Normative principles for adaptation

Work package leaders: Prof. H.F.M.W. van Rijswick (UU) and Dr. M. Wiering (RU)]

Content

1 Description work package

1.1 Problem definition, aim and central research questions

Over the last few centuries the Dutch have developed specific views on the governance of the public domain, especially on the involvement of market and civil society institutions and on underlying substantive (normative) and procedural principles related to governance. Climate change, however, puts existing normative principles and basic policy viewpoints to the test. E.g. in issues of flood safety, fresh water supply, availability of clean water, water ecology as well as land use for all kinds of functions, the basic views and ideas of what belongs primarily to state responsibility and what can be shared with – or taken over by - other institutions are in flux. This is also reflected in discussions on old and new guiding policy principles that, in turn, will be of influence regarding the choice of options for policy instruments and measures. We can find examples of possible shifts in these normative principles in practically every policy domain related to the governance of climate adaptation, but at the same time these discussions are hardly connected and clarified. What is actually at stake is not fully manifested in the daily practices of dealing with climate adaptation. It is therefore helpful and important to have a work package that seeks to clarify and structure the debates on normative principles in transition, and related substantive and procedural norms or guidelines in relevant policy domains - and that helps to develop (new) guiding principles.

The complexity regarding (shifts in) normative principles can be condensed by invoking the fundamental idea of the public interest in policy and planning. Alexander (2002) distinguishes between four basic conceptions of public interest: the first is an *aggregative* conception, based on the individual interests of the different inhabitants of a community; the leading principle here being utilitarian: aggregating what is the maximum good ('pleasure') for the largest population of individuals. A second view is a *unitary* concept of public interest. Here the general community (over generations) collectively identifies the public interest as part of a collective moral imperative; this can and must not be reduced to a sum of individual interests. The third conception of the public interest is called '*deontic'*, i.e. based on rules and norms; it relates to an ethical content and it regulates through specifically defined rights and duties of a community or its subgroups. The deontic differs from the unitary conception because we now refer to a defined right of a (sub-)community instead of a much more vague idea of the 'general collective interest'. The deontic differs from the aggregative because we now speak of 'rights' instead of 'the maximum good'. Alexander illustrates this with the question 'is that action right?' rather than 'will it do good?'. The fourth and last conception can be summarised as *dialogical*; here the public interest is a product of interrelationships between the actors involved through a way of (horizontal) communicative action and reason (inspired by Habermas).

In the domain of water management one could argue that the Netherlands adopts a unitary conception of the public interest. This conception is connected to the responsibilities of governmental authority, in the Dutch case (a decentralised unitary state system) central and decentralised functional governmental authorities. They became responsible, to a large extent, for the availability of water, dry feet and clean water. With climate change, and the challenges of adaptation to anticipate more extreme circumstances, state responsibilities are being reconsidered and discussed. The state cannot meet expectations in taking care of water safety, water availability and quality in a context of climate change with increasing uncertainties and risks (see WP3). The role of the government and civil society, the content of what is in the public interest and which principles could be the leading principles are in a state of transition. One of the questions that is central to the research in this work package is whether this debate (and illustrating practices) will lead to important shifts in the Dutch conception of the public domain and public interest. The key question is: *What are the underlying normative principles of governance of adaptation, and how can they be updated when necessary?* Anticipating climate change, new instruments and principles are being introduced which deviate from the traditional national unitary principle and the traditional (over-)load of responsibility on the part of the government towards more responsibility for civil society. That may require new and unorthodox instruments. Moreover, the idea of the public interest is increasingly being influenced and eroded by international legal and policy frameworks. These discussions and shifts address and reflect both the struggles between the legitimacy, effectiveness and resilience of existing and new normative principles and the sense of balance that is needed to reconcile these criteria.

1.2 Interdisciplinarity and coherence between the projects

We will structure the general discussion on shifting conceptions of the public interest and accompanying principles, related to the general "meta" criteria of the legitimacy, effectiveness and resilience of the

governance of adaptation and will work towards a framework in which shifts, values and arguments are made visible. This framework will be inspired and fuelled by practical experiences in other work packages (e.g. related to experiments, new practices, new policy instruments, shifting risk approaches and the variety of perceptions of climate adaptation) and other, related themes of the KfC programme. The objective is to assess and modernise the underlying normative principles of the governance of adaptation.

1.3 Stakeholders

This work package is of special importance for central and decentralised governmental authorities, e.g. the Ministry of Transport, Public Works and Water Management; the Ministry of Housing, Spatial Planning and the Environment; the Ministry of Agriculture, Nature and Food Safety; and the representative organisations of the water boards and provinces. It also addresses, however, other public and private parties involved in the more fundamental considerations regarding the modernisation of the Dutch normative framework for climate change adaptation. It will be related to both practical questions stemming from juridical and normative considerations by the hotspots and to discussions on a more abstract level concerning shifts in responsibilities within the public domain.

2 Project 5.1 Transitions of the normative governance framework of climate adaptation

Rethinking the role of governance principles when achieving resilient ecosystems, supplying fresh water and protecting against flooding to provide appropriate principles of legitimacy, effectiveness and resilience

Project leader: Prof. Dr. H.F.M.W. van Rijswick

2.1 Problem definition, aim and central research questions

“Adaptation to climate change is in the public interest.” This is one of the basic premises for governments to undertake action and to regulate and govern land and water use on the international, the European, the national and the regional level. Planning, regulation, decision-making and distribution systems, dispute resolution and juridical review are based on necessity in the public interest, but the concept of ‘public interest’ may differ according to the kind of governmental action and is not unproblematic. The question arises whether adaptation to climate change is a new public interest or whether it requires a new way to deal with already existing public interests. Choosing a governance approach for adaptation needs a clear view of the concept of public interest, and related norms and principles have to be legitimate, effective and resilient. The fact is that principles that concern the concepts of public interest are not always easy to trace and they differ according to the kind of governmental action and the kind of policy field, land use or water use. Rethinking the role of governance principles when achieving resilient ecosystems, fresh water supply and flood protection is one of the main goals of this work package.

Principles and norms offer legitimacy for the government to take measures, provide compensation, use regulatory or economic instruments and to protect all kinds of rights. Principles and norms are relevant for activities like urban development, water storage, transport and infrastructure, agriculture, energy, economic development, recreation, and a fresh water supply. Should old governance principles and related concepts of public interest in the various policy fields be reconsidered because of adaptation? An analysis of the existing views on public interest in these policy areas and the related governance principles is therefore necessary.

In the field of law a unitary approach, which starts from collective values, a moral public interest that goes beyond private interests, is classic. This view deals with societal stability, order and social justice, which allow the government to redress inequalities. Societal consensus on the public interest is based on approved laws, rules and plans and is nowadays often combined with a deontic (or a rule and norm-based) concept in which plans, decisions et cetera are judged by their ethical content and a rights-based approach. This approach has both substantive (human dignity, equal treatment and property rights) and procedural (fairness or due process, sound administration and transparency, and public participation) aspects.
At the same time there is a revival of elements of both a utilitarianism approach, e.g. aggregating individual preferences and the use of a cost-benefit analysis as an example of welfare economics as well as a dialogical approach in which the public interest is a result of an interactive process among concerned stakeholders and affected parties.

Several approaches and relevant principles will be analyzed so as to be able to make a legitimate choice of the appropriate measures to be taken and to deal with the distribution of responsibilities between governmental and private stakeholders. To assess and improve the governance of climate adaptation a clear insight into the normative backbone of governance is necessary to avoid future measures, decisions and investments being based on ‘wrong’ or not adequate assumptions, which may lead to a lack of legitimacy, effectiveness and resilient governmental action.

The main research question of this project is:
Which concept of public interest and which guiding principles can best be leading in the governance of adaptation, or may differentiation in public interest and the accompanying principles lead to a better governance of climateadaptation?

Sub-questions:

- Which concepts of public interest can be distinguished in theory and what principles relate to each concept?
- What are the relevant substantial aspects of public interest in the field of climate adaptation? Protection against flooding, a fresh water supply, adequate infrastructure, economic development, nature protection?
- Which concepts of public interest can be distinguished in the different actual practices of climate change adaptation and what principles relate to each concept?

- What are the reasons for the differentiation per problem, per solution, per policy field or per particular interest and are these reasons legitimate?
- What is the 'room for manoeuvre' when using different approaches for each adaptation measure?
- What are the practical consequences of the various approaches?
- Which approach offers in theory and practice greater effectiveness and resilience?

2.2 Approach and methodology

The scientific approach will be that of collaborative action research combined with traditional legal research by analyzing legal documents, literature and case law. In this project the focus will lie on principles that are related to three topics that are generally considered to be of great importance for climate adaptation:

1. flood safety;
2. creating resilient ecosystems; and
3. fresh water supply.

First, a theoretical study will analyze the existing normative framework, based on a desk study. Comparative research will be carried out to study how other countries deal with these questions. Next, in several case studies the role of principles in the three domains will be compared and investigated to discover whether there are different approaches to different types of adaptation measures. Case studies will be based on measures taken in the hotspots *Ondiepe wateren and veenweidegebieden (peat soils)*, *Waddenzee (robust water systems)*, and *Droge rurale gebieden* (measures to avoid droughts).

In the case studies that deal with protection against flooding, the unitary concept of public interest and the related principles are analyzed concerning measures like the equal distribution of safety standards, coastal protection, and areas designated for water storage. Basic principles like human dignity, property rights and equal treatment are further elaborated in the principle of *egalite devant les charges publiques*, the right to be compensated, the non-shift principle, and the proportionality principle.

The *unitarian* approach of public interest fits well in the old-fashioned government approach. Because of the increasing role for governance in EC law, comparative research will be carried out to compare the role of norms and principles in the EC. This is of importance because one important aspect of the governance approach in EC water law is transboundary cooperation in river basin districts. When Member States use different concepts and principles it may influence this necessary cooperation (see also WP 5.2).

The *utilitarian* approach has elements from both a government as well as a governance approach. The need for comparative research follows from strictly binding EC law in the field of nature conservation and state aid, which may be of relevance for regional differentiation in adaptation measures. Related

principles are the user and polluter pay principle (the cost recovery principle), the non-shift principle, the precautionary principle and the protection of property rights.

It will be investigated whether there is a shift from a more unitary to other conceptions of public interest. This project will specifically elaborate the possibilities and constraints of a more deontic conception of the public interest in climate change issues. The 'deontic' approach seems to fit well within a governance approach, where proceduralization and a focus on procedural rights are important.
An important principle when adapting to climate change is the principle of subsidiarity and decentralization. Which governmental body should be responsible, and how are tasks, responsibilities and powers divided between governments and private parties? The results of WP3 will be taken into account to answer this question. In general, there will be close interaction with other WP's within the governance theme, but also with the other themes in the KfC-project. An ongoing exchange of information is necessary both to supply this WP with information on relevant problems and suggested measures and to supply the other themes with knowledge on the consequences of the several measures that are suggested and further researched.

2.3 Scientific deliverables and results

Month 12
Deliverable 5.1.1: Scientific paper in which the existing theoretical normative framework for the governance of adaptation will be researched and analyzed.
Deliverable 5.A: Position paper: Normative principles for climate adaptation

Month 36:
Deliverable 5.1.2, 5.1.3 & 5.1.4: Three scientific papers for submission to scientific refereed journals on the proposed measures in selected case studies regarding concepts of public interest and related principles.

Month 48:
Deliverable 5.1.5: Scientific paper for submission to scientific refereed journal with a new normative framework for climate adaptation measures.
Deliverable 5.B: Synthesizing article on normative principles for climate adaptation

In general, research results will be published and discussed at multidisciplinary conferences with both scientists and practitioners.

2.4 Integration of general research questions with hotspot-specific questions

The case studies will follow directly from problems experienced and measures proposed in the several hotspots, so that the results can be subsequently used in those hotspots. See further under B.

2.5 Societal deliverables and results

Month 12:

Deliverable 5.1.6: Workshop to discuss theoretical normative framework with stakeholders from the relevant case studies.

Months 42-46:

Deliverables 5.1.7, 5.1.8 & 5.1.9: 3 expert workshops about the development of an integrated normative framework for consideration for stakeholders on the role that principles and guidelines play or can play in the governance of climate adaptation. Also meant for the creation of awareness regarding the consequences of the several approaches that are used.

2.6 Most important references

1. Alexander, E.R. (2002). The public interest in planning: from legitimation to substantive plan evaluation. Planning Theory, 1, 226-249.
2. Fairgrieve, D. (2003). State liability in tort. A comparative law study. New York: Oxford UP.
3. Roozendaal, B.J.P.G. (1988). Overheidsaansprakelijk in Duitsland, Frankrijk en Nederland. Rotterdam: Gouda Quint.
4. D. Curtin & Egeberg, M. (2008). Tradition and innovation: Europe's accumulated executive order. West European Politics, 31(4), 639-661.
5. Gunningham, N. (2009). Environmental law, regulation and governance: shifting architectures. Journal of Environmental Law, 21(2),179-212.
6. Scott, J. (Ed.). (2009). Environmental Protection (pp. 27-55). Oxford: Oxford University Press.
7. Scott, C. (2009). Governing without law or governing without government? New-ish governance and the legitimacy of the EU. European Law Journal, 15(2), 160-173.
8. Van den Biesen, A.H.J. & Gilhuis, P.C. (Eds.) (2004). Beginselen in het milieurecht [Principles in environmental law]. Alphen aan den Rijn: Kluwer.
9. Dales, J.H. (1968). Pollution property and prices, an essay in policy-making and economics. Toronto: University of Toronto Press.
10. Kuks, S. & Kissling-Näf, I. (Eds.) (2004). The evolution of national water regimes in Europe, transitions in water rights and water policies. Alphen aan den Rijn: Kluwer Academic Press.
11. Wetenschappelijke Raad voor het Regeringsbeleid (2000). Het borgen van publiek belang [Warranting the public interest]. Den Haag: WRR.
12. Sap, J.W., Vermeulen, B.P. & Zoethout, C.M. (Eds.) (2003). De publieke taak (The public interest). Deventer: Kluwer.
13. Larmuseau, I. (Ed.) (2008). Constitutional rights to an ecologically balanced environment. Vlaamse Vereniging voor Omgevingsrecht.
14. De Burca, G. & Scott, J. (Eds.) (2000). Constitutional change in the EU. From uniformity to flexibility? Oxford and Portland, Oregon: Hart Publishing.

15. Van Rijswick, H.F.M.W. (2008). Moving water and the law, on the distribution of water rights and water duties within river basins in European and Dutch water law. Groningen: Europa Law Publishing.

3 Project 5.2 Principles and practices of the transboundary governance of climate adaptation

Exploring and connecting adaptation strategies in transboundary areas and analyzing enabling and constraining characteristics of EU policies

Project leaders: Dr. M.A. Wiering & dr. C. Dieperink

3.1 Problem definition, aim and central research questions

Climate change is a transboundary issue that requires international co-operation on different levels of governance, on the global, European, bilateral levels as well as cross-border on a regional level. Since the Netherlands is a delta area and its major rivers are all transboundary in nature and connect different European countries, and since several sites of the European ecological framework (Natura 2000) are located in its floodplains, it seems obvious to consider also climate adaptation in its transboundary and European context. However, adaptation policy has been, up until now, a predominantly domestic responsibility, e.g. in the form of National Adaptation Plans or related strategies. Although this is the case, the actual outcomes of these national adaptation strategies could have cross-border impacts on issues which are also addressed by EU legislative frameworks. For example, expected increases in discharges into the Rhine have led to adjustments in the national water safety standards in the Netherlands for the crucial downstream Rhine river branches (the Waal, the Lower Rhine/ Lek and the IJssel) but it is still unclear what will be the outcome of climate change adaptation in the upstream parts of the Rhine basin, in terms of new safety standards. Consequently it is uncertain which discharges can exactly be expected at the Dutch border and – maybe even more importantly - where they are to be expected. At the same time such traditional concerns of flooding are increasingly being supplemented by problems of low water levels in the Rhine and an increase in water temperature (in the summer). These issues not only threaten the navigation function of the river, but also the cooling function which the water has for power plants as well as its ecological function (biodiversity, nature conservation and nature development, wet nature). As the EU legislative frameworks, especially the Flood Directive, the Water framework Directive (WFD), and the Birds and Habitat Directives, are increasingly connected and integrated, and since the Flood Directive and the WFD share a river basin approach, climate adaptation should also be part of an integrated policy, which recognizes the complex dynamics of specific areas or river basins.

This, of course, creates ambitious governance challenges that require (at least) the integration of sector-based policies (multi-sector governance) and multi-scaling (multilevel governance). As part of WP5, we will focus on how specific (normative) governance principles influence the practices of climate adaptation in a transboundary context.

The above-mentioned EU legislative frameworks already contain specific guiding principles. To avoid adaptation policies being isolated from the bulk of existing (domestic and international) policies in relevant policy domains and related EU legislation - and therefore to avoid inefficiency and inadequacy - it is important to obtain a better understanding of the mutual relationships between predominantly EU-based normative principles and transboundary policy practices. The aim of this research project is to answer this key question: *What is the relationship between normative principles and transboundary policy practices?*

Following this, sub questions are:

- To what extent, in what way and with which results is the governance of climate change adaptation guided by principles which are relevant for transboundary coordination and co-operation, like the principles of solidarity, proportionality, subsidiarity, non-shift, the principle of river basin management and the general principle of 'good neighbourliness'?
- What are the enabling and constraining characteristics of the institutional context in which transboundary coordination and co-operation take place considering climate adaptation practices? More specifically, are EU-supported principles contributing to an integrated climate adaptation policy across borders? What are the relevant variables of this institutional, multi-layered context?
- What are the most important opportunities and threats for the transboundary governance of adaptation?

3.2 Approach and methodology

The project is especially relevant for international coordination between the Netherlands and the bordering regions in Germany and Belgium. In the case of the Rhine and Eems deltas we will focus on North-Rhine Westphalia and Lower Saxony; co-operation with Belgium is at stake in the South-West Delta and the Meuse river basin.

The project will elaborate on the existing body of knowledge on cross-border co-operation in river management in the Rhine river basin (Dieperink,1998; 2000; Becker & Aerts, et al. 2007; Verwijmeren and Wiering 2007; Wiering et al. forthcoming) and river basin management in general (e.g. Mostert & Pahl-Wostl et al. 2007; Meijerink and Wiering, 2009). The International Commission for the Protection of the Rhine is renowned for its successful cooperation in issues of water quality and the ecology of the river basin (e.g. Dieperink, 2000; forthcoming). It has for instance issued an Action Plan on Floods in 1998, and regional co-operation has proved to be influential in the case of the Dutch-German working group on high water (Verwijmeren & Wiering, 2007).

Besides the above-mentioned policy-oriented body of knowledge on cross-border management, the project will be based on the legal literature on transboundary co-operation (Keessen, et al. 2008; Gillisen, forthcoming) and comparative research concerning EU regulations and their implementation (e.g. Uitenboogaart et al. 2009).

The project is structured with the help of different research steps:

A. The project will first analyze the most relevant issues of climate change adaptation in transboundary areas. This analysis will be based on a review of relevant national studies, international studies and in-depth interviews.
B. Following this, the relevant institutional arrangements in regional settings on both sides of the border will be studied. We will make use of a specific approach, called the Policy Arrangement Approach (PAA), that can generally be defined as the set of actors and coalitions, resources, rules and discourses that structure policy domains (Arts & Leroy, 2006; Wiering & Arts, 2006; Verwijmeren & Wiering, 2007).
C. The project will assess possible similarities and differences between the arrangements to generate a general idea of the extent of the integration of policy domains - including the dominant conception of the public interest (see WP5 and PR5.1) and the related policy strategies. It will further assess the degree of interdependency and the transboundary 'impact zone' as regards an integrated climate change adaptation policy. The results of this research step will be part of the collaborative action research methodology and will be discussed by key informants, for instance by organizing focus group sessions.
D. Finally, by analyzing and comparing the results of several in-depth case studies the project will produce a set of the most important opportunities for and threats to the transboundary governance of adaptation and explain the enabling and constraining characteristics of the institutional context in which co-operation takes place and, specifically, the role of normative governance principles.

3.3 Scientific deliverables and results

Months 1-3:
Assembling practitioners for the supervisory committee

Month 12:
Case selection, overview of relevant issues in climate adaptation and policy arrangements
Deliverable 5.A: Position paper: Normative principles for climate adaptation

Month 18:
Deliverable 5.2.1: Paper for submission to scientific refereed journal with analysis of the differences and similarities in climate change policy domains across borders.

Month 30:
Deliverable 5.2.2: Paper for submission to scientific refereed journal with an assessment of enabling and constraining characteristics of transboundary governance and the role of governance principles.

Month 36:
Deliverable 5.2.3: Paper for submission to scientific refereed journal with analysis of transboundary experiences and the role of governance principles in a comparative perspective.

Month 42

Deliverable 5.2.4: Paper for submission to scientific refereed journal about opportunities for and threats to the transboundary governance of adaptation and explaining the enabling and constraining characteristics of the institutional (EU) context.

Deliverable 5.2.5: special issue on the transboundary governance of climate adaptation. For this objective cases will be compared with international literature and cases in Sweden, the UK and Germany.

Month 48:

Deliverable 5.2.6: Ph.D. thesis.

Deliverable 5.B: Synthesizing article on normative principles for climate adaptation

3.4 Integration of general research questions with hotspot-specific questions

Case studies will be connected to concrete practices of transboundary co-operation and coordination in the Rhine, Scheldt and Ems river basins. A case selection will take place in close cooperation with the major river hot spots, the South-West Delta and the Waddenzee/Ems area. The hotspot Wadden Sea and the Northern provinces have expressed an interest in the Ems catchment area and the Ems harbour. Those hotspots will be involved in the research project through their membership of the practitioners' supervisory committee. Collaborative action research will be realized through focus groups and in cross-border workshops in these regions.

3.5 Societal deliverables and results

On the basis of scientific deliverables 5.2.1, 5.2.2, 5.2.3 & 5.2.4, information will be shared with stakeholders:

Month 18:

Deliverable 5.2.7: Report with recommendations on the differences and similarities in climate change policy domains across borders.

Month 30:

Deliverable 5.2.8: Report with recommendations on enabling and constraining characteristics of transboundary governance and the role of governance principles.

Month 36:

Deliverable 5.2.9: Report with recommendations on transboundary experiences and the role of governance principles in a comparative perspective.

Month 42

Deliverable 5.2.10: Report with recommendations on opportunities for and threats to the transboundary governance of adaptation and explaining the enabling and constraining characteristics of the institutional (EU) context. Partly based on the results of cross-border workshops on climate adaptation (part D).

3.6 Most important references

1. Arts, B. & Leroy, P. (Eds.) (2006). Institutional dynamics in environmental governance. Dordrecht: Springer.
2. Becker, G., Aerts, J. et al. (2007). Transboundary flood management in the Rhine basin: challenges for improved cooperation. Water science and technology, 56(4), 125-135.
3. Dieperink, C. (1998). From open sewer to salmon run: lessons from the Rhine water quality regime. Water Policy, 2(5), 471-485.
4. Dieperink, C. (2000). Successful international cooperation in the Rhine catchment area. Water International, 25(3), 347-355.
5. Dieperink, C. (forthcoming). International water dispute settlement under asymmetry, Lessons from the Rhine Chlorides negotiations (1931-2004). International Environmental Agreements (conditionally approved).
6. Gilissen, H.K., Van Kempen, J.J.H. & Van Rijswick, H.F.M.W. (forthcoming). International and regional transboundary cooperation in European river basin management. ERA Forum (Europaische Rechtsakademie).
7. Keessen, A.M., Van Kempen, J.J.H. & Van Rijswick, H.F.M.W. (2008). Transboundary river basin management in Europe, Legal Instruments to comply with European water management obligations in case of transboundary water pollution and floods. Utrecht Law Review, 4(3): 35-56.
8. Meijerink, S. & Wiering, M. (2009). River basin management in Europe: the 'uploading and downloading' of a new policy discourse, In: B. Arts, A. Lagendijk & H. van Houtum (Eds.). The disoriented state: shifts in governmentality, territoriality and governance. Series: Environment & Policy, vol. 49, Dordrecht: Springer..
9. Mostert, E., Pahl-Wostl, C., Rees, Y., Searle, B., Tabara, D. & Tippett, J. (2007). Social learning in European river-basin management: barriers and fostering mechanisms from 10 river basins. Ecology andSociety, 12(1), 19.
10. Uitenboogaart, Y., Van Kempen, J.H.J., Wiering, M. & Van Rijswick, H.F.M.W. (Eds.) (2009). Dealing with complexity and policy discretion, the implementation of the Waterframework directive in five Member States. Den Haag: SDU.
11. Verwijmeren, J. & Wiering, M.A. (2007). Many rivers to cross, Cross border cooperation in river management. Delft: Eburon Academic Publishers.
12. Wiering M.A. & Arts, B.J.M. (2006). Discursive shifts in Dutch river management: 'deep' institutional change or adaptation strategy? Hydrobiologia, 565(1), 327-338.
13. Wiering M, Verwijmeren, J., Lulofs, K. & Feld, C. (forthcoming). Experiences in regional cross border cooperation. Comparing three cases at the Dutch –German border. Water Resources Management (conditionally approved).