Mechanisms for policy (dis)integration: explaining food policy and climate change adaptation policy in the Netherlands

Robbert Biesbroek¹ · Jeroen J. L. Candel¹

Published online: 6 June 2019
© The Author(s) 2019

Abstract

Recent years have witnessed increased political interest to the challenge of organizing policy integration to govern societal problems that crosscut the boundaries of traditional government sectors and levels, including climate change, food insecurity, terrorism, and the instability of financial markets. Public policy scholars have recently suggested to study such attempts by conceptualizing policy integration as a multi-dimensional process. Although such a processual perspective has helped to comparatively assess policy (dis)integration, the mechanisms of (dis)integration over time remain undertheorized. Past studies have reported a number of relevant factors, but these have remained rather functionalistic observations that lack explanatory value. To address this gap, we propose a mechanism-based approach that uncovers the political processes that underlie policy (dis)integration over time. Rooted in different strands of social science literature, the mechanistic approach offers a model of causation to assess the plausible chain of key processes that are triggered under particular contextual conditions. We illustrate the framework by empirically investigating the mechanisms that explain the policy (dis)integration of food and climate change adaptation policy in the Netherlands. We end the paper with discussing various implications of our findings for processual approaches to policy integration.

Keywords Crosscutting problems · Policy integration · Policy mechanism · Climate change adaptation · Food policy · Governance

Introduction

Recent years have witnessed increasing scholarly interest to the challenge of organizing policy integration to better govern societal problems that crosscut the boundaries of traditional government sectors and levels (e.g., Peters 2015; Candel and Biesbroek 2016; Cejudo and Michel 2017; Peters 2018), including ‘wicked problems’ such as climate change (Mickwitz et al. 2009; Adelle and Russel 2013; Runhaar et al. 2018), food

✉ Robbert Biesbroek
robbert.biesbroek@wur.nl

¹ Public Administration and Policy Group, Wageningen University, Hollandseweg 1, 6706 KN Wageningen, The Netherlands

insecurity (Candel and Biesbroek 2018), terrorism (May et al. 2011), and the instability of financial markets (Gieve and Provost 2012). The core assumption of this literature is that crosscutting problems can be governed most effectively by recognizing the polycentric nature of the governance regimes within which they are embedded, and by strengthening the coherence and consistency of policy efforts within and between these regimes (Howlett and Rayner 2007).

Although ‘integrated policy’ as a concept was already coined in the early 1980s (Underdal 1980), most early policy integration research focused on *coordination* between public sector organizations (e.g., Metcalfe 1994; Peters 1998; Jordan and Schout 2006). Rooted predominantly in public administration scholarship, this strand of research has shown that considerable challenges arise from (differences in) the properties of dominant administrative structures and cultures when organizing coordinative action across government, including tensions between bureaucratic specialization versus coordination and turf wars between departments. Consequently, it has resulted in widespread calls for more holistic and networked forms of governance, culminating in new governing paradigms such as ‘whole-of-government’ and ‘joined-up-governance’ (Bogdanor 2005; Christensen and Lægrend 2007).

A second strand of literature has started from a policy problem perspective, such as environmental concerns (environmental policy integration; EPI), climate change (climate policy integration; CPI) (e.g., Lafferty and Hovden 2003; Jacob et al. 2008; Jordan and Lenschow 2010; Adelle and Russel 2013; Runhaar et al. 2014), gender (Pollack and Hafner-Burton 2010), and nutrition (Harris et al. 2017). These policy scholars have been primarily concerned with the extent to which crosscutting concerns have been incorporated into policy outputs across sectors, the underlying assumption being that the inability to realize such integration results in partial and ineffective responses. One of the main insights of this body of literature is that political commitments to strengthen integrative efforts often do not proceed beyond discursive levels (Jacob et al. 2008; Candel 2017), largely due to the same factors that were found by research on coordination, such as conflicting interests and lacks of genuine commitment.

Recent contributions to the debate on policy integration have recognized some of the weaknesses of previous studies and essentially taken a step back to provide conceptual clarity about what policy integration is and how it can be studied empirically. Recent publications have, for example, discussed how policy integration relates to similar concepts, such as coordination and coherence (Cejudo and Michel 2017; Tosun and Lang 2017), conceptualized policy integration as a multilayered process with specific measurements (Candel and Biesbroek 2016), provided suggestions for what optimal policy integration would entail (Jochim and May 2010; Varone et al. 2013), and questioned the compatibility of pursuing different directions of policy integration (Egeberg and Trondal 2016; Howlett et al. 2017). Whereas these publications have contributed to a better understanding of what policy integration could be and how it can be studied, considerable conceptual and methodological questions remain to be addressed in order to study policy integration through a processual lens (Jordan and Lenschow 2010; Tosun and Lang 2017). Specifically, while processual frameworks allow us to better understand the dimensions of policy integration, there is limited conceptual and methodological advancement in addressing questions of *why* policy integration increases or decreases over time. Indeed, studies have shown that there are considerable barriers to pursuing policy integration (Peters 2015), but the causal model for explaining cause and effect remains unsatisfactory (cf. Biesbroek et al. 2015).

The aim of this paper is to propose a novel approach to explain policy (dis)integration processes across different crosscutting policy issues as well as over time. We build our

approach on the social science ‘mechanisms’ literature, which is influenced by philosophy of science and the natural sciences (Bunge 1997; Elster 1989; Wellstead et al. 2018). The next section will elaborate our conceptual framework in more detail, explaining how mechanism-based analysis fits within a processual understanding of policy integration. In the remainder of the article, we use this approach to explain policy (dis)integration in the Netherlands in two crosscutting issues: food policy and climate change adaptation policy. These issues have recently entered the Dutch policy arena and offer illustrative examples of how a mechanism-based analysis can be used to explain patterns of policy (dis)integration over time. The paper ends with a discussion of how the insights can be applied in future research.

Explaining the process of policy integration: in search of causal mechanisms

Policy integration as a multi-dimensional process

In previous work, we proposed a processual and multi-dimensional conceptualization of policy integration (Candel and Biesbroek 2016). Starting from the observation that much of the earlier literature approached policy integration as a static outcome or governing principle rather than as an inherently dynamic process, we suggested an alternative perspective in which policy (dis)integration entails four distinct dimensions. These dimensions have specific indicators that can move at different paces or even in opposite directions, thereby allowing for a nuanced and comprehensive assessment of whether or not policy integration is taking place; see Table 1. In this processual view, policy integration can be defined as ‘an agency-driven process of asynchronous and multi-dimensional policy and institutional change within an existing or newly formed governance system that shapes the system’s and its subsystems’ ability to address a crosscutting policy problem in a more or less holistic manner’ (Candel and Biesbroek 2016, p 217). Applying the framework to EU, food governance has, for example, shown that the European Commission’s holistic framing of food

Table 1 Dimensions of policy integration (adopted from Candel and Biesbroek 2016)

Dimension of policy integration	Description and key indicators
Policy frame	The extent to which a crosscutting policy problem is recognized as such within a polity and is thought to be requiring a holistic governance approach
Subsystem involvement	(1) The range of actors and institutions (as organized in subsystems) involved in the governance of a crosscutting problem (2) The density of interactions between these subsystems
Policy goals	(1) The range of policies in which (concerns about) a crosscutting problem is addressed/adopted as a goal (2) The subsequent coherence between goals
Policy instruments	(1) The extent to which policies across sectors contain (substantial and/or procedural) instruments to address a crosscutting problem (2) The presence of procedural instruments at system level to coordinate policy efforts and safeguard the consistency of the instrument mix as a whole (3) The consistency of the instrument mix as a whole

security as a crosscutting problem that relates to many subsystems was only partially followed through in terms of concrete policy goals and instruments (Candel and Biesbroek 2018). However, whereas this framework allows for a more systematic way of assessing change over time, it does not help explaining *why* (dis)integration across the dimensions occurs.

This lack of explanatory ambition can be extended to most of the literature on policy integration and coordination. Previous studies have identified a broad range of factors that may enable or impede successful integration: political will and entrepreneurship, policy capacity, belief systems, management styles, incentive structures, trust, political and administrative cultures, and issue attention, among many others (Rayner and Howlett 2009; Peters 2015; Vince 2015). However, what limits the explanatory value of these factors is that most of them remain ‘grey boxed’ with respect to the causal processes through which causes are linked to policy integration as either a process or outcome (Bunge 1997). In fact, particularly in policy problem-orientated studies, the tendency is to: (1) treat policy integration as a normative end goal, where more integration is generally seen as better; (2) describe rather than explain how integration takes place; and/or (3) adopt functionalist explanations in which the complexity and contingency of the policy process are overly simplified and reduced into static variables (cf. Candel and Biesbroek 2016).

Different examples of such ‘grey-box’ types of analyses exist (Bunge 1997). For example, Pollack and Hafner-Burton (2010) argue that the success of gender mainstreaming and environmental policy integration in international organizations is causally linked to the use of ‘hard’ incentives. Similarly, Schout and Jordan (2005) argued that the EU’s failure to make more progress in environmental policy integration could be explained by the Commission’s and member states’ (limited) administrative capacities. Drimie and Ruyse-naar (2010: 330) pose that the South African government’s failure to implement most of its ambitious Integrated Food Security Strategy was due to ‘insufficient and inappropriate institutional arrangements’. Our argument here is not that these factors do not play a big role, on the contrary, but rather that they leave much of the precise processes that explain policy (dis)integration unaddressed. These analyses therefore lead to new questions (cf. Howlett 2019). For example, if ‘hard’ incentives are shown to be causally linked to policy integration outcomes, what are the processes through which these effects are mediated? To what extent is this relationship context-specific? How do these explanatory factors relate to each other? These questions are relevant because, as noted by Peters (2015), many factors listed in the literature have been shown to be able to explain both strengthened policy integration *and* disintegration, depending on specific processes and contexts. It is therefore vital to develop a better understanding of the causal mechanisms that are activated through the use of governing resources or as result of broader contextual changes (Capano and Howlett 2019).

Policy mechanisms to explain why (dis)integration takes place

Explaining why policy (dis)integration takes place requires uncovering the processes that are responsible for producing a certain effect. The mechanism-based approach we propose offers an alternative to the descriptive or correlational studies that have dominated the study of policy integration so far. It is rooted in the ontological stance that all social science research should be able to identify and provide sets of social mechanisms that can explain the link between causes and effects (Elster 1989).

Since the late 1990s, strands within the political sciences (e.g., Mayntz 2004; McAdam et al. 2008), sociology (Hedström and Ylikoski 2010), philosophy of science (Bunge 2004), and, more recently, public policy (Capano and Howlett 2019; Biesbroek et al. 2017; Kay and Bakker 2015; Steinberg 2007) have called for a more modest understanding of the nature of causality, searching for deeper explanatory connections between causes and effects. These calls built on the critique that regular associations between $X \rightarrow Y$ ‘black box’ causality and result in sweeping theoretical arguments without actually demonstrating these empirically (Mayntz 2004; Pawson 2006; Gerring 2008; Mason et al. 2013). In essence, these arguments returned to earlier debates about middle-range theories in which social mechanisms form the ‘elementary building blocks’ of explaining social phenomena (Hedström and Swedberg 1998: 6).

Several conceptual models have been developed based on this ontology of causality (for an overview, see: Beach and Pedersen 2013). One frequently used model in the realist literature, which we also adopt in this article, is the CMO model; it assumes that observed patterns of (un)intended Outcomes can be explained by identifying the plausible causal set of Mechanisms within the situational Context of the process (Pawson and Tilley 1997; Fallati and Lynch 2009), see Fig. 1. What constitutes a mechanism has been heavily debated and numerous definitions exist (Hedström and Swedberg 1998; Steel 2004; Anderson et al. 2006; Oberthür and Gehring 2006; Weber 2007; Falletti and Lynch 2009). Hedström and Ylikoski (2010), for example, argue that mechanisms are contrived of actors (e.g., bureaucrats, politicians) with specific personal characteristics (e.g., norms, values, ideas) and the activities that these actors engage in with other actors. Their interactions bring about change (e.g., can result in more or less integration), whereby the type of change depends on the interactions of those actors and the contextual conditions in which the interactions take place (Bunge 1997). Contextual conditions play a decisive role as they determine which mechanisms are more likely to be activated, the magnitude of the causal force, and the effect it has on the outcome (Falletti and Lynch 2009). Following the observation of Peters (2015), the context–mechanism interactions shape the direction of the causal force of the mechanism. In other words, the same mechanism can be responsible for integration and disintegration, depending on contextual conditions.

Without adopting an explicit mechanism-based approach, the literature on policy integration has already identified several processes that come close to what we consider policy mechanisms (cf. Peters 2015), including social learning, coalition building, and policy entrepreneurship (Jochim and May 2010). Social learning for policy integration refers to the process where learning does not only take place within one or more subsystems, but across subsystems (Jones and Jenkins-Smith 2009). Learning then does not only follow from the emergence of new knowledge, information, and experiences, but, more importantly, from the recognition of mutual dependencies between subsystems involved and of an associated variety of frames and perspectives on problems and solutions (Nilsson and

Fig. 1 CMO model of understanding how context influences mechanisms and outcome (Pawson and Tilley 1997, p 58)

Nilsson 2005; Mickwitz et al. 2009; Termeer 2009). Learning across subsystems generally goes hand in hand with the mechanism of coalition building. Coalition building involves the alignment of powers within and between subsystems, which may result in new network configurations in the governance of a particular problem, possibly allowing for more integrative approaches (Jochim and May 2010). Opportunities for coalition building are enforced through the possible occurrence of a third mechanism: policy entrepreneurship. Policy entrepreneurship refers to the ability of individual actors to recognize windows of opportunity and to actively couple more integrative approaches to a perceived lack of integration (Dowd et al. 2014; Faling et al. 2019). By doing so, they may give way to new subsystem interactions and alliances.

Methodological approach: process tracing

We use the policy integration framework (Table 1) and the CMO model (Fig. 1) to uncover and explain the process of policy integration in the governance of two crosscutting societal problems that are high on the political agenda in many countries: (integrated) food policy and climate change adaptation. Empirically, we focus on the Netherlands, where debates on food policy (since 2014) and climate change adaptation (since 2005) have figured prominently on the national political agenda and have been accompanied by repeated political calls for policy integration. Food policy has been subject to diverse interpretations but is increasingly used to refer to attempts at moving toward more holistic governance of food systems (Lang et al. 2009). Global food systems are facing increasing pressures from a range of interrelated challenges, including global environmental change, changing diets, food insecurity, unstable farmer incomes, and public health concerns (Fresco 2009; Ingram et al. 2012). The assumption behind integrated food policy efforts is that these will be more effective in dealing with these interrelated challenges, ultimately resulting in a healthier, more sustainable, and/or equitable food system (Candel and Pereira 2017). Climate change adaptation policy refers to the intentional adjustments made by public organizations in socioeconomic and biophysical systems to deal with the current or projected impacts of climate change (IPCC 2014). Climate change is expected to impact almost all policy sectors, and therefore many calls for integrating or ‘mainstreaming’ adaptation have been proposed, including in the 2015 Paris Agreement (Lesnikowski et al. 2017) and the 2015 Sustainable Development Goals. In both of the cases, policy integration is pursued to manage under- and overreaction across subsystems, prevent negative trade-offs, and ensure coherency and consistency in implementing policy.

To explain the policy (dis)integration processes in the two cases, we use process tracing. Process tracing has become an umbrella term for the approaches, methods and techniques to unpack causality ($X \rightarrow Y$), and ranges from inductive or theory-building process tracing, to deductive and theory-testing process tracing (Trampusch and Palier 2016; Beach and Pedersen 2016). Here, we use theory-building process tracing methodology to unearth a (set of) plausible mechanism(s) from the empirical cases that, with some level of confidence, is considered to be responsible for producing the observed outcome (Gerring 2008). Given the illustrative purpose of our cases and our theory-building process tracing approach, we use what Beach (2016) calls ‘minimalist process tracing’, which is particularly useful in cases where there are few theoretical priors on the mechanisms in place. Following Falleti and Lynch (2009), we adopt a probabilistic view on process tracing and

argue that context and temporal sequencing of events matter when analyzing policy integration over time. To structure our analysis, we break down the policy process into episodes of changes in policy (dis)integration to allow for making stronger inferences about causal relationships, and the contextual conditions under which these are activated (Biesbroek et al. 2014a).

We use mechanistic evidence (Beach 2016)—observational within-case empirical evidence of the workings of the mechanisms—to characterize the causal pathways in the two cases, as such making inferences about the existence of mechanism(s) (Bennett and Checkel 2014). Primary data for both cases were collected in the form of: (1) key policy documents, minutes, meeting reports, and evaluations of the two cases; and (2) expert interviews with senior national-level policy-makers between 2009 and 2017 ($n=5$ for the food policy case; $n=10$ for the climate change adaptation case). Interviews were used to gain deeper understandings of the within-case key processes and contextual conditions, and, in later stages of the research, were used to assess the internal validity of our preliminary results.

Moreover, both authors participated in the policy process of the cases in various forms, most often in the role of knowledge broker and/or observer; ensuring detailed understandings of the cases before starting the analysis. We made use of secondary case analysis to reconstruct the main process of policy integration, building upon some of our earlier work in these fields (Biesbroek et al. 2011, 2014b; Candel 2018). The primary and secondary data allowed for a thick case reconstruction, which is generally considered to be an important first step in theory-building process tracing (Beach and Pedersen 2013). For both cases, we covered the time periods from their start until September 2017.

We analyzed our data by iterating between the empirical observations and relevant public policy theories—particularly policy integration literature—to generate the configurations of mechanisms (or causal pathways) that provide plausible causal explanations of how policy integration proceeded over time in both cases (Beach and Pedersen 2013). To determine causality, we used counter-factual reasoning by critically reflecting among the authors and selected interviewees on what would have happened if the mechanism(s) would not have occurred. Although this approach certainly has its limitations, it is an accepted and frequently used method in process tracing studies (Beach and Pedersen 2013). The two cases were analyzed independently, and findings were compared at the final stages of the research to identify recurring patterns across the two cases.

Developing integrated food policy in the Netherlands

Description of the policy (dis)integration process

The Dutch government's attempts of moving toward strengthened food policy integration gained momentum after the publication of an unsolicited report, entitled 'Towards a food policy', by the Scientific Council for Government Policy (WRR) in October 2014. The WRR argued that the government's 'implicit' food policy proved inadequate for coping with the rapid developments and associated challenges that characterize modern-day food systems, most notably (the lack of) ecological sustainability, public health, and robustness. The Council therefore argued that a shift toward 'explicit' and more holistic food policy, focused on these three challenges, would be needed (WRR 2014). 'Implicit' food policy

referred to the existing state of fragmented policy-making in which various ministries (primarily those of (1) Economic Affairs, which covered the agri-food sector, (2) Public Health, (3) Foreign Affairs, and (4) Infrastructure and Environment) were responsible for specific food-related themes and steered these through sector-specific goals and instruments, between which very little coordination occurred (Table 2).

The subsequent process of policy integration can be characterized along two episodes. The 2 years immediately following on the WRR's report witnessed a vivid public debate about the future of (the governance of) the Dutch food system. Within government, the Ministry of Economic Affairs took the lead in drafting a letter to Parliament by which the cabinet would respond to the WRR's report, as required by law. For this purpose, a task force was set up within the ministry, consisting of civil servants from various relevant directorates. In addition, frequent coordination meetings took place with representatives of the other three ministries, at different hierarchical levels. The letter, which was also signed by the Minister of Health, was sent to Parliament in November 2015. In it, the government confirmed the three main food system challenges of ecological sustainability, public health, and robustness, and subscribed the integration of these concerns into national policy efforts and the EU's Common Agricultural Policy (CAP). At the same time, the ministers argued that society already had started many initiatives around food, partly stimulated and facilitated by the government. In the letter, these initiatives are synthesized into a national 'food agenda'.

The public debate as well as interdepartmental coordination regarding food policy continued in the following year. Various events, referred to as a 'food dialogue', were organized to facilitate exchanges of ideas between policy-makers and societal stakeholders. In addition, a hearing was organized by a committee of the House of Representatives and the State Secretary of Agriculture put the question of whether the EU's CAP should transform toward a Common Food Policy on the agenda of the EU Council of Ministers (The Netherlands Presidency 2016). At the same time, the food policy agenda hardly resulted in the adoption of new policy instruments (de Krom and Muilwijk 2018). Instead, instruments remained organized at sectoral levels and linked to specific issues, whereby some got reframed in terms of food policy. In addition, the three generic objectives that were laid down in the letter to Parliament were not translated into more concrete targets or an implementation agenda. A second letter to Parliament in November 2016, in which the government reported about the progress made with respect to its Food Agenda, therefore largely read as a repetition of the first, although including a stronger emphasis on the international context.

The period from late 2016 through the first half of 2017 saw little changes in this respect. In fact, this period may be characterized as one of slight disintegration. Officials from the three non-leading ministries became disenchanted and less involved (for different reasons, see below), especially after a national 'Food Summit' was concluded in January 2017. In addition, no further changes occurred in terms of goals and instruments, apart from some innovation funds made available by the Ministry of Economic Affairs. At the same time, much of this standstill may be explained by the general elections of March 2017. Respondents indicated that the further development of the national food agenda would depend on the outcomes of the subsequent government coalition negotiations.

Table 2 Dimensions of policy (dis)integration in Dutch food policy-making

	Starting point: fragmented policy-making	Episode 1: Emergence of food policy efforts	Episode 2: Disintegration
Policy frame(s)	<p>Situation immediately preceding October 2014</p> <p>No overarching policy frame; food-related issues are considered to fall within the boundaries of specific ministries' jurisdictions</p>	<p>October 2014–November 2016</p> <p>Emergence of 'food policy' ('<i>voedselbeleid</i>') as integrative discursive device; increased awareness that food crosscuts jurisdictions and ought to be better coordinated</p>	<p>December 2016–September 2017</p> <p>Consolidation of food policy as integrative frame</p>
Subsystem involvement	Food-related issues governed separately by responsible ministries. Infrequent interactions around temporal programs and projects	Four ministries engage in frequent interactions about crosscutting food system concerns; lead with Ministry of Economic Affairs	Decreased engagement three 'other' ministries; food policy efforts largely restricted to Ministry of Economic Affairs
Policy goals	No overarching goals; issue-specific goals at ministerial level. Hardly any discussion about coherence	Three generic objectives laid down in letter to Parliament: public health, ecological sustainability, and robustness. Vivid public debate about coherence of goals across levels	Follow-up letter to Parliament includes stronger emphasis on international dimensions. No concretization of three main objectives
Policy instruments	Issue-specific (mixes of) instruments at ministerial level. Hardly any discussion about consistency	More or less formalized intra- and interdepartmental coordination structures. No substantial instruments, apart from some events. Vivid public debate about consistency of instruments across levels	Weakening interdepartmental coordination structure. Some (sectoral) innovation and education subsidies allocated to program; few other substantive instruments National Food Summit in January 2017

Key policy mechanisms

Scientific lobbying

The report of the Scientific Council for Government Policy (WRR) proved to be the impetus to the series of events described above. Through its relatively firm and far-reaching policy recommendations, the Council initiated a lasting public debate and essentially forced the government to formulate a response beyond ‘business-as-usual’. As such, the WRR not only synthesized scientific insights and arguments, but also propagated a specific course of governmental action. WRR researchers kept their argument on the political agenda in the period following the publication of the report by elucidating their conclusions in meetings with civil servants and at various public events. The WRR’s report found wide resonance, as it connected well to existing critiques in both academic and policy circles regarding the functioning of sectoral policy frameworks, such as the Common Agricultural Policy and the food safety regime. In the Netherlands, these critiques particularly concentrated on the dominant role of the Ministry of Economic Affairs (which absorbed the Ministry of Agriculture, Nature and Food Quality in 2010) vis-à-vis other ministries, arguing that economic and productionist interests too often prevailed over concerns about food safety, unhealthy diets, animal welfare, and ecological sustainability (cf. Termeer and Werkman 2011; Lelieveldt 2016). The report thus built forth and drew upon existing yet ignored calls for a change of Dutch food governance.

Although clearest at the start of the policy integration process, advisory bodies on the science–policy interface continued to play a role. The Netherlands Environmental Assessment Agency (PBL), Council for the Environment and Infrastructure (Rli), and the National Institute for Public Health and the Environment (RIVM), among others, started and published various studies that kept the debate on food policy alive. These studies were not just pushed for by these bodies themselves; various civil servants, who had come to recognize the need for policy change, strategically commissioned or tried to influence studies, so as to foster a favorable sociopolitical context for ministries’ or personal policy preferences.

We conceptualize the above process as the mechanism of *scientific lobbying*, which is well known in (science–)policy studies (Fig. 2). Scientific lobbying can be described as a ‘hybrid activity that combines elements of scientific evidence and reasoning with large doses of social and political judgment’ (Jasanoff 1990: 229). There is an extensive body of evidence from Science and Technology studies that shows that such lobbying processes are the rule rather than the exception (e.g., Jasanoff 2004; Grundmann 2009). As opposed to the image of scientific knowledge as neutral and objective, this literature recognizes that policy-relevant scientific knowledge is in itself informed by normative beliefs and values (Grundmann 2009; see also: Stone 2012). Similar insights emerge from the literature on the role of epistemic communities in policy processes (Haas 1992; Meijerink 2005). The WRR and other advisory bodies’ repeated appeal to scientific insights that were embedded within broader normative belief systems about the need for sustainability transitions and more holistic food systems governance connect well to such discussions of scientific lobbying processes.

Fig. 2 CMO model of key policy mechanisms in the policy (dis)integration process of food policy in the Netherlands

Protecting turf

That the Ministry of Economic Affairs would respond favorably to the WRR's report was not self-evident from the beginning; agricultural policy, on which most of the criticism was directed, had been known for its closed and stable configuration of actors and associated interests (Termeer and Werkman 2011; Roederer-Rynning 2015). Consequently, many policy-makers in the directorate general of agriculture, including its director general, had few warm feelings about opening up the policy process. At the same time, the emerging debate on food policy posed new risks to the ministry. Even though the ministry was formally responsible for drafting a response to the WRR's report, increased recognition of the crosscutting nature of food (systems) resulted in questions about the potential roles other ministries could play. Respondents agreed that it was the fear of losing turf and political-strategic considerations, more than an intrinsic motivation, that made State Secretary of Agriculture Dijksema decide to push for an ambitious letter to Parliament and accompanying agenda within the ministry.

This mechanism of *protecting turf* has been frequently used in the public policy literature as mechanism to explain failures of attempts at improved policy integration (Bardach 1996; Peters 2015). Interestingly, in this case it initially enabled a strengthening of policy integration, as embracing the food policy agenda led Economic Affairs to also involve the

other relevant ministries to some extent. At the same time, it may be argued that the lack of a genuine substantive drive explains why the Food Agenda has had only minimal effects on cross-sectoral goals and instruments. A similar observation applies to the involvement of the other ministries: at least part of the reason why they joined the interdepartmental food policy meetings had to do with protecting existing jurisdictions and resources. This was clearest for the Ministry of Foreign Affairs, which had been in a struggle with Economic Affairs about competencies over international food security efforts a couple of years before. Consequently, this mechanism does not only explain what enabled the first steps toward strengthened integration, but also why progress hampered at later stages. For Health and Environment, the relative lack of prioritization and personnel resources also played a role; as food-related issues were relatively marginal within these ministries under their then leaderships, respondents indicated a fear that Economic Affairs would use this moment to usurp their mandates.

Making one's mark

Right after the first letter was sent to Parliament in November 2015, the State Secretary of Agriculture, Sharon Dijksma, was transferred to the Ministry of Infrastructure and Environment to clear up the political rubble in that department. She was replaced by her fellow party member Martijn van Dam. As the press conference about the letter had not been held yet, this gave Van Dam the chance to embrace the food policy agenda as his own during his first public appearances. Respondents indicated that Van Dam saw the agenda as a good way of making his mark and strengthening his profile during the remaining one and a half years in office. At the same time, he was also believed to have a stronger personal affiliation with the issue. Consequently, Van Dam continued to push for the food agenda, which explains why policy efforts were not ceded after the succession and initiatives such as the food dialogue and summit were initiated. The Dutch chairmanship of the EU Council of Ministers in the first half of 2016 helped Van Dam, who chaired the Agriculture and Fisheries Council, to find even wider resonance. At the EU level, Van Dam argued for a radical change of the Common Agricultural Policy toward a Common Food Policy. This proposal, which was discussed during an informal Council meeting in Amsterdam, received considerable publicity and support from various European NGOs and think tanks.

This mechanism of *making one's mark* bears close similarities to the processes of office- and policy-seeking (Budge and Laver 1986) and, in this case, combines elements of both (cf. Martin 2016). On the one hand, the State Secretary's push for the food policy agenda served to acquire recognition and respect, possibly to maximize his chances of prolongation or promotion (office-seeking) (cf. Andeweg 2000). As an MP Van Dam was considered a talent within the Labour Party (PvdA), even running for the party's leadership in 2012, but according to various political commentators he still had to prove himself in a senior position. On the other hand, Van Dam seemed to genuinely believe in broadening up agricultural policy's goals toward a broader range of public goods (policy-seeking), e.g., illustrated by the quote 'I am not here just for the farmers' in a major newspaper, which led to considerable controversy.

Climate change adaptation policy in the Netherlands

Description of the policy (dis)integration process

Although the Netherlands has a long-standing history of dealing with the impacts of climate variability on water, it was only in the late 1990s that the government started to consider the impacts of anthropogenic climate change through future flood risk management scenarios. In the early 2000s, several government-funded research programs investigated the impacts climate change is projected to have on issues other than water and flood risk. However, policy efforts remained very sector-based (Table 3).

The first episode started with increased lobbying of scientists to the Dutch Senate, resulting in the motion ‘Lemstra’ that asked the Cabinet to consider the impacts of climate change in long-term investment projects (2005). The Cabinet installed an inter-departmental program (ARK) to draft a National Adaptation Strategy (NAS) in 2007 (VROM 2007). However, parallel to the ARK program, the Cabinet installed a State Commission in September 2007 to investigate the influence of anthropogenic climate change on long-term water safety. This so-called Delta Committee published their advice in 2008 and broadened the scope of the original question from the Cabinet: their integral vision included advice on large infrastructural measures as well as soft approaches to protect the Netherlands against future sea level rises, storm surges, changing river discharge and precipitation patterns, and fresh water availability (Deltacommittee 2008). The Delta Program, established in 2008 to ensure the implementation of the advice from the Delta Committee and coordinated by the Ministry of Transport, Public Works and Water management (V&W), was operational by the beginning of 2009. The Delta program received very strong institutional and political support.

This earmarks the start of the second episode: as a result of a change of government in 2010, the Ministry of V&W and parts of the ministry of Ministry of Housing, Spatial Planning and the Environment (VROM) merged into the new ministry of Infrastructure and the Environment (I&M), which became responsible for the Delta program as well as the ARK program. During this time, the Dutch government formulated new priorities to adapt to climate change. The new government decided to reframe ‘climate change adaptation’ in terms of more traditional and sectoral focused long-term water safety concerns. Integration of water safety into other domains became less important to the ministry. In 2012, the decision was made to dismantle the ARK program.

Several policy evaluation studies, most notably by the Dutch Court of Auditors (2012), concluded that the Dutch government paid considerable attention to long-term water management, but that the focus was too narrow for dealing with the broader impacts climate change is expected to have on society. The report concluded that there was very limited coordination within and between the ministries to address climate change holistically, noting that there were many negative trade-offs that might be overlooked. The newly installed State Secretary of Environment Mansveld (2012–2015) did not actively address these critiques, which changed after she was succeeded by Dijksma in 2015.

The third episode takes place in the context of the international negotiations on climate change in Paris (2015) as well as the push for more integrative approaches to climate change adaptation in the EU strategy package (2013). Dijksma concluded at the start of her term that a new comprehensive National Adaptation Strategy was needed and that the gaps identified by the Court of Auditors report would have to be explicitly

Table 3 Dimensions of policy (dis)integration in four episodes of Dutch climate change adaptation policy

	Starting point: climate impacts on water system (Pre-2005)	Episode 1: emergence of adaptation policy (2005–2009)	Episode 2: return to sectoral policy (2010–2015)	Episode 3: integrated adaptation strategy (Post-2016)
Policy frame(s)	Climate impacts defined within the governance system in narrow sense, focusing on water related issues. No consideration of cross-cutting nature of climate change; mostly falls within the boundaries of existing policy subsystem; no push for integration	Climate impacts defined as crosscutting issue that should not be governed by one subsystem. Deciding on long-term infrastructure requires integrative and holistic approach to create coherence and ensure coordinative actions. Strong push for integration	Climate impacts reframed as most critical for water sector. Problem reframed in terms of long-term water safety. Other subsystems are recognized and able to contribute, but tasks and responsibilities lay within one subsystem. No strong push for integration	Climate impacts redefined as cross-cutting issue that includes water and other subsystems. Water as leading principle. Climate change should be governed by the system as a whole and include all subsystems. Strong push for integration
Subsystem involvement	Dominance of one sector (water); subsystem involvement is ad hoc	Several subsystems have the formal responsibility to address climate change holistically, including water sector. Lead by ministry of Housing and Spatial Planning. Frequent inter-ministerial meetings to ensure coordination between four ministries involved	New governmental program dominated by one subsystem with close collaboration across scales (vertical coordination) and different actors (scientific community, local/regional authorities, private sector); limited involvement of other subsystems	Dominance of one ministry (ministry of Infrastructure and Water), but formal involvement of several other subsystems in drafting the integrated climate change adaptation policy. Involvement of other public and private actors on ad hoc basis; infrequent meetings with other subsystems
Policy goals	Concerns only adopted in the dominant subsystem; no overarching goals formulated; no coherence in goals between subsystems	Overarching goals formulated, but not adopted in one or more policy subsystems; weak coherence between subsystem goals	Concerns adopted in one dominant subsystem. Strong push for coherence of goals within the subsystem, but no efforts to ensure coherence between subsystems	Overarching goals formulated, but not (yet) adopted in one or more policy subsystems; weak coherence between subsystem goals

Table 3 (continued)

Policy instruments	Starting point: climate impacts on water system (Pre-2005)	Episode 1: emergence of adaptation policy (2005–2009)	Episode 2: return to sectoral policy (2010–2015)	Episode 3: integrated adaptation strategy (Post-2016)
Policy instruments	No overarching procedural instruments mix; climate change addressed through instruments of the dominant subsystem	Emphasis on procedural instrumental project team, National Adaptation Strategy, Adaptation research program Knowledge for Climate. Weak substantive instruments and consistency of instrument mix to implement actions	Climate change impacts addressed through (new) substantive policy instruments of the dominant subsystem: Delta committee, Delta law, Delta fund, Delta commissioner. Weak overarching procedural instruments. High consistency within the instrument mix	Emphasis on procedural instrument mix, including project team within ministry of infrastructure and the environment, national adaptation strategy. Weak substantive instruments and consistency of instrument mix

addressed to create a more holistic and integrative adaptation policy. The ministry of I&M played a coordinating role, actively trying to involve other departments and ministries. The new project team was, in contrast to the previous ARK program, not interdepartmental, but involved only members of the ministry of I&M. The NAS was finished in December 2016, but was not discussed in Parliament because of the general elections in March 2017.

Key policy mechanisms

Scientific lobbying

In the early 2000s, scientific awareness grew that adapting to unavoidable climate change impacts was necessary in addition to ongoing efforts to reduce greenhouse gasses. Various research institutes and universities argued that while there had been political attention to *mitigation*, there was very limited attention to *adaptation*. Such attention was argued to be crucial to ‘climate proof’ the Netherlands and to allow for further governmental investments in climate change research (Kabat et al. 2005). Climatic extremes experienced during that period, including the 2003 European heatwave and the sustained period of drought that caused inland dikes to collapse, became powerful images for scientists to demonstrate the impacts climate change would have in the future. Leading scientists from various Dutch universities and research institutes started to lobby high-ranked civil servants and key political actors in both the House of Representatives and the Senate for more than 2 years to adopt a holistic view on climate change mitigation and adaptation. This scientific lobbying was successful: during the Senate meeting about the Dutch Long Term Vision for Spatial Planning in 2005, Senator Lemstra put forward a motion that climate change should be considered when making long-term investment decisions. Several scientists were present in the Senate when the motion was passed. Shortly thereafter, then minister Winsemius (VROM), who previously was a professor of sustainable development, responded by installing an interdepartmental program and invested heavily in several large research programs to explore how to climate-proof the Netherlands.

Similar to the food policy case, debates on integrating climate change adaptation started with the mechanism of *scientific lobbying*, as the climate epistemic community pushed for the inclusion of scientific evidence and reasoning into political decision-making processes (Fig. 3). Scientists framed climate change as a ‘holistic problem’ that required integrated approaches. The presence of extreme events and close ties between science, policy and politics in the Netherlands created favorable conditions that allowed this mechanism to occur.

Turf wars

Although the first part of the first episode demonstrated rapid progress by delivering reports, creating new institutions, and adopting a National Adaptation Strategy (NAS), the period after 2007 was characterized by struggles between the different ministries involved. Although all interdepartmental project team members were aware that they depended on each other for implementing the NAS, their different ideas about the problem and solution led to increasing tensions in the team. Civil servants from the Ministry of VROM had a strong integrative policy tradition and depended upon their power of persuasion, long-term vision, and linking of different sources of knowledge to develop and implement

Fig. 3 CMO model of key policy mechanisms in the policy (dis)integration process of climate change adaptation in the Netherlands

policy. They framed climate change adaptation as a crosscutting problem that concerns all sectors, levels, and societal actors, and therefore required a holistic approach. The Ministry of V&W, with a sectoral tradition that is orientated toward water management, had strong political and legislative instruments, with substantive resources to implement policies. Although the ministry of VROM was asked to lead the interdepartmental program, civil servants from the Ministry of V&W started to realize that climate change adaptation received increasing political attention and were increasingly of the opinion that adapting to climate change impacts is synonymous to long-term water management. Lacking substantive progress in moving beyond the NAS increased frustrations between the two ministries. This frustration deepened when the more sectoral orientated Delta committee was installed in 2008, which by some interviewees was framed as a strategic move orchestrated by V&W to claim the adaptation agenda.

The mechanisms of protecting one's turf and (re)claiming the emerging issue of climate change adaptation resemble the pattern observed in the food policy case. Although initially placed in a ministry where the emphasis was on integration, the lacking progress, absence of dedicated instruments within the interdepartmental project team, and changing political orientation in the Netherlands meant that climate change adaptation moved from an integral spatial vision toward a sectoral focus on water safety and freshwater availability. Shortly thereafter, the interdepartmental program was dismantled. This mechanism continued to exist—although less prominent—when the ministry of VROM and V&W were partly merged in 2010.

Policy-seeking

The scientific lobbying mechanism that was triggered around 2012–2013 in itself is not enough to explain why climate change was reframed into a more integrative approach from 2015 onwards. Between 2010 and 2015, economic downturn meant that resources became scarcer. Combined with the emergence of a center-right cabinet, this resulted in decreased attention to environmental issues. The then State Secretary for Infrastructure and Environment of The Netherlands, Mansveld (2012–2015), was not interested in climate change adaptation and could not be persuaded by scientific advice and policy recommendations to make significant changes. Consequently, no policy change occurred. This changed after she was replaced by Dijkma. In preparation for the Conference of the Parties meeting in Paris, where the Paris Agreement (2015) would be signed, Dijkma concluded that drastic and additional efforts were needed to realize the ambitious targets and increase the resilience of the Netherlands. She installed a working group in the Ministry of Infrastructure and the Environment with the task of developing a new comprehensive climate change adaptation strategy for the Netherlands. Rather than forcing other ministries to become involved, the working group invited different ministries to participate voluntarily. Within a few months, a new comprehensive national adaptation strategy was published in December 2016. As one interviewee noted, Dijkma pushed for a quick publication of the strategy to ensure the resigning government would receive the credits still before the 2017 elections.

Dijkma's role in the policy integration process is a clear example of policy-seeking (cf. Evans 2018). Interviewees noted that Dijkma's efforts to tackle climate change were driven by genuine personal motives, which showed in her passionate speeches during the Conference of the Parties in Paris and subsequent meetings. They considered her political leadership critical to ensure that new adaptation policy was in place before elections started and, at the same time, get political recognition for this achievement.

Discussion and conclusions

Policy integration figures prominently on the agenda of many politicians and policy-makers and has been a key concern in the public policy literature. By adopting a processual perspective on policy integration, this article showed that policy integration is no linear process; particularly, the climate change adaptation case showed that policy integration is in constant flux and that contextual conditions, such as political orientation, economic conditions, and societal preferences, can trigger mechanisms that increase or decrease integration. Unpacking the dimensions of policy integration into measurable indicators proved an important step for tracking policy integration processes, but answering questions about why and how policy integration occurs requires further elaboration of this conceptual model. In this paper, we showed how connecting the policy integration literature with a mechanisms perspective provides us with a novel lens to uncover underlying configurations of plausible causal mechanisms that explain processes of (dis)integration. Our two illustrative cases demonstrated how such an approach could work. Before discussing the value of this approach, these cases also result in four observations that are worth mentioning.

First and contrary to what we expected, we see similar patterns between the two cases when it comes to the context and mechanisms observed. Both cases start with the scientific lobbying mechanism, experience some kind of struggle—'turf war' or competition between ministries causing some level of disintegration—and are followed by a political

mechanism of individual leadership that pushes for more integration—‘making one’s mark’ and ‘policy seeking’. This empirical observation deserves further investigation beyond the environmental issues included in this article (food, climate) and in other contexts. If this is a pattern that holds across different contexts, it would allow for more specific hypotheses about the processes of policy (dis)integration. Next steps could include using a more rigorous systems understanding approach to process tracing (Beach 2017) and empirically investigate if the policy mechanisms identified here occur in cases with other contexts; see for example the work of Paz and Fontaine (2018) who use Bayesian statistics to apply several empirical tests to analyze how robust the theorized mechanism is for explaining the outcome.

Second, in both the food and climate change adaptation case we found an important role for science in advocating changes of the dominant policy framing toward strengthened integration. Although much of the policy integration literature focuses on policy-makers’ intrinsic motivations, we observed an important role for science in signaling the complexity and crosscutting character of both issues. This mechanism may have been enabled by broader societal processes, such as the co-production of science and increasing emphasis on impactful interdisciplinary research in the Netherlands and abroad. The climate change adaptation case shows that the scientific lobbying mechanism is not limited to pushing an issue on the political agenda just once; even when policies are showing signs of disintegration or policy failure, scientific and policy assessments can play a pivotal role in revitalizing the debates on the need for more integration.

Third, protecting turf also played an important role in both cases. Interestingly, whereas ‘turf’ is often mentioned as a barrier to policy integration in the literature (Peters 2015), our case studies show that it may, especially in initial phases, also contribute to strengthened integration. Protecting turf might indicate that a crosscutting issue is considered important and taken seriously, and therefore could be an important condition for progressing toward higher degrees of integration. This also shows the importance of context in determining the direction of the causal force to lead to certain outcomes, as is suggested by Falleti and Lynch (2009); different contextual conditions can activate the same mechanism (e.g., ‘protecting turf’), which may, however, have different effects on the outcome (integration or disintegration). This requires further empirical investigation, for example by using large(r)-*n* research methods such as qualitative comparative analysis (QCA), where the necessity and sufficiency of certain contextual conditions can be tested to identify causal pathways that produce a certain outcome (e.g., a direction of policy integration) (Rihoux et al. 2011).

Fourth, we analyzed two cases in which policy (dis)integration developed in an incremental manner. Although many integration processes are likely to follow such incremental patterns, it raises the question whether we would observe similar mechanisms in the case of more extreme and sudden forms of integration, as for example described by May et al. (2011) in the case of the US Homeland Security regime after 9/11, or in cases of abrupt policy disintegration due to regime changes.

To analyze policy (dis)integration processes, we made use of process tracing to identify the mechanisms that explain policy integration in two cases. Process tracing has been the subject of discussion about whether it adds new and more robust methodological tools to the portfolio of policy analysis, or whether it is merely old wine in new bottles (Hall 2013; Hay 2016). Clearly, process tracing is not a panacea for the methodological challenges to causally explain social phenomena. However, for our specific ambition of opening up the black box of causality in policy integration processes, it has proven to offer valuable methodological directions in empirically demonstrating credible policy mechanisms—and the conditions under which these emerge—for the two cases. Consequently, process tracing,

both in inductive and deductive form, could play an important role in advancing debates about the processes of policy integration.

On a more policy substantive level, it remains to be seen whether the national policy efforts to pursue strengthened integration will be successful and will sustain in the implementation phase. For the case of climate change, it seems the new NAS (2016) is more ambitious compared to the previous NAS (2007). Recent developments suggest, however, that renewed focus on water safety, increased political attention on climate change mitigation, and the lack of substantive instruments for climate change adaptation policy that the push for integration started in episode 3 might not be durable. For Dutch food policy, it is perhaps too early to tell as the policy and polity are very much ‘under construction’ and little progress can be reported since September 2017. Recent publications have shown that although the new government re-emphasized the need for strengthening food policy integration, ambitions have remained largely symbolic so far (de Krom and Muilwijk 2018; Candel 2018). In addition, the adoption of ambitious sectoral programs for agriculture (‘Circular Agriculture Strategy’) and public health (‘National Prevention Agreement’) may result in a contextual change that disfavors the activation of mechanisms resulting in strengthened integration.

In practical terms, our mechanistic approach allows policy-makers to design appropriate policy responses for shaping policy (dis)integration where this is desired (Howlett 2019). By intervening in the context, policy-makers may create a more conducive environment for the occurrence of mechanisms that result in policy (dis)integration outcomes. Vice versa, recent literature has suggested that the adoption of procedural instruments can play an important role in (re)shaping contextual regimes (Howlett 2019). However, resulting from the equifinality and multifinality arguments discussed in “[Methodological approach: process tracing](#)”, there is no guarantee that such interventions will have the desired effects. This further underlines our argument to obtain a better understanding of the context–mechanism interactions to study processes of policy (dis)integration.

Acknowledgements Previous drafts of this paper were presented at the Annual Conference of the European Group for Public Administration (EGPA), Utrecht, August 24–26, 2016, and the Annual Work Conference of the Netherlands Institute of Government (NIG), Antwerp, November 24–25, 2016. The authors would like to thank Lise Rykkja, Michelle Hollman, Koen Verhoest, and the three anonymous referees for their valuable comments, and all interviewees for their time and indispensable insights. Robbert Biesbroek’s contributions are funded through his NWO-VENI grant (451-17-006-4140).

Open Access This article is distributed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made.

References

- Adelle, C., & Russel, D. (2013). Climate policy integration: A case of Déjà Vu? *Environmental Policy and Governance*, 23(1), 1–12.
- Anderson, P. J. J., Blatt, R., Christianson, M. K., Grant, A. M., Marquis, C., Neuman, E. J., et al. (2006). Understanding mechanisms in organizational research. *Journal of Management Inquiry*, 15(2), 102–113.
- Andeweg, R. B. (2000). Ministers as double agents? The delegation process between cabinet and ministers. *European Journal of Political Research*, 37(3), 377–395.
- Bardach, E. (1996). Turf barriers to interagency collaboration. In D. F. Kettl & H. B. Milward (Eds.), *The state of public management* (pp. 168–190). Baltimore: Johns Hopkins University Press.

- Beach, D. (2016). It's all about mechanisms — what process-tracing case studies should be tracing. *New Political Economy*, 21(5), 463–472.
- Beach, D. (2017). Process-tracing methods in social science. *Oxford Research Encyclopedia of Politics*. <https://doi.org/10.1093/acrefore/9780190228637.013.176>.
- Beach, D., & Pedersen, R. B. (2013). *Process-tracing methods: Foundations and guidelines*. Ann Arbor: University of Michigan Press.
- Beach, D., & Pedersen, R. B. (2016). *Causal Case Study Methods: Foundations and Guidelines for Comparing, Matching, and Tracing*. University of Michigan Press.
- Bennett, A., & Checkel, J. (2014). *Process tracing: From metaphor to analytic tool*. Cambridge: Cambridge University Press.
- Biesbroek, R., Dupuis, J., Jordan, A., Wellstead, A., Howlett, M., Cairney, P., et al. (2015). Opening up the black box of adaptation decision-making. *Nature Climate Change*, 5(6), 493–494.
- Biesbroek, R., Dupuis, J., & Wellstead, A. (2017). Explaining through causal mechanisms: Resilience and governance of social-ecological systems. *Current Opinion in Environmental Sustainability*, 28, 64–70.
- Biesbroek, G. R., Termeer, C. J. A. M., Klostermann, J. E. M., & Kabat, P. (2011). Barriers to climate change adaptation in the Netherlands. *Climate Law*, 2, 181–199.
- Biesbroek, G. R., Termeer, C. J. A. M., Klostermann, J. E. M., & Kabat, P. (2014a). Rethinking barriers to adaptation: Mechanism-based explanation of impasses in the governance of an innovative adaptation measure. *Global Environmental Change*, 26, 108–118.
- Biesbroek, G. R., Termeer, C. J. A. M., Klostermann, J. E. M., & Kabat, P. (2014b). Analytical lenses on barriers in the governance of climate change adaptation. *Mitigation and Adaptation Strategies for Global Change*, 19(7), 1011–1032.
- Bogdanor, V. (Ed.). (2005). *Joined-up government*. Oxford: Oxford University Press.
- Budge, I., & Laver, M. (1986). Office seeking and policy pursuit in coalition theory. *Legislative Studies Quarterly*, 11(4), 485–506.
- Bunge, M. (1997). Mechanism and explanation. *Philosophy of the Social Sciences*, 27(4), 410–465.
- Bunge, M. (2004). How does it work?: The search for explanatory mechanisms. *Philosophy of the Social Sciences*, 34(2), 182–210.
- Candel, J. J. L. (2017). Holy Grail or inflated expectations? The success and failure of integrated policy strategies. *Policy Studies*, 38(6), 519–552.
- Candel, J. J. L. (2018). De opkomst van voedselbeleid: Voorbij de tekentafel. *Beleid en Maatschappij*, 45(4), 344–361.
- Candel, J. J. L., & Biesbroek, G. R. (2016). Toward a processual understanding of policy integration. *Policy Sciences*, 49(3), 211–231.
- Candel, J. J. L., & Biesbroek, R. (2018). Policy integration in the EU governance of global food security. *Food Security*, 10(1), 195–209.
- Candel, J. J. L., & Pereira, L. (2017). Towards integrated food policy: Main challenges and steps ahead. *Environmental Science & Policy*, 73, 89–92.
- Capano, G., & Howlett, M. (2019). Causal logics and mechanisms in policy design: How and why adopting a mechanistic perspective can improve policy design. *Public Policy and Administration*. <https://doi.org/10.1177/0952076719827068>.
- Cejudo, G. M., & Michel, C. L. (2017). Addressing fragmented government action: Coordination, coherence, and integration. *Policy Sciences*, 50(4), 745–767.
- Christensen, T., & Lægrend, P. (2007). The whole-of-government approach to public sector reform. *Public Administration Review*, 67(6), 1059–1066.
- de Krom, M., & Muilwijk, H. (2018). *Perspectieven op duurzaam voedsel: Pluriformiteit in debat en beleid*. Den Haag: PBL.
- Deltacommittee, A. (2008). *Working together with water. A living land builds for its future. Findings of the Deltacommissie 2008*. Hoorn: Hollandia Printing.
- Dowd, A.-M., Marshall, N., Fleming, A., Jakku, E., Gaillard, E., & Howden, M. (2014). The role of networks in transforming Australian agriculture. *Nature Climate Change*, 4(7), 558–563.
- Drimie, S., & Ruysenaar, S. (2010). The integrated food security strategy of South Africa: An institutional analysis. *Agrekon*, 49(3), 316–337.
- Egeberg, M., & Trondal, J. (2016). Why strong coordination at one level of government is incompatible with strong coordination across levels (and how to live with it): The case of the European Union. *Public Administration*, 94(3), 579–592.
- Elster, J. (1989). *Nuts and Bolts for the Social Sciences*. UK: Cambridge University Press.
- Evans, M. (2018). Policy-seeking and office-seeking: Categorizing parties based on coalition payoff allocation. *Politics & Policy*, 46(1), 4–31.

- Faling, M., Biesbroek, R., Karlsson-Vinkhuyzen, S., & Termeer, K. (2019). Policy entrepreneurship across boundaries: A systematic literature review. *Journal of Public Policy*, 39(2), 393–422.
- Falletti, T. G., & Lynch, J. F. (2009). Context and causal mechanisms in political analysis. *Comparative Political Studies*, 42(9), 1143–1166.
- Fresco, L. O. (2009). Challenges for food system adaptation today and tomorrow. *Environmental Science & Policy*, 12(4), 378–385.
- Gerring, J. (2008). The mechanistic worldview: Thinking inside the box. *British Journal of Political Science*, 38(01), 161–179.
- Gieve, J., & Provost, C. (2012). Ideas and coordination in policymaking: The financial crisis of 2007–2009. *Governance*, 25(1), 61–77.
- Grundmann, R. (2009). The role of expertise in governance processes. *Forest Policy and Economics*, 11(5–6), 398–403.
- Haas, P. M. (1992). Epistemic communities and international policy coordination. *International Organization*, 46, 1–35.
- Hall, P. (2013). Tracing the progress of process tracing. *European Political Science*, 12(1), 20–30.
- Harris, J., Drimie, S., Roopnaraine, T., & Covic, N. (2017). From coherence towards commitment: Changes and challenges in Zambia's nutrition policy environment. *Global Food Security*, 13, 49–56.
- Hay, C. (2016). Process tracing: A laudable aim or a high-tariff methodology? *New Political Economy*, 21(5), 500–504.
- Hedström, P., & Swedberg, R. (Eds.). (1998). *Social mechanisms: An analytical approach to social theory*. Cambridge: Cambridge University Press.
- Hedström, P., & Ylikoski, P. (2010). Causal mechanisms in the social sciences. *Annual Review of Sociology*, 36(1), 49–67.
- Howlett, M. (2019). *Designing public policies: Principles and instruments* (2nd ed.). London: Routledge.
- Howlett, M., & Rayner, J. (2007). Design principles for policy mixes: Cohesion and coherence in 'new governance arrangements'. *Policy and Society*, 26(4), 1–18.
- Howlett, M., Vince, J., & del Rio, P. (2017). Policy integration and multi-level governance: Dealing with the vertical dimension of policy mix designs. *Politics and Governance*, 5(2), 69–78.
- Ingram, J., Ericksen, P., & Liverman, D. (Eds.). (2012). *Food security and global environmental change*. Oxon: Routledge.
- Jacob, K., Volkery, A., & Lenschow, A. (2008). Instruments for environmental policy integration in 30 OECD countries. In A. Jordan & A. Lenschow (Eds.), *Innovation in environmental policy? Integrating the environment for sustainability* (pp. 24–48). Cheltenham: Edward Elgar.
- Jasanoff, S. (1990). *The fifth branch: Science advisers as policymakers*. Cambridge, MA: Harvard University Press.
- Jasanoff, S. (Ed.). (2004). *State of knowledge: The co-production of science and social order*. London: Routledge.
- Jochim, A. E., & May, P. J. (2010). Beyond subsystems: Policy regimes and governance. *Policy Studies Journal*, 38(2), 303–327.
- Jones, M. D., & Jenkins-Smith, H. C. (2009). Trans-subsystem dynamics: Policy topography, mass opinion, and policy change. *Policy Studies Journal*, 37(1), 37–58.
- Jordan, A., & Lenschow, A. (2010). Environmental policy integration: A state of the art review. *Environmental Policy and Governance*, 20(3), 147–158.
- Jordan, A., & Schout, A. (2006). *The coordination of the European Union: Exploring the capacities of networked governance*. Oxford: Oxford University Press.
- Kabat, P., van Vierssen, W., Veraart, J., Vellinga, P., & Aerts, J. (2005). Climate proofing the Netherlands. *Nature*, 438(7066), 283–284.
- Kay, A., & Baker, P. (2015). What can causal process tracing offer to policy studies? A review of the literature. *Policy Studies Journal*, 43(1), 1–21. <https://doi.org/10.1111/psj.12092>.
- Lafferty, W., & Hovden, E. (2003). Environmental policy integration: Towards an analytical framework. *Environmental Politics*, 12(3), 1–22.
- Lang, T., Barling, D., & Caraher, M. (2009). *Food policy: Integrating health, environment & society*. Oxford: Oxford University Press.
- Lelieveldt, H. (2016). *De Voedselparadox: Wat ons streven naar beter eten dwarsboomt*. Amsterdam: Van Gennep.
- Lesnikowski, A., Ford, J., Biesbroek, R., Berrang-Ford, L., Maillet, M., Araos, M., et al. (2017). What does the Paris agreement mean for adaptation? *Climate Policy*, 17(7), 825–831.
- Martin, S. (2016). Policy, office and votes: The electoral value of ministerial office. *British Journal of Political Science*, 46(2), 281–296.

- Mason, K., Easton, G., & Lenney, P. (2013). Causal social mechanisms; from the what to the why. *Industrial Marketing Management*, 42(3), 347–355.
- May, P. J., Jochim, A. E., & Sapotichne, J. (2011). Constructing homeland security: An anemic policy regime. *Policy Studies Journal*, 39(2), 285–307.
- Mayntz, R. (2004). Mechanisms in the analysis of social macro-phenomena. *Philosophy of the Social Sciences*, 34(2), 237–259.
- McAdam, D., Tarrow, S., & Tilly, C. (2008). Methods for measuring mechanisms of contention. *Qualitative Sociology*, 31(4), 307.
- Meijerink, S. (2005). Understanding policy stability and change the interplay of advocacy coalitions and epistemic communities, windows of opportunity, and Dutch coastal flooding policy 1945–20031. *Journal of European Public Policy*, 12(6), 1060–1077.
- Metcalfe, L. (1994). International policy co-ordination and public management reform. *International Review of Administrative Sciences*, 60(2), 271–290.
- Mickwitz, P., Aix, F., Beck, S., Carss, D., Ferrand, N., Gorg, C., et al. (2009). *Climate policy integration, coherence and governance* (Vol. 2). Helsinki: Partnership for European Environmental Research.
- Nilsson, M., & Nilsson, L. J. (2005). Towards climate policy integration in the EU: Evolving dilemmas and opportunities. *Climate Policy*, 5(3), 363–376.
- Oberthür, S., & Gehring, T. (Eds.). (2006). *Institutional interaction in global environmental governance: Synergy and conflict among international and EU policies*. Cambridge: The MIT Press.
- Pawson, R. (2006). *Evidence-Based Policy: A Realist Perspective*. SAGE Publications Ltd.
- Pawson, P., & Tilley, N. (1997). *Realistic evaluation*. London: Sage.
- Paz, B., & Fontaine, G. (2018). A causal mechanism of policy innovation: The reform of Colombia's oil-rents management system. *Revista de Estudios Sociales*, 63, 2–19.
- Peters, B. G. (1998). Managing horizontal government: The politics of co-ordination. *Public Administration*, 76(2), 295–311.
- Peters, B. G. (2015). *Pursuing horizontal management: The politics of public sector coordination*. Lawrence: University Press of Kansas.
- Peters, B. G. (2018). The challenge of policy coordination. *Policy Design and Practice*, 1(1), 1–11.
- Pollack, M. A., & Hafner-Burton, E. M. (2010). Mainstreaming international governance: The environment, gender, and IO performance in the European Union. *Review of International Organizations*, 5(3), 285–313.
- Rayner, J., & Howlett, M. (2009). Conclusion: Governance arrangements and policy capacity for policy integration. *Policy and Society*, 28(2), 165–172.
- Rihoux, B., Rezsöházy, I., & Bol, D. (2011). Qualitative comparative analysis (QCA) in public policy analysis: An Extensive review. *German Policy Studies*, 7(3), 9–82.
- Roederer-Rynning, C. (2015). The common agricultural policy: The fortress challenged. In H. Wallace, M. A. Pollack, & A. Young (Eds.), *Policy-making in the European Union* (7th ed., pp. 196–219). Oxford: Oxford University Press.
- Runhaar, H., Driessen, P., & Uittenbroek, C. (2014). Towards a systematic framework for the analysis of environmental policy Integration. *Environmental Policy and Governance*, 24(4), 233–246.
- Runhaar, H., Wilk, B., Persson, A., Uittenbroek, C., & Wamsler, C. (2018). Mainstreaming climate adaptation: Taking stock about “what works” from empirical research worldwide. *Regional Environmental Change*, 18(4), 1201–1210.
- Schout, A., & Jordan, A. (2005). Coordinated European governance: Self-organizing or centrally steered? *Public Administration*, 83(1), 201–220.
- Steel, D. (2004). Social mechanisms and causal inference. *Philosophy of the Social Sciences*, 34(1), 55–78.
- Steinberg, P. F. (2007). Causal assessment in small-N policy studies. *Policy Studies Journal*, 35(2), 181–204. <https://doi.org/10.1111/j.1541-0072.2007.00215.x>.
- Stone, D. (2012). *Policy paradox: The art of political decision making* (3rd ed.). New York: W.W. Norton & Company.
- Termeer, C. J. A. M. (2009). Barriers to new modes of horizontal governance. *Public Management Review*, 11(3), 299–316.
- Termeer, C. J. A. M., & Werkman, R. A. (2011). Changing closed agricultural policy communities. *Critical Policy Studies*, 5(3), 283–298.
- The Netherlands Presidency. (2016). *Food of the future—The future of food, discussion paper agriculture council*. The Hague: Ministry of Economic Affairs.
- Tosun, J., & Lang, A. (2017). Policy integration: Mapping the different concepts. *Policy Studies*, 38(6), 553–570.
- Trampusch, C., & Palier, B. (2016). Between X and Y: How process tracing contributes to opening the black box of causality. *New Political Economy*, 21(5), 437–454.

- Underdal, A. (1980). Integrated marine policy: What? Why? How? *Marine Policy*, 4(3), 159–169.
- Varone, F., Nahrath, S., Aubin, D., & Gerber, J.-D. (2013). Functional regulatory spaces. *Policy Sciences*, 46(4), 311–333.
- Vince, J. (2015). Integrated policy approaches and policy failure: The case of Australia's Oceans Policy. *Policy Sciences*, 48(2), 159–180.
- VROM. (2007). *Maak Ruimte voor Klimaat! Nationale Adaptatie Strategie. De beleidsnotitie. (Make Space for Climate! National Adaptation Strategy. The policy document, in Dutch).* (pp. 1–45). The Hague: Ministry of Housing, Spatial Planning and the Environment (VROM); Ministry of Transport, Public Works and Water management (V&W); Ministry of Agriculture, Nature and Food Quality (LNV); Ministry of Economic Affairs (EZ); Inter provincial cooperation (IPO); Association of Dutch municipalities (VNG); Union of Water Boards (UvW).
- Weber, E. (2007). Social mechanisms, causal inference, and the policy relevance of social science. *Philosophy of the Social Sciences*, 37(3), 348–359.
- Wellstead, A., Biesbroek, R., Cairney, P., Davidson, D., Dupuis, J., Howlett, M., et al. (2018). Comment on “barriers to enhanced and integrated climate change adaptation and mitigation in Canadian forest management”. *Canadian Journal of Forest Research*, 48(10), 1241–1245.
- WRR. (2014). *Towards a food policy—Synopsis of WRR-Report No. 93*. The Hague: The Netherlands Scientific Council for Government Policy (WRR).

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.