Journal of
Flood Risk Management

Explaining stability and change. Comparing flood risk governance in Belgium, France, the Netherlands, and Poland

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DOI: 10.1111/jfr3.12325

Key words
Belgium; flood risk governance; France; path dependency; Poland; policy arrangements approach; policy change; the Netherlands.

Abstract

The closing article of this special issue provides a comparative analysis of flood risk governance (FRG) in four European countries and tries to explain why FRG in the Netherlands and Poland is more stable than in Belgium and France. It examines the role of mechanisms of path dependency and path change. Inspired by the conceptual framework developed in the introductory article, this article provides an overview of dynamics in FRG in the four countries and identifies major trends and tendencies. It discusses forces of stability and change and hypothesizes on how 'clusters' of these forces tend to interact. It is found, among other things, that new ideas are often crucial for initiating change and that fixed costs and the sedimented distribution of responsibilities are stabilising factors. Bringing together various existing theories, the article contributes to literature on flood risk management and public policy change.

Introduction

This article brings together the main findings of the virtual special issue on explaining stability and change in flood risk governance (FRG) (Mees *et al.,* submitted; Fournier *et al.,* 2017; Kaufmann, 2017; Matczak *et al.,* 2017; Wiering *et al.,* 2017). The special issue's editorial diagnosed that there is a lack of nuanced and detailed comparative studies that explain this stability and change (Wiering *et al.,* 2017; see also Hegger *et al.,* 2014). There are notable exceptions (e.g. Bubeck *et al.*, 2015) as well as studies that do provide good assessments of specific developments in specific countries (Coulthard and Frohstick, 2010; Johnson and Penning-Rowsell, 2010; Kjeldsen and Prosdocimi, 2016). But there is a knowledge gap as regards comparative case studies that provide a clear and explicit operationalisation of the object of study, that is, stability and change in FRG, and include a wide range of explanatory factors and their interrelationships (Hegger *et al.,* 2014; Dieperink *et al.,* 2016; Kjeldsen and Prosdocimi, 2016; Wiering *et al.,* 2017). Hence, this special issue's main research question was: what explains stability and change of FRG and what is the role of mechanisms of path dependency and of path change therein?

To answer this question, first, FRG in several countries was analysed and compared using the Policy Arrangements Approach (PAA) as an analytical framework (Van Tatenhove *et al.,* 2000; Liefferink, 2006). This approach assumes that policy arrangements and their dynamics can be characterized by four dimensions which specify their content (the discourses dimension) and their institutional organisation (reflected in the actors, rules and resources dimensions). On this basis, the extent to which dynamics can be characterized as stability (relative absence of change), incremental change (moderate change, often in only one or two dimensions of the PAA) or radical change (profound and substantial change, often encompassing all four dimensions of the PAA) was assessed. Without trying to give any normative judgement about the positive or negative nature of policy dynamics, explanations for patterns of stability and change were sought. Wiering *et al.* (2017) offer conceptual approaches for doing so, including a tentative overview of 'forces of stability' and 'forces of change', and relate these forces to the four dimensions distinguished in the PAA (see Table 1). On the one hand, Wiering *et al.* build on theories of path dependency and institutional stability (Arthur, 1988; North, 1990). On the other hand, they focus on the role of trends and shock events as well as policy entrepreneurs and actor coalitions bringing in new ideas on how policies should be adjusted (Kingdon, 1984; Hajer, 1995; Sabatier and Weible, 2007). They translate both angles to the realm of flood risks (*cf.* Meijerink and Huitema, 2009).

Table 1 Forces of stability and change in flood risk governance

Forces of stability	Dimensions of policy arrangements	Forces of change
Coordination effects: governance is sedimented in specific distribution of accepted responsibilities	Policy actors and coalitions	Entrepreneurs highlighting perception of sub-optimality of governance and approach Strong pressure by specific interests (actor coalitions)
Fixed costs and *increasing returns* through large investments in flood infrastructure (sunk costs)	Power and resources	Doubts on increasing costs of flood infrastructure/ maintenance or sudden financial cutbacks, opening alternative options
Learning effects: evolution of strong expert body of knowledge and strong epistemic community		New expertise (learning)
Law has an important stabilising effect in the formalisation and legitimation of rules and procedures	Rules of the game	Decreasing legitimacy of rules New rules (e.g. EU Floods Directive)
Strong narratives on historical flood risk management	Policy discourses	Diminishing trust in existing institutions and their efficiency
Adaptive expectations: public trust in existing institutions and their efficiency		New ideas, new problem definitions and policy concepts leading to counter-narratives

Source: Adapted from Wiering *et al.* (2017) (with permission).

This special issue is part of the EU-FP7 project STAR-FLOOD, in which FRG approaches in several European countries were analysed and evaluated (www.starflood.eu). The project linked up with ongoing debates (e.g. Hegger *et al.,* 2014; Bubeck *et al.,* 2015) about the necessity of a diversification of flood risk management (FRM) strategies. In these debates, it is increasingly argued that vulnerable urban regions can best be protected through a risk approach which combines strategies that aim to decrease flood probability (flood risk prevention through pro-active spatial planning; flood defence), strategies intended to reduce flood consequences (flood mitigation; flood preparation), and recovery strategies (see Hegger *et al.,* 2014; Dieperink *et al.,* 2016 for a detailed description of these FRM strategies). This article focuses on the underlying FRG arrangements in which these strategies are developed and implemented. Four countries are compared. Belgium and France were selected as cases illustrating considerable change, while the Netherlands and Poland could be labelled as relatively stable. In terms of stability, the Netherlands may be an extreme case, whereas the other three countries can be seen as representative of a wider variety of FRG arrangements. In that sense, the four countries together are expected to be representative of FRG in Europe at large. In four separate papers (Mees *et al.,* submitted; Fournier *et al.,* 2017; Kaufmann, 2017; Matczak *et al.,* 2017), national FRG approaches were analysed using the framework elaborated in the introduction article (Wiering *et al.,* 2017). The analyses were based on comprehensive empirical analyses, including desk research as well as interviews and workshops with stakeholders and practitioners in each country. For a detailed elaboration of the methods, we refer to the country-specific papers.

To answer the special issue's main research question, the following steps will be taken. The next section provides an overview of dynamics in FRG in the four countries from the 1970s up to the present and identifies some major trends and tendencies in FRG that we observe in all countries. This is followed by a discussion of the presence and relative importance of the forces of stability and change observed in the four countries. These forces are subsequently grouped into clusters of forces that were found to occur together. The final section reflects on the article's contribution to the literature on FRM and public policy change and outlines next research steps.

Patterns and trends of stability and change in flood risk governance

This section first provides an overview of the main country-specific findings as detailed in Kaufmann (2017), Fournier *et al.* (2017), Matczak *et al.* (2017), and Mees *et al.* (submitted). We then elaborate on two overarching trends that emerge from the findings.

Overview of findings per country

Belgium

In terms of actors and legal frameworks, the successive institutional reforms of its state organisation have brought Belgium in a permanent state of change. Since the 1980s, the Flemish, Walloon, and Brussels-Capital Regions are fully competent for water management and spatial planning issues, whereas emergency planning and insurance policy are governed at the federal level. This institutional reality has resulted in a fragmented FRG arrangement.

As in all other countries studied, Belgian FRG is strongly rooted in flood defence. However, around the turn of the century, following flood events in 1998 and 2002/2003,

flood policies based on rapid water drainage shifted to flood policies creating space for water. This new approach, discursively known as the shift towards integrated water management, led to more nature-based flood protection measures and better cooperation with spatial planning. Mees *et al.* (submitted) underline that these modifications form an addition rather than a replacement of the dominant flood defence approach.

The improved coordination between water managers and spatial planners was formally established through coordination bodies: the Coordination Commission on Integrated Water Policy (CIW) in Flanders, and the Groupe Transversal Inondations in Wallonia. Multi-sector coordination was enhanced through changes in formal rules: both regions issued a single act to implement the European Water Framework Directive (2000/60/EC) and the Floods Directive (2007/60/EC). These are the Decree on Integrated Water Policy in Flanders and the Water Act in Wallonia. In Wallonia, moreover, the non-binding but strategically important Plan PLUIES, adopted in 2003, integrated all dimensions of the regional policy concerning floods, thus ensuring coordination between the administrative departments.

A prominent discursive shift concerns the shift of responsibilities between public and private actors. From 2013 onwards, a discourse on multi-layered water safety (stimulating measures for prevention, protection, and preparedness) was launched by the Flemish Environment Agency, stating that responsibilities should be shared by water managers and other actors. In Wallonia, the so-called '3p approach' (prevention, protection, and preparedness) stressed the responsibilities of multiple actors. However, the role of citizens in policy documents is less outspoken than in Flanders.

The Netherlands

FRG in the Netherlands is characterized by a strong discursive and institutional focus on flood defence. Even though FRG in the Netherlands seems to show signs of change, the implementation of new and innovative management approaches is hindered by several mutually reinforcing 'lock-ins'. First, the habitability of the Netherlands mainly depends on the well-functioning of technical flood defence infrastructure, resulting in a 'technical lock-in'. Second, the central role of specialized – in the case of the Regional Water Authorities (Mostert, 2017) exclusively dedicated – governmental authorities with predominantly technical tasks is consolidated by means of taxes, legal arrangements, and technical standards, leading to an 'institutional lock-in'. The 'lock-in', in other words, consists of the mutually reinforcing combination of strong institutions, solid legal enshrinement – the role of the dedicated Regional Water Authorities is even laid down in the Dutch constitution – and the people's firm expectation of the government dealing with flood risks.

However, there are indications of some change. While in the past, decision-making of governmental water authorities was mainly based on a technocratic-engineering rationale neglecting other values and interests, water authorities now follow other procedures and instruments, consider a wider range of viewpoints, and communicate and cooperate with other actors. Especially, since the 1993 and 1995 high waters and floods in the Rhine and Meuse river basin in the Netherlands, and the following programmes of dike enhancements and 'Room for the River', there is an increased focus on the integration of water management and spatial planning. Water has become an organising principle in spatial planning, leading to better alignment of the water sector and spatial planning authorities. Nonetheless, Kaufmann (2017) stresses that the defence approach is still highly dominant. Water management in general, and FRM in particular, serves to make spatial development possible, not to curb spatial development. Changes towards a more pro-active flood-related planning strategy (e.g. a more restrictive use of the Water Assessment instrument) are actually quite marginal and were mainly introduced to accommodate critical voices while re-establishing the legitimacy of water engineers.

Publicly organized water management bodies are the prime actors in Dutch FRG. The Netherlands has invested in cooperation and coordination between water authorities at different levels through formal rules and procedures. The role of actors from other policy sectors like spatial planning and emergency management (safety regions) in FRG remains limited. For example, the Water Assessment instrument prescribes spatial planning authorities to consult regional water authorities in the development of spatial plans. Contrary to Belgium, the involvement of private actors in flood insurances is minimal.

France

Over the past decade, France has frequently been hit by important floods and sea storms such as the 2010 sea storm Xynthia and the Rhône (2013) and the Paris Seine (2016) river floods. As in Belgium, furthermore, reforms in the state's organisation contributed to changes in French FRG. Following the election of François Mitterrand in 1982, a large decentralisation process was launched. While the central state remained the core actor in FRG, the decentralisation process transferred significant responsibilities to the municipalities.

A second development is the diversification in FRM strategies. FRG is no longer perceived as a matter of protection, preparation and recovery only. Both prevention and mitigation approaches progressively gained in legitimacy. Local

governments and stakeholders took up tasks particularly in the latter two strategies.

However, these dynamics cannot be seen as radical and fundamental. Whereas local authorities are incrementally asserting and strengthening their roles, for example by establishing inter-municipal cooperation bodies, the state retains firm control of certain important sectors such as the solidarity system, risk planning, and crisis management. Although discourses promote the implementation of prevention and mitigation strategies at local level, the available resources, instruments, and legal frameworks do not sufficiently support local governments, which implies that the flood defence approach remains rather dominant (Fournier *et al.,* 2017). In line with the traditionally strong role of the government in France, only limited efforts at involving private actors can be witnessed.

Poland

Similar to the Netherlands, FRG in Poland is strongly dominated by flood defence (Matczak *et al.,* 2017). Although protection standards and available resources for this strategy are lower than in the Netherlands, a technocratic-engineering discourse is deeply rooted in Polish water management. An emphasis on structural protection measures like dikes and embankments, mainly governed at state level, prevails. Diversification of strategies is visible but barely significant. Counter-discourses of environmental NGOs advocating pro-environmental measures are heard but hardly affect decision-making.

Nonetheless, a few changes may be observed. Catastrophic river floods in 1997 and 2010 demonstrated the inadequacy of the classical defence approach, reduced public trust and offered a window of opportunity for overcoming historically institutionalized routines. Thus, an emergency management system was formed to replace the defence-related bodies that had formerly been responsible for managing crises. Furthermore, the significance of spatial planning for FRG was gradually increased; however, mostly at the level of discourse. While some anticipated that the accession of Poland to the EU in 2004 would create momentum for introducing a more diversified FRG, the implementation of the Floods Directive was rather narrow in that respect. Coordination between different policy domains was established only to a limited extent. Increased involvement of voluntary fire brigades and environmental NGOs, however, illustrates improved coordination between traditional public actors and 'new' actors.

Trends in stability and change of flood risk governance

Comparing the descriptions in the previous section, we feel safe to say that FRG in Belgium showed most dynamism. In this country, firm trends towards both diversification of FRM strategies and decentralisation of responsibilities in the field of FRM could be observed. Poland and particularly the Netherlands, where both trends could be discerned as well but to a considerably lower extent, appear at the stable end of the spectrum. France takes a middle position with strong decentralisation, but a more hesitant shift towards diversification.

Diversification

All four countries show at least some diversification of FRM strategies beyond a dominant focus on flood defence. Diversification manifests itself, among other things, in cross-*sector* coordination and an increased involvement of multiple *actors.*

Multi-sector coordination is established through coordinating actors and policy instruments. The aforementioned coordinating commissions in Flanders and Wallonia (Mees *et al.,* submitted) and local authorities in France focusing increasingly on flood prevention and mitigation (Fournier *et al.,* 2017) are cases in point. As opposed to that, flood defence actors in the Netherlands and Poland are still dominant. Coordination between flood defence and other sectors is virtually absent in Poland with underdeveloped 'bridging mechanisms', a lack of innovation and sometimes even examples of measures in one sector undermining those in others (Matczak *et al.,* 2017). In the Netherlands, coordination efforts are present but more limited than in France. Moreover, dedicated policy instruments like the Water Assessment lack enforcement.

Multi-actor coordination entails the increased involvement in FRG of additional public actors and private organisations like companies, NGOs, and citizens. Especially with regard to the involvement of the private sector, the four countries show strong differences. In Belgium and especially Flanders, there is an outspoken ambition to involve private parties in FRG (Mees *et al.,* submitted). Private sector involvement in the Netherlands is virtually absent and the country is said to suffer from an awareness gap regarding water-related risks (OECD, 2014). Also in Poland and France, a generally strong reliance on the public sector continues to prevail.

De / recentralisation

In all four countries, responsibilities and competences for FRG are divided over different levels of government necessitating cooperation and the presence of *multi-level* governance (MLG) mechanisms. While MLG is present and necessary in all four countries, the countries differ in the extent to which the division of responsibilities over different levels is currently being transformed. In France and Belgium, a formal reallocation of competences took place, leading to the increased importance of the regional level in

Belgium and the local level in France. In those two countries, the reallocation of competences is part of a more overarching shift in governance. In the Netherlands and Poland, these shifts are more modest and restricted to specific issues and domains. Hence, multi-level dynamics – and their contribution to the aforementioned multi-actor dynamics – are more outspoken in France and Belgium than in Poland and the Netherlands.

Explaining stability and change

In the introductory section of this article, we gave a brief overview of the forces that are likely to be important for explaining stability and change in FRG. These forces of stability and changes were based on a combination of the PAA and theories of path dependency and policy change (see Table 1; Wiering *et al.,* 2017). With these forces, we attempted to move beyond standard explanations for stability and change that often focus on single events and factors (e.g. devastating floods). In the present section, we will apply this conceptual approach to the four countries covered in this article. We will first give an overview of the forces of stability and change in relation to the four dimensions of FRG arrangements in the four countries. This will be followed by a discussion of both sets of forces in concert, leading to the identification of a number of 'clusters' bringing together interrelated sets of forces of stability and change.

Forces of stability in flood risk governance

Starting with the dimension of *actors and coalitions*, we find a strong formal institutionalisation of organisations involved in FRG in all four countries. This is the case in particular in Poland and the Netherlands, where the traditional flood defence strategy and the actors' roles that are related to it are strongly formalized in the dominant national and regional agencies. In the Netherlands, these include the Regional Water Authorities. In France, trends towards diversification and decentralisation are more outspoken but they continue to be counteracted by a firm and well-institutionalized role of the central state. In Belgium, most changes in the actor dimension can be seen. A shift from flood defence towards more pro-active, preventative actions and flood preparation within a more integrated domain of water management in this country expresses itself in growing responsibilities for spatial planning and insurance agencies, among others.

The dimension of *power and resources* in FRG is closely related to that of actors and coalitions. Again, in Poland and even more so in the Netherlands, financial investments in flood defence infrastructure play a crucial role in stabilising and 'locking in' the FRG arrangement. Even if discourses of multi-layered safety in the Netherlands or serious flood events in Poland may potentially undermine the dominance of flood defence, it remains very difficult to change path due to sunk costs. Especially in the Netherlands, this mechanism of path dependence is further strengthened by the strong and powerful role of expertise and expert bodies in maintaining the defence-oriented status quo. In addition to that, there are the costs of moving to a new strategy. Flood protection measures may have stimulated new developments behind the dikes, which makes it more expensive to move to a policy of more space for the rivers. So, costs cannot only be related to sunk costs of flood defence infrastructure, but also to long-term economic and environmental consequences of the infrastructure: they tend to make 'transition cost' increasingly high. In Poland, the resources involved in these mechanisms are more limited than in the Netherlands, but this also means that the scarce resources that are available tend to be even more strongly focused on flood defence which again makes change difficult. Also in France and Belgium, we see mechanisms of path dependence related to fixed costs and technical expertise leading to high transition costs, but in those countries expertise is more diversified and other strategies are less marginal, creating more room for changing path.

The *rules* dimension can further contribute to the stability of FRG arrangements. In the Netherlands, legally established flood risk standards are liable to change only after long and intensive discussions and there are constitutional rules protecting the Regional Water Authorities (Mostert, 2017). In Poland, with a similarly strong role for flood defence, rules have been formalized in the Water Act and the Crisis Management Act. Both in the Netherlands and in Poland, the firm legal basis of FRG can slow down or hamper institutional changes. In Belgium, the stabilising effect of law is much lower: in the context of the ongoing state reform, law actually changes quite often and responsibilities can more easily shift from one level to another. France shows a mixed picture: parallel to a general decentralisation process, legal principles continue to support the existing powers at central level.

In the *discourse* dimension, finally, the Netherlands shows a strong narrative stressing the necessity of the Dutch 'fighting the water' and even linking this to the nation's cultural identity. In Poland, this is less so, but there is a deeply rooted rationale focusing on the role of technical engineering in protecting the country. In Belgium and France, we see more variety and change: Belgium embraced the discourse of integrated water management, while France promotes a more diversified approach, emphasising prevention – although not always giving it the appropriate amount of resources.

Forces of change in flood risk governance

Starting in the *actors and coalitions* dimension, change agents or entrepreneurs in Belgium, such as the CIW in Flanders and the Groupe Transversal Inondations in Wallonia, flagged up problems in the coordination between spatial planning and water management relating to both preventative and preparation-oriented measures. This led to pressure towards a more integrated approach and the involvement of a wider range of actors, especially in the field of spatial planning. In France, local and regional governments and stakeholders made active use of the opportunities offered by a general decentralisation of responsibilities. In Poland, NGOs are pushing for more integrated and ecosystem management, but do not succeed in affecting core agents in flood defence. Also in the Netherlands, despite more active stakeholder management and a broadening of the discussion on FRG, the core institutional actors largely remain the same.

In the dimension of *power and resources*, we did not see much change in the defence-oriented Dutch and Polish FRG arrangements. Whereas a shift of responsibilities to decentralized levels could be observed both in Belgium and in France, a parallel shift of power and resources to these levels took place in Belgium but less so in France. In the *rules* dimension, we saw an important role of EU legislation especially in Belgium, where both the Water Framework Directive and the Floods Directive chimed in with already existing discussions and helped triggering legal changes. To a more limited extent, this happened in Poland too. In the Netherlands, in contrast, the integrative thinking underlying the Floods Directive was hardly able to support existing domestic trends; its impact therefore remained low. As regards the *discourse* dimension, new ideas on integrated water management, spatial aspects and ecosystem management are circulating in all countries, but they create momentum mostly in France and particularly Belgium, while hardly leading to actual policy change in the Netherlands and Poland.

Exploring the relative importance of forces of stability and change

The case of Belgium shows that changes in FRG are in fact possible. In terms of the classical path dependency literature, set paths of flood defence are less dominant here than elsewhere. At the same time, there is a 'will to change'. In Belgium and to a lesser extent also in France, the forces of stability are generally less able to avert changes than in the Netherlands and Poland. But for change to really happen, the Belgian and French cases suggest that more conditions need to be met. Due to ongoing systemic changes, policy arrangements in Belgium both at federal and regional level are not fully stabilized. This brings a certain openness to change laws and other rules, actor coalitions or the expertise basis (Kaufmann *et al.,* 2016). Also in the French case, systemic changes play an important role, although the outcomes are less clear. While the process of decentralisation and a relatively strong tendency to diversify strategies tend to strengthen local and regional actors, the political narrative of state regulation fostering solidarity, the concomitant actor constellations and the division of resources still allocate a strong role to the central state.

High stability, in contrast, was found in Poland and the Netherlands. This confirms our expectation (Wiering *et al.*, 2017) that classic mechanisms of path dependency leading to high transition costs will manifest themselves most strongly in countries where flood defence is the prevalent strategy. This can be related to high historical investments in flood infrastructure in both countries, that is fixed costs and increasing returns, supported by institutional characteristics such as powerful implementing agencies and defence-oriented epistemic communities. The forces of change in both the Netherlands and Poland include new ideas and new management practices (integrated, nature-based water management, room for the river, new risk approaches, *etc.*), but in the Netherlands these are, sooner or later, 'absorbed' or 'extinguished' by the dominant and highly stable core arrangement, whereas in Poland they fail to gain sufficient momentum, priority and resources to structurally change the dominant approach.

Clustering forces of stability and change

As has become clear by now, forces of stability and changes do not stand apart. They can either reinforce or counteract each other. It is the specific interplay of forces of stability and change which accounts for the evolution of FRG in a given country. On the basis of the comparative analysis of FRG in the four countries, we will now distinguish five typical combinations or 'clusters' of forces of stability and change which may help to explain the dynamics of national FRG arrangements.

Literally, the most tangible force of stability is the factor of fixed costs, increasing returns and high transaction costs, relating primarily to investments in dikes, dams, and other infrastructural works as well as developments behind the dikes. In terms of the PAA, this force is located in the resources dimension (see Table 1). At the same time, the continuous allocation of large amounts of money to the construction and maintenance of large-scale infrastructure is hard to imagine without a strong belief in defence as the key FRM strategy. This can be seen most clearly in the Netherlands, where the technocratic-engineering approach is firmly rooted in the historical narrative of a 'fight against the water'. The link between long-term investments in

infrastructure and a discourse focusing on protection and defence, which can be found to different degrees in all four countries, may be shorthandedly characterized as the *infrastructure cluster* of forces of stability.

A second cluster of forces of stability deals with the question of who is responsible for FRG. In all four countries, discourses in the field of FRG allot a central role to the state, although differences exist regarding the involvement of different levels of government and the degree of co-responsibility of other actors. The enshrinement of the division of responsibilities in law confirms and strengthens existing relations between actors involved in FRG. The interplay of the PAA dimensions of discourse, rules and actors in stabilising responsibilities may be referred to as the *responsibilities cluster*.

In the Netherlands and Poland, in particular, the responsibilities cluster strongly solidifies the role of the central state which provides most of the resources needed for a sustained emphasis on large-scale, highly capital-intensive infrastructural measures. In this sense, the infrastructure cluster and the responsibilities cluster in those countries, together stretching over all four dimensions of the FRG arrangement, seem to reinforce each other, which further strengthens their long-term stability.

Also the forces of change identified in this article appear to work in two principal clusters. The first of those is the *new ideas cluster*. New ideas, e.g. 'space for water' or integrated water management, belong to the discursive dimension, but they are related to other dimensions of the PAA in several ways. First, new ideas often go hand in hand with new expertise: they either originate from new scientific insights or require research efforts for their further development and application – or both. Second, new ideas usually find their way into the policy arrangement with the help of entrepreneurs, that is institutional and/or individual actors who are able to 'translate' these ideas to policy practice and are willing to advocate them among their peers (Kingdon, 1984). Finally, rules can play an important role in pushing new ideas. EU directives were instrumental in propagating and substantiating the idea of integrated water management and the diversification of FRM strategies in some if not all of the four countries. The new ideas cluster thus encompasses all four dimensions of the policy arrangement.

The second 'change' cluster is associated with events or developments that highlight the *sub-optimality* of the existing arrangement. Devastating floods are an obvious example. Apart from incurring often enormous economic costs, floods may negatively affect the legitimacy of existing rules and procedures and, in the discursive dimension, undermine the degree of trust in the current FRG arrangement. Other examples of sub-optimality include the fragmented FRG arrangement in Flanders, leading to high costs of administrative coordination. The country studies suggest that floods and other forms of apparent sub-optimality seldom provoke rapid and drastic change on their own. They rather tend to create windows of opportunity for other forces of change, e.g. new ideas on integrated water management or alternative ways to deal with flood risks, to become effective. Thus, the new ideas cluster and the sub-optimality cluster may reinforce each other. It must be noted, however, that flood events may also further strengthen the existing infrastructure cluster. This occurred for instance in the Netherlands, where two major floods in the 1990s helped to trigger some change but on balance rather confirmed the need for classical flood defence (Kaufmann, 2017).

Finally, broader systemic change may have a profound impact on FRG. This may range from long-term social, cultural, and economic changes to changes in the overall political system. In France, in particular, the generic process of decentralisation which started in the 1980s significantly changed the distribution of competences between the national and the sub-national levels also in the field of FRG. The decentralisation process interacted with new ideas about diversification of FRM strategies and in fact facilitated the latter. In the French as well as the Belgian case, systemic change entered the policy arrangement *via* the rules dimension and then extended its impact to actors and resources. Although systemic change originates from outside the arrangement, it effectively functions as another cluster of forces of change.

Figure 1 summarizes the five clusters of forces of stability and change we have identified in this section.

Stability and change in flood risk governance in Belgium, France, the Netherlands, and Poland

What actually happens in a given FRG arrangement is the result of the interplay of forces or clusters of forces of stability and change. Although flood defence (infrastructure cluster) and the role of state actors (responsibilities cluster) have traditionally been dominant in all four countries, significant differences in the evolution of FRG could be observed. In the Netherlands, the infrastructure and responsibilities clusters turned out to be so strong and congruent, that new ideas and the perception of a certain degree of sub-optimality due to flood events in the 1990s merely provoke a marginal layering (Streeck and Thelen, 2005) of new elements 'on top of' existing institutions. In France, on the other hand, strong and encompassing systemic change joined forces with the new ideas cluster and led to a gradual but considerable transformation of the FRG arrangement. In Belgium, this was the case too, but here the new ideas cluster was the dominant force of

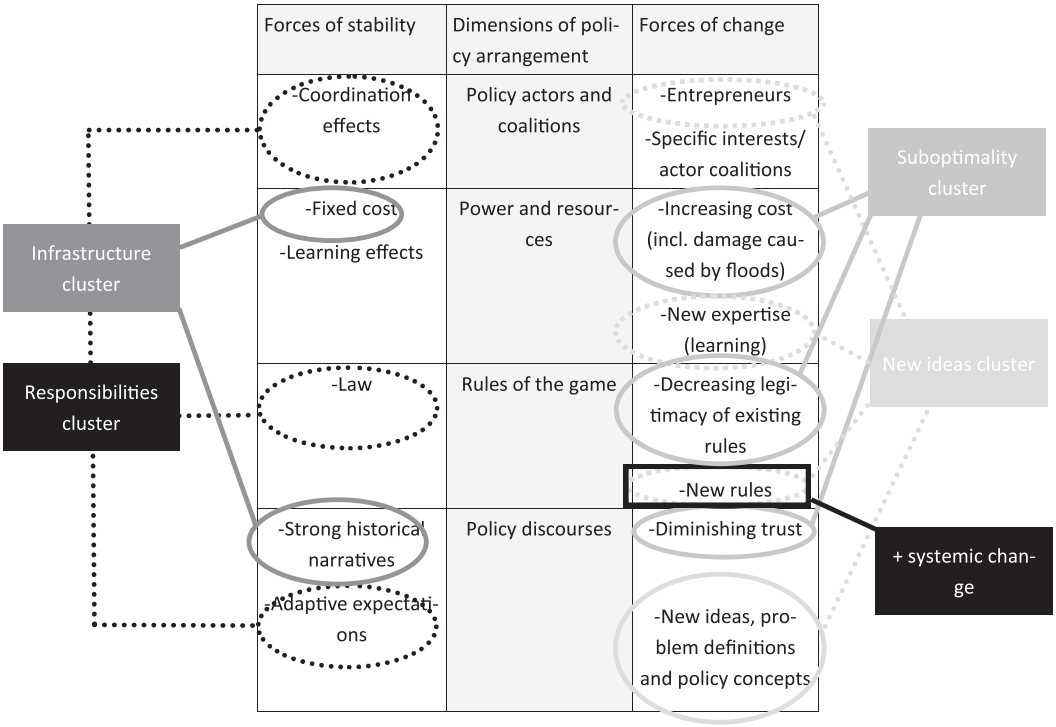

Figure 1 Clusters of forces of stability and change.

change. The impact of the ongoing 'systemic' change in Belgium on FRG was not as direct as in France; the relative 'volatility' of the institutional context mainly added to the openness of the arrangement for new ideas (Kaufmann *et al.,* 2016). Despite considerable systemic change in Poland (the fall of the communist system in 1989–1990, EU accession in 2004) and a potentially strong suboptimality cluster (catastrophic floods in 1997 and 2010), FRG in that country showed surprisingly little change. This could be related not only to the continuous and strong dominance of the defence approach (infrastructure cluster), but also to a peculiar configuration of the responsibilities cluster, stressing the role of the central state in FRG but at the same time leading to substantial fragmentation and even competition among the various central state actors involved (Matczak *et al.,* 2017). This resulted in a situation where new ideas could emerge but hardly managed to gain adequate footing in the arrangement.

Reflection and conclusions

The papers in this special issue engaged with the debate on explaining stability and change in FRG. Together, they provide a systematic comparative analysis of FRG in Belgium, France, the Netherlands and Poland. They particularly examined the role of mechanisms of path dependency and path change therein. Our article has the ambition to achieve theoretical validity by focusing on driving forces underlying certain change factors, rather than the concrete manifestations of these driving forces. By bringing the discussion to a higher level of abstraction, that of the clusters, we hope to contribute to the study's external validity. The PAA was shown to be a useful framework guiding the empirical analyses and proved to be helpful for establishing links with underlying theoretical frameworks of policy stability and change. Table 1, specifying forces of stability and change (see above and Wiering *et al.,* 2017), connects the PAA on the one hand and insights from various explanatory approaches on the other, including the Punctuated Equilibrium Framework (Baumgartner and Jones, 1993; True *et al.,* 2007), the Multiple Streams Framework (Kingdon, 1984), the Advocacy Coalition Framework (Sabatier and Jenkins-Smith, 1993; Sabatier, 1998; Sabatier and Weible, 2007) and discourse analysis (Hajer, 1995). Each of these approaches can be connected to one or at most two of the four PAA dimensions (Wiering *et al.,* 2017), which suggests that each theory to a certain extent neglects or underestimates the remaining forces of stability and change. Applying a more comprehensive approach is particularly important for FRG literature since comprehensive and comparative explanations are rare and often assume a rather linear relationship between individual drivers – devastating floods in particular (Bubeck *et al.*, 2016;

Kjeldsen and Prosdocimi, 2016) – and policy change. That is why this article made the step of abstracting beyond individual drivers and laying bare the driving forces underlying these drivers. By abstracting from concrete manifestations to the underlying driving forces, we hope to arrive at a level of abstraction that makes our findings also applicable in other contexts, beyond the countries researched by us. Considering the FRG arrangement as a whole using the PAA, as also proposed by Hegger *et al.* (2014), enables a more comprehensive analysis of the processes that mediate external drivers and outcomes in terms of stability and change. Such an approach also provides for explanations as to why devastating floods sometimes do not lead to change. The results in the previous sections allow us to draw some connections between separate theories.

The Punctuated Equilibrium Framework expects policy dynamics to follow a pattern of long periods of stability, interrupted by short instances of rapid and significant change (Baumgartner and Jones, 1993; True *et al.,* 2007). Considering the enormous social and economic impact of large flood events, this approach may at first sight seem to apply particularly well to the field of FRG. Our findings, however, provide a more nuanced picture. They show that 'punctuations' caused by flood events tend to be taken up in a broader dynamic process of stability and gradual, rather than rapid change. Although it is acknowledged that 'policy punctuations can be precipitated (…) by relatively minor events that add up over longer periods of time' (True *et al.,* 2007, p. 160), the Punctuated Equilibrium Framework offers little insight into the character of such processes of cumulative incremental change. In terms of the five modes of gradual transformation proposed by Streeck and Thelen (2005), processes of layering, that is adding new elements to existing institutions, and to a lesser extent conversion, that is the redirection of old institutions to new purposes, appear to dominate the dynamics of FRG in the four countries.

Still, flood events do have impact on FRG. In line with Kingdon's (1984) Multiple Streams Framework, flood events can provide a window of opportunity for policy entrepreneurs to push new ideas and new policy solutions. In many cases, these innovations had been put forward and discussed before, but had never been able to gain adequate footing in the existing institutional arrangement. Our findings show, however, that even the temporary opening of a window of opportunity due to a major flood event does not necessarily lead to radical change. Confirming Boin *et al.* (2005), among others, the sudden perception of sub-optimality of the existing arrangement caused by a major flood event may just as well be 'extinguished' by forces of stability dominating other dimensions of the policy arrangement. Evidence from Belgium and Poland, moreover, suggests that these forces of stability may not always be immediately visible (Mees *et al.,* submitted; Matczak *et al.,* 2017). They often reside at the working floor, that is in the daily routines of practitioners. Alternatively, shocks caused by major flood events may be 'absorbed' by long-term, gradual shifts in the arrangement which were taking place anyway.

The country studies in this special issue provide evidence that most long-term gradual shifts actually start in the discursive dimension, that is: with new ideas, fresh scientific knowledge and novel problem definitions. The key importance of new ideas in the process of policy change is very much in line with Sabatier's Advocacy Coalition Framework (Sabatier and Jenkins-Smith, 1993; Sabatier, 1998; Sabatier and Weible, 2007) and Hajer's work on discourse analysis (Hajer, 1995). In accordance with these theories, moreover, our findings show how new ideas are subsequently pushed by advocacy coalitions or discourse coalitions consisting of, for instance, experts, specific groups of policy makers and interest groups. Their efforts may or may not be facilitated by the unsettling effect of a flood event. In this process, furthermore, institutional fragmentation appears to play an intriguing role. On the one hand, as demonstrated by the case of Belgium, it may provide more opportunities for these coalitions to propagate new ideas (Kaufmann *et al.,* 2016). On the other hand, as observed in Poland, institutional fragmentation may hamper change by stifling the efforts of actors or coalitions promoting new ideas (Matczak *et al.,* 2017). In less fragmented countries such as the Netherlands, it may generally be more difficult - although not impossible (Van Buuren *et al.,* 2016) – for new ideas to lead to institutional change.

The insights gained in this special issue have provided an important step towards a more nuanced understanding of processes of stability and change in FRG. Policy interventions may work out in complex and often unexpected ways. At the very least, it is important to realize that no single intervention is likely to lead to institutional change on its own. Our findings do suggest that changes in the discursive dimension are of pivotal importance and may in most cases be a good entry point for mobilising what we have called the new ideas cluster, e.g. through setting up communities of practice and adequate knowledge infrastructures. We conclude that the effort to make comparative analyses of FRG should continue, possibly also through more action-oriented research that directly assess the impacts of policy interventions.

Acknowledgement

The work described in this publication was supported by the European Community's Seventh Framework

Programme through the grant of the budget of the Integrated Project STAR-FLOOD, Contract 308364.

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