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## A game of give and take: The introduction of multi-layer (water) safety in the Netherlands and Flanders

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### Key words:

Flood risk management; Multi-layered (water) safety; policy analysis; discourse structuration; discourse institutionalisation

### Abstract:

At the beginning of the 21st century, the Netherlands and Flanders introduced a risk-based approach to flood risk management (FRM), labelled as multi-layer (water) safety. In contrast to a flood defence approach, risk-based management stresses the need to manage both the consequences and probability of a flood. The concept has developed differently in the two countries, as we conclude from a discursive-institutionalist research perspective. The Netherlands is characterised by a high institutionalization of the traditional flood defence discourse and a more closed policy arrangement, whereas in Flanders, the flood defence discourse is less institutionalized and the arrangement is more open. In both countries we see an opening of the arrangement preceding the establishment of multi-layer (water) safety, but at the same time, actors stress different aspects of the concept in order to increase its compatibility with the existing policy arrangement. In the Netherlands, the focus is on probability management, in Flanders on consequence management. In the Netherlands, multi-layer (water) safety as a concept could be established because it stabilises the system in the short-term by reinforcing the importance of flood defence, whereas in Flanders, policymakers were receptive to the concept because it supports a shift of responsibility towards actors outside traditional water management.

## 1. Introduction

Flooding is one of the most severe natural hazards in Europe (Feyen et al. 2012; Kundzewicz et al. 2013). Even more so, it is increasing due to socio-economic development in flood-prone areas and the projected consequences of climate change (Abdellatif et al. 2015; Alfieri et al. 2015). In order to adapt to this hazard, new management approaches are being developed at global, European and national level. They include, for example, integrated water resource management (IWRM) promoting an integral, catchment-wide approach (cf. Mostert, 2006; Molle, 2009), or risk-based concepts, which take both the probability and the impact of potential adverse outcomes into consideration in order to minimize them to an acceptable level (Renn, 2008). Countries differ in the way they implement these approaches (Rothstein et al. 2012). A number of studies aim to explain differences in management approaches and the stability or alteration of them (e.g. Samuels et al. 2006; Bubeck et al. 2015). Factors singled out as influential include the type and severity of flooding, the character of governance arrangements, variety in epistemic communities or advocacy coalitions, learning and feedback processes, as well as path dependency mechanisms (for an overview see Bubeck et al. 2015). However, much of this research tends to pay little attention to flood risk as a social construct, conceptualized in this paper as discourse. Different societies, in other words, ascribe different

meanings to flood risk, which influences their management approaches (Renn, 2008). In this paper we analyse the interaction between new and existing discourses regarding flood risk, expressing itself in a continuous process of institutionalization and re-institutionalization of management approaches.

In our analysis, we focus on the discourse of 'multi-layer (water) safety', or more precisely multiple-tiered flood risk management. This risk-based approach to flood management (FM) became popular in the 21<sup>st</sup> century both in the Netherlands and Flanders. It was officially introduced through the policy concept of 'multi-layer safety' (MLS) in the Netherlands in 2009, and 'multi-layer water safety' (MLWS) in Flanders in 2013<sup>1</sup>. The concept describes a set of flood risk management (FRM) measures (and instruments) to address the probability and consequences of flooding. This development was partly, but not entirely, related to the development and implementation of the EU Floods Directive. With the Floods Directive (2007) a risk-based approach to flood management is promoted at European level. The Directive relies on three complementary approaches (3P): prevention, i.e. avoiding or adapting constructions in flood-prone areas; protection, i.e. reducing the likelihood of flooding through structural flood defence measures; and preparedness, which is connected to emergency management. In Flanders, these three approaches have been translated into multi-layer water safety (see Table 1). Analogue to the EU Directive no order of priority exists between the different layers. This is different in the Netherlands, where prevention is interpreted as preventing flooding through structural measures. A decision is made to clearly prioritize this layer. Adaptive spatial planning and emergency management measures function as supportive second and third layers, respectively.

The aim of this paper is to explain these differences by analysing the interaction between existing and new discourses. Therefore, a discursive-institutionalist perspective is adopted. Correspondingly, this paper examines the following research question: which discursive-institutional interactions influence the establishment of the ML(W)S concept in the Netherlands and Flanders and explain differences in the appropriation of the concept in the two countries? The article is structured as follows. In section one we introduce our theoretical assumptions. The next section addresses our methodology. The results section consists of an analysis of the development of ML(W)S in the Netherlands and Flanders, followed by a comparison in the discussion section.

## 2. Theory

In accordance with our research aim, which is to analyse the interaction of new discourses and existing institutional systems, we adopt a discursive-institutionalist perspective (cf. Schmidt, 2001; Fischer, 2003). We define discourses as an 'ensemble of ideas, concepts and categories through which meaning is given to social and physical phenomena, and which is produced and reproduced through an identifiable set of practices' (Hajer, 1995); and institutions as 'the formal or informal procedures, routines, norms and conventions embedded in the organizational structure' (Hall and Taylor, 1996, p. 6). Both influence one another: institutions are constituted by discourses, but because institutions in turn govern the behaviour of individuals, they also influence the establishment of new discourses. Different actors articulate and rearticulate discourses in communicative practices. Thereby they produce and reproduce the existing discursive structure, but they also change and adapt it (Giddens, 1984; Laclau and Mouffe, 1985). Discourses, and correspondingly institutions, are only temporarily and partly fixed and therefore open to change (Laclau and Mouffe, 1985).

Hajer (1995) distinguishes two processes to evaluate the institutionalization of discourses. Discourse *structuration* occurs when a particular discourse is adopted by a broad range of actors and starts to dominate the way in which people conceptualize the world. This is a simplified conception, especially because there is no complete fixation of meaning via discourses (see Laclau and Mouffe, 1985). We argue that the achievement of discourse structuration is prone to adjustments of meaning, either incrementally during its reproduction in communicative practices, or in a more noticeable fashion during discursive struggles in

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<sup>1</sup> In this paper we will henceforth use multi-layer (water) safety, or ML(W)S, when referring to both countries.

which meaning is adjusted in order to achieve consensus. The second process distinguished by Hajer is discourse *institutionalization*, which occurs when the discourse solidifies into arrangements and organizational practices (e.g. legislation, policy documents) (Hajer, 1995). We argue that both are iterative processes. Already a certain degree of discourse structuration can cause some degree of discourse institutionalization. That may in turn enhance discourse structuration for a broader range of actors, which can cause further discourse institutionalization.

Institutions are not necessarily the result of one hegemonic, i.e. dominant, discourse. They may be the outcome of different, partly fixed discourses standing in relation to each other (Dryzek, 2005, p. 22). They can be hegemonic to varying degrees (Philips and Jorgensen, 2002, p. 74). We use the analytical concept *order of discourse* to describe the social space in which a complex configuration of interrelated discourses partly cover the same social terrain, and their positioning therein, i.e. opposing or supporting each other (Philips and Jorgensen, 2002, pp. 74, 141). The order of discourse is an analytical concept based on the research aim. For instance, the order of discourse can be music, where the discourses of 'classical' and 'modern music' are situated. However, if the aim is to analyse modern music, this could be the order of discourse in which discourses like 'hip hop' and 'pop' are distinguished (compare also Philips and Jorgensen, 2002, p. 143).

The relationship between discourses is shaped through interdiscursivity, i.e. when 'different discourses are articulated together in a communicative event' (Fairclough, 1993, p. 137). By drawing on elements from several discourses at the same time, e.g. in policy documents or political speeches, discourses can become interlinked with each other. This can either drive change by combining new discourses in an innovative way, or advance stability by mixing discourses in a conventional way that supports existing ideas (Philips and Jorgensen, 2002, p. 73).

This can lead to discursive struggle, between different discourse coalitions, i.e. actor coalitions that aim to influence the order of discourse by reinforcing a particular set of storylines in a given policy domain. Storylines 'interpret events and courses of action in concrete social contexts' (Hajer, 2003, p. 103). They condense facts, emphasize certain aspects and silence others, and persuasively structure the way people think about a problem (Hajer, 2003, p. 103). They can be signs of interdiscursivity if they connect previously unconnected discourses in one statement.

Dislocation events occur when the hegemonic discourses are destabilized and fail to be in line with reality, because of the emergence of new political or economic systems or external shock events (compare Van den Brink, 2009). Especially dislocation events offer moments for discursive struggle, because they give actors the possibility to challenge the formally stable order of discourse and reconnect previously unconnected discourses (Hajer and Versteeg, 2005, p. 185).

The discursive struggle for discourse structuration does not take place in isolation. It takes place within an established policy arrangement, which itself is the result of earlier processes of discourse institutionalization. In order to be able to analyse the interaction between both discourses and institutions we need an analytical framework that links the two. We use the Policy Arrangement Approach (PAA) (see Figure 1). A policy arrangement (PA) is defined as 'as a temporary stabilization of a particular policy domain' (Leroy and Arts, 2006, p. 13). It includes discourses, i.e. the ideas, principles and objectives within a policy arrangement, and organizational aspect of institutions, i.e. a set of agents that are nested in structures of rules and resources. The actor dimension of the PAA addresses the responsibilities, preferences and interests of the actors involved. It allows us to identify the discourse coalitions involved in the structuration process. The resource dimension provides insights into their power position. Resources can include, for instance, financial resources, expertise, or a strong network or legal position. The rules dimension addresses both formal and informal rules, regulations and routines. A tetrahedron is used to illustrate the four dimensions of a policy arrangement (Lieverink, 2006; see Figure 1).

The capacity of a policy arrangement to adapt to new ideas and concepts is dependent on its degree of openness. A closed arrangement is characterized by a homogeneous actor constellation, where actors have a similar perception of the problem and the appropriate

solutions, and also remain committed to the arrangement without leaving it (Crabbé, 2008). An open arrangement comprises a less stable and usually wider set of actors and more heterogeneous discourses. A closed arrangement is less susceptible to change than an open arrangement (Blowers and Leroy, 1996; Mahoney and Thelen, 2009). This includes the ability of actors to introduce new discourses and to develop them, but also the opportunities for institutionalizing these discourses (Schmidt, 2001).

Dominant actors that benefit from the status quo are likely to be interested in preventing change and are in a better position to do so (Mahoney and Thelen, 2009). The degree of access to information and knowledge (*resources*) can also add to the closedness or openness of a system. The *rules* dimension influences the openness of the system through regulations on participation and by determining opportunities for exercising discretion in interpretation and enforcement of rules (Mahoney and Thelen, 2009). In addition, it lays down how easily certain regulations can be changed (e.g. change of constitutional rules is procedurally more difficult than policy change). While these dimensions can influence the closedness or openness of an arrangement, internal structural congruency, i.e. if the dimensions are mutually attuned or contradicting, can also stabilize and close an arrangement or open it to change. The same goes for external congruency, i.e. the extent to which the arrangement fits into the broader institutional context (Boonstra, 2004).

In this paper, we want to analyse the processes leading to discourse structuration and institutionalization of the concept of ML(W)S in the Netherlands and Flanders and how these processes influence and are influenced by the (existing) policy arrangements for flood risk management (FRM). This implies focusing on: which actors are involved in the discourse structuration process; identifying discourse coalitions and how they connect discourses (i.e., interdiscursivity); identifying the resources used by actors to prevent or encourage the institutionalization of ML(W)S as a concept; and looking at the rule system stimulating or hindering ML(W)S institutionalization.

### **3. Methodology**

#### *3.1. Case selection*

Flanders (Belgium) and the Netherlands have always been referred to as the 'Low Countries': a small but prosperous region located on the North Sea, which connects the sea with the European hinterland through a well-developed network of waterways (see Figure 2). As the name suggests, the region's location is low compared to sea level (Van Nes et al., 2001). This makes the 'Low Countries' vulnerable to rising flood levels in the context of climate change. Furthermore, both the Netherlands and Flanders belong to the most densely populated areas of Europe. In Flanders, urbanization in particular contributes to flood risk because urban development evolves in a very decentralized manner, thereby impacting a wide territory (see Table 2, Poelmans and Van Rompaey, 2009).

The Netherlands and Flanders make interesting units for comparison because they have both introduced ML(W)S at national level but interpret the concept differently. We assume that differences in the existing institutional arrangement influence this. To understand the interaction between new discourses and existing ones, we reconstruct the formation of ML(W)S in the two countries. In the course of our research in the research project STAR-FLOOD, we identified that the institutional arrangement for FRM in the Netherlands and Flanders differs in its openness (for more detail see sections 4 and 5). The Dutch arrangement is rather closed: a small number of homogenous main actors, a relatively high power position, strict regulations that leave little room for interpretation (safety standards, legal accountability). In Flanders, higher numbers of actors are involved and competences are fragmented, so that the power positions are less dominant. Regulations tend to be less strict, i.e. no legal safety standards. We expect these differences in openness/closedness to influence the way ML(W)S is appropriated. In our analysis, we investigate in detail how the emerging discourse of ML(W)S and policy arrangements interact in both countries.

Flanders belongs to the federal state of Belgium and is thus not a country in itself. Since 1988, however, competences for water management have been transferred to regional level. Consequently, the region forms the appropriate level for cross-country comparison.

### *3.2. Data collection and analysis*

Firstly, we mapped out the policy arrangements for FRM in the Netherlands and Flanders based on the four dimensions of the PAA. The data collection took place in the context of STAR-FLOOD, a European research project that compares flood risk governance in six EU member states. This analysis revealed that especially from the 1990s, discursive changes occurred. Consequently this was used as a baseline year.

For our discourse analysis, we orientated ourselves on Fairclough (2003) to examine 'how an interrelated set of texts and the practice of their production, dissemination, and reception bring a concept into being'. For both our cases, an in-depth study was conducted in which we scrutinized the characteristics of texts (policy documents), their production, dissemination and consumption, their impact on the order of discourse and their effect on wider social practices (Fairclough, 2003). Attention was also paid to how discourse structuration and institutionalisation influence each other (Hajer, 1995). In our research we analytically distinguished orders of discourse based on the policy sectors most relevant to FRM, i.e. water management, spatial planning and emergency/crisis management. Table 3 lists the Dutch and Flemish policy documents analysed for the purpose of this paper.

To analyse the establishment of the ML(W)S concept in more detail, we conducted 14 interviews in Flanders and 16 interviews in the Netherlands. The interviewees were government officials active in FRM at different levels of public administration. These interviews were conducted between October 2013 and December 2014 and supported the qualitative-discursive analysis of specific policy documents that address the concept ML(W)S.

## **4. Results**

### **4.1. The Netherlands**

#### *Overview of Dutch flood management*

Following the storm surge of 1953, a risk-based approach, including the management of probability and consequences, was already introduced in the Netherlands (V&W, 2008, p. 7). In the following years, the discourse on technical flood defences, which stressed the probability reduction of the risk approach, acquired a hegemonic position in the order of FM discourse and was increasingly structured and institutionalized (Van den Brink, 2009). This discourse was supported and legitimized by water engineers, who held a dominant position due to their technical knowledge and expertise. Thus, flood management became a sector-specific task of water managers (Van den Brink, 2009). Nowadays, engineering structures, like embankments, dams, dunes or storm surge barriers protect 55% of the country (De Moel et al., 2011), which illustrates the high investment in flood defences in the past. From a rules perspective, primary flood defence structures, which protect the country against flooding from the main water bodies, i.e. the coast and major rivers, are characterized by nationally established legal safety standards that describe a maximum exceedance probability of design flood levels (from 1/1,250 per year to 1/10,000 per year). For the regional water system, i.e. smaller watercourses, (drainage) channels, etc., provincial and regional water managers develop land use-based safety standards for water nuisance caused by an excess of surface water and related to the storage capacity of the regional water system. They also develop the safety standards for the respective regional flood defence structures (Van Rijswick and Havekes, 2012, p. 269). In comparison to the standards at national level, regional standards are lower and regionally differentiated (STOWA, 2004, p. 10).

The state is constitutionally responsible for ensuring the habitability of the land (Van Rijswick and Havekes, 2012). Specialized organizations are the main actors in preventing flooding from the main watercourses: the Ministry of Infrastructure and Environment (I&M) with its policy

implementing agency, the Directorate-General of Public Works and Water Management (*Rijkswaterstaat*) and the regional water authorities. Together with a broad range of knowledge institutes, including universities and consultancies, the water authorities have developed a strong resource base of engineering and technical expertise. Also from a financial point of view, FRM in the Netherlands is more firmly secured than in other countries, due to an autonomous taxation system for water management and special funds, e.g. Delta Fund, for the main watercourses (Van Rijswick and Havekes, 2012).

The management of primary flood defences can be described as a relatively closed arrangement: the number of involved actors is limited and homogeneous. No private actors like insurance companies are present, citizens have a limited role. The rules and resources are aligned with the actors and their discourse, which leads to a high level of internal congruence. This is less the case for regional watercourses or un-embanked areas, which are characterized by lower and less rigid, because of being regionally developed, safety standards. Furthermore, other actors, e.g. the provinces, are more involved.

#### *The introduction of competing discourses*

From the 1990s, the flood defence discourse began to be contested and the arrangement for primary flood defences was slightly opened. This was, firstly, due to a dislocation event in the form of high river discharges in 1993/1995. In response to this event, the discourse on 'integrated water resource management' (IWRM), which was carried by an environmental discourse coalition, entered the FRM order of discourse and challenged the hegemonic flood defence discourse and its sector-based approach (Roth and Winnubst, 2014). Independently of this development, the introduction of the procedural instrument of the Water Assessment in 2001, which required the consideration of water issues in spatial planning, facilitated the integration of spatial planning and FRM (e.g. Van Den Hurk et al., 2013). Even though the effectiveness of the water test has been reported to be limited (OECD, 2014), this slight opening facilitated the subsequent development of the MLS concept (Oosterberg and Van Drimmelen, 2006, p. 37). Notably, at regional level, the IWRM paradigm was influential by triggering the development of the concept 'capture-storage-drainage' to deal with water problems in a sustainable and integrated way (Tielrooij Commissie, 2000, p. 85). The more open regional arrangement was not limited by safety standards, which facilitated the institutionalization of this approach in regional plans.

Secondly, the establishment of MLS was facilitated by the availability of new technological resources. Knowledge and technology in the 1990s had advanced compared to the 1960s. This prompted water engineers to update safety standards by taking into account not only the probability but also the consequences of flooding (I&M, 2013; TAW, 2000, pp. 3), although without relinquishing the centrality of the safety approach as such. A subsequent research project (Veiligheid Nederland in Kaart, 2005) generated insights into dike failure mechanisms, which later supported the notion that absolute safety is impossible and a set of FRM measures should be adopted (V&W, 2008, pp. 7).

Thirdly, from the beginning of the 21<sup>st</sup> century, the flood defence discourse was challenged by the increasing importance of an economic discourse in the FRM order of discourse. A stronger emphasis on values like cost-effectiveness was visible in the actor dimension, among others, where employees with a background in public administration gained influence in governmental bodies responsible for water management (interview). It challenged the flood defence discourse, because the financing mechanism of primary flood defences was criticized (RIVM, 2004, p. 11; V&W, 2008, p. 4). Instead, a more integrated management approach was promoted, based on a broader understanding of risk (RIVM, 2004, p. 200).

#### *The discursive struggle*

However, it needed another dislocation event in the form of Hurricane Katrina in 2005 to seriously raise the question if, despite all the safety measures in place, something similar could happen in the Netherlands and whether the country was prepared. The risk discourse coalition consisted of climate change researchers, risk managers and bureaucrats and was supported by the Minister of I&M. Its storyline can be summarized as: '100% safety does not exist' (interview). The government decided to improve crisis and emergency management and a taskforce was set up by the Ministry of I&M together with the Ministry of the Interior. In 1993,

the latter had already introduced an 'integrated risk' discourse. This originated from the US and was based on the concept of 'safety chains', which describes a chronological succession of management steps consisting of pro-action, prevention, preparation, response and recovery (BZ, 1993). At the time, it was mainly used for industrial risks. Applying it to water risks was considered unnecessary because these risks were perceived as sufficiently preventable through engineering measures (interview). The cooperation between the two ministries linked two different orders of discourse: FRM and crisis management (V&W et al., 2009, p. 17). A scientific discussion between water engineers and a risk coalition followed on whether the safety chain approach should be extended to water management (Jongejan et al., 2012, interview). In 2006, the government decided that the approach to flood management should be updated, namely that water policy should consist of several layers in order to provide flexibility for future development (V&W, 2008, pp. 7). This approach was legitimized by linking it interdiscursively to the discourse of increased uncertainty, due to the fact that climate change is projected to increase flood risk (V&W et al. 2009, p. 12). Ergo, MLS originated at the national level as a response to increased uncertainty and the ever-present possibility of infrastructure failure.

#### *Failing discourse structuration*

However, a wide range of actors in FRM did not adopt the term 'safety chain'. Its discourse structuration in the realm of FRM failed because the safety chain approach belonged to another order of discourse (crisis management) and did not resonate with the understanding of water managers, whose aim was to prevent floods from happening in the first place. Water experts feared that the term safety chain could imply an equal reliance on and prioritization of – and therefore investment in – each strategy. They preferred MLS because, according to them, the term aligned better with the existing distribution of responsibilities among policy sectors and enabled differentiated investments in a limited number of strategies, so that one strategy could be prioritized in contrast to the more uniform use of strategies in the safety chain approach (Jongejan et al. 2012). Nevertheless, a connection between MLS and the concept of safety chains with its underlying rationale that absolute safety does not exist, is often stressed (Oosterberg and Van Drimmelen, 2006; V&W, 2008, p. 8; V&W et al. 2009, p. 16; Van den Brink et al. 2011).

#### *Discourse structuration and institutionalization*

The concept of MLS was first discursively structured by a committee set up by the Ministry of I&M in 2008 (Committee Water Safety 21st century: V&W, 2008). It was almost immediately institutionalized as policy (Rijksoverheid, 2009) and hence adopted by a broader range of actors. MLS was a consensus, which interdiscursively combined the discourses on flood defence, integral risk approach, integrated water management and sustainability. The inspiration for the concept can be found in a research study carried out by Rijkswaterstaat in 2006. By comparing the flood management approaches of several international deltas, three commonly applied types of measures were identified: avoidance of flooding (=embankments), prevention of development in flood-prone areas or adaptive spatial development, and crisis preparation (Oosterberg and Van Drimmelen, 2006). In parallel to this, discussions on the EU Floods Directive proceeded. The Directive also took a risk-based approach consisting of three complementary measures. On the one hand, the Netherlands was eager to establish a Europe-wide river basin approach to FRM. On the other, it wanted to avoid an overly detailed Directive that would require the re-development of Dutch safety standards or design methods (Van de Glind, 2009, pp. 29, 31, interview). The flexible MLS concept, implemented both at national and EU level, was seen as serving both goals.

The concept of MLS was further developed within a national climate change adaptation programme, the so-called Delta Programme. This can be described as a second discourse structuration phase with a broader number of actors involved. Cost-benefit analysis (CBA) regained prominence and strengthened the traditional flood defence discourse. This interdiscursive connection becomes visible in storylines such as 'a euro can only be spent once' (see Jongejan et al., 2012). The cost-benefit analyses carried out under the Delta Programme led to the conclusion that for most of the main watercourses, probability reduction,



i.e. protection by structural measures, would be most cost-effective and should therefore be 'the basis for achieving the required protection level' (I&M and EZ, 2014, p. 65).

While structural measures thus remain the foundation of flood protection from the main watercourses (V&W et al. 2009, pp. 13, 15), MLS is further explored and its implementation is seen as useful in a limited number of specific cases, e.g. the island of Dordrecht, Amsterdam or Marken (explored). Technical water managers doubt its practical applicability on a broader scale (interview; V&W et al. 2009, p. 16; I&M and EZ, 2014, p. 14). Thus, structural measures are financed via the national Delta Fund with around €8 billion (2015-2028), while measures by the other layers depend mainly on regional funding (I&M and EZ, 2014). However, discourse structuration, particularly at local level, tends to be weak. The awareness of flood risk among non-water managers remains limited, because for them flood risk from the main watercourses is only one of many issues, handled and financed by water managers (interview). It is generally stated that the further integration of spatial planning and water management needs time. As such, 'risk-neutral' spatial planning will form part of policy by 2020 (I&M and EZ, 2014, p. 30). Emergency managers appreciate MLS because it enables them to become more involved in the discussions.

Discourse institutionalization also tends to be weak. MLS will be implemented without changing the existing division of responsibilities and through existing policy instruments (interview). In the existing arrangement, water managers are legally responsible for providing safety from main watercourses by ensuring that standards are met, which means that legal agreements need to be found if other actors are to implement FRM strategies (interview). Despite the emergence of the MLS concept, in sum, the relative closedness of the national arrangement for main watercourses and the high internal congruency of the flood defence approach continue to hinder a more fundamental change in the national Dutch FRM arrangement in the short-term. At regional level, this might be different. Because of the more open regional management approach with less rigid and lower safety standards, past investments in regional defence structures were lower and adaptive spatial planning strategies are already more common. Thus consequence-reducing measures could potentially be more cost-effective than strengthening the defence infrastructure. Further studies are needed to shed more light on regional CBA.

## **4.2. Flanders**

### *Overview of Flemish flood risk management*

Whereas competences in flood management in the Netherlands are in the hands of a limited number of water managers, Flanders has a very fragmented actor structure. Dating back to Napoleonic times, competences are divided over four categories of watercourse and four governmental levels (see Table 4; Crabbé, 2008). In contrast to the Netherlands, Flanders has no safety standards prescribed by law, neither is the state legally responsible for flood protection. As a result, it is up to the water managers involved to determine the most appropriate protection level. In combination with a lower hydrological risk, this has led to significantly smaller investments in structural defence in comparison to its neighbour (Mees et al., 2016).

Water managers are financed through grants from Flemish, provincial and municipal taxes. The remaining Polders & Wateringues districts have the right to collect own taxes from local inhabitants. Each water manager enjoys considerable freedom in managing local watercourses but the development, structuration and institutionalization of new policy approaches and concepts occurs mainly at Flemish regional level. The fragmented government structure gives this arrangement an open character, with a large number of actors involved in developing new ideas and initiatives. Also due to the fact that, in contrast to the Netherlands, water managers are offered more legal freedom in terms of flood safety standards, this creates a favourable environment for innovation (Mees et al. forthcoming).

### *Introduction of new discourse*

Traditionally, Flemish water management focused on flood probability reduction through classical defence measures. Correspondingly, a strong resource base of technical expertise

has been developed. But under the impulse of the EU Environmental Impact Assessment and Habitats Directives (resp. 1985 and 1992) and international discourse on integrated water management, Flemish watercourse managers introduced a new policy concept in the order of water management discourses at the beginning of the 1990s, namely 'providing space for water' in line with the ideas of IWRM. By the turn of the century, this discourse was widely structured and gaining interest from public officials, politicians and academics, especially after the floods in 1998. These floods formed a dislocation event demonstrating that flood risks were impossible to avoid by defence systems alone (interview). With the Decree on Integrated Water Policy (DIWP) of 2003, the new discourse reached institutionalization because it obliged water and spatial managers 'to infiltrate rainwater to the maximum extent' and 'to provide as much space for water as possible'. In response, the 'capture-storage-drainage' strategy was developed. It implied that water managers should focus their management in the first place on water infiltration, secondly on water storage and only in a last phase discharge water slowly (Flemish Government, 2004). In contrast to the Netherlands, the Flemish discourse on capture-storage-drainage applies to all types of watercourses. Consequently, it was a first step in the broadening of the order of water management discourse, towards an approach integrating spatial planning and water management.

#### *Introduction of multi-layer water safety*

For a decade, capture-storage-drainage was the leading principle in Flemish FRM, although in practice classical defence principles still prevailed. In June 2013, however, the Flemish Environment Agency (VMM) presented a new concept during a symposium with the same title, namely multi-layer water safety. According to the VMM, capture-storage-drainage would not suffice as an answer to the rising flood risk in the future (Cauwenberghs, 2013). To emphasize the need for a new, risk-based concept, the agency connected the discussions interdiscursively to the increased uncertainty resulting from climate change. These challenges and uncertainties required an alternative approach, which would consider risk comprehensively, i.e. its probability but also to its consequences. To this end, FRM should, next to flood protection measures, include spatial planning and crisis management.

Although called multi-layer water safety, the Flemish interpretation of the concept consists of three more or less equal 'pillars', rather than 'layers' of different priority. The concept was clearly inspired by the Dutch example, but its content is more closely aligned with the 3P discourse of the European Floods Directive (2007). The directive's emphasis on prevention, protection and preparation (3P) corresponded with an already existing need among Flemish water managers to share responsibilities in FRM. Traditionally, flood management had been perceived as the exclusive responsibility of watercourse managers. Water managers were held responsible for flood protection, irrespective of developments taking place outside the riverbed. But as a consequence of rapid urbanization on floodplains, flood damage became harder to prevent. The DIWP of 2003 addressed for the first time the role of spatial planning in water policy by introducing the Water Assessment, which obliges local authorities to estimate the impact of every building permit, programme, etc. on the water system. However, only with the introduction of MLWS has the need for sharing responsibilities been explicitly recognised. Whereas capture-storage-drainage can still be largely linked to the responsibilities of watercourse managers, MLWS names each responsible policy domain separately. Hence in Flanders, the conceptualization of flood risk management as 'a shared responsibility of water managers, other government departments and private actors' appears as the central storyline of the MLWS discourse.

The Flemish water managers' interest in sharing responsibilities results from their dissatisfaction with existing and inadequate spatial planning practices. In order to further their aim, they used the opportunity provided by the Floods Directive to introduce and legitimize an approach that actively focused on the management of consequences. As an interviewee from the Flemish government put it: *'Since I started working here I wondered how it was possible that we were responsible for keeping the water inside the watercourse. We were held responsible for damage caused to houses, but people were simply allowed to build there! They got a permit to do so and as water managers we had nothing to say about it.'*

The request to take up responsibility in FRM is thus primarily directed towards actors in the field of spatial planning. These include the Flemish government department on spatial planning and, even more importantly, municipalities, which are responsible for granting building permits. But apart from that, a wide range of other actors is envisaged, namely emergency planning units, insurance companies, citizens, etc. Consequently, MLWS in Flanders implies an increase of multi-level governance coordination. Whereas the Flemish government is mainly competent for policymaking in terms of flood prevention and protection, competences concerning flood preparation are largely allocated at federal level. Recently, however, steps have been taken to strengthen the link between water and crisis management. Examples are the development of an intergovernmental emergency exercise on flooding and a Flemish Crisis Centre.

#### *Discourse structuration and institutionalization*

The structuration and institutionalization of the MLWS discourse follows an iterative path. In the period following the VMM symposium in June 2013, other water managers indicated their support for the new MLWS concept but waited for official guidelines before applying it themselves (interview). This institutionalization was reached with the Second Water Policy Brief of the Flemish government (2013). The document declares adherence to the concept of capture-storage-drainage but its implementation will be based on MLWS (Flemish Government, 2013). Hence, the two discourses are combined. In the draft version of the Second Water District Management Plan on the Scheldt (2014) a further evolution towards the new discourse is visible with the statement that 'multi-layered water safety is the foundation for future flood risk management' (CIW, 2014).

A first tangible action in the framework of MLWS is the Flood Risk Management Plan Study (FRMP study) commissioned by the Flemish government in 2013. In this study, all non-navigable watercourses were evaluated on their flood risk until 2050. Cost-benefit ratios were calculated for different combinations of prevention, protection and preparedness measures. It was concluded that particularly the prevention strategy, i.e. spatial planning, required more investment in comparison with today. On the other hand, several planned protection measures turned out to be not cost-effective. In the meantime, navigable watercourse managers have also adopted the method. In contrast to the Netherlands, Flanders has fewer financial means available for flood defence infrastructure (Crabbé et al., 2015). Consequently, improving cost-effectiveness is another important objective of the Flemish government's approach to future flood risk management.

Although MLWS has in the meantime reached wide discourse structuration among Flemish water managers, not all authorities share their enthusiasm. Provinces and municipalities remain concerned that MLWS focuses too strongly on cost-effectiveness. According to the FRMP study, it would be more efficient in certain areas to protect houses on an individual basis rather than through collective measures. This would imply a shift of responsibility from governmental to private actors. For local authorities, with a closer connection to their voters, this is a difficult message to pass. Moreover, the call for more ambitious spatial planning puts a heavy burden on municipalities, since they are the main decision-makers in this domain. In order to foster discourse structuration among these actors, the Flemish government has in 2015 set up an awareness campaign for local governments. In addition, so-called 'water action plans' will be drafted at local scale based on the results of the FRMP study.

Despite the fact that the Flemish government has taken some initiatives to enhance cooperation with the emergency planning domain, MLWS remains largely a story of water managers and spatial planners. In our interviews with emergency planners, the concept was never referred to. This may be explained by the fact that the Flemish government does not have significant competences in this field and that, according to the cost-benefit analyses performed, the potential societal benefits of adaptive spatial planning measures are larger than those of flood preparation (VMM, 2014, p. 65).

## 5. Discussion

As mentioned in the introduction, the development of the concept of ML(W)S differs between the two cases. The analysis also shows that the underlying processes of discourse structuration and institutionalization and their interrelation are different in the two countries. Both in the Netherlands and in Flanders, the establishment of the ML(W)S concept was preceded by a broadening of the order of discourse, which led to a certain degree of opening up the policy arrangement. In the Netherlands, this broadening entailed a discursive struggle between a coalition favouring a diversification of strategies and a coalition preferring the traditional sector-based approach. A first policy concept, 'safety chains', did not reach the stage of discourse structuration. The initial discourse structuration that led to MLS took place among a small number of actors within a policy preparing committee. It was followed by the immediate but weak discourse institutionalization of the concept, and its further discourse structuration among a broader range of actors within the Delta Programme. In Flanders, conversely, the 3P approach of the EU Floods Directive joined an already latent discourse among Flemish water managers, which led to rapid discourse structuration and institutionalization of the MLWS concept. The level of discursive struggle was minimal compared to the Netherlands. Additionally, the existing order of discourse in the two countries differed. Whereas in the Netherlands it was dominated by a highly institutionalized, technical flood defence approach, the Flemish order of discourses allowed more room for the integrated water management approach, because the technical approach was not as highly institutionalized as in the Netherlands. Consequently, as ML(W)S developed it linked with the respective dominant discourse, i.e. with flood defence in the Netherlands and an integrated approach in Flanders.

An important difference between the two countries is the degree of institutionalization of the initial probability reducing approach. This factor influenced the openness of the arrangement, not only in view of room for introducing new discourses into the system involving a broad range of actors (discourse structuration), but also with regard to their subsequent discourse institutionalization. From a discursive point of view, flooding is seen as a vital threat in the Netherlands. This perception is founded on the country's geography and the corresponding high flood risk, which caused the Netherlands to aim for an avoidance of flooding via primary flood defence measures. This approach was strongly institutionalized, and the constitutional responsibility of the state consequently firmly established. Legally binding safety standards predetermine the approach to FRM and minimize alternative options. This in turn reduced the awareness of flood risk from the main watercourses among other actors and isolated the problem as the sole responsibility of specialized actors. This research suggests that if a dominant actor takes complete responsibility, it is likely that other actors will be less engaged, so that the actor constellation is less fragmented. Robust procedures make it more difficult to share accountability for different strategies among a higher number of actors. High investments in engineering infrastructure in the past, moreover, have influenced the outcome of the recent wave of cost-benefit analyses, leading to a lock-in effect in favour of strengthening the existing infrastructure (North, 1990). Flood management in the Netherlands has thus evolved into a closed governance arrangement.

A different evolution took place in Flanders. Here, flooding is perceived as a major but not vital threat. Whereas in the Netherlands, the 'flood' itself is seen as the major problem, in Flanders the main problem lies in the inadequate spatial planning (cf. Klijn et al., 2015). Accordingly, the policy framework for FRM was not as strongly institutionalized as in the Netherlands and comprised a broader patchwork of actors. The fragmented water management structure gives the arrangement an open character, with a large number of actors involved in developing new ideas and initiatives. In contrast to the Netherlands, water managers are offered more legal freedom in terms of flood safety standards. As a result of ill-considered urban development in the past and a lower degree of path dependency caused by previous technical interventions, an approach directed towards preventative measures is considered most cost-effective in Flanders today.

The different degree of institutionalization of the defence approach resulted in dissimilar investments. The investments made in structural defences resulted in a so-called 'levee effect' (White, 1945): the increased protection stimulated socio-economic development, which necessitated further investment in embankments (cf. Baan & Klijn, 2010). As a result, nowadays it is more cost-effective in the Netherlands to keep on strengthening the primary flood defence structures, whereas in Flanders spatial planning measures appear more cost-effective. With regards to the regional water system or un-embanked areas in the Netherlands, which is more similar to the Flemish system, the cost-benefit analysis might in some cases be more in favour of spatial planning or emergency measures, because of a smaller path dependency lock-in effect. But future studies need to analyse this in more detail.

The differences in openness of the arrangements influenced the processes of both discourse structuration and discourse institutionalization. In each country, the discourses were introduced and shaped to fulfil a certain need of the dominant actors in the arrangement. In the Netherlands, MLS aligned with the existing arrangement because it is a flexible concept – more flexible at any rate than the earlier concept of safety chains. In opposition to the latter, MLS provided technical water managers with an argument to further ring-fence their domain from other actors; it allowed a re-focus on the probability-reducing approach and thus helped to some degree to stabilize the arrangement. In Flanders, MLWS aligned with the arrangement as well, but in this case it supported change rather than stability, namely by discursively underpinning the water managers' desire to share flood risk responsibilities with other actors. One could argue that in both cases, ML(W)S served to strengthen the position of the water management sector, but did so in completely opposite ways.

The difference in openness of the arrangements also becomes visible in the influence of the European Union. Whereas in Flanders the Floods Directive formed a dislocation event that legitimized the adoption of MLWS, its impact in the Netherlands turned out to be considerably lower.

## 6. Conclusion

In this article, we tried to explain why an apparently similar discourse on multi-layer (water) safety was received differently in Flanders and the Netherlands. Confirming our starting assumption, the relative openness vs. closedness of the arrangements for flood risk management in Flanders and the Netherlands influenced the structuration and institutionalization of this new discourse. The research suggests that there needs to be some degree of compatibility between new discourses and the existing policy arrangement. In a closed arrangement, it requires more effort from the actors to adapt and fine-tune the policy idea to increase its compatibility with existing hegemonic discourses and institutions. In an open arrangement, by contrast, there are more opportunities for new policy ideas to align with the existing arrangement.

Unlike in Flanders, institutional developments and past investments in the Netherlands have led to a relatively closed policy arrangement. Due to limited compatibility with the existing arrangement, the 'safety chain' approach could not reach discourse structuration in Dutch FRM. A more flexible concept of MLS allowed for better alignment with the traditional focus on flood defence in the primary water system of the Netherlands. Even then, further institutionalization of the new discourse appears to proceed slowly. Past investments in flood protection infrastructure make it more cost-effective today to strengthen structural measures instead of investing in spatial planning or crisis management. The more open Flemish arrangement offered considerably more room for interdiscursive interaction and for reshuffling discourse coalitions. It also facilitated the relatively quick institutionalization of the MLWS concept. As a consequence, the lock-in effects from past investments in flood defence were smaller, so that it is now more cost-effective to invest in other measures. This situation might be more comparable to the regional water system of the Netherlands. In both cases, incremental processes that support the opening of the policy arrangement may be regarded as facilitating and perhaps even necessary steps towards discourse structuration and institutionalization of new ideas (e.g. the Water Assessment, which stimulates increased cooperation between Dutch water managers and spatial planners).

By comparing the cases of ML(W)S in the Netherlands and Flanders, this article has provided a detailed insight into the process of give and take following the introduction of a new discourse in an existing institutional arrangement. More specifically, it helps us to understand why the germination of a new discourse may proceed with considerably more difficulty in one system than in another.

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**Table 1: ML(W)S terminology in the Netherlands, Flanders and EU.**

EU	The Netherlands	Flanders
Prevention, i.e. avoiding or adapting construction in flood-prone areas	Prevention, i.e. avoid flood by reducing their likelihood through flood defence measures	Prevention, i.e. avoiding or adapting construction in flood-prone areas
Protection, i.e. reduce likelihood of floods through flood defence measures	Adaptive spatial planning, i.e. avoid or adapt construction	Protection, i.e. reduce likelihood of floods through flood defence measures
Preparation, i.e. emergency management	Emergency management	Preparation, i.e. emergency management

**Table 2: Population density and % of built-up land in the Netherlands and Flanders (based on Poelmans and Van Rompaey, 2009)**

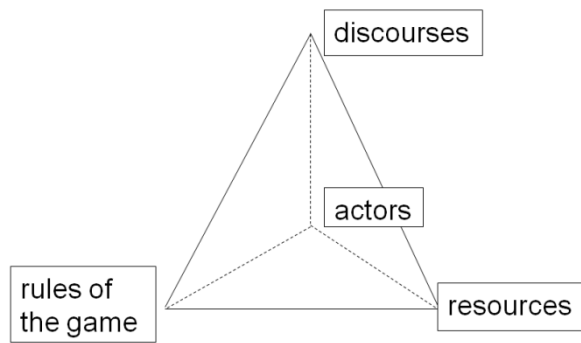
	Netherlands	Flanders (incl. Brussels)
Population density/km <sup>2</sup>	496	554
% of built-up land	11,5	26

**Table 3: Analysed policy documents**

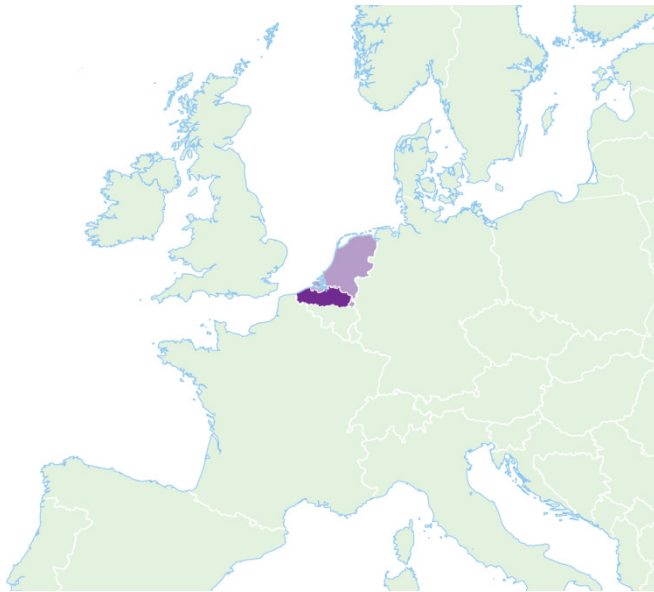
The Netherlands	Flanders
<ul style="list-style-type: none"> <li>• Research report 'Rode Deltas' (Oosterberg and Van Drimmelen, 2006)</li> <li>• Report of Committee 'WV21e eeuw' (V&amp;W, 2008)</li> <li>• Policy vision 'Nationaal Waterplan' (Rijksoverheid, 2009)</li> <li>• Finding Delta Committee (I&amp;M and EZ, 2014)</li> </ul>	<ul style="list-style-type: none"> <li>• First Water Policy Brief 2005</li> <li>• Second Water Policy Brief 2013</li> <li>• Draft River Basin Management Plan Scheldt 2016-2021</li> </ul>

**Table 4: Division of competences in Flanders**

Category of watercourses	Competent authority
<b>Navigable watercourses</b>	Waterwegen & Zeekanaal (W&Z)/ NV De Scheepvaart
<b>Non-navigable watercourses 1st category:</b> non-navigable watercourses with a catchment area of more than 5000 ha	Vlaamse Milieumaatschappij (VMM)
<b>Non-navigable watercourses 2nd category:</b> non-navigable watercourses with a catchment area of 100 hectares or more, crossing municipal borders	Provinces/Polders & Wateringues
<b>Non-navigable watercourses 3rd category:</b> non-navigable watercourses with a catchment area of 100 hectares or more, within the borders of one municipality	Provinces/Municipalities/Polders & Wateringues



**Figure 1: Visualisation of the Policy Arrangement Approach (PAA) (Lieberink, 2006).**



**Figure 2: Location of Flanders and the Netherlands within Europe.**