 (I6).

Importantly, the only Norwegian political party that did not mention food waste in its programme – FrP, held the Environment Ministry at the time of the evaluation. The evaluation was issued in connection with national budget struggles and was followed by a similar signal when FrP tried to cut funds for food banks (NTB 2017).

However, the parliamentary opposition continued to press the minority coalition government. An ad hoc alliance of Ap, KrF, MDG, Sp and SV requested the government to prepare a proposal for a food waste law concerning the food industry (NTB 2018). The pressure for the law also came from the civil society actors: ‘first of all we do support the industrial agreement, but we don’t think that it will be enough, because what we are seeing so far is that the food industry has reduced their food waste, but they have done it by picking the lowest hanging fruit’ (I4).

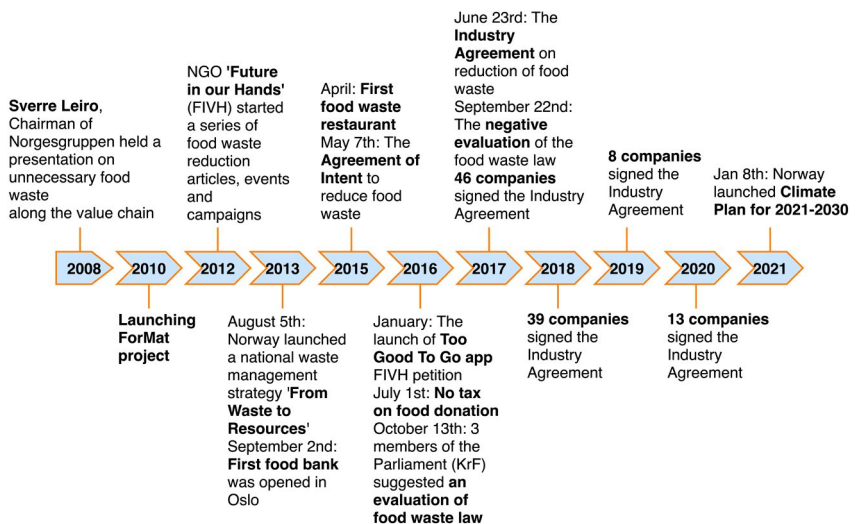
Following a reshuffling of the cabinet in February 2019, KrF joined a majority coalition government with the Conservative, Liberal and Progress Parties. The new Environmental Minister, Liberal Party’s Ola Elvestuen, said ‘it is important to draw on experience from the Agreement, to ensure that the proposal for a food waste law complements other measurements in a good way’ (Stortinget 2019). When in April 2019 the opposition-affiliated members of the Standing Committee on Business and Industry from Ap, Sp and SV inquired about the process, they emphasized that ‘it is important that the government follows the Parliament’s resolution and as soon as possible presents a draft of a food waste law to the Parliament’. The ruling coalition MPs, now including KrF, responded that the Ministry was ‘working on the issues’ and that ‘the government would report back to the Parliament in due time’ (Stortinget 2019), with a deadline for the end of 2019’ (Regjeringen 2019).

The first evaluation after the Agreement of Intent and the first year of the Industry Agreement showed that the industry managed to reduce food waste by 12% between 2015 and 2018, a pace that would make the SDG targets achievable (Stensgård et al. 2019). As for spring 2021, the food waste

reduction rate at the industry level seems to more than fulfil the target (NHO 2021).

The draft bill is still expected and likely to deal with elements for which the Industry Agreement had been criticized (on redistribution, donations, monitoring and retail price policy) and to relate the issue of food waste to circular economy and the SDGs (18). This has become an additionally salient dimension of the food waste problem also due to the emergence of the holistic European Green Deal (in 2019) and the European Union's 'Farm to Fork' strategy (in 2020) which increase indirect pressure and inspire domestic ambition-raising. This is reflected in some of the political party programmes, for instance the Green Party aiming at a 70% reduction target by 2030 and emphasis on redistribution. At the time of writing (August 2021), despite the apparent reduction success of the Industry Agreement, parliamentary pressure for a binding food waste law seems to be increasing. The parliamentary committee demands obligatory participation in the Industry Agreement (Stortinget 2021). Norwegian media continues to press the government for the introduction of a food waste law obliging all actors in the food industry to food waste reduction and donation of surplus food to food banks as well as to pay fees if wasting food (Haug 2021; Øvland 2021). However, media attention on the binding law peaked in 2018 and has also visibly declined during the COVID-19 pandemic (compare Figure 1; for an overview of food waste governance milestones see Figure 2).

Figure 2. Timeline of Milestones in Food Waste Governance in Norway.



Discussion

What we can see from the analysis of the emergence and evolution of food waste governance in Norway is that there was not one single driver of the process, but instead, different actors and mechanisms were important to varying extents at different stages. Based on this, we can distinguish three phases, where dominant drivers differ and where the form of (self-)regulation changes.

Phase I – From Industry Self-Discipline to Self-Regulation (2007–2012)

The food industry was pivotal in shaping the Norwegian discussion: identifying the problem, initiating the first comprehensive project to diagnose the problem and engaging other actors, with economic and normative arguments fully converging at this stage. This phase is clearly industry-led, which at first glance challenges the dominant assumptions on self-regulation in the shadow of hierarchy. There were also no external pressures, as this was long before the SDG targets, and hardly any horizontal diffusion, since French or Italian food waste laws were not yet in place. Although the industry might have *anticipated* increased attention to the food waste subject, it identified the issue before the state and civil society actors did. Food waste reduction can be seen as a norm linked to resource efficiency and practised by all companies, but it has been directly spelled out as a Self-Discipline linked to environmental, economic and moral issues by NorgesGruppen. Once the process of norm formation moves from bottom-up initiatives of individual companies and groups and reaches the level of the industry association, it takes the form of Co-opted Self-Regulation where other partners, including the Ministries started to be involved, but only as outsiders with an observer status. In 2010, at the beginning of the ForMat project, two Ministries (the Ministry of Agriculture and Food, and the Environment Agency acting on behalf of the Ministry of Climate and Environment) joined the project as observers.

It is, however, important to note, that in the early food waste reduction, normative and economic interests were converging. This is related to resource efficiency and targeting the easiest measures to reduce waste. Therefore, this initial phase (2007–2012) confirms only our Hypothesis 3 (push from the industry) with two causal mechanisms supporting each other (economic loss reduction and normative mindset change), but it remains impossible to evaluate their relative importance empirically.

As further reductions turn more costly, economic and normative interests began to diverge, requiring more innovation. A NIBIO report from 2017 developing scenarios for food waste reduction costs in 2030 and 2050 states that the beneficiaries from the reduction will mostly be consumers

(paying less for food, paying less for waste and reducing transaction costs). The consumers will pay with more time spent to reduce food waste but the retailers, wholesalers and the food industry will bear net costs associated with the measures (Pettersen et al. 2017).

Phase II – Politicization and Institutionalization of Food Waste Reduction (2012–2016)

The ForMat, providing basic data and launching cooperation within the industry and between industry and public authorities, opened the possibility for the increasing politicization of food waste governance.

Launching the project sparked growing attention to food waste from the societal actors. Third sector engagement can be explained by two factors. First, the newly available data and statistics created a platform for NGOs to campaign on and stories for media to report. Secondly, industry actors' collaboration within a project could seem to be inadequate to solve such a complex problem. Between 2012 and 2016, strong FIVH activity and attention to the redistribution organizations supported the H2 (push from the society) with mechanisms of pressure and shaming to push for quick and efficient food waste reductions. This led to increasing media attention, and high-quality and scrupulous journalism has been important for food waste governance development as well as consumer pressure. However, to unlock the possibility of that pressure, information provided voluntarily by the industry was a prerequisite.

The ForMat project showed that the industry was capable of stopping the trend of increasing food waste. The year 2015 was pivotal, as the UN SDGs set concrete benchmarks for food waste reduction. Similarly, the EU increased pressure in preventing food waste and strengthening food system sustainability (European Commission 2019). The examples of France and Italy, testing food waste reduction legislation, opened the space for policy learning, but arguably different actors drew different conclusions from these lessons. In the case of civil society actors and opposition politicians, the French and Italian lessons are seen as desirable examples to follow (Sp 2017), while within the government we see more of 'negative learning', i.e., the will to avoid unnecessary regulation.

In this phase we see a slight move from Co-Opted to Negotiated Self-Regulation, where the role of governmental actors gradually increases. By 2015, at the end of the ForMat work, already four ministries have been co-opted in the project, including the Ministry of Children and Families and the Ministry of Trade, Industry and Fisheries and have even contributed financially to the project activities. The Agreement of Intent from 2015 and final Industry Agreement from 2017 list five ministries (including a new Ministry of Health and Care Services). While ForMat started with 12 companies (I2),

the Industry Agreement today has 106 and follows a strict definition of food waste. At this stage, the industry is still the main driver of the process and controls self-regulation, but outside pressure (both international, SDGs and horizontal learning from other European countries, and domestic) underlines expectations of particular outcomes for this voluntary process.

Phase III – Threat of Legislation Ahead (2016–2021)

The delaying institutionalization of food waste governance and postponed signing of the Industry Agreement finally brings legislators closer to the food waste issue. In 2016, three opposition members put the idea of a food waste law on the table, and from that moment a push from the state and the open threat of legislation became tangible, the first instance where we find evidence confirming Hypothesis 1 (still, rather weak, since the initiative came from opposition lawmakers, not the ruling coalition or government).

Around the time leading up to the 2017 Agreement we could clearly see two visions of food waste governance represented by, on the one hand, the food industry with the executive (junior coalition party FrP), and on the other the legislative coalition (especially the KrF) with several NGOs. However, polarization was not strong, and some of the same experts and actors can be found in both coalitions. Further, the common goal is widely accepted, while the means are diverse and to some extent complementary and the two opposing visions are blurred in the third phase.

State agencies took over some tasks since ForMat and industry partners while signing the Industry Agreement, including a system for industry reporting, building national statistics, reporting to the EU, producing reports for 2020, 2025 and 2030, influencing consumer behaviour, supporting donation and involving other public sector actors (Regjeringen 2017). At the same time, the governmental side has been withdrawing from financial support for food waste reduction work and seemingly sees this as the burden for the industry.

Although there are no negative incentives from the state (no penalties for not meeting the targets and the Industry Agreement can be terminated with a one-month notice), reputational sanctions for breaking the food waste reduction norms are important. The industry builds a collective identity in food waste reduction, visible in the presentation of ‘the Norwegian model’ in EU fora. This common identity might be motivating for some companies, but it is important to note that the industry is still a diverse conglomerate. Some companies struggle to reach the Industry Agreement targets, while others met them long before or introduced their own thresholds.

Despite the Agreement’s current success, we might expect increasing governmental involvement. If the industry acts instrumentally by ‘picking low-hanging fruits’ and being ‘above the value limit’, this will change the

self-regulation balance and increase pressure for Mandated Self-Regulation (still with the threat of legislation) or simply a move to direct Regulation. Also, if the agreement delivers results, the state can make it obligatory for all Norwegian companies and not only the current signatories. However, if the Agreement's provisions were to be codified in law, the state would probably set the rules of the game very softly.

Conclusions

Why do private companies decide to impose voluntary food waste reduction self-regulation on themselves? Our case study suggests that legislative threat is not a decisive factor, and that food waste governance can be industry-led. However, we have also shown that societal and political pressure are necessary for institutionalizing self-regulation and its timing.

We found that the industry led the self-regulation process from the beginning, and in the first phase our Hypothesis 3 is most strongly confirmed. However, what started as Self-Discipline and Self-Regulation, showed more characteristics of Co-Opted and Negotiated Self-Regulation in the second phase, where we find evidence confirming Hypothesis 2 and 1 when civil society actors' involvement increases and when the threat of legislation appears on the horizon. An interesting finding is that the industry's identification of the problem and diagnosis of its scale returns like a boomerang when the issue is picked up by civil society actors and attracts political attention. Already before the Industry Agreement and increasingly as policy feedback grew, we see a move towards Mandated Self-Regulation which might soon (as of 2021) lead to government-led Regulation, making the provisions of the Agreement obligatory for the whole Norwegian food industry, with the government a key driver of the process, as was expected by Hypothesis 1.

However, it is necessary to emphasize that food waste reduction first starts out as a win-win concept for society, industry and authorities, but the more reductions are needed, the more systemic changes are necessary, and the burdens are not equally distributed. More reduction would require changes in sales practices, facing consumer expectations regarding product variety and availability, issues related to the retail price policy, food safety standards, farmer subsidies, and many more. The complexity of these issues and coordination problems, as well as international entanglements expose the limits of self-regulation without more pronounced governmental involvement.

Our paper contributes to the still limited but growing literature on food waste governance, as well as the much broader research on voluntary self-regulation. Contrary to some prevailing myths about private business actors' unwillingness to carry any unnecessary burdens, we find that the

industry can be the prime mover of self-regulation. However, even in a case like Norway, which has a strong tradition of public/private dialogue and co-regulation, we notice that the government might need to step in to increase ambition and compliance. Comparative research on food waste governance and (self-)regulation across a larger set of countries is needed to indicate whether different political regimes, varieties of capitalism, and levels of federalism, among other factors, play a role.

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Supplementary Material

Table S1. List of Interviews