

Dealing with controversies

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1 Description work package

1.1 Problem definition, aim and central research questions

By now it is quite commonplace to label climate change as a complex phenomenon, the scientific unraveling of which is still riddled with uncertainties. These uncertainties, however, although blown up by so-called climate sceptics, concern a series of particular issues, e.g. the precise share of human interference on the one hand and the mechanisms determining possible outcomes and consequences on the other. As there is an almost complete scientific consensus on the main points, a large majority of the scientific community and large parts of the world political elite have a clear sense of urgency: even though we don't know all the causal correlations nor the precise impacts and consequences, they feel it is time to act. The precautionary argument is complemented by an economic rationale: it seems even more cost-effective to act now, rather than to postpone decision-making and implementation of both mitigation and adaptation strategies.

Yet in sociological and political terms, scientific information may be a necessary, yet not sufficient, and in some respects even counterproductive trigger for societal action. Societal action drives on a series of conceptions, definitions and images of the problem (if conceived a problem at all), and these conceptions

in turn are embedded in frames. The latter, in brief, are an ensemble of normative meanings (on how the world should be), causal argumentations (on what problems are and how they arise), and strategic options (what could be done). Even when literature on frames and discourses is divergent, two common points that are particularly relevant for the projects described below clearly emerge from it: (a) as frames do comprise quite different sources and lines of argumentation (from images to emotions, from scientific insights to sophisticated moral arguing), scientific information is but a small part of them; and (b) these frames, whether scientifically valid or not, whether politically 'correct' or not, and whether morally 'sound' or not, are socially constitutive. Meaning: they do frame and constrain social action, they do pre-condition possible coalitions and divides between actors, they may enable certain political strategies, while hindering others. In other words, discourses and frames are highly relevant for governance processes: they might bridge the gap between the sense of urgency and social and political action, or they might frustrate that link.

WP4 essentially deals with the diversity of frames in the climate debate, the controversies they induce, and the way their advocates deal with them. The central research question is: *How to deal with uncertainties, stakeholders' frames and contested knowledge, especially concerning relevant scales for adaptation?*

The first project analyzes the diversity of the different governmental and societal stakeholders involved in the climate change discussion, and the frames they employ to make sense of the issue of climate change (adaptation). They all (may) have their own conceptions of the climate issue – even sceptical or denying conceptions thereof. As a consequence, the eight hotspots have to deal with multiple frames among citizens, stakeholders, scientists, public authorities, and the media. These frames may differ in their overall causal conception of climate change, the assessment of its seriousness and urgency, its risks and impacts at the geographical and political level concerned, the burdens and benefits it may cause at that level, and the normative and political questions how to legitimately pool or allocate these risks, burdens and benefits. Therefore, this first project also aims at developing and testing methods for dealing with frame variety. The way frames and controversies between their advocates are dealt with are important as they may induce or prevent the emergence of any effective and legitimate societal and political action.

The second project focuses on the similar yet distinguishable way the 8 hotspots (will have to) pay attention to the way 'scientific knowledge' is produced, used, downscaled, valued and evaluated by the public. As said, scientific information is but one source of information for frames to be formulated and adapted. In particular in times when labelling 'knowledge' to be scientific no longer guarantees its public legitimacy, one has to look for processes of coproduction of knowledge that induce shared responsibility between stakeholders and result in societal acceptance and trustworthiness. Climate change knowledge has, apart from its complexity and uncertainty, a particular feature that is relevant here: as data and models are mainly gathered and constructed at a global, in some cases at continental or national level, their translation onto the level of the hotspots implies a huge effort in which one risks to multiply the uncertainties and, inevitably, to decrease the validity and reliability. The latter might cause

delegitimization of that knowledge. Hence, this project deals with the way the defined hotspots organize the sciencepolicy interface and the problems they are facing during this process.

1.2 Interdisciplinarity and coherence between the projects

Over the last decades, discursive approaches have emerged and have been used in a variety of disciplines, such as public administration, spatial planning, psychology, environmental studies and others. Even though based upon different epistemological and conceptual backgrounds, and even when leading to divergent methodological approaches, this has led to what is called a discursive turn in several disciplines and fields. While using ‘framing’ as a crucial concept, the projects described below therefore use an approach that is largely common to different disciplines, and will build on these common heritages.

1.3 Stakeholders

As may be clear from the full project descriptions below, the hotspots – or at least a relevant selection thereof – are amongst our first stakeholders. These further comprise societal and political agencies as well, at hotspot and at national and sub-national levels. In addition, though, it is clear that also the scientific community is a key stakeholder, in particular those knowledge producers that are directly relevant to the field, e.g. the Netherlands Environmental Assessment Agency (PBL) and the Royal Netherlands Meteorological Institute (KNMI). The link with the latter is also clear from an explicit intention of co-operation between the projects mentioned here and a project on uncertainty and downscaled climate change information in Theme 6, initiated by the KNMI.

2 Project 4.1 Making sense of climate impacts. Understanding and dealing with the variety of climate change frames in governance processes

Project leader: Dr. Art Dewulf

2.1 Problem definition, aim and central research questions

The evidence for climate change and its expected impacts seems to grow ever more serious. The latest report of the United Nations Environment Programme warns that impacts of climate change could hit earlier and faster than was assumed. The report mentions a warming of over 6 degrees by the end of this century and a sea level rise between 80 cm and 2 m. The second Delta Commission framed the issue as a “non-acute threat” but an “urgent task” for the Netherlands: the water management infrastructure needed to be strengthened and the spatial and administrative outline of the country reconsidered. With the current media attention, which remained at a high level since Al Gore’s climate movie, and the IPCC stressing the importance of adaptation, the policy issue of climate adaptation seems to gain traction.

However, behind this apparent consensus a world of different perspectives or frames emerges (Benford & Snow, 2000; Chong & Druckman, 2007; Dewulf, et al., 2009; Schön & Rein, 1994). Effective, legitimate

and resilient adaptation strategies require more than a broad agreement that climate change is important. First, in a new and not yet institutionalized policy domain, tuning with sectors like spatial planning, water, nature, agriculture, industry or infrastructure becomes crucial – these different worlds need to be connected somehow and the spatial scale for doing so is not self-evident. Second, in a multi-level governance context (Hooghe & Marks, 2003), tuning is also needed between local, regional, national and international levels on the administrative scale, which operate with different frames of reference. Third, the time scale for climate change goes much further than the usual planning horizon of governments, companies or societal organizations (Haug, et al., 2009). The long term scenarios for climate impacts, although plausible, do involve margins of uncertainty, which can be used as excuses not to act (Keeling, 2009). All of this provides endless possibilities to frame the seriousness, urgency or scale of climate adaptation in widely diverging ways. The increasingly polarized discussion between ‘climate sceptics’ and ‘climate alarmists’, which has reached the mainstream media and political parties, testifies to this. Therefore, the variety of climate adaptation frames is likely to play an important role in climate adaptation governance processes, and we assume that the way these frame differences are handled will affect the progress and outcomes of these governance processes.

Framing and reframing are important processes in the study of governance. Framing can be understood as making sense of a situation from a specific anchor point (Tversky & Kahneman, 1981). Issue framing (Putnam & Holmer, 1992) is related to the way actors conceive of the scope, definition, and relationship among policy issues. In an interactive governance process, different (groups of) people make sense of their situation in different ways, use different labels to describe it, and suggest different ways of acting upon it. This leads to differences of opinion that cannot be arbitrated in any straightforward way by searching for the right information. Rather, when different issue frames meet, different constructions of what is the case are juxtaposed or counterposed and ambiguity ensues (Dewulf et al., 2005). Dealing constructively with these frame differences is necessary if integrative solutions are to be reached in multi-actor governance settings (Huxham, 2000; Koppenjan & Klijn, 2004), but doing so turns out to be difficult in practice. Constructive reframing of differences between the involved actors seems to be a demanding task for governance processes (Termeer, 2009). The way issues get framed by the media adds a layer of complexity to this process (Reese, Gandy, & Grant, 2001). The conflictive, dramatic and personalized aspects of a policy process make for better news and headlines, so one can expect the media to magnify frame conflicts and to contribute to the rise of controversies, which then have to be dealt with in the governance processes somehow. A key question regarding frame diversity is how to deal with it. Different approaches and intervention methods are available, but most of them are often focused exclusively on reflection and learning. Although insight in one’s own and other’s frames may be a necessary condition for dealing constructively with frame diversity, it is often not sufficient. These insights could for example be used as further ammunition in a controversy between two or more sides. In this project we focus on intervention methods that aim at connecting different frames, through developing an (ambiguous but motivating) superordinate frame that can overarch the differences; situated frame reflection and co-design (Schön & Rein, 1994); developing socially robust measures (Nowotny, 2003); or translating ideas or plans into the frames of others.

The aim of this research project is to answer this key question: *How to realize effective, legitimate and resilient adaptation strategies in a situation of diverging frames about spatial, temporal and administrative scales for climate adaptation, within and between governments, businesses, scientists, societal actors and the media?* The following research questions will be addressed:

- ▽ How do the directly involved actors in climate adaptation policy processes interactively deal with their frame differences?
- ▽ What is the potential of these ways of dealing with frame differences to prevent (or stir up) controversies?
- ▽ What is the influence of climate frames in the media on climate frames or controversies in policy processes?
- ▽ Which interventions for dealing with multiple frames can contribute to effective, legitimate and resilient climate adaptation and how?

2.2 Approach and methodology

Three methodological approaches are important for this project. First, to obtain insights in the variety of frames and the way these are handled in governance processes, a qualitative process reconstruction of frame interaction will be carried out (Dewulf, et al., 2009). The focus will lie on climate adaptation frames related to spatial (at which spatial scale should climate adaptation be addressed?), temporal (what is urgent and what is long term?), and administrative scales (who is responsible for what?). Second, to obtain specific insights in how media framing affects governance of adaptation processes, a selection of media sources will be analyzed for the relevant period. To this end, a quantitative analysis of media frames (Matthes & Kohring, 2008) will be carried out. Third, in accordance with the collaborative action research method of the whole programme, the specific questions for the aforementioned analyses will be tuned for relevance with the involved hotspot actors to increase relevance of resulting reports (see scientific and societal deliverables) for the hotspot actors. Further, interventions using methods for dealing with frame diversity will be jointly designed and tested, such that the results are useful and relevant both for research and practical purposes.

2.3 Scientific deliverables and results

Month 12:

Deliverable 4.A: Position paper: Frame variety and contested knowledge in climate adaptation policy

Month 21, 29, 37 & 43

Deliverables 4.1.1, 4.1.2, 4.1.3 & 4.1.4: 4 scientific papers presenting the results regarding the four research questions for submission to scientific refereed journals.

Month 48:

Deliverable 4.1.5: Ph.D. thesis

Deliverable 4.B. Synthesizing article on dealing with controversies in climate adaptation policy

2.4 Integration of general research questions with hotspot-specific questions

Various hotspots have raised the issue of dealing with multiple perspectives or frames as an important concern (HSHL, HSWZ, HSDR, HSOV). We will study cases at three levels: regional, national and international. Given the still ongoing discussions with hotspot stakeholders, the cases cannot be definitely fixed yet and new hotspots or stakeholders could be taken on board. However, the following cases already show potential for connecting our research questions about framing with specific climate adaptation challenges in the hotspots. At the regional level the challenge of climate buffers (Wadden Sea) and water retention (Haaglanden) provide interesting opportunities to both analyse the variety of frames and try out new ways to deal with them. At the national level, we will work with the Ministry of Transport, Public Works and Water Management, addressing amongst others the question of how to deal with the frame controversies depicted in the media. At the international level, the trilateral consultation Wadden Sea will be an important case. Taken together, these cases at multiple levels will provide thorough insights about how effective, legitimate and resilient adaptation strategies can be realized in a situation of diverging frames about spatial, temporal and administrative scales for climate adaptation.

2.5 Societal deliverables and results

The following societal deliverables can be expected:

Month 21, 34:

Deliverable 4.1.6 & 4.1.7: (At least) two summary reports of frame analysis

Month 32:

Deliverable 4.1.8: Report on design of frame interventions

Month 40:

Deliverable 4.1.9: Report with evaluation of frame interventions

Month 42:

Deliverable 4.1.10: feedback and reflection workshop with key stakeholders

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3 Project 4.2 Science-policy arrangements at regional scale: how to warrant scientific requests and social robustness?

Project leader: Prof. dr. Pieter Leroy

3.1 Problem definition, aim and central research questions

This project aims at an analysis of the ways the Dutch hotspots do organize the science-policy interface. While doing so, they face - implicitly or explicitly - multiple problems.

- ▽ Climate change is, in mere natural sciences' terms, a complex phenomenon. By complex we mean, paraphrasing Lucertini et al. (2004): composed of a huge number of elements that need to be studied from divergent disciplinary angles, comprising many non-linear variables impacting each other, with hardly identifiable critical thresholds, and playing out at different levels of time and over different geographic scales. Uncertainty, not as a provisional situation, but as an intrinsic feature, is a self-evident counterpart of complexity (Funtowicz & Ravetz, 1993).
- ▽ Even though climate change seems an all-pervading phenomenon and its impacts are likely to be ubiquitous, sociologically it is yet 'epistemologically distant' (Carolan, 2004). This refers, firstly, to the need for quite sophisticated methods of observation and analysis to fully assess its

meaning, impact etc. (Beck, 2009). Secondly, this low immediate social visibility implies the need for scientists to explain the problem both to policymakers and societal stakeholders and, as a counterpart, presume a huge amount of ‘trust’ among the general public (see project 4.1, where the societal scepticism is among the issues addressed).

- ▽ As a consequence, climate change urges for novel ways of organizing the science-policy and the sciencesociety interfaces (Driessen et al., 2010).

In the Dutch context, and given the pivotal role hotspots are anticipated to play in the design and implementation of climate adaptation policies, the aforementioned problems seem to be aggravated by two factors:

1. Scientific knowledge on climate change is often available at global and national levels, whereas its societal acceptance and its political relevance largely plays at and depends on regional or local levels. By downscaling the geographical level of information, thus downscaling variables, processes and impacts from global, continental or national modelling efforts, one tends to multiply the scientific uncertainties (see KfC programme theme 6, work package 2 - programme leader Rob Swart/Wilco Hazeleger).
2. At national level there is a more or less established pattern of science-policy interface, e.g. through environmental and economic forecasts by the Netherlands Environmental Assessment Agency (PBL) and the Netherlands Bureau for Economic Policy Analysis (CPB) respectively. These reports are underpinned by data and insights from a broad array of other scientific institutes (KNMI, Alterra, LEI and others), embedded in a multi-actor arrangement with advisory boards etc. At regional or hotspot level, though, there hardly is any such established arrangement. That raises questions about the actual handling of the regional transfer and translation of data formatted and modelled at higher levels, and it raises questions onto the quality control of the information used. As may be clear from the above, this quality control should not only cover mere scientific quality, including how one deals with uncertainties, but also regards its societal robustness (Gibbons et al., 1994; Nowotny et al., 2001).

This project is embedded in a wide bunch of literature on the science-policy interface. It does not focus on the epistemological aspects thereof, but rather on the organisational and participatory aspects (Van de Kerkhof, 2004; Leroy, 2009 for an evaluative overview of this literature), as discussed in recent sociological literature (Yearley, 2009) and analysed from different perspectives (Callon et al., 2001; Pielke, 2007; Miller, 2001). In addition, it aims at continuing the research efforts by the main applicant to analyse and evaluate the role of knowledge in environmental policy processes, including the possible role of participatory approaches (Hage & Leroy, 2007). The analysis and evaluation of the latter build upon a well-tested analytical framework, in which ‘institutional arrangements’ is the key concept (Arts and Leroy, 2006 a.m.o.).

As said, this project essentially aims at an analysis and evaluation of the science-policy practices set up so far by the respective hotspots. The analysis focuses on

- ▽ the processing of the transfer and translation of scientific knowledge formatted and modelled at higher geographical scales onto the hotspot level
- ▽ the gradual institutionalisation of science-policy arrangements at hotspot level.

The key question of this project therefore is: *How is the transfer and translation of scientific knowledge processed by the respective hotspots and in what way are science-policy arrangements at hotspot level gradually becoming institutionalised?*

This main research question comprehends the following sub-questions and evaluative criteria:

As to the processing:

- ▽ What agencies are involved - either at the supply and demand side - in the transfer and translation of knowledge onto the hotspot level? How do these agencies handle this transfer, how do they deal with questions of validity and uncertainty, of relevance and acceptance? What procedures have been put in place, what precautionary measures have been taken to deal with these issues?
- ▽ What (scientific) knowledge is involved in this 'regionalisation', and what is not, and for what reasons?
- ▽ Who decides on what knowledge is relevant at hotspot level? How does the overall decision-making on adaptation strategies (the policy side) relate to the decision-making on what is relevant knowledge? Is there any sort of participatory set up, either of the knowledge handling or the adaptation policies?
- ▽ How does the knowledge (not-)involved relate to (pre-existing) dominant discourses on the climate change impacts on that particular hotspot? In other words, is scientific knowledge challenging pre-existing discourses (frames: see project 4.1) or rather confirming these?

As to the institutionalizing arrangements:

- ▽ How can the gradual patterning of agencies involved, of discourses mainly attached value to, of rules on how to handle and proceed with knowledge, on rules of interaction between the parties involved etc., be characterized (using different typologies available from literature)?
- ▽ How can these arrangements be evaluated in terms of their capacity to deal with either the aforementioned scientific uncertainties or with the issues of social acceptance and social robustness?

3.2 Approach and methodology

Theoretically, this project builds on well-chosen and well-elaborated theoretical approaches and on a well-tested analytical framework. This increases the chances for a PhD-student to carry out the project.

Methodologically, the project basically aims at a comparative case study analysis of 2 or 3 of the hotspots. The latter have to be selected based upon an explorative overview of all 8 hotspots. While using classical criteria for multiple case selection, we aim to complement these by the learning potential of the divergent practices observed. Empirically, this project will focus upon the processes of handling of

'regionalising' (scientific) knowledge within the hotspots, while using that knowledge for the underpinning of their regional adaptation strategies, and onto the gradual institutionalisation of these practices into institutional arrangements on the science-policy interface. Within the case-studies to be carried out, rather classical methods of data gathering (document analysis, interviews) will need to be complemented by more participatory techniques of observation, group interviews, group meetings, etc.

3.3 Scientific deliverables and results

The scientific deliverables of this project are:

Month 12:

Deliverable 4.A: Position paper: Frame variety and contested knowledge in climate adaptation policy

Month 24, 36

Deliverable 4.2.1 & 4.2.2: Two scientific articles on regional science-policy arrangements regarding Dutch climate change.

Month 42:

Deliverable 4.2.3: (at least) one popularizing paper on good practices of 'regionalization' of climate change knowledge

Month 48:

Deliverable 4.2.4: Ph.D. thesis

Deliverable 4.B. Synthesizing article on dealing with controversies in climate adaptation policy

3.4 Integration of general research questions with hotspot-specific questions

This project aims at taking the science-policy practices of a sample (2-3) of hotspots as its empirical focus. It aims at analyzing the gradual institutionalization of these science-policy practices, while evaluating these as to what extent and by what processes and organizational requests they organize and warrant scientific quality on the one hand, and societal robustness on the other. While the project thus focuses on hotspot-specific empirical evidence, it will analyze their processing and institutionalisation of the science-policy interface from a general and a theory-driven perspective. While doing so, we ensure the perspective's theoretical firmness, while at the same time enabling ourselves to come up with practical recommendations and lessons to be learned. As stated, the selection of cases will depend upon an explorative overview of the hotspots.

3.5 Societal deliverables and results

The societal deliverables of this project are:

Month 46:

Deliverable 4.2.5: A report on the comparative analysis and evaluation of the science-policy practices observed in the selected hotspots, focusing on good practices and on learning potentials.

Month 48:

Deliverable 4.2.6: We consider organizing a workshop with project managers, scientists, stakeholders and politicians responsible for the hotspots involved, to further explore these learning opportunities and their application in practice.

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