

Negotiated Space for the River Scheldt in Flanders. A longitudinal reconstruction of the policy debate to realize multifunctional retention capacity

Vera Vikolainen^{a*}, Arwin van Buuren^b, Jeroen Warner^c, Kris Lulofs^a
and Hans Bressers^a

^a*Department of Governance and Technology for Sustainability (CSTM),
University of Twente, The Netherlands*

E-mail: v.vikolainen@utwente.nl; k.r.d.lulofs@utwente.nl; j.t.a.bressers@utwente.nl

^b*Department of Public Administration, Erasmus University Rotterdam, The Netherlands*

E-mail: vanbuuren@fsw.eur.nl

^c*Social Sciences Group, Wageningen University, The Netherlands*

E-mail: jeroen.warner@wur.nl

The realignment of the international river Scheldt into a flood control area in Kruikebe, Bazel and Rupelmonde in Flanders (Belgium) took over 35 years. It evolved from a technocratic engineering concept towards a sophisticated example of an integrated flood risk measure to enhance the adaptive capacity of the international river Scheldt. Connecting the functional domains of flood control, nature restoration (as compensation for the environmental impact of the expansion of the Port of Antwerp) and agriculture in this flood control area and finding an appropriate frame proved to be a difficult task. In this article, we focus our analysis on two important aspects of creating space for the river Scheldt near the towns of Kruikebe, Bazel and Rupelmonde. To begin with, we present how the problem definition and the proposed space for the river solution evolved over time in interaction between the main involved actors. In addition to that, we look at the frames of proponents and opponents of the creation of a space for controlled flood storage. Finally, in light of and partially explained by aforementioned governance aspects we look at the evolution of the fit of the proposed solution within stakeholder boundary judgments.

Keywords: policy frames, boundary judgements, policy implementation, flood security, river Scheldt, Belgium

1. Introduction: making space for the river Scheldt

The Scheldt river is an international river basin that runs from France to the Netherlands. An important part of the river is located in Belgium (see Figure 1). The Flemish search to make more space for the river Scheldt started after the severe storm surge flood of 1976, claiming two victims and necessitating the evacuation of 2000 citizens and

* Corresponding author.

causing much material damage and public unrest. After this flood the Flemish government drafted the Sigma plan (1977). This plan initially intended to increase the flood safety to the same level as was the norm in the Netherlands: 1 in 10,000 years. The Sigma plan consisted of three types of measures:

1. general dike enforcement projects (raising and strengthening);
2. the realization of a storm surge barrier near Oostersweel;
3. the realization of so-called Controlled Flooding Areas.

In 2005 the Flemish government approved the updated Sigma plan. This update was deemed necessary due to several developments:

- a. the government wondered whether the original plan was effective enough due to climate change and new safety norms;
- b. the bilateral (Dutch-Flemish) long-term vision on the Scheldt Estuary was approved in 2001 in which more attention was given to nature restoration;
- c. the debate about the European Natura 2000 ambitions for nature conservation in the Scheldt Estuary ran high;
- d. local stakeholders requested more emphasis being placed on other ambitions like shipping, recreation and agriculture.

The updated Sigma plan can be seen as an example of integrated and adaptive flood risk management. Not only does it comprise different functions and other values than flood protection (Lubell & Edelenbos, 2013), it also proposes a more adaptive, on resilience based approach for river flood management (Rijke, van Herk, Zevenbergen, & Ashley, 2012).

The actualized Sigma plan thus not only contains measures to increase flood safety, but also measures which contribute to ecological values. An important building block of both the original and the actualized Sigma plan was the *Kruibeke, Bazel, Rupelmonde polder*. In this article we reconstruct the long decision-making process (more than 30 years) that – after stalemate debates – resulted in the implementation of a controlled flooding area on this site. This case nicely illustrates the impact of different interaction patterns between actors on various governance levels on the definition of the problem and the solution, and how this is connected with the evolution of the policy process. It shows that the way in which measures are framed (as necessary for flood protection instead of obligatory compensation for expansion of the Port of Antwerp) is also highly decisive for implementation success because of the strong relation between frames used and the acceptance of policy measures.

The overarching scientific focus of this paper is to combine two different theoretical approaches of policy analysis to understand and assess the dynamics in the chosen case study, both on the level of interaction patterns between actors in relation to the scope of the solution chosen (by using contextual interaction theory) as well as the frames used to legitimize the subsequent proposals (by using framing theory). Our approach is thus about *a priori* having a clear and coherent picture about what to expect to find in the case and improving theory instead of testing it (Babbie, 2004, p. 293).

The application of the frameworks in the analysis of the case can be seen as theoretical triangulation. Our extended longitudinal case shows systems of actors that repeatedly fail to progress and keep each other hostage within fixed system boundaries. This inevitably leads to reshaping the system boundaries in use in an effort to realize productive connections between functional domains like spatial planning, nature restoration, water management and agriculture, necessary to realize enough support for river flood management measures. However, the main barriers for implementation are as much about using a 'felicitous' frame that fits the problem definition of stakeholders 'on the ground'. Policy plans developed at central level cannot be expected to survive unscathed as they 'land' (Mosse, 2005), even when they incorporate local values. Policy concepts that seem to make perfect sense may be resisted, renegotiated and altered. People attach different meanings to space, and have different agendas for their preferred land use (Hagens, 2007). Stakeholders may feel they are unduly sacrificing for the benefit of others (Johnson, Penning-Rowsell, & Parker, 2007; Tunstall & Eden, 2006).

To begin with, we present how the system boundaries of actors and the proposed space for the river solution evolved over time. In addition to that, we sketch the context of the debate about creating space for flood storage, taking into account EU policy and legislation and the development aspirations of the Antwerp harbour. Furthermore, we look at the frames of proponents and opponents of the flood control area. Finally, in light of and partially explained by aforementioned governance aspects we look at the evolution of the proposed solution and its fit in the frames of the audience. We do this based on a chronological reconstruction of the implementation of the flood control area policy. Our method of reconstruction is described in Section 3. We start the paper with a theoretical framework that helps us to unravel the dynamics of complex implementation processes.

2. Contextual interaction theory and boundary spanning

Contextual interaction theory (CIT), with its origins in policy implementation analysis (Bressers, 2004, 2009) belongs to the 'third generation' of policy implementation theories (O'Toole, 2000, 2004). CIT considers policy implementation as a social interaction process among the implementers and the target group they seek to influence. In the case of Kruikeke, Bazel, Rupelmonde flood control area, these were the Department of Waterways and Sea Channel of the Flemish Department of Mobility and Public Works (hereafter: the implementer) and the municipality of Kruikeke, which covers the territory of neighbouring towns of Kruikeke, Bazel and Rupelmonde (hereafter: the target group or the municipality). The theory emphasizes that policy instruments adopted by the governments feed into on-going social interactions and are just one element shaping what happens. In this way, the implementation of the flood control area in Kruikeke as proposed by the Flemish flood control scheme, the Sigma plan, fed into on-going interaction between the political and civil actors in Kruikeke. The assumption is that the course and the outcomes of implementation depend on the characteristics of the actors involved (motivation, cognitions,

capacity and power), while all other factors are only influential in so far as they alter these characteristics. In this fashion many contingencies can be incorporated, at least implicitly, without increasing greatly the complexity of the basic theory. Used judiciously, CIT can offer a systematic way of sorting through complexity while also providing a reasonable framework for practitioners to consider the context and dynamics of their particular settings (O'Toole, 2004, p. 326). In the case of the Kruibeke, Bazel and Rupelmonde flood control area, CIT was applied in two earlier publications to distinguish and qualitatively characterize the four phases of project implementation and actor interactions at each stage (Vikolainen, 2012; Vikolainen, Bressers, & Lulofs, 2013a). This article will make the link between the changes in the context, the system boundaries and the implementation outcomes at different interaction stages more explicit. CIT fits the purpose of explaining the dynamics observed in the Scheldt case because it includes shifts in the context variables alongside the interactions between actors, providing a fuller perspective on understanding implementation. In the Scheldt case, contextual changes (Antwerp harbor development) are as important for understanding the implementation outcomes as the space for the river solutions proposed during the actor interaction (implementation) stages. However, in this article only the outcomes of actor interactions are summarized, while more emphasis is placed on the changes in the context to avoid overlap with previous work.

Recent advancement of CIT included the role of 'boundary spanning' in anticipating and confronting complex challenges. Boundary spanning by water managers is defined as 'adaptive governance of activities by linking their sector, scales and timeframes to other previously independent sectors, scales and time frames' (Lulofs & Bressers, 2010, p. 11). This emphasizes that problem-solving capacity regarding complex issues and problems is dispersed over many actors that hold ownership rights, user rights and management rights. As always, the question in this case is: what are we talking about? What belongs to the challenge(-s) and what does not? This is a matter of actors' boundary judgments which underpin the conceptual models with which the situation is understood and managed. Boundary judgements are socially constructed definitions of the domain of policy innovations in terms of relevant scales, sectors and temporal dimensions (Bressers & Lulofs, 2010; van Meerkerk, van Buuren, & Edelenbos, 2013). Synthesized solutions based on pooling ambitions and resources are called for in order to navigate interests, avoid blockages and define and implement acceptable solutions in busy river basins of modern complex democracies, acceptable both in terms of effectiveness and acceptance (Warner, Lulofs, & Bressers, 2010). The number, stability and intensity of spans is likely to be influential for problem-solving capacity.

3. Policy frames and policy acceptance

The interaction between implementer and target is not one-way, but an ongoing action-reaction cycle. Especially in negotiation, each negotiator seeks to alter the other's perception of the issue all the time by constant framing and reframing. The perceptions of actors of what is 'ours', what is 'theirs' and what is shared, in other words: their boundary judgements, will most likely only change slowly (Wiering, Verwijmeren, Lulofs, & Feld, 2010).

Blurring boundaries and increasing coherence in boundary judgments and more promising spans require purposeful framing and reframing. In the present article, boundary spanning, boundary spanning judgments and adaptive management of multiple scales, sectors and timeframes are used to understand how the solution strategies were framed and reframed and to learn how to enhance the adaptive river capacity (van Meerkerk et al., 2013).

Boundary judgments are normally quite implicit: they often remain unexpressed by actors. However, they play a decisive role in the way actors discursively frame the issue they dealt with (van Buuren, 2009). These frames consist of values, interpretations and meanings which we have learned and developed through social interaction. Subjective frames reflect normative values and are manifested in the ways stakeholders frame and make sense of issues, acting as filters for how actors interpret and assess information and understand their world (Warner & van Buuren, 2011). The concept of boundaries emphasize the aspect of inclusion and exclusion: which aspects of complex systems are taken into account (van Meerkerk et al., 2013). The concept of frames emphasize the normative interpretation of the issue defined by these boundaries: how the issue is defined, how the solution is legitimized and which problem definition is used. Sometimes frames are defined as sense-making boundaries (Warner et al., 2010).

Dewulf et al. (2009) identify two key strands in the literature on framing: a cognitive paradigm or an interactional paradigm. In both cases, frames are never totally individually constituted, but reproduced in patterns of social interaction. They are therefore shared by individuals who participate in the same social context or practice. They are held by actor coalitions whose members share the same normative interpretations and world views (Sabatier, 1988) and may form the basis of discursive alliances (Hajer, 1995). In controversial policy processes it is thus possible that only a few dominant frames are present.

In framing processes actors make strategic choices to highlight some aspects and neglect others. They closely relate some aspects to each other while the relationship between other aspects is ignored. This process is called interactional issue framing (Dewulf et al., 2009). It is an inextricable part of policy-making and sheds light upon the dynamics of the debate between actor coalitions in controversial policy processes.

The way in which issues or solutions are framed has a strong impact on the perceived acceptance of policy implementation (Arts & Buizer, 2009; Snow & Benford, 1988; van Buuren & Warner, forthcoming). Some ways of framing fit better into the perceptions and values of stakeholders, others misfire entirely. By understanding the way in which actors frame policy situations and the interaction between conflicting frames, we can also find out the alternatives to escape from impasses.

Successful policy framing is 'felicitous' with its audience: it resonates with their values. As a result the audience is more likely to be willing to accept the implications of the frame even if it implies some downsides. If it does not resonate well, a counter-frame will strengthen. The strength of a policy frame more over is not static but influenced by contextual developments, such as the rise and fall of politically influential actors in the context of our case, such as the Green Party (Agalev) and the D.E.N.E.R.T. party. Frames cannot be totally divorced from their material underpinnings which, as we shall see, played a part here in tipping the balance in favour of a deal.

4. Methods

The qualitative inquiry presented in this article can be characterized as an extreme or unique case study (Yin, 2003). The case was selected on the basis of expectations about their valuable information content: the history of the Kruikebeke flood control area spans over 35 years and is a good illustration of the attempts to enhance the adaptive capacity of river Scheldt. It shows the difficulties in realizing new connections between functional domains like nature, flood control, nature restoration, the development of Antwerp harbour and local agriculture. Information-oriented selection, as used here, is useful in maximizing the utility of information from small samples and single cases (Flyvbjerg, 2006). Extensive documentary analysis (administrative, political decisions and project documentation of both the flood control area and Deurganck dock projects) and analysis of secondary sources (Adriaense, 2010; Floor, 2009; Neumann, Maes, & Siciliano, 2002; Roovers, 2012; Sahin, 2007), enabled us to reconstruct the chronology of events, which is a special form of time series analysis (Yin, 2003). In addition to document analysis, a list was drawn up of government institutions and stakeholders, which participated in the Deurganck dock and Kruikebeke projects and their corresponding roles in the implementation processes:

- The Municipality of Kruikebeke: flood control area opponents; flood control area proponents;
- Flemish Nature protection society (Natuurpunt Vlaanderen): an NGO that lodged a court appeal against the construction of Deurganck dock; proponent of Kruikebeke flood control area in combination with nature development;
- Antwerp Port Authority: Deurganck dock project implementer;
- Local farmers' association of the Municipality of Kruikebeke: stakeholders affected by flood control area development;
- Maritime access department of the Flemish Ministry of Mobility and Public Works: Deurganck dock project initiator;
- Waterways and Sea Channel department of the Flemish Ministry of Mobility and Public Works: Kruikebeke flood control area implementer.

The following sampling technique was used for the interviews: one respondent in each government institution/stakeholder organization listed above was interviewed using semi-structured interviews. It was ensured that all actors were covered, including the opponents, by cross-checking the actors with each respondent and across document sources. The mayor of Kruikebeke was interviewed as a representative of the opposition. To minimize bias in the presentation of the problem, we analyzed project documents and chronologies from a variety of sources: project opponents and project initiators, as well as neutral actors not directly involved in the implementation of either projects (e.g. Flemish Nature and Forest Agency, Flemish Research Institute for Nature and Forest). Project documentation included Ministerial policy documents, reports, decisions and project designs.

The analysis in the article is based on previous work of the authors (van Buuren, 2011, 2012; Vikolainen, 2012; Vikolainen et al., 2013a; Warner & van Buuren, 2009, 2011). It brings together multiple empirical sources and uses a more inclusive theoretical framework

to further enhance our understanding of the specific dynamics that characterize this specific case. While previous work was an in-depth analysis of certain aspects of the case (e.g. actor interaction stages), framed from one theoretical perspective (e.g. CIT), in this paper a more integrated perspective on the case is presented. For this purpose, two theoretical approaches that have not been used together previously are drawn upon to generate potentially new insights for policy analysis. Section 5 presents a chronological reconstruction of the flood control area implementation, based on the aforementioned data. The advantage of a qualitative technique applied to this case study is that it allows the researchers to trace the changes in the context of each implementation stage over more than 35 years.

5. Project implementation chronology

5.1. *Implementation stage I*

After the Flemish floods of 1976, Belgium's then King Boudewijn (Baudoin) announced a flood risk management scheme called the 'Sigma plan' in 1977. The aim of this plan was to protect the areas along the Zeescheldt (part of the river Scheldt under the tidal influence of the North Sea) and its tributaries. The plan consisted of three elements: dyke reinforcement, thirteen flood control areas, and a storm surge barrier. We centre our analysis on the largest of thirteen flood control areas in the Sigma plan, at 750 (some sources say 650) hectares. A flood control area is an area enclosed by a higher outer dyke and a lower inner dyke along the river. If, during a storm surge, the water level rises above the inner dyke, a large amount of water can be stored temporarily in these reservoirs (for the space of a single tide), resulting in a dampening of the tidal wave and thus protecting valuable areas nearby from flooding. Depending on their position in the estuary and the weather, the inundation areas would be flooded once or twice a year (Cox et al., 2006).

The envisaged flood control area (referred hereafter as 'the flood control area' or 'the project') was located on the east bank of the river Scheldt in the polders of Kruibeke, Bazel and Rupelmonde in the province of East Flanders, just 30 kilometres from Antwerp (Figure 1, source: www.natuurenbos.be).

The polders were historically used for agriculture, recreation and natural values. Once the flood control area in Kruibeke will be fully operational, the risk (return period) of flooding in the Zeescheldt basin is expected to decrease from once in 70 years to an average of once in 400 years. In addition to storm surge inundation once or twice per year (traditional realignment), the northern part of the polder is designed to be inundated daily (flood control area).

Between 1977 and 1991, the efforts towards implementing the Sigma plan focused on the smaller flood control areas. From the start, inhabitants of the municipality of Kruibeke and in particular the (elected) mayor sided against the intervention, whereas the higher-level authorities were hesitant to initiate the implementation process. In terms of the CIT this situation corresponds with non-implementation: the flood control area was postponed until a later date and the building permit for Kruibeke was not applied for.



Figure 1. Kruibeke, Bazel, Rupelmonde in East Flanders, Belgium

5.2. Implementation stage II

By the mid-90s Kruibeke remained one of the last unimplemented flood storage areas under the Sigma plan and the authorities were willing to proceed with its completion, even though the protest marches under the mayor's leadership were still continuing. Hence the implementer tried to rethink its Kruibeke implementation strategy and redesign the flood control area. The renewed plan for the area now incorporated environmental goals alongside flood protection. This secured the support of nature protection groups; however the majority of polder users still supported the mayor at this stage. Under these circumstances, the resulting interaction process, according to CIT, depends on the balance of power between the actors. A public inquiry, which is part of a building permit procedure under the Flemish Spatial Planning Decree, would have been certain to receive objections from the municipality. With the mayor in office since 1983 and having the majority of votes, the risk that he would bring proceedings before the Court of Appeal was too high. The balance of power was in favour of the mayor and the responsible ministerial Department did not issue a permit and construction did not start. Up to six permit applications were attempted, with no final decision. The interaction among the municipality and the authorities at this stage can be characterized as opposition.

Around the same time, another Ministerial Department took the initiative to expand the port of Antwerp, located some 30 kilometres from Kruibeke, to enhance its international

competitive position. Initial plans for the harbour expansion proceeded in the atmosphere of balance and administrative agreement among those involved, with a succession of decisions by the Flemish government to implement these agreements: approval of the strategic port development plan (25.5.99); regional zoning plan amendment (01.06.99); and amended Birds Directive decision to designate the whole of Kruikebeke polder as an area subject to the European Birds Directive, in compensation for the partial loss of ecological value of a protected area of special scenic interest as a result of the Deurganck dock construction (23.06.98). The construction of the dock, commenced in 1999, changed the relation between built-up urban space (the harbour) and protected rural space (the nature area), in so doing creating new and contested spatial relations (Biro, 2007).

5.3. *Implementation stage III*

The events that unfolded in 2000 and 2001 were the complete opposite of the balance and agreement in the previous stage. The inhabitants of the village adjacent to the harbour (Doel) and nature protection associations made use of all the legislative instruments at national and European level, including the EU Birds and Habitats Directives, to delay or postpone the dock's construction. Amendments to the regional plan and construction permits were suspended by the Flemish Council of State in 2000 and 2001 and the project was stalled.

To end the conflict, Antwerp's Port Authority commissioned a new Environmental Impact Assessment (EIA) and sought solutions for the inhabitants of Doel. The revised EIA took, among other things, full account of the natural areas protected under EU legislation relevant to the dock. It stressed that compensation for the loss of these areas must be implemented before or at least simultaneously with the construction of the dock. The Kruikebeke flood storage area featured as one of the compensation measures (Milieu en Veiligheid, DvL Milieu en Techniek, & Aeolus, 2001). The Flemish Parliament enacted a Validation Decree (14.12.2001), a legislative instrument for exceptional cases of deadlocks that cannot be challenged in the court of appeal, while the Flemish government passed a Resolution (20.02.2002), both documents to ensure the construction and exploitation of the Deurganck dock on condition that the requirements of the European Birds and Habitats Directives were met (for a detailed discussion of these requirements see Vikolainen, Bressers, & Lulofs, 2013b).

The Deurganck dock compensation requirements changed the balance of power in Kruikebeke in favour of the implementer: they could force the implementation of flood control area in Kruikebeke. The Validation Decree linked each construction permit for infrastructure works with a permit for nature compensation measures. The permits were guaranteed and could not be challenged in the court of appeal. Moreover, the decree provided a detailed matrix of responsibilities for each actor at each stage of implementation of the compensation measures. It also launched a monitoring programme and maintenance commission to ensure that compensation goals were attained. The Flemish Government's Resolution facilitated the implementation of compensation measures in Kruikebeke as well as on the Left Bank of the river Scheldt.

Unaware of the implications of the Validation Decree, the majority of polder users were still opposed to the project and unwilling to cooperate. Flemish Dyke law permits the authorities to start work while expropriation decisions to relocate the farmers from their plots are still underway, and the implementer made use of this instrument. Work commenced on the first farming plots by locating building materials and a shed and hiring a contractor. This was a tactical move to show that the flood control area had moved from the preparation into the realization stage. Farmers on whose plots the work started were the first to react, as they could no longer access their plots while construction literally took place in their backyard. They knew all too well that the financial compensation offered by the government for expropriation was not a viable solution for all 72 farmers in the area and could result in considerable income loss. Eventually, negotiations between the authorities and the farmers opened and dyke law was in the end enforced on fewer than 10 farming plots out of 1385. In theoretical terms, the interaction at this stage can be described as forced cooperation, Dyke law and eventually the Expropriation decisions overruled the opposition.

With the construction permit issued and the expropriation decisions finalized, implementation of the flood control area was secured. The implementer was now motivated to return ownership of the project to the local level, involve the inhabitants and make them ‘ambassadors’ for the project. The largest group of land users in the polder were the farmers, who were looking to maintain their income, even if only temporarily. Negotiations with the farmers had already been opened and both actors together sought common solutions and options to make optimum use of the construction time, which was estimated to take up to ten years. As the negotiations progressed, each farmer’s situation was analysed case by case. Apart from financial compensation for the farmers who moved out of the area, two solutions were agreed for those who could remain, given the area’s new functions: temporary maintenance contracts for mowing and grazing the grasslands during construction time, and ‘dung subsidies’ for livestock farmers affected by expropriation. As a result of these measures 43 out of 72 farmers signed maintenance contracts and were still active in the area in 2012. Aside from economic benefit, the farmers perceived the relocation of individual plots closer together and removal of trees in the polder as advantageous.

5.4. Implementation stage IV

From 2003 onwards, when these measures were initiated, the implementation has been characterized by cooperative interaction with the majority of municipal inhabitants. The farmers no longer supported the mayor of Kruibeke, who still remained strongly opposed to the project. Two groups emerged within the municipality at this stage: ‘believers’ (the biggest group) and ‘opponents’ (the mayor’s party). Believers support the project’s flood security and nature goals. They believe that the existing natural values will benefit from the implementation and have a more prominent function in the long term. They value the new forest that is being created and see new opportunities for tourism and nature. The mayor’s party does not support either of these goals: in his view, existing natural values are

being destroyed and the flood security calculations by the authorities are not to be trusted. Furthermore, in their perception nature and flood security cannot be combined in one area. Engineering solutions to the problem involve storm dams, not flood control areas. In the 2012 elections the mayor's party, tarnished by scandal over the mayor's management style, failed to gain the majority of local votes and the new coalition of the runners-up in the election took a positive stance on the controlled flooding project.

6. Analysis – first level: contextual factors, system boundaries, implementation outcome

In the 1970s and 80s, the sole objective of the Kruibeke flood control area and the Sigma plan was security against flooding. Hence, the proposed solution was a technical one, based on dykes, sluices and tidal dynamics in its operation. It was developed largely by engineers and the local context was taken into account only insofar it mattered for the technical design. When the mayor demonstrated his protest, no dialogue was attempted nor seemed possible, instead implementation was delayed until a later date.

By the mid-90s, the project's objectives had expanded, as environmental concerns received attention alongside flood defence measures. The rise of the environmental movement and the report on the environmental impact of the Sigma plan (AMIS report) marked a shift towards integrated planning. The renewed solution for the flood control area aimed at the restoration of original riverine landscape of grazing heights and wooded lowlands and introducing large mammals that once grazed along the banks of river Scheldt (Ministerie van de Vlaamse Gemeenschap, 1999). This solution was referred to by some interviewees as 'extreme nature'. Although the project initiators managed to secure the support of nature protection organizations, the majority of polder users (farmers) still supported the mayor, who was strongly opposed to the project.

A breakthrough for the Kruibeke flood storage area came in 2001 when the Validation decree enacted by Flemish Parliament linked it to the Antwerp harbour development and compensation plan. Ironically, the delay of Antwerp's harbour development provided a push needed for the completion of long attempted Kruibeke project. The societal ambition and the urgency of the flood storage area now increased due to its link to the project of overriding public interest. This ambition and urgency were exactly what Kruibeke missed when the scheme's objectives were only flood security and ecology. The compensation requirements for Kruibeke – 300 hectares of mudflats and marshes, 150 hectares of meadow land for birds, and 40 hectares of forest compensation – meant a change compared to the previous solution. A varied landscape had to be replaced with a more pronounced separation of forest and grassland to accommodate 100 breeding pairs of meadow birds. A set up like this required grassland to be maintained to keep the area from overgrowing. This meant that less dynamics were employed as the open meadow birds area needed different maintenance and resulted in less variation of the landscape. Although this solution would not fully restore the original riverine landscape, the value added would still be considerable compared to the ecological situation in the polder before the project.

Table 1
Analysis – first level

Stage	Context factors	System boundary	Proposed space for the river solution	Implementation outcome (CIT)
I.	1977–1991 Flemish floods '76 Sigma plan	Flood security	Engineering solution: dykes, sluices and tidal dynamics	None
II.	1992–1999 Flemish floods '92 Environmental Impact of the Sigma plan (AMIS report) Sigma plan update	Flood security Nature	Natural solution: restoration of the original riverine landscape, maintenance by large grazers; tidal dynamics (‘extreme’ nature)	Opposition
III.	2000–2002 Antwerp harbour expansion (Deurganck dock); EU Birds and Habitats Directives’ requirements	Flood security Nature Compensation for the project of overriding public interest	Compensation solution: less landscape variation, no grazers; stricter separa- tion between the open and forest area; tidal dynamics	Forced cooperation
IV.	2003–2012 Negotiations with farmers	Flood security Nature Compensation for the project of overriding public interest Local stakeholder involvement	Local solution: less land- scape variation; stricter separation between the open and forest area; open areas (meadows) main- tained by farmers; local activities and involvement; tidal dynamics	Cooperation

Finally, in cooperation with local farmers, the societal ambition of the proposed solution was increased even further by introducing measures that allowed the majority of farmers to be actively involved in the area through maintenance work. In addition to this, numerous volunteers and nature organizations became engaged in bird counting and other activities related to the reporting of compensation measure progress via the Flemish Ministry to the European Commission. Table 1 summarizes how the context, problem definition and the proposed ‘space for the river’ solution evolved over time.

The table above shows a gradual progression of a multi-purpose ‘space for the river’ solution over the years: in terms of flood security, Solution I would be sufficient. In terms of ecology, the optimum (dynamic and naturally maintained ecosystem) would be Solution II. In terms of economy, the Deurganck dock would sooner be realized without extra costs for compensation (without solution III) and legal tussles. The biggest local stakeholder, the farmers of Kruikebeke, would opt for no flood control area at all, because even with the maintenance measures and subsidies in place they stand to suffer a net economic loss. However, none of these solutions could be implemented: the authorities were wary of proceeding with Solution I; Solution II faced opposition; the Deurganck dock faced a legal battle; and

having no flood control area at all was not an option, given the flood security risk. The system boundary was spanned to include the goals of flood security, ecology, overriding economical interest and local stakeholder interests (final Solution IV). In particular the coupling of local farmers' economic interests with the project's ecological objectives is interesting, because the goals of agriculture are often considered to be at odds with nature. Nonetheless, such coupling was successfully realized in Kruibeke. The chronology of events showed that project implementer had been applying a boundary spanning strategy long before the Deurganck dock case took place, so boundary judgements, which are part of the cognitions of actors, have shifted over time. But it was also the shift in contextual variables, especially the link to a project of overriding public interest, that changed the balance of power and moved implementation into a forced cooperation stage. What follows from the first level analysis is that it is the combination of contextual variables and their influence on actor characteristics, such as the balance of power, motivation and cognitions, that explains the dynamics observed in implementing space for the river solutions.

7. Analysis – second level: frame-value fit

The first analysis revealed the evolution of the proposed solution to make more space for the river. Due to several contextual changes, the proposed solutions evolved from a rather technocratic engineering measure towards a sophisticated example of integrated, adaptive flood risk management. In this Section we enhance our understanding of this evolution by shedding light upon how the issue and solution was discursively framed and to what extent this frame matched the normative beliefs of the key stakeholders affected by the proposed intervention (local citizens, farmers, users of the polder).

The discursive frame of the controlled flood storage area at Kruibeke evolved during the three decades in which the project was debated. The initial discursive framing was strongly focused upon preventing future floods. This is a 'securitised' (survival) frame which normally commands great power to align intended audiences, as an issue 'above politics' (Buzan, Waever, & de Wilde, 1998; Warner, 2011). However, while people largely accepted the urgency of providing safety from future flooding, they did not 'buy' the non-structural solution. When the frame was gradually widened to include also elements of nature conservation and restoration, this naturally struck a chord with conservationists; yet this still did not resonate much with local farmers who preferred business as usual, which opened political space for a strong, populist counter frame led by the activist mayor, Antoine Denert, invoking the uniqueness of the area. Denert launched a counterproposal, the Alpha Delta plan, diverting water to the river's left and right banks and reducing the impact of the flood peak. This proposal bombed without trace.

Meanwhile the authorities changed tactics. The very real threat of 'hard power' invoking legislation legitimising expropriation in the national interest (*eminent domain*), was coupled with 'soft power' the attractive benefit of land consolidation. This mix may well have helped create a turning point winning opponents over.

Table 2
Analysis – second level

Stage	Dominant framing of issue / solution	Fit
I. 1977–1991	There is an urgent problem with regard to our flood security. A storm surge barrier in combination with flood control areas will be effective to reduce flood risk to an acceptable level.	Poor fit: although people acknowledge the importance of safety from floods, they prefer structural solutions over non-structural solutions.
II. 1992–1999	More resilient solutions enable ecological restoration and are cheaper than a storm surge barrier	Poor fit: inhabitants want to continue their use of the polder and this combination of nature and flood control is feared to be incompatible with other uses
III. 2000–2002	The twin benefits of safety and ecological restoration go hand in hand and can serve as compensation for harbour expansion	Poor fit: local inhabitants are unwilling to pay the bill for the port authorities
IV. 2003–2012	The ultimate solution will have to contribute to local values as much as possible	Moderate fit: possibilities to continue some functions in the area are deemed important to make flood control acceptable.

The above analyses allows us to combine the repeated reframing of the flood storage project on the part of the water authorities with the analysis of the ‘fit’ between project values and stakeholder values (see Table 2). Consolidating the first and second level analyses brings our analysis a step further by marrying the contextual interaction of problem and solution frames and their resonance with prominent stakeholder groups (see Table 3).

What follows from Table 3 is that there is a strong relation between the approach chosen and the resulting fit between the dominant frame and the values of involved actors. However, it also shows that slightly substantial changes combined with more fundamental reframing (enabling local value creation) can have significant consequences in terms of stakeholder support and fit.

The gradual redefinition of the plan may be seen as a successful case of ‘boundary spanning’. The expansion of actors and goals resulting from ‘boundary spanning’ may however develop into an overloaded ‘Christmas tree’ package (Warner et al., 2010). Such a package is an easy target for purists, whether safety, green spaces or economics (Warner & van Buuren, 2011).

The attempt to combine flood risk management and the obliged compensation for the Deurganck dock deserves somewhat more attention. From a project management perspective the link to combine both projects was very rational (Edelenbos & Klijn, 2009). However this coupling or boundary spanning resulted in only more resistance and rumor because local inhabitants felt themselves confronted with two interests from a higher scale, overriding their local interests. Boundary spanning from a managerial perspective (making smart connections to enhance efficiency) is thus quite different from boundary spanning from a collaborative perspective (including local values to enhance fit and thus support and acceptance).

Table 3
Consolidated first and second level analyses.

Stage	Context factors	Problem frame	Approach	Implementation outcome (CIT)	Fit
I.	Flemish floods '76 Sigma plan 1977–1991	Flood security	Engineering solution: dykes, sluices and tidal dynamics	None	Poor
II.	Flemish floods '92 Environmental Impact of the Sigma plan, Sigma plan update 1992–1999	Flood security Nature development	Natural solution: restoration of the original riverine landscape, maintenance by large grazers; tidal dynamics (‘extreme’ nature)	Opposition	Poor
III.	Antwerp harbour expansion (Deurganck dock) EU Birds and Habitats Directives 2000–2002	Flood security Nature Compensation	Compensation solution: less landscape variation, no grazers; stricter separa- tion between the open and forest area; tidal dynamics	Forced cooperation	Poor
IV.	Negotiations with farmers 2003–2012	Flood security Nature Compensation Local value creation	Local solution: less land- scape variation; stricter separation between the open and forest area; open areas (meadows) main- tained by farmers; local activities and involvement; tidal dynamics	Cooperation	Moderate

8. Conclusions

Machiavelli depicted power as a Centaur: half horse, half man - that is, part brute force (hard power), part cunning and persuasion (soft power). The case displays aspects of both: the threat of expropriation legitimised by the greater economic good (eminent domain) of the expansion of Antwerp, but also the delicate game of framing and reframing to persuade the local population of the necessity of giving more space to the river.

Our analysis showed that we need to be able to describe systems, actors and their interactions, and understand and explain dynamics in system-boundary judgments, which are part of the cognitions of actors. Contextual factors, tacit knowledge and purposeful action of actors lead to redefined system boundaries and thus to scope-adjustments which make a project more or less integrated and inclusive. To analyze this the set of boundary spanning concepts proves useful. However, to understand the acceptance of the ultimate solution, not only its ‘negotiated substance’ is important, but also the way it is framed and the extent to which this frame fits into prior normative beliefs of participants. There is a reciprocal relation between how actors ‘power’ about the scope of the solution, how they frame it and the ultimate implementation success (van Buuren & Warner, forthcoming; van Buuren et al. forthcoming).

From this in-depth case study of making space for the river in Flanders we can learn at least three important lessons. First of all, the case confirms the expectation in the negotiation literature (e.g. Putnam & Poole (1987)) that the inclusion of more issues facilitates a package deal that promotes consensus about making space for the river. It makes the governance of the project more complex, but a connective management style contributes to project success (Edelenbos, Klijn, & van Buuren, 2013). This is a finding that correlates with other case studies of making space for the river (Warner et al., 2012).

However, integrative bargaining seems not to suffice for realizing support for controversial flood measures. It is also necessary to realize a shared frame that is supportive for the proposed measure. This finding corresponds with earlier findings in which is showed that not only the substance of flood risk measures, but mainly the way they are framed is decisive for their reception and thus for their acceptance (van Buuren & Warner, forthcoming).

Realizing a multifunctional solution requires an approach that facilitates collaborative framing. We found strong clashes between the dominant (policy) frame and the counter frame of opponents. Interaction was highly competitive and only in the final stage became more participatory and inclusive. This opened the possibility to align problem definitions and construct a shared frame in which the polder maintained its current qualities but was given different functions at different moments in time.

Finally, the role of contextual dynamics is important to recognize. These context dynamics strongly influenced the dominant problem frame. A more securitized problem frame was used, not only after the two floods, but also after the decision of the EC about the compensation obligation for the Deurganck dock. The water authority was willing to consider a more scrutinized frame and return the project ownership to local inhabitants, although this was not strictly necessary given the fact that the EC's decision was irreversible. These securitized frames narrowed the scope to search for alternatives considerably. Only in a more tranquil context it became possible to collaborate and to span the system boundaries with room for both local and national interests.

Contextual dynamics alone would not have explained why the water authority was motivated to engage local inhabitants in constructing a shared problem frame, neither would interaction patterns among the actors, if they were analysed in isolation from external events. Taking into account both elements, as suggested by the CIT, and combining them with the analysis of problem frames, provided a more inclusive theoretical framework. Drawing on two theoretical approaches brought the understanding of the Scheldt case a step further and could be useful for analysing similar cases in future.

In flood risk management literature the importance of urgency is often strongly emphasized, which brings a high potential for 'securitisation' (Buzan et al., 1998). After a (near) flood event the urgency to do something is high and seen as necessary to implement solutions. However, our case also shows that such a sense of urgency easily results in a rather closed and top-down approach in which a monofunctional solution for flood risk management (congruent or contrasting with the Space for the River paradigm) is put forward. In our case an additional 'securitised' issue was the pressure to 'repair' a

project deemed of overriding public interest, of economic survival: the expansion of the port of Antwerp, which reverberated on our study area. The environmental compensation requirements for the expansion increased the urgency of realising the flood storage area. This however does not necessarily mesh well with the legitimation of making space for the river in a localized, multifunctional way, which as we saw requires some ‘protected (policy) space’. Urgency may be necessary to put issues (again) on the agenda, but deliberation within the absence of external threats may well be necessary to get them towards implementation.

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