

The role of research in conflict over natural resources. Experiences from the 'Competing Claims' programme in Mozambique

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Abstract: *'Complex' problem situations are characterised by conflicting societal values and interests and high levels of uncertainty about agro-ecological and/or social dynamics. We are continuously confronted with such contexts, e.g. in the sphere of natural resource management, agricultural chains and rural development. In complex problem solving situations outcomes are shaped eventually by negotiation processes among stakeholders. The quality of such negotiations is often far from optimal in terms of equitability, bargaining power, representation and compatibility of argumentation skills. Moreover, availability of and/or access to knowledge and validated information about interrelations and dynamics in complex systems is often lacking. Implicit to ideas such as 'post normal science' and 'mode 2 science' is the assumption that scientists have something to offer that may improve the quality of such negotiations. In terms of theories about conflict management, one could say the assumption is that scientists may contribute to shifting negotiations from being 'distributive' (i.e. dividing a cake on the basis of existing power balances), to being 'integrative' (i.e. baking a new cake on the basis of exchange of perspectives, joint exploration, collaborative research. Based on a number of observations on how knowledge is used and mobilised in social interaction, this presentation will identify a number of reasons to be sceptical about such expectations, but also point to opportunities and ways in which impacts may indeed be realised. These issues will be discussed against the background of the recently started interdisciplinary action research programme 'Competing Claims for Natural Resources' in Southern Africa.*

Keywords: *conflict, action research, negotiation, complex problems*

Introduction

Conflicts and competition about land and water can be regarded as a 'complex' problem setting (Hisschemöller & Hoppe, 1996; Gunderson & Holling, 2002). Many stakeholders try to exert influence and pursue different societal values and interests. At the same time, actors involved face considerable uncertainty regarding the likely constraints, opportunities, consequences and trade-offs associated with different modes of using land and water. In such complex settings, outcomes emerge eventually from multiple interactions (within and between multiple networks) across time and space. Such outcomes cannot be pre-planned, and can in many ways be seen as the unintended outcome of many intentional (inter)actions and interlocking projects (Long, 2001; Loorbach, 2007). In this paper, we conceptualise this evolving process of interaction as a process of societal negotiation that takes place in different networks and arena's, and with different degrees of formality and intentionality. Thus, when we speak of 'societal negotiation' we do not mean to imply that formally existing negotiation tables or platforms are of prime importance, but merely mean to suggest that 'outcomes are negotiated' in a series of interactions and events in which different interests and power dynamics play a role. It is important to recognize that the quality of both formal and informal societal negotiations is often far from optimal in terms of equitability, bargaining power, procedural and legal transparency, representation of interests and availability of negotiation skills. Moreover, availability of and/or access to knowledge and validated information about bio-physical and socio-economic dynamics, options, opportunities and constraints are often lacking (Cash et al., 2006) or unequally distributed.

This paper serves to underpin three theses that are related to the role of science in complex problem settings:

- (1) In complex problem situations scientists can improve the quality of societal negotiation.

- (2) Research questions are not neutral, certainly not in conflict situations.
- (3) It is not just the eventual research results that have the potential influence societal negotiation; processes of data collection can already influence conflict dynamics.

In complex problem situations scientists can improve the quality of societal negotiation.

Provision and development of relevant insights, knowledge and information in negotiation processes is but one strategy to improve the quality of societal negotiation. Although other forms of intervention could in theory be more forceful in creating ‘a level playing field’, these are outside the direct mandate and sphere of influence of science. Nevertheless, it has been argued that science can play useful roles in complex problem settings, especially if scientists can adapt their conventional mode of operating (Funtowicz & Ravetz, 1993; Gibbons et al., 1994; Hisschemöller & Hoppe, 1996; Hoppe, 2005). In situations where both uncertainty and decision stakes are high, Funtowicz & Ravetz (1993) argue, scientists need to engage in *post-normal science* (see Figure 2). They have to become intensely involved in societal interactions and collaborative forms of research in order to contribute to the development of shared views and value commitments. Societal stakeholders, then, become part of an ‘extended peer community’.

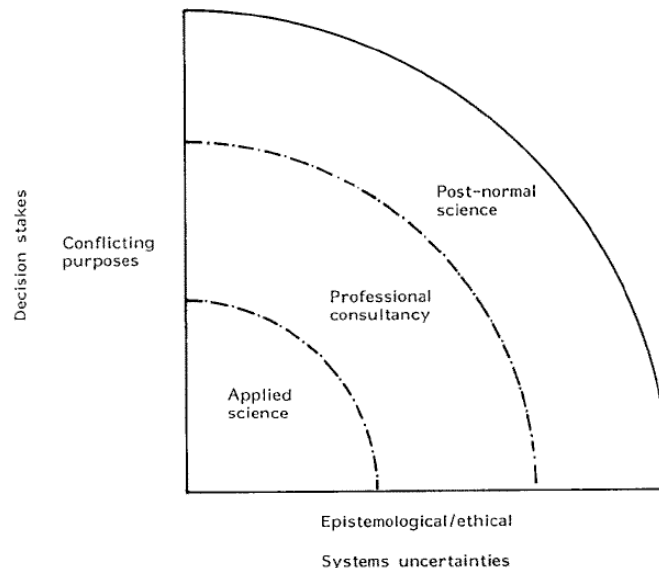


Figure 1. Different roles of science in relation to decision-stakes and uncertainties (From Funtowicz & Ravetz, 1993).

The idea of post-normal science has close affinity to the idea that there is a need to shift from ‘Mode 1’ to ‘Mode 2’ science, as advocated by Gibbons et al. (1994) (see Table 1).

Table 1. Key differences between ‘Mode 1’ and ‘Mode 2’ science (Source: Gibbons et al., 1994).

‘MODE 1’ Science	‘MODE 2’ Science
Academic context	Application-oriented
Disciplinary	Trans-disciplinary
Homogeneous	Heterogeneous
Hierarchic and stable	Heterarchic and variable
Academic quality control	Quality measured on a wider set of criteria
Accountable to science	Accountable to science <u>and</u> society

Implicit to ideas such as ‘post normal’ and ‘mode 2’ science is the assumption that scientists have something to offer that may improve the quality of societal negotiations. Ideal typically, negotiation processes can be sub-divided into two broad categories (Pruitt & Carnevale, 1993; Aarts, 1998). Many negotiation processes can be described as being ‘distributive’ in nature. In such cases the various stakeholders tend to hold on to their own perceptions and positions (i.e. little learning

occurs), and basically use negotiations to divide the cake (or the pain). In a struggle over land-use, for example, wildlife conservationists and farmers can simply 'distribute' the land. That is, they can agree to allocate some areas specifically to wildlife, and others to farming, whereby the party with the strongest power position get the largest share. Hereby the gains of one party represent the losses of another. According to Aarts (1998) such compromises tend to be relatively unstable, since the 'source' of conflict remains intact. Other negotiation processes can be labelled 'integrative'. In such processes the stakeholders develop new and at least partially shared problem definitions and cognitions on the basis of a creative social learning process, resulting possibly in the identification of 'win-win' solutions among a sub-set of actors (which may at the same time still be 'win-lose' scenario when looked at from other stakeholder positions). Earlier mentioned farmers and wildlife conservationists may, for example, rephrase the question 'farming or wildlife?' into 'how to make farming communities benefit from wildlife conservation'? In connection with this they may come to set-up joint tourist facilities or a value-added production chain for 'wildlife friendly food products', from which both wildlife conservationists and (part of the) farmers benefit. It will be clear that the latter type of negotiation is of greater interests in connection with competing claims situations. Thus, theories about conflict management too suggest that scientists may contribute to shifting negotiations from being 'distributive' to being 'integrative'.

A sceptical view on the value of science

The idea that scientists may play a positive role in societal negotiation processes may raise the critique that it is perhaps rather naïve and self-serving assumption on the side of scientists. Indeed, when we look at how scientific insights are used in society in actual practice, there are many reasons to be sceptical. In conflict situations, knowledge and information tend to be strategic resources. Stakeholders usually tend to select those insights that help them to defend specific interests, while ignoring evidence that does not fit well in a storyline beneficial to them. In fact, they may well oppose doing research on certain issues if they feel that the outcomes may be threatening, and may try to prevent that spreading of knowledge and information that they expect to negatively affect their interest. And if research is welcomed, this may well be? because it serves as a tactic for 'delaying' certain causes of action. Alternatively, stakeholders may mobilise power (and have differential resources to do so) to ensure that research is done on innocent themes or on questions that fit with the perspective of already powerful interests. And rather than engaging in collaborative research, they may be more interest to form opposing 'knowledge coalitions' (Van Buuren & Edelenbos, 2004; Long & Long, 1992). In addition, we can often observe that available research-based solutions and alternatives are ignored in decision-making processes, and that stakeholders and/or policy makers use emerging policy windows (e.g. in case of crisis) in order to push solutions that were already designed earlier, but did not have sufficient support yet (Warner, forthcoming). Apart from all these constraints and risks in the societal arena, the capacity of science to come up with useful results is easily overestimated as well. It has been reported over and over again that scientists often fail to take into account contextual conditions and locally specific knowledge when designing solutions to problems and/or when setting research priorities. Moreover, scientists capacity to integrate insights from different disciplines and/or about different scale levels often leaves to be desired, which further limits their –in complex situations– already inherently limited capacity to arrive at firm causal conclusions or predictions about the future. Lastly, reward structures in science often pose serious hindrances for scientists to engage with societal stakeholders in the first place (see Leeuwis, 2004).

An optimistic view on the value of science

Such observations and conditions indeed call for modesty on the side of scientists. At the same time there are several reasons to be cautiously optimistic about the potential of scientists to make a difference. First of all, the fact that knowledge and information can be used as strategic resources (i.e. 'weapons') in a situation of conflict, does mean that stakeholders frequently have an active

interest in it. As Klijn (pers. comm.) has observed, research activity may well serve to mobilise stakeholders (see also Van Buuren et al., 2004). Especially when research is carried out in close collaboration with multiple stakeholders, it may not only help to develop common understandings and starting points, but also to improving social relationships as a spin-off of 'doing something together'. Similarly, research may be directed at explore previously ignored realities, and in doing so assist in widening the space in which solutions are sought. This may be combined with quantitative (e.g. Van Ittersum et al., 1998) and qualitative techniques (e.g. Weisbord & Janoff, 1995) for developing future scenarios, which have as an added value that a focus on the future may draw the attention away (at least temporarily) from immediate short-term interest, and help stakeholders discover shared values and visions about the longer term. Furthermore, it must be acknowledged that embedded in complex problem situations, there may also be issues and problems that are relatively 'simple', and that conventional 'puzzle solving' strategies ((Funtowicz & Ravetz, 1993) may well serve to ameliorate uncertainty to some extent. Moreover, we should not forget that 'knowing' something can have non-trivial consequences on the way stakeholders look at things and interact with each other, and hence may be an important trigger for change. When cocoa farmers in Ghana, for example, had gathered convincing evidence that buyers of their products had adjusted their weighing scales to cheat upon them, this led to all sorts confrontations and initiatives that meaningfully changed the situation eventually (Dormon, 2006). And finally, there is increasing recognition among scientists that there is a need to shift towards interdisciplinary and transdisciplinary modes of working, coupled with considerable methodological advances to that effect (Röling et al., 2004; Hounkonnou et al., 2006; Koning & Bouma, 2006).

It is these kinds of considerations that led to the formulation of an action research project with the central ambition of developing a methodological approach through which natural and social sciences contribute to the opening up of space for (social, technical and/or institutional) innovation at different scale levels (local, national, regional, international) to address competing claims on natural resources (see Giller et al., 2008). The programme assumes that a positive contribution to societal negotiation at different interdependent level may occur when scientists are able to:

- (a) address questions and uncertainties experienced by weaker parties especially;
- (b) widen the space within which solutions are sought, and
- (c) facilitate the creation of 'boundary objects' and experiences.

The latter refers to phenomena such as experiments, maps, models and scenarios that are jointly developed by stakeholders with diverging interests and lifeworlds, and which may become common points of reference (Cash et al., 2006). At the same time, scientists must anticipate that insights generated through research are likely to be ignored, shielded off, misinterpreted, misrepresented, or be used selectively and opportunistically by stakeholders as 'weapons' in struggle to pursue or impose certain problem definitions and solutions.

Research questions are not neutral, certainly not in conflict situations

While it is important to adhere to principles of scientific rigour, and strive to generate of answers and conclusions that are as objective and balanced as possible, it must be recognized that science can never be politically neutral since the *research questions* answered by scientists tend to be posed by certain parties rather than others, and inherently build on specific societal problem definitions, values and aspirations (Alrøe & Kristensen, 2002; Leeuwis, 2004). In the Competing Claims programme, for example, we do research in and the Limpopo Nation Park in Mozambique, which has become part of a larger Transfrontier Conservation Area (or 'Peace Park'), that also includes Kruger National Park in South Africa and Ghonarezhou National Park in Zimbabwe. Poor communities inside the park are destined to be resettled to areas outside the Park. Although they did not want to leave the park originally, they are faced with intensified human-wildlife conflict due to the removal of fences, so that they are now willing to 'voluntarily' move to another area (see Milgroom & Spierenburg, 2008). In the societal negotiations about resettlement, different stakeholders have different questions and needs for information. Local farmers, for example, are interested in having detailed quantitative information on all the natural resources they use and have access to in the

park, and compare this with what they will be given outside the park. Such information can be relevant as a leverage to negotiating a suitable compensation package. Similarly, they might want to get a better understanding of whether their leaving is strictly speaking necessary from an ecological point of view. In contrast, those responsible for making resettlement happen may be more interested in quantification of the ecological damage that communities cause, or in gaining insight in the minimum level of compensation packages that farmers would be likely to accept for leaving. Both sets of questions can be answered rigorously and fairly objectively, but it is clear that the questions and underlying problem definitions themselves are not neutral to begin with. Thus, scientists have to take value laden decisions about which and whose questions should have priority.

In connection with this Alroe & Kristensen (2002) argue for a 'reflexively objective science' in which scientists not only acknowledge their value orientations but make these explicit and transparent. In other words, scientists should be expected to more openly discuss the social values and interests associated with their research questions and knowledge. Does this mean that scientists become politicians? On the one hand, one can argue that this is not the case. When scientists are clear about underlying social values and goals it can only become more obvious that conflicts of interest cannot be settled by scientists and that it is up to societal stakeholders, authorities and politicians to judge the value of the different view points and to make decisions. On the other hand, one might argue that scientists inevitably (and wittingly or unwittingly) become part of political coalitions (Van Buuren & Edelenbos, 2004) in a societal negotiation process.

In the Competing Claims programme, we had the aim to contribute to the empowerment of vulnerable groups and choose to answer questions of the weaker parties in particular. At the same time we tried to maintain good relationships with others as well. This required investment in relationships, providing useful information to authorities (with consent from communities), and maintaining transparency about research activities and results. However, all this could not prevent that the research became contested when progress in resettlement was deemed too slow by higher level politicians (Milgroom, forthcoming). Even if scientists do not necessarily become politicians themselves, they need to be able to anticipate and deal with political dynamics.

It is not just research results that have the potential influence societal negotiation; processes of data collection can already influence conflict dynamics

Our involvement in the resettlement process in Limpopo National Park learned us that it is not so much the eventual research results that had an influence on societal negotiation. To date only part of the data on resources in and outside the park has been analysed, and none of it has so far been written down in a report, let alone in a scientific article. Nevertheless, we can point to clear moments in the process where it is likely that the research activity has had an influence on ongoing societal negotiation. The 'simple' inventory of people and their resources, for example, did change the views of park authorities on the importance and intensity of agricultural activity in the area, and let them to more seriously think about post-resettlement scenarios. It is also clear that the community used relevant information from the research in their negotiations with authorities. Moreover, there are indications that they felt empowered by the presence of an outsider who recorded their resources and monitored the process. In many ways, it was the process and activity of doing research that may have contributed to a slight improvement of the quality of societal negotiation. Some basic descriptive and aggregated data played a role in that, but certainly not the eventually systematised, polished, thoroughly analysed and conceptualised research results.

Synthesis

The above suggests that enhancing the quality of societal negotiations is not just a matter of identifying the most pressing questions and uncertainties, and then returning to scientific 'business as usual', and reporting the findings when all the material has been analysed. Scientists can contribute even more if they become linked to the ongoing negotiation process at different points in

time, and serve to enhance transparency on emerging issues on the basis of still rather crude and preliminary data and findings. In essence this means that scientists must adapt both their view about what constitutes 'a useful result' and about when such a result should be delivered. In an ongoing process of societal negotiation, one cannot predict in great detail when what kind of information will be relevant and make a difference. This means that 'being around' and being willing and prepared to give and input when an opportunity arises, are important requirements for scientists who wish to contribute to dealing with complex problem settings.

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