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The uses of knowledge: Comparing EU and WHO climate adaptation strategies

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Presentation of theoretical framework, and brief introduction to research design and data

The article examines how international organizations use knowledge as a source of authority. The health-related climate adaptation strategies of the World Health Organization (WHO) and the European Union (EU) are used to query the science/policy interface and its implications for legitimacy. The overall research question pertains to the kinds of knowledge used to develop the strategies and to justify their relevance, and what the uses of knowledge tell us about the organizations' legitimation strategies.

Until recently health-aspects of climate change has failed to attract the attention of wider publics. Yet, nearly all the adverse environmental and social effects of climate change pose a threat to human health (McMichael, Neira, Bertollini, Campbell-Lendrum, and Hales 2009). Direct and indirect negative effects of climate change on human health include injuries and illnesses from severe weather events, floods and heat exposure, increases in allergic, respiratory, vector-borne and water-borne diseases, threats to food and water supplies, as well as anxiety and depression and the consequences of social disruptions, local economic decline and population displacements (IPCC 2007).[1] The medical community calls, therefore, for the involvement of the health sector in the societal responses to climate change (Neira, Bertollini, Campbell-Lendrum, and Heymann 2008). Increasingly, policy-makers have heeded the call. The Inter-governmental panel on Climate Change (IPCC) has carried out a comprehensive review of possible health impacts of climate change (IPCC 2007), and international, state, regional and local actors foresee action on health-related aspects of climate change.

[1] Positive effects of climate change on human health include a reduction in cold-related mortality.

Both the EU and WHO seek to influence climate adaptation in their respective member states. In 2008, WHO was requested by the 61st World Health Assembly to develop and implement a work plan to support member states in health-related adaptation (World Health Assembly 2008). Approved by the Executive Board in 2009, the work plan outlines three overall aims (WHO 2009): First, to support health systems in all countries in order to increase the resilience of national health systems, second, to identify strategies and actions to protect human health, and to share knowledge and good practices. Based on the work plan, WHO Europe has proposed its own regional framework for action taking into account the "climates, cultures, socioeconomic development, environmental development, health systems, health status and vulnerability across Member States in the Region" (WHO 2010:3).

The EU climate adaptation strategy is outlined in the European Commission White Paper (European Commission 2009):"Adapting to climate change: Towards a European framework for action". In concert with the EU Health Strategy (European Commission 2007), it identifies the protection of human health from the adverse effects of climate change as a priority. To this effect, it aims to improve knowledge on health and climate change, reinforce disease surveillance mechanisms, improve cooperation between national health authorities and international organizations, strengthen action plans for extreme whether events, improve public health training, and forge closer links between health and environmental policies.[2]

Given their emphasis on knowledge, the notion of knowledge-based regulatory instruments is used to analyze the strategies. A knowledge-based regulatory instrument is concerned with "diffusing a particular kind of knowledge in order to shape behaviour of actors" in a given a policy area (cf. Freeman, Smith-Merry, and Sturdy 2009:10). Thus, knowledge serves three functions: it tells us how things are, how they ought to be, and how to get from is to ought. Such issues, of course, cannot be considered mere technicalities, to be solved with reference to science alone, but will involve normative and political considerations (Helgesson and Fernler 2006). Hence, the demarcation between science and policy is not trivial. It distinguishes between the relevant and the irrelevant, and grants legitimacy to certain actors and perspectives while delegitimating others.

The European Regional Framework for Action (WHO 2010) and the White Paper on climate adaptation (European Commission 2009) are used to probe the relationship between knowledge and policy. Based on the research question outlined above, three questions guide analysis: First,

[2] http://ec.europa.eu/clima/sites/change/what_is_eu_doing/health_en.htm (accessed 10.05.2011).

who is represented in the formulation and implementation of the strategies? What is the division of labour between knowledge and policy? And, finally, what modes of legitimation are inherent in the strategies? *Structure of paper*: *theory, research design, data analysis.*

Representation of knowledge in adaptation

Adaptation denotes measures designed to alleviate adverse impacts of climate change or to take advantage of new opportunities (Adger, Arnell, and Tompkins 2005a). It typically includes a mix of policies and measures with the overarching objective of reducing vulnerability to climate change, alter the exposure of a system to the effects of climate change, and to increase the resilience of social and economic systems (IPCC 2001). Adaptation can be reactive or anticipatory; intentional or unintentional; it can be top-down or bottom-up; it can involve building adaptive capacity or the implementation of adaptation decisions; and it can be comprehensive – addressing adaptation across sectors and levels of government – or more limited – focusing on particular sectors or regions (Adger, Arnell, and Tompkins 2005a; IPCC 2001; Swart, Biesbroek, Binnerup, Carter, Cowan, Henrichs, Loquen, Mela, Morecroft, Reese, and Rey 2009). Health-related adaptation applies to limited domain, yet it grapples with issues common to all adaptation strategies. It must cope with scientific uncertainty and controversy, the accommodation of diverse forms of knowledge, interests and values, as well as the translation of knowledge into action. In addressing these issues, the adaptation strategies rely on implicit or explicit notions of representation, effectiveness and efficiency.

Climate adaptation is, almost by definition, fraught by scientific uncertainty, ambiguity and controversy. Assessments of climate change impacts are inevitably based on assumptions about the state of a future world (McMichael, Campbell-Lendrum, Corvalán, Ebi, Githeko, Scheraga, and Woodward 2003). So far, climate science has not produced forecasts or predictions resembling weather forecasts or famine early warning systems. The persistence of uncertainties, i.e. the absence of models which would allow the formal estimation of the probability of impacts, combined with the need to make decision before the 'normal' science option can provide resolution, compel scientists and policy-makers to manage or integrate uncertainty directly into the decision-making process (Schneider, Turner, and Garriga 1998). As a result, climate science and politics have come to rely on climate scenarios, i.e. plausible and internally consistent images of the future (Dessai, Lu, and Risbey 2005).

Van der Sluijs and colleagues (2010) have distinguished three strategies for coping with scientific uncertainties in the science-policy interface: The first is to uphold a strict demarcation between science and policy. Science shall inform policy, but not participate in the political process. This is the technocratic model, whereby science is considered legitimate or authoritative to the extent that it is right or true. According to this view, scientific uncertainty should be addressed by more research, for example, through the development of more sophisticated climate models. The second strategy is to build scientific consensus. Abandoning the truth for "the best of our knowledge", the strategy relies on multidisciplinary expert panels to reduce ambiguity and equivocalness (van der Sluijs, van Est, and Riphagen 2010:410). Finally, the third strategy is to be open about scientific controversy and ignorance. The strategy shifts emphasis from output to procedure. What matters is not merely that science is correct or true, but that scientific discourse is representative. The call is for a democratization of scientific discourse on climate change. It should acknowledge diversity and uncertainty by encompassing a plurality of scientific views and interpretations of the causes, effects and implications of climate change.

The process is further complicated by the fact that adaptation strategies often involves "issues at the frontiers of current scientific knowledge, where consensus among scientists is most fragile" (Jasanoff 1987:197). The indeterminacy of science provides more room for political judgment and initiative. Controversies may also arise from differences in more basic social and normative judgments. Policy-driven adaptation typically include sharing losses, bearing losses, preventing or decreasing effects, changing use and changing location (Burton, Kates, and White 1993). Neither the costs nor benefits will be evenly distributed across society. As a result, interests and values may affect attitudes to adaptation, so that the criteria for successful adaptation will be interpreted and weighted differently by different actors (Adger, Arnell, and Tompkins 2005b). In other words, scientific uncertainty and controversy may reflect conflicts over more basic social, political and normative judgments, e.g. considerations of equity, fairness, redistributive justice, and the role of self- and group interests in collective decision-making. Hence, clashes over science may be the "surface manifestations of deeper political or cultural commitments that predispose actors to downplay some sources of uncertainty about nature and to emphasise others" (Jasanoff 1997:582).

In a similar vein, health-related climate adaptation speaks to controversies in medical science. One concerns the definition of health. The WHO (1946) definition of health as "a complete state of physical, mental and social well-being, and not merely the absence of disease or infirmity" stands accused of being utopian, inflexible and unrealistic, and of confusing health with

happiness (Saracci 1997). Equally problematic is the question of whether prevention should occur at individual or population level. An individual-centered preventive strategy seeks to identify high-risk susceptible individuals and offer them some individual protection. The population strategy seeks to control the determinants of incidence in the population as a whole (Rose 1985:35). Whereas the individual-centered model speaks to the traditional self-image of medicine, proponents of the population approach argue that climate change requires a shifting of attention from the clinical needs of individuals to the needs of populations, especially populations at risk. (McMichael et al. 2009:3-4).

Notwithstanding inherent political controversies in health and climate research, knowledge lends authority to the resulting policies. Under the circumstances, separating relevant knowledge from irrelevant knowledge is not merely an analytical problem but has implications for scientific and political authority, and ultimately for policy (cf. Gieryn 1983; Jasanoff 1987). In separating relevant from irrelevant, legitimate from illegitimate, the actors typically rely on processes of framing. Frames integrate facts, values, theories and interests. They define what is problematic about a situation, and suggest appropriate and available courses of action (Rein and Schön 1993). Because they direct attention to certain aspects of the problem, and exclude others, frames are an effective means of coping with uncertainty, ambiguity and complexity. At the same time, parsimony and precision come at a cost. In giving priority to certain cognitive and normative ideas, framing excludes other interests, values and considerations. The question, in short, is how the science-policy interface is framed, and what considerations are considered legitimate given the actors' framing. This raises issues of representation: Who is or ought to be represented in adaptation decisions?

Considerations of effectiveness and efficiency are also important when evaluating adaptation strategies. Adaptation "involves cascading decisions across a landscape made up of agents from individuals, firms and civil society, to public bodies and governments at local, regional and national scales, and international agencies" (Adger, Arnell, and Tompkins 2005a:79). In view of the number of actors and multiple levels involved, effectiveness and efficiency require accuracy and acceptability. In other words, "the success of an adaptation strategy depends on how that action meets the objectives of adaptation, and how it affects the ability of others to meet their adaptation goals" (Adger, Arnell, and Tompkins 2005a:78). For one thing, adaptation should be effective not only at a global level but also at local levels. Failure to recognize heterogeneity within the affected territory may reduce the accuracy and thereby the effectiveness of policy interventions. Scientific analysis, however, inclines towards homogenizing generalizations

(Jasanoff 1997; Thompson, Warburton, and Hatley 2007), and are, by implication, not necessarily sensitive to context or local variations. Local knowledge, on the other hand, is by definition sensitive to local contexts, and may therefore provide an important corrective to scientific knowledge.

What is more, to the extent that non-experts are excluded from holding legitimate knowledge, values and opinions about global warming and climate adaptation, it may discourage wider publics from taking significant individual or collective action (Zehr 2000). One question, then, is whether efficiency requires that broader publics be given a voice, and thus a stake, in climate adaptation. Another question is whether the general public has sufficient knowledge take appropriate action. Efficiency, in other words, is not merely a question of representation but also of receptiveness. Considerable effort has been devoted to reducing the knowledge gap in climate adaptation, an effort which includes health impacts of climate change. At the same time, Haines and colleagues (2004) have identified an implementation gap between knowledge and action for health. The issue, therefore, is not merely what kind of knowledge is being produced, but also who needs to know what in order for effective action to be undertaken (Adger, Arnell, and Tompkins 2005b).

To sum up, climate adaptation strategies must manage scientific uncertainty and controversy, as well as identify local solutions to a global problem, in a manner that finds resonance with broader publics. Knowledge is an important source of authority. The question is what kind of knowledge is invoked, how and on what grounds. The issues are addressed through the examination of two health-related climate adaptation strategies.

The climate adaptation strategies of the EU and WHO

How do the EU and WHO use knowledge as a source of authority in health-related climate adaptation? The question can be divided into three sub-questions: First, what or whose knowledge is represented? When developing and promoting the adaptation strategies, the EU and WHO may rely on knowledge produced by different actors, including the UN Framework Convention on Climate Change (UNFCCC), the IPCC, national, regional and local governments, scientific communities, health professionals, civil society organizations, as well as various economic actors and stakeholders. They may also refer to WHO and EU documents produced for other purposes and at other times.

The second question asks what principles of legitimacy are invoked to justify the uses of knowledge. Is knowledge construed as unequivocal and stable, and decision-making as the identification of right or optimal solutions? Or is it about identifying appropriate solutions (cf. March and Olsen 1995), thus involving ethical or moral considerations? A third possibility is to justify knowledge in terms of input rather than output: Are all relevant and legitimate perspectives represented in the policy process?

Finally, the third question pertains to the organizations' self-understanding. Are they dogmatic or pragmatic (cf. Jacobsson and Noaksson 2006)? A dogmatic use of knowledge is characterized by a sharp division of labour between expertise and politics where truth is the domain of science and redistribution and value-allocation are left to politicians. Accordingly, political intervention will undermine the legitimacy of the scientific process. In contrast, a more pragmatic understanding of knowledge and politics envisages the interaction between science and politics as a continuous and two-way process, with theory informing practice and vice versa. In the first case, the role of scientific models is to provide direction and set limits for political intervention. In the latter, political considerations are considered an integral and legitimate part of knowledge production.

Two regulatory instruments are used to probe the relationship between knowledge and authority: "Protecting health in an environment challenged by climate change: European Regional Framework for Action" (WHO 2010) and "Adapting to climate change: Towards a European framework for action" (European Commission 2009). Analysis is conducted in four steps: Starting with a close textual analysis of the documents, it proceeds to an analysis of the documents by which they were informed, i.e. documents to which the regulatory instruments refer. Third, EU and WHO publications, including reports, papers and other secondary documents are analyzed. Finally, the climate adaptation strategies are discussed in light of broader debates on EU and WHO legitimacy specifically, and the legitimacy of international organizations more specifically.

Neither instrument consists in a single unit but in a set or corpus of documents. The first step therefore is to identify relevant documents. The documents are identified because they reference each other. *Initial coding will be based on the following questions: What knowledge/sources are used in the text? What claims are made about knowledge? What is identified as a knowledge gap in the text? What action is proposed? Which actors are given a role in implementation?*

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