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The Norwegian Red List between science and policy

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ABSTRACT

This article explores how science and policy interact using the Norwegian Red List 2006 as a case example. The paper draws on concepts from the sociology of science, interviews with key informants, as well as analysis of a Norwegian newspaper debate about a controversial conservation issue.

The paper highlights how the relationship between science and policy can best be described as an interaction rather than simply a transmission of knowledge from one to the other. In addition, the study focuses on the active construction and communication of the science–policy relationship. Regulators, scientists and NGOs, it is argued, strategically define the relationship between science and policy as more straightforward than it really is.

The paper suggests that the shaping, simplification and communication of scientific knowledge is best understood as a social process that occurs in three stages, which may overlap to varying degrees. The shaping of scientific knowledge for policy occurs first within the scientific domain. The shaping, we suggest, is the result of both the broader institutional context and a more specific micro-level social context, but it is also the outcome of requirements inherent in the genre of science communication. In the second stage, regulators and actors in the public debate redefine and simplify scientific knowledge to make it better suited to the policy arena. In the final stage, scientists, regulators and NGOs actively seek to define science as objectively true, and independent of the policy arena. By doing so, they are able to strengthen their arguments, regardless of their position on particular issues. But they also contribute to shrouding the social nature of scientific production.

1. Introduction

Lists of threatened and vulnerable species, or red lists, are internationally accepted science-based tools that are applied widely for regulatory purposes and policy making in the field of biodiversity conservation. One of the most internationally acknowledged ways of developing a red list is through the use of the IUCN (International Union for Conservation of Nature) categories and criteria. Compared to other countries, Norway was relatively late to implement these criteria. The first Norwegian IUCN-based red list was published in 2006, and this replaced an earlier 1998 version that had been developed by the Directorate for Nature Management based on its own criteria.

This paper presents findings from a study of the development and use of the 2006 Norwegian Red List.

In Norwegian environmental regulation and policy, as most other countries, science is expected to provide knowledge that will facilitate decision-making and a rational management of nature. Science is widely understood to be the basis on which sound environmental policy can, and should, be built. This is recognized, not only in practical

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environmental governance, but also in a wide range of public documents that define the objectives for environmental governance.

The extensive use of scientific knowledge in policy making and development in the environmental field calls for studies that focus on the relationship between the social world of environmental science and the social world of policy. Studies of the relationship between the two have flourished in the last two decades and this, in turn, has led to a more widespread recognition that science is a situated and social activity. Thus, belief in absolute and indisputable scientific truths seems considerably less ingrained than before, and the concept of ''objective science'' is under constant scrutiny.

However, while public awareness of the relationship between science and policy has to some degree been influenced by sociology of science, it is still widely believed that science should be expected to deliver ''true'' and definitive answers to guide policy. Similarly, the use of science in environmental regulation and policy is often seen as relatively unproblematic, even today. The assumption of a simple relationship between science and policy has been discussed by several authors (e.g. Cozzens and Woodhouse, 1995; Jasanoff and Wynne, 1998; Sarewitz and Pielke, 2007). Van den Hove (2007) introduces the term *naïve vision* in order to emphasise the simplistic nature of a notion of the science–policy interaction where policy is seen as building on neutral scientific facts.

This paper examines the dynamic between the enduring ''naïve vision'' that surfaces in debates when science is used to back various positions, and the strategic awareness among different actors about the reality of how science and policy interact. The paper aims to investigate three principal aspects of the Red List understood as *a social process*: the process of shaping and adjusting scientific knowledge for use in the policy arena; the use of the Red List in regulation and public debate; and different actors' participation in defining how the relationship between science and policy should be understood. Although the study deals with only one Red List process, in Norway, there is good reason to believe that the social mechanisms that are identified in this paper are of a more general nature. Thus, the findings from this study will help us understand the science–policy interplay in other contexts as well.

2. Theoretical concepts and research questions

Jasanoff (1990, 1995) developed the concept of *regulatory science* to describe scientific activity that leads to knowledge applicable to both regulation and policy. Regulatory science, according to Jasanoff, is seen as an ideal type, distinct from other forms of scientific activity. Identified as scientific activity at the interface of science and policy, regulatory science can be undertaken by scientists or by regulators themselves and is different from other forms of scientific activities in terms of its content as well as its context. The purpose of regulatory science is to fill knowledge gaps that often exist in policy matters, and it thus aims at prediction rather than just description and explanation. Further, regulatory science is more likely to be adjusted to make it applicable to laws or regulatory practice. We find that the concept of regulatory science is a useful starting point for analysing the Norwegian Red List. The following analysis will build on this concept when addressing the relationship between content and context in the case of science made for policy.

Science and policy have different frames of reference, social norms, language and even paradigms and together these make up what is to be understood as the social worlds of science or policy. Star (1983) has described how science produced for other social worlds takes the form of *boundary objects*, and defines these as objects that have the ability to communicate knowledge between these social worlds.

All scientific work is characterised by some form of simplification of the real world (Star, 1983). Boundary objects are one product of such simplification, enabling communication of meaning from one social world to another. As Browker and Star (1999) suggest, boundary objects are: ''*(. . .) those objects that both inhabit several communities of practice and satisfy the informational requirements of each of them*''. These objects can be abstract or concrete, and dynamic and constant at the same time. They are dynamic enough to fit into different situations and constant enough to keep their ''identity'' across contexts where they are used. In this paper, we use the concept of a boundary object to aid a closer look at how knowledge is communicated from scientists to regulators and policymakers using the Norwegian Red List as a case in point.

The social worlds of science and policy interact in the process of communicating knowledge. A substantial number of contributors over the last couple of decades have analysed this interaction, and its effect on both the scientific knowledge and on regulation and policy. For instance, Lövbrand (2007) studied the Swedish scientific program, LUSTRA (Land Use Strategies to Reduce Greenhouse Gas Emissions), and described the interaction between scientists and regulators. Lövbrand found that: ''*Although most of the respondents in this interview study referred to the linear model (. . .) when describing the ideal relationship between carbon cycle science and policy, the everyday experiences of Swedish government officials and LUSTRA scientists point to a more complex relationship that ties into the pattern of reciprocal influence invoked by co-production scholars*'' (Lövbrand, 2007). Further, Lövbrand concluded that social relations shape everyday research practices and influence the interpretation of findings and their use in the regulatory domain.

Not surprisingly, the work of scientists is influenced by their social surroundings, but the respondents in Lövbrand's study still referred to a relatively simple linear model of the relationship between science and policy. Van den Hove argues that *the naïve vision* of the relationship between science and policy is inadequate in describing the reality for science in the social world of environmental governance (Van den Hove, 2007) and describes how, in the case of Lövbrand's research, there is, in fact, a co-evolution between science and policy. Such processes allow for the exchange and joint construction of knowledge to facilitate decision-making (Van den Hove, 2007). But what Van den Hove does not explain is how the naïve vision persists despite the fact that the interface between science and policy is a complex social process that influences how knowledge itself is constructed.