



Water safety and spatial development: An institutional comparison between the United Kingdom and the Netherlands



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ABSTRACT

The Netherlands and the United Kingdom are known for their different traditions of river flood risk management, which is reflected in their respective institutional frameworks. Whereas the Dutch have focused almost exclusively on reducing the probability of flooding by defining high safety standards, British flood managers are known for their propensity to influence spatial planning decisions as a means to reduce the potential impacts of flood events. This paper scrutinizes this alleged major difference in institutional arrangements and planning practices, so as to evaluate the room for elements of the risk approach in the Netherlands. Using Ostrom's IAD framework, we analyze the rules-in-use in two cases in which a new hospital is being planned in a flood-prone area. It will be shown that in spite of some important differences observed in the rules-in-use, the Dutch institutional configuration has absorbed several elements of the risk approach, and displays a higher similarity in planning practice to the UK than expected. It thus seems that Dutch flood risk management is gradually evolving into the direction of a more integral approach to water safety in spatial planning.

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Introduction

“God made the world, but the Dutch created the Netherlands”. This saying illustrates the international image of the Dutch as qualified water managers, not to mention the fact that today's official Dutch water authorities can be traced back to the Middle Ages (Gupta et al., 2010). For centuries, the Dutch used to control water safety through the construction of dikes and dams, and the enforcement of strict safety standards—which has contributed to their strong reputation as water managers (Huisman, 2004; Lintsen, 2002; Van de Ven, 2004). For this reason, urban development hardly shows any signs of flood risk issues being integrated into spatial planning and decision-making (Gupta et al., 2010; Van den Brink et al., 2011, 2013).

As of recent, though, the Dutch government has abandoned its unique reliance on prevention-based measures. Instead, it aspires a water safety policy (*meerlaagse veiligheid* or multilevel safety) that involves consideration of measures to reduce the impact of flooding and crisis management, should hazards occur (Dutch Ministry of

Infrastructure and Environment, 2009). This so-called *risk approach* explicitly reveals the connection between water safety and spatial investments. For instance, in order to reduce flood risks to a minimum, one could decide to build a building on a high and dry location instead of in a flood-prone area, so as to save potential future costs to repair flood damages.

Yet, given the good track record of the Netherlands regarding prevention-based safety measures in combination with relatively high safety standards, a risk approach is not likely to find itself institutionalized overnight. This expectation flows from the insights from institutional theory, which holds that institutions, as embedded in underlying constitutional norms, and relating to immutable physical/material and community features (Polski and Ostrom, 1999), are hard to change. More specifically, for the Dutch case, the fact that enormous investments have been made in the physical safety layer (dikes and dams) has not only led to an institutional dominance of the physical safety paradigm, but has also reduced the urgency to take measures limiting the potential consequences of a flood event, such as water proofing houses or crisis management actions. Accordingly, our proposition is that the risk approach stands low chances of swift adoption in the Netherlands. This proposition is lent further credence by the fact that a harsh debate is being waged between proponents of the risk approach and advocates of the traditional, prevention-based approach, which impedes a transition to a risk approach (Rijcken, 2012; Waterforum, 2011a,b,c, 2012). An analysis of this debate reveals that the very

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definition of the risk approach can be confusing. A narrow definition of the risk approach is that flood safety standards are made dependent on the potential social and economic impacts of a flood event. This is what the Netherlands has been doing for decades already. As an example, flood protection levels for the urbanized western part of the Netherlands, the Randstad, are much higher than for the northern part of the country. Based on a risk approach, climate scenarios and increased knowledge on flood probabilities, Dutch water managers are now developing new methodologies to further refine and optimize the current safety standards—which were defined in the aftermath of the 1953 storm surge. The alternative definition of the risk approach, as is used in formal policies nowadays, is broader in scope: it holds that water managers (and planners) should not only consider measures to reduce flood probability, but also take into consideration spatial options to reduce the potential impact of a flood event, such as building restrictions or flood proofing houses. In the remainder of this article we will use this second definition.

The Dutch practice stands in sharp contrast with that in the UK, where relatively low safety standards have led to a pressing need for a risk approach in spatial planning. Because the government has not solely relied on preventive measures, and parties have gained considerable experience with policies aimed at an integration of flood risks into spatial decision-making, a strong institutional arrangement has arisen, which necessitates the reduction of flood risks during spatial planning, by modifying location choice and prescribing measures in case of a flooding. As a result, the UK is alleged to wield a relatively well-elaborated water safety policy—particularly regarding current climate change phenomena such as increasing precipitation, river discharge variability, and sea level rise (Klijn et al., 2008; Nirov, 2007; Rijkswaterstaat, 2006; Royal Haskoning, 2008). This assumption on the UK's water safety policy does not necessarily mean that it can be considered successful in practice. On the contrary, a considerable number of construction projects have been realized in flood-prone areas, which illustrates how strongly policy practice can deviate from policy as intended (see for example Green Building Press, 2009; Harvey, 2011; Smith, 2007; Wilson, 2007). Nonetheless, it is fair to say that the risk approach has been exercised longer in the UK than in the Netherlands.

Should we thus conclude that the development of the risk approach in the Netherlands stands no chance? In the present article, we aim to answer this question by scrutinizing the alleged stark contrast in spatial planning between the two countries, with a focus on the management of flood risks along rivers. We seek to find out to what extent the allegation of strongly divergent institutional arrangements concerning the nexus between river flood safety and spatial planning can be upheld, and to what extent these different positions translate into a different degree of application of safety risks in particular spatial planning projects. We do so by analyzing the institutional arrangements, as well as actual application of the risk approach by performing a focused, comparative institutional analysis (Polski and Ostrom, 1999) of the two countries. We complement this institutional analysis with a focused comparison of the actual extent to which river flood risks are integrated in spatial planning in two particular critical cases, namely two hospital construction projects in flood-prone areas.

The paper is organized as follows. The next section will introduce Ostrom's Institutional Analysis and Development [IAD] framework, and outline the methods used. The next sections provide an institutional analysis of the Netherlands and the UK, and a comparison of the extent to which river flood risks played a role in these two cases. We conclude with a discussion of the relevance of institutional factors for understanding flood risk management in the Netherlands and the UK, and some recommendations for future research.

Institutional approach

In this paper, institutions are defined as widely understood rules, norms or strategies that create incentives for behaviour in repetitive situations (see also Crawford and Ostrom, 2005; Ostrom, 1992; Polski and Ostrom, 1999). Appearing in formal forms, i.e. laws or procedures, or informal forms, such as standard practices or habits, institutions directly affect the minds and routines of people in policy situations (Hurwicz, 1994). Radical policy change—such as the step towards a flood risk approach—requires institutional change (Giddens, 1979, 1984; Hall and Taylor, 1996; North, 1990; Peters, 1999; Powell and DiMaggio, 1991; Scharpf, 1997).

Institutional development is typically subject to what historical institutionalists refer to as 'path dependency', meaning that, once established, patterns of political mobilization, the institutional rules of the game, actors' interests and expectations, and even their way of conceiving of the political world will often generate self-reinforcing dynamics (Pierson, 2000; Thelen and Steinmo, 1992). Pierson (2000) has summarized the key claims supporting the notion of path dependency as follows: first, specific patterns of timing and sequence are of importance; secondly, beginning with similar conditions, a wide range of social outcomes may be possible; thirdly, relatively small or contingent events may have a significant impact; fourthly, particular courses of action, once introduced, can be difficult to reverse; and finally, institutional development is often punctuated by critical junctures. The path dependency framework is well-suited to explaining continuity within distinctive institutional orders by focusing on the unfolding of political processes over time and the mechanisms of positive feedback by which political processes reinforce themselves and in which established policies and institutions become locked-in. Radical departures from path dependent trajectories will only be possible when factors that normally block these path-breaking changes give way, thereby opening up 'windows of opportunity' for political action.

These assumptions show how institutions delimit capacity for social change, "imposing constraints on the range of possible behaviour and feasible reforms" (Polski and Ostrom, 1999). At the same time, institutions ought not be considered exhaustive causes for social behaviour. Polski and Ostrom (1999) illustrate this by pointing to physical conditions (e.g. climate, landscape) and cultural conditions (e.g. democratic values, a population's composition) as potentially significant causal factors for both institutions and the resulting policy outcomes. These constellations can be analyzed with the IAD framework, which presents "a set of concepts and a common language for individual analysts which enables meta-learning about institutional settings and arrangements" (Smajgl et al., 2009). As such, it can be used to explain the causes for patterns of interaction in and, eventually, outcomes of policy processes.³

Based upon an individual methodological perspective, the center of the IAD framework is formed by the so-called *action arena*, which is best to be described as a combination of an *action situation* and the *participants* joining this very situation: "[An action situation] involves participants in positions who must decide among diverse actions in light of the information they possess about how actions are linked to potential outcomes and the costs and benefits assigned to actions and outcomes" (Ostrom, 2005; Ostrom et al.,

³ Originally, the IAD framework was primarily applied to analyze so-called common-pool resources [CPR] (cf. Constanza et al., 2000; Ostrom, 1990, 2007, 2008; Ostrom et al., 1994; Ostrom et al., 1993). Recent accounts on the framework, however, show increasing attention for goods other than CPR, such as public and private goods. Over the years, the IAD framework has found itself applied to a more diverse set of policy areas, such as social policy (Bushouse, 2011) and planning policy (Smajgl et al., 2009).

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