The Governance of Adaptation
22-23 March 2012
Amsterdam, Netherlands

PROGRAMME & ABSTRACTS
Welcome

It gives us great pleasure to welcome you to beautiful Amsterdam. The coming two days we’ll discuss the theme of ‘The Governance of Adaptation’ with some of the finest academics in the splendid setting of our venue Felix Meritis (‘happiness through merit’).

Why adaptation? Long the ugly duckling in the climate change debate, adaptation is increasingly getting recognition as an important topic in its own right, next to mitigation. This may not necessarily what we hoped for ten of fifteen years ago, but now that climate change projections increasingly point to temperature changes of more than two degrees C, we must start reckoning with certain levels of change. As the effects of climate change are clouded in uncertainty, adaptation needs to be both reactive (responding to current impacts and pro-active, so as to handle unpredictability and surprise.

Why governance? Because we do not believe that climate change adaptation can be left to natural scientists alone. Obviously our colleagues from the natural sciences play a leading role in modeling and predicting climate change effects. But whether elements in our societies are actually willing to listen to what they have to report, share the way scientists construct problems, and follow their ‘objective’ advice will remain in doubt in future. Governance, understood as the way in which governments, companies, and civil society interact as efforts are taken to solve societal problems, is key to the debate on climate change. This is because actors involved in governing are not only trying to address climate change issues, they are often also deeply implied in their causes.

The overall field of climate change governance, both in practice and in academia is still emerging. It is far from clear then what the governance of adaptation is essentially about: is it about protecting humans, guaranteeing the ‘resilience’ of existing societal structures, or does it also pertain to natural systems and their preservation? Is it correct and appropriate to assume that adaptation is largely a local or regional phenomenon, or should we question that and contemplate continental and global dimensions too? Is adaptation something that we can leave to the market and civil society or is there a role for government? And if there’s a role for governments, is the governance of adaptation to take place mainly through mainstreaming climate change concerns in other policy fields, or should other instruments be considered? And what of the normative principles that underpin the governance of adaptation: how can we for instance address the inevitable issue of costs and benefits associated with climate change adaptation? Consensus on such issues may never be achieved, nor is it something we should necessarily strive for. Nevertheless, this emerging field does require some basic forms of agreement on relevant terms and key challenges and this symposium might just provide that nudge that the debate needs.

Before closing, we wish to kindly thank our sponsor, the Dutch Knowledge for Climate Programme, for enabling us to bring together such a good group of scholars and for entrusting us with the daring task of producing usable knowledge on such a challenging theme. We sincerely hope that the next two days will be extremely productive, both in the networking and knowledge production senses. Please be our guest and enjoy the debate!

Conference hosts,

Frans Berkhout  
Professor of Innovation and Sustainability  
Director of the Institute for Environmental Studies (IVM) and of the Amsterdam Global Change Institute  
VU University Amsterdam, NL

Dave Huitema  
Associate professor of Environmental Policy Analysis  
Institute for Environmental Studies (IVM) and Amsterdam Global Change Institute  
VU University Amsterdam, NL

Katrien Termeer  
Professor of Public Administration  
Wageningen University, NL
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About the conference

The need for adaptation

One of the stark messages of the IPCC’s Third Assessment Report was that climate change was already having observable impacts and that due to time lags in natural systems, no amount of mitigation can avoid it entirely (Watson et al. 2001). This warning was reinforced in the IPCC’s Fourth Assessment Report (Klein et al. 2007). The projected impacts of climate change remain highly uncertain, but they will most likely to be spread unequally across regions. In Europe for instance the European Commission predicts that, the impacts of climate change will be felt across the Continent, but that Southern Europe and the entire Mediterranean Basin, mountainous areas (especially the Alps), coastal zones and Arctic regions of the EU stand to be most significantly affected (COM (2007) 354 final: 5).

Several factors have long inhibited a discussion on the governance of adaptation. Adaptation itself was long considered a taboo topic, potentially weakening commitment to mitigation through the reduction of climate change inducing emissions. The controversies surrounding climate mitigation have delayed action on adaptation, but such delay might also have to do with the way adaptation has been defined: either as an issue that is relevant “only” for developing countries, an issue that is relevant “only” at the local level, or an issue that “only” requires intervention from the private sector.

Over the past decade however, the discussion on adaptation has truly started and measures are being taken across the world (see for instance Ford et al. 2011). Adaptation to climate change can take multiple forms, occur at different governance levels, and in different policy sectors, presenting governors with a range of possible actions. Measures can be classified according to their: timing (anticipatory, concurrent, reactive); intent (autonomous, planned); spatial scope (local, widespread); and form (technological, behavioral, financial, institutional, informational) (Smit and Wandel 2006). A well known typology distinguishes between ‘building adaptive capacity’ – generally considered to include elements such as economic wealth, technology, infrastructure, information, knowledge and skills, institutions etc - and ‘taking adaptive action’ (West and Gawith 2005), with the latter assumed to follow the development of the former. While governors and societal actors at a range of governance levels have started to develop adaptation policies (Swart et al. 2009; Ford et al. 2011), it is still not clear what is the extent to which deliberate interventions need to be made by governors at national or supranational levels, and how far adequate responses will emerge independently amongst affected actors and communities at more local levels. This means that the concept of governance is highly relevant for adaptation.

Governance

What attracts social scientists to the term “governance” is its ability to “cover the whole range of institutions and relationships involved in the process of governing” (Pierre and Peters 2000: 1). Clearly, “governance” is not the same as government: while government centers on the institutions and actions of the state, the term governance allows non-state actors such as businesses and civil society to be brought into an analysis of societal steering. Governance is also not the same as governing. Governing refers to those social activities which make a “purposeful effort to guide, steer, control, or manage (sectors or facets of) societies” (Kooiman 1993; 2; Rosenau 1992: 4).Governance, on the other hand, describes “the patterns that emerge from the governing activities of social, political and administrative actors” (Kooiman 1993: 2). It concerns “the ways and means in which the divergent preferences of citizens are translated into effective policy choices, about how the plurality of societal interests are transformed into unitary action and the compliance of social actors is achieved” (Kohler-Koch 1999: 14).
Conference themes

Given the relatively recent recognition of the need for adaptation and still emerging policy frameworks, it is no surprise that our understanding of the governance of adaptation is still relatively limited and evolving. While the definition of basic terms around adaptation are still evolving and there is still lively discussion about which theoretical frameworks are most appropriate for analysis, the number of empirical analyses of adaptation efforts is rapidly increasing. Given this situation we see space for international exchange and learning at both the conceptual and empirical levels. The symposium focuses on seven different topics, each of which translates into one or more panels with papers.

The framing adaptation problems and goals

Governing is a purposive activity, but precisely which problems does it seek to address? “Problems” are not simply “out there” waiting to be tackled. On the contrary, actors often engage in struggles to present (or “frame”) particular phenomena into problems that suit their pre-existing political interests or policy competences. One of the most difficult choices confronting governors relates to which problem (or problems – given that they seldom emerge one at a time) to address amongst all those that concern the public (Dror 1971), how to define it and, following on from that, govern it. Having made that choice, other choices quickly loom into view. Decision makers often find themselves drawn to particular problems (or problem framings) because they appear to fit with the way in which they are confronting other problems. This in turn raises yet more issues. For example, who is deemed responsible for the emergence of this particular problem? Have they deliberately caused it or was it an unforeseen outcome of their otherwise legitimate activities? Conceptual papers about the way climate change adaptation issues are framed, and empirical analysis of the way in which governors and societal actors perceive and “frame” adaptation are welcome.

The modes of governance and available instruments

Which modes of governance will governors select to address problems? The main choice here is between creating and imposing a set of enforceable social norms hierarchically (i.e. through the instrument of regulation), allowing them to emerge and disseminate via market-based instruments in markets, or relying on flatter and more network-based modes in which trust-based incentives play a more important role (Kjaer 2004: 41-9). Also, the issue of meta-governance, how to connect the various modes of governance is relevant. Under this heading we invite papers that conceptualize the challenge that adaptation presents and connect it to appropriate modes of governance. Empirical analyses that focus on the effectiveness of certain modes of governance, and the conditions under which they work, are also welcomed.

Action at what levels?

Having worked out what problems to focus on, and which mode of governance to apply, governors have to decide at which level to act. Here, the main choice is often presented as between acting locally -i.e. decentralization guided by the principle of subsidiarity- or at higher levels - e.g. regionally, nationally or internationally. There are several dilemmas buried away in this choice: greater local diversity may offer more opportunities for experimentation and bottom-up learning, but fewer opportunities for successfully implementing what is learned across space - a benefit corresponding to greater regulatory harmonization. Local decision-makers may have more direct access to information, but localism runs the risk of ‘capture’ by local interests. In practice, the choice between levels is seldom a binary one; action may be required at several levels simultaneously. And it may not be an entirely open choice – governors typically have a stronger legal competence, or prior preference, to act at some levels than others. Here conceptual questions about the politics of scale can be asked for example, but also papers discussing adaptation as a problem of multilevel governance can be proposed.
Agency and leadership in adaptation governance

Climate change adaptation could take place in a context that might be resistant to change, for instance because certain long standing policy principles and institutions might need to be altered, or expectations and legal rights of certain group might be affected. In such a context, leadership that readies the governance system for change, provides longer term visions, and applies new approaches will be necessary. Often such leadership will come from motivated individuals with a long lasting motivation, known as social or policy entrepreneurs. How can we analyze leadership activity conceptually, and what we do we know empirically about agency in the governance of adaptation?

Normative aspects of adaptation

The governance of adaptation requires monitoring, planning, regulation, decision-making and distribution systems, dispute resolution and juridical review. All of those are founded nominally on the public interest, but the concept of ‘public interest’ is not unproblematic. 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. 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. Conceptual papers that discuss normative frameworks that can underpin the governance of adaptation, and papers that empirically probe the meaning and effects of such principles are welcomed.

Science-policy interactions and adaptation

The importance of scientific knowledge in policy processes seems virtually undisputed. The academic literature traditionally problematizes the use of scientific knowledge in the policy domain: science and policy were often seen as different cultures divided by communication problems and diverging interests. This resulted in standard views of science and policy, still much present in the debate, which sees science and policy as virtually mutually exclusive. More recently however, partly under the influence of debates on the science underpinning climate policy, it is being recognized that the relation between science and policy is more complex. Models on the relation between science and policy have come to the fore that emphasize concepts such as science brokers, the science-policy interface, and boundary organizations. Those analyzing science-policy interactions on the basis of these models ask questions about: the way scientists move from descriptive analysis to prescription, how scientists operate in the media or in the courts, how personal and organizational values influence scientific advice, and how networks of relations between scientist and policy makers influence the advice giving function of scientists. We are particularly interested in conceptual models that allow the operation of the science policy interface in adaptation governance, and welcome empirical analyses of science-policy interaction in adaptation governance.
Programme overview

22 MARCH 2012

09:30-10:30 Registration and coffee

10:30-12:30 Plenary session

10:30-10:40 Introduction by prof. F. Berkhout
   Institute for Environmental Studies - VU Amsterdam, Netherlands

10:40-11:00 The governance of adaptation: Outlining an agenda
   Dr. D. Huitema, Institute for Environmental Studies - VU Amsterdam, Netherlands

11:00-11:30 In search of a robust strategy for governing climate change adaptation
   Prof. D. A. Mazmanian*, J. Jurewitz, H. T. Nelson
   *University of Southern California, USA

11:30-12:00 Fostering governance and building capacity for climate change adaptation: Can adaptive co-management help?
   Prof. R. Plummer, Brock University, Canada

12:00-12:30 Adaptation as a social contract
   Prof. N. Adger, University of East Anglia, UK

12:30-13:30 Lunch

13:30-15:15 Parallel sessions

15:15-15:30 Coffee break

15:30-17:15 Parallel sessions

17:15-18:00 Drinks

19:30 Social Dinner
23 MARCH 2012

8.30-9.00 Coffee

09:00-10:45 Parallel sessions

10:45-11:00 Coffee break

11:00-12:45 Parallel sessions

12:45-13:45 Lunch

13:45-15:00 Round table discussion chaired by prof. Frans Berkhout

   Contributors: Prof. N. Adger, Dr. D. Huitema, Prof. D.A. Mazmanian, Prof. R. Plummer, Prof. C.J.A.M. Termeer

15:00-15:30 Goodbye drinks
Parallel sessions by day

PARALLEL SESSIONS 22 MARCH, 13:30-15:15

Room: Koepelzaal
Theme - The framing of adaptation problems and goals
Chair: N. Adger, University of East Anglia, UK

Interactive framing as the interplay between puzzling and powering over climate adaptation governance; theoretical considerations
M.J. Vink, A.R.P.J. Dewulf, C.J.A.M. Termeer
Wageningen University, Netherlands

Which framing of adaptation is adequate?
J. Hinkel, A. Bisaro
Postdam Institute for Climate Impact Research, Germany

Adapting to extreme weather events: perspectives of social actors
E. Vasileiadou, C. Betgen, I. de Hoog, W. Hazelegger, E. Min, M. Hisschemöller, A. Petersen
Institute for Environmental Studies – VU Amsterdam, Netherlands

Room: Kremlin A
Theme - The framing of adaptation problems and goals
Chair: P. K. Rao, Rutgers University, USA

The canonization of climate change adaptation: Can adaptation be considered a policy field?
E. Massey, D. Huitema
Institute for Environmental Studies – VU Amsterdam, Netherlands

The social construction of climate adaptation governance
N. Mahlkow, T. Heimann, K. Balgar
Leibniz Institute for Regional Development and Structural Planning, Germany

Conflicting timelines: A theoretical and empirical analysis of time in the governance of adaptation
J. Eshuis, A. van Buuren
Erasmus University Rotterdam, Netherlands

Room: Zuilenzaal
Theme - The modes of governance and available instruments
Chair: S. Hughes, National Center for Atmospheric Research, USA

Are we adapting to climate change: Approaches for tracking adaptation action
J. D. Ford, L. Berrang-Ford, A. Lesnikowski
McGill University, Canada

Viewing policy through a ‘climate lens’? Evolving climate policy ‘mainstreaming’ practice in the European Commission
T. Rayner
Tyndall Centre for Climate Change Research, UK

The governance of climate change adaptation in ten OECD countries: challenges and approaches
A. Bauer, J. Feichtinger, R. Steurer
University of Natural Resources and Life Sciences Vienna, Austria
PARALLEL SESSIONS 22 MARCH, 13:30-15:15

Room: Kremlin B
Theme – Action at what levels?
Chair: E. Boyd, University of Reading, UK

What is most helpful for transformation to Regional Climate Adaptation Governance: Multi-Level-Perspective, Politics of Scale, or/and Hierarchy?
M. Gottschick
University of Hamburg, FSP BIOGUM, Germany

The influence of multi-level governance systems on the development and implementation of climate adaptation practices within organisations in Australia
L.E. Bates, M. Green, R. Leonard, I. Walker
CSIRO Ecosystem Sciences, Australia

Governance networks in a changing climate
C. Stein
Stockholm Resilience Centre, Sweden

Room: Sterrenzaal
Theme - Agency and leadership in adaptation governance
Chair: H. Mees, Utrecht University, Netherlands

Promoters of local adaptation governance: formal and informal cooperation in actor networks
S. Bauriedl
University of Kassel, Germany

The role of leadership in synchronising public and private agendas in flood risk management
P. Scholten*, C. Keskitalo*, S. Meijerink
Umeå University, Sweden

Water governance and climate change adaptation - Role of sustainability water policy entrepreneurs in Australia
J. McKay, G. Keremane
Centre for Comparative Water Policies and Laws, University of South Australia, Australia
PARALLEL SESSIONS 22 MARCH, 15:30-17:15

Room: Kremlin A
Theme - The framing of adaptation problems and goals
Chair: D. A. Mazmanian, University of Southern California, USA

The challenge of framing adaptation policies: Influence of policy design in implementation feasibility
J. Dupuis, P. Knoepfel
Swiss graduate school of public administration, Switzerland

Turning points in climate change adaptation
S. Werners, E. van Slobbe, S. Pfenninger
Wageningen University, Netherlands

Social-scientific scenarios for discussing climate change adaptation governance at a regional level
S. Baasch, University of Kassel, Germany

Room: Zuilenzaal
Theme - The modes of governance and available instruments
Chair: D. Huitema, Institute for Environmental Studies – VU Amsterdam, Netherlands

Enabling adaptation: A polycentric institutional approach
E. Boyd, B. Kjellen
University of Reading, UK

Analytical Framework for Analyzing Adaptation in Social-Ecological Systems
M. Jain
Columbia University, USA

Governing water resources adaptively: strengths and weaknesses of current water governance concepts
E. Herrfahrdf-Pähle
German Development Institute, Germany

Room: Koepelzaal
Theme - The modes of governance and available instruments
Chair: F. Berkhout, Institute for Environmental Studies - VU Amsterdam, Netherlands

Towards a legal framework for coastal adaptation: Assessing the first steps in Europe and Australia
J. Verschuuren, J. McDonald
Tilburg Sustainability Center, Netherlands

Climate change adaptation in practice: lessons from two coastal cities
L. Junghans
Universität Trier, Germany

When innovative adaptation strategies meet actors and institutions: Water squares in the City of Rotterdam
G.R. Biesbroek, C.J.A.M. Termeer, J.E.M. Klostermann, P. Kabat
Wageningen University, Netherlands
PARALLEL SESSIONS 22 MARCH, 15:30-17:15

Room: Kremlin B
Theme – Action at what levels?
Chair: S. Meijerink, Radboud University Nijmegen, Netherlands

Multi-level governance through regional adaptation partnerships
A. Bauer, R. Steurer
University of Natural Resources and Life Sciences Vienna, Austria

Multi-level and multi-sectoral governance of adaptation: European case studies
E. C. H. Keskitalo
Umeå University, Sweden

Locating authority in urban climate adaptation: Processes and consequences
S. Hughes
National Center for Atmospheric Research, USA

Room: Sterrenzaal
Theme - Science-policy interactions and adaptation
Chair: R. Plummer, Brock University, Canada

Governance of learning processes in transdisciplinary climate adaptation research teams
W. Boon, E. Horlings, T. Wardenaar
Rathenau Instituut, Netherlands

Learning to adapt to climate change: a framework for integrating adaptive governance and participatory multi-criteria methods
S. Munaretto, G. Siciliano, M. E. Turvani
University IUAV of Venice, Italy

What is the Value of “Twisting the Lion’s Tail”? Evaluating the use of Policy Experiments in Adaptation Governance and how they can facilitate Policy Learning
B. McFadgen
Institute for Environmental Studies - VU Amsterdam, Netherlands
PARALLEL SESSIONS 23 MARCH, 9:00-10:45

Room: Koepelzaal  
Theme - The framing of adaptation problems and goals  
Chair: S. Hughes, National Center for Atmospheric Research, USA

How the Second Delta Committee set the agenda for climate adaptation policy: A Dutch case study on framing strategies for policy change  
S.H. Verduijn, S. Meijerink, P. Leroy  
Radboud University Nijmegen, Netherlands

Introducing indirect impacts of climate change on the adaptation agenda - responding to overseas climate change  
O. Wallgren  
Stockholm Environment Institute, Sweden

Risk, responsibility and relevance: Contextually framing adaptation governance for the mining sector and other stakeholders  
K. Moffat, A. M. Dowd, B. Loechel, J. Hodgkinson  
CSIRO Ecosystem Sciences, Australia

Room: Zuilenzaal  
Theme - The modes of governance and available instruments  
Chair: J. Jurewitiz, Pomona College, USA

The double struggle of climate policy – insights for the governance of mitigation and adaptation from an insurance perspective  
C. Heuson  
Helmholtz Centre for Environmental Research, Germany

Intergovernmental fiscal transfers for climate change adaptation  
S. Mumbunan  
University of Indonesia, Indonesia

Adaptation, governance and politics in sub-Saharan Africa  
M. Lockwood  
Institute of Development Studies, University of Sussex, UK

Room: Kremlin A  
Theme - Agency and leadership in adaptation governance  
Chair: R. Steurer, University of Natural Resources and Life Sciences Vienna, Austria

On the implementation of climate adaptation policies: Public responsibilities and private initiatives?  
J. Dijk*, H. Mees, D van Soest, P. Driessen, H. Runhaar, M. van Rijswijk  
*Institute for Environmental Studies - VU Amsterdam, Netherlands

Pathways to regional resilience  
T. Stecher  
University of Oldenburg, Germany

Governance arrangements for climate adaptation: The case of green roofs for storm water retention in urban areas  
H. Mees, P. Driessen, H. Runhaar, J. Stamatelos  
Utrecht University, Netherlands
PARALLEL SESSIONS 23 MARCH, 9:00-10:45

Room: Sterrenzaal
Theme - Normative aspects of adaptation
Chair: M. Wiering, Radboud University Nijmegen, Netherlands

Adaptation for whom? Governing equity and efficiency under the UNFCCC Adaptation Fund
Å. Persson, E. Remling
Stockholm Environment Institute, Sweden

The worthy, vulnerable: Distributive norms of adaptation governance
J. Lehman, University of Minnesota, USA

What motivates European burden sharing for climate change adaptation?
S. Hanger
IIASA, Austria and IVM – VU Amsterdam, Netherlands

Social Justice and Adaptation in the UK
M. Benzie
Stockholm Environment Institute, Sweden

Room: Kremlin B
Theme - Science-policy interactions and adaptation
Chair: D. Huitema, Institute for Environmental Studies – VU Amsterdam, Netherlands

The construction of manageability in climate change adaptation: An explorative study in flood risk management
C. Kuhlicke
Helmholtz Centre for Environmental Research, Germany

The balancing act, using climate science to inform adaptation decisions: a case study on the UK Climate Projections 2009
S. Tang*, S. Dessai
King’s College London, UK

Regional adaptive capacity in Europe: A framework for assessing adaptive capacity
S. Kruse, S. Juhola
Swiss Federal Institute for Forest, Snow, and Landscape Research, Switzerland
PARALLEL SESSIONS 23 MARCH, 11:00-12:45

**Room: Kremlin A**

**Theme - The framing of adaptation problems and goals**

*Chair: F. Berkhout, Institute for Environmental Studies - VU Amsterdam, Netherlands*

Ecosystem management in the face of uncertainty: organizational problem-solving performances of German state forest administrations concerning climate change adaptation measures

*F. Faber, R. von Detten*

*Institute of Forestry Economics, University of Freiburg, Germany*

What is the Truth about ‘uncertainty’? Proposal for a more sophisticated definition and use of the concept of ‘uncertainty’

*M. Gottschick*

*University of Hamburg, FSP BIOGUM, Germany*

**Room: Zuilenzaal**

**Theme - The modes of governance and available instruments**

*Chair: J. Hinkel, Postdam Institute for Climate Impact Research, Germany*

Adapting adaptation: a critical governance analysis of the English eco-town initiative

*D. Tomozeiu, S. Joss*

*University of Westminster, UK*

Social Networks, Institutional Relations and Climate change Adaptation in Greater Manchester, UK

*A. Kazmierczak, H. Knox*

*University of Manchester, UK*

Adaptation Discourses and Modes of Governance in Swiss Alpine Regions

*A. Widmer, C. Hirschi*

*Swiss Federal Institute of Technology, Switzerland*

**Room: Koepelzaal**

**Theme - The modes of governance and available instruments**

*Chair: S. Meijerink, Radboud University Nijmegen, Netherlands*

Effective governance of climate change adaptation

*P. K. Rao*

*Rutgers University, USA*

Priming the governance system for climate change adaptation: The application of a Social Ecological Inventory to engage actors in Niagara, Canada

*K. Pickering, J.M. Baird, R. Plummer*

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The Climate Adaptation Navigator as a tool for analyzing governance issues

*M. Marchand, S. Hommes*

*Deltares, Netherlands*
**PARALLEL SESSIONS 23 MARCH, 11:00-12:45**

**Room: Kremlin B**

**Theme – Action at what levels?**

*Chair: A. Keessen, Utrecht University, Netherlands*

Finding adaptability in existing transboundary water agreements  
*M.J. Vick*  
*University of Pacific McGeorge School of Law, USA*

Water governance in Chile and Canada - A comparison of adaptive characteristics  
*M. A. Hurlbert, H. Diaz*  
*University of Regina, Canada*

Vertical and horizontal dimensions in the governance of adaptation: Interactions between agro-pastoralists and the State in the Ethiopian dry lands  
*G. Getachew, D. Müller-Mahn*  
*University of Bayreuth, Germany*

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**Room: Sterrenzaal**

**Theme - Science-policy interactions and adaptation**

*Chair: N. Adger, University of East Anglia, UK*

Joint knowledge production for global change adaptation and sustainability: (how) can it be done?  
*D. Hegger, A. van Zeijl-Rozemab, C. Dieperink*  
*Copernicus Institute of Sustainable Development, Utrecht University, Netherlands*

Reconciling innovative knowledge partnerships into existing institutions: the case of the Dutch Knowledge for Climate program  
*P. Huntjens, C.J.A.M. Termeer, A. Dewulf, A. van Buuren, J. Eshuis*  
*Wageningen University, Netherlands*

Barriers and guidelines in adaptation policy making: Taking stock, analysing congruence and providing guidance  
*C. Clar, A. Prutsch, R. Steurer*  
*University of Natural Resources and Life Sciences Vienna, Austria*
Parallel sessions by theme

**Theme - The framing of adaptation problems and goals**

*Chair: N. Adger, University of East Anglia, UK*

Interactive framing as the interplay between puzzling and powering over climate adaptation governance; theoretical considerations

*M.J. Vink, A.R.P.J. Dewulf, C.J.A.M. Termeer*

Wageningen University, Netherlands

22 March
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Room: Koepelzaal

Which framing of adaptation is adequate?

*J. Hinkel, A. Bisaro*

Postdam Institute for Climate Impact Research, Germany

Adapting to extreme weather events: perspectives of social actors

*E. Vasileiadou, C. Betgen, I. de Hoog, W. Hazelegger, E. Min, M. Hisschemöller, A. Petersen*

Institute for Environmental Studies – VU Amsterdam, Netherlands

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*Chair: P. K. Rao, Rutgers University, USA*

The canonization of climate change adaptation: Can adaptation be considered a policy field?

*E. Massey, D. Huitema*

Institute for Environmental Studies – VU Amsterdam, Netherlands

22 March
13:30-15:15
Room: Kremlin A

The social construction of climate adaptation governance

*N. Mahlkow, T. Heimann, K. Balgar*

Leibniz Institute for Regional Development and Structural Planning, Germany

Conflicting timelines: A theoretical and empirical analysis of time in the governance of adaptation

*J. Eshuis, A. van Buuren*

Erasmus University Rotterdam, Netherlands

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*Chair: D. A. Mazmanian, University of Southern California, USA*

The challenge of framing adaptation policies: Influence of policy design in implementation feasibility

*J. Dupuis, P. Knoepfel*

Swiss graduate school of public administration, Switzerland

22 March
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Room: Kremlin A

Turning points in climate change adaptation

*S. Werners, E. van Slobbe, S. Pfenninger*

Wageningen University, Netherlands

Social-scientific scenarios for discussing climate change adaptation governance at a regional level

*S. Baasch*

University of Kassel, Germany
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M. Gottschick  
University of Hamburg, FSP BIOGUM, Germany |
### Theme - The modes of governance and available instruments

**Chair:** S. Hughes, National Center for Atmospheric Research, USA

Are we adapting to climate change: Approaches for tracking adaptation action  
**J. D. Ford, L. Berrang-Ford, A. Lesnikowski**  
McGill University, Canada

22 March  
13:30-15:15  
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Viewing policy through a ‘climate lens’? Evolving climate policy ‘mainstreaming’ practice in the European Commission  
**T. Rayner**  
Tyndall Centre for Climate Change Research, UK

The governance of climate change adaptation in ten OECD countries: challenges and approaches  
**A. Bauer, J. Feichtinger, R. Steurer**  
University of Natural Resources and Life Sciences Vienna, Austria

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**Chair:** D. Huitema, Institute for Environmental Studies – VU Amsterdam, Netherlands

Enabling adaptation: A polycentric institutional approach  
**E. Boyd, B. Kjellen**  
University of Reading, UK

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Analytical Framework for Analyzing Adaptation in Social-Ecological Systems  
**M. Jain**  
Columbia University, USA

Governing water resources adaptively: strengths and weaknesses of current water governance concepts  
**E. Herrfahrtd-Pähle**  
German Development Institute, Germany

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**Chair:** F. Berkhout, Institute for Environmental Studies - VU Amsterdam, Netherlands

Towards a legal framework for coastal adaptation: Assessing the first steps in Europe and Australia  
**J. Verschuuren, J. McDonald**  
Tilburg Sustainability Center, Netherlands

22 March  
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Climate change adaptation in practice: lessons from two coastal cities  
**L. Junghans**  
Universität Trier, Germany

When innovative adaptation strategies meet actors and institutions: Water squares in the City of Rotterdam  
**G.R. Biesbroek, C.J.A.M. Termeer, J.E.M. Klostermann, P. Kabat**  
Wageningen University, Netherlands
Theme - The modes of governance and available instruments

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The double struggle of climate policy – insights for the governance of mitigation and adaptation from an insurance perspective
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The Climate Adaptation Navigator as a tool for analyzing governance issues
M. Marchand, S. Hommes
Deltares, Netherlands
**Theme – Actions at what levels?**

*Chair: E. Boyd, University of Reading, UK*

What is most helpful for transformation to Regional Climate Adaptation Governance: Multi-Level-Perspective, Politics of Scale, or/and Hierarchy?

*M. Gottschick*

*University of Hamburg, FSP BIOGUM, Germany*

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**22 March**

**13:30-15:15**

**Room:** Kremlin B

The influence of multi-level governance systems on the development and implementation of climate adaptation practices within organisations in Australia

*L.E. Bates, M. Green, R. Leonard, I. Walker*

*CSIRO Ecosystem Sciences, Australia*

Governance networks in a changing climate

*C. Stein*

*Stockholm Resilience Centre, Sweden*

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*Chair: S. Meijerink, Radboud University Nijmegen, Netherlands*

Multi-level governance through regional adaptation partnerships

*A. Bauer, R. Steurer*

*University of Natural Resources and Life Sciences Vienna, Austria*

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**22 March**

**15:30-17:15**

**Room:** Kremlin B

Multi-level and multi-sectoral governance of adaptation: European case studies

*E. C. H. Keskitalo*

*Umeå University, Sweden*

Locating authority in urban climate adaptation: Processes and consequences

*S. Hughes*

*National Center for Atmospheric Research, USA*

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**23 March**

**11:00-12:45**

**Room:** Kremlin B

Water governance in Chile and Canada - A comparison of adaptive characteristics

*M. A. Hurlbert, H. Diaz*

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Vertical and horizontal dimensions in the governance of adaptation: Interactions between agro-pastoralists and the State in the Ethiopian dry lands

*G. Getachew, D. Müller-Mahn*

*University of Bayreuth, Germany*
Theme - Agency and leadership in adaptation governance

Chair: H. Mees, Utrecht University, Netherlands
Promoters of local adaptation governance: formal and informal cooperation in actor networks
S. Bauriedl
University of Kassel, Germany

The role of leadership in synchronising public and private agendas in flood risk management
P. Scholten*, C. Keskitalo*, S. Meijerink
Umeå University, Sweden
Water governance and climate change adaptation - Role of sustainability water policy entrepreneurs in Australia
J. McKay, G. Keremane
Centre for Comparative Water Policies and Laws, University of South Australia, Australia

Chair: R. Steurer, University of Natural Resources and Life Sciences Vienna, Austria
On the implementation of climate adaptation policies: Public responsibilities and private initiatives?
J. Dijk*, H. Mees, D van Soest, P. Driessen, H. Runhaar, M. van Rijswick
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Pathways to regional resilience
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Governance arrangements for climate adaptation: The case of green roofs for storm water retention in urban areas
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Theme - Normative aspects of adaptation

Chair: M. Wiering, Radboud University Nijmegen, Netherlands
Adaptation for whom? Governing equity and efficiency under the UNFCCC Adaptation Fund
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The worthy, vulnerable: Distributive norms of adaptation governance
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What motivates European burden sharing for climate change adaptation?
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**Theme - Science-policy interactions and adaptation**

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Governance of learning processes in transdisciplinary climate adaptation research teams  
*W. Boon, E. Horlings, T. Wardenaar*  
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Learning to adapt to climate change: a framework for integrating adaptive governance and participatory multi-criteria methods  
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The construction of manageability in climate change adaptation: An explorative study in flood risk management  
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Joint knowledge production for global change adaptation and sustainability: (how) can it be done?  
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*Copernicus Institute of Sustainable Development, Utrecht University, NL*

Reconciling innovative knowledge partnerships into existing institutions: the case of the Dutch Knowledge for Climate program  
*P. Huntjens, C.J.A.M. Termeer, A. Dewulf, A. van Buuren, J. Eshuis*  
*Wageningen University, Netherlands*

Barriers and guidelines in adaptation policy making: Taking stock, analysing congruence and providing guidance  
*C. Clar, A. Prutsch, R. Steurer*  
*University of Natural Resources and Life Sciences Vienna, Austria*
Abstracts

(In alphabetic order by last name of first author)
Authors: Stefanie Baasch  
*University of Kassel, Germany*

Title: Social-scientific scenarios for discussing climate change adaptation governance at a regional level

Theme: The framing of adaptation problems and goals

Session: 22 March, 15:30-17:15; room Kremlin A

Abstract

It has been widely mentioned that adaptation to climate change has to face uncertain knowledge both regarding regional climate change impacts and societal developments like demographic change (e.g. the Adoption of Adaptation Action Plan which passes Germany’s Federal Cabinet in August 2011). Though, a striking dominance of natural scientific knowledge within the adaptation discourse still seems to be operative.

The presentation will focus on a social scientific attempt to use social-scientific scenarios as a communication method to discuss governance modes and constraints and adaptation strategies with regional stakeholders from three different sectors: forestry, agriculture and energy. The scenarios include three different types of governance formations which lead to different adaptation policies and sectoral developments. The empirical results show the impacts of sectoral planning culture in the assessment of vulnerability, risk assessment, willingness and necessity to act and the course of action. The outcomes also shed light on different governance demands.

Beside the description of the method and the outcomes, it will be critically discussed to what extend these scenario technique could be helpful to identify governance innovations and to facilitate decision making processes under the state of uncertainty. The method has been developed within the project “Participation, Acceptance and Regional Governance” within the regional network for climate change adaptation in Northern-Hesse, Germany.
Authors: Lorraine Bates, Melissa Green, Rosemary Leonard & Iain Walker  
CSIRO Ecosystem Sciences, Australia

Title: The influence of multi-level governance systems on the development and implementation of climate adaptation practices within organisations in Australia.

Theme: Action at what level?

Session: 22 March, 13:30-15:15; room Kremlin B

Abstract

To address the multi-scalar effects of climate change, strategic planning by Australian organisations must consider the socio-political, economic, institutional and regional context of their decisions. Interactions between organisations, “the social entities ... created to accomplish tasks” and institutions, the formal regulations and informal “cultural norms, values and accepted practices” (Matthews and Sydneysmith, 2010) that govern behaviour are of critical importance. The number of regulations and policies on climate change in Australia is limited. Uncertainty about the timing, structure and potential impact of proposed new legislations, such as a national carbon abatement scheme, is affecting forward planning across the country. To assist with operational and policy uncertainties, organisations embed themselves in networks that inform, structure and facilitate strategies. Organisational representatives also engage in policy forums consistent with the “ecology of games” paradigm - senior officers groups, inter-agency forums, industry task forces and ministerial advisory groups (Long, 1958; Lubell et al., 2010; Scholz et al., 2008). These constitute another institutional level influencing the system.

We examine patterns of relationships and associated emergent structures of these multi-level networks (Robins et al., 2010). The focus of this paper is on the forum level of organisational cooperation. Regional surveys and interviews with over 200 organisations have identified critical networks and forums that make up the governance system. Our analysis of interactions among forums and networks shows their affect on the development and implementation of climate adaptation practices. The nature and importance of these forums will be discussed relative to the contextual circumstances of two Australian regions.
Authors: Anja Bauer, Reinhard Steurer  
University of Natural Resources and Life Sciences Vienna, Austria

Title: Multi-level governance through regional adaptation partnerships.

Theme: Action at what level?

Session: 22 March, 15:30-17:15; room Kremlin A

Abstract

Since adaptation pressures and responses cut across jurisdictional levels (from the international via the national to the provincial and local levels of policy making) and across societal domains, adaptation to climate change is widely recognized as a multilevel governance challenge. Based on case studies on three Regional Adaptation Collaboratives in Canada and three Regional Climate Change Partnerships in the UK we analyze whether and how partnerships facilitate multi-level governance of adaptation. We first describe and compare the different architectures of the partnership schemes and the resulting structures and modes of coordination across levels and domains. Our cases range between narrower government-centered and wider collaborative arrangements. Besides the dominant network mode of governance, also instances of hierarchical steering can be observed. In the second part of the paper, we discuss the activities, outputs and benefits of the partnerships. It is shown that all partnerships facilitate in particular better networking, learning and awareness for climate change adaptation homogeneously, but that their roles vary regarding the formulation and implementation of adaptation measures or policies. Overall, the paper shows that the collaboratives in Canada and the partnerships in the UK not only fulfill important coordination functions at the core of the partnership, i.e. between government authorities, businesses, technical experts and semi-public organizations at regional and local levels but that they are also important mechanisms for the coordination between the national/federal, the regional and the local levels of government.
Authors: Sybille Bauriedl  
University of Kassel, Germany

Title: Promoters of local governance of adaptation: formal and informal cooperation in actor networks.

Theme: Agency and leadership in adaptation governance

Session: 22 March, 13:30-15:15; room Sterrenzaal

Abstract

Many adaptation researchers underline the importance of the local level for the implementation of adaptation measures. This presumption has to be investigated more carefully, because the decision making authority for many adaptation strategies is located at the regional, national or European level and within global markets and the interplay of these levels has to be taken into account. Secondly, climate change adaptation is a cross-cutting issue that has to be implemented in various policy sectors. Adaptation of forestry, agriculture, energy infrastructure or health care has different time horizons and spatial scopes and therefore different involved actors and governance levels, too.

If we are looking for innovations of governance of adaptation, we have to ask: Who are the promoters of adaptation strategies for different policy fields? Who defines the regional vulnerability, adaptation capacity and adaptation afford? Who formulates the road to a sustainable adapted region? And who evaluates and adjusts the adaptation process? The knowledge about the actors involved in local decision making processes is very weak.

I suggest a perspective on multi-level governance and a perspective on policy integration in adaptation research and will present a methodological framework for an actor-network analysis and present examples of an adaptive health care network and an adaptive renewable energy network. The essence of governance is its focus on governing mechanisms, which do not rest on the authority of a central government. This is especially relevant for socio-ecological problems like regional impacts of climate change. The case study is located in one of the German model regions for developing governance innovations for adaptation (KLIMZUG research program). My abstract is a contribution to conference topic 4: Agency and leadership.
Abstract

Assessments of the distribution of climate impacts across social groups have so far been lacking. Adaptation strategies therefore generally do not offer protection to the most vulnerable people in society and may even heighten vulnerability or disadvantage. This is largely the result of the tools used by decision makers to assess climate risks and identify adaptation priorities.

Drawing on recent research and case studies from the UK, this paper will examine the social justice issues around climate change. It will examine the social nature of vulnerability to climate change and ways in which it can be measured. It will conclude by assessing the implications for adaptation governance.

The primary research work that will inform this paper was conducted as part of the Joseph Rowntree Foundation’s Climate Change and Social Justice Programme. This includes projects on the social nature of vulnerability to coastal (Fernandez-Bilbao et al, 2011) and pluvial flooding (Houston et al, forthcoming), the development of a socio-spatial index of vulnerability to climate change (Lindley et al, forthcoming) and a study of vulnerability to heat and drought adaptations (Benzie et al, 2011). Complementing these insights, work on the distributional impacts of mitigation policies (Thumim et al, forthcoming) and public attitudes to fairness (Horton et al, forthcoming) will be used to summarise the implications for the governance of adaptation.

Bottom-up vulnerability assessments and objective-based risk assessment have the potential to improve the ‘fairness’ of adaptation policies, with implications for the overall adaptation policy regime, including the role of local stakeholders and the use of science.
Authors: Robbert Biesbroek, Katrien Termeer, Judith Klostermann, Pavel Kabat  
Wageningen University, Netherlands

Title: When innovative adaptation strategies meet actors and institutions: Water squares in the City of Rotterdam

Theme: The modes of governance and available instruments

Session: 22 March, 15:30-17:15; room Koepelzaal

Abstract

Climate change will have severe impacts on highly urbanized areas; especially in delta regions heavy rainfall will put additional pressures on the existing urban water challenge. Traditional strategies of urban water management alone will not be sufficient. New and innovative adaptation measures are required in order to successfully adapt to the current and projected changes. However, actors that want to develop and implement these measures will need to deal with various barriers that might impede the governance process. What these barriers, how they emerged, are and how they should be dealt with is still largely left unexplored.

Using a barrier framework, this paper presents the results of a within case study analysis on those barriers that actors encountered in designing and implementing the innovative concept of ‘Water Squares’ in the city of Rotterdam, the Netherlands. Water Squares are multi-functional public squares that most of the year will remain dry. It is only during heavy rainfall when (parts of) the square will be filled with rainwater and temporarily function as water storage system (24-36h).

This paper uses process-tracing methodology to analyse which barriers emerged, why these barriers emerged, how these barriers have influenced the course and outcome of the governance process, and which intervention strategies were used to manage them. Furthermore, the paper analyses earlier developed hypotheses about the characteristics of barriers to adaptation. The results of this study provide deeper understanding of how to deal with barriers that emerge in the governance of adaptation.
Authors: Wouter Boon, Edwin Horlings, Tjerk Wardenaar

*Rathenau Instituut, Netherlands*

Title: Governance of learning processes in transdisciplinary climate adaptation research projects

Theme: The modes of governance and available instruments

Session: 22 March, 15:30-17:15; room Sterrenzaal

Abstract

In the Netherlands, research activities on climate adaptation are organised in two large programmes: Climate Changes Spatial Planning (2004-2011) and Knowledge for Climate (2008-2014). These programmes involve multiple stakeholders acting at different levels. The Knowledge for Climate programme introduced a novel organisational form. At a regional level policymakers, politicians, scientists, companies and NGOs form ‘hotspots’ in which they co-create research agendas, perform research, and work at translating and implementing research results. These hotspots can be considered interactive learning environments.

Much is known about the input and output of interactions between knowledge producers and knowledge users. However, hardly any research has been done into the governance of these interactions (Autio, 2004). This paper focuses on the governance of user-producer interactions in terms of structural and cognitive aspects. Which cognitive and structural factors contribute to mutual learning in the context of local user-producer interactions? Resource-based theory of innovation and theories on incentive structures form the basis for the analysis of the structural factors. Concepts from user involvement, framing, and agenda-setting theory are used to analyse the cognitive factors.

We study the learning processes in two Knowledge for Climate hotspots by mapping the cognitive and structural factors as well as the learning processes over time. Event history analysis is used to capture the dynamics in the selected hotspots (Van de Ven, et al., 1999). The analyses will contribute to a better understanding of the factors that contribute to learning. We aim to formulate recommendations on the governance of multi-actor, transdisciplinary research projects.
Authors: Emily Boyd \(^1,2\), Bo Kjellen
\(^1\) Department of Geography and Environmental Science, University of Reading
\(^2\) Stockholm Resilience Centre, Stockholm University

Title: Enabling adaptation: A polycentric institutional approach

Theme: The modes of governance and available instruments

Session: 22 March, 15:30-17:15; room Zuilenzaal

Abstract

In this paper we explore whether there is scope for transformation in thinking away from global target approaches to a more decentralized and adaptive process of coping with climate change. The paper examines the climate problem in view of the needs for combining democratic progress and adaptation in the global South. Global climate policy, to achieve sustainable long-term resilient development solutions, would require enabling conditions for adaptation. In our view we need to go towards Ostrom’s call for a polycentric approach for collective action on climate change, including active engagement by local, regional and national stakeholders through small and medium-sized institutions, linked through networks and monitoring systems, and supported by non-partisan adaptation funds. We evaluate Ostrom’s framework in the context of adaptation governance. Against this background we critically examine how the UNFCCC as a multilevel and multilateral framework has facilitated support to national and local level adaptation and compare this to alternative market based approaches. We examine domestic climate change policies and International developments, exploring examples from National Adaptation Plans of Action. We also identify core challenges to polycentricity as a mode of adaptation governance. We focus on adaptation in the South, but we believe that our findings are applicable also to other areas of environmental policies in helping to build enabling conditions for adaptation in practice.
Abstract

Public policies that aim to facilitate adaptation to climate change represent a relatively young and complex policy field. As the literature on adaptation policies points out, numerous barriers impede their development and implementation. Among the barriers are e.g. the often-complained lacks of awareness, certainty, resources and political commitment. Since these and several other barriers can be overcome (e.g. by raising awareness and by increasing resources), decision-support frameworks (e.g. written guidelines) have been developed that aim to do exactly this: facilitate adaptation policy making, inter alia by highlighting barriers and by suggesting procedures and tools to overcome them. Surprisingly, most of the guidelines are hardly linked to the scientific literature on barriers, at least they do not provide respective references. The present paper closes this gap by linking research on barriers and existing guidelines for adaptation policy making as follows: In a first step, it takes stock of the barriers addressed in the adaptation policy literature and provides a structure following the policy cycle. In a second step, it briefly reviews the characteristics and the contents of more than 30 guidelines. In a third step, it analyses the contents of 33 guidelines thoroughly and compares it with the barriers identified earlier. The analysis shows that barriers do play a key role in most of the guidelines analysed. Nevertheless, the consistency between the barriers identified in the literature and those addressed in the guidelines varies considerably from guideline to guideline and from barrier to barrier. Overall, the paper shows that the development of adaptation policy guidelines seems to be based more on experience than on a systematic review of existing knowledge.
Authors: Samuel Tang\textsuperscript{1}, Suraje Dessai
\textsuperscript{1}King's College London, UK

Title: The balancing act, using climate science to inform adaptation decisions: a case study on the UK climate projections 2009

Theme: Science-policy interactions and adaptation

Session: 23 March, 09:00-10:45; room Kremlin B

Abstract

Changes in the climate over the next couple of decades are now unavoidable. Climate science has made this clear, but the rate, magnitude and sign of changes at the regional/local level remain significantly uncertain. The linear model of science for policy assumes that more science (e.g., through the quantification of uncertainty) will result in better outcomes (e.g., better adaptation decisions). To that end, the UK Climate Projections 2009 (UKCP09) provides climate information designed to help those needing to plan how they will adapt to a changing climate.

We conducted an empirical analysis of the science-policy interface to determine how useful and usable UKCP09 is for adaptation decision-making. We used a mixed methods approach that includes a quantitative survey and semi-structured interviews with key adaptation stakeholders working in the science-policy interface: they included decision-makers, knowledge producers and knowledge translators. We used the knowledge systems literature to inform our research: is UKCP09 credible, legitimate and salient to decision-makers?

UKCP09 was found to be useful (credible and legitimate), but its usability (salience) depends on a number of caveats including, who is utilizing it, what information they require and which parts they are utilizing. We found three perspectives regarding UKCP09’s development: solely science-led, science-led with some user input and an iterative process. We also found that probabilistic projections improved the credibility and legitimacy of UKCP09’s science, but reduced the saliency for decision-makers. Our findings confirm the naivety of the linear model (heavily prevalent in adaptation policy) and recognise the complexity of the science-policy interface.
Authors: Justin Dijk\textsuperscript{1}, Heleen Mees, Daan van Soest, Peter Driessen, Hens Runhaar, Marleen van Rijswick
\textsuperscript{1}Institute for Environmental Studies - VU Amsterdam, Netherlands

Title: On the implementation of climate adaptation policies: Public responsibilities and private initiatives?

Theme: Agency and leadership in adaptation governance

Session: 23 March, 09:00-10:45; room Kremlin A

Abstract

Adaptation to climate change is a complex and controversial societal issue. While governments are recognized as primary actors in adaptation planning, the division of responsibilities and initiatives between governments and private actors remains rather vague and fragmented. The literature suggests that both public and private actors should participate in adaptation policies so that responsibilities can be shared and all of society’s resources can be fully exploited. Involvement of private actors might overcome problems of inefficiency that are typically featured in governmental actions. However, while efficiency can be improved by increasing the responsibility of private actors, this can in some cases lead to more uncertainty in reaching adaptation targets.

The division of public and private responsibilities leads to the choice of a certain steering strategy accompanied by a mix of policy instruments. Instruments such as quotas, taxes, subsidies, performance standards, and contractual agreements all result in different degrees of activation of public and private adaptation action. In this paper, scientists from the fields of public administration, law and economics collaborate to develop a framework for analyzing the performance of a range of policy instruments for adaptation. This framework contains juridical, political, and economic criteria that are relevant in the allocation of responsibilities in climate adaptation issues. We demonstrate the applicability of the framework in two case studies featuring climate adaptation issues that are either characterized by a negative (fresh water scarcity) or a positive externality (water storage).
Authors: Kieren Moffat, Anne-Maree Dowd, Barton Loechel and Jane Hodgkinson
Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia

Title: Risk, responsibility and relevance: Contextually framing adaptation governance for the mining sector and other stakeholders

Theme: The framing of adaptation problems and goals

Session: 23 March 9:00-10:45; room Koepelzaal

Abstract

One clear aspect of innovative governance is the inclusion of business and civil society stakeholders in the process of developing and implementing policy in order to create unitary action and compliance on an issue. The process is less effective if only a narrow, limited perspective approach is adopted which can lead to practical options being omitted and wider issues not addressed: often the result of a ‘top-down’ approach. According to Nelson et al. (2008), to create governance that is responsive to regional issues, it is essential to integrate local knowledge and communicate outcomes that effect livelihoods which are relevant to both governments and rural communities. A key issue facing industries and regional communities across the world is climate change. The question of how to develop appropriate governance responses is still yet to be fully explored. If we are to take a regionally responsive approach to managing this issue, then inclusion of multiple perspectives is fundamental in aiming for achievable and feasible outcomes and ensuring agreement and uptake.

Climate change is an issue of potentially great significance to the minerals sector and its associated communities. Climate change has the potential to significantly impact multiple points of the mining value chain as well as mine community wellbeing. Thus adaptation planning will be critical for this sector. The mining industry is a large and important part of Australia’s economy and generates substantial economic and social benefits across the country. The industry also generates significant social and environmental impacts, but like many natural-resource dependent industries can also be strongly affected by environmental conditions (QRC 2011). In particular the industry contributes to greenhouse gas emissions directly and indirectly thus feeding into the drivers of climate change. This aspect is increasingly being addressed through policy mechanisms and won’t be dealt with here.

At a global level, the mining industry has demonstrated that it can operate across a broad range of climatic extremes; however, it is also clear that mining operations are vulnerable to extreme weather events and changing climatic conditions globally (Ford et al. 2009, 2011; Pearce 2009, 2010). The communities associated with mining operations are also vulnerable to extreme weather events and changing climatic conditions, including to the indirect impacts that flow through from extreme weather events on mining operations (Miles et al. 2007; DERM 2009). Climatic change is expected to exacerbate these types of extreme weather events in Australia (CSIRO & BOM 2007), and can be expected to pose increasing challenges to the industry and related communities and the surrounding environment. Therefore, it is imperative that the mining industry and communities adapt to address climate change and be supported by regionally-relevant governance in which they have been an active partner in developing.
Currently, adaptation activities by regional mining stakeholders (e.g., mining companies, local government authorities, communities) are disparate and disconnected, where they exist (Loechel, Hodgkinson & Moffat, forthcoming). This may lead to adaptation strategies by mining companies, for example, that have no benefit for regional ‘neighbours’ or may exacerbate the impacts of future climate or weather impacts for other stakeholders. The flooding of the Ensham mine in Queensland in 2008, for example, demonstrated that mine design that does not adequately plan for extreme weather events may lead to downstream community impacts through the release of contaminated water in local water courses. Hence, there is a call for a process that allows for all stakeholders to articulate their contextual framing about climate change impacts while at the same time collaboratively working towards an outcome that aims to address adaptive change. This paper provides results of a recent study that offered an opportunity for multiple stakeholders to use a framework to assess risk as well as establish clear guidelines around identifying responsibility of action and relevance of approach against the backdrop of specific local contextual issues. This framework allows for multiple regional perspectives to be articulated and ‘heard’ in the context of climate adaptation to establish points of tension, alignment and resources available to adapt successfully. The results of this type of collaborative, participatory approach to assessing future weather and climate risk also provide clear direction for the development of governance frameworks and intuitions that enable and support mutually beneficial adaptive behaviours. It may also address present power imbalances inherent in existing governance structures that advantage resource rich, high power groups (i.e. mining companies) over resource constrained, low power groups (e.g. local government bodies).
Authors: Johann Dupuis, Peter Knoepfel  
Swiss graduate school of public administration, Switzerland

Title: The challenge of framing adaptation policies: Influence of policy design in implementation feasibility

Theme: The framing of adaptation problems and goals

Session: 22 March, 15:30-17:15; room Kremlin A

Abstract

The implementation of adaptation policies suffers from several barriers and limits (Adger, Agrawala et al., 2007). If adaptation is now well set on the political agenda of most developed countries only a few examples of concrete policy changes were found by recent comparative assessments (Gagnon-Lebrun, Agrawala, 2006; Swart, Biesbroek et al., 2009; Keskitalo, 2010). This paper investigates how the goal setting and the problem framing of adaptation policies affect the likelihood of concrete policy changes.

We made an extensive review of the literature and of the current policy practices ((notably: Smit, Burton et al., 2000; Smit, Pilifosova et al., 2001; Füssel, 2007a; Füssel, 2007b; McGray, Hammill et al., 2007; Swart, Biesbroek et al., 2009; Keskitalo, 2010) and found that adaptation activities define either (1) the impacts of anthropogenic climate change; (2) The impacts of climate variability; (3) The drivers of vulnerability, as the main stress drivers to be addressed by the policy.

Using several case studies of adaptation policies at the national level, we assess whether different problem definitions imply variance in the policy design, namely on, the causal logic, the definition of target and beneficiary groups, the definition of burden-sharing rules and on the model of intervention embedded in each policy (See: Ingram, Schneider et al., 2007; Knoepfel, Larrue et al., 2007).

Drawing on the finding that incremental policy changes are more likely and feasible than paradigmatic changes (Hall, 1993; Jones, Baumgartner, 2005; True, Jones et al., 2007), we further evaluate to which extent the choice between these three approaches to adaptation policies influence the likeliness of concrete policy changes by comparing studies of implementation activities in India, Peru and Switzerland.
Abstract

Time is often taken as the independent background against which governance processes evolve. Time is then the x-axis against which the phenomena of interest – like governance processes - are plotted. Instead of taking time merely as a background to other phenomena this paper analyzes time as a factor that influences the development of governance processes. We analyze how different perceptions of time influence the governance of adaptation, and the implications for management. We explore how time can be perceived as cyclical, linear or erratic, and how time-horizons can differ. The paper theorizes the use of time as a resource in networks of actors, analyses how time is used strategically, and how time management can be used to manage interaction processes.

We compare two Dutch cases of climate adaptation processes in the region Haaglanden in which public and private actors try to combine water retention and spatial development. In both cases the private actors’ time-frames are driven by market impulses. This interferes with timeframes of governmental organizations. But also between and within public organizations time frames differ. Project managers try to steer the governance of adaptation by managing time, trying to fix deadlines, synchronizing different timelines or imposing their time horizon on the process.

The paper argues that the analysis of time helps to explain the dynamics of governance of adaptation. The paper shows that the alignment of timeframes is a crucial activity in the governance of adaptation.
Authors: Fenn Faber, Roderich von Detten  
*University of Freiburg, Germany*

**Title:** Ecosystem Management in the Face of Uncertainty: Organizational Problem-Solving Performances of German State Forest Administrations Concerning Climate Change Adaptation Measures  

**Theme:** The framing of adaptation problems and goals  

**Session:** 23 March, 11:00-12:45; room Kremlin A

**Abstract**

The main interest of our research project lies at the interface between ambiguous organizational decision-making in regional forestry administrations and contradictory, complex and uncertain knowledge concerning climate change adaptation. In our case study of German state forest administrations we focus on problem-solving performances and processes related to a) the organizational response of an administration confronted with heterogeneous expectations and interests from its dynamic environment (outside perspective) and b) long-term decision-making under uncertainty on the regional and local level (inside perspective). First, along with DiMaggio & Powell (1983), we assume that regional forestry administrations absorb uncertainty by adopting solutions (e.g. working tools such as risk maps) from other forestry administrations whose response, when faced with the same problem, is considered as legitimate within the organizational field of German forestry organizations (isomorphism). Second, we presume that practical decision-making concerning climate change adaptation measures (e.g. tree species selection) is far from rational. Based on theoretical approaches such as bounded rationality and incrementalism, we understand ecosystem decision-making as the result of a complex interplay between organizational problem-solving performances and processes, different forms of knowledge and decision-making heuristics.

Based on qualitative (32 expert interviews with directors and heads of departments) and quantitative (online survey among district foresters) data, we argue that – instead of being considered as a hurdle for long-term planning – the acceptance of indispensable uncertainty leads to an understanding of planning as a creative process, enabling a variety of solutions.
Authors: James Ford, Lea Berrang-Ford, Alexandra Lesnikowski
McGill University, Canada

Title: Are we adapting to climate change: Approaches for tracking adaptation action

Theme: The modes of governance and available instruments

Session: 22 March, 13:30-15:15; room Zuilenzaal

Abstract

Global carbon dioxide emissions for 2010 stood at 33 billion tones, or a 30% increase between 2000 and 2010. That we are able to quantify and monitor GHG emission reflects the focus through the UNFCCC on mitigation and need to have measurable outcomes by which progress can be assessed. Adaptation is also an important component of the UNFCCC, with Parties having obligations herein. Yet our knowledge on if and how adaptation is taking place is limited. While examples of adaptation are provided in IPCC assessments, and there is a well-developed scholarship examining and proposing adaptation interventions, the extent to which adaptation is taking place has not been systematically assessed. Are we adapting? Where are we adapting? Are we adapting more over time? Our lack of understanding on these questions limits our ability to track adaptation progress: in an adaptation context there is no 1990 baseline from which to assess if progress on adaptation is occurring. This in turn affects our ability to measure the effectiveness of adaptation policies at regional to global levels, and identify areas for specific attention. In this paper, we will reflect on recent research by our team developing novel approaches to create proxies or indicators of adaptation that establish a baseline of current actions (globally and in developed nations in particular) and provide a basis for tracking adaptation over time. The paper will outline methodological developments herein and focus on data sources for systematically monitoring adaptation (e.g. NAPAs, National Communications, published scholarship).
Abstract

For centuries, pastoralists and peasant farmers in Africa have adjusted their livelihoods to periods of resource scarcity. However, more recently the combination of unsustainable resource use, inadequate national policies and increasing climate change stress has undermined the existing adaptive capabilities. This paper focuses on local adaptation practices, the national climate change policy and their interactions in Karrayu Agro-pastoral communities in Ethiopia. The Karrayu are recently settled nomadic pastoralists that live in the semi-arid upper Awash valley. The following questions are addressed in the research using qualitative data collection and analysis methods. First, how do pastoralists and farmers make decisions for particular adaptation strategies and choose between alternatives? Second, what is the effect of state policies on local adaptation capacities? Third, how can the observed discrepancies between national policies and local adaptation strategies be explained in terms of power relations and governance structures? Using a case study of the Karrayu Agro-pastoral communities, this paper explores local adaptation efforts, their immediate environmental impact and their dependency on government sponsored interventions.
Authors: Manuel Gottschick
University of Hamburg, FSP BIOGUM, Germany

Title: What is most helpful for transformation to Regional Climate Adaptation Governance: Multi-Level-Perspective, Politics of Scale, or/and Hierarchy?

Theme: Action at what levels?
Session: 22 March, 13:30-15:15; room Kremlin B

Abstract

Empirically, the talk draws on the experiences and insights gained in the research project KLIMZUG-NORD (BMBF 2009-2014). The overall objective of KLIMZUG-NORD is to develop strategies to cope with the consequences of climate change in the metropolitan area of Hamburg, Germany (www.klimzug-nord.de).

Within our work package (Climate Adaptation Governance, Regional and Reflexive Governance, stakeholder panels) we conducted about 50 qualitative interviews, few ego-centred qualitative Social Network Analyses, more than ten stakeholder panels, and several interdisciplinary workshops.

The case study we analyse most comprehensively is the ‘Cooperation Network Groundwater Ostheide’. It was initiated in 2009 and includes actor groups from the administrative authorities of three rural districts, irrigation farmers, and environmentalists. Here, the complexity of daily life, cultural aspects, the need to ensure adequate income for farmers, protecting the environment, and related problems come together with the need to act today to increase adaptive capacity for future challenges.

Using this case study, three different approaches to structure adaptation processes will be discussed critically:

- Stability: The Multi-Level-Perspective (Geels/Schot) focuses on dynamics between more stable and more fluid structures (Landscape, Regime, Niche).

- Scale: The level of scale from local, regional, national, international to global; focus on separation of scale within one level (horizontal) or between levels (vertical) (see Cox 1998; Meadowcroft 2002).

- Hierarchy: The formal hierarchy of government jurisdictions and planning focuses on formal power relationship (vertical).

The question to be addressed in the talk is how helpful these structuring approaches are to develop strategies of transition to adaptation and to sustainable development. Furthermore networks as cross-cutting ‘structure’ are discussed.
Authors: Manuel Gottschick  
University of Hamburg, FSP BIOGUM, Germany

Title: What is the Truth about ‘Uncertainty’? Proposal for a more sophisticated use of the concept of ‘uncertainty’

Theme: The framing of adaptation problems and goals

Session: 23 March, 11:00-12:45; room Kremlin A

Abstract

‘Uncertainty’ is a widely used term in climate research and Climate Adaptation Governance but what is actually meant by it depends on context, discipline, interest, and power. With regard to the context it does matter if we talk about ‘uncertainty’ of (1) goals (where to go?), of (2) interrelationships, status, and dynamics (what?), or of (3) transformation strategies (how?). With regard to the discipline, the differences between natural and social sciences, between qualitative and quantitative research, and between ‘experts’ and ‘lay’ persons are more or less known. With regard to interest and power, however, only few are aware that actors can also actively construct (or manipulate) ‘uncertainty’ to get their way.

Empirically, the talk draws on the experiences and insights gained in the research project KLIMZUG-NORD (BMBF 2009-2014). The overall objective of KLIMZUG-NORD is to develop strategies to cope with the consequences of climate change in the metropolitan area of Hamburg, Germany (www.klimzug-nord.de).

Within our work package (Climate Adaptation Governance, Regional and Reflexive Governance, stakeholder panels) we conducted about 50 qualitative interviews, few ego-centred qualitative Social Network Analyses, more than ten stakeholder panels, and several interdisciplinary workshops. On this basis, we want to raise awareness of constructed ‘uncertainty’. Therefore we develop a proposal to distinguish typical uses of ‘uncertainty’ within climate research and adaptation and suggest some alternative terms to consider these different meanings in framing adaptation problems and goals.
Abstract

The future impacts of climate change have been forecasted to be unevenly distributed not only globally but also regionally. Across Europe some regions will suffer from the adverse impacts while others will profit, and inequalities will likely increase in the face of disproportional capacities to adapt. So far adaptation has mostly been framed as a regional or even local problem and the European Commission has limited its adaptation efforts to its own institutions and policies. However, if the EU’s core objectives of social and economic cohesion are endangered by climate change, European instruments for burden sharing will be in order to secure a harmonious development. In the face of the current financial crisis and the apparent reluctance to help those in need, the following questions arise: What motivates burden sharing for adaptation in the EU? Is burden sharing for adaptation politically feasible? Which forms of solidarity and principles of distributive justice do we encounter in public discourses?

To answer these questions, policy makers from the EU and national levels as well as researchers specialized in climate change and regional development are target of a discourse analysis based on focus groups, interviews and adaptation policies. This research then identifies different forms of solidarity and principles of distributive justice, such as “capacity to pay” and “putting the most vulnerable first”, which motivate and guide burden sharing for adaptation in Europe. Following from the analysis this paper indicates future burden sharing options and specifies related research needs.
Abstract

In several Western European countries, scientists, public policymakers and other societal actors collaborate in climate change adaptation research projects. It is often argued that such knowledge co-production leads to better, more policy relevant or more socially robust knowledge. Although there exist many conceptual analyses of the phenomenon of knowledge co-production as well as its potential opportunities (e.g. production of more practically oriented knowledge) and threats (e.g. science becoming tainted with politics), systematic empirical assessments are lacking. In this paper we aim to address this gap by providing a retrospective analysis of six Dutch research projects dealing with climate change adaptation in specific geographical regions. The projects were part of two large programs, titled ‘Climate Changes Spatial Planning’ and ‘Living with Water’. Both programs referred explicitly to the notion of joint knowledge production. The analysis is based on desk research combined with 27 semi-structured interviews with researchers, policymakers and project funders. An initial classification of the projects has been made, based on the questions (i) who initiated the project (science- vs. policy-driven); (ii) who learned from the project (broad vs. narrow learning); and (iii) how were the project outcomes perceived by the participants (in terms of credibility, salience and legitimacy). The analysis suggests that – up to certain limits – fruitful co-production by scientists, policymakers and other societal actors is possible. This can be deemed of crucial importance, since due to the value pluralities and uncertainties related to global change and sustainability problems, the required knowledge cannot be developed by actors in isolation.
Authors: Clemens Heuson  
Helmholtz Centre for Environmental Research, Germany

Title: The double struggle of climate policy – insights for the governance of mitigation and adaptation from an insurance perspective

Theme: The modes of governance and available instruments

Session: 23 March, 09:00-10:45; room Zuilenzaal

Abstract

This paper offers an innovative approach for investigating the trade-off between mitigation and adaptation, which reveals some important insights relevant for choosing the appropriate mode of governance in this regard. Referring to Ehrlich and Becker (1972), mitigation serves as self-protection, because it reduces the probability of a loss – here, damage due to climate change. However, adaptation reduces the size of the damage and thus serves as self-insurance. This conception is implemented within a microeconomic framework comprising two countries – industrialised vs. developing – in which mitigation of each country is supposed to reduce global damage probability, while adaptation exclusively reduces the damage of the country rendering the effort. As a benchmark, the model is solved for the cooperative equilibrium, i.e., countries minimise global expected costs associated with climate change. This provides some basic insights in line with Ehrlich and Becker: Market insurance and adaptation are shown to be substitutes, but market insurance and mitigation can be complements. Building upon that, the model is brought closer to reality in several ways. First, an adaptation fund for supporting the developing country is introduced. This fund is proven to be inefficient, because it functions as market insurance for the developing country and thus crowds out the latter’s adaptation effort. Second, the more realistic non-cooperative setting is considered, which gives rise to the well-known prisoner’s dilemma concerning mitigation. Third, risk aversion is included. Provided that the developing country’s aversion is considerably higher than the industrialised one’s, some of the findings mentioned above have to be revised.
Authors: Jochen Hinkel & Alexander Bisaro  
Postdam Institute for Climate Impact Research, Germany

Title: Which framing of adaptation is adequate?  
Theme: The framing of adaptation problems and goals

Session: 22 March, 13:30-15:15; room Koepelzaal

Abstract

Governing adaptation remains an elusive task due to the great diversity of challenges involved at all levels of decision making. In face of this diversity it is not surprising that adaptation is framed and approached in a variety of different ways including as capacity building, as decision making under uncertainty, as adaptive management, as social learning and as multi-level governance. While it is evident that given the diversity of challenges involved, there cannot be a single framing, it is also evident that not every framing is appropriate in every situation. The first and crucial step in addressing a given challenge thus is to adapt an adequate framing, but what does it mean for a framing to be adequate? This paper addresses this question by considering how adaptation was framed and approached in a large number of research and policy cases. Data was attained through self-documentation of research processes as well as through interviewing stakeholders involved in adaptation policy processes. For each case we recorded data on the initial framing of the adaptation challenge and the sequence of steps taken in approaching the challenge, as well as on the criteria used to select steps and approaches. This data was then meta-analysed and typical challenges and approaches encountered were abstracted. The typology of adaptation challenges thus attained will be turned into a guideline for framing and approaching adaptation to be published by the Programme of Research on Climate Change Vulnerability, Impacts and Adaptation (PROVIA), a global research coordination initiative directed by UNEP.
Authors: Elke Herrfahrdt-Pähle  
German Development Institute, Germany  
Title: Governing water resources adaptively: strengths and weaknesses of current water governance concepts  
Theme: The modes of governance and available instruments  
Session: 22 March, 15:30-17:15; room Zuilenzaal  

Abstract  
The sustainable management of water resources in developing countries faces a number of conventional challenges, among them poverty and limited access to water resources, water overuse and pollution as well as low levels of human capital and financial resources. Among the current approaches to water governance and management that address these problems are Integrated Water Resources Management (IWRM) and River Basin Management (RBM). The impact of climate change on the availability of water resources increasingly adds new dimensions to this problem and intensifies others. Among them is adapting water governance to the challenges of climate change, which needs to become an integral part of future water policies, laws and management approaches. In other words the management of water resources relies on governance structures and institutional arrangements, which support the adaptation to climate change of the water sector. This paper seeks to examine IWRM and RBM regarding their contribution to adaptation to climate change in general and the adaptability of governance mechanisms in particular. To achieve this goal, governance requirements for sustainably managing water resources under the conditions of climate change are derived from the challenges of climate change for the water sector (such as increasing variability of water supply, increasing intensity of extreme events, difficulties with predicting single events). These requirements include dealing with uncertainty and reacting to unforeseen events as well as addressing complexities (e.g. water-land interactions) and trade-offs (e.g. water for people vs. water for nature in water scarce regions). The governance mechanisms, which are widely acknowledged to contribute to addressing these issues, are among others polycentric regimes, participation, and flexible governance structures. They serve as benchmarks for evaluating current water management approaches regarding their contribution to adapting water governance to climate change. The paper concludes that IWRM and RBM offer a number of entry points for governing water resources adaptively (e.g. polycentric governance structures), but also disclose some weaknesses (e.g. flexibility and dealing with unforeseen events).
Authors: Sara Hughes  
National Center for Atmospheric Research, USA

Title: Locating Authority in Urban Climate Adaptation: Processes and Consequences

Theme: Action at what levels?

Session: 22 March, 15:30-17:15; room Kremlin B

Abstract

A central question regarding the governance of adaptation is where to locate decision making authority. This paper presents the initial framework, hypotheses, and preliminary findings of a project whose aim is to determine whether greater local control over the development and implementation of urban water infrastructure adaptation leads to greater social, environmental, and economic benefits. Much of the existing water and sanitation infrastructure in cities around the world is deficient for meeting the challenges posed by climate change; this is due to a lack of available resources, infrastructure age, and inflexible design. Efforts to adapt urban water management infrastructure systems are becoming increasingly common, particularly in arid and coastal cities. Some examples are developing “green” infrastructure programs and innovative financing schemes for hard infrastructure replacement. It is critical that such adaptation measures produce local benefits but we know relatively little about the governing conditions under which that is likely to happen. One hypothesis that can be drawn from institutional theory is that when local actors have power and resources, the measures designed to adapt urban water infrastructure will produce more environmental and social benefits. To test this (and other) hypothesis, a comparative, international case study approach is developed using urban water adaptation projects with high and low levels of local control. Having a clearer picture of the role of institutionalized cross-scale governance interactions in shaping the outcomes of adaptation measures is critical to moving cities onto a sustainable trajectory.
Addressing climate change problems is far from easy and has been called the ‘wicked problem par excellence’. The problem crosses all thinkable boundaries and routines, requiring both immediate action and long-term horizons. It involves many sectors, scales and actors, who bring with them a variety of perceptions and values. In addition, the knowledge and information needed and available is not sufficient and sometimes even considered controversial. These specific challenges of adaptation to climate change call for the development of new collaborative arrangements between science and policy.

This paper reflects on the knowledge partnerships set up by the Dutch Knowledge for Climate program. It has been set up for the development of knowledge and services that make it possible to climate proof the Netherlands. It focuses on the eight most vulnerable areas, called hotspots, such as the Schiphol region, the Southwest Delta, the large rivers, the peat areas or the Wadden Sea. Knowledge institutes, governmental organisations (central government, provinces, municipalities and water boards), NGO’s and businesses, actively participate and collaborate in this program.

But despite the advanced program design, the initial participant’s enthusiasm and the available resources, actually getting started appears to be difficult. This paper explores the barriers researchers and policy makers encounter, the mechanisms underlying and perpetuating these barriers, and possible interventions. This will be illustrated by examples of collaborative action research and reflexive processes in the hotspots, in particular covering research on the governance of climate adaptation.

This paper concludes that many of the assumptions underlying the collaborative arrangement (e.g. mutual commitment, room for change, open deliberation) conflict with the rules and beliefs of the participating organisations (e.g. changing political agendas, budget cuts, perception/prejudgment of knowledge, planning and control, separate departments for research and policy, hesitation to experiment with new adaptation policies) and their institutional environments (e.g. European research funding rules, pressure to publish in high impact journals, new elections, financial crisis).
Authors: Margot Hurlbert, Harry Diaz  
University of Regina, Canada

Title: Water governance in Chile and Canada - A comparison of adaptive characteristics

Theme: Action at what levels?

Session: 23 March, 11:00-12:45; room Kremlin B

Abstract

The paper compares the structures and adaptive capacities of water governance regimes which respond to water scarcity or drought in the South Saskatchewan River Basin (SSRB) of western Canada and the Elqui River Basin (EB) in Chile. Both regions anticipate climate change that will result in more extreme weather events including increasing droughts. The SSRB and the EB represent two large, regional, dryland water basins with significant irrigated agricultural production but with significantly different governance structures. The Canadian governance situation is characterized as decentralized multi-level governance with assigned water licenses; the Chilean is characterized as centralized governance with privatized water rights. Both countries have action at all levels in relation to water scarcity or drought.

This structural comparison is supplemented by studies carried out in each region assessing the adaptive capacity of each region to climate variability in the respective communities and applicable governance institutions through semi-structured qualitative interviews. Based on this comparison, conclusions are drawn on the adaptive capacity of the respective water governance regimes based on six dimensions of adaptive governance which include: responsiveness and flexibility; reflexivity and social learning (which enhances institutional memory and trust); continuous access to information (allowing the capacity to respond and change autonomously); capacity (including leadership and resources); and equity and accountability. The result of the assessment allows discussion of the significant differences in terms of ability of distinct governance structures to foster adaptive capacity in the rural sector.
Abstract

Current discussions and policies aimed to help communities adapt to future climate change often ignore how communities may already autonomously adapt to current climate variability. It is, however, important to understand how communities themselves adapt to current weather variability in order to create more effective adaptation policies that take into account local conditions. This paper reviews two-hundred of the most highly-cited studies that empirically identify the socio-economic, biophysical, and perceptional factors associated with successful autonomous adaptation to climate variability, from the fields of human ecology, anthropology, psychology, and economics. The primary factors that are cited are 1) strong institutions and networks, 2) social memory and previous exposure to disturbance, 3) access to capital, 4) perceptional factors, such as perceived risk and adaptive capacity, and 5) diversification of livelihoods. While these studies offer insights into the possible factors that enhance the autonomous adaptive capacity of communities, there are several ways in which future studies should be improved: new studies should consider 1) biophysical factors that may constrain communities’ ability to adapt, 2) multiple factors within the same analysis to statistically identify which factors are the most influential, and 3) the spatial and temporal scale at which these factors influence adaptation. Based on these considerations, a new analytical framework for identifying the factors associated with adaptation is outlined along with how this framework can be used by policymakers to create more effective adaptation policies that take autonomous adaptation into account.
Authors: Lisa Junghans  
*Universität Trier, Germany*

Title: Climate change adaptation in practice: lessons from two coastal cities  
Theme: The modes of governance and available instruments  
Session: 22 March, 15:30-17:15; room Koepelzaal

Abstract

Adaptation to climate change is emerging rapidly across countries. Urban centers that are essential hubs for resources, knowledge and political power are the key players in the adaptation process. In that face, local urban governments play the prominent role in the field of climate change adaptation. Different political structures around the globe thus allow for diverse approaches and policies. To what extent those cities are engaged in climate change adaptation depends on the degree of which strategies are developed and adaptive measures implemented. Across countries, there are several metropolitan areas that have advanced on climate change earlier and more effective than others. Those early adapters have set examples, not only on the regional but on the international scale.

How are adaptation practices and policies of those leaders similar and how do they differ from each other? And what are the city’s drivers of climate change adaptation? The paper targets two adaptation strategies from early adapters, namely Durban/South Africa and Hamburg/Germany, to discover and identify effective measures. Moreover, it aims to understand how the process of adaptation was approached and what makes the city’s strategy successful. Additionally, the paper seeks to reveal best practices and methodologies that might be of relevance for other local urban governments in developed and developing countries. Although climate change adaptation, in contrast to mitigation, is very much context specific, it is the objective of this paper to enlighten thriving adaptation processes to share them with the international audience.
Authors: Alexandra Kazmierczak, Hannah Knox  
University of Manchester, UK

Title: Social Networks, Institutional Relations and Climate change Adaptation in Greater Manchester, UK

Theme: The modes of governance and available instruments

Session: 23 March, 11:00-12:45; room Zuilenzaal

Abstract

It is widely recognised that adaptive actions are necessary in order to maintain liveability of cities facing gradual climate change and the increased frequency and magnitude of extreme weather events. Due to the complex interactions between society and the built and natural environments, effective adaptation to climate change impacts in urban areas necessarily proceeds through collaborations between different types of stakeholders (public, private and third sector), across various spatial scales, from national to local.

This paper investigates the structure and nature of collaborations oriented towards climate change adaptation in the post-industrial conurbation of Greater Manchester, UK. The paper uses a combination of social network analysis, ethnography and semi-structured interviews with stakeholders from different sectors and at varying governance levels, to explore the role of inter-organisational communication and collaboration in current climate change adaptation activities.

The results emphasize the importance of regional public bodies as knowledge brokers, the role of the third-sector organizations in building adaptation partnerships, and the strong position of local authorities in both the communication and collaboration networks. The paper concludes that the need for climate change adaptation can be a trigger to introduce new modes of planning and management of urban areas, based on the collaboration between different stakeholders at various levels of government.
Authors: Carina Keskitalo  
*Umeå University, Sweden*

Title: Multi-level and multi-sectoral governance of adaptation: European case studies

Theme: Action at what levels?

Session: 22 March, 15:30-17:15; room Kremlin B

Abstract

Case studies of adaptation in multi-level governance systems indicate several important features that impact adaptation policy and practice development. This presentation reviews the different ways in which adaptation policy has been developed in the UK, Sweden, Finland and Italy as countries with different focus on adaptation and different organizational and media contexts. The paper draws upon comparative multi-level case studies of national as well as adaptation best-practice regional and local levels (Keskitalo 2010, ed). The presentation also reviews how different state contexts may impact adaptation policy development and potential vulnerability transfer in different sectors, drawing mainly upon studies in multi-use forest systems (Keskitalo 2008, 2011) and water management. The studies illustrate that adaptation policy development is highly dependent on multiple factors including the state system (federal vs unitary, centralized or decentralized), and the different types of governmentalities that exist in different states, such as steering through new public management or administrative system measures. Other important factors include the role of extreme events and whether these are framed in relation to climate change in media and popular opinion, as well as whether any climate change policy focus resultant from such events is linked to existing priority policy areas, such as flooding (Keskitalo 2010a).
**Authors:** Sylvia Kruse, Sirkku Juhola  
*Swiss Federal Institute for Forest, Snow, and Landscape Research, Switzerland*

**Title:** Regional adaptive capacity in Europe: A framework for assessing adaptive capacity

**Theme:** Science-policy interactions and adaptation

**Session:** 23 March, 09:00-10:45; room Kremlin B

**Abstract**

The assessment of regional vulnerability to climate change has become a central issue in the policy-science interface of adaptation. In order to aid decision-making, e.g. prioritise adaptation action and allocate investments in adaptation measures both scholars and policy makers emphasise the need of comprehensive and spatially explicit vulnerability studies. Adaptive capacity is not only an important part of vulnerability assessments; it also underlies and enables the governing of adaptation activities. Accordingly, the assessment of adaptive capacity gives decision-makers on international, national and regional level important information to plan and realise adaptive action. Based on experiences from current vulnerability studies, this paper develops a framework which structures adaptive capacity assessments based on the science-policy interaction. Given that different assessment designs lead to different kinds of results, we argue that in order to realise the full potential of these assessments, a number of decisions concerning the objectives of the assessment, the methodology and the use of results need to be made. The framework is applied using data from two studies: a pan-European assessment of adaptive capacity on NUTS3 level and a case study assessing the adaptive capacity of the tourism sector in the Alpine space. By applying the framework, this paper compares the assessment designs and the results of these two studies and thus illustrates how different assessment designs have strengths and shortcomings. In conclusion, the paper argues that the recognition of inherent shortcomings of different assessments is necessary in order to better support the mobilisation of adaptive capacity for governance of adaptation.
Authors: Christian Kuhlicke  
*Helmholtz Centre for Environmental Research, Germany*

Title: The construction of manageability in climate change adaptation: An explorative study in flood risk management

Theme: Science-policy interactions and adaptation

Session: 23 March, 09:00-10:45; room Kremlin B

Abstract

This paper deals with the management of second order reputational risks arising from attempts to adapt to first climate related risks and explores the intersection of flood risk assessment and climate change projection with policy making. While the technical and scientific challenges involved in assessing the impacts of climate change are enormous, if anything, the institutional challenges involved in using that science for policy making and the development of adaptation options are even greater.

Empirical basis of the paper is the development of long-term strategic risk-based management plans in river catchments across the UK, so called ‘Catchment Flood Management Plans’. These plans identify high risk areas and are constructed as a rational basis for decision-making and planning processes. They outline different policy options on how to deal with current and future flood risks in an effective and efficient manner. Based on 25 interviews with various stakeholders (e.g. Environment Agency, Met Office, Councils, Planning Authorities) the paper reconstructs how advancements in climate modelling (i.e. probabilistic projections), increasing institutional pressures towards transparency and partnership as well as a greater sensitivity towards the inherent uncertainties in flood risk assessments, contest and undermine the credibility and trustworthiness of these management plans. Different strategies of how involved organisations and stakeholders manage these uncertainties and newly arising reputational risks are presented.
Authors: Jessica Lehman  
*University of Minnesota, USA*

**Title:** The Worthy, Vulnerable: Distributive Norms of Adaptation Governance  
**Theme:** Normative aspects of adaptation  
**Session:** 23 March, 09:00-10:45; room Sterrenzaal

**Abstract**

International distributive networks govern aid and expertise for adaptation to climate change. In this paper, I use the term “climate worthiness” to describe the normative framework that underpins decisions of distribution of aid and expertise for adaptation. This deliberatively provocative term points to the degree to which decisions are made based on normative judgments of who deserves adaptation assistance. There are, of course, many dimensions to these allocations; I examine vulnerability as a key concept that influences who gets and gives aid of various forms. While vulnerability indices have justifiably fallen out of fashion, performances of vulnerability are still required of, and enacted by, Southern subjects. On the other hand, a number of activists and scholars have recently investigated more radical ways of conceiving of vulnerability as a contested, politicized, and/or shared condition. Therefore, I argue that vulnerability operates not as a scientific measure with objective grounds but as a political concept that travels in powerful ways. With this argument in mind, I explore the potentials and limitations of conceiving climate worthiness as a vital framework where the politics of vulnerability play out.
Abstract

The climate agenda is not owned by most governments in SSA (maybe with the exceptions of Ethiopia and Rwanda), is donor led. Integration of climate change into planning, infrastructure, services is not happening. Why? Most adaptation is effectively the provision of a public service or a public good, so we need to ask what has been learned about governance and state capacity from wider development research. There is a large literature on the politics of Africa which emphasises the role of neo-patrimonialism in creating incentives that lead to poor governance and the erosion of capacity, and that lead to the operation of hybrid state with formal and informal aspects. The political roots of the problems are important because they imply that technical solutions (e.g. more adaptation “tools”) will not be sufficient to address the issue. This reading of governance in most African countries poses a major challenge to external actors (i.e. donors, NGOs), since it implies that much of the conventional agenda will be ineffective. Various alternative approaches have been suggested, including payment by results, or building on local informal institutions that do in some instances deliver public goods. This paper would seek to apply the lessons of the wider experience and literature on politics and governance to adaptation policy, and touch on some examples.
Authors: Nicole Mahlkow, Thorsten Heimann, Karsten Balgar  
*Leibniz Institute for Regional Development and Structural Planning, Germany*

**Title:** The social construction of climate adaptation governance  
**Theme:** The framing of adaptation problems and goals  
**Session:** 22 March, 13:30-15:15; room Kremlin A

**Abstract**

The assessment of risks concerning climate change and appropriate coping strategies differ depending on spatial and cultural backgrounds. Thus to identify suitable local governance strategies coping with perceived risks, cultural characteristics need to be taken into account. Actors who want to implement solutions have to consider differences in local knowledge. This is what our research focuses on: We are interested in socio-spatial differences concerning the perception of climate change, reaching from the processes of construction of knowledge to the implementation of measures. Our main research question is: How is knowledge constructed and which roles do space and culture play? We highlight the ideas of local actors on threats and chances and how they depend on these knowledge bases. By understanding how decisions on climate change are made we want to gain an insight into local governance processes with focus on coastal municipalities in Europe with a special focus on cities. We use three different modules bound by a triangulative research design: A discourse analysis explores the historical genesis of local knowledge. Qualitative expert interviews contribute to comprehend actor knowledge and network constellations. A quantitative survey helps to understand how values and worldviews influence the approval of measures, using a gross sample of 7000 experts in spatial planning from the Netherlands, Germany, Denmark and Poland. The triangulative research design allows us to quantify outputs from the qualitative modules and to test hypotheses generated by these modules. The outcomes will help actors in politics and administration, economy and civil society to act adequately to challenges to come.
Authors: Marcel Marchand, Saskia Hommes  
_Deltares, Netherlands_

Title: The Climate Adaptation Navigator as a tool for analyzing governance issues

Theme: The framing of adaptation problems and goals

Session: 23 March, 11:00-12:45; room Koepelzaal

Abstract

In this paper we introduce the Climate Adaptation Navigator (CAN): a tool for designing adaptation strategies and analyzing their relations with governance issues. The CAN starts from the hypothesis that governance arrangements significantly differ whether it concerns resource use, spatial planning or infrastructure: each have their own institutional characteristics and limitations. By making these differences explicit, the CAN assists in designing new governance arrangements.

CAN uses an adapted version of the 4-tier model for institutional analysis from Williamson. By combining this layer model with a 3-layer approach for physical planning that distinguishes a physical base, an infrastructural network and a human occupation layer, a matrix model emerges that provides insight in the issues in which some of the actors are locked in, either by deep cultural values or by formal institutional regulation.

The navigator can be instrumental in the design of strategies for adaptation to climate change. It shows the possible ‘routes’ through the layer-matrix, based on the enabling and constraining conditions from the physical layers and the steering influence from the (collective and individual) drivers. The navigator has been applied in a case study of climate adaptation pathways for the Province of Flevoland, the Netherlands. In this deep polder area it will become increasingly difficult to keep waterlogging to a minimum. The CAN showed how stakeholder interests and existing regulations influence the outcome of adaptation strategies, pivoting around the question if damage compensation is acceptable or not, even if this is more cost effective than other measures.
Authors: Eric Massey  
Institute for Environmental Studies – VU Amsterdam, Netherlands

Title: The canonization of climate change adaptation: Can adaptation be considered a policy field? 
Theme: The framing of adaptation problems and goals
Session: 22 March, 13:30-15:15; room Kremlin A

Abstract

As a course of public policy, attention towards climate change adaptation has been growing in developed and developing countries over the past decade. In the EU alone eight countries have implemented national plans for adaptation (with five more in preparation), there are some 30 sub-national plans, and every Member State records some policies to address adaptation. Given the recent attention given towards this subject by governments and the substantial amount of money being invested, a question that arises is can climate change adaptation be considered a policy field? As a unit of analysis, policy fields (i.e. policy domains, policy areas, policy sectors) are widely studied in the social sciences, however, the existence of policy fields such as environmental policy, agricultural policy of education policy are taken for granted. Little attention has focused on what policy fields are in and of themselves, how they can be identified, or how they emerge. Given these shortcomings, this article first, attempts to fill the gap in the literature by empirically defining what a policy field is by identifying and assigning their characteristics and dynamics. Based upon a review of the literature it shows that policy fields are three dimensional entities comprised of substantive authority, institutional order and substantive expertise. The second task of this article is to apply this definition to the existing adaptation policy activity in the United Kingdom to determine if adaptation can be considered a policy field. The third and final task is to begin to open what is considered the “black box” of policy field emergence. Not only have policy fields not been defined but also the study of how they come into being has been overlooked in recent policy literature. Working within the framework of state-centered political science theories, four possible scenarios for the emergence of adaptation as a policy field are presented.
Abstract

This paper identifies the governance of adaptation as a significant case of problems of deep uncertainty, a new class of societal problems confronting the 21st century (R. Lempert et al, “Shaping the Next 100 Years,” RAND).

We operationalize this deep uncertainty in 3 domains. The first is the death of “stationarity,” as the operational paradigm of the bio-physical world, in the legal framework for the built environment that has assumed stationarity, and in the ability of humans to grasp the kinds of dramatic effects being projected. The second is the dictatorship of the present, the absence of a political theory that addresses the needs of future generations (the intertemporal generations problem) and the failure to date of even the most ardent environmental theorists to move beyond intra-generational distributive justice. Consequently policymakers have no agreed upon value base or framework for moving to long term social goal attainment. Finally, we identify the absence of formal (hierarchical) governing institutions or effective coordinating, monitoring, and enforcing horizontal world-wide organizations to ensure justice and equity in coping with adaptation.

The paper then identifies strategies to mitigate significant uncertainty and to provide a governance framework for adaptation, building on the work of California Adaptation Advisory Panel (2010), for which Mazmanian served as executive director. The Panel chose to engage a bi-partisan, cross regional, multi sector body – from environmental, agricultural, business, civic to environmental and natural resource stakeholders – to chart an adaptation path forward for California. This is extended to the identification of organizational strategies and best practices that are evolving to address deep uncertainty and the dictatorship of the present in the spheres of governance, economics, engineering, ecology, and spatial planning.

We conclude with a discussion temporal versus inter-temporal dimensions of environmental governance in democratic society, what Garrett Hardin (1981) identified as the problem of providing for “posterity”.
Authors: Belinda McFadgen  
*Institute for Environmental Studies - VU Amsterdam, Netherlands*

Title: What is the Value of “Twisting the Lion’s Tail”? Evaluating the use of Policy Experiments in Adaptation Governance and how they can facilitate Policy Learning

Theme: Science-policy interactions and adaptation

Session: 22 March, 15:30-17:15; room Sterrenzaal

Abstract

Policy experiments are considered increasingly vital in building adaptive capacity for the emerging field of adaptation governance to climate change. However, the conceptualization of policy experiments remains ill defined and there is little empirical analysis on their effects, in particular on how they relate to policy learning.

This paper aims to partially fill this knowledge gap by building a conceptual framework for policy experiments that analyses their design features, the criticisms aimed at them, and their relationship to policy learning. The discussion revolves around the use of policy experiments in three academic fields: policy sciences, adaptive management, and transitions management; and highlights the similarities and differences between them. The design features discussed include internal validity, external validity, and the role of stakeholders; and the criticisms include ethical concerns, duration, and use to frustrate the political process. Three opportunities to learn from policy experiments are highlighted and discussed.

The aim of the analysis is to draw reasoned hypotheses as to how policy experiments can facilitate high levels of policy learning and be best designed and implemented so they contribute to the governance of climate adaptation.
Authors: Jennifer McKay, Ganesh Keremane  
Centre for Comparative Water Policies and Laws, University of South Australia, Australia

Title: Water governance and climate change adaptation- Role of sustainability water policy entrepreneurs in Australia

Theme: Agency and leadership in adaptation governance

Session: 22 March, 13:30-15:15; room Sterrenzaal

Abstract

Water is a basic necessity but also a resource most affected by the impacts of climate change. Observational records and climate projections made by the Intergovernmental Panel on Climate Change (IPCC) provide abundant evidence that freshwater resources are vulnerable and have the potential to be strongly impacted by climate change, with wide-ranging consequences for human societies and ecosystems. Sustainable management and development of water resources therefore will play a pivotal role in preparing societies’ ability to adapt and increase resilience to uncertainty, due particularly to climate change.

Adaptation to the impacts of climate change will be expensive and will require policy and governance shifts, and changes to water laws and policies and institutions. Australia is a good laboratory of policy and law and the implementation of the sustainability objective (as placed in the laws) which is ongoing and varies over the entire nation and the 56 macro scale biodiversity regions and the myriad of local water plan. These reform activities implemented through the National Water Initiative (NWI) will help Australia prepare for and deal with the impact of climate change on water and there are over 200 plans in all the States and territories.

While our understanding of the governance of adaptation is still relatively limited and evolving, this paper is based on empirical research on analysing the adaptation efforts in the context of agency and leadership in adaptation governance within the water sector. We present results from case studies and also the results of a survey of the 30 key water planners from all States.

Water management in Australia falls within the power of the States and the governance arrangements are complex with different laws and types of legal forms of water supply businesses. In addition, the water governance structures have undergone notable transformation following the 1994 Council of Australian Government (COAG) reforms. Since then the Australian states have been directed to achieve Ecologically Sustainable Development (ESD) through the legally mandated regional water plans. So, water managers in Australia clearly have a complex task and this paper discusses the issues and outcomes based upon an online survey with key water policy entrepreneurs working towards achieving Ecologically Sustainable Development (ESD) in relation to water planning and allocation decisions. It explores the role of public servants as sustainability policy entrepreneurs in Australia.
Authors: Heleen Mees, Peter Driessen, Hens Runhaar, Jennifer Stamatelos  
*Utrecht University, Netherlands*

Title: Governance arrangements for climate adaptation: The case of green roofs for storm water retention in urban areas

Theme: Agency and leadership in adaptation governance

Session: 23 March, 09:00-10:45; room Kremlin A

Abstract

Literature suggests that the governance of climate adaptation requires roles for public and private actors so that responsibilities can be shared and all societal resources utilized, resulting in more efficient and legitimate arrangements. We compared governance arrangements for green roofs in five cities. Green roofs help reduce the risk of urban flooding from increased rainfall, and contribute to overall urban sustainability. They also provide private benefits and therefore both public and private actors have incentives to take on responsibility for green roof policy and implementation. Our analysis suggests that responsibilities follow a rather strict public-private divide, with public responsibilities dominating in the beginning of the policy process and private responsibilities gaining momentum in the implementation and maintenance phases. An arrangement with a predominant responsibility for local authorities, combined with a top-down approach which mandates green roofs for new/re-developments through a building code appears to be very effective in terms of installed green roofs. Efforts of public actors to seek true collaboration with private actors were found to be rather limited, and hence opportunities might be overlooked for (even) more legitimate governance arrangements. Alternative governance arrangements might entail more public-private policy efforts, resulting in for instance contractual agreements for storm water management between local authorities and the construction sector.
Authors: Peter Scholten, Carina Keskitalo, Sander Meijerink,
1Radboud University Nijmegen, Netherlands

Title: The role of leadership in synchronizing public and private agendas in flood risk management. A comparative case study of the Manhood Peninsula Partnership (UK) and the Waal Weelde initiative (The Netherlands)

Theme: Agency and leadership in adaptation governance

Session: 22 March, 13:30-15:15; room Sterrenzaal

Abstract

The Netherlands and the UK face similar challenges of adaptation to sea level rise and an increase in peak river discharges. Moreover, in both countries government actors, such as water management and spatial planning agencies, and private actors are expected to play an important role in this adaptation process. Because of their different orientation the synchronization of public and private agendas is often a troublesome undertaking. The central argument of this paper is that specific forms of leadership may be helpful to this synchronization process. Drawing on a leadership framework which is inspired by Complexity Leadership Theory, it is argued that a combination of leadership functions need to be fulfilled within public-private governance networks. The case studies of the Manhood Peninsula Partnership in the UK and the Waal Weelde initiative in the Netherlands illustrate that leadership is dispersed, and that parties may contribute to different leadership functions. Both cases demonstrate that non positional leaders, such as informed citizens or university researchers, contributed to the enabling and connective leadership functions by raising awareness of the need for climate adaptation and by inviting public and private parties to the negotiation table. They also contributed to the dissemination function by linking newly developed ideas to the formal governmental agendas. Positional leaders, such as elected politicians, fulfilled an administrative leadership function by deciding on the objectives and strategies of flood risk management, and sometimes an enabling function by stimulating new practices of public-private cooperation.
Abstract

The study that connects the concept of intergovernmental fiscal relations and climate change adaptation is very much at its infancy (Mumbunan, 2011). In this kind of study, the economic theory of decentralized structure of government is linked to functions in the public sector that attempt to improve adaptive capacity of different governmental levels (national, sub-national or local governments) and jurisdictions concerned in response to climatic stimuli and their impacts.

This contribution is a conceptual formulation that seeks to address the potential role for intergovernmental fiscal transfers for the intended provision of public measures in adaptation to climate change and variability. The provision of adaptation measures here is by public actors, although its production may involve private actors and communities. The financing of these measures are funneled through fiscal transfers between different level of governments and different jurisdictions. Proposed fiscal transfer instruments and policy options are weighed against the criteria of effectiveness, efficiency, equity and co-benefit for poverty alleviation (Adger et al, 2005; Vatn and Angelsen, 2009).

Indonesia, the world’s largest archipelago nation and largest CO2 emitter from deforestation, serves as the context. Discussions on Indonesian fiscal transfer instrument and policy options for climate change adaptation will be highlighted in relation to particular issues of (a) coastal zones, marine ecosystem and small islands, and (b) forest ecosystem services.
Authors: Stefania Munaretto, Giuseppina Siciliano, Margherita Turvani

Title: Learning to adapt to climate change: a framework for integrating adaptive governance and participatory multi-criteria methods

Theme: Science-policy interactions and adaptation

Session: 22 March, 15:30-17:15; room Sterrenzaal

Abstract

The development and application of integrated approaches for managing complexity, uncertainty and surprise in socio-ecological systems have become one of the main points of discussion in the context of governance of adaptation over the past decade. Traditional top-down, technocratic approaches have proved inadequate to deal with change in ecosystems and society either gradual or abrupt. In response to that, adaptive management and more recently adaptive governance have been gaining increasing attention in the scientific and policymaking community as promising approaches to address uncertainty and unpredictable change in the context of climate adaptation. The central idea is the need to foster “learning to adapt” management practices and human society to change via collaborative efforts to manage resilience and enhance adaptive capacity of coupled human and natural systems. This essentially requires balancing different interests and values in the science-policy-society nexus where the interplay of various kinds of knowledge, meaning and power play a major role. In this context, integrated and systematic methods such as participatory multi-criteria methods can prove efficient in the identification and evaluation of adaptation policy and management options.

Against this background, our paper explores the potentialities of integrating adaptive governance principles into participatory multi-criteria approaches and proposes an integrated framework that aims to support and improve “learning to adapt” at the science-policy-society nexus in climate adaptation decision-making processes at local level.
**Abstract**

Since the Adaptation Fund (AF) became operational in 2007, the discussion on equity and efficiency in the governance and allocation of the (predicted scarce) resources has been vivid. Vulnerability indices as a means to evaluate competing projects/countries as worthy beneficiaries have for long been debated within academia and in negotiations, with some scientists highlighting that indices cannot be objectively constructed. An additional complicating factor is that allocation is often discussed between countries rather than between sub-national causes and groups. While this international perspective follows from the UNFCCC governance context, it is problematic when country size and sub-national variations in vulnerability and poverty are considered, as it ignores the fact that vulnerability is a locally contextualized phenomenon. The aim of this paper is to empirically analyse the application of equity and efficiency as normative principles when allocating adaptation funds to developing countries and their vulnerable communities. In contrast to discussing this hypothetically, the paper draws on the fact that an evaluation of actual decisions can now be made as the AF has been operating for some time. In this paper, we qualitatively analyse all proposals submitted to the AF and the funding decisions made by its Board so far. First, we compare the way that ‘particular vulnerability’ is justified or not, especially in light of the minimalistic guidance available. Second, we compare statements (or lack thereof) on economic, social and environmental benefits arising from the proposed projects and which beneficiaries they would accrue to. Lessons learned will also be important for the development of the Green Climate Fund.
**Authors:** Kerrie Pickering, Julia Baird, and Ryan Plummer  
*Brock University, Canada*

**Title:** Priming the governance system for climate change adaptation: The application of a Social Ecological Inventory to engage actors in Niagara, Canada

**Theme:** The modes of governance and available instruments

**Session:** 23 March, 11:00-12:45; room Koepelzaal

**Abstract**

Climate Change adaptation (CCA) presents a challenge to current top-down governance structures. Alternative governance approaches that facilitate participation and learning across scales are gaining attention for their ability to foster adaptive capacity and resilience. This paper describes the method and outcomes from the application of a Social Ecological Inventory (SEI) to ‘prime’ a regional climate change adaptation network.

The SEI tool draws upon the social-ecological systems approach in which social and ecological systems are considered linked. SEIs bridge the gap between conventional stakeholder analysis and biological inventories. The process, which is dynamic and iterative, includes six phases; preparations, preliminary identification, identification of key individuals, interviewing, reviewing and enriching the inventory, and engagement. By considering the social and ecological aspects of a system, a more comprehensive inventory is achieved that provides a foundational platform to facilitate or support climate change adaptation processes which are participatory and learning oriented. While SEIs have been used for ecosystem management, the intent of this research was to understand the potential of the tool for CCA.

An SEI was undertaken in the Niagara Region of Canada in order to assemble and facilitate a regional governance group to champion CCA for the region. Moreover, the SEI was purposefully undertaken as the initial step in ‘priming the governance system’ and lead into an adaptive co-management process for CCA. Early indicators suggest the SEI has been instrumental in facilitating a multi sectorial adaptive co-management governance approach to climate change in the Niagara region.
Abstract

Climate change adaptation (CCA) requires the design of institutions and policies that integrate efficiency, equity, and effectiveness (EEE) objectives of systems at national and sub-national levels. A multi-level and multi-sectoral perspective is offered in this paper which incorporates the following dimensions: normative aspects of institutions, mechanisms for resource allocation, role of transaction costs (TC), adaptive efficiency (AE) and dynamic flexibility to respond to uncertainties as well as new information. An approach involving stakeholders in their capacity-based roles, contributing toward the reduction of TC and enhancing dynamic AE, is formalized in a multi-level and multi-sectoral framework. Infrastructural pre-requisites for adopting this approach are identified. Among these are organizational mechanisms and technologies for information sharing, active learning via monitoring and evaluation, contingency planning at appropriate levels, and provision of incentives for efficient performance of stakeholders. A matrix offers plausible scenarios of institutional and resource allocation mechanisms that are geared toward CCA incorporating EEE aspects.

The above approaches are largely normative. In the second part of the paper, select case studies of the evolving frameworks from the UK and the USA are examined to highlight the scope for pragmatic institutional reforms to enable improved governance of CCA in each of these systems at national and sub-national levels. The latest Intergovernmental Agency Task Force Reports of the Federal Government in the USA are also reviewed and potential for improvements suggested.
Abstract

While the need to integrate mitigation priorities into a range of sectors has been long recognised, for adaptation the importance of cross-sectoral policy integration has taken longer to be acknowledged. In the wake of the 2009 EU Adaptation White Paper, however, Commission Directorates-General (DGs) are required to ‘mainstream’ climate concerns or ‘climate proof’ their policies. However, the meaning of such concepts and manner of their interpretation in practice, or framing, remains fluid. Past experience with the environmental policy integration agenda suggests that the more radical implications for existing sectoral policies may be avoided. This paper presents evidence regarding the manner in which adaptation mainstreaming challenges are being framed by the European Commission, and the strategies – communicative, organisational and procedural - by which reform is pursued. It looks in particular at how the Commission’s system of Impact Assessment (IA), by which social, economic and environmental implications of major policy proposals are appraised, has responded. IA has been seen by some commentators as potentially a significant means of ‘procedural’ policy integration (see e.g. Mickwitz et al. 2009). Since 2009, official guidance includes implications for adaptation among the issues that IAs can examine. Evidence from IAs conducted by a range of DGs, dating from 2006 to 2011 is examined. It is suggested that although some progress in the handling of climate aspects is evident, the Commission has some way to go before the IA process, and other strategies, can provide an effective means of climate policy integration.
Authors: Tina Stecher
University of Oldenburg, Germany

Title: Pathways to regional resilience

Theme: Agency and leadership in adaptation governance

Session: 23 March, 09:00-10:45; room Kremlin A

Abstract

While the reduction of green house gas emissions is considered to be a benefit for the entire society (i.e. a public good), the adaptation to climate change is generally regarded as a private good. If one addresses business organizations that implement adaptation measures into their strategy and organizational routines, this classification of adaptation measures as a private good is appropriate. Thus business organizations carry the costs and accordingly stand to benefit from their increased resilience at the same time. However, if adaptation measures do not exclusively address business organizations (e.g. improved construction, contingency insurance) but also the regional level, adaptation to climate change should also be appraised as a public good. Public facilities (e.g. recreation areas, medical care, education) and private properties (e.g. road and railroad network, energy supply) are both crucial systems that need to be sustained in times of climate change. Hence coordination between the private (e.g. business organizations, chambers of commerce) and the public sector (e.g. governmental and non-governmental organizations) is needed to cope with the complex risks and opportunities caused by climate change. Following system theory I will address the question of how to link different systems and subsystems (e.g. branches) in order to develop resilient regions.
**Authors:** Christian Stein  
*Stockholm Resilience Centre, Sweden*

**Title:** Governance networks in a changing climate

**Theme:** Action at what levels?

**Session:** 22 March, 13:30-15:15; room Kremlin B

**Abstract**

Governance systems face the fundamental challenge to balance between institutional stability and change. Both properties are needed to adapt to the impacts of climate change, but there exists an inherent tension between the different types of governance that would facilitate one or the other. Network scholars have pointed out a similar, maybe even related, tension that arises from the typology of different network structures and the effect that these network structures have on the functioning and performance of a system. In this paper we explore how different types of governance interact across different levels and what that means for the governance of adaptation. Our analysis is based on empirical social network data from three rapidly transforming agricultural landscapes in Burkina Faso, Tanzania and Zambia. The focus is on small-scale farming systems vulnerable to climate change, but we also consider the broader governance context in which they are embedded. Results from the three case studies suggest that different types of governance systems coexist and operate in parallel. A combination or better interaction between these governance systems, e.g. local-flexible with a national-rigid governance system, could in theory create higher adaptive capacity. However, currently each system functions according to its own logic and they do not complement each other. We will highlight how existing networks of collaborative relations shape governance dynamics, and why they need to be recognized and built upon. We discuss analysis strategies and emergent results and how we intend to build comparative work in other case study areas.
Abstract

Although the public governance of climate change adaptation gained increasing attention among both policy makers and researchers in recent years, it is still largely unclear how governments aim to address challenges that arise typically in the adaptation policy field. The present paper shows what institutions and mechanisms ten OECD countries have established to cope with four governance challenges that play a pivotal role in the context of adaptation. Based on semi-structured telephone interviews we introduce and organise a variety of governance approaches that aim to (i) better integrate adaptation policies horizontally across policy sectors and (ii) vertically across jurisdictional levels, (iii) broker and integrate knowledge in adaptation policy decisions and, (iv), involve nonstate stakeholders in adaptation decisions. We show that national adaptation strategies mark a centrepiece around which several complementary governance approaches emerge. Regarding dominant patterns and modes of governance, the paper shows that most governance approaches rely on soft, voluntary ways of coordination and steering. The network mode of governance, however, seems to materialise rather as a mode of mutual adaptation or persuasion than as one of bargaining in networks. Although these persuasive forms of network governance have been on the rise in various (environmental) policy fields in recent years, it is nevertheless remarkable that, so far, they play an almost exclusive role in the adaptation policy field.
Authors: Daniel Tomozeiu and Simon Joss
University of Westminster, UK

Title: Adapting Adaptation: a critical governance analysis of the English eco-town initiative

Theme: The modes of governance and available instruments

Session: 23 March, 11:00-12:45; room Zuilenzaal

Abstract

Adaptation for climate change has become a key policy driver in the UK under the guidance of both the Department of Climate Change, and the Department of Communities and Local Government. Among the various practical initiatives, the proposed ten new ‘eco-towns’ for England (four of which are currently under development) are particularly emblematic of current climate change adaptation strategies. This paper critically analyses the evolution of the eco-town initiative from a governance perspective by focusing on the following two interrelated aspects: first, the evolving governance structures and resulting dynamics arising from the development of the eco-town initiative between the two UK government departments involved, and the subsequent partial devolution to local stakeholders – including local authorities and non-governmental actors – under the new ‘localism’ agenda; and second, the effect of these governance dynamics on the conceptual and practical approach to adaptation through the four emerging eco-town projects. As such, the paper problematises the impact of multi-level governance agency – and competing governance strategies and leadership – on shaping adaptation strategies and practice.
Abstract

Climate change is expected to have an impact on the likelihood of the occurrence and duration of extreme weather events such as extreme precipitation, heat waves or extreme droughts. Adaptation measures to cope with these changes are inevitable, and in this paper we explore the perspectives of different sectors in the Netherlands with respect to adaptation priorities for extreme weather events.

Given current uncertainties, robust adaptation measures should be explored together with the stakeholders involved in each sector. The paper reports on a set of 41 in-depth interviews with social actors from different sectors in the Netherlands: crisis management, water sector, public health, horeca, tourism and recreation, urban transportation, and vulnerable groups, which aimed at identifying how different actors frame and perceive extreme weather events, and adaptation priorities. The results were analysed, to identify the following:

1. Which perspectives are perceived as priorities for adaptation to extreme weather events by different social actors?

2. Which are the determinants of differences in perceived adaptation priorities?

With respect to the prioritised perspectives: most interviewees prioritized the dimension negative-positive (damaging/dangerous); the negative impact to their respective economic sectors; the need or possibility to prepare in advance; the level of extremity; the temperature, especially high temperatures; the impact on health and human lives; and the degree of precipitation.

Contrary to our expectations, different sectors see adaptation priorities in a similar way. Further, differences at the degree of concerned-ness and degree of informed-ness were related to different prioritized perspectives.
Abstract

In 2008, the Second State Delta Committee, commissioned by the Dutch Secretary of Public Works and Water Management, provided suggestions on how to defend the Netherlands against the expected impacts of climate change, such as sea level rise, longer periods of drought, more intense periods of rainfall and additional land subsidence over the coming two hundred years (Veerman, 2008). In this paper we show that even though no crisis actually occurred, the Second Delta Committee succeeded in three areas. First, the committee managed to create awareness and set the agenda for climate adaptation policy and the issue of safety in Dutch water management. Second, the committee succeeded to a large extent in getting the media, the public and politics to accept its frame and framing of the problems, causes, moral judgments and suggested remedies. Third, the committee has to a certain degree already succeeded in having its recommendations translated into policy programmes. Based on a discourse analysis it will be argued that framing strategies were key to the committee’s success and that the committee used various framing strategies to convince the cabinet, citizens and others of the urgency and necessity of implementing adaptation measures. The most important framing strategies identified were adherence to the climate adaptation narrative, using the story of our delta identity, creating a sense of urgency and collectiveness, and creating a crisis narrative.
Abstract

In light of the urgent need for coastal adaptation policies and the impediments to their implementation, this paper examines the early experience with coastal adaptation policies in the EU, with a view to identifying the important features of a regulatory framework for coastal adaptation. The focus is on regulation because previous research on coastal adaptation law has shown that the judicature has neither the jurisdiction nor the capacity to respond proactively to meet new policy challenges. While judicial decisions can drive policy change, they can only respond to specific disputes. Furthermore, while voluntary or autonomous adaptation may be appropriate in some cases, the interconnectedness of coastal impacts demands a planned response in order to minimise adverse impacts arising from the implementation of particular policies.
Abstract

Whether adaptation principles and strategies are developed locally and implemented from the bottom up or are developed internationally and implemented from the top down, understanding existing transboundary water agreements is critical to developing adaptation governance. Water agreements often anticipate drought and flood conditions within the basin. The International Court of Justice has interpreted existing treaties in light of emerging environmental norms and current circumstances. These principles of interpretation may permit management changes in response to climate changes without having to develop new agreements or mechanisms.

This article explores existing legal principles for governance of transboundary waters starting with the overarching principle of reasonable utilization. Recognized as a principle of customary international law for the sharing of international watercourses, reasonable utilization has not been adequately explored in legal literature and is under utilized in practice. The article identifies and discusses specific mechanisms from selected transboundary agreements that permit adaptative management in response to new watershed data reflecting climate change conditions thus avoiding the politically charged process of negotiating amendments to existing agreements.

Also identified in the survey of existing agreements are provisions which may be interpreted to prohibit changes in water sharing arrangements or which inhibit management changes in response to changing conditions. Such information is a factor to identify basins at risk.
Authors: Martinus Vink, Art Dewulf, Katrien Termeer  
Wageningen University, Netherlands

Title: Interactive framing as the interplay between puzzling and powering over climate adaptation governance; theoretical considerations

Theme: The framing of adaptation problems and goals

Session: 22 March, 13:30-15:15; room Koepelzaal

Abstract

Both uncertainty and the variety of stakeholders, interests and values associated with climate change make the issue a textbook example of a wicked problem. In line with this conceptualisation climate change has sparked debate in science, but more so in politics and society not seldom evolving into conflict and controversy. Therefore effective and durable governance of climate adaptation requires working across different levels of governance, different sectors and consecutive policy cycles. It is not just a technical problem but involves power play over interests as well as puzzlement over uncertainty and widely diverging problem definitions or frames. Although a lot has been written about either the practicalities of climate adaptation, the negotiations over interests, or the diversity of frames, little has been written about the interplay of powering over interests and puzzling over ideas in the development of effective climate adaptation policies. In this paper we propose a theoretical framework in which we use theory on interactive framing as a means of better understanding the broadly defined interplay of powering and puzzling, which we aim to apply to climate adaptation policies at and between different governmental layers, businesses, scientists, societal actors and the media.
**Authors:** Oskar Wallgren  
*Stockholm Environment Institute, Sweden*

**Title:** Introducing indirect effects of climate change on the adaptation agenda - responding to overseas climate change

**Theme:** The framing of adaptation problems and goals

**Session:** 22 March, 09:00-10:45; room Koepelzaal

**Abstract**

In both research and policy, adaptation has so far mainly been framed as a domestic, territorial concern. For many countries, particularly the rich ones, it is however likely that the impact of climate change on their economy, policy making and international engagements will not manifest primarily as direct changes driven by climate and weather events within their territory, but as indirect effects from (more severe) impacts elsewhere in the world. These impacts will together with global policy measures and changes in the global economy create changes in flows of goods, capital and people. They may also have severe conflict and security implications.

A recent comprehensive analysis by the UK government argues that consequences of climate change overseas could be as important as domestic climate change, which suggests that the dominant understanding of adaptation as a challenge primarily driven by local, place-based change may i) not adequately capture the real decision making situation on the ground, and ii) lead to sub-optimal policy responses, since not all relevant climate change impacts are accounted for. The implications of indirect effects for decision-making and governance are poorly understood and conceptual frameworks are lacking.

Drawing on an empirical analysis of how indirect effects of climate change are addressed in strategic documents analyzing the future global context for Swedish forestry, this paper provides some initial thoughts on how such effects could better be integrated in decision making and the repercussions they have for the research agenda, knowledge provision needs and efforts to financially support adaptation.
Abstract

There is a high demand for concepts and tools to assess and communicate the implications of climate change for decision-making. Increasingly questions are posed as to whether current management practices are able to cope with climate change and increased climate variability or whether alternative strategies are needed. This paper focuses on the specific situation where, due to climate change, current governance agreements will no longer be able to meet their objectives and alternative strategies have to be considered. If such a situation is foreseen at a particular time in the future, climate change becomes particularly relevant to policy makers. We call this situation an ‘adaptation turning point’. The paper will explore adaptation turning points as a concept for assessing and communicating the implications of climate change. It discusses the theoretical basis (how to define, identify and quantify adaptation turning points), case evidence of adaptation turning points in Europe, and alternative adaptation pathways for dealing with or exploiting turning points. Experience so far is that the assessment of adaptation turning points allows for a meaningful dialogue between stakeholders and scientists about the amount of change that is acceptable, when conditions could be reached that are unacceptable (or more favourable), how likely these conditions are, how the adaptation turning points change the spatial and sectoral context, and which adaptation pathways to consider. Thus the paper hopes to contribute to the ongoing debate on adaptation dynamics and to support a community that actively seeks to further effective and timely adaptation.
Abstract

Like other European countries, Switzerland has started to develop a national climate change adaptation strategy only very recently. This absence of national adaptation policies has been attributed by previous research to a lack of problem awareness on the side of national policy-makers as well as to a center-right dominated government. In contrast, cantonal governments – in particular those in highly vulnerable mountain regions – have been more active in formulating and implementing adaptation measures. These measures, however, differ considerably with respect to scope, range, and mode within and across regions. In this paper, we analyze this variety of regional adaptation measures within the Swiss federalist political system and will explain particular patterns within those adaptation measures. More specifically, we argue that the observed patterns are determined by the regional discourse on adaptation reflecting the variability of regional climate change impacts as well as the socio-economic structure of the respective regions (in particular, the most vulnerable sectors). However, political discourses alone seem not to translate automatically into adaptation measures. As the analysis shows, the preferences of policy-makers and stakeholders as well as the prevailing modes of governance in the key socio-economic sectors have an impact on the type of adopted adaptation measures too. The study is based on a three-year research project called MOUNTLAND\textsuperscript{1}, analyzing the impacts of climate change on Swiss mountain regions as well the related socio-economic changes and policy implications.
Keynote speakers

March 22, 11:00-11:30
In search of a robust strategy for governing climate change adaptation

**Daniel A. Mazmanian**  
*University of Southern California*  
(paper co-authored with J. Jurewitz and H. T. Nelson)

Daniel A. Mazmanian is the Bedrosian Chair in Governance in the Sol Price School of Public Policy, at the University of Southern California, and Director of the USC Bedrosian Center on Governance and the Public Enterprise. His areas of interest are public policy analysis and implementation, with special emphasis on environmental policy and sustainability, and California governance and policymaking. From 2005-2007 he was a member on the Task Force on Environmental Governance for the Chinese Council for International Cooperation on Environment and Development, Beijing. In 2009-2010 he served as director of the Task Force on California’s Adaptation to Climate change. He has been a member of the Board of Trustees of the John Randolph Haynes and Dora Haynes Foundation since 1994.

March 22, 11:30-12:00
Fostering Governance and Building Capacity for Climate Change Adaptation: Can Adaptive Co-management Help?

**Ryan Plummer**  
*Brock University, Canada*

Ryan Plummer is professor of Tourism and Environment, director of the Brock Sustainability Research Unit, and Senior Research fellow at the Stockholm Resilience Center. He studies environmental governance and social-ecological systems, and is primarily interested in adaptive co-management, adaptive capacity, community-based management, social capital, social learning, resilience, and vulnerability. He is currently focusing on water governance in Canada and source water governance in First Nation communities.

March 22, 12:00-12:30
Adaptation as a social contract

**Neil Adger**  
*University of East Anglia*

Neil Adger is professor at the University of East Anglia. He is well known for his 2009 book *Adapting to Climate Change* (Cambridge University Press) and his countless conceptual and empirical contributions to the debate on the governance of climate change adaptation. Neil is convening lead author of the Fifth Assessment of the Intergovernmental Panel on Climate Change and the convenor of the chapter on Human Security. He is member of the editorial board of several influential journals and publishes widely on social and ecological resilience; ecological economics; institutional economics; participatory decision-making; climate change adaptation, vulnerability, equity and justice.
Conference Venue

Keizergracht, 324
1016 EZ, Amsterdam
www.felixmeritis.nl

Conference rooms:

Zuilenzaal – Plenary sessions and parallel sessions
Kremlin A – Parallel sessions
Kremlin B – Parallel sessions
Sterrenzaal – Parallel sessions
Koepelzaal – Parallel sessions
Foyer – Lunch and coffee breaks

There is an elevator in the building that can be used by conference guests (despite the sign post saying personnel only).
Organizing committee of the symposium

Dr. Dave Huitema (chair)*
Nihad Avdíc, MSc
Eric Massey, MSc*
Belinda McFadgen, MSc*
Dr. Stefania Munaretto*

*Institute for Environmental Studies (IVM), VU University Amsterdam

The symposium takes place in the context of the Dutch government funded research program Knowledge for Climate, and more specifically the consortium is responsible for the work on governance in that program. More information at: http://knowledgeforclimate.climateresearchnetherlands.nl/

The consortium is a collaboration of five Dutch Universities: Wageningen University, Erasmus University Rotterdam, University of Utrecht, Radboud University Nijmegen, VU University Amsterdam