

## Organising connectivity

Work package leaders: Prof.dr.ing. G. Teisman (EUR) and dr. S. Meijerink (RU)

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## 1 Description work package

### 1.1 Problem definition, aim and central research questions

Realizing successful adaptation strategies depends upon the involvement and collaboration of many interdependent actors with their own ambitions and preferences, responsibilities, problem perceptions and resources. Climate change impacts upon a variety of physical and social systems, which are heavily

interconnected. The governance systems which have to deal with the consequences of climate change are conversely highly fragmented. That means that inclusive governance arrangements are necessary to overcome this fragmentation in order to deal both legitimately and effectively with the consequences of climate change. In this work package we take our starting point in the fragmented world of governance. The central question of this work package is: *How to realize connectivity within a highly fragmented governance system?* Realizing connectivity has to do with a variety of issues. Based upon the scientific state of affairs and the questions of the hotspots we have selected four sets of strategies which may be used to organize “connectivity for adaptation”.

A first cluster of strategies to organize connectivity is institutional innovation. Within the highly fragmented structure of modern governance systems, connections across boundaries do not develop automatically, and often experiments or pilot projects (such as the *proeftuinen* of Haaglanden) are necessary for realizing new linkages. Relevant questions are when, how and why experiments can help to internalize climate ambitions into existing task oriented organisations, and how the experiences gained may be disseminated and anchored in a multilevel governance context?

A second type of strategy is aimed at synchronization between spatial functions. Many climate ambitions will lead to land-use claims, for instance for water retention, which can be accommodated more easily if they were integrated with existing land-use. A key question is how to synchronize multiple domain-specific subsystems (public – private; policy – knowledge; government – society). This project will explore, evaluate and design management strategies for realizing multi-functional land-use by spanning multiple system boundaries.

A third set of strategies are bureaucratic or political leadership strategies. The central question is which leadership and leadership strategies may enhance chances for a successful development and implementation of regional and local adaptation policies and projects. This project aims to learn from the use of leadership strategies in cases of successful adaptation to climate change in the Netherlands and abroad, and to develop leadership strategies that may be used to enable the implementation of adaptation measures in the Netherlands, such as projects for multifunctional land-use in the hotspot Dry Rural Areas (Deltaplan Hoge Zandgronden), or to navigate the transition toward new ways of fresh water management.

A fourth category of strategies is oriented towards synchronisation of multiple governance processes and scales at the regional level. Various regions attempt to formulate adaptation strategies, but they are highly dependent upon both national policy ambitions and local planning processes. The central question is how to accomplish effective and legitimate regional strategies for climate adaptation (like the Implementation Program South Western Delta) by creating conditions for symbiotic co-evolution between national, regional and local governance processes.

## 1.2 Interdisciplinarity and coherence between the projects

The various projects are executed by different pairs of scientists with a background in public administration, law, economics, political science and spatial planning. The work package management will safeguard the coherence and synergy between the four projects.

## 1.3 Stakeholders

For this work package the hotspots Haaglanden, Rotterdam and Dry Rural Areas are the main stakeholders. Other stakeholders include the ministries of Transport, Public Works & Water Management, Directorate-General of Public Works and Water Management; of Agriculture, Nature and Food Quality; and of Housing, Spatial Planning and the Environment; the representative organisations of the water boards, municipalities and provinces; the rural areas service DLG; the National Delta Programme Team and the various regional Delta Programme teams; the National Water Plan team; and the Kwartiermakers Deltaprogramma. There are two categories of stakeholders: direct stakeholders, involved in the various project steering committees (from the various hotspots and the co-financing actors) and indirect stakeholders who are not actively involved but who will be invited to attend meetings and who will be informed about the results of this work package.

## 2 Project 2.1 Learning from experiments in adaptation governance. Issues of design, implementation and effectiveness

**Project leaders: Dr. D. Huitema and prof.dr. F. Berkhout**

### 2.1 Problem definition, aim and central research questions

This project is concerned with the role that experiments can play in the governance of climate adaptation and especially the way experiments can help connecting innovative ideas to existing policy systems. Assuming that climate change involves complex social-ecological systems, it is of the utmost importance that governors are able to learn and subsequently adjust policies. In theory, experiments are expected to play a role in such learning and contribute to the evidence basis for governance, yet the actual number of experiments that is actually implemented remains low (Huitema & Meijerink, 2009). The aim of this project is to contribute to our understanding of the societal, bureaucratic and political dynamics surrounding experiments and to generate insights in how experiments can be designed to effectively contribute to learning.

Oakley (2000) has posited the ideal of the 'experimenting society', which is a society that is actively seeking knowledge by attempting targeted (policy) interventions and systematically evaluating their success. In line with current insights from the literature on integrated assessment, policy evaluation, and science/policy interface, an experimenting society would involve experts, stakeholders, ordinary citizens and policy makers in a process of collective discovery (Guba & Lincoln, 1989; Fischer, 1995; Pielke, 2007).

We are quite far removed from the ideal of the experimenting society, not least in the domain of governmental policy making. Whereas climate problems call for both adaptation to current environmental circumstances and adaptability to future changes (Young et al., 2006), institutional and technological lock-ins still set the tone. Experiments are difficult to initiate for reasons of equity (treating one group of citizens differently from another tends to meet with resistance; Fischer, 1995), the results of experiments do not always lend themselves to clear-cut policy choices, and results may appear when the policy makers who initially asked for them have disappeared from the political scene (Sanderson, 2002). However they can be an effective way of loosening up policy systems, so creating space for innovations (Huiteima & Meijerink, 2009).

This project is concerned with the effective design and implementation of experiments from the perspective of learning. In interactions between actors, different forms of learning may result, notably cognitive, normative and relational learning (Haug & Huiteima, 2009). The central research question is: *What are the societal, bureaucratic and political dynamics surrounding experiments, and how can experiments be designed and implemented so that they effectively contribute to learning for the governance of climate change adaptation?* For experiments to play an effective role, a number of key issues need to be addressed. Each of these generate subsidiary research questions:

- ▽ *The learning challenge.* Experiments may lead to different forms of learning. But is it possible to monitor and measure this learning? What is the relationship between different forms of learning? Is one form of learning more important than another in promoting innovation and the wider diffusion of an idea or practice?
- ▽ *The scale challenge.* Experiments tend to take place at the local scale, where room for innovation is larger. The challenge is to translate the results from a niche application in an experiment to a broader existing regime or system (Smith, 2007). How are experiments framed by the existing regime? What kinds of linkages are there between niches and regimes?
- ▽ *The institutional challenge.* Experimentation, by its nature, means deviation from routine practice. Often this will imply that norms, rules and routines of the institutions involved need to be modified or relaxed. How is room created within an established order for an experiment? What are the institutional blockages and obstacles faced by experiments? How are these obstacles mediated?
- ▽ *The political challenge.* Experiments often start under a different political leadership than when they report results. When the results become available, they tend to be subject to interpretation and reinterpretation by new leaders (Greenberg et al., 2003). How are the results of experiments interpreted? What is the role of political power in this process?

In light of these challenges, an appropriate design for experiments is important. The idea is not that problems can be resolved through process design, but rather to maximize the opportunity for experiments to operate successfully, with high levels of learning and with great potential for upscaling.

## 2.2 Approach and methodology

The project will take a comparative approach across climate adaptation experiments. The focus of the research will be in the water and flood management sector. The PhD-student will work in close cooperation with practitioners in on-going experiments in Knowledge for Climate (KvK) hotspot areas, concretely Haaglanden (“proeftuinen”) and Rotterdam (“drijvende havens”). The idea is to find comparable cases in the UK, Sweden and Germany (but if better suited for comparison cases in other countries will be considered) and analyze those in detail.

The emphasis will be on cases that are considered successful from a learning perspective. Given the relatively small number of cases that will be analyzed (between 5 and 10 foreign experiments can be regarded at most), and the relatively complicated success story of any experiment, the analysis of the case studies will have to be qualitative. The conceptual framework that is developed in the first 12 months will add rigor to the comparison by enabling the “Boolean approach” (Hopkin, 2002: 264). This means that a theoretically informed set of (potential) success factors is developed, and the subsequent empirical analysis will distinguish between factors that are “necessary”, merely “sufficient”, or “unimportant” to attain success in learning from experimentation.

The PhD will be supervised by Prof Berkhout and Dr Huiteima at the IVM (VU University Amsterdam), but there will also be a supervisory committee with practitioners from the hotspots and workshops. The following steps will be taken in the course of the PhD project:

- ▽ Month 1-12: Establishing a conceptual framework for monitoring and evaluating experiments, addressing the learning, scale, institutions, politics and ethical challenges. This step will be based on a literature review, engagement with one or two experiments in both hotspot areas and secondary analysis of existing documentation.
- ▽ Month 12-22: Engagement with ongoing experiments in Dutch hotspots. First recommendations on set up of the experiments, tailored to their progress at the time. Putting in place a monitoring framework to track and measure learning.
- ▽ Month 22-30: International comparative work to analyze how successful and unsuccessful experiments have been designed in the UK, Sweden and/or Germany. A literature study will be undertaken, but the PhD student will also make study tours (six weeks each) to the three countries in order to interview practitioners, policymakers and others involved with experiments.
- ▽ Month 30-36: Re-engagement with Dutch practice by analyzing multiple experiments that have taken place in Dutch water management in the past three decades. The analysis will be based on literature review and interviews. On the basis of this analysis and the analysis of foreign experience, an advisory document will be written outlining the best practice in setting up experiments.
- ▽ Month 36-48: Writing of PhD thesis.

### 2.3 Scientific deliverables and results

Month 12:

**Deliverable 2.1.1:** Paper with conceptual framework focused on the design of experiments from the perspective of learning, scale, institutions, politics and ethics (best practice).

**Deliverable 2.A:** Position paper: Organizing connectivity for climate adaptation.

Month 18:

**Deliverable 2.1.2:** Paper with recommendations for the design of experiments in the two hotspots.

Month 30:

**Deliverables 2.1.3:** Paper with analysis of foreign experiences with experiments in climate adaptation (3a Germany; 3b UK, 3c Sweden, 3d Comparative report).

Month 36:

**Deliverable 2.1.4:** Paper with analysis of Dutch experiences with experiments. Comparison with foreign experiences and recommendations for Dutch practice. Develop guidance on learning in experiments.

Month 48:

**Deliverable 2.1.5:** Ph.D. thesis

**Deliverable 2.B:** Synthesizing article on organizing connectivity for climate adaptation

### 2.4 Integration of general research questions with hotspot-specific questions

Two hotspots have expressed an interest in the issue of experimentation: Haaglanden and Rotterdam. Those hotspots will be continuously involved in the research project through their membership of the practitioners' supervisory committee. The PhD student in question will help them design experiments in such a way that targets are achieved and pitfalls avoided. The documents produced will also have relevance for other hotspots.

### 2.5 Societal deliverables and results

Month 18:

**Deliverable 2.1.6:** Informal Workshop to present deliverable 2.1.2 with recommendations for the design of experiments in the two hotspots.

Month 36:

**Deliverable 2.1.7:** Workshop (connected to the annual consortium meeting) to present deliverable 2.1.4 with analysis of Dutch experiences with experiments. Comparison with foreign experiences and recommendations for Dutch practice.

### 2.6 Most important references

1. Fischer, F. (1995). Evaluating public policy. Chicago: Nelson Hall.
2. Greenberg, D., Linksz, D. & Mandell, M. (2003). Social experimentation and public policymaking. Washington D.C.: The Urban Institute Press.

3. Guba, E., & Lincoln, Y. (1989). *Fourth Generation Evaluation*. Beverly Hills, CA: Sage.
4. Haug, C., & Huitema, D. (2009). Leren van een beleidsexercitie. *Bestuurskunde*, 18(3), 36-46.
5. Huitema, D., & Meijerink, S. (Eds.) (2009). *Water policy entrepreneurs*. Cheltenham: Edward Elgar.
6. Hopkin, J. (2002). Comparative methods. In: D. Marsh, & G. Stoker (Eds.), *Theory and methods in political science* (pp. 249-270). Houndsmills, UK: Palgrave MacMillan (2nd edition).
7. Martin, S., & Sanderson, I. (1999). Evaluating public policy experiments. *Evaluation*, 5(3), 245-258.
8. Oakley, A. (2000). *Experiments in Knowing*. Cambridge: Polity Press.
9. Pielke, R. (2007). *The honest broker*. Cambridge: Cambridge University Press.
10. Sanderson, I. (2002). Evaluation, Policy Learning and Evidence-Based Policy Making. *Public Administration*, 80(1), 1-22.
11. Smith, A. (2007). Translating sustainabilities between green niches and socio-technical regimes. *Technology Analysis & Strategic Management*, 19(4), 427 – 450.
12. Young, O.R., Berkhout, F., Gallopin, G.C., Janssen, M.A., Ostrom, E., & Van der Leeuw, S. (2006). The globalization of socio-ecological systems. *Global Environmental Change*, 16, 304-316.

### 3 Project 2.2 Realizing climate robust multifunctional land use through system synchronization.

Analyzing different strategies for realizing and removing barriers for multifunctional land use, such as climate services or integrating water storage in urban development.

**Project leaders: Dr. M.W. van Buuren (EUR) and prof.dr. G.R. Teisman**

#### 3.1 Problem definition, aim and central research questions

In a densely populated country like the Netherlands, space is scarce. The intense 'struggle about the space' causes many delays, controversies and cost overruns in decision-making processes. However, climate adaptation merely asks for more space, to facilitate water retention, urban cooling, water storage and dikes. These aspects have to be realized in processes of spatial development or restructuring. That makes climate adaptation a potentially highly controversial issue.

This also means that there are strong drivers to look for climate adaptation measures which facilitate multifunctional land use (Wiggering et al. 2003). There are many examples of this type of adaptation measures: multifunctional delta dikes, floating houses or greenhouses, green-blue services et cetera. These measures not only overcome spatial scarcity but also can facilitate the realization of consensus between actors with divergent stakes, frames and ambitions.

Such measures have to be realized in a context of complex governance processes in which a variety of stakeholders, together with public authorities and experts think about feasible and effective solutions

(Koppenjan & Klijn, 2004; Teisman et al., 2009). This context makes the realization of 'climate robust multifunctional land use' in terms of decision-making and implementation a difficult job. There are three sets of barriers that make it especially complex (Van Buuren et al., 2010).

First of all it is difficult to realize synchronization within actor arenas which try to realize solutions for spatial scarcity. Actors from different spheres (public, private and societal) with different ways of knowing, mindsets and capabilities have to overcome their differences in order to realize a shared idea (the challenge of process management – Klijn et al., 2008; Edelenbos & Klijn, 2009).

Secondly, within these actor arenas it is difficult to realize synchronicity between the various experts who approach the problem and its solution from different angles and who represent different epistemic communities and stakeholders who frame the problem from a social, economic or cultural perspective. Realizing a real interdisciplinary exploration, assessment and design of possible solutions is therefore a difficult job. Not only the beta-gamma interaction is problematic, but also the interaction between various applied beta-sciences and the interaction between experts and stakeholders (the question of knowledge management – Van Buuren, 2009; Edelenbos et al., 2010).

Third, to implement an innovative solution for multifunctional land-use a variety of implementation barriers have to be overcome in current policies, legal prescriptions, administrative procedures et cetera. Solutions which integrate various domains and policy ambitions have to be aligned with a variety of policy frameworks, legislative requirements and procedural conditions. Public managers involved have to develop strategies to realize the synchronization between the solution and the context of implementation (the question of implementation management – Romzek & Johnston, 2002).

Climate robust multifunctional land use is thus essentially the art of overcoming boundaries within and between a variety of fragmented governance and expert systems:

- ▽ boundaries between stakeholders (public, private, societal) with different interests, backgrounds, perspectives and competencies striving for multifunctional land use as package deal;
- ▽ boundaries between various experts and stakeholders departing from different rationalities and using different ways of knowing (De Groot et al. 2009; Fry, 2001);
- ▽ boundaries between the innovative multifunctional solution and the more traditional bureaucracy with its predefined categories and prescriptions.

By analyzing various practices in which ideas for multifunctional land use are accomplished and implemented, we study these boundaries in more detail and especially we answer the question: *Which management interventions are helpful to overcome the various boundaries that have to be crossed to realize successful projects of climate robust multifunctional land-use?* Our aim is to develop scientific valid and practically relevant insights into the various boundaries that hinder the accomplishment of multifunctional land use and the management strategies available to overcome these boundaries.

This research builds upon earlier findings resulting from research projects funded by Habiforum, Leven met Water, Ruimte voor Klimaat and Waterkader Haaglanden. It is our aim to synthesize these findings

and use them as a departing point for this research project to broaden our understanding of successful management interventions in a context of climate robust multifunctional land use.

This research project will be executed in close cooperation with various other Knowledge for Climate research projects aimed at developing innovative forms of multifunctional land use, especially theme 1 (delta dike) and theme 3 (climate services). We also build upon the findings from the KvK project HSDR02. This means that the project will be executed in close cooperation with the technical and design disciplines from other consortia in order to realize mutual coordination and enrichment. The development of technical measures will be aligned with our exploration of strategies to overcome the various governance boundaries.

### 3.2 Approach and methodology

In this project we compare four cases of ‘climate robust multifunctional land use’ in close cooperation with hotspots:

- ▽ Delta dike Wadden Sea;
- ▽ Water retention in Het Nieuwe Water (Haaglanden);
- ▽ Rotterdam Stadshaven;
- ▽ Deltaplan Dry Rural Areas.

The research project does have three components:

- ▽ a literature review of existing insights in realizing multifunctional land-use and a desk analysis of existing case studies (month 1 – 6);
- ▽ a comparative case study in which four cases of different hotspots are analyzed and compared and especially the management interventions for boundary spanning and boundary crossing invented and evaluated (month 7 – 13; 14 – 20; 21 – 27; 28 – 35);
- ▽ a collaborative action research to design, implement and evaluate alternative governance strategies for realizing multifunctional land use (month 36 – 48).

The methodology we use for the empirical part is an in-depth comparative case study design. We aim to analyze the cases in real time by combining participatory methods with unobtrusive methods. The case studies will be conducted by using a variety of methods: in-depth interviews, web-based surveys, observations and document analysis. We aim to participate as much as possible in the various planning processes to realize a ‘thick description’ of what happens. The two descriptive parts of this research project will be executed by a Ph.D. student.

This research also encompasses a collaborative action research component. At the request of hotspots we will participate in one specific project to think about ways of overcoming problems with regard to the three types of boundaries we distinguish. In such a situation we conduct the following steps:

1. joint analysis (with involved actors) of the problem situation e.g. the boundaries which are difficult to overcome;
2. joint design of intervention strategy aimed at boundary spanning or crossing;

3. joint implementation of intervention strategy;
4. joint evaluation of the outcomes of the intervention strategy;
5. adjustment of assumptions and/or intervention strategy and learning.

### 3.3 Scientific deliverables and results

Month 12:

**Deliverable 2.A:** Position paper: Organizing connectivity for climate adaptation.

Month 36:

**Deliverables 2.2.1 & 2.2.2:** (At least) 2 scientific papers for submission to relevant journals on spatial planning, public administration and environmental studies.

Month 48:

**Deliverable 2.2.3:** Ph.D. thesis

**Deliverable 2.B:** Synthesizing article on organizing connectivity for climate adaptation

### 3.4 Integration of general research questions with hotspot-specific questions

Various hotspots have asked us to develop a research project to get more insight in the factors that explain the success and failure of multifunctional area development. These projects or spatial investments are in fact the concrete translation of adaptation goals. They are thus very instructive to elaborate on because they learn us more about the practice of climate adaptation and the way in which in highly fragmented governance systems, coherence and synchronicity is realized.

### 3.5 Societal deliverables and results

Month 12, 24, 36, 48

**Deliverable 2.2.4:** yearly summary reports of research findings for hotspots and external dissemination.

Month 7 – 13; 14 – 20; 21 – 27; 28 – 35:

**Deliverables 2.2.5, 2.2.6, 2.2.7 & 2.2.8:** 4 case study reports / learning evaluation studies for the various hotspots about their case.

Month 21, 28, 36

**Deliverables 2.2.9, 2.2.10 & 2.2.11:** at least three reflection workshops with senior staff and involved actors to discuss findings.

Month 28, 36:

**Deliverables 2.2.12 & 2.2.13:** (At least) 2 professional publications for the relevant officials and administrators with collaboratively developed 'intervention strategies' (in cooperation with WP 1.2).

### 3.6 Most important references

1. Edelenbos, J., & Klijn, E.H. (2009). Project versus process management in public private partnership: relation between management style and outcomes. *International Public Management Journal*, 12(3), 310-331.
2. Edelenbos, J., Van Buuren, M.W., & Van Schie, N. (forthcoming 2010). Coproducing knowledge for water management. Knowledge coproduction between experts, bureaucrats and stakeholders. *Public Money & Management*.
3. De Groot, R.S., Alkemade, R., Braat, L., Hein, L., & Willemsen, L. (2009, in press). Challenges in integrating the concept of ecosystem services and values in landscape planning, management and decision making. *Ecological Complexity*.
4. Fry, G.L.A. (2001). Multifunctional landscapes – towards transdisciplinary research. *Landscape and Urban Planning*, 57, 159-168.
5. Koppenjan, J.F.M., & Klijn, E.H. (2004). *Managing uncertainty in networks; a network approach to problem solving and decision making*. Londen: Routledge.
6. Klijn, E.H., Edelenbos, J., Kort, M.B., & Van Twist, M.J.W. (2008). Facing Management Dilemmas; an Analysis of managerial choices in 18 complex environmental Public Private Partnership projects. *International Review of Administrative Sciences*, 74(2), 251-278.
7. Romzek, B.S. & Johnston, J.M. (2002). Effective Contract Implementation and Management: A Preliminary Model. *Journal of Public Administration Research and Theory*, 12(3), 423-453.
8. Van Buuren, M.W. (2009). Knowledge for governance, governance of knowledge. Inclusive knowledge management in collaborative governance processes. *International Public Management Journal*, 12 (2): 208-235.
9. Van Buuren, M.W. et al. (forthcoming 2010). *In woelig water. Waterbeheer en gebiedsontwikkeling*. Utrecht: Lemma.
10. Wiggering, H., Mueller, K., Werner A., & Helming K. (2003). The concept of multifunctionality in sustainable land development. In: K. Helming, & H. Wiggering (Eds.), *Sustainable Development of Multifunctional Landscapes* (pp. 3-18). Berlin/Heidelberg/New York: Springer-Verlag

## 4 Project 2.3 Entrepreneurial leadership strategies for connecting across boundaries.

Analyzing which bureaucratic and political leadership strategies can lead to vital regional and local policy processes, to fertile linkages between the short and the long term and to unobstructed implementation.

**Project leader: Dr. S.D. Meijerink**

### 4.1 Problem definition, aim and central research questions

This project focuses on the role of regional and local governmental leadership (strategies) in developing and implementing policies and projects for climate adaptation. Both government officials and elected politicians involved in practices of climate adaptation at the regional and local levels face many

challenges. They have to cope with complexities which are caused by the high number and variety of parties involved in climate adaptation who each have a different problem frame, a lack of sense of urgency to realize adaptation projects, coordination problems between different levels of government, and with a lack of public support for realizing adaptation measures. Leadership and leadership strategies are crucial in dealing with these challenges. By connecting across boundaries between government, the private sector and civil society, and between levels of government, regional and local leaders may build coalitions and try to gain support for their policy ideas and projects.

The leadership literature distinguishes between different types of leaders, such as reformist leaders (Goldfinch & 't Hart, 2003), visionary leaders (Westley & Mintzberg, 1989), transformational leaders (Bass & Avolio, 1993), policy entrepreneurs (Kingdon, 1995; Huitema & Meijerink, 2009), transition managers (Dewulf et al., 2009), and boundary spanners (Bressers & Lulofs, forthcoming), who each play different roles and employ different leadership strategies. To meet the manifold challenges of developing and implementing adaptation measures, a variety of leadership roles and strategies is needed (Gupta et al., 2008). For the development and implementation of innovative policies and (pilot) projects, i.e. policies and projects which do not fit within dominant discourses and practices, the following entrepreneurial leadership strategies are particularly useful: the development of new ideas and 'envisioning', the building of shadow networks (Olsson et al., 2006), coalitions (Fenger & Klok, 2001), and strategic alliances (Meijerink, 2005), the anticipation on, manipulation and creation of windows of opportunity (Kingdon, 1995; Olsson et al., 2006; Mintrom & Norman, 2009), the creation and manipulation of venues, and venue shopping (Baumgartner and Jones, 2002; Pralle, 2003). A theoretically and practically relevant question is which (combination) of these entrepreneurial leadership strategies encourage variety, experimentation and learning as well as the actual implementation of adaptation policies and projects at regional and local levels. This knowledge may be used by both bureaucratic and political entrepreneurs working for lower level government agencies, such as Provinces, Waterboards or Municipalities.

This project aims to further our understanding of various types of leadership in practices of climate adaptation at the regional and local levels, and of the leadership strategies used. We will (1) investigate the role of bureaucratic and political leadership in successful practices of climate adaptation at regional and local levels in the UK, Sweden, Germany and the Netherlands, with the objective to draw lessons from the experiences gained with (a particular combination of) leadership strategies, and (2) develop leadership strategies for some specific adaptation tasks in close cooperation with Provinces, Waterboards and Municipalities participating in the hotspot projects. These hotspot partners, for example, may want to learn how to build coalitions across various levels of government so as to gain support for their policies and projects. They may also want to learn more about possibilities for exploiting (inter)national venues to generate additional financial resources, or how to create a sense of urgency for the implementation of specific adaptation policies or projects.

The central question is: *Which leadership and leadership strategies may enhance chances for a successful development and implementation of regional and local adaptation policies and projects?*

This question can be divided into two guiding research questions for this project:

1. What is the role of bureaucratic and political leadership in successful adaptation projects at the regional and local levels, which leadership strategies are used in these projects, and what can be learned from these successes?
2. Which types of leadership and leadership strategies are needed for realizing specific regional and local adaptation projects, such as the projects for multi-functional land-use in the Hotspot Dry Rural Areas?

#### 4.2 Approach and methodology

The main research strategy for this project is collaborative action research, which implies that the researcher establishes contacts with the hotspot partners to jointly develop and test a theory on successful leadership strategies. The following steps will be taken in the course of this project:

- ▽ Month 1-6: The development of a theoretical framework on bureaucratic and political leadership roles and strategies which are necessary for realizing adaptation policies and projects. The research strategy for this step comprises a review of the leadership literature, and will build on ongoing research by members of the consortium, i.e. research on the role of policy entrepreneurs in realizing water transitions (Huiteima & Meijerink, 2009), on leadership as a dimension of the adaptive capacity of institutions (Gupta et al., 2008), on strategies for navigating transitions (Olsson et al., 2006), and on public leadership (Termeer, 2009).
- ▽ Month 7-12: An assessment of some practices of climate adaptation at regional and local levels as they are unfolding in the Netherlands now, such as the projects for multi-functional land-use in the Hotspot Dry Rural Areas. This step consists of interviews and a workshop with those involved in particular adaptation practices in the Netherlands to make a joint assessment of factors enhancing or inhibiting the realization of adaptation measures, and the development of a joint agenda for developing leadership strategies needed for realizing these measures.
- ▽ Month 13-30: An international comparative case study research on leadership roles and strategies in successful practices of adaptation to climate change at the regional and local levels in the UK, Germany, Sweden and The Netherlands. The research strategy for this step is an international comparative case study strategy, which comprises secondary analyses, analysis of documents and a series of interviews with individuals who (are said to) have played a crucial or leading role in realizing particular climate adaptation projects to learn more about the (combination of) leadership strategies they have used. To be able to select case studies of successful adaptation, we will draw on the normative framework which will be developed in Working Package 5.
- ▽ Month 20-36: Re-engagement with the hotspots, development, and, if possible, implementation of leadership strategies which enhance chances for a successful implementation of specific adaptation policies and projects.
- ▽ Month 37-48: Evaluation of the leadership strategies used, and of the method of collaborative action research used.

#### 4.3 Scientific deliverables and results

Month 12:

**Deliverable 2.3.1:** One review paper on bureaucratic and political leadership roles and strategies for adaptation to climate change

**Deliverable 2.A:** Position paper: Organizing connectivity for climate adaptation.

Month 26:

**Deliverable 2.3.2:** Paper for submission to scientific refereed journal on successful leadership strategies in international comparative perspective

Month 36:

**Deliverable 2.3.3:** Paper for submission to scientific refereed journal on the development of leadership strategies for practices of climate adaptation in the Netherlands

Month 48:

**Deliverable 2.3.4:** Paper for submission to scientific refereed journal on the evaluation of leadership strategies used, and the method of collaborative action research

**Deliverable 2.B:** Synthesizing article on organizing connectivity for climate adaptation

The scientific result is an empirically grounded contribution to the literature on bureaucratic and political leadership strategies for realizing adaptation projects at regional and local levels.

#### 4.4 Integration of general research questions with hotspot-specific questions

The general research questions are relevant to all hotspot areas, since they generate practically relevant insights in successful leadership strategies. Moreover, the collaborative action research generates tailor-made and directly applicable knowledge for the hotspot project Dry Rural Areas and at least one of the other hotspots.

#### 4.5 Societal deliverables and results

The societal deliverables of this project are:

Month 14:

**Deliverable 2.3.5:** Report with the results of the assessments of the Hotspot Dry Rural Areas and one other hotspot area.

Month 36:

**Deliverable 2.3.6:** Report with lessons learned from international comparative research on leadership strategies in successful adaptation projects.

Month 48:

**Deliverable 2.3.7:** Report with lessons learned from the development, implementation and evaluation of leadership strategies in the hotspot areas.

The societal result is directly applicable knowledge on bureaucratic and political leadership strategies to enhance the conditions for a successful development and implementation of adaptation policies and projects at regional and local levels.

#### 4.6 Most important references

1. Bass, B.M., & Avolio, J.B. (1993) Transformational leadership and organizational culture. *International Journal of Public Administration Quarterly*, 17, 112-121.
2. Baumgartner, F.R. & Jones, B.D. (2002). *Policy Dynamics*, Chicago: University of Chicago Press.
3. Bressers, H., & Lulofs, K. (Eds.) (forthcoming). *Governance and Complexity in water management. Creating cooperation through boundary spanning strategies*. Cheltenham: Edward Elgar Publishing.
4. Dewulf, A., Termeer, C.J.A.M., Werkman, R., Breeman, G., & Poppe, K. (2009). Transition Management for Sustainability, Towards a multiple theory approach. in: K. Poppe, M. Slingerland, C.J.A.M. Termeer (Eds.), *Transitions Towards Sustainable Agriculture and Food Chains in Peri-Urban Areas* (pp. 25-51). Wageningen: Wageningen Academic Publishers.
5. Fenger, M., & Klok, J.P. (2001). Interdependency, beliefs, and coalition behavior: A contribution to the advocacy coalition framework. *Policy Sciences*, 34(2), 157-170.
6. Goldfinch, S. & 't Hart P. (2003). Leadership and institutional reform: engineering macroeconomic policy change in Australia. *Governance*, 6(2), 235-270.
7. Gupta, J., Termeer, C.J.A.M., Klostermann, J., Meijerink, S. Van den Brink, M., Jong, P., & Nooteboom, S. (2008). *Institutions for Climate Change, A Method to assess the Inherent Characteristics of Institutions to enable the Adaptive Capacity of Society*. Institute for Environmental Studies, Report W-08/21.
8. Huitema, D., & Meijerink, S. (Eds.) (2009). *Water policy entrepreneurs, a research companion to water transitions around the globe*. Cheltenham: Edward Elgar Publishing.
9. Kingdon, J.W. (1995). *Agendas, Alternatives and Public Policies*. 2nd ed., New York: Harper Collins.
10. Meijerink, S. (2005). Understanding Policy Stability and Change: The Interplay of Advocacy Coalitions and Epistemic Communities, Windows of Opportunity, and Dutch Coastal Flooding Policy 1945-2003. *Journal of European Public Policy*, 12(6), 1060-1077.
11. Mintrom, M., & Norman, P. (2009) Policy entrepreneurs and policy change. *The Policy Studies Journal*, 37(4), 649-667.
12. Olsson, P., L.H. Gunderson, S.R. Carpenter, P. Ryan, L. Lebel, C. Folke, and C.S. Holling. (2006). Shooting the rapids. Navigating transitions to adaptive governance of social-ecological systems. *Ecology and Society*, 11(1), 18. [online] [www.ecologyandsociety.org/vol11/iss1/art18/](http://www.ecologyandsociety.org/vol11/iss1/art18/).
13. Pralle, S.B. (2003). Venue shopping, Political Strategy, and Policy Change: The Internationalization of Canadian Forest Advocacy. *Journal of Public Policy*, 23(3), 233-260.

14. Termeer, C.J.A.M. 2009. Water professionals and public leadership. *Irrigation and Drainage*, 58, 212-216.
15. Westley, F. and H. Mintzberg. 1989. Visionary leadership and strategic management. *Strategic Management Journal*, 10, 17-32.

## 5 Project 2.4 The multilevel governance of climate adaptation

Project leaders: Dr. M.W. van Buuren and prof. dr. G.R. Teisman

### 5.1 Problem definition, aim and central research questions

Climate adaptation is essentially a multi-level challenge in which the question about the appropriate scale is difficult to answer (Gibson et al., 2000; Adger et al., 2005). In the Netherlands many adaptation strategies are formulated at the regional level. Because in many regions this governance level is not well-institutionalized, formulating decisive and legitimate governance strategies at this level is rather difficult. It impels the voluntary cooperation of local and regional governments.

In the Dutch context various regional governance arrangements evolve with regard to climate adaptation. The elaboration and implementation of the National Delta programme (focused on water safety and water supply) is subdivided into six regional sub programmes. In areas like the South-Western Delta new governance arrangements are organized (for example the Delta Council and the Program Office Implementation Program South Western Delta).

These six Delta sub programmes have to be formulated in a context which is overcrowded by all sorts of local and sub regional area development processes. The programme regarding the South Western Delta has to deal with the planning processes with regard to the Grevelingen, the Volkerak Zoommeer, et cetera. The Rijnmond programme has to deal with developments like Stadswerven (Dordrecht) and Stadshavens (Rotterdam). The subprogramme Waddenzee has to reckon with the planned investments in the economic infrastructure of the Eemsdelta, the debate about sand suppletions, et cetera.

At the same time the six sub programmes have to reckon with the more general frameworks which are laid down in the National Water Plan and the National Delta Programme. However, these frameworks are until now not fully known, crystallized and clear. They are evolving and for the next years these plans have to be worked out.

That means that regional governance arrangements which deal with climate adaptation operate in a dynamic, multi-level and multi-actor governance system (Meadowcroft, 2001) and face three challenges:

1. they have to organize a powerful regional coalition able to formulate decisive adaptation trajectories on the regional level;
2. their strategies have to be aligned with national frameworks, processes and directions;
3. their strategies have to be aligned with local and sub regional planning processes.

We conceptualize regional governance arrangements as complex evolving systems, which are interconnected with both national and local governance systems (Teisman et al., 2009). Regional governance arrangements are nested systems: they are interconnected with an overarching national governance system and with local or subregional subsystems (Van Buuren et al., 2009).

The relation between these various systems can be framed as coevolving in which systems exert mutual influence on each other and thus steer the evolution of the other. We distinguish between three types of coevolution (Cilliers, 1998; Gerrits, 2008):

1. parasitic coevolution where one system/initiative sponges off another system/initiative;
2. interferential coevolution where both systems/initiatives deteriorate due to each others influences;
3. symbiotic coevolution where both systems/initiatives are coherent and strengthen each other.

Until now, little is known about the factors which explain the genesis of symbiotic coevolution within a nested multi-level governance system. It is ultimately the empirical conditions for this form of coevolution we want to translate in proven management prescriptions for organizing the mutual adjustment of local, regional and national adaptation strategies and designing successful regional arrangements for adaptation which are able to realize coherence and connectedness (Oberthür & Stokke, 2005; Walker et al. 2006).

We especially focus upon three issues:

1. the way regional climate governance arrangements unite regional actors into a powerful and decisive coalition and realize coevolution between agendas and initiatives of participating actors;
2. the way regional climate governance arrangements coevolve with national climate programmes and initiatives;
3. the way regional climate governance arrangements coevolve with local and subregional area development projects.

Central question for this research project is: *Which institutional, organizational, cultural and relational factors hinder the emergence of symbiotic coevolution with regard to regional climate adaptation and which governance strategies can contribute to coherent multilevel adaptation strategies?*

These governance strategies can be further distinguished into three categories:

- ▽ organizational arrangements (like an interorganizational project or programme management arrangement);
- ▽ procedural or institutional facilities (like the so-called exchange procedure in the programme Room for the River);
- ▽ financial arrangements (facilities for financing measures which oblige actors to cooperate and to synchronize their ambitions, like the FES subsidy for the peat meadow areas).

Within project 2.3 of this work package (leadership strategies) an important building block for this project will be delivered: insight into the appropriate political and bureaucratic leadership strategies to realize coherence and adjustment.

## 5.2 Approach and methodology

In this project we compare three cases of ‘multi-level governance of adaptation’ and the subsequent regional governance arrangements:

- ▽ South-Western Delta;
- ▽ Rotterdam Rijnmond;
- ▽ Wadden Sea.

In addition we aim to align this research with the Delta Programme IJsselmeer.

To answer our central question we conduct six research steps:

Month 1 – 12:

1. We conduct a governance system ‘quick scan’ per case to explore the relevant governance processes on the national, regional and local level, their problem definition and scope and the actor constellation involved.
2. We analyze the regional governance arrangement, its structure, evolution and functioning over time, and describe how the arrangement realizes coherence on the regional level;

Month 13 – 24:

3. We analyze the processes of mutual adjustment between local, regional and national governance processes and the way organizational, procedural and financial arrangements facilitate this adjustment;

Month 25 – 36:

4. We evaluate the various governance strategies applied to realize coherence in terms of their legitimacy, effectiveness and resilience.

Month 37 – 48:

5. We translate the various management strategies into management prescriptions for regional governance arrangements.
6. Within a specific collaborative action research setting we test these prescriptions in a collaborative effort with practitioners. These research steps cannot be conducted completely serial, but are parallel tracks which enrich and calibrate each other. The first four steps will be carried out by a Ph.D. student. The two final steps will be executed by the project leader and the work package leader. The methodology we use for the first four elements is an in-depth comparative case study design. We aim to analyze the cases in real time by combining participatory methods with unobtrusive methods. The case studies will be conducted by using a variety of methods: in-depth interviews, web-based surveys, observations and document analysis.

This research is partly organized as a “collaborative action research”. Especially the second part of our research question (which governance strategies contribute to coherence) will be answered in iterative cycles of observation, experimentation, and evaluation between involved actors and experts.

### 5.3 Scientific deliverables and results

Month 12:

**Deliverable 2.A:** Position paper: Organizing connectivity for climate adaptation.

Month 21, 29 & 36:

**Deliverables 2.4.1, 2.4.2, & 2.4.3:** 3 Case study papers based upon the three cases included in this research project

Month 36, 48

**Deliverables 2.4.4 & 2.4.5:** (At least) 2 comparative papers for submission to scientific refereed journals on spatial planning, public administration and environmental studies.

Month 48

**Deliverable 2.4.6:** Ph.D. thesis

**Deliverable 2.B:** Synthesizing article on organizing connectivity for climate adaptation

### 5.4 Integration of general research questions with hotspot-specific questions

The various hotspots have asked us to help them in realizing effective governance arrangements and strategies for establishing and implementing regional adaptation programmes. This question fits very well in our ambition within WP 2 to enhance our understanding of the various ways of realizing connectivity within a fragmented, multi-actor and multi-layered governance system.

The various hotspots which also have to develop a Delta programme for their area do have largely comparable questions about positioning and organizing their regional governance arrangement in the overcrowded governance arenas they are in. Within this fragmented context, more insight into the possibilities to organize connections and to build 'connective capacity' with help of organizational, institutional and financial arrangements is a necessary condition to realize legitimate and effective governance.

### 5.5 Societal deliverables and results

Month 30 & 38:

**Deliverables 2.4.7 & 2.4.8:** two learning evaluation reports for the involved hotspots

Month 12, 24, 36, 48

**Deliverable 2.4.9:** yearly summary reports of research findings

Month 21, 29, 36

**Deliverable 2.4.10, 2.4.11 & 2.4.12:** at least three reflection workshops with senior staff and involved actors to discuss findings

## 5.6 Most important references

1. Adger, W.N., Huq, S., Brown, K., Conway, D., & Hulme, M. (2003). Adaptation to climate change in the developing world. *Progress in Development Studies*, 3(3), 179-195.
2. Adger, W.N., Arnell, N.W., & Tompkins, E.L. 2005. Successful adaptation to climate change across scales. *Global Environmental Change*, 15, 77-86.
3. Bulkeley, H. (2005). Reconfiguring environmental governance. Towards a politics of scales and networks. *Political Geography*, 24, 875-902.
4. Cash, D., W.N. Adger, F. Berkes, P. Garden, L. Lebel, P. Olsson, L. Pritchard, & O. Young. Scale and cross-scale dynamics. Governance and information in a multilevel world. *Ecology and Society*, 11(2), 8.
5. Cilliers, P. (1998). *Complexity and postmodernism*. Routledge: London.
6. Meadowcroft, J. (2002). Politics and scale: some implications for environmental governance. *Landscape and Urban Planning*, 61, 169-179.
7. Gerrits, L. (2008). *The gentle art of coevolution*. Ph.D. Thesis, Rotterdam: Erasmus University Rotterdam.
8. Gibson, C.C., Ostrom, E., & Ahn, T.K. (2000). The concept of scale and the human dimensions of global change: a survey. *Ecological Economics*, 32, 217-239.
9. Görg, Ch. (2007). Landscape governance. The “politics of scale” and the “natural” conditions of places. *Geoforum*, 38, 954-966.
10. Lebel, L., Garden, P., & Imamura, M. (2005). The politics of scale, position and place in the governance of water resources in the Mekong Region. *Ecology and Society*, 10, (2), 8.
11. Oberthür, S., & Stokke, O.S. (2009). *Institutional interplay and global environmental change: interplay management and institutional complexes*. Cambridge, USA: MIT Press.
12. Teisman, G.R., Van Buuren, A., & Gerrits, L. (Eds.) (2009). *Managing complex governance systems. Dynamics, self-organization and coevolution in public investments*. London: Routledge.
13. Van Buuren, M.W. et al. (2009). *Loslaten, maar niet overlaten. Succesvol regionaal water governance en de rol van rijkspartijen*. Achtergrondstudie bij RMNO-advies A20.
14. Walker, B., Gunderson, L., Kinzig, A., Folke, C., Carpenter, S., & Schultz, L. (2006). A handful of heuristics and some propositions for understanding resilience in social-ecological systems. *Ecology and Society*, 11(1), 13.
15. Young, O.R. (2002). *The institutional dimensions of environmental change. Fit, interplay and scale*. Cambridge, USA: MIT Press.