Thor Heyerdahl Summer School in Environmental Governance

Institutions for Sustainable Development

Papers from the 2011 course

Edited by Synne Movik and Arild Vatn
Student Papers Vol. 1

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Environmental Governance

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The Thor Heyerdahl Summer School (THSS) in Environmental Governance offers PhDs and young researchers the opportunity to develop high level skills in analyzing governance issues such as climate change, biodiversity conservation, the sustainable use of biological resources, water management, and pollution. The Summer School creates an arena for critical reflection on the present status of both theory and practice in the field, and an opportunity to discuss alternatives to current developments and solutions.

The annual two-week THSS is hosted by the Department of International Environment and Development Studies, Noragric, at the Norwegian University of Life Science in Aas, Norway. The THSS is also supported financially by the Thor Heyerdahl Institute, Noragric’s institutional agreements with partners in the South and the Research Council of Norway. THSS has a reference group consisting of scholars from CICERO, the Fridtjof Nansen Institute, the Norwegian Institute of International Affairs (NUPI) and the Thor Heyerdahl institute. The THSS is endorsed by the European Society for Ecological Economics, the International Society for Ecological Economics and the Earth System Governance Project.

The student papers in this publication are the result of the first THSS in 2011. The views expressed in the articles are entirely those of the authors and cannot be attributed directly to the Department of International Environment and Development Studies (UMB/Noragric) or any of the above-mentioned partners. Extracts from this publication may only be reproduced after prior consultation with the coordinator of the THSS at Noragric.
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PREFACE

This report includes the student papers from the first course of the Thor Heyerdahl Summer School in Environmental Governance. The course was titled ‘Environmental Governance: Institutions for Sustainable Development’ and ran from June 20 - July 1 2011. An overview of the programme is found at http://www.umb.no/thor-heyerdahl-summer-school.

Altogether 27 students – PhDs and young researchers – from 18 countries all over the world participated. Their enthusiasm and great capacities were very important for the success of the course. Certainly, as important was the engagement of a long list of renowned lecturers – including Nobel laureate Elinor Ostrom. As this report was in the final stages before publishing in June 2012, we received the sad news of Professor Ostrom’s death. Her participation at the first course of the Thor Heyerdahl Summer School thus becomes an even more memorable event which we look back upon with gratitude.

On behalf of the Department of International Environment and Development Studies at the Norwegian University of Life Sciences, we would also like to thank the external financers; The Thor Heyerdahl Institute, Noragric’s institutional agreements with partners in the South and the Research Council of Norway. We would also like to thank external members of the reference group for the summer school consisting of scholars from CICERO, the Fridtjof Nansen Institute, the Norwegian Institute of International Affairs (NUPI) and the Thor Heyerdahl Institute.

Noragric, UMB, 20 June 2012

Synne Movik and Arild Vatn
INTRODUCTION

Environmental concerns – such as climate change, deforestation, water and energy issues – are high up on the world’s agenda. The lifestyles and economic systems of affluent societies put increasing strain on the environment, whilst in many parts of the world people at the margins directly depend on natural resources for their day-to-day existence. Appreciating the complex dynamics of interlinkages between humans and ecosystems requires an understanding of what rules and norms guide human behaviour toward their natural surroundings; in short, the human institutions governing the environment.

The Thor Heyerdahl Summer School in Environmental Governance offers PhDs/young researchers the opportunity to develop their skills in analysing environmental governance issues. It provides an arena for critical reflection on the present status of both theory and practice in the field, and the search and assessment of possible alternatives to current practices. The first course was titled ‘Environmental Governance: Institutions for Sustainable Development’ and focused in particular on institutions for governance, drawing on diverse theoretical frameworks such as institutional theory and political ecology. The course brought together an enthusiastic and critically-minded group of students with diverse backgrounds and interests, who engaged each other and their lecturers in discussions and reflections around governance. One of the tasks of the course was to join together in groups, agree on a theme of common interest, and analyse that topic drawing on the tools and insights gathered during the course. While outlines were made during the two weeks of the course, the writing took place after participants returned to their home universities/institutes.

The results of their work are presented in this publication, and we hope that it will provide a source of insight and inspiration for others interested in these issues. The papers cover a wide range of topics, from forest law compliance to integrated water resources management, from knowledge brokerage and science-policy-society communication interfaces to participation and deliberative approaches to problem solving, and provide insightful perspectives on often complex issues. What follows is a brief presentation of the themes covered by the altogether 8 papers produced.

The first paper, by Joanna Cent, Karin Dobernig and Ricky Lawton, discusses a highly critical issue, namely the extent to which the knowledge produced by scientists fails to have the expected impact on policy. The reasons for this are manifold – communication, methodology, time constraints, information overload. The authors suggest that there is a need to focus more on what they term ‘knowledge brokerage’, which can be conceived of as a two-way continuous communication process, going beyond the traditional idea of knowledge as something being ‘transferred’ from scientists to policymakers. Knowledge brokerage might involve a third party (e.g. an individual, an agency or an organization) that helps facilitate the flow of knowledge from creators to users. The authors contend that the practice of knowledge brokerage could be conceived of as a novel ‘knowledge-articulating institution’ that could potentially re-shape the relationship between scientists and policymakers in order to improve
the quality and outcomes of these interactions. Knowledge brokerage is an under-researched field; there is little systematic, practice-oriented research on knowledge brokerage between research and policy-making. Clearly, it is of great importance to address the fact that much scientific evidence produced does not translate into policy actions – the problem of ‘little effect’ – and this paper draws up useful ideas for how that challenge can be met.

The next paper deals with a classic form of exercising governance, the creation of laws and rules regulating our behaviour with regard to the environment. But rules of law are of little use if people do not comply with them. How do we understand what motivates people to follow such rules, and why? Sabaheta Ramcilovic-Suominen, Graham Epstein and Hadsh Tefsa Gebreab examine this question, focusing on forest law compliance and to what extent people adhere to the rules of law when engaged in forest-related practices. The authors draw on a diverse set of theories of compliance from economic, socio-institutional and psychological literatures to develop an expansive, multi-level analytical framework to analyse empirical case studies of compliance. The paper finds that at the individual level, instrumental benefits and costs, including discount rate; social and personal norms; and legitimacy are the key motivations influencing to what extent an individual will comply with the rules and regulations in place, and that these drivers are mediated by external factors such as regulatory practices, property rights, corruption, poverty etc. Their work builds on earlier work in forest law compliance and also complements existing frameworks designed for fisheries. The authors argue that the framework provides a robust interdisciplinary approach for academic studies on forest law compliance, but that more work is needed to develop indicators to allow the operationalization of the framework for practical application.

Laws and regulations are ‘classic’ instances of environmental governance, where the State devises particular rules detailing how resources are to be used. Moving from law to other forms of governance, the next paper, authored by Augustin Berghöfer, Sonny Mumbunan, and Marcela Muñoz addresses the role of markets, and in particular the role of intermediaries in Payment for Ecosystem Services (PES) schemes – a theme that has received comparatively little attention in the literature. According to the authors, intermediaries typically provide support with information, capacity building, dissemination, baseline setting, contract options, negotiation, monitoring, money transfer, networking and adjudication in case of contract breaches, and thus exercise a considerable degree of power. The paper explores the role and functioning of intermediaries from three different PES schemes – a watershed scheme in Colombia, a peatland re-wetting scheme in Germany, and the Norwegian partnership with Indonesia on Reducing Emissions from Deforestation and Degradation (REDD+). Drawing on institutional theory, a typology of intermediaries is developed. The cases are compared and contrasted according to various institutional aspects: organisational structure, accountability, costs and position of the intermediary, and what emerges is that there is no direct linkage between the way the ecosystem service is quantified and the intermediary’s organisational structure. Rather it is the aspirations of the intermediary that is the key issue – whether they would want to focus on promoting a menu of contract options, or strive to develop needs-oriented contents and formats for capacity building, or pursue procedures to draw on already existing ecosystem knowledge. Alternatively, they can be protagonists of global standards that
are exclusively science-based and conducive to confirm their lead role in shaping the growing PES business.

From dealing with markets, we move on to the issue of participation. The paper by Jampel Dell’Angelo, Orleans Mfune, Hassan Roba and Patrick Bixler deal with the discourse and practice in participatory conservation and how it varies in different geo-political settings. Drawing on the Institutional Analysis Development (IAD) framework, it explores how and why participation in conservation programmes varies across different geopolitical settings, represented through four cases studies from Kenya, Zambia, the United States, and the Tibetan areas. Combining an institutional analysis with insights from political ecology, the paper asks to what extent there is a gap in discourse and practice, examining how a global, unified conservation discourse is implemented in different ways depending upon the local social-political and ecological context. The four cases described in this research show how participation, as a construct for natural resources management, has gained ascendancy in conservation discourse and is being used to legitimise various conservation agendas in different socio-political contexts. While all four cases posit a strong rhetoric of participative resource governance ideals, in at least three of the four cases, there are important gaps between this rhetoric and practice, which come to light through comparative analysis. Such analysis strengthens understanding of how institutional dynamics are influenced by the discourses and the political-economic context in which they occur. Participation has been globally applied as a panacea for natural resource management – but, as this study illustrates, there is a disconnect between rhetoric and practice. Whilst governments and NGOs continue to praise participation as a means to dealing with environmental issues, it is important to raise awareness of the barriers to translating theory into practice.

The paper by Leah Sprain, Clare Tompsett, Pinar Ertor, and Viviana Asara also deals with the issue of participation in relation to the ‘wicked’ problem of climate adaptation. A problem is ‘wicked’ when it is complex and confusing, cannot be reduced to its component parts and assessed by experts, and affect many decision-makers and stakeholders with plural and often conflicting values. The problem of climate change surely fits the bill for being designated a ‘wicked problem’. There is no single ‘expert’ solution to climate change, and hence participatory approaches to governance are seen as central to negotiating conflicting values and contributing local knowledge necessary to managing certain aspects of climate change. The authors argue that participation in climate governance is itself a wicked problem, because it involves dealing with a plural, diverse society which precludes arriving at a stable consensus. In fact, they contend, producing such a consensus might potentially be discriminatory towards those living at the margins of society. They still hold that participation has an important role to play, but suggest drawing on democratic theory and deliberative processes.

Picking up on the role of discourse and the utility of using a political ecology lens to understand changes in perceptions, Alexander Erlewein’s and Oscar Schmidt’s paper traces the renaissance of large-scale dams, from its early heyday in the 1950s and 60s, through the increasing critique of the social and environmental costs associated with such large-scale
infrastructure projects in the 1990s, to the present ‘pragmatism’. They examine the shifts in argumentation and the discursive representation of dams, which reflect diverging ideas of modernization and cultural imaginations of nature. There is an emergent perception that dams are ‘climate-friendly’ and provide ‘clean and green’ sources of renewable energy, which legitimises the revival of interest in dams on the part of companies and governments. Using Turkey and India as cases, Erlewein and Schmidt find that there is a considerable disjuncture between the global and national-level arguments in support of dams. In both countries, mainstream discourses on large dams continue to be dominated by development narratives that consider large-scale hydraulic structures as catalysts for progress and modernization. National interests are much more concerned with energy security than climate change, which does often not even figure as an issue in the national policy debates on dams.

Enock Chambile and Madaka Tumbo also focus on water in their paper, but take a more historical approach. They analyse the evolution of water resources management practices in Tanzania from pre-colonial times to the present day, focusing in particular on how the evolution of institutional arrangements have played out in the Ruaha river basin. In the course of tracing the evolution of the policies and regulations governing water resources in Tanzania, they highlight how the fact that a majority of water users in Tanzania access water in accordance with traditional rules and practices – known as customary law – but that this fact is being largely ignored in the new policies and legislations that are being passed on water in the Tanzanian context. Further the practice of customary law is being weakened by multiple factors, such as increasing population pressures and economic interests that are seeing entrepreneurs and other ‘outsiders’ increasingly jostling for access to land and water resources. The following trend of privatisation of land has upset the customary practices that used to prevail in many rural areas. Nevertheless, the authors argue that there is a need to pay greater attention to customary law, as failing to do so may lead to failure in terms of the recent efforts at implementing Integrated Water Resource Management in Tanzanian river basins.

The final paper, by Lars Berger, Frauke Bathe, and Oksana Udovyk, picks up on the theme of knowledge presented in the first paper on knowledge brokerage, and thus ‘closes the circle’. They look at the role of researchers themselves, reflecting on their different conceptions of scientific work and how they interact with decision-making processes in society. As they observe, science in a political context becomes subject to other rules, norms and criteria of evaluation than those set within the scientific community. The three authors, drawing on their individual experiences and roles as researchers, explore the interfaces and communication between science, policymakers and society, represented in the ‘science-science’, the ‘science-policy’, and the ‘science-society’ views respectively. Empirically the analyses are linked to water pollution in China, water resources management within the EU, and marine governance in the Baltic area. Their reflections and perspectives give rise to the question whether the notion of ‘truth’ still has currency in today’s complex world. They emphasise the need to be aware and reflexive of the ‘multi-faceted’ reality and perceptions of scientists and the diverse positions that scientists adopt in science-policy relations.
It is our hope that this set of papers brings forth some of the challenging and interesting issues that have been addressed during the Summer School course of 2011, and that it also reflects some of the vibrancy and enthusiasm so palpable during the course itself.
Knowledge Brokerage in the Science-Policy Interface: 
An institutional perspective

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1. Introduction

A key concern in today’s environmental governance context is that much policy-relevant research that is conducted and published by a vast range of scientists falls short of the initial expectations for policy impact (Hukkinen, 2009). A range of supposed barriers have been identified. These can be broadly delineated into supply side issues, related to the nature of research outputs, and demand-side issues, based around policy maker uptake (McNie, 2007; Sarewitz & Pielke Jr., 2007). In the former, issues of communication, methodology and engagement proliferate, while in the latter, it is issues of time and attention limits, context-relevant selection of research, and information overload that are commonly cited (Nutley et al., 2002; Lavis et al., 2003; Shaxson, 2005; Holmes & Clark, 2008).

Into this debate emerges the concept of knowledge brokerage with its promise to “bridge the gap” between research and policy. Knowledge brokerage can broadly be understood as a two-way continuous process (Kammen, de Savigny, & Sewankambo, 2006; Pyra, 2003) which aims to go beyond the traditional notion of knowledge transfer from the research community to potential users (Sheate & Partidário, 2010). Knowledge brokerage might involve a third party (e.g. an individual, an agency or an organization) that is responsible for the interchange of knowledge between the “creators” (e.g. science) and the “users” (e.g. policy) of knowledge. On the other hand, knowledge brokerage might also reside in the structures and processes of a particular environmental governance context. As such it presents an institutional structure that encompasses rules concerning (1) which actors are involved and how they interact with each other, (2) how objectives are set and outcomes evaluated, and even (3) what is considered policy-relevant knowledge. Following from that, taking a knowledge brokerage approach to science-policy relations also has potential implications for power relations between scientists and policy-makers.

The goal of this paper is to enrich the analysis of science-policy relations by adapting the standard “two communities” (Caplan, 1979) model for the science-policy interface to an institutional framework. We argue that looking through the lens of classical institutional theory at conceptualizations of science-policy relations in general, and on knowledge
brokerage in particular can yield relevant insights on how the approach employed defines not only the logic of the science-policy process but also discerns implications for changing power relations and/or process outcomes. In particular, we discuss knowledge brokerage as a novel “knowledge-articulating institution”, whose effects should be felt on the traditional interactions between the science and policy spheres as it is meant to change the interactions between scientists and policy-makers and eventually influences the rationality supported in a particular science-policy context. However, if the complex dynamics of actual institutional change are underestimated, knowledge brokerage may be doomed to stay on a conceptual level without valid impacts on practices. Hence, we also take a critical stance towards championing knowledge brokerage as a new mechanism for turning research evidence into policy and practice.

The paper is structured into four main parts. The next section provides an overview of the various conceptualizations of the science-policy relations and introduces the concept of knowledge brokerage and its various facets. Section three introduces a framework for looking at different conceptualizations from an institutional perspective and discusses knowledge brokerage as a knowledge-articulating institution. The subsequent part outlines critical questions as well as the potential opportunities and challenges faced when fostering knowledge brokerage as a concept in science-policy relationships. Finally, the last part provides suggestions for further research.

2. Different Conceptualization of the Science-Policy Interface

Different conceptualizations abound of science-policy interactions, including such fuzzy terms as science-led policy, evidence-based policy and – most recently – knowledge brokerage. This section briefly discusses the “traditional” perspective on the science-policy relation with a focus on knowledge transfer from science to policy. It then introduces the concept of knowledge brokerage and outlines the two differing approaches of (1) brokerage as a new actor moderating science-policy interactions and (2) brokerage as a new institution in a broader governance setting.

2.1 The Linear Model of Science-Policy Relationships

Traditional perspectives on science-policy relationships focus on dissemination of scientific knowledge to policy makers. Management-oriented decision models (e.g. Taylor, 2004) assume that the right information automatically leads to a different and better decision. It is built upon the rationalist assumption that if additional information is provided and effectively used, the decision-making process will inherently improve (Homes & Clark, 2008). Hence, it follows a rather mechanistic perspective on the complex interrelations between science and policy and, therefore, results often in rather simple solutions. In the science-policy interface, the linear model assumes information and knowledge flowing from science (the supplier of knowledge) to policy (the demander of knowledge) in a linear and unproblematic way (McNie, 2007). In this conceptualization, problems and objectives are clearly identified,
alternative options evaluated objectively and the selections of strategies grounded in “scientific evidence” (Holmes & Clark, 2008).

“Evidence-based policy” is the most recent manifestation of this linear model of science-policy relationships. It presents an approach to policy-making that stresses the importance of maintaining builds on a robust evidence base that is of sufficiently high quality from which policy options are developed and implemented (Defra, 2011). The “Science and Society Action Plan” by the European Commission, for example, was concerned, amongst other things, with putting “responsible science” at the heart of policy-making (EC, 2002). The key benefits that are meant to result from evidence-based policymaking are better policies. What cannot be neglected, however, is the important question what exactly a “robust evidence base” constitutes and - even more essential - who decides upon its characteristics and criteria (Shaxson, 2004).

2.2 Knowledge Brokerage: Beyond Knowledge Transfer and Knowledge Management

In practice, what often becomes apparent in science-policy relationships is the so-called “problem of little effect”: the observation that large quantities of knowledge produced for the benefit of policy are never used in that policy-making (In’t Veld & de Wit, 2000). Owens (2005) finds that because political decision-makers are pressed for time, they are ignorant of many existing bodies of knowledge or misinterpret such material as it comes their way. Researchers, on the other hand, are often accused of failing to produce “useable knowledge” and/or to articulate their findings in a language that policymakers find accessible (Owens, 2005). To address this “problem of little effect”, knowledge brokerage has recently emerged as an alternative approach to science-policy relationship that is meant to close, or at least narrow, the gap between the production and implementation of scientific research evidence (Ward et al., 2009).

The concept of knowledge brokerage used to be solely related to the private sector where it is as facilitating the knowledge transfer within and between organizations in order to, for example, stimulate innovation. Only in the last decade has knowledge brokerage increasingly been employed in the public sector in general and in science-policy relationships in particular. However, knowledge brokerage is not yet a well-defined concept either in the policy arena, or within science. In general, brokerage can be characterized as a two-way continuous process with information transferred between the research community and potential users (Kammen et al., 2006; Pyra, 2003). Sheate and Partidário (2010) emphasize that knowledge brokerage is “a dynamic activity that goes well beyond the standard notion of transfer as a collection of activities that helps move information from a source to a recipient. Brokering focuses on identifying and bringing together people interested in an issue, people who can help each other develop evidence-based solutions. It helps build relationships and networks for sharing existing research and ideas and stimulating new work.” (CHSRF, 2003)
This account implicitly builds on the arguments that successful use of knowledge requires strong interaction among the relevant stakeholders (Lavis, 2003) and that sustained dialogue processes are key for improving the utilization of scientific evidence in the policy process (Elliott & Popay, 2000). Brokerage then may include both more or less formalized activities, such as: organizing and managing joint forums for policy-makers and researchers, building relationships of trust, setting agendas and common goals, commissioning syntheses of research of high policy relevance, packaging research syntheses and facilitating access to evidence (Kammen et al., 2006). The literature also points to the relevance of networks and personal contacts for knowledge brokerage (Hansen, 1999; Huysman & Wulf, 2006).

Knowledge brokerage can reside in individuals and organizations or structures and processes (Ward et al., 2009). On the one hand, organizations or individuals situated between the creators/suppliers of knowledge (e.g. the scientists) and the users of knowledge (e.g. policy-makers) may act as knowledge brokers. They function as intermediaries, should link the users with the creators of knowledge and earn revenue, which is a function of value exchanged in a transaction between users and creators (Oldham & McLean, 1997). Oldham and McLean (1997) have proposed three frameworks for conceptualizing knowledge brokerage, and the resulting role of the knowledge broker. These frameworks are briefly summarized in Table 1. Within the knowledge-system framework, brokerage refers to facilitating the creation, diffusion and use of knowledge. The transactional framework focuses on the linkage between the “creators and users” of knowledge and, finally, in the social change framework brokerages is about enhancing access to knowledge for knowledge users.

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<th>Framework of Knowledge Brokerage</th>
<th>Understanding of Knowledge Brokerage as</th>
<th>Knowledge Brokers as</th>
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<td>Knowledge-system framework</td>
<td>Managing and facilitating the creation, diffusion and use of knowledge</td>
<td>Knowledge managers</td>
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<tr>
<td>Transactional framework</td>
<td>Fostering the linkages between the “creators” and “users” of knowledge</td>
<td>Linking agents</td>
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<td>Social change framework</td>
<td>Enhancing access to knowledge by providing training to knowledge users</td>
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3. An Institutional Perspective on Science-Policy Relations

Institutions comprise the conventions, norms and formally sanctioned rules of a society. Humans both influence and are influenced by institutions. Institutions have both cognitive and normative elements meaning that at least to a certain extent they signal appropriate behavior
(Vatn, 2005) which in the specific case of science-policy relations would above all concern how scientists and researchers should interact and behave towards each other. In that sense, institutions give meaning to social contexts (Vatn, 2005, 2009). Both scientists and policymakers carry values, norms and expectations that are linked to the institutions in the particular realm of society in which they operate i.e. the scientific and policy arena.

This paper argues that the different conceptualizations of science-policy relations function as particular types of value-articulating institutions. Different institutional contexts within the science-policy interface explicitly or implicitly define which actors are included in the process and how they interact, how objectives are set and outcomes evaluated and, thereby inherent, what is considered policy-relevant knowledge. However, while an institutional perspective has already been found valuable for the discussion of other environmental governance issues – such as, for example, environmental valuation and appraisal approaches (Vatn, 2009) – no attempts, to the best of our knowledge, have been made so far to employ classical institutional theory to analyze different approaches to science-policy interactions as institutional structures that explicitly or implicitly emphasize specific rules with regards to actors, objectives and outcomes.

In particular, we focus our study on the emerging concept of knowledge brokerage. As it attempts to bridge the gap between science and policy, we would expect knowledge brokerage to have an institutional impact, changing rules and power structures between science and policy. By presenting brokerage as a novel institutional formation, we believe it can shed light on the evolving process of institutional change within the science policy interface. It takes the form of a “knowledge articulating-institution” (KAI), which involves definitions of values only alongside knowledge. The effect of a KAI is to change the practices of interaction between science and policy in order to improve the quality and outcomes of these interactions. Hence, it is eventually set up to initiate institutional change on the level of norms and conventions from “top-down”. However, if one underestimates the complex dynamics of institutional change and the power of prominent but differing rationalities of actors involved in the process, knowledge brokerage may run the risk of staying a “buzz word” on a conceptual level without valid impacts on practices. On the other hand, if it actually succeeds in having an impact on the modes of interaction between science and policy, the potential implications for power relations have to be taken into account as well.

3.1 Science and Policy-Makers: Actors with Different Rationalities

Within classical institutional thinking, humans are seen as multi-rational agents. Hence, humans are neither purely self-regarding – as assumed by neo-classical economic thinking, for instance - nor solely other-regarding actors but employ different rationalities. Which of these rationalities is prevalent in a given situation is then determined and influenced by the institutional context (Vatn, 2005). With regards to science-policy relationships, one has thus to foremost acknowledge that policy-makers and scientists most of the time operate in institutional contexts that differ significantly from each other especially with regards to set agendas and timeframes. Differing (or even conflicting) agendas mean that what is considered
relevant information or knowledge may differ significantly between the two arenas. Moreover, policy-makers – because of the dynamics of modern policy-making – usually have to make decisions immediately in the near future whereas researchers often orient their decisions along the usually longer time span of research projects (Hukkinen, 2009). One might even say that researchers and policy-makers “in fact inhabit different worlds” (Ward, 2009) – an observation that is at the heart of the “two communities thesis” (Caplan, 1979). While researchers aim for the development of theories and concepts, policy-makers tend to ask for evidence which is relevant, easy to understand and can be readily implemented in the decision-making process. Researchers take their time to complete research studies, but policy-makers want answers fast and quickly (Mitton et al., 2007). Going along with that are distinct ways of communication and discourse – one could hence say that scientist and policy-makers somehow speak different languages (Choi et al., 2005). Recognizing these inherently different institutional contexts in which scientists and policy-makers operate in, has important implications when looking at knowledge brokerage as an emerging institution within the science-policy interface.

When scientific practice is mandated as part of a policy process, the burden is placed on the scientist to supply science for policy demand (Sarewitz and Pielke Jr., 2007). This includes requirements credibility and legitimacy, relevance and timeliness (Clark, 2007; Holmes and Clark, 2008). Policy-makers want science that is intelligible to non-scientific audiences, and in doing so represents a clear body of evidence and appears to be rational. The ideal it is meant to project is that of something free of value judgments, using clear methods that produce credible results. At best, it is characterized by open debate, anonymous peer review, and academic publication. In addition to projecting this sterling public image, it must present the policymakers with clear policy choices. Wilson (2009) points out that none of these ideals are applied in reality of scientific support of policy. Scientific research often makes moral dilemmas explicit and/or produces conflicting results that cannot be resolved by further studies. While policy-makers ask for transparent knowledge that helps them justify their choices; this demanded transparency – ironically – often just reveals more uncertainty (Wilson, 2009).

3.2 An Institutional Framework for Analyzing Science-Policy Relations

This section proposes a framework for evaluating conceptualizations of science-policy relations. It builds on a review of science-policy interface concepts as well as on the arguments put forth in the previous sections. What it presents is a proposition of how to approach an institutional analysis of science-policy relations by laying out the building blocks along which such an analysis could orientate itself. While conceptualizing the framework for science-policy relations in general, we apply it to the particular case of knowledge brokerage in the subsequent chapter to support our critical discussion of the concept. However, we are also aware that a proper evaluation of the set out proposition would require thorough empirical work in the field.
The framework revolves along four building blocks derived from the debate described in the previous sections that may guide an institutional analysis of science-policy relations: rules, actors, objectives and, separate to the institutional structure, outcomes (Figure 1). While actors and rules signify the specific characteristics of the science-policy interface, objectives and outcomes rather address the direction and intensity of changes in the broader institutional context of science-policy relationships as well as the potential impacts of the process. Different institutional contexts within the science-policy interface explicitly or implicitly define which actors are included in the process (boundary rules), which form the interaction between these actors take (interaction rules), which roles the different actors play (position rules), how objectives are set and outcomes evaluated (evaluation rules) and, thereby inherent, what is considered policy-relevant knowledge. Hence, looking at rules and actors enables, for example, a comparative analysis of knowledge brokerage initiatives with other, more “traditional” science-policy interactions, thereby helping to highlight the potential innovative elements. The other two dimensions – objectives and outcomes – aid the evaluation of its actual impacts on the quality and outcomes of the particular science-policy interactions. From the perspective of institutional theory, the relationship between rules and objectives is most worthy of analysis. Applying this framework to a specific science-policy context could also allow for a more explicit consideration of the relationship between rules and objectives. In particular, the question of whether rules shape objectives, or the other way around, is an important consideration for analysis of science-policy relations in general, and knowledge brokerage in particular.

Figure 1: An Institutional Framework for Analyzing Science-Policy Relations
Analyzing these four building blocks might open up a critical discussion on how powerful knowledge brokerage as a knowledge-articulating institution actually operates in practice, and the potential improvements it might yield with regards to quality of outcomes and translation of scientific evidence into concrete policy measures. Related to this, the framework also broaches the issue of how knowledge brokerage might influence power relations with regards to set objectives, modes of interactions, and the setting of criteria used to evaluate process outcomes.

4. Critical Discussion

The transactional network model of the science-policy interface that knowledge brokerage is ultimately building on (Pregernig, 2004) does not stick to pure knowledge transfer but adds a network element allowing science and policy-making to enhance their connectivity through a social process. Policy-makers and other interest groups aim to transform scientific knowledge into more suitable input for practical implementation. As a result of these social processes, scientific knowledge is no longer bound only to facts, but is rather broadened by values and judgments. Hence, knowledge brokerage does not solely involve bringing in an additional actor to the science-policy interface who acts as an intermediary and broker of information and knowledge but also concerns the emergence of a new institution which influences the way in which knowledge is articulated.

Our framework is inclusive of treating knowledge brokerage as a knowledge-articulating institution (KAI). As a new set of institutional arrangements are introduced into science-policy relations, we would expect to see a number of changes to the traditional rules, objectives and actors in the science-policy interface. However, we would argue that there is also a risk that knowledge brokerage would fail to become a KAI in the way described above. Instead, knowledge brokerage could come to be implemented only at the individual and organizational level as a small set of network bridges connecting science and policy at a few points of interaction. Under such circumstances, the effect on the existing institutional structure of the science policy interface would be quite more limited than that proposed above.

Moreover, we believe there may also emerge issues around the legitimacy of various KAI's. Issues of actor membership and goal setting are open to capture. Research brokers, as network entrepreneurs, fit more comfortably into the market-style concept of knowledge transfer. Within the institutional setting of the market, issues of public accountability, transparency and legitimacy tend to emerge (Vatn, 2005). Issues of power would also come into play in the setting of research agendas, which could lead to research that is policy prescriptive, rather than merely policy relevant (Watson, 2005). Tuinstra et al. (2006) have analyzed how policy-making participants in Europe divide and co-ordinate work between science and policy and how this enhances credibility, legitimacy and relevance of assessments with multiple audiences. The focus on three qualities credibility, legitimacy and relevance, showing how
these qualities are co-determined by the characteristics of the assessment itself, the characteristics of the users of the assessment and the context in which the assessment takes place (Tuinstra et al., 2006).

5. Opportunities and Challenges for Knowledge Brokerage

Vast academic work on the concept of boundary institutions supports its ability to mediate the divide between science and policy (Van der Vorst et al., 1999; Vicente and Partidario, 2006; Kornov et al., 2005; Sheate & Partidario, 2009; Sheate, 2009; Cash and Moser, 2000; cited in Sheate & Partidário, 2010). In those institutions decision-makers are no longer passive recipients of information, but participate in the research and learning process towards the sharing of knowledge. Knowledge brokerage, as a type of boundary institution, would be, according to those authors, one of the ways to reach an effective adaptive management through efficient interactions between science and decision-making. Compared to traditional science–policy interactions knowledge brokerage would, therefore, help create greater dialogue between "producers" or creators and the “consumer” of knowledge. Hence, it presents an approach to move strategic assessment techniques beyond information provision, facilitate the sharing of knowledge and thereby potentially improve the substance of science–policy linkages and help improve problem-solving among stakeholders and decision-makers (Sheate and Partidário, 2010).

However, there is almost no systematic, practice-oriented research on knowledge brokerage between research and policy-making, apart from studies on knowledge brokerage in the public health sector (CHSRF, 2004; Pyra, 2003). Hence, generalizing findings of this very specific context is difficult and has to be done very carefully by keeping in mind the specific circumstances (Mitton et al., 2007). On the conceptual level however, premises of knowledge-brokerage are a potential solutions for some of the challenges of environmental governance and therefore efforts for its application are desirable. While Ward et al. (2009) state, that “knowledge brokerage has been championed as a mechanism for transferring research evidence into policy and practice” they also point to the three main challenges of knowledge brokerage: (1) effective knowledge brokerage is time-consuming and resource-intensive; (2) effective knowledge brokerage requires a distinct set of skills on the side of the knowledge broker; and (3) there is still lack of evidence about the effectiveness of knowledge brokerage. Linking the different institutional settings of knowledge-brokerage, including the different rationalities of actors, with objectives and outcomes of the process, as in the proposed framework, may provide lacking evidence and evaluation of the challenges.

One of the key challenges for knowledge brokerage to win commitment from scientists and policy-makers concerns the currently still limited evidence for its effectiveness as well as lack of insights into the contextual and institutional factors fostering its successful implementation (Ward et al, 2009). Organizations that have begun to experiment with various approaches to knowledge-brokerage recognize that it has the potential to reconstitute traditional donor-recipient relationships. However, it also requires new organizational capabilities (Oldham &
McLean, 1997). Characteristics of an issue of interest may limit or foster effectiveness of knowledge brokerage. So far relevant studies have only been conducted in the realm of the public health sector.

Moreover, questions of legitimacy can also be raised. Where scientific evidence is uncertain and interests unclear, knowledge brokers can exercise considerable political power through the authoritative framing, or re-framing, of available knowledge. The role of knowledge broker goes therefore beyond scientific premises of objectivity and is always, even if unconsciously, political (Litfin, 1994, cited in Owens & Rayner, 1999). Insight from institutional theory points out here the importance of rules and objectives, allocation power to create or change them and mutual influences.

Finally, one might argue that knowledge-brokerage is what we have been doing all along and that it only means re-labelling existing activities accordingly, and carrying on as before. If knowledge brokerage is simply an "emperor in new clothes" it eventually will, like many other buzz-words in the past, fade away without leaving much impact on the ground.

6. Suggestions for Further Research

Three main suggestions for further research can be stated based on the critique in the literature and identified challenges of the knowledge brokerage concept:

(1) There is a need for more profound research on the development and adoption of the concept and its use in specific contexts. The field of environmental governance can benefit from such an analysis as well as provide valuable case studies for future research. Relations between characteristics of specific issues (e.g. level of uncertainty, transparency of policy processes, and division of interests) and effectiveness of brokerage should be explored. Studying the development of knowledge brokerage from an institutional perspective can potentially also contribute to studies on emerging institutions and institutional change.

(2) More critical perspectives on knowledge brokerage as an effective model within the science-policy interface are needed. The employment of institutional theory, especially its focus on different rationalities, can be recommended for taking a critical stance towards the process. A problem of power relations, its change and impact on policy outputs and legitimacy of the process is another important factor.

(3) Finally, empirical research how different frameworks of knowledge-brokerage as knowledge-articulating-institutions influence processes, rationalities and the content of knowledge transfer and use should be explored. Potentially, it may be useful for the development of the proposed framework for an evaluation of science-policy relation and the evaluation of its applicability for studying knowledge-brokerage. The framework itself needs further operationalization of the described building blocks and evaluation through profound empirical research.
7. Conclusion
Within the environmental governance context, there is a well-identified need for improving science-policy relations; also to address the problem of little effect – the notion that much scientific evidence produced does not translate into policy actions. The concept of knowledge brokerage can potentially make a contribution here. However, championing knowledge brokerage as a means to improve science-policy relations in the sense that more scientific evidence is translated into policy actions demands caution. Knowledge brokerage presents an institutional structure that not only changes the logic of the science-policy process but also discerns implications for changing power relations and/or process outcomes. As a knowledge-articulating institution it encompasses rules concerning (1) which actors are involved in the process (boundary rules), (2) how they should interact with each other (interaction rules), (3) how objectives are set and outcomes evaluated (evaluation rules), and, related to this, what is considered policy-relevant knowledge. In this paper, we have argued that looking through the lens of classical institutional theory at conceptualizations of science-policy relations in general, and on knowledge brokerage in particular, can yield interesting and relevant insights on these issues. In-depth research adapting the presented framework would potentially discern the institutional dynamics of the processes at hand. Hence, a profound analysis could also contribute to the theoretical discussion of institutional change.

Knowledge brokerage is meant to work as a knowledge-articulating institution that fosters the uptake of scientific knowledge by policy-maker. It is set out to change the modes of interactions between scientists and policy-makers and thereby eventually influences the rationality supported in a particular science-policy context. However, the dynamics of institutional change are complex. Hence, if these are underestimated, knowledge brokerage may be doomed to stay on a conceptual level without valid impacts on practices, or a progressive “label” legitimating relations of power domination. What is required is a critical in-depth analysis on the potential implications of knowledge brokerage as a new institutional structure for the logic of science-policy interface, the rules emphasized, objectives set and outcomes produced as well as the implicitly negotiated power relations. As knowledge brokerage is eventually meant to change the rationality of science-policy relations, institutional theory can provide a valuable perspective and lay the groundwork for in-depth empirical studies on knowledge brokerage in science-policy relations in the context of environmental governance.

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Analytical Framework for Forest Law Compliance

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Abstract

This paper proposes an expansive analytical framework for the study of forest law compliance. An inductive approach is taken to integrate the research on compliance in forestry with theories of rule compliance. Compliance theories are drawn from economic, socio-institutional and psychological models of individual behaviour; while the research on compliance in forestry emphasizes characteristics at the group, state or international level. The framework highlights the multi-level nature of compliance behaviour. At the individual level, the framework identifies three important motivations that influence compliance behaviour, namely instrumental benefits and costs, social and personal norms, and legitimacy. At higher levels of aggregation, compliance occurs when external factors combine to provide a context that activates or suppresses different motivations, or alters the state of those motivations.

1. Introduction

Illegal forest activities encompass a vast range of unlawful activities across the wood production chain; from occupation of forest land, to illegal harvesting, transporting, pricing, processing, and trading of forest products (Contreras-Hermosilla 2002, Tacconi, et al. 2003). Illegal forest activities are recognized as one of the major threats to global forest resources (Brack 2003, SCA&WRI 2004). Negative impacts include degradation of forests and forest related goods and services (e.g. biodiversity, water cycle, and climate regulation), loss of governmental and private revenues, and the deterioration of forest related livelihoods (Contreras Hermosilla 2002, Kaimowitz 2003, SCA&WRI 2006, World Bank 2004).

Law compliance is an integral aspect of any governance system, and has a crucial role in supporting good governance and sustainable development (Zaelke, et al. 2005, UN 2002). The concept of compliance can be defined as all behaviour by subjects or actors that conform to the requirements of behavioural prescriptions (Young, 1979:4). While the extent and impacts of illegal forest activities are well covered in the literature, the factors and motivations that affect compliance behaviour are notably absent, and remain poorly understood (Hansen 2011, Tacconi 2007). Furthermore those studies that seek to address the compliance do so at a general level that impedes the dialogue between theoretical and empirical research.
One of the main constraints impeding empirical research on compliance in forestry is the absence of an adequate theoretically driven analytical framework for the study of forest law compliance. Different schools of thought approach the issue of compliance from different perspectives, emphasising for instance its economic (Becker 1968), social (Cialdini and Trost 1998), institutional (Ostrom 1990), behavioural (Jols et al. 1998) and psychological (Tyler 1990, Tyler and Jost 2007) dimensions. A consistent research program on compliance behaviour requires an interdisciplinary and comprehensive analytical framework, where theoretical and empirical tensions and contradictions are allowed to coexist awaiting future study. A related challenge for studies of compliance in forestry is to integrate general theories of rule compliance with the existing body of knowledge to develop a framework that addresses individual motivations for compliance, as well as those issues specific to forest law compliance.

This paper adopts an inductive approach that draws upon the literature on causes of non-compliance in the forest sector and the interdisciplinary theories on rule compliance. Specifically the paper reviews the existing literature on compliance in forestry, identifies a comprehensive list of the most common sources of non-compliance in the forest sector. It then reviews different theoretical approaches that seek to explain compliance behaviour, emphasising three dominant models and their underlying motivations for rule compliance; namely benefits and costs, social and personal norms, and legitimacy. In an attempt to integrate the sources of non-compliance in forestry with the theories of rule compliance, the paper proposes an analytical framework for forest law compliance. The paper aims to contribute to theoretical review and development, while also remaining useful for empirical applications. More specifically, it aims to advance the study of non-compliance and illegality in forestry by providing a theoretically robust analytical framework.

2. Sources of non-compliance in forestry

The forest compliance literature has grown in recent years. However, the current literature amounts to a set of broad and highly overlapping sources of non-compliance, with little reference to the theories of law compliance and individual motivations. The literature emphasises the context dependent nature of compliance, highlighting the economic, social, institutional and cultural aspects; but further insights are needed to construct a theoretically robust framework for analytical compliance studies. What follows is a review of the main causes (or drivers) of non-compliance, broadly grouped into twelve categories as shown in Box 1. While acknowledging the possibility of some overlap between categories, the proposed categories seek to minimize within-group variation while maximizing the variation between-groups. Finally the sources are ordered according to their relative importance given in the forest compliance literature.

The studies reviewed in this section adopt a global perspective, but focus mostly on countries with high rates of illegal forest activities, such as the Amazon, Central Africa, Mesoamerica, Southeast Asia and West Africa; with some consideration of European contexts. While the emphasis on areas with high rates of non-compliance does introduce the possibility of a
selection bias; the sources all share a certain level of inherent plausibility given that forest non-compliance is more common and severe in developing, compared to developed, countries. The specific sources of non-compliance identified in Box 1 are discussed below.

**BOX 1**

1. **Regulatory constraints:**
   - Contradictory forest policies
   - Unrealistic policies
   - Onerous bureaucratic ‘red-tape’

2. **Capacity of authorities**
   - Weak monitoring and enforcement
   - Insufficient cooperation and coordination within and between government agencies
   - Allocation of broad discretionary powers
   - Lack of conflict mediation capacities

3. **Corruption**
   - Corrupt monitors
   - Corruption throughout the production process and organizational hierarchy

4. **Property/Ownership**
   - Uncertain forest tenure
   - Legal pluralism

5. **Markets and trade**
   - ‘Missing’ market signal
   - Strong domestic/international demand
   - Lack of legality sensitive markets (high demand for cheap timber and low demand for legal timber)

6. **Economic incentives and disincentives**
   - High individual incentives to defect the law
   - Illegal profit of timber industry
   - Low risk of sanction

7. **Perceived fairness of legislation**
   - Fair design, enforcement and practicing of law
   - Compatibility with traditional customary rights and/or practices
   - Marginalisation and disempowerment of local/indigenous population.

8. **Lack of baseline**
   - Lack of data on forest resource and its changes
   - Lack of data on timber flows and origin of timber,
   - Inadequate accounting systems

9. **Forest culture**
   - Tradition of forest management and protection
   - Lack of long term strategies/planning for forest resource

10. **Transparency and accountability**
    - Arbitrary decisions of governmental agencies

11. **Forest conflicts**
    - Forest conflicts and disputes
    - Armed conflicts

12. **Poverty**
    - People unable to meet their basic needs
    - Lack of alternative livelihoods

Box 1: Commonly cited sources of non-compliance in the forest sector

1. **Regulatory constraints** refer to the inherent constraints imposed by the design of forest policies and legal frameworks. Specific constraints include flawed and contradicting policies, where the lack of clarity creates opportunities for bypassing *de jure* requirements (Blaser 2010, Contreras-Hermosilla 2002, Contreras-Hermosilla and Peter 2005, Taconi et al. 2003, Taconi 2007a WB 2006). Additionally laws that fail to reflect and fit the situation on the ground, in terms of other formal laws and practices, may impose *de facto* barriers to legality (Contreras-Hermosilla and Peter 2005, Kishor and Damania 2007). Forest laws are often a product of international, national, and sub-national agreements, which may or may not be reflected in local *de facto* rules and may cause implementation problems.
2. **Capacity of political and legislative authorities** refers to the efficiency and effectiveness of forest authorities in performing their assigned duties to influence compliance behaviour. Insufficient and ineffective monitoring and enforcement capacities were found to be a problem in almost all compliance studies (Blaser 2010, Contreras-Hermosilla 2002, Contreras-Hermosilla and Peter 2005, Taconi et al 2003, Taconi 2007a, Kishor and Damania 2007, WB 2006). Lack of cooperation among forest agencies, and between forest agencies and forest users, was emphasised as one of the key reasons for non-compliance in Brazil (Hirakuri 2003). Inadequate inter and intra-agency coordination further limits the capacity of governmental agencies to organise and strengthen law enforcement (Contreras-Hermosilla and Peter 2005). Unsupervised local forest officers, with responsibilities well beyond their *de facto* capacities, often abuse their positions and facilitate illegal forest activities (Contreras-Hermosilla 2002, Contreras-Hermosilla and Peter 2005, Kishor and Damania 2007). Finally, Contreras-Hermosilla and Peter (2005) as well as the World Bank (2006) find the lack of conflict resolution capacity in forest agencies to be a major obstacle for establishing a good relationship with users and fostering trust-building within groups of forest users.

3. **Corruption** is often referred to as ‘the special case of illegal forest activities’ (Kishor and Damania 2007). It is a self-reinforcing phenomenon, which to varying extents is related to all other sources of non-compliance. Most of the reviewed studies acknowledge the role of corruption as the major factor facilitating non-compliance (Blaser 2010, Contreras-Hermosilla 2002, Kishor and Damania 2007, Taconi 2007a, WB 2006). The World Bank (2006) specifically emphasises the problem of corruption with respect to law enforcement and financial audit systems. Monitors may accept bribes on their own to overlook certain unlawful activities by other actors, or may simply form part of a corruption chain that extends to higher levels of government. On the other hand, monitors may simply draw their salary and renge from their monitoring responsibilities.

4. **Property rights.** Vague and unclear rights are obviously quite difficult to enforce; and property rights reforms are complex with high economic and societal costs. Thus unclear ownership and use rights remain important sources of non-compliance, as documented by the studies (Contreras-Hermosilla 2002, Contreras-Hermosilla and Peter 2005, Hirakuri 2003, Taconi 2007a, WB 2006). Resource users that lack legally enforceable claims to the forest have little incentive to comply with regulations, particularly when enforcement is weak. Similarly users that maintain tenuous claims to a forest according to the prevailing legal system may find it in their interest to disregard regulations or risk losing the rewards of management efforts. An additional challenge worth mentioning is the legal plurality, or parallel existence of divergent statutory and traditional rules that regulate forest ownership, management, and use rights to forest.

5. **Markets and trade:** Market price distortion of wood products is a cause, as well as effect of illegal forest activities; especially with regards to illegal logging (Brack 2003). The availability of cheap, illegal timber provides an unsustainable market signal, making timber that is legally sourced uncompetitive, and consequently hindering incentives for its production (Brack 2003, Taconi 2007a, Contreras-Hermosilla and Peter 2005, Blaser 2010, WB 2006). Related problems include high demand for cheap timber (Contreras-Hermosilla and Peter
and a lack of demand for explicitly legal timber (WB 2006). Finally, the generally strong domestic and international demand often exceeds the annual allowable harvest from timber producing countries, which in turn promotes illegal logging (WB 2006).

6. **Economic incentives and disincentives** refer to the instrumental incentive structure that forest users face when making decisions about compliance. Contreras-Hermosilla (2002), Kishor and Damania (2007), Taconi (2007a), and the World Bank (2006) find that in many countries the rents from illegal logging are quite high, and contrast significantly with the probability of incurring sanctions. In such a situation, the rational choice model of human behaviour suggests that individuals would opt for the illegal harvesting alternative. This is an especially important reason for non-compliance in the timber industry where the main objective is typically to maximize short-term profits.

7. **Fairness of legislation** refers to the capacity and willingness of the state to design, implement and enforce a fair, non-discriminatory forest policy and legislative framework (Taconi et al. 2003, Taconi 2007a, WB 2006). Legislation that does not recognise local and traditional customary rights, marginalizes and disempowers local/indigenous populations and affected users tends to fuel dissatisfaction, leading to resistance in the form of rule violation (WB 2006). Hirakuri (2003), in her comparative study of forest law compliance systems in Finland and Brazil, identified the perceived fairness of political authorities as one of the three key factors responsible for different patterns of compliance in these countries.

8. **Lack of baseline measurements** is a specific condition that refers to the absence of accurate and reliable forest inventories that can be used to monitor resource change over time and establish harvesting and protection plans. It is argued that this in turn leads to inappropriate management practices and obstructs compliance (Contreras-Hermosilla 2002, Contreras-Hermosilla and Peter 2005, Blaser 2010). Compliance is further undermined by inadequate data on timber flows, origin-tracking mechanisms, accounting systems (WB 2006), and a lack of dissemination of existing knowledge and data (Contreras-Hermosilla and Peter 2005).

9. **Forest culture** is broadly defined as a tradition of forest use and management. Many countries lack the tradition of forest protection and long term forest planning. Historically forests were seen as an obstacle for development and an indicator for lack of development (Amanor 1996). Traditions of long-term forest planning, and proper forest management is still missing in many developing tropical forest countries (Contreras-Hermosilla 2002, Hirakuri 2003). Similarly many cultural practices such as slash-and-burn agriculture are part of the historical forest culture, but are seen as no longer viable due to increased pressure from a growing population.

10. **Transparency and accountability** is related to a number of other sources of non-compliance, such as corruption, broad discretionary powers, and access to data and information. The reviewed studies highlight the arbitrary and opaque decision-making processed used by governmental and private agencies (e.g. police, military, timber industry, or local decision makers) and other actors that occur in the absence of public disclosure requirements (Contreras-Hermosilla and Peter 2005, Kishor and Damania 2007).
11. Forest conflicts are in essence linked to the multiplicity of functional aspects and potential uses of forest resources, which often implies multiple types of users with different and often conflicting interests (Contreras and Peter 2005). Conflicts over forests are aggravated by asymmetries of power, which in some of the worst cases can result in armed conflict (WB 2006, Kaimowitz 2003). For the most part, however, conflicts remain latent for a long period of time, simmering occasionally before returning to a status quo where forest resources are distributed unequally and de facto policies favour short-term economic interests over long term benefit streams.

12. Poverty is mentioned as a cause of illegal forest activities only in the context of small-scale, mostly subsistence logging, as well as slash-and-burn agricultural practices, and wildlife poaching (World Bank 2006). Poverty may not in and of itself lead to non-compliance, but may alter the way in which individuals approach the compliance decision. These groups of sources of non-compliance reveal a complex, yet highly interconnected set of variables that influence compliance decisions in the forest sector. Perhaps more interesting is the observation that many of the factors highlighted in the literature such as markets and trade, property rights and regulatory constraints are not specifically related to individual-level motivations. Instead these variables are associated with ‘crowding-out’ normative influences by providing a context that may emphasize short-term economic interests over long-term societal interests. Most of these variables influence individual compliance, by influencing the individual motivational factors, i.e. instrumental incentives, norms and legitimacy. Thus, it is considered that analytical framework for forest law compliance should distinguish between personal motivations and contextual factors that influence motivations.

3. Theories of Law Compliance

Theoretical explanations of individual rule compliance have emerged from a wide array of academic disciplines resulting in a patchwork of sometimes competing, yet often complimentary models. This mirrors a similar transition in the behavioural sciences where the early emphasis on a single all-encompassing model of human behaviour has been supplanted by a growing consensus that human decision-making can be better understood by adopting a multiple model approach that incorporates a broad range of social and contextual influences (Henrich et al. 2001; Poteete, Janssen, and Ostrom 2010). While there are a number of potentially salient models; scholars investigating rule compliance in general, and compliance in common-pool resource (CPR) settings, in particular, tend to emphasize three major models. These include the instrumental (or economic) model; and two normative models that reflect influences emerging from social institutions (the social rules and norms of human society) and the political environment (legitimacy of authorities, rules they make and the rule-making processes).
3.1 The Instrumental Compliance Model

The instrumental compliance model proposes that individuals respond to the distribution of potential benefits and costs associated with compliant vs. noncompliant alternatives. It is also commonly known as the ‘general deterrence model’ (Becker 1968) since compliance is typically encouraged by influencing the cost side of the calculation through a combination of monitoring and sanctioning to deter individually rational, but socially inferior outcomes. Rigid interpretations of this model suggest that individuals will only comply when the expected costs, calculated as the product of the perceived probability of detection and expected sanction, exceed the expected benefits of the non-compliant alternative (Gordon 1954; Young 1979). While most behavioural scholars acknowledge that instrumental motivations play a role in the compliance decision, observations of higher than expected levels of compliance in a wide array of public good and CPR settings refutes the universality of the instrumental model (Bobek, Roberts, and Sweeney 2007; Gezelius 2002; Nielsen and Mathiesen 2003; Scholz and Lubell 1998; Viteri and Chávez 2007). Nevertheless the instrumental model retains its dominance in some settings, particularly in the absence of interpersonal communication and mutual trust (Ostrom 1998); and remains useful to explain the actions of some individuals facing a public good or CPR dilemma (Ostrom et al. 1999).

3.2 Institutional Models of Compliance and the Role of Norms

Many scholars seeking to explain discrepancies between the instrumental model and observations highlight the role of institutions; the socially constructed rules and norms of human society. While some institutionalists conceptualize institutions as constraints (North 1990); others view them as normative preferences that individual’s value in-and-of themselves (Andreoni 1989; Gintis 2009; Gintis et al. 2003). Still there are other interpretations such as that of Vatn (2009) who proposes a plurality of rationalities, roughly categorized as ‘I’, ‘We’, and ‘Them’ rationality, where the type of rationality represents the object whose interests are served. Whereas the former models build upon the rational-choice tradition and apply normative parameters to alter the calculation of individual benefits and costs; the plural rationality approach allows the object of rationality to vary, while leaving the instrumental calculus more or less in place. In any case the institutions-as-constraints, institutions-as-preferences, and institutions-as-rationalities approaches can often lead to similar predictions via distinct theoretical paths; while in other cases the approaches can be used in a complimentary fashion.

Scholars that conceptualize institutions-as-constraints would highlight the role of formal and informal social sanctions (or pressure) in the compliance decision (Coleman 1987). The self-interested actor that dominates this school considers instrumental benefits and costs; but adjusts these values to reflect costs of the non-compliance alternative such as the loss of social status, exclusion, or other forms of social punishment. Compliance occurs when groups adopt norms that attach sufficient social sanctions to overcome the instrumental difference between compliant and non-compliant alternatives. The institutions-as-preferences school would counter this argument by suggesting that individuals learn to adopt norms such as reciprocity.
and inequity aversion and prefer outcomes that satisfy certain normative conditions (Gintis 2009; Ostrom 1990). The individual that adopts a reciprocity norm learns to value interpersonal trust and will comply when their peers have developed a reputation for trustworthiness (Ostrom 1990). Individuals that adopt inequity aversion norms, on the other hand, value equality and are more concerned with how instrumental outcomes are distributed within groups (Fehr and Schmidt 1999). While reciprocity and inequity aversion manifest themselves in a wide range of cultures (Gintis 2009; Henrich et al. 2001); the number of possible moral preferences or values is quite large given their culturally embedded nature. While many institutional scholars emphasize one approach over the other, others have advanced a compelling argument to integrate constraints and preferences as normative factors that can vary between negative and positive values (Crawford and Ostrom 1995)

The institutions-as-rationalities approach complements the other institutional approaches by highlighting the importance of context in guiding the application of normative values to particular choices. The essential proposition is that context shapes how individuals evaluate alternatives, and that different contexts can serve to activate or ‘crowd-out’ normative influences (Frey 1997; Vatn 2005). A commonly cited case that illustrates this is the observation of a drop in blood donations when donors were paid as compared to donors who gave their blood voluntarily (Frey 1997). The rationalities approach would suggest that monetary compensation shifted the decision from a “We” to an “I” rationality; while the preferences approach would suggest that normative preferences were “crowded-out” in favour of instrumental concerns. Whereas the theoretical differences between the rationalities and preferences approach are significant and ultimately incompatible; from an analytical standpoint the differences are mostly in terms of language used to interpret institutional outcomes.

Norms are widely discussed in the social (Cialdini and Trost 1998, Elster 2009) and economic literature (Posner EA. 1996, Posner RA. 1997) on rule compliance, and often depart from the institutional tradition to consider norms as they influence everyday behaviour in a more general sense. Norms can be defined as commonly accepted prescriptions that support desirable behaviours and forbid those that have been deemed undesirable (Cialdini and Trost, 1998, Hatcher and Pascoe 2006, Posner RA. 1997). Although there appears to be little consensus in the literature, a general distinction can be made between social and personal norms (Hatcher and Pascoe 2006). Social norms are those that are understood and accepted by members of a group, and that guide and/or constrain behaviour in a social space (Cialdini and Trost 1998). Behaviour can be controlled through perceived external factors, such as peer pressure, disapproval, feelings of guilt, or shame (Posner E.A. 1996, Posner R.A. 1997); or by internalized reward and punishment mechanisms (Andreoni 1989; Crawford and Ostrom 1995; Gintis 2009). Personal norms, on the other hand, concern one’s own ethical values, irrespective of the actions of others. A common understanding is that personal norms are principles (or morals) that have been internalised by an individual; so, that they influence behaviour even in the absence of external factors (Deci and Ryan 2000, Hatcher and Pascoe 2006, Posner, R.A. 1997). The influence of norms on compliance is facilitated by the phenomenon of general conformity (Cialdini and Trost 1998), whereby groups of individuals
tend to adopt similar norms and the actions that they prescribe. General norm conformity challenges the notion of personal norms in some respects by indicating that both the adoption and erosion of a norm depends upon the social environment (Hønneland 1999; Kuperan and Sutinen 1999). In the case of widespread social norms such as reciprocity it appears that the norm acts as a latent preference that is activated or suppressed by the characteristics of the environment. Personal norms, on the other hand, seem to be constructed in highly specified contexts, and survive to influence behaviour as long as the context in which they are created is maintained.

3.3 Legitimacy and Compliance

The third major stream of compliance theory and research emphasizes the relationship between legitimacy and compliance (Feld and Frey 2007; Grimes 2006; Jentoft 2000; Kuperan and Sutinen 1998; Nielsen 2003; Viteri and Chávez 2007). Legitimacy is a rather nebulous and ever-evolving concept that essentially speaks to the consent of the governed and their willingness to accept political authority. This consent is proposed to occur when the process that is used to make laws and the properties of the laws lead the individuals to an internal obligation to obey the rules (Tyler 1990). While some have suggested that legitimacy is compatible with the institutions-as-preferences approach (Frey, Benz, and Stutzer 2004; Frey and Stutzer 2005); the compliance literature tends to handle the concepts separately, noting the distinction between preferences that arise in interpersonal contexts and those related to the relationship between an individual and political authorities (Jenny, Hechavarria Fuentes, and Mosler 2007; Nielsen 2003).

We can distinguish between procedural legitimacy, distributive or outcome legitimacy, and political legitimacy. Procedural legitimacy focuses on how collective decisions are made and investigates the relationship between procedural variables such as participation, transparency, accountability and individual compliance behaviour. Theories of procedural fairness suggest that individuals are more likely to comply with rules when decision-making processes encourage pluralism, representation, openness and dialogue, and involve accountable local representatives (Anderies, Janssen, and Ostrom 2004; Jenny, Hechavarria Fuentes, and Mosler 2007; Jentoft 1989; Nielsen 2003; Trachtenberg and Focht 2005; Viteri and Chávez 2007). While related to process, outcome legitimacy is often considered separately to highlight variables related to favourability of outcomes in the form of rules, including: their distributive properties, origin, coherence and complementarity to existing practices. In general, rules that distribute benefits and costs fairly, are easy to understand, and originate from affected parties increase the likelihood of individual compliance (Jentoft 1989; Kuperan and Sutinen 1999; Nielsen 2003; Ostrom 1990). Fairness in allocation of benefits and costs does not necessarily imply equality across all individuals, but rather some distribution amongst individuals that is perceived to be fair; the perception of which may depend upon context and also vary across individuals. Finally, political legitimacy is a slightly more abstract concept that incorporates elements of process and content of rules, but is expanded to include measures related to the worthiness of leaders to assume positions of authority and congruence with their constituent’s morals and expectations (Suchman 1995; Tyler 2002).
4. Analytical Framework for Forest Rule Compliance

The framework depicted in Figure 1 integrates the theoretical literature on rule compliance with studies of forest law compliance to provide an analytical tool for field research. The framework highlights the: (i) motivational context (individual motivations for compliance), and (ii) external factors that provide the context in which decisions are made. While theory tends to emphasise motivations at the individual-level; the literature on compliance in forestry is more disposed to the external component. These context specific or external factors draw attention to activation or ‘crowding-out’ of normative motivations.

Figure 1: Analytical framework for compliance studies

The analytical framework broadly categorizes the motivational context as a product of instrumental incentives, norms, and legitimacy. The instrumental incentives category consists of three major variables: costs, benefits, and discount rate. Benefits and costs specify the short-term analysis of potential benefits of illegal exploitation and potential cost associated to sanctions. Potential costs refer to the likelihood and severity of sanctions; while potential gains reflect the expected gain from illegal activities. The discount rate that individuals attach to future resource flows is another critical factor that could undermine compliance if users’ time horizons are short (Ostrom 1990), or resource users adopt a ‘roving bandit’ approach to harvesting (Berkes et al. 2006). It should be noted however, that costs, benefits and discount rates are not necessarily homogenous across individuals. They too are subjects of human judgment, and depend on social norms and personal values (Ostrom 1990).

The compliance literature identifies two salient classes of norms, as motivations for compliance; namely social norms, and moral or personal norms. Social norms govern
interactions in a social space and are often deeply embedded in cultural or group contexts. Personal norms, on the other hand, govern one’s own action based on individually constructed ethical and normative judgements. For instance an individual may value nature, and obedience to law and authorities; thus they may view the illegal felling of a tree as an affront to their personal morality. While norms can vary considerably across cultural contexts, reciprocity norms are particularly noteworthy as they appear widespread (Henrich et al. 2001; Ostrom 1998); and are particularly important for users facing appropriation decisions in the commons (Ostrom 1990). In addition, inequity aversion and various forms of social sanctioning also influence decisions and behaviour.

Legitimacy, as discussed above, can be ascribed to a specific political authority, or to a regime as a whole. Following Nielsen (2003) variables that constitute legitimacy are divided between process (procedural legitimacy) and outcome (outcome legitimacy). Variables that affect procedural legitimacy include participation, representation, transparency and accountability of the rule-making process (Nielsen and Mathiesen 2003; Nielsen and Mathiesen 2003; Viteri and Chávez 2007). Outcome legitimacy is related to the rules themselves, their quality, and practical implications for forest users. Important variables include the distributional effects of rules, consistency, and coherence. Distributional effects speak to the distribution of property and/or management rights within groups of forest users. Consistency describes the degree to which forest rules complement existing rules and practices, other laws and/or the ease with which forest users can adapt to them. Finally coherence refers to perceptions among forest users that rules are meaningful in a broader context, and will contribute to the larger management objectives, such as regeneration of forest stocks and deforestation problems.

External context-specific variables are derived from the groups of non-compliance sources in the forest sector (Section 1). Several of those sources were subsumed by individual-level motivations such as economic incentives and political transparency. On the other hand, some causes such as the lack of baseline may pose difficulties in identifying the level of non-compliance, but does not factor into an individual’s compliance decision. The variables that collectively constitute the external environment include regulatory constraints, political capacity, corruption, property-rights, markets, forest culture, conflicts and poverty (Fig 1). They are expected to influence compliance decisions by altering the motivational structure of the alternatives. More specifically changes in these variables are expected to affect the types and relative influence of the motivations that guide individual decisions. For instance, it has been well documented how shifts in context, most notably property rights can activate certain motivations, or cause shifts to occur between instrumental outcomes and normative preferences (Biel and Thøgersen 2007; Ostrom 1990; Vatn 2005). Property and use rights granted by the authorities’ decisions are likely to influence legitimacy of authorities (through distributional effects of the authorities’ decisions) (Nielsen 2003); but, also the perceived fairness of rules, as forest users often have predefined beliefs about their rights to forest. Markets, on the other hand, can alter the instrumental distribution of benefits and costs in a variety of ways. Changes in demand can undermine compliance when the value of forest products increases; or a reduction in value leads impoverished (another variable of interest)
forest users to harvest more to maintain their tenuous livelihoods. Further, corruption may affect the likelihood and fear of sanction, if it is realized that sanction can be avoided by informal payments to law-enforcement agencies. On the other hand, perception that the law-enforcement agencies are corrupt affects the judgments about legitimacy of that agency, as well as the norm of fairness. Similarly, poverty influences compliance of rural forest users, such as farming communities, by influencing the expected costs and benefits from illegal action, but also by influencing the peer pressure. Peer pressure declines when non-compliance occurs due to subsistence, rather than commercial use of resources (Gezelius 2004). These examples of how context influences the individual motivations for compliance indicate the need for the researcher to clearly define the external variables and obtain accurate information with regards to these.

4.1. Advantages and limitations of the analytical framework

The analytical compliance framework developed in this paper advances the forest law compliance discourse by providing an interdisciplinary tool for academic studies, and complements existing frameworks designed for fisheries (e.g. Kuperan and Sutinen 1999; Nielsen 2003). Its primary advance lies in its ability to shift between different levels of aggregation, recognizing that variables must align at multiple levels including the individual, community, state, and ultimately the globe to adequately conserve forest resources. Studies that investigate individual-level behaviour will emphasize motivations and the static external context that serves to activate or crowd-out different motivations. At higher levels of aggregation, scholars may compare different regions or states to examine how changes in context influence compliance behaviour. Finally, the framework is an important device to help scholars overcome the twin analytical traps that either propose panacea solutions, or proclaim that each case is so unique that any generalizations are futile (Basurto and Ostrom 2009).

It must be noted that a major limitation of the framework in its present form is the lack of operationalized indicators of key constructs which are beyond the scope of this paper. Moreover, this limitation is paradoxically useful by allowing research to incorporate and explain emergent findings. Nevertheless, the proposed analytical framework may benefit from further elaboration of potential indicators that could be useful when scaling-up from small to large-n studies (Poteete, Janssen, and Ostrom 2010). Undoubtedly some variables like benefits and costs are better suited to standardization than their normative counterparts. Therefore in applying the framework, scholars must carefully manage measurement issues to avoid potential issues with both external and internal validity. Finally, further theoretical developments and analytical experiments are needed to disentangle the relevance and impact of different factors on individual compliance with forestry rules. One issue that seems particularly ripe for future study is the relationship between legitimacy and compliance. Whereas the framework and the vast majority of the literature propose a direct relationship between the two, it seems equally plausible that the variables that define legitimacy provide a context that activates latent normative motivations. While this suggestion is a mere conjecture at this point, it demonstrates how the framework can be used to generate testable hypotheses.
References


Institutional Analysis of Intermediaries in Payments for Ecosystem Services

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1. Introduction

Payments for Ecosystem Services (PES) are mostly referred to as an instrument where buyers and sellers voluntarily agree on a payment for the provision of a specific ecosystem service, or for an activity that is believed to ensure such provision, that would otherwise not take place (Wunder 2007). For example: national governments paying other governments for reducing emissions from deforestation; coastal cities paying protected areas for maintaining dunes and mangroves that protect against floods; farmers paying their upstream neighbours for erosion control in the watershed.

PES hold different promises to different people. That is why this instrument has made a remarkable career in conservation policy, practice and research. Donors and conservation practitioners can see in it the extension of nature conservation opportunities onto private lands and a means to enhance cost-effective spending (Nelson 2009). For many policy makers, the supposedly direct linkages between investment and output are attractive, while for industry there are strong potential benefits from increased options to offset (residual) environmental damage (TEEB 2010). Local communities, in turn, engage in PES where this becomes attractive within their respective livelihood strategies. Whether such different expectations can be satisfied depends on how a PES scheme works on the ground.

Judging by the vast number of policy documents, initiatives and projects, we see a clear policy-driven demand for mainstreaming PES. Perhaps with the exception of REDD (Reduced Emissions from Deforestation and Degradation), we note a great emphasis on advancing PES instruments, rather than sharpening skills and strategies for identifying and fostering sound PES conditions. In the case of REDD, the prospects for effective implementation are nevertheless mixed despite much readiness planning (Sunderlin and Atmadja 2009).

PES schemes faces demanding governance requirements. An OECD report on conditions for cost-effective PES emphasizes inter alia policy context (e.g. removal of perverse subsidies, clarification of land tenure rights), and process-related features (e.g. involvement of stakeholders) (OECD 2010). How can governments initiate or foster PES under sub-optimal
conditions? For many settings, successful strategies will likely comprise stakeholder involvement, coordination of interests and actions, and integration of policies in addition to sorting out land tenure issues and overlapping governmental responsibilities – all of this at and across multiple government levels.

One starting point to this task is to invest in the capacity of intermediaries, i.e. in agencies and organisations that facilitate the establishment and running of PES schemes. They typically and in varying degrees support with information, capacity building, dissemination, baseline setting, contract options, negotiation, monitoring, money transfer, networking and adjudication in case of contract breaches. Vatn et al. (2009) observe that PES schemes leave much power with the intermediaries.

In this article we explore the role and functioning of intermediaries from three different PES schemes, in order to develop a first characterisation of PES intermediaries from an institutional perspective. In Section 2, we delimit and define our object of analysis and formulate questions of enquiry. In Section 3 we present the three PES schemes and features of each intermediary. In Section 4 we compare the cases according to various institutional aspects: organisational structure, accountability, costs and position of the intermediary. On this basis, we conclude with emphasizing policy implications for investing in intermediaries for PES.

2. An institutional perspective on PES intermediaries

From an institutional perspective, a PES scheme constitutes a system of institutions and human actors (Vatn, 2005; 2010). It consists of institutions, i.e. rules that govern human interactions, and actors that shape or reshape institutions. In a PES scheme, the intermediary is shaped by, and does shape, institutions and human agency. Moreover, the selected cases suggest that intermediaries in PES are initiated – they are intentionally established rather than emerging spontaneously from buyer-seller relations (Pagiola, 2008; Engel, Pagiola and Wunder, 2007).

Different kinds of human rationality forge the institutional structure of PES schemes and with it the role and shape of the intermediary. Individual utility maximization, which is often implicitly assumed in standard PES schemes, thus represents only one human behavioural regularity – there are others as well. Humans, for example, may decide conditionally on the behaviours of others whether to take part in activities for common interest such as for natural forest management (Rustagi et al., 2010) or just refuse to trade things they consider valuable, such as for biodiversity conservation (Spash and Hanley, 2005).

In turn, different institutional contexts affect our rationalities as well (Vatn, 2005). Market-based instruments not only commodify ecosystem services but also foster self-interested rationalities of providers and users. In repeated externally induced PES to reward agro-biodiversity conservation in the Andes, for instance, farming communities who are already exposed to increased commercialization of the farming system tend to behave what is
considered individually rational in economic terms (Narloch et al., 2010). On the other hand, one may expect that land users whose conservation activities are supported by a state-based compensation scheme, such as with public funds from a tax in Brazil (May et al., 2002) or from a reforestation fund in Indonesia (Mumbunan, 2011), see their roles as part of a larger effort for collective purposes.

The intermediary directly influences what rules are in place, which rationality sustains them and, thus, on what grounds users and providers of ecosystem services relate with each other.

2.1 What makes an intermediary in PES?

Generally speaking, the purpose of intermediaries is to bring people with divergent backgrounds and interests together to engage in a mutually beneficial PES arrangement. In more economic terms, intermediaries ensure contract enforcement and reduce transaction costs, or more broadly, coordination costs (Vatn, 2009). Often, they are the ones who actually create the payment scheme, e.g. by specifying the linkage between a specific land use (change) and the increase in ecosystem service generated thereby.

We define intermediaries as those who coordinate and predominantly assume the following PES related tasks:

- **PES preparation**: feasibility assessment and baseline setting, communication, trust and capacity building;
- **PES contracting**: sorting of legal issues, contract design and facilitation of negotiations;
- **PES implementation**: monitoring, verification and reporting, sanctioning of breaches of contract, collection and distribution of payments, and programme adaptation.

In some cases, donors/buyers and sellers set up their specific intermediary structure; in others, they have been established a priori by governments. This comprehensive definition of ‘intermediary’ emphasizes that people/organisations and not merely regulations/blueprints intervene in various stages to enable the transactions between buyers and sellers of ecosystem services.

2.2 The importance of intermediaries in PES

In theory, PES holds the promise of efficient resource allocation and of internalising environmental externalities (Ferraro and Simpson, 2002; Wunder, 2007). In practice, PES schemes face at least two challenges: First, concerns have been raised about the crowding out effects that PES may have on other conservation motives based on social identity and collective action institutions (Clements et al., 2010; Pattanayak et al., 2010). Second, conservation biologists are concerned that the ecosystem services perspective, which sustains PES, does not adequately capture the complexity of biodiversity and is therefore unsuitable

Even a sophisticated standardized PES contract and well-intentioned procedural recommendations cannot sort these issues. PES, as a concept, builds on access to precise numbers and associated forecasting power, on clarity in motives and on transparent and fair negotiations. Yet, in the real world this is not a given. Buyers and sellers have a range of interests in the ecosystem as well as in the PES arrangement itself. For example, strategic concerns such as building up collective action, affirmation of land rights, or strengthening ties with donors are part of the package that motivate sellers to get involved. Such issues go beyond a narrow cost-benefit analysis which often guides PES design and outreach (van Noordwijk and Leimona 2010).

Against this backdrop, the influence of intermediaries in shaping and implementing a PES scheme in a specific setting are determinant for PES results. Depending on context, intermediaries shape PES regimes in various ways: They identify potential matches of buyers and sellers or identify potential ‘programme participants’. They mediate between often highly different knowledges, worldviews, interests and between the powers of buyers and sellers. They create/constitute and run the mechanism that facilitates the transactions between buyers and sellers. They thereby shape the ecological effectiveness, the fairness (social impact) and the efficiency (costs) involved in a PES scheme. Therefore, the intermediary’s capacities, motives and organizational structure are strong determinants of the quality of the PES scheme in these terms.

2.3 Questions of enquiry for examining three PES cases

We will in the following examine the intermediaries in three PES cases, focussing on organisational structure, accountability, costs and position of intermediaries in their respective scheme. We do not claim to give a representative picture of institutional options. The purpose is rather to explore a range of intermediaries and with them the institutional landscape of PES, in order to make the case for more in-depth research into the governance of implementing PES (rather than e.g. into more sophisticated PES contract design). The case material is drawn from literature, personal experience, and exchange with key informants.

The following questions guide the enquiry:

1. What is the organisational structure of the intermediary?
2. What is the mandate of the intermediary and to whom is he accountable to?
3. What interests does the intermediary associate with running the PES scheme?
4. How is the intermediary financed?
5. How does the intermediary pursue PES preparation, contracting and implementation?
6. How does the intermediary address different worldviews, interests and powers?
3. Three different PES intermediaries

3.1 Case 1: Asobolo – the Bolo River Water-User Association in Cauca Valley, Colombia

Cauca Valley is one of the most fertile agricultural regions of Colombia where sugar cane, soybeans, sorghum, sunflowers and cotton are produced. In the 1990s, the extension of the area cultivated with sugar cane increased the water demand for irrigation (Echavarria, 2002). This situation together with the loss of natural coverage of water sources in the upper watersheds resulted in water scarcity problems.

Under these circumstances the organization of sugar cane producers, with the regional environmental authority (Corporación Autónoma Regional del Valle del Cauca, CVC) and other stakeholders created several water user associations oriented to develop conservation activities in the watersheds. Asobolo, the water user association of Bolo River located in the municipalities of Pradera, Candelaria and Palmira in the Cauca Valley province, was created in 1993.

The 173 members of the association contribute a voluntary fee paid every trimester. The amount of the fee is determined by the General Assembly of the Association and is paid by each member according to her/his water consumption, (the information of water consumption is obtained from CVC based on the water concession of each user water user). For the year 2008 the fee established was USD 2.33/lt/s.

The providers of watershed ecosystem services are farmers living up-stream, who are compensated for either changing or maintaining specific land uses (e.g. reforestation of water sources areas), in order to provide water flow regulation and water quantity, the ecosystem services targeted by Asobolo. The compensation scheme of Asobolo consists of an in-kind payment through two principal programs with up-stream communities: a ‘social program’ and an ‘agro-environmental’ program. The payment is conditioned to the change on land uses and the active participation on the programs, but not on the effective provision of the ecosystem services targeted.

3.1.1 What is the organizational structure of the intermediary?

The water users association is a community-based intermediary (Landel Mills and Porras, 2002). It has the following organizational structure: a General Assembly where all water user members of the association participate. The General Assembly is the highest authority of the Association where decisions such as the amount of the fee to be paid and the programs to be implemented in the upstream area are taken. There is also a Governing board, an Auditor and a Managing Director. The operative level of the association consists of a Social Area, a Technical Area, an Accountant and a Secretary.
3.1.2 What is the mandate of the intermediary and to whom is the intermediary accountable to?

Asobolo is a non-profit organisation and it is accountable to its members, the water users are paying the fee to finance the PES. Being a user-financed scheme, Asobolo enjoy great autonomy and has been distinguished by its independence in terms of political or religious issues. This aspect was essential from the beginning to gain credibility among the water users. It has been also a positive aspect to receive financial resources from other organizations.

3.1.3 What interests does the intermediary associate with running the PES scheme?

Asobolo was created following the interests of the water users who are highly dependent on water for irrigation. However, given the experience of other water user associations in the region and aware of the socio economic conditions of the upstream area, the association combines its objective of ensuring the provision of water quantity and flow regulation with the improvement of the quality of life of the upstream farmers “since it is difficult, if not impossible, to involve unmotivated and needy communities” (Echavarria, 2002:12).

3.1.4 How is the intermediary financed?

The main financing sources of Asobolo are the contributions of the members of the association. From the amount collected from the water users about 45% is assigned to pay Asobolo staff (6 employees), among them the coordinators of the social and technical areas who develop the programs in the upstream area to compensate the farmers. Additional to this
source, Asobolo has developed several activities in the upstream area co-financed by different organizations from the public (local and regional level) and private sector, which in some cases duplicate the normal budget of Asobolo.

3.1.5 How does the intermediary pursue PES preparation, contracting and implementation?

The emerging process of the Association was led by a small group of water users and the CVC. Once the Association was founded, the first task was to invite the water users to be members of the Association by contributing with a voluntary fee. At the initial stage, the Watershed Environmental Plan of Bolo River elaborated by CVC was the basis to set the working priorities. In a later stage, and based on a participatory diagnosis with farmers upstream, the working priorities were adapted and a proposal of the social and agri-environmental programs to be implemented in the upstream area was presented to the General Assembly, who approved them.

The contracts between Asobolo and the providers of the ecosystem services are voluntary and are based on oral agreements, consequently reducing contracting transaction costs for the farmers and for Asobolo. With previous experiences from other water users associations, which bought the farms and caused the emigration of farmers, the farmers in the upper watershed of Bolo River were distrustful and against Asobolo at the initial stage. This situation together with the poverty conditions in the upstream area led Asobolo to work based on local knowledge, on trust building and on the commitment of the communities. In this way, Asobolo staff does not request land titles from the farmers upstream as a condition for their participation in the scheme. The knowledge of Asobolo staff about farm ownership in the region, together with the commitment of the farmers are sufficient as requirements to participate in Asobolo. This approach not only reduces transaction costs for the participants and for the intermediary, but also avoids tensions between farmers and Asobolo.

The in kind payment of Asobolo to the providers of ecosystem services consist of the development of social and agri-environmental programs with 10 communities organized in 6 working groups corresponding to 6 sub-basins, in total 250 families.

The social program comprises different activities such as community organization, revolving funds managed by the communities, environmental education, training in different areas and sanitation systems. The agro-environmental program is oriented at watershed conservation, reforestation, protection of strategic ecosystems, food security and agro-ecological practices. Asobolo carries out twice a year monitoring of the change of land uses. The monitoring activities are undertaken by the staff of Asobolo in charge of the agri-environmental and social program. In most of the cases monitoring activities are combined with courses and/or activities of the social or agri-environmental program.

3.1.6 How does the intermediary address different worldviews, interest and powers?

The Bolo River watershed is one of the areas in the country particularly affected by the armed conflict inside Colombia. There is a general perception of injustice in this region with respect
to the marked differences in income between sugar cane farmers (wealthy farmers) and the inhabitants of the upstream areas. That is one of the arguments from guerilla groups to stay in the area. Additionally, the reduced public budget for the CVC left few financial resources for developing rural programs in the area.

With the creation of Asobolo (and in general the water user associations in the Cauca Valley), it is not only intended to ensure the provision of water ecosystem services, but also to alleviate poverty, and in a long term, to contribute to violence reduction. This explains why the scheme was designed as an in kind payment; the members of Asobolo agreed that this type of payment, including rural development activities, was more appropriate than an in cash payment to achieve the objectives of the association.

3.2 Case 2: “Moorfutures” – Provincial Government sells carbon offsets from peatland rewetting in Germany

Peatlands in Germany have been drained throughout the last century to increase agricultural areas. In the State of Mecklenburg-Vorpommern, almost all peatlands were drained – about 300,000 ha. In the 1990’s, changes in the production system after German reunification, low agricultural productivity, and rising drainage costs (energy for water pumps) matched with a growing concern for peatland biodiversity loss. A strategy for peatland rehabilitation was developed and later renewed (MLUV MV 2009). In addition, predictions of climate change-related increases in water scarcity in the region inspires peatland rehabilitation. Some of the peatlands are now being rewetted, but funding for more large scale rewetting is missing.

Drained peatlands emit much more greenhouse gases (GHG) than rewetted ones. Also, rewetted peatlands are believed to improve the regional groundwater quality (nitrogen fixation) and have a cooling effect on the regional climate (evapo-transpiration). GHG emission reductions in pilot peatland rehabilitation projects were analyzed by the University of Greifswald (Couwenberg, 2008). Emissions could be reduced by about 10 tCO2-equivalents per hectare per year (Schäfer 2009).

On this basis, the Ministry for Agriculture and the Environment of Mecklenburg-Vorpommern (MLUV), launched in 2010 the “MoorFuture”, a regional peatland-based carbon offset, in the aim to raise funds for peatland restoration. The price is at 35-50€ per avoided tCO2-equivalent (pers. comm. T. Permien, MLUV, 2010). This covers the costs of land acquisition, management and restoration. Land prices reflect opportunity costs in terms of potential/foregone income from conventional agriculture and subsidies. The price does not cover current costs of the intermediary which are assumed by the government or financed by research projects.

MoorFutures are publicly sold by the Ministry (MLUV), initiator of the programme. The principal landholder of rewetted peatlands – and thus provider of the ecosystem service – is a state-owned provincial foundation for nature conservation. Buyers are German companies on the voluntary carbon market with an interest to invest nationally in GHG emission reductions.
### 3.2.1 What is the organisational structure of the intermediary?

There is no single organization acting as intermediary. Intermediary tasks, as defined in section 2.1, are collaboratively assumed by three actors (highlighted in bold in Figure 2). A small department within the state’s ministry (MLUV) acts as the *de facto* facilitator and protagonist of the MoorFutures Initiative. MoorFutures developed as a research project-based collaboration between a small group of experts in this department and at the University of Greifswald. PES preparations were done within this project-based collaboration. Communication and PES contracting tasks are assumed by the department in the ministry. As MoorFutures are a standardized certified product, scope for negotiating PES deals is limited. PES implementation is assumed by the provincial foundation for nature conservation – with backstopping by the university – and also by the department in the ministry: field staff of the foundation and the university provide monitoring and reporting on demand, whereas the ministry takes care of the certificate registry, money transfers and legal issues. The landholding foundation is a formally independent body – regular inter-agency relations ensure that the ministry’s priorities are reflected in the foundation’s activities. External auditing of PES performance is available from TÜV, a technical auditing company, but at extra cost for the buyer.

![Figure 2: ‘MoorFuture’ Carbon PES: Collaborative arrangement assumes intermediary tasks.](image)

### 3.2.2 What is the mandate of the intermediary and to whom is he accountable to?

The ‘MoorFutures’ carbon offset does not correspond to any legal obligation, but is part of additional activities by which the state government is shaping rural development. Internal accountability of the responsible department is to the minister. External accountability of the department acting as intermediary is organized as with other regular government programs,
e.g. by means of ministerial reporting, parliamentary instruments of enquiry and the state’s audit court. are in place. This will probably become further institutionalized once private landholders have engaged as offset providers in the program (so far only state-owned peatland was restored).

With regard to the credibility of the offset itself, i.e. in terms of additional emission reductions generated, two aspects come together: the scientific expertise of the team that developed the certification standard for MoorFutures, and the not-for-profit interest and good governance background of the ministry MLUV, jointly guarantee the quality and credibility of the offset.

3.2.3 What interests does the intermediary associate with running the PES scheme?

For the department as principal intermediary, the programme is an attractive instrument to raise conservation funds and to show the ministry’s innovative capacity. From a political perspective, the offset conveys a regionally important message: this state, which is one of the least economically potent ones in Germany, has important natural capital and can provide GHG emissions reductions and co-benefits in terms of water quality and biodiversity which are of national interest. Nonetheless, with MoorFutures having been launched in late 2010, it is as yet unclear to what extent future changes in government or in the political agenda will affect the ministry’s protagonist role.

3.2.4 How is the intermediary financed?

MoorFutures have so far developed as a highly cost-effective scheme: Previous research projects prepared the ground, and results and collaborations from these projects were used by the scheme’s protagonists to develop and launch the locally adapted MoorFutures certification standard without extra funding. All three intermediary organizations have been in place and collaborating already prior to the MoorFuture initiative. Staff is on the regular pay-roll of the MLUV and the landholding foundation entrusted with the peatland rehabilitation – which can be considered an upfront investment. There is no regular budget for marketing and communication.

Offset prices are currently not calculated to cover costs of the intermediary organizations. To the extent, that the MoorFutures programme expands, the income from selling offsets will also be used for financing the scheme itself, including its intermediaries.

3.2.5 How does the intermediary pursue PES preparation, contracting and implementation?

The development and launch of the offset program has been led by the collaborating MLUV and University of Greifswald. A sophisticated and state-of-the-art methodology for measuring emission reductions and certifying their additionality has provided the necessary data. It is basis to a simple offset product: a restoration program with foreseeable costs for raising the groundwater table creates the necessary conditions for reducing emissions. A fixed price per ton is established for each area to be rewetted. So far, the MLUV offers and sells the offsets.
No specific contracts are elaborated as the provider’s duty has been standardized in the offset product. GHG emission reductions are certified and registered online.

3.2.6 How does the intermediary address different worldviews, interests and powers?
So far, the different worldviews, interests and powers between agricultural landusers and conservationists do not create difficulties: Peatland restoration takes place exclusively on lands that have been purchased from private landholders by the provincial foundation for nature conservation. So far peatland rehabilitation has not affected adjacent landholders. In order to limit potential conflicts, communication focuses on the benefits of rewetting without referring to the damages incurred by the previous drainage of peatlands for agricultural purposes.

3.3 Case 3: Indonesia-Norway REDD+ Partnership
Indonesia is one of the world’s largest CO₂ emitters from deforestation and forest degradation (DNPI, 2009). Human-induced deforestation and forest degradation contribute 17 percent to total global green-house gas emissions (IPCC, 2007). At present REDD+ (Reducing Emissions from Deforestation and Forest Degradation, and enhancing forest carbon stocks in developing countries) is one of the prominent schemes among emerging global initiatives to address this issue. As a scheme, REDD is potentially more cost-efficient (Stern, 2007) and more effective in targeting key drivers of deforestation and forest degradation (IPCC, 2007). In addition, if the institutional architecture of REDD+ is properly designed, it may offer possibilities to address indirect issues yet closely linked to deforestation and forest degradation, such as poverty alleviation and biodiversity conservation (Vatn and Angelsen, 2009).

The Government of Norway, as part of its international climate and forest initiative, has pledged USD 1 billion over a multi-year partnership with Indonesia on reducing greenhouse gas emissions from deforestation and forest degradation (NORAD, 2011). The partnership is implemented in three phases (LoI, 2010). Phase 1 (Preparation) intends to lay key preparatory foundations related to a national REDD+ strategy, an initial framework for independent MRV (monitoring, reporting and verification), a funding instrument, and the selection of a pilot province for REDD+ projects. Phase 2 (Transformation) focuses on capacity building at the national level, policy development and implementation as well necessary legal reform and law enforcement. In this phase, the number of pilot provinces will be extended. These two phases are expected to take 3–4 years.

The last phase, Phase 3 (Contributions for emission reductions), plans to implement a payment mechanism, or “contribution-for-verified emissions reduction mechanism” as expressed in the official document of the partnership, taking place at a national level. In this phase, Indonesia will receive an annual contribution for emission reductions which is independently verified. Norway, perhaps with other partners that later may have joined the
partnership, will provide the payment through the financial instrument established under Phase 1.

In this partnership the Government of Norway is the user of forest services from emission reductions in Indonesian natural and peat forests. Meanwhile, the Government of Indonesia, notably the provincial government in REDD+ pilot province(s), is the forest ecosystem services provider.

Here, we cover the role of the intermediary during preparation phase (Phase 1) of the Norway-Indonesia REDD+ Partnership. At the time of writing (2011), it is this phase of the partnership that is in place. In this phase, UNDP (United Nations Development Program) plays a number of roles of an intermediary with PES tasks similar to ones defined in previous section.1

3.3.1 What is the organizational structure of the intermediary?

The partnership is between two countries. It has an organizational structure that involves many actors and units. This seems inevitable since addressing the drivers of deforestation and forest degradation as well as greenhouse gas emission reductions from them deal with a complex social-ecological system, in addition to the organizational complexity emerging from a government-to-government partnership.

A direct cooperation between the two countries for emission reduction from deforestation, however, is hardly possible to suddenly proceed without an intermediary. It holds true especially at a practical level. Figure 3 shows an amended version of the official structure that seeks to emphasize the role of the intermediary, that is the UNDP, in the preparation phase of the partnership.

To retain the idea of a two-country partnership, at a strategic level, there is a Joint Consultation Group which comprises high-level representatives from both the Indonesian and Norwegian governments. It receives an evaluation from an independent reviewer about overall implementation of the preparation phase. At a more practical level there is a Project Board, and at this particular level the intermediary’s role between the cooperating parties becomes more obvious. The Project Board consists of the implementing representatives from the Government of Indonesia (i.e. Head of the REDD+ Task Force and a Senior Beneficiary, represented by the National Development and Planning Agency, Bappenas, which represents the parties that will benefit from the project), the Government of Norway (i.e. representative from Royal Norwegian Embassy in Jakarta), and the UNDP in its charge as senior supplier assisting on the technical feasibility of the project. UNDP requires that this board is established, which will set the direction of the project and provide oversight for its execution. (See further explanation on Project Board in REDD+ Task Force RI and UNDP, 2010). Below the Project Board structure there is a national project director, which reports to the board and supervises national project manager on operations.

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1 The next phase will set a new round of open and competitive recruitment for one or various intermediary organizations (pers. comm. Norwegian Embassy in Jakarta).
The REDD+ Task Force represents the Government of Indonesia. According to the project document (REDD+ Task Force RI and UNDP, 2010), REDD+ Task Force ensures that the implementation of LoI with the Norwegian Government reflects Indonesia’s climate change agenda and interests, in addition to the tasks of consolidation and coordination of REDD+ initiatives. The task force is lead by the Head of the UKP4 (Presidential Delivery Unit for the Supervision and Monitoring of Development), with members from individual representatives from the Ministry of Finance, Bappenas, the Ministry of Forestry, the Ministry of Environment, the National Land Agency, the National Climate Change Council, and UKP4. In the next phase of the partnership, the REDD+ Task Force is expected to evolve to become a Special Agency that carries out national REDD+ program. (Presidential Decree 19, 2010; REDD+ Task Force RI and UNDP, 2010).

Another component of the structure is the working groups. There are ten working groups, all of which mirror the outputs projected in the preparation phase, from establishing a REDD+ national agency to knowledge management. Working groups coordinate with the Project Board and consult the board on technical issues.\(^2\)

UNDP will function as a fund manager from the partnership. During the initial phase of the partnership, it administers USD 30 million from the Norwegian Government, which was paid into a UNDP Trust Fund, allocated for the preparatory phase to support the design of institutions and frameworks for Indonesia’s REDD+ implementation agenda.\(^3\) UNDP as a fiduciary agent is equipped with roles as “a financial channel, contract manager and financial overseer” (Gaia Consulting, 2011: 20). These roles are related to a set of preparatory outputs that UNDP and its implementing partner – i.e. the REDD+ Task Force – intend to deliver. In meeting expected deliverables thematic working groups are organized.\(^4\)

The role of UNDP, notably the Environment Unit of this institution, is also to be seen in Figure 3 in terms of performing project assurance mechanism of activities for the quality and timeline of outputs as well as coordinating this mechanism between operational level and project board.

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\(^2\) UNDP, in consultation with the presidential unit UKP4, is in charge of personnel recruitment for these working groups.


\(^4\) The outputs expected in Phase 1 and the amount of their allocated budget are as follows: (1) Establishing special REDD+ Agency, including operation of the preparatory Task Force, USD 5.19 million; (2) Developing effective implementation and Monitoring/Enforcement Framework for National REDD+ Strategy, USD 2.91 million; (3) Developing and initiating national communications and awareness raising program for REDD+, USD 8.91 million; (4) Developing funding instrument and safeguard mechanism, USD 2.59 million; (5) Developing MRV framework, USD 5.49 million; (6) Preparing criteria for selection of province for REDD+ pilot, USD 1.49 million; (7) Developing plan for suspension of forest conversion concessions, USD 4.09 million; (8) Delivering quick and efficient project delivery with solid fiduciary management, USD 0.87 million. (REDD+ Task Force RI and UNDP, 2010: 7-10).
3.3.2 What is the mandate of the intermediary and to whom is the intermediary accountable to?

As stated in the official document, the mandate given to UNDP is to adequately capacitate an institutional mechanism and financing instrument established for REDD+ as well as to develop and implement corresponding policies and strategies. The expected outcome from
this mandate is to strengthen Indonesian national institutions and key stakeholders in addressing climate change adaptation and mitigation measures and the protection of the ozone layer. (See the project document between REDD+ Task Force Republic of Indonesia and UNDP, 2010: 1).

In principle, UNDP is accountable to both The Government of Indonesia and the Government of Norway. The former is represented by the REDD+ Task Force, whereas the latter by the Norwegian Ministry of Foreign Affairs.

3.3.3 What interests does the intermediary associate with running the PES scheme?

It can be said that most strategic decisions on the establishment of REDD+ infrastructure and capacity building in the partnership between the two countries tend to be consensus-based. Moreover, the Government of Norway, respecting national sovereignty of its partner country and upholding non-intervention principle of domestic affairs, seems to give more discretion possibilities to the Government of Indonesia to represent the country’s national interest and greater climate change agenda in the partnership to reduce emissions from deforestation and forest degradation. These can be indicative in explaining why the intermediary may play a more impartial and independent role vis-a-vis the countries in partnership. UNDP seems to share the same interest with the Government of Norway and the Government of Indonesia as well as with its implementing partner in the success of projects and the achievement of deliverables.

3.3.4 How is the intermediary financed?

The financing for initial preparatory phase comes largely from the Norwegian Government, in the amount of USD 30.7 million. The fund is contributed to UNDP on a cost-sharing basis for the administration and implementation of the project. UNDP provides USD 874.5 thousand. The Government of Indonesia provides in-kind support for REDD+ Task Force.

3.3.5 How does the intermediary pursue PES preparation, contracting and implementation?

UNDP has already supported a number of initiatives and consultations on REDD+ with line ministries and agencies in Indonesia under the UN-REDD program. This is an important asset for the preparation of the REDD+ infrastructure and capacity. However, taking into account the critical nature of the partnership program as well as a tight schedule for the delivery of outputs, UNDP decides to apply a so-called fast track modality, which allows for more flexibility and autonomy in decision making related to the process of recruitment, procurement and other operational matters (REDD+ Task Force RI and UNDP, 2010: 5-6). This mechanism is not necessarily optimal, for instance, when recruitments made by UNDP sometimes do not correspond to the expectation of the REDD+ Task Force, as it makes somewhat obsolete more involvement of the latter in the process (Pers. comm. with UNDP and Norwegian Embassy). Tight deadlines in part may have also contributed to this (Gaia Consulting, 2011: 25).
3.3.6 How does the intermediary address different worldviews, interest and powers?

UNDP has to cope with different interest, powers and worldviews of actors and agencies associated with the ongoing REDD+ partnership. In the preparation phase, allocated money cannot be spent in time and “political deliberations, consultation and consensus building “ delay deliverables to UNDP as one independent reviewer put it (Gaia Consulting, 2011: 21). Some of the contestation is probably by design, some others are consequence of differences in perspectives, interests and powers. Take the REDD+ Task Force for instance. As explained above, it is lead by the head of UKP4 and consists of representatives from line ministries and agencies. It is a presidential unit that monitors the ministries in Indonesia. By design, ministries appear reluctant to work together with one that scrutinizes them. There is also an impression of dominance exercised by UKP4 in terms of decision making (for example, in addition to being the head, the secretary of the REDD+ Task Force stems from UKP4). As for differences in perspectives, interest and powers, discussions on the design of funding instruments and fiduciary institutions at the REDD+ Task Force Working Group may be of relevance (Mumbunan, 2012). There are elements inside this working group and the UKP4 that tend to prefer a market-based to a state-based REDD+ fund allocation mechanism. In part, this epistemic position is justifiable as concerns have been raised on the corrupt nature of Indonesian bureaucrats and public agencies. However, the public sector cannot be overlooked as the state still constitutes the largest owner of Indonesian forest (NORAD, 2011). Moreover, any foreign revenue flow from a REDD+ related fund by regulation should be integrated into the Indonesian public finance system. Thus, instead of ‘staying away from the state’, some roles should be given to the state-based public sector on conditions of transparency, accountability and more genuine public participation.

Against this backdrop, UNDP as an intermediary seems to have no choice but to stick to its principles and rules in the implementation of the project. As REDD+ implementation does not take place in an institutional vacuum, the intermediary needs to deal with the dynamics and constellations between actors and agencies. For instance, in the beginning of phase 1 there was a hope that UKP4 – given its access and proximity to the president – would be powerful enough to set things in motion for REDD+ projects. However, from hindsight it seems that being more cooperative with other line ministries is required for UKP4 in order to gain enough support and make the project implementation more effective.

It is worth noting that at a larger scale REDD+ issues are indeed highly contested. The way REDD+ is framed so far has been centered on two central perceptions: (a) REDD+ is a compensation mechanism and (b) the logic that underlies it is economic opportunity cost. Perceived as a compensation mechanism, REDD+ becomes an issue of money distribution, which affects the motivation of involved and related parties, and may crowd out some voluntary, collective and non-monetary based forest conservations that have existed prior to REDD+ projects. Within the logic of economic opportunity cost, forest conservation for REDD+ in Indonesia will not be competitive to economic gains from the country’s

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5 These issues have been highlighted, for instance, by participants of stakeholder consultations organized by REDD+ Task Force which prepares deliverables to the UNDP.
environmentally devastating palm oil plantation or extractive industries such as mining. Nationalist sentiments raised recently by politicians and proponents of the palm oil sector against the moratorium of concessions for forest conversion, which is required as a part of REDD+ Partnership, can be explained within this light.

4. Comparing institutional aspects of the Intermediaries

These three cases have been selected to illustrate the diverse characteristics and shapes that the intermediary of PES projects can take on. Such a selection does not allow for any typology or generalisation, but it can help us point to some of the salient features that are worthy to receive more attention when it comes to investing in PES governance structures. We will focus on four aspects in the following:

4.1 Organisational structure

There is no direct linkage between the way the ecosystem service is quantified and commodified and the intermediary’s organisational structure:

In Asobolo contextual factors resulted in the development of a sophisticated organisational structure: The weakness of government structures and the strong culture of civic political organisation matched with the need for high procedural accountability and balancing of interests among water users who were paying for the association and had to agree on its activities. The PES was structured with little emphasis on efficiency in terms of securing additionality and avoiding leakage – the in-kind payment and the deliberative mode of agreeing on upstream activities (rather than an expert prescription) corresponded to the difficult political situation and conflict history in the region. It also corresponded to the lack of direct cause-effect estimates.

In contrast, in the MoorFutures case, precise data was available, and management action could be anticipated to define and give a prize to emission reductions from restoration. The offset is what buyers get (in Asobolo, the use of the money still had to be determined). But presumably, it is not only the simplicity and clarity of the biophysical relationship that prompted a minimalist structure of the intermediary. The offset developed within a project-based collaboration and was ready for sale without any up-front investment into the intermediary. It developed out of personal commitment from staff of the organisations involved, and political backing by the minister.

The need for institutional consolidation will possibly be felt at the moment demand and interest in the programme rise and cannot be handled on this basis any more. The other, more challenging situation which would call for institutional reform is open critique of the limited credibility of the programme: There are so far no external auditors and the ministry acts at the moment as both, the land holder selling the offset and at the same time the authority issuing the certificate for it. Also monitoring is being conducted by the foundation which is in charge of the restoration work itself, rather than by external monitors. Thus there is some potential for collusion of interest.
The case for REDD+ in Indonesia shows a sophisticated organizational structure in relation to the functioning of intermediary. A relatively more complex structure emerges at the outset as the stake and commitment of the partnership between the two countries are quite high, there are various institutions involved, and the nature of the ecosystem services in question. In consequence, the role of an intermediary and the way it is functioning in the preparation phase of this partnership can not be viewed in isolation from other organizational components of the overall partnership structure.

4.1.1 Scope and tasks accomplished by the intermediary

The sophisticated organizational structure of Asobolo obeys also to the nature of the payment scheme. Being an in-kind payment, it was determined by the Association to have at least 2 permanent employees in charge of developing the agri environmental and social programs in the upstream. On the other hand, being a private association and the importance of building credibility based on the transparency of resource administration led also to this organisational structure.

In the case of the “Moorfutures”, the task of the intermediary could be assumed by structures already established within the university and the Ministry, and although in the future a more complex organizational structure should come in play, the initial conditions of the scheme (information availability, research, public seller) allowed for a simplified structure.

These both cases remain at a regional level, contrary to the case of Indonesia. REED+ is an example of a PES scheme at the international level. The involvement of several organisations at different levels in order to ensure representation of the governments involved and to gain acceptance and transparency is reflected in the complex organisational structure.

4.2 Accountability

The accountability of the intermediary varies in different directions. First of all it depends on the character and institutional embeddedness of the organisation that has assumed the intermediary role. As an association, Asobolo has different internal and external obligations towards its members, than the intermediary in the second case (Germany), which is primarily a department internally accountable to the minister.

Secondly, accountability towards buyers differs from accountability to providers of the ecosystem services (ES). Towards buyers, an important part of the intermediary’s role is actually the control and assurance that contractual obligations which are very costly to control for the individual buyer are being observed by the provider. This is where labels, certifications and external audits of standards come in. In the Indonesian case, where ES buyers and providers are somewhat of equal position, the intermediary is obliged to report its planned and taken measures to a joint structure that represents both buyers and sellers.

In turn, providers rely on the information intermediaries provide on buyers, markets, regulations relevant to the PES scheme. Poor accountability towards providers can result in their withdrawal from the scheme (even though that may be very costly). The degree of
intermediary responsibility and associated need for accountability mechanisms for their own activities (as opposed to their task of ensuring contract fulfilment, i.e. other parties’ accountability towards each other) is marked by the degree to which they have to act as translators and mediators between distant worlds of buyers and sellers. The higher their influence, their higher the risk of intermediaries taking advantage of this influence for their own ulterior purposes.

4.3 Costs

What are the costs of the intermediary and how do these costs bear on a PES programme? As the very role of the intermediary is to enable and facilitate a PES scheme, i.e. to reduce costs for the transaction, or some times to create enabling conditions for the exchange, one would expect intermediary costs to be (partially) compensated by enhanced programme success. Well-funded intermediaries should be in a better position then underfunded ones to promote the establishment of effective and targeted PES schemes. Unfortunately, we cannot be certain about this, but in any way, it makes little sense to compare costs of different intermediary types independently of the setting they are getting involved in.

Whether the high share of 45% in the Asobolo case that is used to fund the intermediary structure is well spent we cannot determine – judgement would have to be based on a comparison of the Asobolo PES scheme and the estimated cost of feasible alternative policy instruments for the same setting. However, if we assume that this high share has contributed to the stability of the scheme and to maintain transparent management of financial resources additional, some other benefits are obtained from these aspects for improving the scheme. On the one hand, the prestige of Asobolo in the region given its transparency in the administration of financial resources has allowed that the association becomes a platform to channel resources from other organizations (public and private). On the other hand, the continuity of the programs of Asobolo in the upstream area has built credibility and trust among the rural communities, making it one of the best options to channel resources oriented to rural programs in the watershed. It could be said that in this case the high costs of intermediary operation might be compensated by additional benefits obtained from continuity and credibility.

Another way to assess cost-effectiveness of an intermediary is by establishing a kind of independent review group whose task is to assess on regular basis the performance of the intermediary in reference to the criteria or indicators agreed by both ecosystem service provider and user, as the Indonesian case points out.

More generally, it is our impression that in settings with high staff costs, these limit the expansion of PES schemes to those for which transactions can be highly standardised and automated. And in settings with low staff costs, not these costs but the availability of suitable staff will hamper PES expansion. From the MoorFutures case we learn that high-cost contexts limit the capacity to grow and consolidate specific intermediary organisations - which can in turn jeopardize the longevity and credibility of the programme.
If transaction costs are more than half of the actual amount of performance payments, as in the case of a Swedish carnivore conservation program (Zabel and Roe 2009), such costs are prohibitively high, unless they can still be justified in the wider context of conservation objectives: capacity building, information dissemination and networking can also benefit other conservation objectives. But (prohibitively) high PES running costs also urge us to pursue simple arrangements as a first priority. This comes along building upon local structures for PES instead of implanting new ones (Nigel Asquith, pers. comm. and Asquith et al. 2008).

The challenge is how to determine below which level of activity (or below which minimal quality threshold) an intermediary is actually underperforming and thereby putting at risk the programme or incurring costs of sub-optimal outcomes. There are no simple means to assess this minimum level, which could then be translated into minimum required investment into the intermediary.

### 4.4 Position of the intermediary

The intermediary governs the coordination between provider(s) of ecosystem services and their user(s). The cases present three different arrangements concerning the position the intermediary takes in relation to them – with clear implications for the coordinating role.

*Arrangement 1* places the intermediary close to the users of ecosystem services. The intermediary for water service provision in Colombia, which is institutionally aligned with the association of downstream water users, falls in this kind of arrangement.

*Arrangement 1: Intermediary is aligned with ES user*

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*Arrangement 2*, on the other hand, sets an intermediary in the same place with the provider of ecosystem services. It is the case of peatland carbon offset scheme in the federal state of Mecklenburg-Vorpommern in Germany.

*Arrangement 2: Intermediary is aligned with ES provider*
In *Arrangement 3*, an intermediary is considered to have an independent position from either the provider or the user of ecosystem services. The REDD+ partnership between Indonesia and Norway seems to arrange the intermediary along this type. In this particular case we limit the meaning of ‘independency’ of intermediary. First, independency of the intermediary is a result of involving actors from both forest service providers and users, having a relatively equal footing in decisions relevant to the intermediary. In this way one may expect internal dynamics emerges from such a two-side involvement, possibly leading to independency (or compromises) from both parties’ interests in decision making. Second, independency of intermediary results from involving independent actors external to both forest service provider and user.

*Arrangement 3: Intermediary as a relative independent entity*

In facilitating human coordination, the intermediary establishes rights and interaction rules and thereby also protects certain interests and values (Vatn, 2005; March and Olsen, 1989). The intermediary and the PES scheme it facilitates may reinforce existing power structure (Corbera, Brown and Adger, 2007) or change it. The cases indicate that the intermediary in different institutional arrangements tends to represent interests of those it is aligned with, accountable to, or from which its financing source comes. It cannot be expected though that an intermediary is ‘interest-neutral’ if the positions of ES buyer and seller are on an equal footing and the intermediary is relatively independent from them (cf. Arrangement 3).

5. Conclusion

The aim of this paper was to characterize the variety of institutional features of intermediaries in PES and its implications in the functioning on the scheme. From the cases described we identified three types of arrangement of the intermediary in relation to ES providers and users: the first, where the intermediary is aligned with the user of the ecosystem services; the second where the alignment is to the ecosystem service provider; and the third where the intermediary has an independent position relative to both. It is likely that in many cases, this position has implications for the organizational structure, the accountability mechanism, and the interests pursued by the intermediary itself.

An institutional analysis of intermediaries allows identifying how the intermediary affects the PES arrangement but also how the context in which it is embedded determines the interest that the intermediary represents. Although the importance of the design of the intermediary has received little attention in the literature so far, we consider that the determination of the type, organizational structure, funding and accountability mechanism of intermediary, is a key entry point to establishing more promising PES schemes under difficult – i.e. non-ideal, real-world - conditions.
Successful PES implementation will continue to depend on the willingness to experiment in uncertain terrain, on the pragmatism to start simple and subsequently become more sophisticated, and on the level at which learning and exchange of experience is being pursued and financed. This applies as much to the design of the intermediary as of the PES scheme itself.

The aspirations of intermediary agencies will be of outmost importance. They can focus on promoting a menu of contract options including region-specific ecological and social safeguards; they can strive to develop needs-oriented contents and formats for capacity building; they can pursue procedures to draw on already existing ecosystem knowledge for PES; alternatively, they can be protagonists of global standards that are exclusively science-based and conducive to confirm their lead role in shaping the growing PES business.

References


Letter of Intent between the Government of the Kingdom of Norway and the Government of the Republic of Indonesia on “Cooperation on reducing greenhouse gas emissions from deforestation and forest degradation”.


Discourse and practice in participatory conservation:
exploring how it varies in different geo-political settings.

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Abstract
This paper explores through institutional analysis how and why participation in natural
conservation programs varies substantially in different geopolitical settings. We applied the
same analytical framework to four different case studies from three different continents. We
adopted the Institutional Analysis Development framework (IAD). The IAD framework
serves the purpose of discussing the two guiding research questions of this paper: “How and
why participation in different conservation programs varies in different geo-political
contexts?” and “What is the gap between discourse and practice on the level of participation
in the specific case studies?”. We base our analysis on the original version of the IAD
framework (Kiser and Ostrom 1982; Ostrom 1994, 2011) and on the contribution of Clement
and Amezaga (2009) and Clement (2010) that integrates the Political Ecology (PE)
perspective with the IAD.

1. Introduction
Natural resource management paradigms are in continual flux, adapting to changing social-
ecological conditions that exist from the local to the global scale. This paper draws a cross-
cultural comparison tracking the implications of changing conservation paradigms. In this
paper we conduct an exploratory study of four cases of natural resource conservation in
different countries – Kenya, Zambia, United States, and Tibetan areas (PRC). Two questions
have been

In many instances, the comparability of cases is made more difficult by spatial differences in
factor conditions, such as pre-existing power relationships, land tenure structures, and the
nature of poverty, as well as the challenges of researcher access to concrete processes and
outcomes. This point illustrates the problem of data commensurability with regard to
studying natural resource conservation through the lens of livelihood generation, poverty
reduction, and in relation to the practice of decentralization. Because of these challenges, multi-country critical cross-cultural comparisons are rare in the literature. This is unfortunate, because such analysis can provide rich insights into the shifting discourses of global environmental conservation.

In order to restrict the analytic space of our exploratory study we have defined two guiding research questions: “How and why participation in different conservation programs varies in different geo-political contexts?” and “What is the gap between discourse and practice on the level of participation in the specific case studies?”. The Institutional Analysis Development framework (Kiser and Ostrom 1982; Ostrom 1994, 2011) reveals useful for organizing the great quantity of information deriving from four different cases and for discussing the two guiding research questions set in this paper.

Moreover, looking at four different geographical and political contexts we find particularly useful to include a political ecology perspective to the Institutional Analysis Development framework (IAD). We do this following the approach developed by (Clement and Amezaga 2009; Clement 2010). Additionally, we draw on a typology of participation that characterizes each case study.

The inclusion of a political ecology perspective allows us to examine how a similar global conservation discourse is implemented in different ways depending upon the local social-political and ecological context. The results provide valuable insights to inform policy and practice at the intersection of conservation and livelihoods across a spectrum of geo-political and cultural boundaries.

2. Theory
For most of the past century, natural resource conservation was characterised by centralised modes of environmental decision making that placed natural resources under the control of state bureaucracies and marginalised local actors who were often dependent on the same resources for survival (see Adisu and Croll, 1994) or their livelihoods. This was the case in many parts of the world where common pool resources were appropriated from local actors and designated as protected areas where human activities were excluded (Sullivan and Homewood, 2004; Hulme and Murphree, 1999; Campbell, 2000; Siurua, 2006). These exclusionary modes of environmental governance were often backed by scientific narratives that represented natural resources (such as forests, wildlife and water catchment areas) as threatened by the activities of local actors in proximity to these resources. In particular, equilibrium thinking in ecological theory was instrumental in forging a conservation approach that favoured exclusive state control of natural resources. In equilibrium thinking, natural ecosystems such as forests were regarded as having a balance of nature which could be disrupted by activities of actors in proximity to these resources and therefore favouring a scenario where these ‘threatened’ sites were placed under the control of state conservation
experts (Hurley et al, 2002; Gillson, 2004; Lankford and Beale, 2002; Forsyth et al, 1998; 2003).

In the 1960s, this state-centric approach was bolstered by narratives that represented local actors’ exploitation of common pool resources as ‘tragic’. This view gained ascendancy in institutional theory with Hardin’s (1968) influential paper ‘Tragedy of the Commons’. In this work, common pool resources were framed as characterised by inefficient institutional arrangements where free-riding leads to resource over-exploitation and hence degradation. Although many authors have noted that Hardin’s theory was highly flawed, in the sense that what he was describing was a tragedy of ‘open access regimes’ and not a tragedy of the ‘commons’; this paper was nonetheless influential in legitimising the view that common pool resources required either the state or the market to avoid the tragedy of the commons (see Ostrom, 1990; Sullivan and Homewood, 2004; Bryant and Bailey, 1997). It served to reinforce the importance of the protected area approach, as well as encouraged policy reforms that sought to dissolve common property systems in favour of state and private property systems.

However, over the past 20 years, combinations of factors have been instrumental in weakening the hegemony of centralised natural resource management models. These factors include criticisms arising from studies that demonstrate the failure of this approach to protect resources in many parts of the world (Rinzin, 2009; Grimble and Laidlaw, 2002; Hulme and Murphree, 1999). In addition, Barnajee (2001) notes that in some parts of the world, local people rose to challenge the state and forced it to yield ground (e.g. hugging of trees movement in India and the resistance movement against logging in Borneo). In addition, this period also witnessed a political movement towards democratisation in many parts of the world which filtered through to the conservation arena. Indeed, Sullivan and Homewood (2004), note that the current political and economic realities, (and awareness of the rights, needs and aspirations of most rural resource actors) make it clear that exclusionary resource management strategies may not be the optimal policy for the conservation of natural resources. In this vein, the 1990s saw the emergence of a new discourse in resource management to replace narratives that favoured exclusionary resource measures. Participation and natural resource devolution, designed to tip the locus of resource governance from the state to other natural resource actors (Edmund and Wollenberg, 2003) emerged as the new conservation narrative.

It is argued that participation involves transfer of natural resource decision-making from the centre (the state) to the periphery (local actors and civil society groups). The proponents of participation note that one of the novelties of this new narrative of participation is that it involves the participation of various actors in defining the goals and means of natural resources conservation (Mery et al, 2005). This is based on the assumption that natural resources (be they water resources, forests, wildlife or pasturelands) provide benefits for people in proximity to these resources as well as society as a whole. In this regard, conservation theorist advancing this discourse of participation propose that the only way for various stakeholders to capture these benefits is through good (participatory) governance in form of transparent and accountable institutions (Mery et al, 2005). These variables,
transparency, accountability, equitable distribution of resources and empowerment of marginalised actors are seen as the central tenets of participatory resources management (Barry et al, 2010; Child and Lyman, 2005; Hobley, 1996; Gibbs et al, 2002). In this vein, participatory forms of resource management are presented as win-win solutions to a host of environmental challenges such as deforestation, watershed degradation and depletion of range lands.

The discourse of participation has also been bolstered by studies from institutional theorists such as Ostrom (1990) demonstrating the inherent capacity of local actors to act collectively in order to solve environmental problems (also Roe et al, 2009; Scherr, 2000; Xu et al, 2008; Stringer, 2009). Participation, as a construct for natural resource management was also endorsed by the international environmental community at the Rio conference and gained legitimacy as a style of managing the environment when it was unveiled as one of the key principles of sustainable development. However, while there is so much euphoria surrounding the notion of participation, some scholars note that 'participation' is such an imprecise concept, that what is termed participatory resources management may be framed differently in different contexts and by different actors (Hobley, 1996; Temm and Johnson, 2001; Hulme and Murphree, 1999). In this vein, it is possible that participatory resource management may be used as a catch-all construct to cover many different resource management arrangements (Sullivan and Homewood, 2004). Temm and Johnson (2001), for example, note that participatory resource management may be framed in such a way that local actors take part in management aspects of government owned resources for a share of the benefits, while in some instances, it may be framed as collaborative resource management in which resource actors share levels of ownership, control and responsibilities for the given natural resource. In addition, they argue that in a best-case scenario (which most proponents of participation envision), local actors enjoy full power, control and ownership over the resource of interest. This type of participation, according to Temm and Johnson (2001), can be operationalised as community based natural resources management (CBNRM). Perhaps, the most important challenge in the discourse of participation is that often, there are many actors involved in the process with different motivations or interests such that in some cases, participation is mere manipulation with little meaningful powers devolved from the state to other natural resource actors (Hobley, 1996). Hobley (1996) presents the following typology of participation (table 1), arguing that participation may range from manipulation to self-mobilisation.

This conceptual imprecision characterised by the notion of participation raises several questions surrounding its translation into natural resource policy and practice. With so many resource management programmes (and for a variety of resources) across the world wearing the tag of participation (and operationalised as community conservation, joint resource management, collaborative resource management, participatory resource management and numerous other names by which the programmes are called), this study considers it important to understand how this discourse is often captured, particularised and contextualised for use in a variety of socio-geopolitical contexts. Most studies have interrogated this discourse using a single country or single case context. While producing rich in-depth analysis, these studies have often lacked a comparative analysis of how participation is framed and used in different contexts.
contexts. As a point of departure, this study uses four cases from three different continents to do this. In each case, the study examines the way participation is framed and translated into practice, the resource being contested, the actors involved and the outcomes of the conservation programme.

Table 1. Typologies of Participation: How People participate in natural resources Conservation (Hobley, 1996: 8).

<table>
<thead>
<tr>
<th>Typology</th>
<th>Characteristics of each type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manipulative Participation</td>
<td>Participation is a pretence (people’s representatives on official boards but unelected and have no power).</td>
</tr>
<tr>
<td>Passive Participation</td>
<td>People participate by being told what has been decided or what has happened</td>
</tr>
<tr>
<td>Participation by Consultation</td>
<td>People participate by being consulted or by answering questions</td>
</tr>
<tr>
<td>Participation For Material Incentives</td>
<td>People participate by contributing material resources (e.g. contribute labour)</td>
</tr>
<tr>
<td>Functional Participation</td>
<td>Participation seen by external agents as a means to achieve programme goals.</td>
</tr>
<tr>
<td></td>
<td>In this case, people are only co-opted to serve external objectives while all major decisions have already been made by external actors</td>
</tr>
<tr>
<td>Interactive Participation</td>
<td>People participate in joint analysis, development of action plans, formation or strengthening of local institutions. Groups take control over local decisions and determine use of available resources</td>
</tr>
<tr>
<td>Self – Mobilisation</td>
<td>People take initiatives independently of external institutions to change systems and develop contacts with external institutions for resources and technical advice.</td>
</tr>
</tbody>
</table>

The research uses a political ecological perspective to interrogate this discourse. Political ecology (PE) has gained ground in social-ecological research as a mode of analysing society-environment relationships (Evans, 2002; Zimmerer, 2006; Kepe et al, 2008; Robbins, 2004). As an analytical approach that draws attention to the discursive frames that underpin such conservation policies, political ecology is well suited to the analysis of participatory discourses and practice in resource management. Such an approach enables this research to focus on the way the discourse of participation is framed in our various socio-cultural contexts and the role of power and social relations in determining the right to access and
management of natural resources (Brown, 2003; Berkes, 2004). According to Smisk (2002), political ecology also articulates the motivations, interests and actions of various actors vying for access to and control of resource management. Epistemologically, we identify with what Forsyth defines as ‘critical political ecology’, an approach that questions the neutral validity of scientific explanations in politically tense contexts such as the socio-environmental field, but it does not negate the existence of a ‘real world out there’ (2003:11). This means giving attention to understanding the process in which policy makers adopt and exploit environmental “storylines” (Hajer, 1995) when addressing socio-environmental problems but being careful not to fall in scientific relativism. In order to do this it was decided then to look at the discursive practice (Hajer 1995) that is transmitted in the different contexts. Political ecology is integrated in the IAD framework which provides an organising framework for the case studies.

3. Methodology

In order to explore through institutional analysis how and why participation varies substantially in different natural conservation programs in different geopolitical settings we applied the same analytical framework to four different case studies from three different continents. We adopted IAD (Kiser and Ostrom 1982; Ostrom 1994, 2011) because it has both an organizing and analytical capacity in describing and explaining complex phenomena of policy change. The IAD is a diagnostic tool that has been used for the analysis of very different issues where humans interact within norms and rules that influence their choices, behaviours and decisions (Hesse and Ostrom. 2007).

The IAD framework serves the purpose of organizing the discussion raised by the two guiding research questions of this paper: “How and why participation in different conservation programs varies in different geo-political contexts?” and “What is the gap between discourse and practice on the level of participation in the specific case studies?” We base our analysis on the original version of the IAD framework modified by the contribution of Clement and Amezaga (2009) and Clement (2010).
Adding the PE component through the analysis of [Political economic context] and [Discourses]. We can reflect on how the different [rules in use] are related to the [Political economic context] and elaborate on the variability of levels of participation produced in different geo-political contexts.

As the degree of heterogeneity between the different cases is very high this work does not aim at a formalization of variables that can be quantitatively compared across the four different case studies but it aims at producing pertinent descriptions and analysis that when compared can produce interesting insights on how the four different geographical-political contexts are related to the research questions discussed.

The element that pulls together the four different case studies is the [evaluative criteria] that is based on the integration of Hobley (1996) work on the typologies of participation. Referring to Hobley’s work we define what typology of participation is produced in the different case studies and compare this result across the different cases.

The specific methods of the different cases are described individually in the case study section in relation to the data gathering different methods have been used according to the different research contexts.

4. Case studies

4.1 Kenya

4.1.1 The problem

Promotion of participatory wildlife management in the form of community conservancies in Northern Kenya has been problematic and remains controversial. The common justification is engagement of local communities in wildlife management and promotion of alternative livelihood system. In practice, implementation participatory environmental management faces daunting practical challenges that hinder achievement of the broader objectives. The problem is multifaceted and requires an analytical framework that considers multiple variables across spatial and temporal scale. To improve our understanding of these constrains, we use the case of Biliqo-Bulesa wildlife conservancy in Isiolo District of Northern Kenya. The conservancy was established in 2007 by the community living around Biliqo and Bulesa administrative wards with about 5000 members. Biliqo-Bulesa conservancy is a member of a network of community conservancies in northern Kenya under the umbrella Northern Rangeland Trust. It also enjoys support from the Kenya Wildlife service which is the national institution with mandate to manage wildlife.

We conducted semi-structured interviews with key actors including local leaders of the two wards and the officials of two local Non-Governmental Organizations (NGOs) campaigning...
against the conservancies in the communal rangeland. More data was generated from a meeting of over 80 pastoralist elders to discuss the problem of conservancy. In all the discussions, we inquired about the operation of the conservancy, level of participation of the local people in the management and decision making, rules of access, boundaries, benefit sharing mechanism, livelihood impact and future scenario for extensive livestock production and the bone of contention from the perspective of every actor. For purpose of analysis, the views generated were subjected to the IAD framework developed by Ostrom and colleagues.

5.1.2 Biophysical conditions

Northern Kenya is a marginal environment with low rainfall and high spatial temporal variability. Water which is an important determinant of livestock distribution across the rangeland is very scarce. The landscape is characteristically heterogenous with patches of key grazing resources located at far off distances. The conditions necessitate daily and seasonal mobility to track the resources. The position of the pastoralists who oppose creation of the conservancy is that exclusion from accessing key grazing resources around Biliqo-Bulesa including dry season fodder and important salt lick will have negative impact on the herd management strategy. Excludability becomes an issue in the case of the conservation areas otherwise rangeland in northern Kenya is communally owned and there is no restriction for the pastoralist to graze wherever there is abundance of grazing resource. However as in most cases and years the pressure on the resource is high concerns of ‘subtractability’ are valid. The conservancy members have to employ local wardens to protect the wildlife and enforce rules and regulations for access.

5.1.3 The political-economic context

The community had suffered historical political and economic marginalization. In 1960s, the community took part in a secessionist war and suffered damaging economic blow. Forty years down the line, the impact is still very apparent as demonstrated by low livestock holding at the household level. Political mistrust is still evident with high incidences of insecurity in the region. On the other hand, the community suspects the government activities and are interrogative of any development initiative especially those that relates land ownership. The Conservancy project is associated with external interests aimed at dislodging the local from their grazing for alternative investments.

5.1.4 Discourses

The dominant discourse to justify creation of conservancy in northern Kenya is that of Biodiversity losses in ‘unprotected’ rural landscapes. Informed by global crisis narrative of biodiversity losses at alarming rates, key actor including states and nongovernmental organization aim to reverse the trend through concerted conservation efforts. The discourse is influenced by the local political economic context because wildlife poaching in the area is blamed on the poverty of the population and general insecurity in the region.
5.1.5 Attributes of the community

The dominant community living around the conservancy is the Waso Boran. The community has very elaborate system of political and resource governance. Families and households enjoy strong clan ties and other relationships which influence decisions on the use of grazing resources. The close knit social relation is built on trust among clan members and the wider community. Over the years, the clan network has served as a strong social capital where community members are supported in times of need. Furthermore pastoralists practice reciprocity to access neighboring rangeland and water resources. The clans share same customs, norms and understanding of spatial and temporal resource variability that is used as cultural repertoire for deliberation and implementation of popular strategies for resource governance. Excision of Biliqo-Bulesa conservancy for wildlife management interferes with the traditional resource use arrangement and is therefore opposed by the pastoralists.

5.1.6 Rules-in-use

The rangeland in northern Kenya is communally owned and there is no restriction for the pastoralist to graze wherever there is abundance of grazing resource. Access and resource management is regulated by traditional customary rules under leadership of the local elders council (Jarsa dheda). Creation of conservancy introduces new access rules and changes the stewardship from local elders to the conservancy officials. The official and conservancy committee selected from the members holds the most powerful position for running the conservancy. They are the authority for day to day management including recruitment and supervision of the community game wardens. Although theoretically the members in this position ought to change on regular basis, the boundary rules to effect the changes are not seen as transparent by the members. Information and payoff rules are managed by the officials and communicated to the members of conservancy on regular basis.

5.1.7 Action situation

An important factor contributing to conflict at the point of interaction is the claim and counter claims of various actors who are can be broadly classified as: (a) members of conservancy: They are true beneficiary of the new resource management strategies under conservancy. The key positions for this category of actors are the conservancy managers (officials and committee) and members. The managers are tasked with making the daily decision for managing the conservancy project while the members are allowed unlimited access to the grazing resources. Both positions have free will on their choices at least theoretically. However in practice the management reports to county council officials. Information is controlled by the manager, causing mistrust from the members. For the members incentive to participate in participatory wildlife management is based on promise of improved livelihood and security in their neighbourhood. Since its inception, the conservancy project has managed to reduce wildlife poaching and help to employ about 23 local youths as wildlife scouts.
Although the project is only about 4 years, there is already some disgruntling claiming that the benefit is not as much as they have anticipated and they are not fully involved in decision making. According to them their interest has been overtaken by external interest including those of conservation agents. (b) Non member pastoralists: They are the main contenders of establishment of the conservancy. They have historical claims on the area earmarked for conservancy. Their central concern is that creation of conservancy limits their access to key dry season grazing resource and salt links within the area. They lack information about the management of conservancy and are deterred by limited access and harassment from the conservancy wardens. The main outcome is disregarding the conservancy rules by this group of actors who maintain their traditional land use patterns. This has created constant waves of conflict with the pro-conservancy group. (c) Local NGOs: They are against conservancies. Their central thesis is that conservancies are just ploy to displace pastoralist from key grazing resources. They bring a lot of external resources to fight creation of conservancy and are therefore very powerful actors. Their actions include supporting advocacy and campaign against conservancies through media and local activities. They have succeeded in allowing the non member pastoralist to continue enjoying their grazing rights in the communal rangeland and also creating a lot of public awareness on the conservation politics in the region.

5.2 Zambia

6.2.1 The problem

Conservation of natural resources in Zambia has historically been dominated by use of the fortress conservation model. However, over the past decades, a shift in policy has seen the state embrace a discourse of participation which has triggered a process of regime change in protected areas. This process is well illustrated in the case of Munyeta reserve (located in central Zambia) where the state has begun the process of transforming a protected forest into a joint forest resources management area to allow local participation in the process. The purpose of instituting such reforms is to halt the degradation of forest resources in the reserve by involving local actors in natural resource governance. The livelihoods of these local actors are seen as being at the centre of the degradation occurring in the reserve. To examine this process of change, we carried out 36 interviews with local actors (in the reserve and outside it) and 34 interviews with policy makers and conservation practitioners. Apart from interviews with local participants, focus groups discussions, examination of archival data and contemporary policy documents were carried out in order to understand the shift in these policies and to determine the fit between policy discourse and practice.

5.2.2 Biophysical conditions

Munyeta reserve is part of the Miombo eco-region and is dominated by tree species belonging to the Brachystegia, Jubberardia and Isoberlina genera. Its range of hills and hydrological characteristics makes it an area of outstanding scenery. It was designated a protected forest in 1980 for the purpose of protecting its rich biological resources, its range of hills and water catchment area. Although the state adopted an exclusionary approach (i.e. fortress
conservation), the size of the reserve (with an area extent of 12,000 hectares and a land surface boundary of 42 km) and the complications involved in enforcement of forest rules and monitoring exploitation made restrictions to the reserve problematic. The costs of restricting access to the reserve are quite high. Moreover, as a resource that is consumption variant or subtractable, forest degradation is inevitable in a situation where the state is unable to enforce forest degradation. In this regard, over the past 30 years, the reserve has been characterised by extensive deforestation resulting from human activities such as illegal settlements, charcoal production, livestock grazing and crop cultivation. The state of the reserve has prompted a shift in natural resource management strategies from the fortress conservation model towards participatory natural resource management.

5.2.3 The political-economic context

The political-economic context creates challenges for the establishment of a participatory natural resource regime. Settlers in the reserve have diverse interests which have proved difficult to reconcile. The majority of these settlers in the reserve are farmers who are involved in crop cultivation and livestock rearing. Other local actors are involved in charcoal production as an economic activity. These activities are all classified as illegal, under both the old and new natural resource regimes. In addition, some of the local political leaders are not supportive of participatory natural resource governance as they are seeking to have the area converted to an agricultural resettlement.

5.2.4 Discourses

In the 1980s, a discourse of an ‘untouched’ environment was used to advance conservation in the area. Munyeta was constructed as an untouched and fragile environment that required state protection. Influenced by the belief that local actors’ economic activities around the reserve where a threat to this fragile environment, promoted a conservation model that restricted people’s access to the reserve and its resources. This discourse, however, is contested by local actors who argue that the area was historically considered a tribal commons from which local actors derived their livelihood benefits. Although the current discourse of participation, influenced by changing political and economic circumstances, now reframes local actors as partners in conservation, they continue to resist state control in the area.

5.2.5 Attributes of the community

The local community in this area can be divided into two, the one inside the reserve and the community outside the reserve. Although both depend on the reserve for their livelihoods, the state distinguishes these groups based on their legal status in the area. Those in the reserve are considered ‘illegal settlers’ or ‘squatters’, as human settlement in government reserves is illegal. This group is highly heterogeneous (culturally and economically) in the sense that most settlers (apart from the original inhabitants) have only recently moved into the reserve from various parts of the country. In this regard, this group is characterised by low social capital (e. lack of social cohesion) and do not share the same values (lack a common
understanding) in as far as natural resources are concerned. In contrast, the community outside the reserve is less culturally and economically diverse and comprise people of mostly one ethnic group whose settlement in the area predates the establishment of the reserve. For the past three decades, the relationship between these two communities and the state has been characterised by lack of trust and reciprocity. This situation creates a lot of challenges for the implementation of participatory natural resources management in the reserve.

5.2.6 Rules-in-use

Under the protected area model, the state acted as both the constitutional and collective choice body that determined who had the right to access or use resources in the reserve. Boundary and position rules guiding resource management excluded them from accessing resources in the reserve and participating in the decision making process surrounding the management of the reserve. In addition, the payoff rules excluded local actors from benefiting from the resources as all revenue from the reserve exclusively accrued to the state. These rules were primarily defined through statutory regulations. However, this research shows that the community, both in and around the reserve, have historically appealed to custom and tradition as a source of collective choice rules and aggregation of their preferences. In this vein, customary authorities such as the village committee are viewed as de-facto collective choice decision making bodies and a means for defining both boundary and position rules. This has resulted in conflicts between the state’s formal rules and local actors’ own rules (i.e. resulting in what is termed as sterile dualism).

Joint forest management and the discourse of participation seeks to remedy this situation by creating new aggregatory arrangements that allow communities to participate in defining boundary, information and position rules. The JFM committee, acting as the new collective choice body has now put in place new rules to be used which have been framed as ‘JFM’ rules. The new pay off rules under JFM allows local actors to derive livelihood benefits from the reserve and to participate in management activities.

5.2.7 Action situation

The participation of local actors in the management of natural resources is viewed as the only way out of conservation-livelihood conflicts in the reserve. The main actors in JFM arrangements are the state and communities, within and outside the reserve. Local actors are now allowed to take up positions in natural resources management committees. However, while the new participatory arrangements allow local actors to gain some level of control over natural resources, there are several questions surrounding the process of creating participatory resource governance in the area. The process is largely prescriptive and does not address some of the needs of the local actors or address some of the sources of tensions between the community and conservation agencies. For example, the process does not address the issues of resource ownership, settlements in the reserve and also the mode of revenue sharing of economic benefits from conservation. In addition, many actors lack information on what JFM
is all about. These factors have acted as a deterrent to the development of participatory resource management in the area.

5.3 The U.S

5.3.1 The problem

Participatory watershed approaches to environmental governance has been a response to ecological degradation of water resources, and political stalemate resulting from traditional approaches to environmental conservation conflict (largely through litigation). Water resource conflicts are prominent in the western United States (Sabbatier et al. 2005), and issues of recreational access, water quality and water quantity problems often serve as the impetus for the establishment of watershed partnerships (Leach et al. 2005). To investigate this process research was conducted in Montana, USA with an incorporated non-profit watershed partnership – the ‘Blackfoot Challenge.’ Twenty-one interviews, as well as participant observation were the principle data collection methods. A semi-structured interview guide was used in order to ensure consistency across the interviews, yet the semi-structured nature allowed some flexibility for participants to talk about topics of interest to them.

5.1.2 Biophysical conditions

The Blackfoot Valley watershed lies at the southern end of what is known as the Crown of the Continent Ecosystem, a 10 million-acre area of the Northern Rocky Mountains extending from Canada to the United States. The Blackfoot Watershed totals about 1.5 million acres, with private ranchlands (24% of watershed) comprising most of the foothills and lower valley and the upper, forested and mountain areas being owned and managed by the State (5% of watershed) and Federal (49% of watershed) governments as well as Plum Creek Timber Company (20% of watershed). The diverse nature of land ownership equates to diverse ownership of water rights and uses. When ranchers consume a unit of the water resource, the potential for that resource to be enjoyed by recreationists decreases. Similarly, federal agencies have a statutory mandate under the endangered species act to maintain minimum flows for endangered fish species, thus reducing the amount of the resource available for agricultural purposes. These subtractability problems are exacerbated during drought years. Currently, exclusion costs are minimal in part due to ‘memorandum of understanding’ between the Blackfoot Challenge and federal agencies.

5.1.3 The political-economic context

The political-economic context, both locally and nationally, is supportive of a watershed partnership participatory approach to environmental governance. The homogeneity, ethnically and culturally, of both the residents in the Blackfoot Valley as well as the participants in the non-profit organization is not only a derivative of historical settlement patterns but also the political economy of local land-uses. Ranching and forestry livelihoods
have and still tend to dominate the social and cultural milieu of the watershed (and to a lesser extent, but increasing, are recreation and tourism activities). However, there do exist external threats to the livelihood options available for local residents, namely habitat fragmentation through exurban development. Housing development at the wildland-urban interface is challenging the traditional notion of what it means to ‘live rural’ and in ‘a working landscape.’

5.3.4 Discourses
A local discourse of ‘open space’ conservation has emerged as a powerful call to participatory engagement bringing diverse stakeholders to the table. Directly informed by the political economic context of exurban development, this particular discourse includes an aspect of working lands that appeal to ranchers as well as intact landscapes that is attractive to land trusts and state and federal wildlife agencies (Brunson et al. 2008). This has provided the discursive platform for environmentalists, ranchers, and loggers to participate towards a common conservation goal. Further, in April 2011 it was announced the America’s Great Outdoors initiative to address the challenges, opportunities, and innovations surrounding modern-day land conservation. Through this initiative, the Blackfoot Challenge and similar participatory conservation organizations have been explicitly recognized as a model for water resource and land conservation.

5.3.5 Attributes of the community
The Blackfoot Challenge represents the interests of seven geographical communities of place, which can be categorized as four communities of interest: landowners, agencies, land-trusts and business. Almost four decades of collaboration in the watershed has led to high levels of social capital and common understanding of challenges and opportunities. Norms of fairness, reciprocity, and trust between the actors involved, characterize this community.

5.3.6 Rules-in-use
In the complex system of federalism in the United States, it is often difficult to define collective choice rules because a myriad of agencies, governments, and statutes that govern the operational rules applied to a particular geographic area. However, the management actions produced by collaborative institutions (such as the non-profit watershed organization in this case) provide new sets of operational rules governing the use of resources within the watershed. Therefore, it is possible to discern the rules-in-use, which are relatively clear and codified due the processes of the formal non-profit organization – the Blackfoot Challenge – whose mission it is to ‘coordinate’ efforts of conservation in the watershed.

The boundary rules dictate that residents of the watershed participate in the collaborative efforts. Further, inclusive stakeholder participation is a goal that means balancing a certain ratio of landowners and agency employees (federal and state) participating in committees. Positions are relatively fluid, and executive committee positions are voted on by members of the Blackfoot Challenge. Landownership maps of the Blackfoot watershed exist, with
ownership boundaries (public-private) largely dictating authorized and forbidden domains. Aggregation rules exist, some by the state of Montana water statutes, and other less formal water sharing programs that require permission to use a neighbour’s allocation. The organization aims to be transparent, and information regarding the workings of the Blackfoot Challenge is public.

5.3.7 Action situation

The level of control each participant has over choice is structured by various incentives and deterrents. Specifically, landowner livelihoods depend on maintaining productivity in agriculture and ranching, and sustaining the water resource for agricultural irrigation to support these livelihoods. The level of control over choice is constrained by statutes as well as voluntary agreements. The natural resource management agencies largely operate on legislative mandates to conserve habitat and water resources under the Endangered Species Act and other statutes (for example the minimum levels of flow to sustain endangered fish stock), which comes with the distinction of authority and control. If this authority is not balanced with a desire for collaboration, these attributes can often deter participation from other stakeholders. The land trusts are primarily driven by land conservation as a response to exurban development using tools of conservation easements and outright purchase of land. The set of allowable actions (tax and real estate law) are clearly linked to outcomes for these participants. Land conservation efforts without community support often deter future participatory efforts. Local business operators are driven by economic principles to be economically viable businesses (guest ranches, recreation outfitters), maintaining a large degree of control over their choices.

Participation (and the Action Situation) in the watershed partnership is largely structured by the formal organization, the Blackfoot Challenge. Membership largely comes from association with the Blackfoot Challenge and non-members may still possess harvesting rights, but do not (presumably) take part in any voluntary agreements. Water programs are instituted to monitor the efficiency of ranch water extraction technologies. Drought events make outcomes more tenuous. Generally, good information is available regarding the condition of the resource and regarding joint outcomes (i.e. water efficiency program). This process is sensitive to the needs of local actors (landowners) and, locally, provides a forum to address the tensions between community, federal agencies, and environmental groups.

5.4 Tibetan areas

5.4.1 The problem

For the last 15 years the Tibetan rangelands have been subject to natural conservation and environmental governance programs implemented by the Chinese central government. The Sanjiangyuan region, where the watershed of the three major rivers of China, the Lacang, the Yangtze and the Yellow are located, has received priority attention. The Chinese government has implemented an extensive program of resettlement and sedentarization of the Tibetan
nomads. The traditional pastoral activity of the nomads is targeted by governmental policies as it is considered the major stressor for the rangelands therefore threat to the health of the watersheds. The Chinese government claims that the resettlement is voluntary and that the Tibetan nomads are actively involved in a process of environmental restoration and economic development. To investigate this process a case study in the area has been conducted in 2007 and 2011. Data collection had to deal with the different categories of respondents. The different stake holders of the policy that were interviews included: nomads, resettled nomads, government officials, civil servants, religious exponents, local and international NGO staff, for an overall number of 142 people were interviewed. For each category, different interview and data collection methods were employed, such as unstructured and semi-structured interviews, informal conversations and observation in order to best include the different categories of actors.

5.4.2 Biophysical conditions

The Sanjiangyuan area is the part of the Qinghai-Tibetan plateau with the higher concentration of watersheds. The Qinghai-Tibetan plateau contains 90% of the watersheds of China’s rivers (Haiying et al., 2002, Qiji et al., 2005). The plateau altitude ranges from 1500 to 5000 mt and generally has the form of arid steppe. Annual precipitation varies from 100 to 300 millimetres. Six months of the year frost covers the area and permafrost is present over large parts of the plateau. The eastern and southern areas have grasslands, which have been traditionally inhabited by nomadic pastoral population. The aspect of subtractability and excludability of the rangelands varies according to the institutional arrangements established during the different historical and political periods. However wit is possible to define that during the years, for several causes (i.e. demographic pressure, ecological disturbances, policy and institutional arrangements) the level of subtractability and excludability of the rangelands increased.

5.4.3 The political-economic context

The political economical context is particularly determinant in the process of environmental governance of the area. Qinghai, with a 45.5 % non- Han population, is the third largest province in the PRC with the highest percentage of minority nationalities (after TAR and Xinjiang). Tibetans represent the largest minority (22%), followed by Hui (16%), Tu (4%), Salar (2%) and Mongols (2%) (Goodman, 2004). In 2001, 39 counties out of 46 (mainly all the rural ones) were officially classified as “poverty stricken” (Qinghai Statistical Yearbook 2001 in Goodman, 2004 ). In 2001, under Premier Jiang Zemin’s slogan “Open Up the West through rebuilding a green west”,12 a Five-year Plan based on environmental sustainability, internal infrastructures, transport and communication was introduced (Goodman, 2004). Qinghai’s development strategy is part of the wider “Open Up the West” campaign (xibu da kaifa) introduced by the CCP in 1999 to develop the economy and reduce the economic and infrastructural gaps between the rich East and the poor interior provinces.
5.4.4 Discourses

The resettlement programmes are supported by two main government discourses (Yeh 2005). The first is related to the environmental restoration of the area. The government invokes a scientific justification that describes the area as environmentally degraded by nomadic pastoral activity. In parallel a second discourse forwarded by the government and local authorities is on the backwardness of the nomadic people and the necessity of moving on to a modern system of production. Both discourses are promoted by the local authorities as beneficial transition for the nomadic population in which the nomads themselves are the main actors and not passive recipients. However this study observes how although the Tibetan nomads are not forced to sedentarize through coercive and violent procedures there are other legislative systems that reduce the possibility of the population to self determine their choices.

5.4.5 Attributes of the community

The interviews revealed that the level of information and awareness of the grassland governance issues is very high and often discussed between the family members, the groups and inside the village assemblies. The Tibetan nomads traditionally consider themselves ‘poor’, ‘medium’ or ‘rich’ according to the number animals owned by the household. The cultural homogeneity of the Tibetan nomads is very high. Traditionally the Tibetan nomads are considered as very religious and all the interviewees answered that Buddhist practice and religious activity are a fundamental aspect of their life. The Buddhist believes were according to all the interviews the common ground for ethics and behaviour. The most relevant aspect of the preferences related to the considered action situation was if nomads were looking forward to the resettlement policies or if they were happy with their nomadic life. Over 95 % of the interviewed people revealed that they did not want to move to the resettlement and live their life in the grasslands.

5.4.6 Rules-in-use

The boundary rules define the boundaries of the population that access the resource. In the studied case the Tibetan nomads are accessing the rangelands, there is an ethnic component as much as a socio-economical one, Chinese han and Chinese Muslim are not present in the pastoral activity. In the case study, the position that the actors hold depend on the hierarchical level of the decisions taken. The main actors, Tibetan nomads, arrive only at the village government level. Nomads (only men) participate to village assemblies. No representation of nomads are present in higher levels of decisions that affect the land access rules. The nomads tend to respect the traditional village and inter-villages rules rather than the ones imposed by the government policies. In the case study it has been observed that the level of shared information in the village is very high. Tibetan nomads in the village don’t have incentives to keep secret to each other aspects related to land tenure and grazing. Payoff rules are related to the sanctioning systems of the previous rules. At the government level sanctions can vary
from fines, to confiscation of animals to arrest. At the village levels instead, not respecting the rules is an issue discussed in the village assemble and resolved without the judicial intervention.

5.4.7 Action situation

In this case study the actors/participants has been restricted to two categories, the Tibetan nomads (the community) and the Government. The action situation has been analyzed looking at how the level of participation of the nomads, varies as a consequence of the resettlement policies in relation to the decisions and actions related to: a. who is allowed to harvest resource units, timing quantity, b. technology and location of harvesting, c. how harvesting activities are monitored, enforced and sanctioned, d. what are the conflict resolution mechanisms involved with appropriation activities, e. what is the role of the rules, f. what strategies are used by the participants (Mwangi and Ostrom 2009). The participation to the resettlement programs is explained by the Chinese officials as completely voluntary. However, the inclusion of the Tibetan nomads to the decisions processes is hindered by the general discourse between local authorities on the backwardness of the nomads. The absence of the inclusion of the nomads perspectives in the governance of the territory is evident when looking at the implementation of the resettlement policies.

5. Discussion

The four cases described in this research show how participation, as a construct for natural resources management has gained ascendancy in conservation discourse and is being used to legitimise various conservation agendas in different socio-political contexts. While all four cases posit a strong rhetoric of participative resource governance ideals, in at least three of the four cases, there are important gaps between this rhetoric and practice. For example, in the Tibetan case, we have a situation where participation is an imposed project in which the state-centric vision of watershed restoration is discordant with the nomadic lifestyle of local actors and institutional arrangements that govern the organisation of their livelihoods. Through the IAD framework, the research shows how the rules-in-use guiding participation in the watershed preservation programme, have not resulted in any transfer of decision making powers to local actors. Instead, if we have to draw on Hobley’s typology of participation in Table 1, participation has been contextualised in such a way that local actors are passive participants in the design and implementation of operational rules. Moreover, narratives of the local actors’ backwardness have been used to justify the subversion of their institutional arrangements and exclusion of nomadic pastoralist from decision making process. This situation appear to validate Cooke and Kothari’s (2001) arguments, that despite the rhetoric of local actor’s empowerment and the democratic language underpinning participatory programmes it is probable for participation to foster tyranny than democratic ideals. This happens when participation is framed in such a way that powerful actors continue to override local actors’ interests and limit their decision making space.
Similarly, in the case of Zambia and Kenya, the process seems to be characterised by a situation where, although local actors are represented on decision-making resource governance bodies, their participation is, in practice, a means to achieving goals set by external actors (i.e. the state). Consequently, local actors are merely co-opted in decisions made by the state and other external actors. In Hobley’s view, this is what is termed as functional participation (see also Buchy and Race, 2001; Jones, 2006). Although this differs from a situation where local actors are completely ignored in decision making, local actors still have very limited decision-making spaces because of the influence of powerful actors in the participatory process. In the Zambian case study, for example, operational rules guiding resource access and management, despite local actors being represented on joint forest management committees, have been made to conform to bureaucratic regulations developed by the state such that the rules still represent the decisions of external actors rather than that of local actors. Similarly in the Northern Kenyan case local communities were duped to believe in the rhetoric of ‘participatory conservation’ without adequate knowledge of long term implication to their livelihood system and the unique bio-cultural landscape that they have managed historically. These cases show how, because of unequal power relations between actors operating at various levels (e.g. between the state and local communities) involved in participatory programmes, participation can easily favour the interests of the more powerful actors. This challenge, however, is not limited to relationships between state actors (and NGOs) and the community, but also between members of the local community itself. The Kenyan case, for example, shows how benefits of natural resources conservation can easily be skewed in favour of one group of people at the expense of other groups in the community. Again, Cooke and Kothari (2001) have pointed out how the notion of ‘community’ in the discourse of participation may serve to conceal the power relations within communities and mask biases in interests and needs based on ethnicity, class, religion, gender and other factors (see also Barrow et al, 2002; Brown, 2003). This suggests the need for participatory process to engage critically with the notion of community in order to understand the various interests involved in the process.

In the fourth case study instead participation can be described as interactive. In this case the rules-in-use are decided through a deliberative process that allows the articulation of various actors’ interests. It is important to acknowledge that participative governance is taking place in an environment characterized by clear tenurial arrangements (i.e. clear property rights) a less conflictive political-economic context and homogeneity in the local actor’s livelihood characteristics. The same cannot be said of the three cases where traditional property rights (e.g. those of nomadic pastoralists) conflict with modern property rights and the political economy of all the three cases is generally unsupportive of the type of participatory programs developed. In addition, the case of USA shows a participatory process that is largely driven by local actors themselves rather than imposed on local actors. Indeed, at the heart of the idea of participatory natural resource governance is that local actors themselves must play a significant role in the creation of governance structures and institutional rules if the ideals of participation are to be achieved. The fourth case raises a point that is crucial for the discussion: participation in natural conservation would seem higher in the US which is the
only case where the property rights are clearly defined. This would apparently endorse Hardin’s discourse on the importance of an actor (either a private or state) that manages the common pool resources. However this is what could be deducted only analysing the institutional aspects. Instead adding the political ecology perspective provides very different results. Analyzing the political economical context and the discourses it emerges that including the discourse in the institutional analysis provides a more comprehensive understanding. In the Tibetan case for example there is a millenary history of traditional institutional arrangements that govern the access to common pastures, however when it comes to the development of central government policies these arrangements are completely eradicated by top down policy implementation. Similarly in the Zambian and Kenyan case participation is exploited by the most powerful actors. In the case of the US the participation depends on property rights and as the community is quite homogenous the power issues are less relevant. In conclusion we find that the Political Ecology complements the results of an IAD and that in order to analyze complex and non homogeneous political economical contexts it becomes valuable.

6. Conclusion

This paper has presented a framework and a method, drawing from the Institutional Analysis and Development framework as well as drawing on insights from Political Ecology, to make cross-country comparisons of efforts of natural resource conservation. In this paper we have conducted a comparative analysis by applying the same analytical framework to four different case studies in different geo-political settings. We have looked at how the institutional dynamics, rules and discourses in different geo-political contexts produce different levels of participation in natural resource management programs. Understanding this can point to barriers that limit participation in various contexts. Equally important is the simultaneous influence of institutions, discourses, and political-economic context in affecting social and ecological outcomes of conservation interventions. Including the political ecology perspective in the institutional analysis strengthened its analytical power when looking at similar cases but in very different situations. We have illustrated how a similar discourse on participation can vary significantly depending on the context. This comparative analysis increases the understanding of how institutional dynamics are strongly influenced by the discourses and the political economic context in which they occur. Participation has been globally applied as a panacea for natural resource management however as this study illustrates the gap between theory and practice is evident and the first step for understanding this is to contextualize the institutional dynamics. International environmental-NGOs as well as state governments continue to promote participation as the solution to natural resource management problems. It is therefore critical to remain aware of the barriers and implications of turning this discourse into practice.
References


The ‘wickedness’ of participation in climate change adaptation governance

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1. Introduction
The ‘wicked dimensions’ of climate change require rethinking how to best govern efforts towards adaptation. Wicked problems, as defined by Rittel and Webber (1973), cannot be solved by breaking them down into their component parts to be addressed by experts. Instead, wicked problems are ‘ill-formed, involve uncertainty and confusing information, have many decision-makers and affected parties with different and conflicting values, and promise ramifications for the whole system’ (Ferkany and Powys Whyte, 2011, p. 3). Climate change is widely considered a wicked problem (Ludwig, 2001) due to the interaction between ecological, social, and economic factors across scales, and addressing climate change is an issue of governmental planning more than purely a scientific problem to be solved. Since no single technical solution will resolve the problem, wicked dimensions bring to the forefront the importance of on-going governance that is able to make incremental decisions to address the problem, recognizing that future conditions will likely require different strategies. In addition, there is the recognition that what is seen as a solution by one, might actually generate problems for another (Rittel and Webber, 1973). Solutions cannot, therefore, be handed down from experts; instead, participatory approaches to governance are seen as central to negotiating conflicting values and contributing local knowledge necessary to managing certain aspects of climate change. The presumption is, therefore, that some sort of multi-level governance involving many participants will be required to address climate change. The surge of research on adaptive management (for critical review see Stringer et al., 2006) is one indication of the focus on developing new philosophies and practices of adaptive management capable of governing wicked problems.

We see climate change as a wicked problem and agree that governing climate change adaptation requires multi-level approaches. Climate change governance calls for participatory approaches, including local perspectives, diverse stakeholders, and members of the public. Nonetheless, we argue that participation in climate governance is itself a wicked problem. Determining who participates and how is wicked, tricky, and even aggressive. The wickedness of participation is partly the result of the very problem that prompted Rittel and White (1973) to write about wicked problems: an increasingly plural, diverse society. In turn, power and hierarchy compound the challenges of diversity, making a stable consensus not
only improbable but potentially discriminatory towards those living at the margins of society. Finally, we argue that the wicked dimensions of climate change as a political problem—the difficulties of problem definition and no stopping rule, in particular—make theorizing an appropriate role for participation in climate change difficult. Yet because we believe that meaningful participation is essential for just governance of climate change adaptation, we draw on the existing work on participation, multi-level governance, and climate change adaptation to suggest the wicked dimensions of participation. Then we suggest how these wicked dimensions of participation might be best addressed by drawing on democratic theory and deliberative processes.

We begin by defining what we mean by participation and governance, thus establishing the presumption that climate change adaptation will require a multi-level approach. We then consider how the nature of climate change adaptation poses particular governance challenges at different scales. To begin to theorize the wicked dimensions of participation, we turn to critiques of participation from development and post-political scholars. These critiques suggest challenges to participation that must be directly acknowledged and managed to ensure productive participation. Following the logic of wicked problems requiring attention to paradox, we identify several wicked dimensions of participation in climate change governance.

2. Participation in environmental governance

In the past decade, there has been a move from focusing on government institutions as the central means of making political decisions to a focus on governance that includes a wider set of actors and institutions in making decisions over shared problems. Schmitter (2002) defines governance as “a method/mechanism for dealing with a broad range of problems/conflicts in which actors regularly arrive at mutually satisfactory and binding decisions by negotiating with each other and co-operating in the implementation of these decisions” (p. 52). By focusing on governance as a method, Schmitter draws our attention away from the actors making decisions (e.g. government) to the processes whereby mutually satisfactory decisions are made. Gualini (2010) further argues that governance is a useful analytic framework for looking at change in policy processes within emergent, non-conventional, extended policy arenas, across hierarchy, market, and self-governance mechanisms, including forms of co-decision and co-management. Despite concerns that governance can become aligned with the normative goal of shrinking the state (see Gualini, 2010), governance fits climate change adaptation because it draws our attention to the processes of making decisions and a broader range of actors and mechanisms for enacting decisions than government alone.

Paavola (2007) defines environmental governance as “the establishment, reaffirmation or change of institutions to resolve conflicts over environmental resources” (Paavola, 2007, p. 94). The suggestion that environmental governance requires participatory approaches is not new (Paavola and Adger, 2006). In fact, several national and international agreements commit to participatory forms of governance (e.g. Principle 10 of the Rio Declaration, article 6 of the 1992 UNFCCC; UNFCCC Cancun, and UNFCCC Bonn National Adaptation Plans).
However, participation within climate change adaptation has not been fully theorised. Although attempts at participatory governance now have a long history, the implementation of such approaches is not straightforward.

Given our focus on participation, it is necessary to define this key term. Participation can refer to various forms of non-state involvement in governance, planning, and project implementation. Few et al. (2007) define participation as “securing the active involvement of a broad range of stakeholders in decision-making and action” (p. 46). This definition comes down to determining what counts as “active involvement” and “action” and who are defined as “stakeholders”. Arnstein’s article ‘A ladder of citizen participation’ (1969) is often quoted as a defining text in the participation literature (Collins and Ison, 2009; Fung, 2006; Reed, 2008). Critical of the rhetoric and euphemisms surrounding participation in Community Action Programmes in the States, she created a typology hierarchically arranged from ‘manipulation’ on the bottom rung of a ladder leading through ‘therapy’, ‘informing’, ‘consultation’, ‘placation’, ‘partnership’, ‘delegated power’, and finally ‘citizen control’ on the top. This typology focuses on the issue of power, with the assumption being that the higher up the ladder, the greater the power given to citizens in the process, the better it is. Arnstein’s ladder demonstrated that the term participation can and is applied to approaches with very different emancipatory outcomes. Although she recognised the simplicity of her analysis, and the typology has since been questioned by others (for example Collins and Ison, 2009; Fung, 2006), Arnstein’s observation that ‘participation’ can cover many different interactions that should not be conflated and her critique of the processes in terms of power have been echoed in many subsequent works (for example Agarwal, 2001; Green and Hunton-Clarke, 2003; Michener, 1998). Reed (2008) identifies a plethora of typologies developed by numerous scholars based on: the nature of the engagement (the flows of information, for example top-down or bottom-up), whether pragmatic or normative, or based upon the objectives of use (for example whether outcome or process oriented).

Building on these distinctions, Rowe and Frewer (2005) note the differences between public communication (information from sponsor to public), public consultation (information back and forth initiated by the sponsor), and public participation (information exchange that includes some degree of dialogue that transforms opinions). Our paper draws on this final notion of public participation as having some information exchanges between parties on the range of options and/or opinions related to problem definition, project development, implementation, and/or monitoring. This conceptual definition includes participation that differs on a range of dimensions: structured to unstructured, informal to formal, passive to active, individual to collective, one-off to on-going, unpaid to paid, reactive to proactive self-interested to altruistic, and resisting social change to driving social change (Brodie et al., 2009). In the context of climate change adaptation, this can mean that people participate in the exploration of a management problem, goal setting, planning, and/or monitoring (Stringer et al., 2006).

Within literatures on participation, some scholars focus on the general public while others focus on stakeholders or including particular organizations and communities. The difference between stakeholders and the public can be traced to thinking about participation in terms of
representing relevant interests (stakeholders) or thinking about democratic participation as a more fundamental right (general public). Schmitter (2002) has built on the notion of “stake” to suggest a range of different “holders” based on rights, spatial location, knowledge, share, stake, interest, and status. His discussion attempts to expand the ways in which theorists and practitioners determine who gets to participate. Rather than focusing exclusively on stakeholder or public participation, this paper considers participation of both stakeholders and publics as central to working through the wicked dimensions of participation.

In terms of political philosophy, participation is a central component of environmental democracy. Foti et al. (2008) argue that access to information, public participation, and access to justice are keys to more transparent, inclusive, and accountable decision-making in matters affecting the environment. As a normative concept, participation as part of democratic rights (Reed, 2008; Stringer et al., 2006) reduces marginalization, increases public trust, increases empowerment, and capacity building. Pragmatically, participation can help ensure that solutions are better adapted to the local context, transform adversarial relationships, lead to ownership, reduce implementation costs, introduce better information, and include diverse perspectives and ways of knowing (Reed, 2008), thereby enhancing the quality of assessments or decisions (Ferkany and Powys Whyte, 2011). In other words, participation legitimizes decisions (Bauer et al., 2011). In terms of adaptation, in particular, including a wide range of voices in the development of local, national, and international strategies can help to identify the most appropriate (and desirable) forms of adaptation and their viability; mobilize tacit knowledge and experiences of alternative knowledge communities on local vulnerabilities and impacts; analyse their capacity to cope with the impacts of climate change; build shared understanding of the impacts, vulnerabilities, and options of adaptation; and enhance the ability to identify priority areas (Biesbroek et al., 2010). Studies show that ‘stakeholder’ participation improves the quality of environmental decisions (Reed, 2008), but the level of improvement is dependent on the process and how stakeholders are involved (although the question of who these stakeholders were also needs to be asked).

These rationales for participation in climate change adaptation governance provide a philosophical and practical basis for the importance of participation in climate governance. Despite our belief in the importance of participation, our paper reveals fundamental challenges to the theory and practice of participation due to the nature of wicked problems. To identify these wicked dimensions of participation, we review the literature on climate change adaptation and multi-level governance and then focus specifically on critiques of participation.

3. Climate change adaptation and multi-level governance

Whereas until recently the international community has emphasized mitigation more heavily, adaptation has gained importance in recent years. Although originally considered defeatist, this growing focus recognises that no matter how successful mitigation attempts may be, societies and communities are going to have to respond to changes in the climate and the various impacts this will have. Adaptation as defined by the IPCC is the adjustment in natural
or human systems in response to actual or expected climatic stimuli or their effects; adaptation can both moderate harm and exploit beneficial opportunities. Adger et al. (2009) have a similar albeit wider definition where “adaptation describes adjustments made to changed environmental circumstances that take place naturally within biological systems and with some deliberation or intent in social systems” (2009, p. 337). Creating adaptive responses and measures to a changing climate requires decisions and actions cross-cutting local, national and international levels (Biesbroek et al., 2010; Paavola and Adger, 2006). It is argued that this necessitates “environmental governance” that encompasses not only government but also non-state actors such as local communities, NGOs and businesses (Lemos and Agarwal, 2006).

At a conceptual level, Gualini (2010) refers to the multi-actor and multi-level nature of governance with interconnected rather than hierarchical relations. Tackling climate change requires multi-level governance with coordination across multiple scales, a need which is implicit in the very nature of climate change and its impacts. Paavola and Adger point out “there is no one, right level of decision making for undertaking adaptive actions” (2006, p.597), particularly because adaptation can be required at multiple scales, ranging from the community to the international level. Faced with community-level impacts of climate change, Lemos and Agrawal (2006) argue that nation states are no longer taken as the only actors that can effectively deal with climate change. Instead, Biesbroek et al. (2010) stress the importance of taking action at the appropriate level of scale and argue that bottom-up approaches fit adaptation better due to the existence of multiple variables, context dependencies, and cultural settings. Hobson and Niemeyer (2011) underline the fact that adaptation is a long and continuous process requiring close coordination with stakeholders. This coordination is needed at multiple levels, but it necessarily requires local engagement rather than just national policy. In sum, climate change adaptation requires multi-level governance poised to address the impacts of climate change at the same scale at which they are experienced to determine appropriate adaptations. In turn, it requires coordinated collective action across these levels.

Despite a clear focus in many studies on the necessity of multi-level governance in relation to climate change adaptation, it is not clearly laid out how multi-level governance should be operationalized. Particularly, what actors are to be “included” at which levels? The previous paragraph suggests that at the local level the public and stakeholders can be engaged in direct participation in deliberation and decision making. This is in line with a move toward decentralization. Lemos and Agrawal (2006) argue that given the complex and multi-scalar nature of most environmental problems, “pure modes of governance” in which states or market actors lead the process are likely to fail. The authors argue that the “latest fashion” of decentralization of government functions is usually justified on three grounds: greater efficiency, bringing decision making closer to those affected by governance, and provision of more precise knowledge for decision-makers. New hybrid modes of governance crosscutting state, market, and community spheres are emerging. Three broad categories for these new innovative hybrid governance instruments are identified by the authors: co-management (between state and community), public-private partnerships (between market and state), and
social-private partnerships (between market and community). Although these new forms come about with the promise of increased efficiency and greater funding opportunities from the private sector, they are widely contested. In particular, increased reliance on market actors and processes might undermine social goals of stronger democratic participation, equal access to resources, and accountability. New forms of global environmental governance may simply reflect existing power relations rather than democratizing the negotiation processes (Ford, 2003, cited in Lemos and Agrawal, 2006). The nature of participation in these hybrid governance instruments is fundamental to assessing equity, accountability, and legitimacy.

At the local level, participation often means direct participation by stakeholders or members of the public in dialogue and deliberation that influence decision-making. Yet even at the local level, power is not always transferred to local authorities and local publics. Larson and Soto (2008) point out the gaps between the theory and practice of decentralization, especially when incentives for central authorities to transfer powers and resources to lower levels are absent, and local authorities do not see any incentive to take on power in a responsible manner. Their analysis demonstrates that intended outcomes of decentralization – such as greater participation and social justice for marginalized groups - do not necessarily come true in practice. Ostrom (2010) suggests adopting a polycentric approach to the climate change problem. She underlines the importance of experimental efforts at multiple scales with potential multiple benefits and argues that reliance on only one scale is naive. However, this approach does not account for the optimum conditions of how the polycentric system should be set up. Larson and Soto (2008) argue that polycentric governance systems do not have clear answers to two key questions: 1) “how and by whom local rules would be monitored to promote social inclusion as well as sustainability” and 2) “if and how local enforcement failures and the movement of products across jurisdictions would be monitored and controlled” (p. 226). Their first question points to the difficulties of maintaining democratic values (social inclusion) that should be related to participation. The second concern highlights the complications of scale, including questions of who is involved in multi-scalar rule making and enforcement.

In addition, there is no theory for what participation in governance should entail at the national and international levels. Yet there is an assumption that polycentric systems must maintain a role for the state. While delegation of power to the lower levels constitutes an important part of multi-level governance, this does not need to undermine the role and potential of the state as coordinator between different levels – local and sub-national. Therefore, the state has to be a significant part of the hierarchy (Paavola, 2007; Vatn, 2009). Further, in order to deal with issues in which redistribution is one of the major concerns – as is the case with climate change adaptation- the state has to assume a large role since neither markets nor hybrid forms of governance can become successful instruments on their own (Lowi, 2002, cited in Lemos and Agrawal, 2006). The increasing popularity of market- and incentives-based policy instruments such as eco-taxes, voluntary agreements, and eco-labelling in developed world continue to expand the possible mechanisms of environmental governance. Nonetheless, Lemos and Agrawal (2006) underline that this does not imply that governance is replacing governments. Governments remain to be an important source of
credible threat and monitoring authority. Yet there are fewer discussions about the nature of participation in state decisions and actions. The unspoken assumption seems to be that state decisions will be made by elected representatives and experts, without a need for participation by others unless forms of direct democracy like referenda are already in place (e.g. Stadelmann-Steffen, 2011).

The recognition that governance at the state level is not adequate for tackling global challenges, particularly concerning the environment, has led to a focus on and development of international institutions. In climate change in particular there is the perception that it is this international level which is the most vital in order to galvanise action, fairly spread the costs, and to meaningfully face the challenge of global environmental change within the context of unequal development and unequal responsibility. The annual summits of the UNFCCC receive global attention and critique concerning not only the decisions reached (or not) but the negotiation process itself. At this level the idea of participation moves beyond that of political representation, towards – in rhetoric at least – a more inclusive interpretation that attempts to bring in other actors including underrepresented groups. Civil society groups, international NGOs, and business consortiums are increasingly playing a role at this level. An example of this is the attempt to include indigenous groups as a ‘stakeholder’ in the on-going negotiations for forest mitigation mechanisms such as REDD. The role of such stakeholders, how and who they are supposed to represent, and whether they strengthen or undermine democratic decision-making at this level are questions that still remain unanswered.

Across all scales of multi-level governance, there are concerns about justice, particularly in terms of ensuring fair participation. Participation has to be “fair” in two forms; governing climate change adaptation requires both distributive justice (distribution of costs and benefits) and procedural justice (encompassing recognition, participation and distribution of power). Adaptation also entails knowledge building as an on-going and iterative process between knowledge producers and users (Dilling and Lemos, 2011). Again, this means that the links between different levels and actors (i.e. between scientists, local community, organizations and decision makers) have to be established to create useful knowledge for adaptation.

Social learning is a particular way that scholars have started to theorize about the goals of participation in adaptive management. Social learning is the learning that occurs through social interaction, as participation cultivates individual and group reflection, trust, and relationships (Stringer et al., 2006). This approach is critical of Arnstein’s initial work on participation, arguing that adaptation requires new forms of social learning for concerted action that require theorizing “meaningful” and “active” participation in new ways (Collins and Ison, 2009). Stringer et al. (2006) argue that maintaining a flexible view of participation is paramount: “diverse stakeholders have changing needs and priorities, and different objectives may require different approaches to participation within the same project. Also different voices may need to come through at different stages of the adaptive cycle for shared understandings to develop. Maintaining a flexible view of participation is, therefore, paramount in creating the conditions for this to take place” (p. 17). In turn, social learning focuses on the process of the co-creation of knowledge, the convergence of goals, and the change of behaviour that comes from understanding something, which together suggest how
process can transform a situation. To ensure that these conditions are met, we turn to critiques of participation in the development literature and post-political perspective.

4. Critiques of participation

In the development literature the most important critique of participation comes from the oft-quoted book *Participation: the new tyranny* edited by Cooke and Kothari (2001). This book came as a reaction against the ‘participatory turn’ in development, which was initially embodied in such approaches as Farmer First and Participatory Rural Appraisal and has now been mainstreamed. This collection of essays questions “how the discourse itself, and not just the practices, embodies the potential for an unjustified exercise of power” (Cooke and Kothari, 2001, p. 4). They see three tyrannies: the tyranny of decision-making and control (outsiders overriding local forms), the tyranny of the group (for example elite capture and/or participatory exclusions), and the tyranny of the method (method driving out alternatives).

In her contribution, Cleaver claimed that “participation has […] become an act of faith in development” (2001, p. 36) based on three tenets:

1. it is intrinsically a ‘good thing’
2. a focus on getting techniques right – a way of ensuring success
3. power and politics should be avoided as divisive and obstructive

Although many of the contributors had been enthusiastic supporters of participation as an empowering approach in the development arena, many saw that mainstreaming led to the co-optation and de-legitimization of marginal people and their dignity as the larger inequitable structures were left untouched, and dissent or conflict was stifled. Instead of offering a forum for transformation, it subjugated the poor and vulnerable into participatory frameworks which were imposed from the outside, had pre-defined ideas about the problems to be tackled, did not take into consideration the local social context, and led to an increased burden – both freeing up the state from its social responsibility and stifling political dissent through the illusion of decentralising power. McGee (2002) claims that the ideal of ‘participatory development’ was replaced by the mainstreamed ‘participation in projects’. The differences in methodologies between these two is not only a difference in toolkit but how development was conceived and by whom, and what sort of development was promoted and how. Participatory development can be seen as a threat to the status quo as its implementation would require a shift in power from the ‘experts’ to the grassroots.

Reed (2008) contrasts this more site specific ‘participation in projects’ seen in developing world contexts with the trend of consultation in the developed world. He points out that in terms of environmental governance this is one area where the developed world is ‘learning from the south’. At the same time, development practitioners who are disenchanted with the emancipatory potential of ‘participation in projects’ are now reframing participation as the active involvement of citizens in governance decisions, a topic that Hickey and Mohan take up in their follow up book *Participation: From Tyranny to Transformation* (Hickey and
Mohan, 2004). As they distinguish between immanent and imminent development (the first the process of social change, the latter a specific intervention), they place their focus in the former, making it intrinsically political – leading to a radicalised notion of citizenship as an alternative to ‘development in projects’. Gaventa (2004) notes that participation is increasingly being used in relation to rights of citizenship and democratic governance as witnessed in programmes for decentralised governance. In his view there needs to be a “reconceptualization of the meanings of participation and citizenship in relationship to democratic governance” (2004, p. 28), rethinking participation as a right of citizenship “and with the extension of the rights to participation beyond traditional voting and political rights, comes the search for more participatory approaches to ensuring citizen voices in processes of democratic governance” (2004, p. 30). His final challenge concerns the issue of power relations in participatory spaces, where he points out that although they offer the opportunity for transformative engagement, they may well be used as “instruments for reinforcing domination and control” (2004, p. 34). This brings us back to the issue of power once more.

In addition to the development literature, participation has also been criticized within democratic theory, most prominently by post-political theorists. The post-political condition is built on the perceived inevitability of capitalism and the market economy as the basic organizational structure of the social and economic order, which as a consequence has evacuated dispute and disagreement from the public sphere and replaced them with a consensually established frame (Swyngedouw, 2010). Post-political politics applies a managerial logic to all aspects of social life, reducing the political to administration (policy-making) as decision-making is increasingly considered to be a question of expert knowledge and not of political position (Swyngedouw, 2010; Rancière, 2004). In this context, theorists criticize an increasing reliance on consensus that silences conflict and critique that challenges ways in which liberal economic policy now organizes moral values.

Swyngedouw (2010) argues the use of apocalyptic imaginaries and the management of fear in global climate change discourse, in particular, help disavow and displace social conflict. The concerted attempt to use the ‘market imperative’ to legitimize institutional reform results in a ‘hollowing out’ of the national state with more authoritarian and often repressive political regimes (Swyngedouw, 2000). In this process, ‘unauthorized actors’ appear (Beck, 1999): their status, inclusion or exclusion, legitimacy, structure of representation, scale of operation and accountability often take place in non-transparent, ad hoc and context-dependent ways, and differ greatly from those associated with pluralist democratic rules and codes (Swyngedouw, 2005). At a fundamental level, the post-political critique introduces questions concerning how actors participate, and who is defined as a stakeholder, by whom, and for what. For post-political theorists, participation is not a neutral, apolitical process. Instead, participation influences who gets to define the problem and what solutions are under consideration. “To the extent that ‘participation’ is invariably mediated by ‘power’ (whether political, economic, gender or cultural) among participation ‘holders,’ between levels of governance/government and between governing institutions, civil society and encroaching market power, the analysis and understanding of shifting relations of power are a central concern, particularly in light of the link between participation, social innovation and
development” (Swyngedouw, 2005, p. 1998-9). Too often, certain voices and perspectives are excluded from participation, particularly those likely to disagree or critique a project. Collaborative planning illustrates the problems with participation becoming synonymous with only engaging those who already agree. “As collaborative planning has been deployed within the UK, and elsewhere, with a promise to focus on ensuring local community inclusion; this has, at best, resulted in an ‘inclusion’ that largely depoliticized conflict, neutralised dissent, and legitimized the values of both government and private sector pro-development interests” (Gunder, 2010, p. 302). As the post-political critique makes clear: only including those who already agree and silencing dissent is anti-democratic.

A related critique comes from work on post-ecologism, an era marked by a politics of unsustainability because the historically radical and transformative elements of environmental movements and eco-political thought are blunted through mainstreaming into the ecological modernization paradigm (Bluhdorn and Welsh, 2007). According to Læssøe (2007), the post-ecologist transformation implies a narrowing of participation in four different meanings: 1) from a strategy focused on attacking and questioning the socio-cultural dynamics of environmental risk production – to a technical–functionalistic approach restricted only to an optimization of resources 2) from social mobilisation that highlights the value-based and structural conflicts which any serious sustainability policy needs to address – to a consensus orientation negating the sites of conflicts; 3) from an understanding of action that implies political engagement and collective empowerment – to an approach that avoids politicisation and promotes small technical fixes; 4) from an emphasis on issue-based learning about society at large – to a local perspective that eclipses any awareness that the problems to be addressed may require more encompassing strategies.

The post-ecological critique seems to resonate with the criticisms made by the post-political framework. The reduction of sustainability to a ready-made product with a predefined shape is tantamount to a narrowing of participation. At the same time, we are led to think that through participatory processes we are truly intervening into the political realm. But, as Bobbio (2006) reminds us, it is utopian to think that we can change the current (post-ecologist and neo-liberal) system by means of an increase of popular participation, especially given its current, “narrowed” mechanisms.

5. Wicked dimensions of participation

The critiques that we reviewed make several fundamental challenges for participation in terms of the telos of democratic governance (consensus vs. agonism) and the praxis of enacting meaningful participation that moves beyond empty rhetoric. Responding to these criticisms requires developing more nuanced theories of participation that are then matched by mechanisms and strategies designed to ensure that these conditions are met in practice. Cataloguing mechanisms and strategies is beyond the scope of this paper. As a move toward more robust theories of participation, we identify wicked dimensions of participation in climate change adaptation. Unlike the instinct to narrow the field of inquiry to avoid paradox, wicked problems demand taking paradoxes seriously and finding ways to understand and
work through contradictory tenants. By identifying these wicked dimensions, we argue that these dimensions demand attention rather than erasure if we seek better answers to the fundamental questions of who gets to participate in climate change adaptation and how.

5.1 Wicked dimensions of how people participate

*Problem formulation is a crucial stage that requires participation, but problem formulation of adaptation is often seen as a technical issue or a precursor to public engagement.* In wicked problems, determining the scope of the problem is a contested issue. An international coalition, for example, might choose to focus on the dynamics between global environmental change and economic globalization, what O’Brien and Leichenko (2000) call double exposure, rather than just environmental changes alone. In turn, defining a problem narrowly in terms of CO₂ production or global forest cover, for example, may make questions of economic opportunity and equity outside of the focus of concern. Thus defining the central problem that a group is attempting to address is a crucial stage in governing climate change adaptation. Due to the consequences of problem definition, diverse participants should be involved in this stage to ensure broad understanding of and support for attempting to address a particular problem. The paradox is that problem definition is often seen as a precursor to public engagement. Management, scientific, or government experts often define a problem before participation is even considered.

In the case of climate change adaptation, there is a specific paradox that stems from this wicked dimension: *If communities are allowed to frame the problem, they may not focus on climate change adaptation as the central problem, which could result in inaction on climate change.* Democratic participation necessarily does not predispose individuals to a particular set of beliefs beyond basic rights; approaches like deliberation govern interaction through standards for conflict resolution, but they do not guide participants to a particular outcome (Lo, 2011). If problem definition is opened to public participation, the public could decide that other problems are more important than climate change adaptation. The paradox is that if climate change adaptation is not seen as a problem with public recognition and support then participatory processes lose legitimacy if they are seen as being guided by predetermined outcomes. As Few et al. (2007) ask, “If pursuit of adaptation to climate change is a predetermined goal, and if stakeholders cannot be ‘trusted’ to decide collectively on an adaptive path because of competing priorities and short-term interests, what would be the result of a participation process? If an agency is seeking public inclusion as a means to design an anticipatory adaptation strategy, how will countering voices be accommodated?” (p. 53).

This concern about legitimacy rests on a broader wicked dimension of climate change adaptation: how will dissent be managed?

*Maintaining democratic legitimacy requires ample space for and encouragement of agonistic dissent; involving those who disagree about the nature of the problem may keep a group from being able to make decisions together.* As the post-political critique reminds us, vibrant democracy requires agonistic conflict where dissenting voices are encouraged and engaged, not just shut down. Yet the focus on making decisions together sometimes leads
groups to adopt consensus-based approaches critiqued by post-political scholars. We reject the notion that a move to include participation in multi-level governance necessarily implies consensus-based approaches, particularly when consensus is a stand-in for supporting the status quo and hegemonic practices. In fact the existing examples of National Adaptation Plans mandating participation do not rely on consensus. Instead, we suggest that deliberative democracy has concepts that can help manage this paradox: confluence, workable agreement, and meta-consensus.

Confluence is a gathering or flowing together at a juncture (Kadlec and Friedman, 2007). For our purposes, this juncture represents the common problems of climate change that require local, national, and international adaptation. Conceptually, confluence encourages participants to reach across boundaries and explore multiple perspectives to address a common problem. But this process necessarily requires clarifying serious differences as well as identifying points of common ground. Confluence suggests ways forward that are provisional, practical, and dynamic. Confluence acknowledges the dynamism of agonistic politics and the importance of critique and deep disagreement to maintain democratic legitimacy and good decisions. Rather than only inviting participation by those who already agree, robust participation requires engaging people with deep disagreements. Similarly, Dryzek’s (2000) notion of a workable agreement or the extension, “meta-consensus” (Dryzek and Neimeyer, 2006), suggests that consensus is not about agreement about positions as much as it is about understanding diverse perspectives. Normative meta-consensus, for example, suggests that different sides end up agreeing that others have legitimate values even if they disagree about which values should be privileged in this particular case. Like confluence, this type of consensus necessarily requires dissent and diverse perspectives, but it attempts to find a way to work through these differences so that decisions can be made.

Political theorists have developed democratic theory to work through how to best honour difference while still being able to make decisions. Yet the move towards governance rather than democratic government prompts additional paradoxes about how people participate that require new theory. Governance opens up a wider variety of actors and strategies that can make decisions about how to address shared problems. Yet governance lacks codified rules and regulations that define norms of participation, which can result in neo-liberal and corporate co-optation. Fundamentally this is the post-political concern that in the absence of robust theory or norms governance can be co-opted by corporate interests, making governance anti-democratic and environmentalism only a sales pitch. Following Dryzek and Bereikian (1993), we argue that the cure for this ailment is more democratic theory not less. Rather than treating governance as an open-concept devoid of norms or expectations, we suggest that environmental governance scholars would benefit from drawing heavily from democratic theory—even when theorizing about non-governmental actors like businesses or corporations. Building on Gaventa (2004), we argue that participation should be thought of in terms of the rights of citizenship rather than stakeholders who are involved to represent their interests. The public has a fundamental right to engage on governance of climate change adaptation, a right that does not depend on one’s stake in the issue or one’s opinion about a particular policy. We understand that this means of theorizing participation may constrain the governance process,
but it is a better way to ensure that democratic values are upheld, which ultimately protects against co-optation. Moreover, this focus on citizenship sensitizes us to the ways in which governance should not become the domain of experts but instead must maintain democratic vitality through an active polis. Viewing participation as a right of citizenship suggests that a project planner is not responsible for selecting who can participate and how; instead, participation in climate governance is a democratic right. In the international context, participation can be seen as a fundamental human right—not just a right of citizenship under a particular government.

5.2 Wicked dimensions of who gets to participate

Even if we determine that participation is a right, we haven’t resolved the fundamental challenges of who gets to participate: **All “holders” should be enabled to participate, but the scale of climate change makes direct participation impractical if not impossible.** The nature of climate change adaptation requires that not every individual will be able to participate in all governing all of the decisions that impact them; some types of representation are necessary. In this way, fundamental questions of who gets to participate are not resolved by turning to democratic theory. But there are rich traditions for theorizing about representation, including Schmitter’s (2002) encouragement to think of a range of different “holders” based on rights, spatial location, knowledge, share, stake, interest, and status.

**Climate change adaptation has no stopping rule as it requires on-going governance; in practice, sustaining participation with no stopping point is difficult and can result in politicization of participation over time.** Unlike problems that have a clear end-point, wicked problems require on-going governance since any “solution” will necessarily need to be revisited as system-dynamics impact the effects of any single solution. In practice, this means that participation has no temporal limit either: publics and stakeholders must be continually engaged in governance. This presents practical problems of how to motivate people to maintain participation in on-going governance, even if suitable participation mechanisms can be established. Over time, on-going participation can also lead to politicization as certain participants develop “expertise” through their on-going work with a project. Eventually these stakeholders might not represent the voices of the public or specific stakeholder groups as much as managers. At this point, the democratic and practical justifications of including local perspectives and diverse voices are undermined if participation only includes a small, established group inclined to support existing practices.

Finally, **participants tend to see problems on a level below their own. But if a problem is attacked on too low a level the success of resolution of higher problems may go down due to negative feedback loops caused by addressing lower level problems.** Moves toward decentralizing climate change governance increase participation in governance, but decentralization may also include people at the wrong scale. Paradoxically, the system might actually be made worse if people cause negative feedback loops when they focus on lower-level problems. Addressing this paradox requires analysis of the level of the problem, acknowledging that climate change adaptation likely requires participation at multiple levels.
This paradox may encourage technocratic governance if experts are seen as the only people capable of working between different scales to determine the proper level for intervention. Rather than designing around this paradox by ceding expert control, we argue that robust participation should be maintained where non-expert publics work with experts rather than being replaced by them.

6. Conclusion
The rich debate on governance and participation originates from the very fact that participatory democracy is not yet a form of democracy, while environmental governance is still currently evolving and taking shape. As Dryzek (2000) suggests, experimenting with definitions of environmental democracy is an essential part of democracy itself. As we experiment with climate change governance, we are reminded of Rittel and Webber’s (1973) conclusion that they lacked a theory capable of handling wicked dimensions: “We have neither a theory that can locate societal goodness, nor one that might dispel wickedness, nor one that might resolve the problems of equity that rising pluralism is provoking. We are inclined to think that these theoretic dilemmas may be the most wicked conditions that confront us” (p.169). The nature of participation makes it a wicked dimension: on one side participation must be a necessary component of any climate change adaptation governance, on the other side it faces the risk of turning itself into a narrowed, truncated participation, or better an ostensible ‘neutral’ process which is instead reproducing the dominant (ideological and power) paradigm, thus depriving itself of its very debating and questioning capacity.

We argue that the movement to narrow participation in climate change adaptation to a technical-functionalistic approach, focused on consensus, promoting small technical fixes alone has to be resisted. Rather than being brushed over, the many ambivalences, dilemmas, unpleasant choices, and social conflicts, which are inherent in the notion of sustainable development, should become the subject matter for participatory processes. To ensure robust discussions and legitimate governance, the wicked dimensions of participation in climate change adaptation that we identified must be taken seriously not erased.

References


Shifting legitimizations of large dams: A review of current debates on India and Turkey

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1. Introduction

The world has built 45,000 large dams, mostly since 1950. The number of large dam projects built annually grew from virtually zero in 1900 to nearly 250 by the mid-century. The rate exploded thereafter and peaked at around 1000 large dams being constructed annually from the mid-1950s to the mid-1970s. By the 1990s this number fell dramatically below 250 projects annually. This represents a 75 percent drop in the construction rate of large dams in a little over a decade. According to one estimate, the average number of dams built per year in the main dam-building countries dropped from a high of 443 during 1975-1990 to 300 after 1990 (World Bank, 2005).

An important reason for this global trend has been the rise of a critical discourse on the social and environmental costs of large dams. Mounting public protests caused political pressure on decision makers, who, as a consequence, grew increasingly reluctant to support additional projects. Furthermore, public protest often caused time and cost overruns with respect to planned or ongoing projects. The costs escalated even further because dam builders and authorities were compelled to investigate and mitigate negative social and environmental effects, such as by improving the livelihood of displaced people (IWMI, 2000). The result of those developments was a sharp reduction in funding from the World Bank and other international donors and a considerable slowing in the pace of construction of new dams.

Today dams are once again back at the top of the political agenda of many countries across the globe. Especially the world’s large transition countries, including China, Brazil, India and Turkey, strongly promote dam projects. In view of the predominantly bad reputation of dams and the associated decline in projects throughout the last three decades this renaissance of dam building of course seems puzzling. Critical discourses have played a major role in the past decline of such projects. The question therefore arises whether the reversed trend we observe today is also accompanied by an argumentative shift within associated debates.

The present paper addresses this question by reviewing a selection of dominant national and international discourses on large dams. Our review of national discourses focuses on India and Turkey, as both countries are strong supporters of dam projects. As part of our discussion we investigate what new arguments are brought into the discursive domain and how those arguments change the image of this disputed technology. We further look into the composition of today’s dam promoters and investigate how those actors tend to deal with
criticism. A second major part of our analysis is committed to the question whether and how arguments from the international arena are taken up and reflected upon within national debates in India and Turkey. The analysis is based on a literature review including newspaper articles, project reports and academic literature.

2. Towards a theorization of environmental discourses

The following section reviews a number of theoretical works which we believe facilitate our understanding of how legitimizing argumentations – including those raised in debates over the construction of large dams – evolve, become dominant and change over time. In order to do so, we focus on the theorization of discourses and especially conditions of discursive hegemony as proposed in the field of Political Ecology (cf. Leach and Mearns 1996; Hajer 1997; Stott and Sullivan 2000; Adger et al. 2001; Peet and Watts 2004).

The term discourse is here understood as “a specific ensemble of ideas, concepts, and categorizations that is produced, reproduced, and transformed in a particular set of practices and through which meaning is given to physical and social realities” (Hajer 1997: 44). With regard to the topic of our paper such ideas, concepts and categorizations may for example comprise the bulk of opinions on the social, political and environmental costs and benefits of building a dam in a given setting. Practices that represent the enactment of those opinions may be found in the modus operandi of planning and implementing the construction of a dam or in the constellation of actors who participate in such processes.

It is almost self-evident that phenomena such as dams whose construction imply very complex and far-reaching consequences are also addressed by a great number of competing discourses with often contradictory messages. What interests us here, are those discourses that dominate and sometimes even suppress other understandings of this phenomenon. Dominant discourses shape a majority’s perception towards a mutual understanding of what is ‘right’ or ‘wrong’, of what actions ‘should’ be taken and of who has a ‘stake’ in the process and who does not. Based on this ‘socio-cognitive backing’, the dominant discourse is also the most likely to be translated into some form of action. The conditions under which such discursive domination will take place are addressed by the concept of discourse hegemony.

A discourse can be called hegemonic when the conditions discourse institutionalization and discourse structuration are satisfied (Hajer 1997: 59ff). Discourse institutionalisation occurs whenever a discourse is translated into some form of action. Such action can be manifold. What is generally the case, however, is that the actors who translate a discourse into action can draw onto the mutually agreed upon understanding and evaluation of the situation, that is, on the hegemonic ideas, concepts and categorizations, in order to guide and justify their propositions and actions. Two typical examples for discourse institutionalization from the field of environmental governance are measures to promote behavioural and organizational

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6 The terms discourse and discourse analysis have received wide reflection across the social sciences. To give an exhaustive review of this discussion is beyond the scope of this paper. For more comprehensive discussions see: Fairclough 1995; Brown and Yule 2001; van Dijk 2011.
change in view of an emerging problem such as climate change. Discourse-driven organisational change may thus comprise the establishment, re-structuring or dissolving of a social group or organization. The founding of the World Commission on Dams (WCD) in 1997 exemplifies such organizational innovation in the wake of international criticism on large dams. Discourse-driven behavioural change is frequently sought through the establishment of new rules, sanctioning mechanisms and incentive schemes. A recent example for a discourse-driven change of rules surrounding the construction of large dams is the widespread introduction of environmental impact assessment mechanisms.7

The second condition, discourse structuration, implies that “the credibility of actors in a given domain requires them to draw on the ideas, concepts, and categories” that together constitute this very discourse (Hajer 1997: 59ff). In other words, actors who make any claims are required to use a specific type of language and a pre-defined set of terms in order to be granted legitimacy and support by other actors in this domain. In some discursive contexts, English may be preferred over languages with less international importance. Simultaneously, to be given voice one may be required to use scientific terminologies rather than political rhetoric or every day language. Discourse structuration also constrains the types of information and the sources an actor may use. Whenever an actor can refer to sources with a high level of acceptance within a certain discursive domain, also his or her argumentative claim will be more likely to receive a high level of support. Arguments that are taken from unusual or unknown sources will in contrast be met with doubt and denial.

The way a dominant discourse will pre-determine and constrain a stakeholder’s argumentative toolkit is sensibly summarized by Hall (2001) who states that “discourse ‘rules in’ certain ways of talking about a topic, defining an acceptable and intelligible way to talk, write or conduct oneself” and “‘rules out’, limits and restricts other ways of talking, of conducting ourselves in relation to the topic or constructing knowledge about it” (Hall 2001: 72). While ‘ruling in and out’ hegemonic discourses thus tend to privilege certain actors or groups over others. Those who meet the discursive prerequisites will easily partake in a respective debate and eventually even obtain a powerful voice and position. Other actors, who, on the contrary, do not meet those requirements, will face severe obstacles to join in and in extreme cases even be fully excluded. The same holds true with respect to the topics and related truth claims that may or may not be raised within a hegemonic discourse. Any claims that support the dominant truth system will thus be rewarded by a large and benevolent audience. The opposite situation is observed by Phillipps et al. (2004) who state that “the more coherent and structured a discourse, […] the more difficult or costly” will it be “to conceive of and enact alternatives” (Phillipps et al. 2004: 644ff).

However, even very coherent hegemonic discourses may over time be influenced and changed by the discoursing subjects. In their discussion of major UN environmental conventions Adger et al. (2001) for instance state that those conventions are simultaneously the outcome and the producers of dominant environmental discourses.

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7 This can be said regardless of the fact that the actors who are assigned to implement environmental impact assessment mechanisms may often have contradictory intentions and that the performance of such measures in general is rather mixed.
Within an ongoing argumentative struggle actors therefore tend to ‘team-up’ in what Hajer (1997) terms discourse-coalitions. A discourse-coalition comprises actors or groups with mutually shared perceptions and interests. By continuously reproducing the discourse, members of a coalition can confirm and strengthen their convictions and messages and thus their coherence as a group. Furthermore, forming a coalition also results in increased power to steer and influence the general discourse towards the coalition’s preferences. This may on the one hand result from a mere enlargement of the number of subjects adhering to one and the same line of argumentation. On the other hand, this strengthening may occur because the discourse-coalition manages to summon very different - perhaps conflicting - lines of argumentation under one overarching discursive umbrella. By teaming-up those subjects will engage in and benefit from what could be termed a ‘reciprocal legitimizing’ of each others’ positions and interests. Upon discovering their shared convictions, the members of the new coalition start to legitimize and potentially even adopt each others’ discursive messages. Any messages or beliefs that complicate the picture of a shared conviction are in contrast downplayed or benevolently overlooked. Coalition forming is easiest around discourses that exhibit ‘multi-interpretable story lines’ in which the discursive subject can fit her own messages and beliefs into the broader discourse (Hajer 1997: 61). Once messages and beliefs of different actors are harmonized the coalition and its members represent a broader range of ideas, concepts and categorizations a fact that is equivalent to an expansion of the groups’ right to make claims with respect to a disputed phenomenon. As we will discuss below, in the course of on-going discourses such as those on large dams, coalition forming frequently befriends subjects who formerly confronted each other as antagonists. Goldman (2004) provides a similar example for the case of Laos where the World Bank, the country’s ministries and environmental NGOs have jointly legitimized a major dam project by teaming-up under the shared objective of facilitating sustainable development and clean energy technology.

The concepts of discourse and discourse hegemony provide a number of useful insights for understanding how arguments evolve, dominate and change over time. They show under what conditions discourses become hegemonic and how they simultaneously shape and constrain the language, the content and the constellation of actors within a political debate. The insights given here serve to better understand the evolution and functioning of political argumentation. The discussion on discursive-coalitions provides some valuable propositions on the way political actors may take agency within an on-going debate through teaming-up and harmonizing each other’s messages and convictions.

3. The international discourse on large dams

Being among the largest infrastructure projects worldwide, large dams have always been associated with dominant discourses on progress and development. Given the diversity of these discourses and their change over time, the debates about large dams are characterized by shifting narratives, mirroring diverging ideas of modernization and cultural imaginations of nature. Consequently, large dams and their far-reaching impacts on society and environment, both positive and negative, have been judged very differently.
When large-scale dam-building started at the beginning of the 20th century dams were glorified as technological world wonders. They embodied the conquest of man over nature and served as “symbols of modernization” (Kaika 2006: 276). The notion prevailed that dams, in particular so-called multi-purpose dams that provide two or more benefits such as electricity generation, water supply and/or flood control, offer unique possibilities to overcome some of the most urgent development obstacles. Mainstream discourses portrayed dams as catalysts for progress and many countries gave utmost priority to their construction (Turpin 2008). In the second half of the 20th century the positive reputation of dams led international agencies and development banks to promote and finance dam-building around the world. As a result of this era of dam euphoria, the rate of dam commissioning increased steadily and peaked in the 1970s (WCD 2000).

However, as with many other technical innovations before and after the emergence of large dams, it turned out that the hopes placed in this technology were somewhat exaggerated (van Laak 1999). Over time it became clear that many dams did not live up to expectations; they provided less energy and water than expected, the combination of different purposes proved to be often impractical, and many reservoirs silted up quickly (McCully 2001). Even more than through the poor performance of many projects, the reputation of large dams was harmed by recognizing the adverse side-effects on environment and local populations that had been largely ignored for a long time. It was in the context of emerging environmentalism in the 1970/80s that critical studies began to change the public perception of large dams and contested the knowledge claims of the traditional dam discourse. Reports about the destruction of river ecosystems, the struggle of resistance movements all over the world and the often miserable fate of dam-displaced people, which are estimated to add up to 40-80 million persons worldwide (WCD 2000), influenced the discourse profoundly and put dam promoting organizations under increasing pressure. The fact that many bi- and multilateral donor agencies significantly decreased their support for large dams throughout the 1990s might be interpreted as a form of discourse-driven behaviour change. After acting as the main sponsor of dam-building in the developing world for decades, the World Bank’s lending for this project type came down to zero in 1999 (IBRD 2009).

A further cornerstone in the structuration of the international discourse on large dams was set by the World Commission on Dams (WCD), an international body composed of eminent dam proponents and critics. After carrying out the most comprehensive evaluation of large dams ever, the WCD drew a rather critical conclusion that is seen by many dam critics as an authoritative confirmation of their doubts (WCD 2000a; Bird 2002).

After “dam has been a dirty word for years” (The Economist 2009), the discourse on large dams has taken a new turn recently. Dams, particularly hydropower dams, are experiencing a positive re-evaluation that materializes in increased financial and political support for dams. One driving force behind this trend is the presumed climate friendliness of hydropower. In addition to other important factors such as the strongly increasing energy demand of emerging economies or the aspiration of many countries to become more independent from volatile energy imports, it is the ‘clean and green’ credentials on hydropower that are leading to the renewed interest in dams. In the context of the influential debate on climate change, the
saving of greenhouse gases (GHG) has become a powerful argument for justifying the construction of new hydropower dams. The reference to an internationally recognized problem such as climate change is meant to legitimize the re-engagement of companies and governments in dam-building activities. Of central importance for the “greening” of hydropower dams is their categorization as “renewable” energy: “Hydropower continues to be the most important and economic source of commercial renewable energy worldwide, and its popularity is increasing with the surge of interest in clean energy prompted by concerns about climate change” (UNESCO 2009: 118). In addition to the potential benefits of hydro in the realm of climate change mitigation, multi-purpose dams are also considered to facilitate adaptation to global warming, the second pillar of climate policy. By regulating river runoff and storing water, dams can help to moderate flood and drought risks that are expected to become more severe as a result of climate change (IPCC 2007). For that reason, multi-purpose dams are considered to play “a unique dual role in climate change: as an adaptation strategy for growing weather variability and as a renewable resource to move economies to a lower-carbon future” (IBRD 2009: 1).

Fig. 1: Advertisement of the German turbine manufacturer Voith, promoting hydropower by highlighting its climate friendliness. Translation of the headline: “climate protection movement”. Source: www.schwarzspringer.de/erbemittel.php?id=101&produkt=108&kunde=30 (10.7.2010)

The reframing of dams as a ‘clean and green’ technology is spearheaded by the sector’s industry and their financiers who promote “hydropower [as] a powerful tool for the mitigation of climate change and the advancement of sustainable development” (IHA, no year). However, this line of argumentation is not confined to actors who have an evident stake in dam-building. The trend of re-evaluating large dams becomes remarkably clear as even some environmental NGOs, traditionally the most determined opponents of dam building, acknowledge the potential benefits of hydro in the context of climate change and call for the expansion of large dams. For example, the World Wide Fund for Nature (WWF) estimates
that “250 GW of large hydropower sites could be developed with relatively low impacts” (WWF 2007: 11); a figure that equals one third of the existing large hydropower capacity. This argumentative shift constitutes an eminent example for a discourse coalition that gives ‘reciprocal legitimization’ to both actors. Given that such coalition forming is often found to evolve around ‘multi-interpretable story lines’ (Hajer 1997), the issue of climate change along with its large number of uncertainties provides a fertile ground for new and unusual coalitions between actors who seek to legitimize their agenda by linking it to the fight against global warming.

At the same time the new ‘green’ knowledge about dams is challenged by other environmentalist groups and scientists. In the course of the last years the issue of methane emissions from dam reservoirs has emerged as a major point of contention and clearly shows how the international dam discourse is shaped by truth claims from different sides. A ‘battle of knowledge’ evolved around the question whether dam reservoirs are a major source or sink of greenhouse-gas emissions with all actors claiming to be more ‘scientific’ than others (Giles 2006, IRN 2006). However, the current mainstream of the international discourse is dominated by the perception of hydropower dams as being an emission-free form of energy generation. This becomes particularly apparent in the case of the UN’s carbon offsetting scheme Clean Development Mechanism (CDM) which officially acknowledges hydropower dams as sustainable climate protection projects and supports them through the allotment of tradable carbon credits. The CDM can thus be said to institutionalize the discursive re-evaluation of dams.

Fig. 2: Value of World Bank Group contribution to multipurpose hydropower components per financial year. Source: IBRD (2009: 7)
And indeed, hydropower growth rates have resurged: “Large hydropower increased by an estimated 25–30 giga-watts in 2008, significantly more than in previous years, led by China (12–15 GW added) and India (more than 5 GW added)” (REN 21 2009: 11). The World Bank’s lending for the sector in 2008 exceeded the 1 billion dollar benchmark for the first time in 15 years (cf. Fig. 2) and the industry itself talks about “the most positive time in several decades for the world role of hydropower” (Bartle 2008: 1).

4.1 India

With more than 4000 large dams India is amongst the most proactive dam-building states in the world. Since India’s independence in 1947 the construction of large dams is considered a national priority that continues to be supported by all major political parties. For the most part of India’s post-independence history politicians, the country’s economic elite and large parts of the scientific community formed what might be called a ‘discourse coalition’ or an ‘epistemic community’ in the sense that they shared a common understanding of India’s development needs and coincided that large dams are indispensable for overcoming some of the most pressing development challenges regarding deficits in water and energy supply and flood control. There was a widespread consensus that the costs of building large dams, including the displacement of 20-40 million people in India alone (WCD 2000), are justified by the benefits large dams provide for what has often been termed “the greater common good” (Roy 2001: 43).

This notion can be traced back to the socialist modernization paradigm of the Nehru era (1947-1964) in which large dams were glorified as icons of progress and national pride. Symptomatic in this regard is a quotation from a speech Nehru has given at the inauguration of Bhakra dam in 1963: “Bhakra project is something stupendous, something which shakes you up when you see it. Bhakra, the new temple of resurgent India, is the symbol of India’s progress” (Dharmadhikary 2005: 78). Central to this view is the conception that large dams, although they invoke enormous costs, benefit society in general and that, at least in the long run, every citizen will profit from the advantages that result from improved water and energy supply. However, it is exactly this ‘trickle down’ argumentation that has been challenged increasingly by civil society organizations who have argued that the costs and benefits of large dam projects are more often than not distributed in a highly unequal manner that leads to increasing socio-economic disparities (McCully 2001). At the international level this interpretation of large dams became a powerful counter-discourse that had a strong influence on the final report of the highly regarded World Commission on Dams (WCD 2000), which might be considered as institutionalizing the critical perception of dams as a form of ‘authoritative knowledge’. However, within India this critical approach to large dams is still often dismissed as ‘illegitimate’ and ‘anti-development’ as the outright rejection of the WCD report by the Indian government shows (Dwivedi 2006).

Nonetheless, the rhetoric of dam building agencies shows that Indian authorities increasingly felt the need to justify large dams not only by referring to abstract concepts of ‘the nation’ or ‘the greater common good’ but to show explicitly that large dams are also beneficial for rural
development and marginalized communities. Illustrative in this context is the ‘end of thirst campaign’ for the controversial Narmada dams that aimed to legitimize massive environmental damage and displacement by arguing that these dams are necessary for the survival of drought-striken communities in Gujarat. The fact that this is a very minor aspect of the project whose main purpose is to supply industrial agglomerations with energy and water was totally sidelined (Dwivedi 2006).

Whereas social concerns dominated the Indian dam debate for decades, environmental considerations became increasingly important. The vague concept of ‘sustainable development’ became a dominant narrative in favour of dams and from the 1990s onwards the terms ‘sustainable’, ‘green’ and ‘non-polluting’ became part of the standard repertoire of respective documents and newspaper articles.

The latest shift in the international dam discourse, the reframing of dams as a means for climate change mitigation and adaptation, influenced the Indian debate on dams in very different ways. At first glance the repercussions are quite limited. For example newspaper reports about new hydropower projects in the state of Himachal Pradesh tend to mention that hydropower is ‘renewable’ but do not highlight their potential to contribute to the reduction of greenhouse gases. With regard to official documents about hydropower development in Himachal Pradesh an interesting division in argumentation structures can be observed between those projects that involve international agencies and those that do not. In the latter case, references to climate protection are hardly mentioned. However, projects that are (co-funded by international agencies, e.g. as part of the Asian Development Bank’s (ADB) “Himachal Pradesh Clean Energy Development Investment Program” are portrayed clearly as efforts in support of a low carbon path (ADB 2008).

This argumentation is even more evident in the case of hydropower dams that come up under the UN’s carbon offsetting scheme Clean Development Mechanism (CDM). Currently dozens of large Indian hydropower projects are registered or applying for the CDM by claiming that without financial support from the carbon market polluting thermal power plants will be built instead. In these cases climate change mitigation does not only serve as a political justification for dam-building but is a legal requirement. However, apart from the fact that there are serious doubts regarding the additionality of many CDM hydropower projects in India, it is striking that the same projects are hardly associated with climate protection on the national or local level. For example, the climate argument is totally absent in the struggles between dam-building agencies and affected communities in Himachal Pradesh. These controversies continue to be dominated by compensation issues and concerns regarding direct environmental impacts. In fact, the climate argument is not only considered irrelevant, it is widely unknown at the local level. In interviews with project developers and planning authorities it turned out that even high ranking representatives were not aware about the fact that their projects are supposed to save greenhouse gas emissions (Erlewein & Nüsser 2011).
4.2 Turkey

Throughout Turkish history dams have represented a ‘hot topic’ on the country’s political agenda. Today, the number of dam projects in Turkey is again skyrocketing - in the Black Sea region alone, more than 1,700 hydro-electric power plants are planned to be constructed - and associated public debates are becoming increasingly passionate. Whereas dams were in the past promoted as symbols of national strength and a promise for the expansion of irrigation agriculture, today the arguments in support of dams have changed. The subsequent section reflects on the current national discourse in favour of dams, the actors who reproduce this discourse and on the actions taken in its name.8 Our discussion is largely based on Turkish newspaper articles from the period of 2009 to 2011.

Dam supporters in Turkey currently comprise financial investors such as public and private banks, private equity firms, Turkish energy, construction and technology companies and an increasing number of international enterprises including Norwegian Statkraft, Finnish Pöyry and Spain’s Fersa Energias Renovables. The Turkish government and its administrative agencies - especially the Energy Market Regulatory Authority (EMRA) and the State Hydraulic Works (DSI) - are also strongly supporting the expansion of hydro-electricity. Last but not least, there is considerable support coming from various members of Turkey’s scientific community.

Together, dam supporters represent what we have earlier called a ‘discourse coalition’ which actively seeks to influence the public opinion. The members of the coalition coincide in labelling the technology as “renewable, clean and sustainable”. At numerous other instances dams are labelled “reliable, flexible and low cost” as well as “environmentally harmless”. In order to cement the ‘green’ image of hydro-electricity, dams are frequently mentioned within the same breath as wind power and geothermal energy. The bulk of arguments in favour of dams receives further weight by the fact that the actors who publicly lobby for the construction of dams commonly address each other as ‘reliable sources’, ‘experts’, ‘specialists’ and ‘professionals’. This is all the more noteworthy as dam opponents are in turn frequently characterized as having ‘interests’ and suffering from a ‘lack of information’. Both of the above mentioned phenomena, that is the dam supporters’ attempt to use a common terminology for labelling dams and their attempt to characterize each other as trustworthy truth claimants are cases of discourse structuration.

Discursive conformity also exists with respect to the reasons given why Turkey should build more dams, namely “national energy security and independent supplies”, “sustained economic growth and job creation” and to a slightly lesser degree “greening the economy and carbon emissions reduction”. The above-mentioned subgroups put different weight onto the respective arguments being raised. Whereas Turkish policy makers mostly stress the need for ‘energy security’ and ‘economic development’ - Turkey’s demand for electricity is expected

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8 Our focus on pro-dam argumentations does not seek to omit that Turkey’s dam supporters are facing a growing counter-discourse which is mainly produced by national and international environmentalists and members of affected communities (cf. Kayguzus and Arsel 2005).
to grow by 6 to 8 percent in the forthcoming years -, national and international investors clearly prefer to underscore the ‘environmental friendliness’ of their projects. ‘Climate change mitigation and adaptation’, the most recent argument in favour of dams, is rarely raised within the national discourse. Exceptions are press releases by international firms who probably not only seek to address their Turkish customers, but also the more environmentalist public in their home countries. Norwegian Statkraft for example justifies its latest dam project in Turkey as being certified by the so called ‘Social Carbon Standard’ as well as the ‘Voluntary Carbon Standard’. The company further argues that hydro-power is a ‘crucial step towards saving the climate’ (Hürriyet Daily News, October 13th 2010).

Important political representatives including Turkish Energy Minister Taner Yıldız, the Minister of the Environment Veysel Eroğlu and Prime Minister Recep Tayyip Erdoğan do not only lobby for dam building but also constantly attack and delegitimize dam opponents. In 2010 Minister Yıldız accordingly labelled dam opponents as “uncivilized” and “lost in biased hostility” (Hürriyet Daily News, August 9th 2010). The same year Prime Minister Erdoğan called environmentalists “an obstacle against clean and cheap energy” (Hürriyet Daily News, October 25th 2010). For obvious reasons there are much less such comments coming from the private economy. Actors from the pro-dam discourse coalition show their conformity not only by reproducing the same terms and arguments. They also do so by calculatedly standing side by side at public events. High level Turkish ministers are, thus, regularly joining hydro-electricity investors at inauguration celebrations, fairs and conferences.

Apart from its commitment to dominate the national energy discourse, the pro-dam coalition also effectively translates its agenda into action by means of policy making, legal reform and fiscal measures. The two most recent examples are firstly the government’s strategic energy plan 2010-2014 which underscores its dedication to further develop hydro-electricity and nuclear power and, secondly, the re-newables law of 2010 which subsidizes hydro-electricity through a purchase guarantee price of 7.3 cents US (Daily News with wires, December 30th 2010). The government’s preference for hydro-electricity is further reflected in the fact that in 2009 and 2010 public loans focusing on converting climate change and renewable energy projects were almost entirely allocated to dams (Anatolia News Agency, March 14th 2011). The Energy Market Regulatory Authority (EMRA) has in the meantime licensed the private sector to install hydro-electricity of up to 42.000 megawatts all over Turkey (Milliyet, November 9th 2010). Much controversy has met a recent draft law by the Ministry of Environment which would imply a change of responsibility over the country’s natural and cultural protection sites. Its critics say that the draft law’s underlying aim is to soften the protection status of various areas in order to make way for the construction of additional dams (Hürriyet Daily News, October 28th 2010). All of those examples can be subsumed as the Turkish dam supporters’ attempt for discourse institutionalization.

5. Conclusion

Our review of hegemonic national and international discourses on large dams indicates that dams are constantly reframed in order to associate them with contemporary development
narratives and draw legitimacy from them. In international debates the reframing of dams is mainly centred on climate change. Within this context, dams are presented as a low emission renewable energy source which serves both climate change mitigation and adaptation. The success of international dam supporters on this regard is especially remarkable as this new image is obviously in stark contrast to the bad reputation that dominated the international discourse on dams in the 80s and 90s. Alongside the international reframing of dams, also the composition of dam promoters has changed. Most noteworthy on this regard is the inclusion of some environmental NGOs which until recently used to criticize this technology. By including those groups into the pro-dam discourse-coalition, dam supporters have simultaneously managed to integrate an important voice to prove their truth claims and to silence some of their main opponents.

A considerable gap exists between the arguments raised in the international arena and those raised within our focal countries India and Turkey. In both countries mainstream discourses on large dams continue to be dominated by development narratives that consider large-scale hydraulic structures as catalysts for progress and modernization. Present discourses centre largely on national energy security, sustained economic growth and, to a slightly lesser degree, the transition towards a green economy. This represents a considerable argumentative shift with respect to previous times when dams were mainly promoted to facilitate the modernization of agriculture and as icons of national progress and strength. Even though the symbolic nature of dams has lost much of its appeal, the conviction that the socio-economic and ecological costs of large-scale dams are justified by the supposed benefits in terms of water and energy supply is still very much alive.

Today’s dam supporters come from various societal backgrounds including private investors, the energy and construction sector, politicians and international companies. Although there is strong discursive coherence among those actors, they nonetheless tend to emphasize different arguments. This choice reflects the respective actors’ expertise, preferences and public role. The private economy, thus, stresses the technology’s environmental friendliness and their success in creating jobs. The government’s argumentation mainly focuses on the importance of hydro-electricity as a means to avoid energy shortages and the resulting negative consequences for the economy. Dam supporters in both countries resort to a variety of strategies in order to translate their aims into action. These include legislative and fiscal measures, public relations and a consequent attacking of counter-discourses.

Although hydropower is frequently labelled as ‘clean energy’ dam proponents in India and Turkey hardly refer to issues of climate change mitigation and adaptation in order to legitimize new projects. The discursive shift in the international debate on large dams is only reflected in the case of projects that involve international companies or banks who address an international audience. The ‘illegibility’ of the climate change discourse on the ground highlights the discrepancy between national and international argumentation structures in support of large dams. Largely different arguments are put forward to justify dams vis-à-vis international funding agencies whose policies are strongly influenced by the international climate discourse and, on the other hand, local communities who are distant from global environmental discourses and concerned about direct impacts on their livelihood.
Despite the fact that climate change argumentations are largely absent within the national debates in Turkey and India, environmental concerns do play an increasingly important role and dam supporters are very active in reframing the technology as environmentally friendly. This reframing attempt is, however, largely targeted at apprehensions regarding the local social and environmental consequences of planned and ongoing dam projects.

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Institutional reforms and water resource governance in Tanzania: The Case of Great Ruaha Sub-Basin in Tanzania

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1. Introduction

1.1 Background Information

The evolution of water management institutions has taken a long route in Tanzania, from the pre-colonial, via the colonial to the era of independence. The history of water management in Tanzania indicates that the country has a fairly fragmented set of water management institutions, as has been noted by Sokile et al (2003), Maganga and Juma (2005) and Van Koppen et al (2004). During the pre-colonial era, water use and management was controlled by the community’s norms and taboos (customary water laws), but in colonial times it was converted into a commodity with a price - water users were paying for their consumption, not only in urban but also rural areas through water charges, in order to sustain water-related development (Dungumaro, 2006). After independence, the use of water charges was abolished, and the government started to finance operation and maintenance activities. The “free water” became one of the key policies of the ruling party. In 1970, the rural population was provided water for free, while people living in urban areas had to pay unless they obtained water from a standpoint (Dungumaro, 2006). However, in the long run the government realized that there has to be a cost for water consumption. Systematic state intervention in the water sector in mainland Tanzania began around 1930, when the government started to use public money to build water schemes (Huggins, 2003). The beneficiaries were towns and townships as well as a few private estates and missions, and the beneficiaries would pay for all post-construction costs. The Department of Water Development was founded in 1945. It constructed schemes for local authorities, private estates and Native Authorities. Beneficiaries paid for operational and management costs and some or all of the capital (construction) costs. There was thus an unequal level of coverage across the country, because of communities’ varying capacity to pay for water development (Huggins, 2003).

From 1965 the central government provided funding for all capital and maintenance costs of water distribution development. Local Authorities continued to pay for operational costs. In 1969 however, even these operational costs were covered by the central government. Thus, by 1970, the only
Tanzanians paying for water were those who had private water connections (Huggins, 2003). The river basin model was more widely introduced during the 1970s both as a consequence of the increased awareness of the relationship between nature and society, and the complexity of the river management. Managing the rivers was in many ways different compared to managing other resources since rivers do not seem to always follow the pattern of the administrative borders (Dungumaro, 2006). The history of water management in the country can be viewed from 1900s.

**BOX 1: WATER MANAGEMENT HISTORY IN TANZANIA FROM 1900**

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1910</td>
<td>German government started to investigate the feasibility of irrigation agriculture</td>
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<tr>
<td>1923</td>
<td>Water Ordinance</td>
</tr>
<tr>
<td>1930</td>
<td>Systematic state interventions in the water sector</td>
</tr>
<tr>
<td>1945</td>
<td>The Department of Water Development was founded</td>
</tr>
<tr>
<td>1967</td>
<td>Abolition of water user fee</td>
</tr>
<tr>
<td>1971</td>
<td>Launching of 20-year rural water supply program</td>
</tr>
<tr>
<td>1972</td>
<td>Abolition of local governments</td>
</tr>
<tr>
<td>1974</td>
<td>Introduction of Water Utilization Act (Control and Regulation)</td>
</tr>
<tr>
<td>1975</td>
<td>Separation of Water Department and Irrigation Department</td>
</tr>
<tr>
<td>1981</td>
<td>Amendments of Water Utilization Act (Control and Regulation)</td>
</tr>
<tr>
<td>1981</td>
<td>Designation of Tanzania into nine Water Basins</td>
</tr>
<tr>
<td>1991</td>
<td>Institution of National Water Policy</td>
</tr>
<tr>
<td>1991</td>
<td>Establishment of Rufiji Basin Water Board</td>
</tr>
<tr>
<td>1995</td>
<td>World Bank Appraisal</td>
</tr>
<tr>
<td>1999</td>
<td>Draft New Water Policy</td>
</tr>
<tr>
<td>2001</td>
<td>Merge of Water and Livestock</td>
</tr>
<tr>
<td>2002</td>
<td>National Water Policy</td>
</tr>
<tr>
<td>2004</td>
<td>Water Sector Development Strategy</td>
</tr>
<tr>
<td>2009</td>
<td>National Water Act</td>
</tr>
</tbody>
</table>

This paper is designed to provide a brief historical overview, mainly highlighting the fragmented nature of water resources management in Tanzania, and also points out the neglect of traditional or customary or informal norms and relations. It is also set out to investigate the implications of institutional reforms that have taken place in water management sector in Tanzania, through a case study of the Ruaha river basin.
1.2 Problem Statement

Faced with problems of stress in African water basins, the Government embarked on a process of fundamental institution reforms in the water sector. This included the development of new National Water Policies and Acts which were largely founded on the Dublin Principles agreed at the International Conference on Water and the Environment in 1992. The Dublin principles provide a framework for integrated management of water resources, adopting the river basin as the principal unit for management and regulation.

Water resources management reforms in developing countries have tended to overlook community-based water laws, which govern self-help water development and management by large proportions, if not the majority, of citizens: rural, small-scale water users, including poor women and men. Since the late 1980s, an unprecedented reform of water resource management has taken place across the globe. Although the emphasis on users ‘participation suggests otherwise, water resources management reforms have paid little attention to community-based water laws in rural areas within developing countries (Sokile et al., 2003).

Tanzania is characterized by a pluralistic legal system where land and water resources are regulated by different pieces of legislation and institutions including statutory law and customary laws of the 120 plus ethnic groups among others (Maganga, 2002).

The establishment and strengthening of institutions responsible for irrigation and water resources management from national, basin, catchment to the end user is essential for sustainable implementation of integrated water resource management (Mwandosya, 2008). In this article, the development of water resources management institutions over time is assessed.

1.3 Research Questions

Following a number of challenges facing water resources governance in Tanzania this paper attempts to answer the following questions;

1. How have water management institutions evolved over time, and
2. What are the main problems associated with the ways in which water institutions have evolved?

1.4 Background Information to the Case

The Upper Ruaha catchment covers an area of 21,500 km² and forms the headwaters of the Great Ruaha River—itself forming a major sub-basin of the Rufiji River. The catchment may be broadly divided into a surrounding high escarpment, the lower slopes, and a central plain, also named the Usangu Plains. The plain receives 600-800 mm average annual rainfall with a rainfall gradient of 1,500 mm on the high escarpment. There are five perennial rivers and a large number of seasonal streams draining from the escarpment. Most of the rain falls in one season, from mid-November to May, leading to run-off flooding. The dry season is from June to November. The population in this area has grown extremely rapidly, mainly because of a continuous influx of migrants. By 2002, 55 per cent of the population consisted of migrants from different ethnic groups, especially cultivators from the southern highlands. In the 1980s,
three state-owned large rice schemes were initiated for smallholder cultivation at the lowest slopes: Kapunga (3,000 ha), Mbarali (3,200 ha), and Madibira (3,000 ha). Valley bottoms were also cultivated. Recently, demand for irrigated land and water has been triggered further by favourable markets for irrigated crops. While prices for the original non-irrigated crops such as coffee and pyrethrum fell, prices and markets for irrigated vegetables and maize improved. Currently, the total irrigated area ranges from between 20,000 and 40,000 ha depending on the annual rainfall. The increased demand for water in recent years has been exacerbated by decreased flows in the Great Ruaha River and its tributaries. Moreover, the Usangu plain has been gazetted to be a game reserve in order to reduce the number of conflicts in the basin. Though the government has goodwill in gazetting the wetland it has reduced available land for agriculture and water for irrigation.

The area experienced an increased level of water use conflicts due to changes in management rules from the government. The conflicts between private investor and local irrigators also exist due to conflicting policies governing water resources management in the basin.

2. Theoretical Framework

The concept of institutions has been defined differently across authors. Neo-institutionalists like North (1990) and Lowndes (2002) define institutions as codes of conduct that define practices, assign roles and guide interactions. Uphoff (1986: 8-9) defines institutions as: “complexes of norms and behaviours that persist over time by serving collectively valued purposes”. The latter author differentiates institutions from organization; to Uphoff (ibid) an organization is a structure of recognized and accepted roles. This scientific definition of an institution is wider than the popular understanding of institutions as identified with governmental organizations. Cleaver (2002: 13) distinguishes between bureaucratic and socially embedded institutions. Bureaucratic institutions are those institutions with formalized arrangements based on clearly defined organizational structures, contracts and legal rights and are often introduced by governments or development agencies. Socially embedded institutions are institutions based on culture, social organization and daily practices, commonly referred to as informal. She argues that sometimes the two are not easily distinguished; bureaucratic institutions may be socially embedded and vice versa. An example is a village administration as an organization, which may include both formal and informal institutions at the same time. In anthropology, social and cultural institutions range from bureaucracies to kinship organizations irrespective of whether they are formal or informal. Most authors who define institutions focus on standard behaviour patterns, but they relate the term to structural aspects of these patterns in different ways. Some relate the term to the standardized behaviour per se while others relate it to factors that constrain or mediate these patterns of behaviour in terms of the rules of the game, or governing structures, or norms and belief systems (Ostrom, 1990).

Institutions, both in theory and in practice, influence the use and access to the water sources in the study area. This paper distinguishes institutions based on rules, regulations and norms generated by governmental, non-governmental, political and social organizations. Governmental institutions refer to the policies, laws, rules and regulations issued by
Ministries and Departments concerned with the management of water. In Tanzania these organs include Local Governments in the Prime Minister’s office; the Ministry of Natural Resources and Tourism; the Ministry of Lands, Housing and Human Settlements Development; the Ministry of Water and Irrigation; and the Ministry of Health and Social Welfare. The ministries provide policy orientation and technical support while the district departments and village governments implement the policies and enforce the laws, rules and regulations. Although the management of natural resources is decentralized by devolving powers to local communities, the implementation of national and local policies has not been very successful due to the lack of financial and human resources at the district and village levels.

Informal laws and social networks are very important institutions in mobilizing resources and collective action in managing traditional water sources. The inter-generational and individual value changes are important aspects of institutional change in the use and management of water resources. The institutional theory is applied here to a historical analysis of actions and discourse concerning the use, control and development of the water resources of in the Great Ruaha River Basin. This analysis will show how the power, perspectives and values of certain actors are constructed at different scales and that external actors have played a major role in defining IWRM plans in the basin.

3. Methods

The methodology employed in this paper involved literature search and use of secondary data from governmental and non-governmental organisations. It involved consultations with several types of actors and stakeholders. These included a broad range of organizations and individuals with the responsibility of water resource management in Tanzania. To complement information from the discussions and literature search, case study approach was also used by focusing and analyzing few examples to demonstrate the challenges caused by water resources management institutions reforms. The information gathered was analyzed, in order to explain how water management institutions evolved over time and what were the main drivers of this evolution.

4. Analysis and Discussions

4.1 Water Management during the Pre-colonial Era

In pre-colonial era, water management was an integral part of the overall customary laws and behavioural norms of each tribal society. Water sources, particularly springs and charcoal dams (Malambo), were so highly valued that they were considered sacred (Huggins, 2003). Most indigenous systems of water management in the river basins and catchments were based on the concept that water for certain limited uses was a free, open-access resource, while access for other uses was regulated and controlled by specific groups (whether chiefs, elders, clan leaders, or household heads).
Going back to history it has been found that dissemination of water technologies spread from community to community. The ownership of water sources was invested in the local community rather than the household. The nature of the community unit varied and this included the clan rather than the village, for instance: this is the case amongst many pastoralist groups (Huggins, 2003). Water was rarely ‘owned’ exclusively even by these groups however: access by others was often allowed, subject to permission being sought and reciprocal arrangements sometimes being made. With an increase in population and economic developments, customary systems of water management were no longer static (Boesen, et al., 1999). Regulations and technologies changed over time; innovations were introduced and resulted into cross-cultural exchange between communities and within single communities. Some of these customs are still in operation, while others have been left or modified. A number of factors have contributed to the weakening of indigenous tenure systems, such as growing population pressure, a growing economy that is increasing the demand of outsiders and entrepreneurs for land, improper adjudication and a private land market. Introduction of private ownership upsets the social taboos that regulate communal natural resource management in the rural areas.

4.2 Water Management during the Colonial Era

It was up to early 1900s when the demand for water started increasing along with the goals of the colonial economy (van Koppen et al., 2004). Government efforts to solve water problems started therefore in the days of colonialism. Formal water laws were introduced to Tanzania by German and British colonial settlers in the early 1900s. It started with vesting localized water rights in settlers in areas of intensifying agricultural water use, for example around Kilimanjaro (van Koppen et al. 2004). In 1910 the German government started to investigate the feasibility of irrigation agriculture (URT, 1999). In 1923 the Water Ordinance that marked the start of the Statutory Water Law in Tanzania (then Tanganyika) was developed and

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**BOX 2: CUSTOMARY ARRANGEMENTS**

For example amongst the Sukuma of Tanzania, any water sources, even those found on private land, were traditionally free for domestic use by anyone. However, in the case of water for cattle, permission had to be sought and it was possible to charge people for use of a private watering-hole (Huggins, 2003). In Mkomazi the use of water resources has been carefully managed by local people in a number of traditional ways of controlling resource use. For example traditional committee called mti took care of marking areas around of riverbanks and water reservoirs for conservation. It was not allowed to cut certain trees, especially those whose function was to conserve soil and moisture such as *Milicia excelsa*, and Ficus species. This has enhanced the existence of indigenous species and water resources management in Mkomazi game reserve (Brockington and Kiwasila, 1996).
therefore water by-laws to oversee water management started in 1926 basically to favour the colonialists.

In 1948 water control became nation-wide for the then prevailing boundaries of the colonial state. The colonial powers vested absolute water authority in the colonial rulers by simple declaration. However small-scale rural water use which was under the customary authority of the tribal chiefs retained a legal status, with specific conditions (van Koppen et al., 2004). For example Sections 3 and 5 of the Water Ordinance of 1948, chapter 257, recognizes earlier rights including those “under the 1923 Water Ordinance, lawful mining operations, some claims under the Indian Limitation Act, and Native Law and Custom.” For the latter, however, only the ‘duly authorized representative’ of natives is recognized [section 13 (9)] (Section 4 of the ordinance stipulates that “the entire property in water within the Territory is hereby vested in the Governor, in trust for His Majesty as Administering Authority for Tanganyika.”

The Water Ordinance of 1959 provides the Minister responsible for water resources management to appoint a national Water Officer, who is vested with the almost absolute authority to make decisions regarding the allocation and changes of water rights. Unlike the Water Ordinance of 1948 (section 7), the Water Ordinance of 1959 (sections 11, 12 and 14) opened the option of registration to include native water users.

4.3 Water Management after Independence

The driving factor for the changes of water resource management arrangements after Independence was due to the increasing scarcity of water as a consequence of increasing needs. One of the major national policies in the post-colonial era that has interfered with customary arrangements is the Ujamaa policy, the implementation of which meant people had to be moved from their original clan and areas and be resettled away from their home areas in villages. In cases of conflicts over natural resources, authorities tend to refer to state laws which do not necessarily protect the interests of the poor and other marginalized groups. In 1967 the Arusha Declaration was launched and gave Tanzania a more socialistic economy that discouraged private ownership of natural resources and insisted on the collective ownership of resources.

During this period the first step taken was to create a policy framework incorporating natural resource management into the broader national framework of sustainable social and economic development (DANIDA, 1998). It was provided that “all water in Tanganyika is vested in the United Republic” under the Water Utilization (Control and Regulation) Act No.42 of 1974, section 8. However, the Water Utilization (Control and Regulation) Act No. 42 of 1974 (section 14) not only ignored any existence of customary water law, but also stipulated that registration for a right was the only way for any Tanzanian to ensure that his or her water use was considered legitimate in the formal law (Maganga et al., 2003). This national function was gradually further devolved to regional, basin, and sub-basin levels. From 1981 onwards, basin boundaries have been introduced to gradually replace the regions as the first stage below national level. The country was divided into nine basins through Act No.10 of 1981, which was
an amendment of the Principal Act No. 42 of 1974 (Water Act, 1981). This period saw several initiatives on formal water management institutions.

4.3 Water Reforms post 1990s

From the early 1990s onwards, water policies and legal frameworks changed dramatically, intensifying the pressure to impose one formal system on all Tanzanian water users (van Koppen et al., 2004). In 1994 the Subsidiary Legislation [Government Notice No. 347 of 1994 under section 38(2) of the Water Utilization (Control and Regulation) Act No. 42 of 1974] was promulgated. Through this new piece of law, the dormant power to charge fees was revived by introducing a fixed once-off payment for registration of US$40, plus so-called ‘economic water user’s fees’ this entails water uses for economic purposes such as large irrigation schemes (van Koppen et al., 2004). In 1991, the first National Water Policy was launched to augment the changes in the water sector. In 1993, the Rufiji Basin Water Board was launched and the Rufiji Basin Water Office started operating in the same year (Sokile et al., 2003).

Three years later, in the Water Utilization (General) Regulations of 1997, a Schedule of Fees for much higher amounts was promulgated. The tariffs were slightly revised in the Water Utilization (General) (Amendment) Regulations, 2002. The main difference with the list of tariffs of 1997 was that for small uses below 3.7 litres charges were not volume-based anymore. Instead, a flat rate of US$35 per year was applied, irrespective of the actual volume used (van Koppen et al., 2004). The aim of this decision was to have one uniform legal system for all. The majority of water users in Tanzania fell under this category. As already explained above, this shift coincided with many similar measures of cost recovery in different areas (the structural adjustment and privatization programs of the late 1980s and early 1990s). Similarly, operation and maintenance costs of irrigation schemes were transferred to the irrigators, although investments in capital costs are still seen as at least a partial government responsibility (van Koppen et al., 2004).

Five levels of water management recognized in the 1995 Water Policy include the National, Basin, River Catchment/ Sub-Catchment, District and Livelihoods/Water User Association Level which are a mixture of hydrological and administrative units (Huggins, 2003). The ‘ten–cell’ group or ten-house unit is the lowest level of governance in Tanzania whose leader is elected in the village council. Village councils elected from village assembly are vested with the legal authority and political power to initiate and manage development activities and have the responsibility of running their small water supply systems while running of larger systems remain the responsibility of regional/national authorities (Maganga et al., 2001).

Simultaneously the government started promoting stronger user participation in the river basin Water Boards, which were fully governmental up to the mid-1990s. It also initiated the establishment of Water Users Associations (WUAs) at the lowest tiers, which were expected to manage water for multiple uses at village and ward level and were to be represented at higher levels, up to the basin level (World Bank, 1996). Thus, water pricing was intended to go hand-in-hand with stronger user participation in the newly established institutions and
better accountability and service delivery by government officials (World Bank 1996). In the same period Tanzania also introduced cost-recovery for other government services, such as domestic water supply, health services and education – radically breaking off with the socialist past in favour of privatization. Payment for services is especially relevant with regard to the financing of Tanzania’s well-established but under-sourced local government and other local activities in rural areas since its independence in 1961 (World Bank, 1996).

Management and provision of water supply and sanitation services has been through different approaches such as water companies, water cooperatives, public private partnership, public utilities, water users associations and the like. The total impact has been significant and has resulted in a situation where the installed facilities have become sustainable and future provisions could be left entirely to the private sector. However the private sector participation (PSP) has invariably failed to deliver the services to many urban centres. The main reason for failure being that the private sector participation was and is biased on the false axiom of water as an economic good and assumptions that prices are elastic as in the case of common good (Mashauri, 2005). Also the government has underperformed in fulfilling its supervisory role and that of guarantor of the quality of services provided by the private sector. Therefore it should be noted that PSP and its variants are not the panacea to all problems of providing water and sanitation services.

During the past two decades, most Sub-Saharan countries have embarked on comprehensive reforms towards Integrated Water Resource Management (IWRM). Most emphasis has been on institutions. Water management policies, legislations and legal frameworks, and organizational setups have been reviewed and redesigned. In almost all countries, River Basin Management approaches have been adopted. IWRM refers to the amalgamation of all use sectors, all stakeholders, all prefectures, all tiers and all institutional constituents, both formal and informal, to make a viable and sustainable management system. Due to the many challenges being faced in the water sector, new strategies for managing water resources have been initiated. Included is the greater involvement of private sector and water users in management of water resources. These approaches are expected to improve the management and delivery of services by bringing together the different stakeholders and mobilizing the necessary resources which governments lack (Mashauri, 2005).

Within the context of its poverty reduction efforts the Government of Tanzania (GOT) has made commendable strides in developing the water and sanitation sector. In 2002 a National Water Policy (NAWAPO) was formulated with a mission of “integrated and sustainable management, development and use of water resources in Tanzania”. MKUKUTA has recognized that adequate water supply and improved sanitation are necessary ingredients in promoting economic growth and fighting poverty. In order to operationalise the NAWAPO and to achieve the Millennium Development Goals (MDGs) for water supply and sanitation, GOT formulated the National Rural Water Supply and Sanitation Program (NRWSSP). The NRWSSP aims at 69% coverage for rural water supply and adequate sanitation by 2010 and 90% coverage by 2025 (URT, 2005).
The future of water in Tanzania is at stake due to a number of reasons facing the water sector. First, Integrated Water Resources Management (IWRM) paradigm, which underpin current water reforms in Tanzania focus on the use of statutory legal systems to regulate the use of water resources. However, Tanzania operates under plural legal systems, where the diverse customary systems are relied upon in the implementation of IWRM. Very few human activities are regulated by statutory laws alone. Neglect of customary laws may cause IWRM implementation to fail or will have negative consequences for individuals and groups who were better served by customary-based systems. (Maganga, 2003)

Second, the institutional capabilities in construction and management of water facilities require an adequate number and appropriate professional staff at all levels. With the ongoing reforms in the country, the government is in the process of putting in place an institutional structure that clearly defines roles and responsibilities of stakeholders at all levels, so as to enhance water supply service provision. At the same time, capacity of human resources in different institutions is still weak to address the challenges facing the service delivery as a whole. This shortfall is more felt at the local government and private sector levels than at the central government level.

Water scarcity is already a major problem in Tanzania. Climate change is projected to further reduce water availability in many water scarce regions especially in the central parts of Tanzania, Dodoma, Singida, and Shinyanga, due to increased frequency of droughts, increased evaporation and changes in rainfall patterns and run-off. The current trend of climate variability will lead to lack of water for domestic uses, agriculture and production of hydroelectric power. Wildlife and other animals also will suffer the consequences. Water scarcity will lead to hardship in implementing IWRM based on its principles of equity,

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**BOX 3: CHALLENGES FOR ACHIVEMENT OF MDTs**

To achieve the MKUKUTA and then Millennium Development Targets (MDTs) in Tanzania, US$2 billion is required. This is according to Water Aid estimates. This amount includes US$1436 million for water supply improvements and about US$520 million for the improvements of sanitation services by 2015. These costs translate to roughly US$96 million per annum (mainly from public funds, be it government, development partners or the private sector) for water supply and about US$35 million per year for sanitation services (mainly from households investments). Taking the current expenditure trends as the norm that amounts to only US$12 million per annum actual expenditure in the country in the 2002/2003 financial year. Subsequently the sector needs to boost of about US$84 million per year if the MDTs are to be met (Mashauri, 2005). On the other hand, at the current rate of disbursement of funds to the district council (i.e about US$0.11 per person without access to clean and safe water supply) it would take the councils more than 100 years to meet their MDTs.

**4.4 Prospects for Water Resources Management in Tanzania**

The future of water in Tanzania is at stake due to a number of reasons facing the water sector. First, Integrated Water Resources Management (IWRM) paradigm, which underpin current water reforms in Tanzania focus on the use of statutory legal systems to regulate the use of water resources. However, Tanzania operates under plural legal systems, where the diverse customary systems are relied upon in the implementation of IWRM. Very few human activities are regulated by statutory laws alone. Neglect of customary laws may cause IWRM implementation to fail or will have negative consequences for individuals and groups who were better served by customary-based systems. (Maganga, 2003)

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efficiency and in treating water as economic good. Also water scarcity will accelerate conflicts over water resources, for example water conflicts on the Usangu plains.

5. Conclusion

This paper has traced the creation and evolution of institutions for water management in Tanzania, and emphasised how the strengthening of institutions responsible for irrigation and water resources management from national, basin, and catchment levels to the end user is essential for sustainable implementation of integrated water resource management. It also explored how customary water resources management was affected by historical evolution of water management institutions in Tanzania. The challenges of meeting the Millennium Development Goals target on water issues under the prevailing institutions arrangement were also outlined.

A number of challenges affect water resources governance in Tanzania and the major challenge is lack of mechanisms to better align the formal and informal institutions in water resources management. The mechanism to align both formal and informal institutions is important because the roles played by both institutions are important in water management and they are fully interdependent. Although Tanzania has a new Water Act of 2009 with a number of reforms, this act still fails to stipulate clearly the role of customary water use rights. The Act recognises customary rights but it requires registration and formalisation to the basin water office.

Moreover, water sector reforms were coupled with reforms in other sectors such as irrigation, agriculture and privatisation of assets previously owned by the government. This has led to a number of conflicts over water resources. This paper calls for stakeholders’ involvement in sector reforms. Also there should be an institutional framework that harmonises the water resources management issues in the irrigation master plan, agricultural sector development strategies and the issues of privatisation.

References


URT (2005), Mkakati wa Kuondoa Umasikini na Kukuza Uchumi (MKUKUTA), VPO.


The Role of Science in Environmental Governance

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Abstract
The article deals with different perceptions on the role of science in environmental governance. The authors, young researchers in an early stage of their academic career, reflect on their self-conceptions of scientific work and the interfaces with decision-making processes and society. They critically discuss if conservative approaches such as “scientists as the communicators of ‘truth’” are still feasible in contemporary sciences. The discussion leads to a conclusion regarding awareness on the multi-faceted reality perceived by scientists and the different positions scientists can take in relation to policy and politics.

Keywords: Complex systems, environmental governance, linear model of science, philosophy of science, post-normal science, scientific knowledge, transdisciplinary research, uncertainty

1. Introduction
Scientific research had been regarded and used as the primary and most trustful source of knowledge for a long time. We can however observe an increasing criticism and concerns expressed towards an “objective” scientific expertise. This applies especially for research on environmental governance problems. On the one hand, as contemporary societies all over the world are facing severe environmental problems, there is an increasing need for research on environmental governance issues to cope with current and future challenges. However, recognition of irreducible uncertainty and complexity in many environmental problems like climate change or the sustainable management of ecosystems leads to the understanding that science cannot provide certainty and, hence, “save solutions” for environmental governance problems (cf. Irwin 2006; 2008; Lidskog 2008). Moreover, science in a political context becomes subject to other rules, norms and evaluation criteria than those set by the scientific community (cf. Weingart 1999). This comes along with a changing relationship between science and society and new calls for a plurality of knowledge claims in controversial environmental policy areas, as apparent in the discourse about passage from “mode 1-” to “mode 2- science” or the development of “post-normal science” (Gibbons et al. 1994; Funtowicz & Ravetz 1993, 2006; Nowotny et al. 2003).

Reflecting on their personal motivations and their fundamental attitudes towards the role of
science in environmental governance, the three authors discuss different approaches and constitutive requirements for contemporary procedures in their scientific fields. The paper is structured as follows: First, a common introduction on the authors’ motivations and their theoretical background is given. Subsequently, on the basis of their own research projects, the authors present three individual perspectives on the role of science in environmental governance. The first one is the “Science-Science View” by Lars Berger. As a researcher at the Humboldt University of Berlin he investigates the phenomena of water pollution in China. The second one is the “Science-Policy View” by Frauke Bathe from the Helmholtz-Centre for Environmental Research in Leipzig. In her research she focuses on the challenges of realising sustainable water resource management within the European Union. The last statement heading the “Science-Society View” by Oksana Odovyk from the Södertörn University in Huddinge is based on her experience in marine governance in the Baltic Sea area. All of these projects are looking at environmental governance problems, but they differ substantially in their final aims with regard to policy recommendations. Discussing the different approaches, the paper will be finalized by a concluding chapter.

2. A reflexive discussion

There is an on-going discussion about a different role of science and scepticism towards science being able to “speak truth”. Bijker and others have called this the ‘paradox of scientific authority’ with regard to the question of “how can scientific advice be effective and influential in an age in which the status of science and/or scientists seems to be as low as it has ever been?” (Bijker et al. 2009: 1). Apparently, the division generally made between the science system on the one hand and the ‘social’ domains (e.g. politics, business, public life, etc.) on the other may not work in environmental governance (Funtowicz & Strand 2007; Wilson 2009). Thus, Bäckstrand (2004: 650) suggests to “[...] be open up for a reflexive discussion about the alternative epistemological and cultural assumptions underpinning the linear model of science [...] to build a more socially accountable science” and thus “rethink the notion of the expert, the boundaries between local and global knowledge, the implications of radical uncertainty, the scope for public participation in science, and the relationship between democratic politics and specialised expertise”.

Being young scientists at the beginning of our PhDs and working on environmental governance issues, various questions occur: The selection of methods, theories, case studies, and the like. But we rarely reflect on the essential question: What is the aim of doing science in the context of environmental governance? However, this question should form the starting point of our career. Environmental governance in the scope of this paper is defined as follows: “Governance encompasses the processes that shape social priorities, how human coordination is facilitated and how conflicts are acknowledged and possibly resolved. Environmental governance focuses on use and protection of environmental resources” (Vatn 2011). Following the suggestion of Bäckstrand (2004: 650) we decided to initiate a reflexive and introspective discussion about the role of science in our PhD projects that is mainly based on
recent literature on sociology of science. The following structure of arguments is rooted in Roger A. Pielke’s “The Honest Broker – Making Sense of Science in Policy and Politics”. He distinguishes four types of interactions of scientists with policy and politics: Pure Scientist, Science Arbiter, Issue Advocate and the Honest Broker of Policy Alternatives. According to Pielke’s definition, the Pure Scientist, who is interested in the systematic pursuit of knowledge, focuses on research with absolutely no consideration of its use for policy making, and thus, in its purest form has no direct connection with decision-makers. The Science Arbiter seeks to stay removed from explicit considerations of policy and politics like the Pure Scientist, but recognizes that decision-makers may have specific questions that require the judgement of experts. So unlike Pure Scientists the Science Arbiter has direct interactions with decision-makers. The Issue Advocate focuses on the implications of research for a particular political agenda. Unlike the Pure Scientist, the Issue Advocate aligns him-/herself with a group seeking to advance its interest through policy and politics. The Issue Advocate accepts the idea that science must be engaged with decision-makers and seeks to participate in the decision-making process. The Honest Broker of Policy Alternatives engages him-/herself in decision-making by clarifying and, at times, seeking to expand the scope of choices available to decision-makers. Unlike the Science Arbiter, the Honest Broker seeks explicitly to integrate scientific knowledge with stakeholder concerns in the form of alternative possible courses of action (Pielke 2007: 15f.). Following these definitions and types of interaction we elaborated three different views.

3. Three Perspectives on the Role of Science

3.1 The Science-Science View (Lars Berger)

In my on-going research I try to understand reasons and motivations in individual decisions on the use of chemical fertilizers, focussing on the influence of the institutional environment in the catchment area of a big shallow lake in the People’s Republic of China. The central research question is: Which factors motivate farmers to the current use of fertilizers?

The problem environment of my dissertation is the increasing water pollution in China because of the accelerated eutrophication of surface waters, becoming one of the most important factors impeding sustainable economic development. In the example of Lake Taihu in the Zhejiang Province, the hyper-eutrophication is caused by an excessive amount of nutrients from agricultural non-point-source pollution. Chemical fertilizers are the main source of nitrogen insertion. Currently, the use of chemical fertilizers in this area is 75 % higher than the world average. Standard economic arguments like uncertainty or opportunity costs explain a substantial part of the problem, but the extreme phenomenon of over-application induces an approach to go beyond such arguments and to investigate the farmers’ choices reflecting norms, rules and expectations built into institutions. By using quantitative and qualitative methods within an extensive field research, I will analyze socio-economic factors that motivate farmers to the excessive use of fertilizers focussing on the influence of
the institutional environment. The results shall provide insights into different factors of decision-making and the interaction of institutions and human behaviour. By using interdisciplinary approaches to understand the complexity of decision-making and the related transactions, I would like to contribute to the enhancement of theory within environmental governance based on the specific Chinese example of Lake Taihu.

Enhancing theory and gaining new insights in human behaviour is the primary objective of my research. I perceive myself as a scientist who aims at sciences and the advancement of it contributing to the complex system of environmental governance by the systematic pursuit of knowledge. In my personal understanding I would like to foreclose the two oversimplifications stated by the predominant linear model of science and social benefits and the archetype of the Pure Scientist by Pielke.

The linear model is usually described as a metaphor that represents a flow of knowledge from basic research to applied research to development and ultimately social benefits (Pielke 2007: 12). This understanding does not apply to my research within environmental governance. There is no such thing as a linear process. Especially in social sciences, and I understand economic research as one of the core social sciences, it is rather impossible to distinguish between basic research and applied research. What could be promising ways to study the society without application? For me, it does not seem appropriate to study a social phenomenon without the social environment. The individual actor in a society is not only led by instrumental rationality having given preferences, but I understand his behaviour as dominantly socially created, implying that his choices reflect norms, rules and expectations built into the institutions of a society (Vatn 2005). Thus, the basic cognitive structures actors utilize have to be socially constructed and reproduced. From this, it follows that the individual is dependent on the support of cognitive structures, which are collectively produced. This linkage does not allow an isolation of sciences such as used in the linear approach. As a researcher I am part of this cognitive structure. This argument will be further elaborated through the understanding of complex systems in the consequent paragraphs.

Although I conceive myself as a scientist, I cannot agree on Pielke’s definition. Admittedly, he constrains his own concept of the Pure Scientist by saying that examples can be found more frequently in myth rather than practice and also emphasizes the problem of “Stealth Issue Advocacy”, saying that, when a scientist claims to focus “only on the science”, in many cases the scientist risks serving as a Stealth Issue Advocate instead (Pielke 2007: 7). But these confinements are not satisfactory:

Doing research in the context of environmental governances implies dealing with complex systems, which have three key properties. One is the presence of significant and irreducible uncertainties of various sorts in any analysis. The second is the multiplicity of legitimate perspectives on a problem. The third is that complex systems are open systems, which induces that we need to understand the system’s complete environment before we can understand the system, and, of course, the environment is complex in itself (Cilliers 2005: 258). Such a system in general is an intellectual construct that scientists have imposed on a set of
phenomena and their explanations, which leads to the fact that there cannot be a unique, privileged perspective on the system. The criteria for selection of data, truncation of models, and formation of theoretical constructs are value-laden, and the values are those embodied in the societal or institutional system in which science is being done (Funtowicz et al. 1999: 7). Thus, it is not only the implicit and explicit epistemological assumptions that we as scientists bear as members of the society, but also the, as Bromley describes it, warranted assertions arising from settled belief emanating from a community of individuals thought to have special epistemic sanction to study, ponder and undertake research about, that he ascertains the scientific discipline (Bromley 2006: 27). Supporting the argument of social constructivism in the second paragraph, there is no stepping outside of complexity, especially in the context of environmental governance (cf. Cilliers 2005). This argumentation goes far beyond the idea of Stealth Issue Advocacy. It forces the scientist to be clear on his scientific and theoretical background and be very sensitive about his epistemological assumptions. Furthermore, the fact that complex systems not only allow different perspectives, but even demand them, is the core argument for the necessity of interdisciplinary research in the field of environmental governance.

My fundamental assumptions of social constructivism and complex systems outlaw the paradigm of the Pure Scientist. Apparently, there is a deeply rooted interplay between science and decision-making, explicit and implicit.

In the future there might be an occasion in my academic commitment, where I feel compelled to recommend to or participate in decision-making processes explicitly, but in my current position I am rather distant to a direct connection to decision-making. This attitude is not driven by the political limitations of a European researcher in China, but by the characteristics of complex systems as described above and the therewith requisite need for interdisciplinary research.

Despite the motivation to clearly focus on the understanding of economic decisions, I am admittedly highly driven by the problem environment of increasing non-point-source pollution of surface water bodies from the perspective of a Resource Economist in the tradition of Classical Institutionalism. My conviction of the manner to pursue knowledge in a scientific discourse based on theory and empirical research proves a major influence of the ideals of our university’s eponyms, the Humboldt Brothers. Although I am distant from the decision-making process in the People’s Republic of China tackling tremendous environmental problems, I am convinced that conducting research does have an impact on future decision-making; might it be via the farmers and local politicians interviewed, might it be via the intensive cooperation and exchange with local researchers or the publishing of respective scientific articles in Western journals, just to name a few possibilities. The way of elaborating my own perspective does have an influence and is influenced by the people and opinions I am dealing with.
3.2 The Science-Policy View (Frauke Bathe)

In my doctoral thesis, I study the challenges of realising sustainable water resources management within the European Union. The main focus of my work is on the new governance structures that have emerged through the implementation of the EU Water Framework Directive (WFD). The WFD pursues the ambitious aim to achieve “good status” in all European waters within set deadlines. Performing this challenging task requires European member states to successfully coordinate a broad range of actors on many different levels and multiple spatial scales – from the whole river basin to the single water body.

My research builds upon an empirical case study in the river basin Elbe, where degradation of river hydromorphology is – besides eutrophication – the main reason for failing the WFD’s objectives. To improve ecological status more room for the rivers must be provided. This, in most cases, significantly conflicts with existing economic uses of rivers and their riparian zones. As federal and state governments – at least presently – mainly rely on voluntary implementation of improvement measures by the relevant actors, solutions must be found cooperatively through negotiations with land users. Therefore, in a first step, my thesis investigates the institutional structures, actors and their interactions based on a comprehensive empirical analysis. In a second step, the empirical findings will be evaluated against criteria derived from different theoretical approaches that each highlight different aspects of reality. Based on both the empirical and theoretical analyses, my final aim is to develop context-oriented policy recommendations that might help to solve the specific problem at hand.

With this ambitious goal in mind, the focus of my research is clearly problem-oriented. Problem-oriented research is considerably different from traditional disciplinary research which is still prevailing in contemporary academia. Disciplinary research is shaped by the assumptions and the theoretical and empirical methods of a particular scientific discipline as well as a typical type of research questions that is acknowledged by the specific scientific community (Schiller et al. 2006: 13). Hence, it primarily focuses on theoretically interesting problems according to the “guidelines” of the theoretical core of the specific discipline (Conrad 2002: 3). However, practical problems rarely occur in accordance with disciplinary boundaries. Thus, problem-oriented research must build upon and combine scientific knowledge from different disciplinary fields (ibid). This holds especially for problems concerning environmental issues. As Schiller et al. (2006: 13, own translation) point out “scientific contributions to understanding and solving these problems not only need to link aspects of social and natural science but also have to take account of the technical, social, cultural, economic and political conditions of the society in which these solutions are to be realised”. As a consequence, problem oriented research has to cope with a range of challenges. First, it can rarely derive generalisable outcomes. Rather, it is “[…] more concerned with the utilization of general knowledge for practical (social) problems which are not structured according to disciplinary categories and delimitations. This implies inherent uncertainties and the necessity of (problem oriented) interlinkage of disciplinary knowledge” (Conrad 2002: 3). It becomes clear that, as Conrad states ”one should usually not expect
generalized theory building in problem-oriented research” (Conrad 2002: 13). Furthermore, problem oriented research makes high demands on organisational, social and communicative skills of the scientists involved to ensure mutual understanding and achieve an effective working process (Schiller 2006: 30-31).

These problems of course apply to my own research. The system under study is complex and afflicted with severe uncertainties. In the face of such complexity, there is no simple model I can use to wholly capture the problem, and there is no comprehensive theory, that can sufficiently explain the case. Rather, an interdisciplinary approach to my case is required. Hence, as it is typical for a range of studies on governance problems (e.g. Ostrom 2011, Vatn forthcoming, Hagedorn 2008), I rely on an interdisciplinary framework to figure out the questions that need to be addressed, and the factors that are likely to be of high explanatory power (see Scharpf 1997: 29-30; Ostrom 2011: 8). Such frameworks generally provide an ordering system that describes the location of, and the relationships among, the many partial theories that the researcher can draw upon for the theoretical disciplined analysis of complex and therefore nearly unique cases (Scharpf 1997: 30).

I see such problem-oriented scientific work that combines a multiplicity of partial theories which are routed in a range of different academic disciplines very much in line with the recent shift to “new modes” of scientific knowledge production (see Funtowicz & Ravetz 1993; Gibbons et al. 1994). The concept of “Post-Normal Science” (Funtowicz & Ravetz 1993) stresses that issue-driven science is particularly characterised by uncertain facts, values in dispute, high stakes, and urgent decisions (Funtowicz & Ravetz 2006). While in traditional ways of knowledge production (or, as Gibbons et al. (1994) call it, “mode 1-science”) problems are set and solved discipline-based according to the interests of a specific academic community, “mode 2- science” is characterised by problem-focused and inter- and transdisciplinary9 scientific approaches (Gibbons et al. 1994). “The relevant contrast here is between problem solving which is carried out following the codes of practice relevant to a particular discipline and problem solving which is organized around a particular application. In the former, the context is defined in relation to the cognitive and social norms that govern basic research or academic science. Latterly, this has tended to imply knowledge production carried out in the absence of some practical goal. In mode 2, by contrast, knowledge results from a broader range of considerations. Such knowledge is intended to be useful to someone whether in industry or government, or society more generally and this imperative is present from the beginning” (Gibbons et al. 1994: 4).

It becomes clear that, by definition, problem-oriented research is closely interlinked with policy. However, with shifting modes of scientific knowledge production, scientific advice to policy also has to change substantially. Obviously, the times where science communicated

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9 Though a universally accepted definition of inter- and transdisciplinarity does not exist, interdisciplinarity is widely understood as research that intergrades several scientific disciplines, while transdisciplinary research further includes societal actors and their practical knowledge (see e.g. Baumgartner et al. 2008: 386-387).
“the truth” are over. However, many people still bear in mind the old concept of science as a truth finding profession. “This view […] is an old one, but it was most clearly articulated by the late-nineteenth-century positivists, who held out a dream of “positive” knowledge – in the familiar sense of absolutely, positively true. But if we have learned anything since then, it is that the positivist dream was exactly that: a dream. History shows us clearly that science does not provide certainty. It does not provide proof. It only provides the consensus of experts, based on the organized accumulation and scrutiny of evidence” (Oreskes & Conway 2010: 267-268).

But what advice can be given if there is no longer a truth to tell, if facts are uncertain and values dispute? I very much like Pielke’s (2007) idea of scientists to act as “Honest Brokers” of policy options. Serving as Honest Broker, a scientist has to consider and communicate the whole range of existing policy options and make all of their possible (yet uncertain) consequences explicit. Therefore, Honest Brokers must draw on diverse perspectives to integrate stakeholder concerns with available scientific knowledge. If scientists however decide to go even further and to advocate particular policies (this role Pielke calls the “Issue Advocate”), they should do that in a transparent way and make their underlying norms and (political) values explicit, rather than pretending that the recommended policies follow directly from the scientific results.

Hence, with the emerging new forms of scientific knowledge production, there also must be new forms for ensuring scientific quality. If science is uncertain and value-laden, it is extremely important to be very transparent about the way scientific knowledge is produced. Values always affect the way scientists conduct their research, and hence they have to be very aware of and transparent about that. Moreover, against this background, scientists should become aware of the fact that – whatever kind of conclusions they draw – recommendations can probably not be generalized as general recommendations would hardly meet the complex structures of reality. Thus, according to my scientific working progress, I aim at developing policy recommendations that are specific to problem at hand. This is also in line with the increasing calls of scholars for a shift away from “universal panaceas” to more contextual approaches (see e.g. Ostrom 2007, Ingram 2008).

3.3 The Science-Society View (Oksana Odovyk)

The research conducted as main part of my PhD work is related to marine governance in Baltic Sea. I am looking at different environmental risks in the Baltic Sea (e.g. chemicals pollution, eutrophication, overfishing and so on) and trying to understand the mechanisms of science policy interactions for their management. I am analyzing and comparing these mechanisms in terms of (1) the processes organization, (2) the descriptions of complexity and uncertainty, (3) the integration of various lines of evidence, (4) the formal and informal devices which enable interaction between science and policymakers. This is a small part of a bigger project, aiming to improve structures and processes that shape the governance of environmental risks in the Baltic Sea. Even though my part of the project seems to have rather
an epistemic aim, the general goal of the project has a clear normative character. Despite epistemic goals of my research, I feel more connected to the general aim of the project and prefer my research to be connected to development of better environmental governance. Thus, this is very similar to the ideas of problem-oriented work presented in the previous science-policy chapter. However, the vision that will be presented here focuses on the problem-oriented work directed more to society than policymakers. Let me guide you through the way these ideas were developed in my PhD research.

First of all, the main subject of my research is marine ecosystems. Unlike terrestrial systems, marine ecosystems are difficult to observe directly. This means that indirect observations are the main method to learn about marine environment, which already creates a distorted picture of reality. Moreover, the very essence of marine ecosystems is constant change and unpredictability. This is because marine plants and animals exist in a complex and constantly changing medium. In the same time, marine organisms themselves often have a dynamic stage of larval (or spore) (Norse & Crowder 2005). Meanwhile, more than half of human population worldwide lives close to coastlines, creating another complex socio-economic system that is closely linked with the ecological one (Berkes et al. 2000). As a result, human related uncertainties altogether with natural ones make visible that socio-ecological marine systems are extremely complex structures. Their behaviour can be seen as virtually unpredictable and prone to surprise from both social and natural parts and/or their combinations.

Recognition of this inherent complexity and unpredictability changed the traditional linear model where “science speaks truth to the power”; as there might not be a possible truth to analyze by existing scientific methods. Moreover, against the background of uncertainty, different scientific visions on the situation are very common phenomena. For example, our case studies from the Baltic Sea showed that there are several significant disagreements among the scientists regarding e.g. the toxicity of some chemicals, the significance of the invasive species integration, the management options to be applied and so on. This justifies the Kuhn and Feyerabend approach of research taking place in the social context and consequently the context affecting the way scientists understand the problem, especially uncertain problems. In this sense researchers not just passively describe reality, but actively construct facts into their own world (Knorr-Cetina 1981). These facts refute the vision of scientists as main providers of a single and objective truth. Therefore, scholars are calling for a new role of science and a new paradigm of science policy interactions in conditions of uncertainty and complexity (Funtowicz & Ravetz 1993). However it is still not clear what this role should to be.

As it was stated previously, the concept of problem-oriented and thus “Honest Broker” work are more relevant to my vision of PhD work. According to Pielke, an Honest Broker is interested in the positive outcomes of management options, rather than the fact of affecting the result itself (Pielke 2007). An Honest Broker is actively involved in policy building by discussing scientific knowledge in the decision making process. This leads to the question – why should scientific knowledge be directed only to the policy building and to policymakers
if the main goal is a positive outcome? While there is sufficient attention to science-policy interactions, the science-society interface seems to be less developed and discussed.

If we zoom into the example of chemical pollution, we will see that there is a general lack of information about chemicals. Only few chemicals are assessed from hundreds presented in environment; and there are also millions newly produced ones. All these create great risk to environmental and human health. However, media and public have very little interest in the topic and thus the issues are left without public support or control. While scientific community is trying to deliver appropriate message for the decision makers, power of the public remains underestimated. A Limited number of scientific publications is either aimed or adapted to the public. Taking into account existing complexity and uncertainty, additionally incentives should be created so that information would be delivered to public. Significant results can be achieved by the action at the individual level (aware choice) (Walker et al. 2009). Moreover, many policy makers and leaders of corporations rely upon the views of concerned citizens or consumers to formulate their strategies (Wynne 1992). Environmental legislation has been prompted, and to a great extent shaped, by increasing public awareness of the scientific aspects of environmental degradation. Citizen groups are increasingly organized and well-versed in the scientific complexities of environmental issues (Steel & Lovrich 1997). Now it is time for scientists to make a step forward and try to improve their ability to communicate with public.

In the same time, citizens can also contribute to the process of knowledge production, not just being a target of the final knowledge product. Currently there are more general calls for a wider knowledge integration and development of a new co productive knowledge, building on participation and deliberation with stakeholders. Since the last two decades, research in social sciences has addressed a fundamental change in science-society relations (e.g. Gibbons 2000), catalyzed by discussions on for example ‘mode 2 production of knowledge’ (Nowotny et al. 2006), ‘post-normal science’ (Funtowicz & Strand 2007), ‘citizen science’ (Irwin 2008) and ‘co-production of knowledge’ (Jasanoff 2004). These developments are also an important reason behind greater science society interactions or promotion of Honest Broker to society ideas. While publications in scientific journals can still be an important part of scientific results dissemination within the scientific community; involvement of scientists in new forums, art projects, and interactive technologies can have greater effect on not only communication but also coproduction of knowledge together with society.

The level of scientific-social interactions can definitely vary from simply moral obligation to communicate relevant knowledge to the honest involvement in discussions and forums with relevant stakeholders. This is a personal choice to be made at the early stage of the scientific career. But if the choice is to become an Honest Broker to society, more affords should be put in current scientific practices in order to connect science and society.
4. Discussion and Conclusion

Doing research on environmental governance issues implies dealing with complexity and high uncertainty. As described by the concept of “Post-Normal Science” (Funtowicz & Ravetz 1993) the cases we study are typically characterised by uncertain facts, values in dispute, high stakes, and urgent decisions (Funtowicz & Ravetz 2006). Thus, among all the actors involved in a specific governance constellation, there will likely be different perceptions of the problem, and hence, different conceptions with regard to potential solutions.

This variety of perspectives and perceptions also holds for us as scientists, as the way we frame the world always and significantly affects the way we conduct our research. Dealing with complex governance problems we are right in the middle of the ongoing shift from “traditional” to “revised” forms of how scientific knowledge is created, disseminated, and evaluated. Contrary to the traditional understanding of scientific research as a truth finding process, this new understanding of knowledge creation presumes that the reality cannot be fully observed and, consequently, “the truth” can never be discovered. Thus, this understanding implies “[…] being aware of how we simplify and abstract to gain understanding, view and interpret the same phenomena from different perspectives, and shape knowledge in light of who we are and how we operate” (Spash 2010:141).

In the face of complexity identifying the role of science in environmental governance becomes highly complicated. Every case can be viewed through many analytical lenses, and the resulting perspectives will rarely result in a coherent picture of reality, but in a variety of distinct and subjective positions that each highlight different aspects of reality (Sarewitz 2000). Against this background, it seems unsurprising that science more and more becomes a tool for enhancing the ability of groups in society to bargain in pursuit of their special interests (Pielke 2007: 10). As Sarewitz (2000) states: “Science is sufficiently rich, diverse, and Balkanized to provide comfort and support for a range of subjective, political positions on complex issues such as climate change, nuclear waste disposal, acid rain, or endangered species“.

This development leads to two important conclusions. Firstly, awareness should be raised on the multi-faceted reality as perceived by scientists. There is no such thing as ‘evidence based science’ (cf. Spash 2010) and the promotion of this myth should no longer be supported. Rather, it is about time to realise that “[…] the validity and meaning of knowledge for public policy is contextual, complex, subject to change and unknowns” (Spash 2010: 141). Secondly, scientists themselves should be aware of and understand the different positions they can take in relation to policy and politics (Pielke 2007: 9).

In this paper, we describe the three different goals we aim at when conducting our studies that are all dealing with complex environmental governance problems. To our point of view, all these perspectives are allowed and also equally important. However, if one decides to take a specific role (and hence a specific position with regards to policy) one has to stick to some “role-specific” rules. As a scientist who decides to concentrate on enhancement of theory
(which is an important objective especially in disciplinary research) one should actively avoid to act (or unwittingly be used) as, as Pielke (2007) calls it, a “Stealth Issue Advocate”. “Stealth Issue Advocacy" occurs when a scientist claims to be focusing on science, but is really seeking to advance a specific political agenda (ibid.). But how can scientists avoid becoming a “Stealth Issue Advocate” as long as values penetrate all research? To our point of view, the only way is by trying to ensure the highest possible level of transparency. If scientists decide to promote a specific policy option, they should be very explicit about the particular interest group they feel associated with rather than pretending that the policies they recommend follow directly from the scientific results. Hence, whenever scientists aim at developing any kind of policy recommendations, they should be very explicit and transparent about their underlying norms and political values. An eventually more “honest way” of giving policy advice would be to rather expand the range of possible policy options and serve as “Brokers” of policy alternatives (Pielke 2007). However, when doing so, scientists must draw on diverse perspectives to integrate stakeholder concerns with available scientific knowledge. Furthermore, serving as “Honest Brokers” might explicitly include communication to society. Keeping in mind the transition from mode 1 to mode 2-science, society can be seen as a target group of scientific knowledge, and instead of effecting policy decisions directly by scientific advising procedures, “Honest Brokers” might also provide available knowledge to society as such.

The illustration of three different views on the role of science in environmental governance shows that it is not possible to draw clear and well-defined boundaries between the different approaches. Rather, it shall give insights on core arguments that are applicable in various approaches. Promoting any of the visions science/science or science/policy or science/society is not the same as excluding all other alternatives. It rather exists parallel to other options. However, it is vital to open the curtains of “sacral elite” science and make scientific community motivated and able to reflect on its role in environmental governance. Accepting that the scientific process is not a purely positivistic and value-free phenomenon, it is important to be transparent and reflect upon personal opinions and visions of the own research project. That can be seen as one important precondition for ensuring scientific quality in complex and value-laden research problems.

References


