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Changing climate, changing frames
Dutch water policy frame developments in the context of a rise and fall of attention to climate change

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ABSTRACT

Water management and particularly flood defence have a long history of collective action in low-lying countries like the Netherlands. The uncertain but potentially severe impacts of the recent climate change issue (e.g. sea level rise, extreme river discharges, salinisation) amplify the wicked and controversial character of flood safety policy issues. Policy proposals in this area generally involve drastic infrastructural works and long-term investments. They face the difficult challenge of framing problems and solutions in a publicly acceptable manner in ever changing circumstances. In this paper, we analyse and compare (1) how three key policy proposals publicly frame the flood safety issue, (2) the knowledge referred to in the framing and (3) how these frames are rhetorically connected or disconnected as statements in a long-term conversation. We find that (1) framings of policy proposals differ in the way they depict the importance of climate change, the relevant timeframe and the appropriate governance mode; (2) knowledge is selectively mobilised to underpin the different frames and (3) the frames about these proposals position themselves against the background of the previous proposals through rhetorical connections and disconnections. Finally, we discuss how this analysis hints at the importance of processes of powering and puzzling that lead to particular framings towards the public at different historical junctures.

1. Introduction

In September 2008, a major Dutch political advisory committee – *the Delta Committee* – presented its advice to the government concerning the state's flood safety in light of climate change (Delta Committee, 2008):

> "The main conclusions from the advice are:
>
> [...]
> - Climate change and sea level rise are facts;
> - From now on the Netherlands should work on the improvement of its flood safety;
> - Water safety means: flood protection, ensuring fresh water supply and the conservation of estuaries;
> - The safety behind the dykes should be increased by a factor of at least 10;
> - A ministerial steering committee headed by the Prime Minister should monitor the implementation of the twelve recommendations made by this Delta Commission.
>
> [...]
>
> According to the Delta Committee, a sea level rise of 0.65 to 1.3 m in the year 2100 and 2 to 4 m in 2200 should be taken into account; more than has been assumed to date. The committee believes that it is wise to reckon with possible

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upper limits, so that decisions and measures will hold for a long time span.''

This is a remarkably outspoken statement given the complex issue of climate change. It also includes top-down governance prescriptions which seem at odds with the traditional Dutch consensual decision-making approach known as ''poldering.'' For centuries, consensus through negotiation has been the cornerstone of legitimate collective action in heterogenic polder communities fighting unpredictable storm surges and a rising sea level (Dolfing and Snellen, 1999; De Vries and Wolsink, 2009; Koningsveld et al., 2008). Local water management institutions called water boards have had to deal with planning dilemmas which many scholars describe as ill-defined, ill-structured or wicked, demanding complex negotiations over diverging problem definitions or *frames* (Rittel and Webber, 1973; Hisschemöller and Hoppe, 1995; Schön and Rein, 1994; Lach et al., 2005; Warner, 2008).

These planning dilemmas are not specific to the Dutch context; rather, they are encountered in densely populated deltas all over the world. Although dealt with in context-specific ways, the general heterogeneous character of delta societies with their wide variety of publics, interests and problem definitions or *frames* (Schön and Rein, 1994) often make water management dilemmas subject to debate and prone to controversy (Norgaard et al., 2009; Kallis et al., 2009; Lebel et al., 2005; Kirby et al., 2010; Adekola and Mitchell, 2011). Correspondingly, one would expect that the complexities of the climate change issue would only amplify the rhetorically challenging task of public policymaking about flood safety in these plural societies (Hulme, 2009; Giddens, 2009; Adger et al., 2009).

However, the public announcement of the Delta Committee's findings seems surprisingly bold about the meaning of the climate issue for the Dutch delta area. Its deviant problem framing led the committee to recommend rather drastic top-down interventions in both the country's physical water management system and its institutional water governance arrangements. Perhaps even more surprising is the ease with which the committee succeeded in getting the new water management frame and related governance approach accepted by government (Ministerie van Verkeer en Waterstaat, 2008) and the moderate debate this produced in parliament (De Vaste Commissie voor V&W, VROM & LNV, 2009) and society (Verduijn et al., 2012). This is especially surprising given the high costs, the rising controversy on climate change in science and society, the far-reaching consequences for several waterfront towns, and the friction between the top-down prescriptions and the predominantly consensual governance approach at the time (De Vries and Wolsink, 2009; Disco, 2002). Apparently, the committee's public announcements about a potentially controversial policy proposal struck a chord and were hard to disagree with.

1.1. *Aim and structure of the paper*

Triggered by the example of the Delta Committee's remarkable and apparently successful public framing of flood safety policy, this paper examines how flood safety policy is framed in public announcements at different points in time, in the context of the emerging issue of climate change. Given the knowledge-intensive nature of the water and climate policy domains (Termeer et al., forthcoming), we also focus on how knowledge is mobilised in these publicly framed policies. Because every policy proposal is understood against the backdrop of earlier policies and proposals, we also look at how the different points in time relate to each other by analysing the rhetorical connections and disconnections between different frames employed over time.

Accordingly, this paper compares three public announcements of major policy proposals in Dutch flood safety policy. The first announcement, in 1996, presents the policy proposal called Room for the River, before climate change emerged on media and policy agendas. The second announcement, in 2008, presents the Delta Committee's recommendations discussed above, a proposal with a comparable aim but more than a decade later and with climate change high on media and policy agendas. The third announcement, in 2011, presents a follow-up policy proposal to the Delta Committee's recommendations, called the Delta Programme, in a context where the issue of climate change had become controversial in the media and had disappeared from the Dutch policy agenda.

Through these analyses, the paper aims to addresses three research questions. First, how do the announcements of three key policy proposals publicly frame the flood safety issue? Second, what knowledge is mobilised to construct these frames? Third, how are these frames rhetorically connected or disconnected as statements in a long-term conversation? We address these questions taking into account a societal context where the issue of climate change over time emerges, gains currency and becomes controversial.

To answer these questions, this paper builds a theoretical framework starting from the characteristics of wicked problems, focusing on the role of framing and knowledge. We use Schön and Rein's (1994) ideas on how metaphors and storylines can be used as structuring elements for framing policy, and then turn to Jasanoff (2003), Turnhout et al. (2008) and Turnpenny et al. (2009), who indicate an entanglement of scientific knowledge and policy framing. We take the frame analysis a step further by using theory on textual conversations (Edwards, 1997; Hardy et al., 2005) to analyse how the announcements implicitly refer back to and position themselves towards earlier policy proposals. In Section 3, we explain our frame analysis and justify the selection of the analysed policy texts. The resulting frame analysis leads us to a discussion focusing on a comparison of the frames and knowledge mobilised over time. Linking back to our theoretical framework, we discuss how these frames are rhetorically connected or disconnected as statements in a long-term policy conversation. Finally, we discuss how our results hint at an interplay of powering and puzzling processes (Heclo, 1974; Turnpenny et al., 2009) that might have led to these frame developments.

2. Theoretical framework

2.1. *Framing wicked problems*

In planning studies and political science, scholars refer to both water and climate issues as classical wicked problems (Rittel

and Webber, 1973; Lach et al., 2005; Lazarus, 2008; Termeer et al., 2011). Wickedness here does not refer to witchcraft or evilness but rather is used by Rittel and Webber to characterise a policy problem in a meaning akin to malignant, vicious, tricky or aggressive (Rittel and Webber, 1973, p. 160). In contrast to the logic of rational problem solving, where problems are definable, understandable and therefore solvable, Rittel and Webber sketch a history of planning professionals unsuccessful in solving planning problems, resulting in restive clients or publics. Different publics assign different meanings to the problem, and this plurality of publics and associated problem definitions make it difficult to define what is at stake and what should be done.

Plurality is often referred to as a common characteristic of traditional Dutch water management. Earlier water boards continuously organised consensus on water management issues through negotiation over problem definitions and values with the various lowland stakeholders involved. Plurality concerned the meaning of costs and benefits for these stakeholders in terms of cooperation in the construction and maintenance of flood protection infrastructure such as dykes, but also in terms of the purpose of these artificial pieces of land for cattle grazing, building or flood protection (Dolfing and Snellen, 1999). In more recent water management history, this wicked character of flood safety was often evident in how the Dutch state had to cope with persistent opposition towards major flood safety policies[1] (Huitema and Meijerink, 2010; Wesselink, 2007). Correspondingly, Rittel and Webber consider wicked problems as social problems that cannot be solved – they can only be re-solved over and over again (Rittel and Webber, 1973, p. 160).

Together with the ambiguity about what the problem means to different publics, the understanding of the causal relations behind the problem may also be uncertain. A decrease in floods might be viewed as a result of policy interventions, but also as an indication of the uselessness of the policy interventions since the problem might seem to be disappearing. Intrinsic uncertainty about the problem means that for some complex issues we simply do not know the precise causal relations, or which policies will cause what impacts (Hisschemöller and Hoppe, 1995). Accordingly, the uncertainty in climate change knowledge, impacts and the ambiguity inherent in the wide variety of problem definitions, values and interests associated with the issue, make flood safety policy in the context of climate change a ''wicked problem par excellence'' (Turnpenny, 2009; Termeer et al., forthcoming).

Therefore policymaking about wicked problems fits neither a rational planning approach where the ''best'' policy option can be derived from proper calculation and investigation, nor a pure political practice where stakeholders negotiate about their interests on the basis of rational micro-economic thinking (Schön and Rein, 1994). Scholars like Stone (1989) and Schön and Rein (1994) have introduced the concept of framing in relation to these policymaking processes. They understand the process of policymaking about wicked problems as a contest over the framing of ideas in which they define framing as ''...a way of selecting, organising, interpreting and making sense of a complex reality to provide guideposts for knowing, analysing, persuading and acting'' (Rein and Schön, 1994, p. 146). What is discussed by Rittel and Webber (1973) as problem definitions are understood by Rein and Schön (1991) as problem frames that rely on storylines or metaphors. Explicitly or implicitly, these storylines link accounts of the problematic policy reality to particular proposals for action, implying a normative leap from what ''is'' to what ''ought to be'' (Rein and Schön, 1991). By employing framing theory as a resource for making sense of reality and legitimising policies dealing with this reality, we shall work towards answering our first research question.

2.2. *The use of knowledge in framing wicked problems*

Environmental issues are often argued to differ from other wicked policy issues because their understanding is tied more closely to scientific knowledge (Hannigan, 2006), making them more ''epistemologically distant'' from day-to-day experiences (Carolan, 2004). Reliance on scientific arguments or authority can therefore be expected in the way environmental issues are framed. In the discussions that take place in various science–policy interfaces, experts and policymakers engage in prolonged debates about how to interpret particular research results and how to account for particular policies (cf. McNie, 2007; Turnhout et al., 2008). In the case of the policy-oriented summary documents of the International Panel on Climate Change (IPCC) assessment reports, experts and policymakers spend ample time in reviewing, revising and interactively framing the results, implications and conclusions in light of the latest scientific discoveries and in light of on-going policy processes in the climate change domain.

However, in the scholarly understanding of how scientific knowledge gets used in these policy processes, the role of frame interactions and strategic use of knowledge in policy framing is somewhat underdeveloped. A notable exception is Jasanoff (2003), who points at the importance of framing in reconfiguring institutions for merging science and policy. In different terms, Hannigan (2006) turns to the importance of frame alignment in the legitimate construction of environmental claims. Besides recruiting institutional sponsors and scientific authority, he stresses the need to connect to popular issues, to dramatise and to frame the solutions in a rhetoric of economic rationality. Different from strategically framing science towards attractive policy solutions, Turnhout et al. (2008) show how knowledge may be selectively claimed or demarcated in political debate and accordingly become politicised. Hence, this entanglement of knowledge in a framing contest over wicked problems is both the strength and the weakness of the process. It allows for policy-relevant science and scientifically informed policy, but faces at the same time the double risk of policymaking being too strongly driven by what happens to be known and researched in the scientific realm, or of scientific inquiry being too strongly driven by particular policy processes. To answer our second question, we build on these ideas of knowledge playing an important and possibly strategic role in policy framing.

[1] In 1976, the planning of a major flood safety intervention, the Eastern Scheldt barrier, had to be redesigned because of severe opposition emerging from both the fishery sector and nature conservation groups up to parliamentary level.

2.3. *Sequences of policy announcements as long-term conversations*

The way policy proposals are publicly framed is to be situated not only in the contemporary societal and political context, but also in the sequence of policies and policy proposals that form the history of a particular policy domain. Approaches like discursive psychology (Edwards, 1997), sensemaking (Weick, 1995; Termeer, 2009) and interactional framing (Dewulf et al., 2009) have shown how people make sense of issues by continuously negotiating about meaning through language-in-interaction. The meaning of a particular statement has to be understood in light of the preceding statements by others, and can also be reworked by subsequent statements. Although these theories and methods have been developed primarily on the basis of face-to-face conversations, they can also be applied to written conversations that take place over longer timescales. In line with Hardy et al. (2005), conversations can be understood as sets of texts rhetorically and sequentially linked in a particular context. This allows us to apply interactional framing analysis to texts such as official policy announcements. We consider these texts as discursive acts in larger conversations of governmental organisations communicating to the public over time. Implicitly or explicitly, these governmental organisations may react to politically or societally articulated frames, or earlier governmental statements and policy presentations. In that sense, official policy announcements represent a balancing act, not only by making sense of the present, but also by positioning themselves towards earlier policies in that domain through rhetorical connections or disconnections. In answering our third question, we employ interactive framing theory and focus on recurring textual elements or explicit connections/disconnections in the framing.

3. Methodology

Following our research questions, we emphasise the developments in publicly framed flood policies over time in the context of the emerging issue of climate change. We analyse textual frames, using the constructivist socio-linguistic approach (Phillips and Hardy, 2002; Wood and Kroger, 2000). In line with Miller (2000) and Boezeman et al. (2010), the analysis has a longitudinal character in which the development and interactions of policy frames in policy presentations to a general public are analysed over time. To understand how frame developments occur in relation to emerging issues or previous frames, we follow Hardy et al. (2005) as discussed in Section 2.2.

3.1. *Data collection*

3.1.1. *Public announcements of policy proposals as our unit of analysis*

To study frame developments, we selected three official announcements of policy interventions in the national flood safety domain. The announcements were published by either a ministry taking responsibility for flood safety, or another governmental organisation at the national level claiming responsibility. We chose policy announcements as our unit of analysis for reasons of access and comparability in their aim and structure. All three initiatives focus on an overall national strategy to combat flooding, either along the big rivers or along both rivers and coastline. All three propose new infrastructural interventions and new governance arrangements. Official policy announcements represent a condensed version of the outcome of a complex policy development process, including general statements of how to understand reality and a normative leap from what "is" to what "ought to be" (Rein and Schön, 1991, see Section 2.1). Hence, the outcome is presented in such a way as to convince the general public and may react to earlier policies, policy interventions or changes on the ground.

3.1.2. *Selecting policy announcements*

Because we were particularly interested in the role of the climate change issue in the framing of flood safety policies, we chose three key policy initiatives before, during and after the rise in attention on the climate change issue. Therefore, like Boykoff (2011) on the basis of English language newspapers at a European level, we reconstructed the media attention on climate change in the Netherlands on the basis of the Dutch newspaper, *NRC Handelsblad*. This newspaper has the oldest issues available online, has a relatively constant number of total articles per issue and is considered a leading newspaper. In the LexisNexis database, we selected articles with the keywords: climate change (*klimaatverandering* or *klimaatsverandering*), or greenhouse effect (*broeikaseffect*) or global warming (*opwarming van de aarde*). As presented in Fig. 1, the steep rise in attention after 2004 corresponds with the media attention shown by Boykoff (2011) for climate change in the English speaking part of Europe, followed by the fall in attention after the issue became controversial as a result of errors discovered in the 2007 IPCC report and released emails of climate scientists in a situation known as "climategate."

Apart from media attention, we also looked into the political attention on climate change by checking the governmental agreements of each cabinet from 1994 to 2011, using the same keywords as for our newspaper analysis. The issue appears in 1998, but disappears again in 2002. After 2002, it is exclusively mentioned as an issue of European CO_2

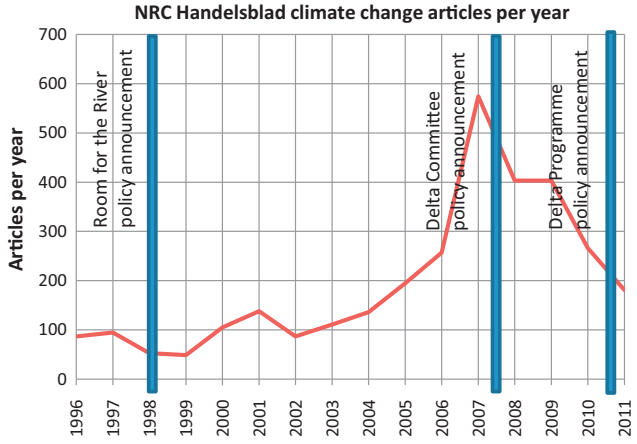

Fig. 1 – Newspaper articles on climate change (*NRC Handelsblad*) and policy announcements.

regulation. However, in the *Balkenende IV* coalition government programme of 2007, climate change becomes a prominent issue mentioned under its own heading, aimed at adaptation policies and sustainable development. With the fall in media attention after 2009 as presented by Boykoff (2011) and Fig. 1, the issue remains unmentioned in the *Rutte 1* agreement in 2011 (Archief Rijksbegroting, 2011). Hence, in line with Jones and Baumgartner's (2004) ideas on societal attention being reflected in policy, media attention correlates with climate change attention on the Dutch policy agenda.

3.1.3. *The three selected policy announcements*

The first policy announcement is a co-production of both the ministry of public works and the ministry of spatial planning for a substantial new policy line in flood safety, Room for the River (RvR), in 1996 (Ministerie Verkeer en Waterstaat, Ministerie VROM, 1996, translated from Dutch by the authors). The policy line proposes a new strategy to protect vulnerable hinterland against peek flows and can be considered one of the largest water management projects ever envisaged in the Netherlands (Brink, 2009). As can be derived from Boykoff's (2011) figures and Fig. 1, there was no substantial attention on climate change at that time in media or politics. For the RvR policy line, there was no press release available and therefore the official announcement in the Government Gazette (*Staatscourant*) was used. Although slightly longer and more detailed, we considered the official announcement comparable to a press release, because its language, rhetoric and argumentation is also aimed at persuading the public.

Our second chosen policy announcement is the official press release for the presentation of the National State Committee for the Delta, the Delta Committee's (DC) recommendations on flood safety in the Netherlands in 2008 (Delta Committee, 2008, translated from Dutch by the authors). This presentation coincides with the episode of high media attention on climate change between 2007 and 2009 (see Fig. 1). The presentation of these DC recommendations again considers a new approach to flood safety, partly based on what the committee claimed as a new reality compared to former policy lines. Therefore this announcement may be seen as a reaction to earlier policy announcements such as the RvR policy line.

The third policy announcement is the official press release for the presentation of the National Delta Programme (DP) in late 2010 (Delta Programme, 2010, translated from Dutch by the authors); a policy programme under the responsibility of the Ministry of Transport, Public Works and Water Management that evolved out of the Delta Committee's recommendations two years earlier. Attention on climate change has waned; accordingly, the cornerstone of the policy proposals mentioned in DC's announcement has partly lost its momentum, and therefore the DP's announcement might be seen as a reaction to the former policy announcement. Moreover, this policy programme is the official governmental policy reaction to the Delta Committee's recommendations.

3.2. *Data analysis*

In line with our interactional approach to framing, we relied on frame analysis that pays close attention to how language is used to construct the meaning of flood safety policies, thereby relying on the constructivist socio-linguistic approach to text analysis (Wood and Kroger, 2000), as indicated in Section 3. Part of this approach is the assumption that "if we wish to understand social events, we need to look directly at those events as these unfold, not at retrospective reports or second-hand data or other forms of 'self-report'" (Wood and Kroger, 2000, p. 26). Texts are thus studied as part of the concrete interaction context where they occur. Furthermore, this kind of frame analysis pays more attention to detail than do other qualitative methods, through the use of detailed textual analysis.

Wood and Kroger (2000, pp. 91–95) offer a series of general guidelines for doing textual analysis, a number of which are worth mentioning here: (1) try to identify the meaning to and for the participants, (2) do not ignore the obvious but try to explain it, (3) concentrate on what the speaker is doing through the text, (4) explore the consequences of slightly different versions of the text through thought experiments, (5) look carefully at how the text is structured, (6) be alert for multiple functions of discourse, (6) adopt a comparative stance, (7) question the taken-for-granted and (8) pay attention to grammar (e.g. passive versus active formulations).

3.2.1. *Frame analysis*

To further structure of our frame analysis, we focused on six points of comparison leading to a comprehensive understanding of the frames employed. We started by analysing who was doing the framing by looking for explicit signs of the responsible agency. Second, we analysed the framing of the problem at stake by employing text analysis as mentioned in Section 3.2. Third, we analysed whether and how the emerging issue of climate change played a role in framing flood safety. Fourth, by focusing on explicit or implicit associations with time, we analysed the timeframe being employed. Fifth, we analysed the kind of governance arrangements proposed by the policy frames. Sixth, we concluded our analysis by focusing on the concrete policy measures proposed.

3.2.2. *Analysis of the mobilised knowledge*

The frame analyses successively led us to analyse what knowledge was referred to in the different frames employed. We searched for references to scientific disciplines, knowledge institutes, or specific bodies or types of knowledge. Furthermore, we analysed how the knowledge referred to was rhetorically used in the problem framing.

3.2.3. *Analysis of the rhetorical connectedness/disconnectedness of the public announcements about the policy proposals*

Following Hardy et al. (2005), we analysed how the framings of the different public announcements over time were rhetorically connected or disconnected. First, we looked at explicit references made to earlier policy announcements; second, we looked for implicit references made; and third we looked for references made to concepts, ideas or knowledge presented in earlier proposals. Then we assessed how these references represented connections

with, or disconnections from, aspects of earlier policy proposals.

4. Results

4.1. *Public announcement of the Room for the River policy line*

The title of the announcement is: ''Room for the River policy line.'' Decreasing room for the river as a result of human intervention figures as the key problem in the announcement, and creating room for the river figures as the most important solution. The announcement starts: ''Over time, room for the river has decreased. The recent high waters of the river Rhine and Meuse, the vulnerability of our land, the unfavourable expectations about climate change and sea level rise make clear that sustainable protection against high water has a high priority.'' Hence, a decrease in room for the river in the natural riverbed is claimed to be the cause of the flood safety problem, a risk which may increase consequent to possible future changes in climate and sea level rise.

This claim is enforced by mentioning the cause: ''Embankments are the first cause of the restrictions to the river. The natural sedimentation of sand, stones and mud are other causes. But also (other) human activities such as the construction of buildings on the floodplains decrease the room for the river and thus increase the height of extreme high waters.'' Clearly the problem is (partly) presented as man-made. In the context of the large infrastructural works for coastal and River Rhine protection undertaken in the preceding decades, the framing of embankments or dykes as causes of flood safety problems is remarkable.

Turning to the proposed governance arrangement, the announcement continues: ''Because the room for the river policy line took shape after discussions with stakeholder organisations such as the Union of Dutch Municipalities and the Union of Water Boards, the policy line does not need a legal status. This informal status will also enhance quick implementation.'' The effectiveness and legitimacy of the policy line is here argued on the basis of past and future informal discussions between stakeholders, suggesting an informal deliberative governance arrangement.

The informal nature of the policy line aiming for reconciliation of interests, governmental layers and sectors is also evident from the absence of a prioritisation in the text: ''Sustainable protection against high water, now and in the future, has a high priority. ... Every plan will be judged by a critical reflection including societal consequences and costs through mutual consultation of relevant governmental layers ... In line with spatial planning (spatial planning act) and in line with river management (River act), each act will be dealt with through coordination.'' How high a high priority is remains unspecified. Quick and effective implementation is claimed to be possible through mutual harmonisation of different interests, governmental layers and policy fields.

Finally, preventative infrastructural measures are mentioned as less desirable than the creation of room for the river. ''Dyke enforcement and embankment strengthening will have the least priority and will only be done if no other measures are possible or if their effect is insufficient.''

4.2. *Public announcement of the Delta Committee's recommendations*

The title of the press release ''Working together with water'' suggests an active cooperation between ''us'' (the people of the Netherlands) and ''water'' (the rivers and coastal waters that permeate and surround the country). The concept of ''working together'' also suggests a collective activity and seems to refer to the hard work lying ahead.

After summing up the most important conclusions, and stating that climate change and sea level rise are ''facts'' as presented in Section 1, the narrative starts: ''According to the Delta Committee a sea level rise of 0.65 to 1.3 metres in the year 2100 and 2 to 4 metres in 2200 should be taken in to account; more than has been assumed to date.'' Climate change is not presented as a matter of discussion, but simply as a fact, and one that relates directly to flood safety. The focus on sea level rise in relation to (expected) climate change introduces a very long timescale, enabling a presentation of dramatic figures like 2–4 m – figures comparable to the most dramatic floods the Dutch can think of. In addition, the text suggests that these figures are new and reason for rethinking our flood safety policies.

This rethinking is stressed by the word ''urgent'' and by focusing on casualties and material damage: ''Hence the task of improving safety is urgent ... According to the Committee, much more attention should go to preventing casualties, and in addition 65 per cent of our national capital is in a floodable area.'' The state of the current flood safety structures is called insufficient. There is a claimed risk of casualties and economic loss of 65 per cent of our national capital and this is stated as urgent. It relates this urgency to the previously stated figures of possible future sea level rise.

These issues are claimed to be too big and too urgent to be left to the regular political process or to private initiative: ''Financing of the safety measures should be independent of short-term political priorities or market trends, and responsibility should be allocated to the prime minister. A 'Delta Director' will ensure coherence and progress, and regional directors will coordinate the implementation ... A Delta Act will ensure a strong political administrative organisation.'' Implicitly, this means that the issue should be depoliticised and that responsibility should lie with a central governmental agency situated above the usual departmental policy cycle and political decision making.

The national focus is stressed by framing flood safety as a public interest: ''Flood safety is important for the Netherlands as a whole. Hence the solidarity principle counts. And everybody will have to support financially the country's safety now and in the future. The committee stresses the responsibility of central government for a climate-proof and flood-proof Netherlands.'' The national problem framing makes it a centralised responsibility.

4.3. *Public announcement of the start of the Delta Programme*

The title of the press release is: ''Dutch level-headedness characterises the first Delta Programme.'' ''Level-headed-

ness,'' presented as a Dutch cultural feature, frames the press release as a national issue in line with a national identity.

The text starts by stating the main problem: ''To protect our country now, and in the future against high water and drought, that is the main goal of the first Delta Programme ... established out of Dutch 'Level-headedness,' it is based on the 2006 measurements and scenarios of the Royal Dutch Meteorological Institute .... The Delta programme consists of measures to ensure short-term safety and to provide a solid basis for the preparation of our future.'' Taking the Royal Dutch Meteorological Institute's (KNMI) measurements and scenarios (i.e. not the IPCC scenarios or the Delta Committee's calculations) as a starting point is framed as a sign of level-headedness. The references to ''our future'' suggest continuity and pragmatism at the same time. The continuation of prosperity into the future is emphasised, but also the time left for a proper preparation and planning of measures: it is the ''solid basis'' for our future which is referred to, rather than the final solution.

Later on, the text refers back to the KNMI measurements: ''We measure and know that the temperature and sea level are rising, that the soil is subsiding and that extreme weather events are further increasing.'' All issues are presented as independent unstoppable exogenous issues that can be measured today. Climate change is not mentioned as a cause.

The text then turns to the solution: ''In part at the request of parliament, the cabinet appointed a Delta Commissioner to draw up the Delta Programme, to keep it up to date and to have it implemented for the cabinet ... the Delta Commissioner is appointed to connect the different ministries, governmental layers, entrepreneurs, civil society and citizens ... [he] is preparing five delta decisions that will be submitted to the cabinet by 2015. These decisions involve new safety norms for dykes, the way in which we are safeguarding our fresh water supply, the water level for the IJsselmeer, the protection of the Rhine Estuary area without losing economic value, and the way in which cities and villages can build safely and sustainably in the future.'' The Delta Programme is being presented as a legitimate and effective solution thanks to its mandate from both the cabinet and parliament, and the Commissioner's position in between stakeholders. The Commissioner will present the new safety norm, but the values upon which this norm will be established remain undefined. However, safeguarding economic value is mentioned as a precondition.

In the second half of the text, the importance of economic value is elaborated and related to future flood safety: ''The prosperity of our country is partly due to water, but water can also be unpredictable and dangerous. The population has grown considerably in recent decades and the economic value of our country has increased with our prosperity. A flood would cause great human and economic damage .... Only through continued investment can we keep our country safe from flooding.'' ''Continued investment'' refers to continuity from the past into the future, suggesting a great deal of ''business as usual'' to maintain prosperity.

At the end, the text distances itself from the extreme scenarios and urgency stressed by its predecessor: ''What is at stake is not to take too many measures, nor too few, and not to take these measures too early, nor too late .... The Delta Programme is the cabinet's response to the recommendations of the Veerman Committee (2008).'' The timing and adjustment of measures refers to the relevant (longer) time line in the DP, and the apparent possibility of delaying the measures. By using the word ''response,'' the text distances itself from, rather than aligns to, the earlier Veerman Committee – the Delta Committee referred to in the second announcement.

4.4. *Analysis of frame differences*

In this section, we analyse the different frames employed by looking at the six focus points mentioned in Section 3.2.1. We interpret these frames as public statements of governmental agencies within a changing context (Table 1).

In the RvR announcement, the framing is done by both the Ministry of Transport, Public Works and Water Management and the Ministry of Public Housing, Spatial Planning and the Environment. Clearly both ministries' responsibilities are reflected in the reconciliation of interests framed as the solution. In the announcement of the DC's recommendations, the framing is done by the independent committee. This distances the framing from governmental responsibility and provides freedom from any official governmental stance. In the announcement of the DP, the DP is doing the framing. Since this is a governmental programme, the framing is under the responsibility of the public works ministry.

If we look at the problem framing, in the RvR announcement we distinguish a flood safety problem framed as a regional ''here-and-now'' problem, partly caused by human actions that diminish the room for the river. Implicitly, the past and the natural are idealised as pursuable states of the river, leading to a solution of giving more ''room'' to the river by better reconciling human interests with a more natural river bed. Furthermore, flood safety is framed as one interest among many others, not standing above the rest. In the announcement of the DC's recommendations, however, flood safety appears as a critical long-term future problem, requiring urgent action because of the new exogenous development of climate change. Despite the possible anthropogenic character of climate change, the human cause disappears from the problem frame. Explaining this exogenous character as a threat to everyone without blaming anyone or any sector results in a national-scaled problem frame in which the Dutch all need to be defended. Correspondingly, the announcement proposes centralised adaptation through national solidarity as the principal solution. After the fading of climate change in the media and its disappearance from the coalition's programme for government after the elections of June 2010, the DP clearly faced a different context when issuing their problem frame. A rise in sea level and increased droughts are still mentioned as the primary reasons for action; however, their cause is left unspecified – the term ''climate'' does not appear in the DP's press release.

These differences in problem framing and use of climate change correspond with the different timeframes employed. Whereas the RvR announcement uses a short-term timeframe for here-and-now action justified on the basis of an implicitly idealised past, the DC announcement uses the climate change issue to introduce a very long timeframe of 100–200 years ahead. This enables the use of worst-case scenarios with extreme figures and impacts (e.g. sea level rise of up to 4 m in 2200). Although climate change disappears from the problem

Table 1 – The three policy announcements compared.

	Announcement of Room for the River (RvR) policy line 14/4/1996	Announcement of the Delta Committee's (DC) recommendations 1/9/2008	Announcement of the Delta Programme (DP) 15/9/2010
1. Who is doing the framing?	Both the Ministry of Transport, Public Works and Water Management, and the Ministry of Public Housing, Spatial Planning and the Environment.	The Delta Committee, which is a state committee, but officially independent from the government.	The Delta Programme under the ministerial responsibility of Ministry of Transport, Public Works and Water Management.
2. How is the problem of flood safety framed?	A regional and here-and-now framing of flood safety to redress diminishing room for the river. The past is idealised as a pursuable "natural" state of the river.	Problem framing is future oriented, national and based on solidarity: climate change endangers flood protection and threatens the future and well-being of the country.	Continuing to protect the country against floods to keep it attractive for living and working is the dominant framing. Draws on economic prosperity as main argument for action.
3. How is climate change used?	Climate change will intensify existing problems, but is a secondary issue.	The Netherlands is safe now, but future climate change justifies radical action now. The Dutch should be prepared for worst-case scenarios.	The text does not mentions climate change but emphasises 'Dutch level-headedness' instead. Abandons extreme scenarios and emphasises current measurements and moderate scenarios.
4. What timeframe is used?	Focus on here-and-now, idealising the past.	Concrete policies for 2050, a vision for 2100 and anticipation of 2200.	Important references to the future, but mainly as continuation of the present. Implicitly, 2100 is used as a reference point by reliance on the KNMI scenarios.
5. What governance frame is used?	Cooperation and consensus between government layers and societal stakeholders is central to the policy process.	Flood safety is too important to be subject to political bargaining and budgetary negotiations. A depoliticised, top-down mode of governance is needed.	Return to a cooperative mode of governance where the Delta Commissioner stands between state, market and civil society actors rather than above them.
6. What are the proposed policies?	Informally reconciling flood safety and floodplain restoration in regional spatial planning policies, backed by a national water impact assessment (*watertoets*).	Institutional reorganisation and centralisation. "Future-proof" technical measures, like dyke enforcement based on an increased safety norm.	Same as proposed by Delta Committee, tough in consultation with stakeholders and spread over a longer timeline: "*not…too many…nor too few, not…too early, nor too late.*"

framing in the DP announcement, the problem frame maintains a long timeframe, but continuity with the present is emphasised.

The governance frame and proposed policies in the RvR announcement are in line with the traditional poldering approach (Dolfing and Snellen, 1999), where consensus is reached through informal bottom-up negotiation between regional stakeholders for the reconciliation of interests. Infrastructural works are to be avoided. Here, flood safety is framed as a safety issue with an important human component, to be resolved through better spatial planning. This reflects a spatial or ecological turn as described by De Vries and Wolsink (2009), Brink (2009) and Disco (2002), and a "logic of peace" (Warner, 2008), where there is time and political room to negotiate over flood safety as one among many interests.

This radically changes in the DC's announcement where the extreme figures derived from the long timeframe and climate change issue are used to propose worst-case-proof infrastructural measures (e.g. dyke enforcement). Furthermore, a nationally focused centralised mode of governance is proposed, fitting the logic of a crisis situation (Warner, 2008). This pictures the central authority as taking care of flood safety in the national interest. This long-term problem with a strong national focus is depicted as superior to generally short-term political negotiations and regional interests.

In the DP's announcement, the future-proof infrastructural works remain, as well as a centralised authority (the Delta Commissioner), but the governance frame has changed in terms of its top-down character. A more cooperative governance frame is presented, where the Commissioner stands "in-between" the parties instead of above them. In addition, the longer timeframe remains. Different from the drama that the DC associated with the future, this time the longer timeframe is associated with incremental policies "not to take too many … nor too few, not … too early, nor too late."

4.5. *Knowledge mobilised in the public announcements of flood safety policies*

In all three announcements, the mobilised knowledge strongly relates to the problem framing, the use of climate change and the timeframe.

In the RvR announcement, a regional here-and-now problem framing referring to human impact points to localised knowledge: ''Per plan, a critical assessment including social consequences and costs of alternatives will take place in consultation with separate governments. River-based knowledge is the basis for the review.'' This knowledge refers to multiple scientific disciplines referred to in the problem frame, such as spatial planning, hydrology and ecology. Furthermore, experience-based knowledge is referred to, often framed as ''observations'': e.g. ''Although these activities were in principle only allowed if the effect on the discharge capacity was compensated, it has been observed that the capacity to accommodate future high water discharge in fact has been decreased.''

With the problem frame of a future-oriented flood safety problem caused by exogenous climate change, the knowledge referred to in the DC announcement is a global kind of scientific knowledge (Hulme, 2010), which in the framing is used to legitimise the engineering type of knowledge mentioned as part of the solution. High-end global climate change scenarios are mobilised and translated into concrete but rather dramatic figures for local sea level rise: a degree of drama that implies large engineering solutions rather than reconciling interests by adaptive spatial planning.

Although the proposed policies remain similar, the disappearance of climate change from the problem frame in the DP announcement is accompanied by a shift towards nationally focused knowledge about demographics and economics, and towards moderate sea level rise scenarios instead of global climate scenarios. Hence, foresights remained but different disciplines and scale models were mobilised to build a different argument behind the same polices. This is striking, because not much has changed in climate science.

In sum, we can see how the public announcements of flood safety policies selectively refer to, and rely on, particular kinds of knowledge that fit within the overall problem frame. Selectivity is even evident in the reliance on climate change knowledge, where the particular sets of scenarios referred to can be seen to match with the severity and urgency of the measures proposed in the announcements. Knowledge is thus mobilised as a discursive resource (Turnhout et al., 2008; Turnpenny et al., 2009).

4.6. *Rhetorical connections/disconnections between public announcements of flood safety policies*

In line with the idea of interactive framing between texts through rhetorical connections (Hardy et al., 2005), we can distinguish (1) some explicit rhetorical connections between the publicly announced policy proposals, (2) some more implicit rhetorical connections and (3) a lot of concepts borrowed from earlier framings.

Observing rhetorical connections made in the RvR announcement requires focusing on earlier policy announcements, which are beyond our selected data. However, what we do observe is the explicit disconnect made in the RvR announcement from the construction of river embankments as was common practice in the past. In addition to this ecological turn (De Vries and Wolsink, 2009; Disco, 2002; Brink, 2009), an explicit connection is made with the bottom-up tradition of reconciling spatial interests, which is in line with the Dutch poldering approach.

The DC's framing implicitly distances itself from earlier framings, such as the RvR framing, by stating: ''According to the Delta Committee, we should reckon for a sea level rise of 0.65 to 1.3 metres in 2100 and 2 to 4 metres in 2200 .... Hence the flood safety task is urgent: the climate is changing, sea level is rising and river discharges are increasing while 25 per cent of the flood safety structures do not meet the legal standards. These standards should be increased because the committee is of the opinion that more attention should be given to preventing casualties.'' The new context of emerging climate change is clearly used to disconnect the committee's framing from earlier water policy frames. Rhetorically, this is underpinned by referring to different knowledge, and the use of a different time line. However, later on, an explicit reconnection is made to the earlier RvR programme: ''For the river areas, the programmes Room for the River and Meuse-Works should soon be implemented''; apparently the committee is accepting the RvR programme as still legitimate. This shows nicely the balancing act that the publicly framed policy proposals represent: what we have said or done before still holds, but the new situation that we face makes us propose different things.

The DP's framing also draws partly upon the problem frame of its predecessors, and partly reworks or opposes this frame by referring to different knowledge, issues and values. The DP announcement distances itself from the DC by omitting the cornerstone of the DC's framing: climate change. This implicit divide is in line with the different knowledge referred to and a different problem framing. In addition, this divide is made more explicit by the statement: ''The Delta Programme is the cabinet's response to the recommendations of the Veerman Committee (2008).'' Hence, the cabinet is ''responding'' (rather than e.g. ''implementing''), positioning the cabinet as distinct from the committee and in a position to judge its conclusions. However, the DP still borrows some fundamental frame elements from the DC's framing: ''To protect our county now and in the future against high water and drought, that is the main goal of the first Delta Programme .... We measure and know that the temperature and sea level are rising, that the soil is subsiding and that extreme weather events are further increasing.'' Although their cause is left unspecified, all these elements of concern appear to be directly borrowed from the DC's framing. Probably the strongest rhetorical connection between both framings is the timeframe used. Although the DP distances itself from the climate change issue, referring to causes, knowledge and governance modes which are more in line with the here-and-now framing of RvR, it still employs the rather unique long timeframe introduced by the DC. Although it drops the worst-case climate scenarios and dramatic figures, the longer timeframe is aligned with a new context: in the middle of an economic crisis, flood safety is framed as a national problem affecting future economic prosperity.

5. Conclusion and discussion

The first research question addressed in this paper concerned how three key policy proposals publicly frame the flood safety

issue. With respect to the role of climate change in framing flood safety, we observe this being mentioned in the RvR policy line as a secondary issue, complicating the central issue of insufficient room for the river. We can clearly distinguish how the rising attention on climate change is reflected in the public announcement of the Delta Committee's recommendations, wherein the issue is used to stress *urgency*, *national scaling* and *long-term future* orientation. After the media and political attention on climate change faded, the concept remained remarkably absent from the presentation of the Delta Programme. What remained in the flood safety framing was *national scaling* and *future* orientation – this time, however, aligned with future economic prosperity and with the possibility of delay.

Focusing on our second research question, we conclude that, according as different frames were developed, different scientific knowledge was mobilised. In line with the notions of Turnhout et al. (2008) and Turnpenny et al. (2009), this may indicate that knowledge was selectively used to enforce the relevant frame. Although climate science did not change substantially between the Delta Committee and Delta Programme, the Committee largely depended on global climate science in explaining its proposed policies, whereas the Delta Programme made its case for similar policies with various kinds of more national-oriented knowledge, omitting to mention international climate science (cf. Hulme, 2010). Apparently, knowledge is employed as a discursive resource.

With respect to our third research question, we found a clear disconnection between the Delta Committee's framing and the earlier spatial turn as represented in the RvR framing. Different knowledge is employed, and a new exogenous phenomenon is introduced to legitimise this disconnection. The partial reconnection to the RvR frame by mentioning the importance of the RvR policy line shows the balancing act of the publicly framed announcement. Once climate change faded from the media and politics, the Delta Programme announcement disregarded the issue and disconnected itself from the previous announcement by explicitly "responding" to the Delta Committee's framing and explicitly referring to different knowledge. However, again the disconnection is only partial: the policy proposals and longer timeframe introduced by the Delta Committee remain, and are reworked into a new frame.

5.1. *Towards explaining the described frame developments: puzzling and powering over flood safety*

Having analysed the frame developments of three public policy announcements, we realise that our method has focused only on the publicly announced flood safety frames. Explaining the dynamics behind the frame developments is beyond the scope of this paper. However, our results do provide some clues about what might be happening off-stage. Referring back to our theoretical considerations, we know that issues like flood safety in light of climate change are not a well-defined technical issues (Lach et al., 2005; Lazarus, 2008; Adger et al., 2009; Hulme, 2009; Giddens, 2009). The uncertainties in the knowledge base, ambiguity about the seriousness of the problem and the involvement of different publics make the issue rather wicked. In addition to these widely studied characteristics of policy-making in light of climate change this paper shows how this wickedness crystallises in different meanings over time. From a distance, we can see the contours of a pattern in which the public announcements of flood safety policies not only represent an ideational struggle over uncertainty, but may represent a strategic struggle too. Heclo (1974) wrote about this duality in sensemaking dynamics over long-term wicked problems (e.g. welfare state development) as an interplay of *puzzling* over ambiguity and *powering* over interests.

Given the firm claims presented by the Delta Committee regarding sea level rise and climate change, and the climate science it employed, it appears that the concept of a changing climate took a prime role in the puzzling (Heclo, 1974) over flood safety in 2008. However, Heclo's notions of puzzling and powering suggest that both activities are interrelated; puzzling over ambiguity involves power play over who determines the puzzle, and powering over interests needs puzzling over a plausible storyline. Hence, this interplay suggests that the puzzling over climate change might also have had an empowering effect on the policy initiative. This would suggest that powering for support for far-reaching measures and governance arrangements is sought in a process of puzzling with worst-case scenarios, long timescales, national scale frames (cf. Lieshout et al., 2011), and dramatic "survival" frames comparable to what Warner (2008) has called a "logic of war." This logic frames flood safety as an issue of national security whose importance goes beyond the normal political process, allocating power to a central national authority. Whereas actual disasters are usually used as the reason for this logic, the committee appears to use the future drama derived from puzzling over worst-case scenarios and long timescales as their discursive resource.

This specific puzzling changed when the context changed. With climate change fading in the media and disappearing from the programme for government, we showed how new knowledge was employed and a different problem frame was presented. The new puzzle shifting away from the drama towards continued economic prosperity and wealth in the future might have enabled a powering strategy well suited to the new context of an economic crisis. Furthermore, the long timescale remaining in the Delta Programme's puzzle might have given room for a stepwise implementation with budget cuts high on the political agenda in 2010. Measures were needed but, given the long timescale of the issue, the Delta Programme claimed to have time for proper timing of measures: "not to take too many … nor too few, not … too early, nor too late." Hence, the timing suggests that future framing may be a puzzling vehicle for creating political room for manoeuvre.

Hence, one reason for the framing differences of the Delta Committee and of the Delta Programme may be found in the Delta Programme puzzling differently over climate change facing a different societal context. Another possible explanation for this divergence may be the different institutional contexts agenda setters have as compared to policy designers. Presenting clear-cut, top-down national policies might work well for the agenda setter (the Delta Committee) in the context of national government and parliament. For the policy designer (the Delta Programme) however, success is depen-

dent on the amount of support the programme gets for its policies from a range of powerful actors in the region. Even though the Delta Committee's vision was rather successful and uncontested, the policy designer may anticipate that the message will become controversial if it is translated into NIMBY policies.

This may also be illustrated by the recent debate that flared up in relation to one particular recommendation of the Delta Committee: the construction of Delta Dykes.[2] The leader of the high-end scenario study commissioned by the Delta Committee makes a plea for the construction of breach-resistant super levees, the so-called Delta Dykes, to anticipate unexpected extreme circumstances in the future. The leader of the Delta Programme, however, responds by resisting this top-down engineering framing. By referring to the Netherlands as a ''coalition-country,'' he stimulates bottom-up initiatives and participation, in line with the *poldering* tradition.

Although these suggested puzzling and powering dynamics behind the frame developments analysed in this paper remain rather hypothetical, they do indicate that the concepts of puzzling and powering may represent useful theoretical contributions for analysing flood safety governance in times of climate change. Close study of the front-stage and back-stage actions and interactions in the policymaking process will be required to make stronger claims about how powering and puzzling leads to frame developments.

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[2] See www.waterforum.net articles: Rapport PBL: Deltadijken zijn veel veiliger [Report NEEA: Delta Dykes are much safer], 28 September 2011; De deltacommissaris hoeft niet per se verrassend te zijn [The Delta commissioner does not necessarily have to be surprising], 28 September 2011.

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