



# Varieties of flood risk governance in Europe: How do countries respond to driving forces and what explains institutional change?



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## ARTICLE INFO

### Article history:

Received 29 March 2016

Received in revised form 24 February 2017

Accepted 27 February 2017

Available online 19 March 2017

### Keywords:

Flood risk management

Water policy

Path dependency

Institutional change

Climate change

European directives

## ABSTRACT

Floods are challenging the resilience of societies all over the world. In many countries there are discussions on diversifying the strategies for flood risk management, which implies some sort of policy change. To understand the possibilities of such change, a thorough understanding of the forces of stability and change of underlying governance arrangements is required. It follows from the path dependency literature that countries which rely strongly on flood infrastructures, as part of flood defense strategies, would be more path dependent. Consequently there is a higher chance to find more incremental change in these countries than in countries that have a more diversified set of strategies. However, comparative and detailed empirical studies that may help scrutinize this assumption are lacking.

To address this knowledge gap, this paper investigates how six European countries (Belgium, England, France, The Netherlands, Poland and Sweden) essentially differ with regard to their governance of flood risks. To analyze stability and change, we focus on how countries are responding to certain societal and ecological driving forces (ecological turn; climate change discourses; European policies; and the increasing prevalence of economic rationalizations) that potentially affect the institutional arrangements for flood risk governance. Taking both the variety of flood risk governance in countries and their responses to driving forces into account, we can clarify the conditions of stability or change of flood risk governance arrangements more generally. The analysis shows that the national-level impact of driving forces is strongly influenced by the flood risk governance arrangements in the six countries. Path dependencies are indeed visible in countries with high investments in flood infrastructure accompanied by strongly institutionalized governance arrangements (Poland, the Netherlands) but not only there. Also more diversified countries that are less dependent on flood infrastructure and flood defense only (England) show path dependencies and mostly incremental change. More substantial changes are visible in countries that show moderate diversification of strategies (Belgium, France) or countries that 'have no strong path yet' in comprehensive flood risk governance (Sweden). This suggests that policy change can be expected when there is both the internal need and will to change and a barrage of (external) driving forces pushing for change.

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## 1. Introduction

"Failed flood defenses cast doubt on UK readiness for new weather era" reported the Guardian at the end of December 2015. England was struck again by flood events and thousands of people had to be evacuated ([The Guardian, 2015](#)). These events were framed as 'unprecedented flood crises'. Next to the exceptional

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circumstances, the discussion also concerned the reduced governmental budgets for addressing flood risks over the past years and the need for another, more comprehensive approach. This was followed by a desperate call to finally take phrases like adaptation and climate change seriously. At the same time, in October 2015, violent storms and flooding hit southern France and 20 people died (BBC, 2015). These events are in line with the increasing number of studies pointing out that flood risk is increasing, due to climate change projections and increasing development in flood-prone areas (Alfieri et al., 2015; Jongman et al., 2012; Kundzewicz et al., 2010; Winsemius et al., 2015).

The governance of flood risks is greatly challenged by both global environmental and socio-economic changes. Flood risks are also increasingly part of the global and European (environmental) agendas, with European Directives trying to stimulate flood risk awareness and preparedness for the consequences of climate change, e.g. the Floods Directive (Directive 2007/60/EC). Although climatic and supranational triggers affect all countries, the regional consequences vary and responses are very different in terms of the governance of flood risks. Flood risk governance encompasses the arrangements of actors, discourses, rules and resources through which flood risk management strategies are delivered and put into practice (Hegger et al., 2014). These arrangements involve divergent policy domains dealing with flood risks, including water management, spatial planning and disaster management. Some countries put full responsibility on the shoulders of government (The Netherlands), while others trust on community, societal resilience and insurance markets (England) (Meijerink and Dicke, 2008; Wiering et al., 2015).

In the literature on resilience, there is often a call for a variety of governance approaches leading, in the case of flood risks, to a diversification of management strategies in order to create resilient societies (e.g. Folke, 2006; Olsson et al., 2004; Pahl-Wostl, 2009; see also Bakker and Morinville, 2013). The term resilience can be understood in various ways, as resistance of systems (Holling, 1996), as the capacity to absorb disturbances and learn from them (Walker et al., 2004), or as the adaptive and transformative capacity of societies (Folke et al., 2010). In the above literature on variety, resilience is mostly seen as the adaptivity and flexibility of societies. Several authors argue that diversification of strategies indeed creates resilience (e.g. Aerts et al., 2008). Hegger et al. (2016) show that diversification may lead to a more holistic approach to flood management, provided that actors related to different strategies collaborate and exchange information.

If it is deemed necessary to change flood risk strategies and institutional arrangements in light of climate change or socio-economic developments, we need more detailed knowledge of the *conditions* in which policy change is possible at all. Is it feasible to think of diversification in a realm of both stabilizing (e.g. path dependency) and changing forces that influence flood risk governance arrangements? Can we change these arrangements (with consequences for the roles of state, market and civil society) easily? And what role do specific societal driving forces play in this? To understand the possibilities of such change, a thorough understanding of the forces of stability and change of underlying governance arrangements is required. It follows from the path dependency literature that countries which rely strongly on flood infrastructures, as part of flood defense strategies, would be more path dependent (Mahoney, 2000; Pierson, 2000; Torfing, 2009). Consequently there is a higher chance to find more incremental change in these countries than in countries that have a more diversified set of strategies.

While there is a large literature attempting to explain stability and change in flood risk governance in single cases or under single driving forces, there is still a knowledge gap regarding systematic

empirical insights in the key factors explaining overall stability and change in flood risk governance. For one, empirical studies that do attempt to make explanations are fragmented in what they try to explain: the role of public and private parties in Flood Risk Management (FRM) (Mees et al., 2014); different flood management approaches (Lange and Garrelts, 2007); stakeholder engagement and cooperation in FRM (Geaves and Penning-Rowsell, 2016; Greiving et al., 2012), amongst others. Studies that actually focus on the reasons why countries have adopted a certain portfolio of FRM measures are even more rare. Bubeck et al.'s (2015) study is one of the rare studies focusing on complete flood risk management portfolios (or in their terms: the flood risk management system, a term which was not explicitly defined) and making the effort to explain differences between the USA, Germany, The Netherlands and The UK in the overarching approaches to FRM. With others (Bubeck et al., 2015; Meijerink, 2005) we consider it worthwhile to further contribute to efforts to arrive at such integrated analyses and explanations of stability and change in FRM.

To address the observed knowledge gap of a lack of systematic comparative studies of flood risk governance, we try to answer the following questions: 1) how do countries essentially differ in their approaches to flood risk governance; 2) how do countries respond to specific driving forces that affect FRM more generally; 3) what explains, taken the answers to these two questions into consideration, the stability or change of these flood risk governance arrangements (FRGAs)? These questions will be answered on the basis of an intensive research project, named STAR-FLOOD, in which six European countries were investigated. Our work is the first to give a comprehensive and conceptually integrated overview of both the varieties of flood risk governance and the influence of a series of external and internal forces on policy change in six countries.

We will first explain our methods (Section 2) and conceptual model (Section 3), drawing on policy analysis and theories of institutional change. We will distinguish between *country characteristics* that provide a background of initial policy choices made in countries (Section 4) and *driving forces* that push or pull institutional configurations. We make an important analytical distinction between flood risk governance *arrangements* as the institutional configurations designed to tackle flood risk problems and the flood risk management *strategies* (FRMSs) as practical outcomes of those arrangements. We follow the concept of the safety chain in risk literature to define the core flood risk strategies (prevention as in pro-active planning, flood defense, preparation, mitigation and recovery). Section 5 brings these core factors together in order to explain stability and change in FRGAs. Section 6 concludes this paper and reflects on our approach.

## 2. Research approach and methods

The empirical data used in this paper have been collected within the four-year research project STAR-FLOOD, funded by the European Commission ([www.starflood.eu](http://www.starflood.eu)). Within this project, more than 40 policy analysts and legal scholars from Belgium, England, France, The Netherlands, Poland and Sweden conducted empirical analyses and evaluations of FRG in their country. Our core unit of analysis was the (overarching) national *flood risk governance arrangement*, which we researched empirically by combining findings from an analysis at national level with findings at the level of three local case studies per country. Both the six countries and the eighteen case studies have been selected out of the overall ambition of the STAR-FLOOD project to understand, explain and evaluate the processes of diversification of flood risk management strategies. We looked for variety in terms of the countries' physical circumstances and administrative structures

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