The role of international cooperation in joining local and global learning

Paper for the Berlin Conference on Human Dimensions of Global Environmental Change
February 22-23, 2008

Draft. Please do not cite without author's permission.

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Abstract

Learning that integrates knowledge from many knowledge traditions and scale perspectives has been increasingly recognized as a key component of resilient socio-ecological systems. This paper discusses how the structure of international political cooperation can affect the integration of different perspectives in scientific assessments. It is based on a study of science and policy in a regional climate impact assessment in the Arctic, where the norms and structure of cooperation made the assessment salient, credible, and legitimate to new actors in climate science and policy, specifically Arctic indigenous peoples. This, in turn, brought new knowledge to bear on climate policy. However, the analysis also shows that the predominantly global perspectives in climate science were not able to meet the predominantly local perspectives in many studies focusing on social, cultural, and political aspects of vulnerability to climate change. Part of the explanation may be that the local scale preferences that have been strong in many social sciences do not fit well with the global emphasis that has so far dominated the framing of climate change.

Increased recognition of the importance of cross-level interactions in socio-ecological systems and ongoing efforts to scale down climate models may create new opportunities for addressing the poor integration across knowledge traditions. The paper will discuss the role of international cooperation in favoring opportunities for global and local perspectives to meet.

Acknowledgements

Most of the work presented in this paper was carried out during PhD studies at the Department of water and environments studies, Linköping University, Sweden.

Introduction

The global climate is changing at an increasingly rapid rate. The consequences include more unpredictable weather patterns with increasing risks of both droughts and flooding (IPCC, 2007a; IPCC, 2007b). But climate change is only one of many changes to the Earth as a system. Other changes entail various biogeochemical cycles as well as economic, social, and cultural processes (Steffen et al. 2002; Young et al., 2006). Moreover, rapid declines in biodiversity pose a challenge to key ecosystem services such as climate regulation and water purification. An indication of the magnitude of change is that over the past 50 years, humans have changed ecosystems more rapidly and extensively than in any comparable period of time in human history (Millennium Ecosystem Assessment, 2005). Some even claim that the changes of Earth as a system are so major and fast that we have entered into a new geological era, the Anthropocene, where human society is the dominating driving force (Crutzen et al., 2000).

The high rates of change, along with complex connections between the many rapid changes, create new challenges. Knowledge based on previous experience may no longer be valid and old ways of managing social-ecological systems may yield unexpected results. We therefore need effective ways to detect changes but also processes to understand the relationship between society and nature, as well as ways to translate our understanding into activities that help us cope. Society's capacity for continuous learning and adaptation becomes a key issue. In studies of local social-ecological systems this focus on learning is a key issue in studies of adaptive governance, a term that that expands a previous focus on adaptive management of ecosystems to the broader social context (Folke et al., 2003, 382; Folke et al., 2003; Dietz et al., 2003; Young et al., 2006; Folke, 2006; Walker et al., 2006).

The role of social institutions for structuring the relationship between human societies and the natural environment has received increasing attention in recent years. Of special interest in looking at learning and adaptive governance is analyses of how scientific knowledge is transformed into policy action (Mitchell et al. 2006a) and research on how institutional mechanisms through which society generates knowledge can affect how we accept and privilege certain ways of understanding the world (Walsh, 2004; King, 2004; Young, 2004; Lebel et al., 2004; Ebbin, 2004).

This paper takes the connection between institutions and how we understand the world as a starting point for exploring how governance at the international regional level in the Arctic affects our knowledge about Arctic climate change. From an empirical focus on the history and process of Arctic Climate Impact Assessment, the paper investigates how the structure of international cooperation, including the interplay between global and regional governance levels, influences our understanding of Arctic climate change. It attempts to show that the regional Arctic assessment was able to include both global and local scale perspectives and argues that this ability was linked to norms about what perspectives are legitimate in scientific knowledge production.

The Arctic Climate Impact Assessment (ACIA) was the first international regional climate impact assessment and its results have created major media attention since they became public in 2004 (Tjernhaugen et al., 2005). Its major message – that the Arctic climate is changing at a rapid rate – has since been confirmed by the Fourth IPCC assessment and observations of larger declines in sea ice in the Arctic Ocean in 2007 than any models have predicted (ACIA, 2005; IPCC, 2007c; IPCC, 2007a; Kerr, 2007). Another major message in the ACIA was about large impacts of climate change on the cultures and livelihoods of indigenous peoples, which has given rise to several research projects on local vulnerability

and adaptation. The research for this paper does not look at the long-term impacts of the ACIA reports on policy or knowledge production. Rather, it looks back in time and asks what made it possible for the ACIA to say with such clout that the Arctic climate is changing rapidly and that this will have major impacts on indigenous peoples in the region. The systematic gathering of material for case study ended with the presentation of the ACIA science results, overview and policy document to policy makers in 2004 with the addition of the publication of the ACIA scientific report in 2005. These key documents are: Impacts of a Warming Arctic: Arctic Climate Impact Assessment (ACIA, 2004), and Arctic Climate Impact Assessment. Policy Document (Arctic Council, 2004), and Arctic Climate Impact Assessment (ACIA, 2005).

Analytical points of departure

At a general level, our understanding or knowledge about an issue can be captured in how we frame it. Framing refers to how we define a problem, its impacts and potential solutions in ways that highlight certain aspects and downplay others (Mitchell et al., 2006b, 315). Frames depict the basic cognitive structures that guide what parts of the world around us that become visible (König, 2006). In scientific assessments, framing influences what features of an issue are included or excluded within a specific context. The term framing can be placed in a research tradition that emphasizes that scientific knowledge is socially constructed, and that this process can be best understood as co-construction between nature and culture/society (Jasanoff, 2004; Jasanoff et al., 1998; Latour, 1993; Latour, 1987). Framing is important because it molds the rhetoric of policy debates (Farrell et al., 2006, 15). This role links it closely to the discursive power that Litfin highlights in her classic study of ozone politics and the importance of construction of knowledge and discourse in international environmental politics (Litfin, 1994). This paper uses an analysis of how framings of Arctic climate change developed in the ACIA as a way of unraveling the circumstances that have contributed to highlighting certain aspects of Arctic climate change.

One aspect of framing is whether an issues is seen as global or local, or placed at some other governance or analytical level. This relates to the issue of scale. As an analytical concept, the term scale has been used in different ways in the literature. A common usage is to look at scale as a ruler along which a relative magnitude can be measured, while levels are points along the scale (Gupta, 2008; Gibson et al., 2000; Young, 2002). Different scientific disciplines generally use different levels as their natural starting points, with climate science traditionally using a global perspective, while for example anthropology generally takes its starting point in a local setting. Other knowledge traditions than western science that may be relevant for the impacts of climate change, such as traditional ecological knowledge, are often grounded in a local perspective.

In a political context, the choice of perspective can be a matter of strategic choice by various actors. In the literature this is captured in the concept “politics of scale” (Lebel et al., 2005; Miller et al., 2006; Gupta, 2008). Scientific assessment are placed at the boundary between scientific knowledge production and policy and I will return to the “politics of scale” in the discussion as a way of linking the framings that became prominent in the ACIA reports to norms for participation in knowledge production. If the integration of different knowledge traditions and scale perspectives are important for learning in resilient social-ecological systems, the “politics-of scale” concept can be a used as an analytical tool for understanding why societies are able to detect and act efficiently on some environmental changes, while other issues only to a lesser extent affect policy debates or reach only some but not other levels of governance.

A third analytical theme, closely related to the politics of scale, is the vertical interplay between governance levels and how actors chose arenas to gain certain advantages (Young, 2002). In this paper the focus is on vertical interplay between the global arena and the regional Arctic arena.

The following two sections provide summaries of the history and process of the ACIA and the main results of the framing analysis of the ACIA reports. This is the empirical background to the discussion of vertical interplay and politics of scale in the ACIA that concludes the paper and which also highlight some lessons about the role of international cooperation in learning about climate change. For details of this empirical work, including methods and full source documentation, see Nilsson (2007).

The history and process of the ACIA

The history of the ACIA highlights the how interplay between different governance levels first postponed and later enabled knowledge production about Arctic climate change.

In the initial circumpolar cooperation in the Arctic Environmental Protection Strategy (AEPS) in the early 1990s, climate change was not a priority. From political documents, it appears that activities at the global level served as a motive to not highlight this issue in the emerging political cooperation in the Arctic (Arctic Environmental Protection Strategy, 1993; Arctic Monitoring and Assessment Task Force, 1991). It was more of an issue in the scientific cooperation, where the need for Arctic data and better understanding of Arctic processes served as a motive in the creation of the International Arctic Science Committee (IASC). IASC can thus be described as one initiation point for the ACIA. IASC had since its creation in 1990 had on its agenda the role of the Arctic in global change and in addition it had also run two subregional climate impact studies – the Bering and Barents sea impacts studies. It was thus in a good position to take the initiative for a circumpolar assessment.

Via key people who were active in both Arctic science cooperation and global climate research, IASC also had links to the discussion in the Intergovernmental Panel on Climate Change (IPCC) and a wish in IPCC to get better knowledge of climate change at the regional level. These key people were Bert Bolin, founding chair of the IPCC and then vice chair of IASC Executive Committee, and Robert Corell, at the time US representative and chair of IASC's Regional Board (later chair of the ACIA). The IPCC can thus be seen as a second initiation point for the ACIA. The Arctic was here of particular interest. Not only are Arctic processes critical to global climate change and thus scientifically important to understand. The Arctic was also a potential showcase of anthropogenic climate change – the bellwether that was needed in the global policy debate. In the late 1990s, the scientific basis for anthropogenic climate change was still a major issue in the political debate. The Arctic was also attractive for an in-depth study because the Arctic Council – as a regional regime – provided an organizational capacity to carry out an assessment that could link to the policy sphere, just as the IPCC links to the UN Framework Convention on Climate Change (UNFCCC).

The third initiation point was in the AEPS (later reorganized as the Arctic Council), especially in its largest working group, the Arctic Monitoring and Assessment Programme (AMAP). From the initial resistance to engage in assessing climate change with reference to ongoing global processes, the AEPS was slowly shifting its priorities. This became especially apparent after AMAP's first major assessment report, which featured a chapter on climate change and ultraviolet radiation (Weatherhead, 1998; AEPS, 1997). When IASC approached AMAP about an Arctic climate impact assessment in 1999, some planning for an assessment

had already started and the time was thus ripe for a major effort. This effort soon became a joint endeavour of IASC, AMAP, and one of the Arctic Council other working groups – Conservation of Arctic Flora and Fauna (CAFF) – and later labelled the Arctic Climate Impact Assessment (ACIA). After initial scoping, the ACIA was approved at the Arctic Council Barrow ministerial meeting in 2000.

With the Arctic Council as the organizational setting for the assessment came a question of what knowledge was relevant to include as compared to IPCC's assessments, which are based almost exclusively on peer reviewed scientific literature. In the Arctic Council, indigenous peoples organizations have a formal role as permanent participants with a place at the table in Arctic Council discussions. They also take part in working groups and in scientific steering committees that are responsible for scientific assessments. Because of this standing, combined with a push from indigenous peoples' representatives at key meetings and active interest from the ACIA chair to include indigenous knowledge, several chapters in the ACIA the scientific assessment came to highlight indigenous observations and perspectives. The impact this had on the framing on climate change in the ACIA reports is discussed further below, but in relation to the process I want to emphasize that this gave the indigenous people a role as knowledge providers that they have not previously had in climate science.

Research on scientific assessments has highlighted three criteria that determine whether they will have policy impact: salience, credibility and legitimacy. Salience refers to whether an assessment is relevant, credibility to the whether it is judged to be reliable and legitimacy to whether it is respectful (Mitchell et al., 2006a). Access to the assessment process and inclusion of indigenous knowledge probably helped make the ACIA salient, legitimate, and credible to indigenous peoples' organizations and their leaders in a way that also played into the political dynamics of the ACIA process.

While the scientific report was framed as a scientific document similarly to previous AEPS and Arctic Council assessments and to the IPCC scientific reports, the popular science summary – or overview – and the ACIA policy documents were new products in the Arctic Council setting. The overview was framed as part of the scientific assessment and produced without any formal approval by working groups or national representatives as had been the case in AMAP's assessments of pollution in the Arctic. It thus also had a different status than IPCC's negotiated summaries for policymakers. The policy document gave rise to a completely new process – the creation of a policy drafting team with national representatives and representatives of the permanent participants. When the United States started realizing the implication of the ACIA and the role of this group in drafting policy recommendation, the policy drafting team was dismissed and its task taken over by the Senior Arctic Officials (SAOs), who represent the highest national policy levels under the ministers. In a process that did not have any predetermined procedure and that had to harbor conflicts between national interests in climate policy, the national negotiating positions became increasingly colored by global climate politics. Meanwhile, the permanent participants lost some of their influence in the negotiations. They, especially the Inuit Circumpolar Conference (ICC), were not happy and countered by bringing the US resistance out in public via a US congressional hearing and media (Watt-Cloutier et al., 2006; Watt-Cloutier, 2004). Based on interview accounts from a number of different country representative who participated in the process, the bad-will that this created for the US State Department made it very difficult to not agree to some kind of policy document. The final text did not go further than commitments that had already been made on the global arena, but many participants in the work of the Arctic Council breathed a sigh of relief, as the lack of agreement may have put this young regime for Arctic cooperation in jeopardy.

The ACIA history and process illustrate the role of a regional regime – the cooperation in the Arctic Council – and how it can be used by various actors in the process of producing knowledge about climate change. It also highlights the vertical interplay between regimes at the regional and global levels. In the early work of the Arctic political cooperation, the emerging global climate regime served as a motive to keep the question of climate change low on the politically prioritized agenda. It did, however, remain on the scientific agenda. When the need for a regional Arctic assessment was identified at the global level, actors connected to global climate science and Arctic science could use the existing regional regime to provide a politically legitimate platform for a regional scientific assessment. And *vice versa*: For the Arctic Council and its working groups, the connection to IPCC can be described as a way of creating a process that would also be legitimate from a global perspective.

With the meeting of global and regional regimes, it was not clear from the beginning what norms and decision-making procedures should govern the definition of the science-policy boundary. It was thus open for various actors to assert their views and make tactical political choices about the role of regional and global arenas in a climate policy discussion. While the permanent participants clearly wanted the Arctic cooperation to play an active policy role *vis à vis* the global discussions, the United States in particular challenged the legitimacy of the Arctic Council as an arena for climate policy and asserted the UNFCCC as the appropriate forum. The United States also actively challenged the notion that science should determine policy. The challenges by this strong actor on the international climate science and policy scenes were countered when those with other interests, especially, Arctic indigenous peoples, who brought the US resistance out into the open via media. The ACIA illustrates how a regional setting can create quite different science-policy dynamics by bringing in new actors; in this case the indigenous peoples' organizations. It also illustrates that ambiguity in the structure of cooperation, which were produced by different norms and decision-making procedures at the global and regional level, created leeway for actors to assert their preferences.

The framing of Arctic climate change

The ACIA process resulted in three documents of which the scientific report and overview documents may be more influential on how Arctic climate change is viewed than the negotiated policy document. This potential influence lie partly in new scientific evidence for climate change but also in how Arctic climate change is framed – its discursive power. The framing analysis of the documents is based on a combination of qualitative and quantitative methods that are described in detail in Nilsson, 2007. In short, the qualitative analysis focused on answering question about the knowledge base for each chapter (Whose knowledge? What knowledge?) and to identify drivers for including certain knowledges as they were visible in the reports. The quantitative analysis was based on counting the number of times certain words were used in the various chapters and statistically elucidating patterns of how these words co-correlated and how various chapters differed from each other. The words were chosen to represent scale perspectives, knowledge traditions, methods, disciplinary foci, and established discourses. In this paper, the results are only presented in summary with an emphasis on how they may link to the ACIA process and structure of international cooperation.

The analyses show that there are two major and very different framings of Arctic climate change in the ACIA scientific report that can be described as a global-local dichotomy. At one

end, there is an emphasis on physical aspects of the Arctic, such as ice, snow, and permafrost, as key components of the global climate system. The chapters with this emphasis highlight that any change in the Arctic is likely to have repercussions for global climate change. Some biological aspects, especially carbon cycling, are also part of this discourse. By contrast, another group of chapters focus on the complex interactions of different factors that will be important in determining the impacts of climate change at the local or sub-regional scale, be it microclimate in ecosystems, engineering design for damage from degrading permafrost, global market forces for fisheries economy, or political influence for determining local vulnerability.

The focus on global impacts and physical systems was well established in the international science arena before the ACIA, for example by the IPCC and by major international research programs. The ACIA provided more in-depth assessment of specific issues but hardly any new framings of climate change. The focus on the local scale and the complex interactions of various factors is more interesting as it represents a shift in framing in relation to the common views of the Arctic in global climate science, especially an introduction of the importance of cultural and political factors to the impacts of climate change. An example of this is the emphasis on multiple environmental stressors, such as interactions with pollutants and physical disturbances of ecosystems. Another example is the notion of human health as a concept that integrates influences ranging from the physical environment to cultural, community, and family surroundings to genetic dispositions. A third example is how discussions about impacts of climate change on indigenous peoples highlight connections to political rights.

Especially when discussing impacts on indigenous peoples, the regime context of the Arctic Council appears to have been important in allowing new perspectives into the discussion on Arctic climate change. Here, the norms and decision-making procedures of the Arctic political cooperation created a formal role for indigenous peoples throughout the assessment process. This allowed them to not only voice their priorities but also to ensure that indigenous voices became included in a formal scientific document and thus in the knowledge base that is available to audiences concerned with the science of climate change. It highlight a point made by Koivurova and Heinimäki (2006) that indigenous peoples are more likely to be able to participate in international norm-making in soft-law agreements than in formally codified treaties.

The inclusion on indigenous perspectives can be placed in contrast to the fact that ACIA is very limited in its discussion of social and economic impacts that do not relate directly to indigenous peoples. It appears that the assessment, with the exception of one chapter, did not connect to social scientists who could have provided input to such discussions. Neither was there any structural support for such perspectives within the Arctic Council working groups responsible for the assessment. It thus illustrates how structures such as scientific networks and governance arrangements can also create barriers for knowledge production. In this case, an open request by policy makers to include socioeconomic issues in the assessment was not a strong enough driver to overcome structural barriers set by the previous organization of knowledge production.

Discussion: ACIA and the politics of scale

A key question for this paper is how the structure of international cooperation can help the merging of local and global perspectives of climate change and thus help bridge different ways of framing an environmental issue in ways that can bring useful knowledge to the fore.

The ACIA case illustrates how a regional regime can help bring out some local complexity regarding adaptation to climate change that is not as apparent when only viewing the region from a global perspective. A major explanation for this emphasis on local complexity was that the policy context of the assessment and the norms of the Arctic Council allowed new actors into scientific knowledge production. However, the ACIA history also shows that regional knowledge production is highly dependent upon the global political context and the dominating global framing of climate change probably delayed this meeting of global and local perspectives. Based on a detailed scrutiny of the framing analysis results, one can even argue that the global and local framing did not really meet but represented two parallel framings in the scientific report. The regional and subregional syntheses mostly became apparent in the popular science overview and the assessment itself identifies the lack of subregional assessment as one of its major weaknesses. How can this lack of subregional assessment be understood? What could facilitate future communication between different knowledge traditions with different scale perspectives in focus?

To answer the first of these questions, I turn to the concept "politics of scale," as developed by Lebel et al. (2005). This raises questions such as: Who has power to decide the spatial scale preference? What implications do different scale choices have for what knowledge is considered legitimate? How does it affect responsibility for an issue? How do regimes give various actors a power base from which to highlight their preferences?

Reviews of the evolution of climate science show that the global perspective that has dominated the political framing of climate change has historically gained power because it co-developed with conscious efforts from the United States to internationalize science in the post-World War II era (Miller, 2004a; Miller, 2004b). The global view has also gained power by its co-evolution with the growth of international governance within the framework of the United Nations. For climate science, the creation of the World Meteorological Organization and subsequent initiatives to create global observation networks and promote research important for global-scale modelling is a critical example. These efforts were further reinforced by links to international scientific cooperation surrounding geophysical aspects of earth as a system. However, the real breakthrough for a global view of climate came when climate scientists could use international political developments as a window of opportunity to bring national climate change science into the international political arena (Hart et al., 1993; Nolin, 1999). The global view that had grown within the scientific community was thus reinforced with visions of "Only One Earth" for the international environmental governance, starting at the UN Conference on the Human Environment in Stockholm 1972 and further reinforced at the UN Conference on Environment and Development in Rio de Janeiro, at which the UN Framework Convention on Climate Change was opened for signatures after intense negotiations. Kjellén has described this development as an emerging diplomacy of sustainable development made possible by partly because of the fall of the Soviet Union and the bipolar world order (Kjellén, 2007). The global framing is thus the result of a combination of national interests of a superpower, a scientific community with matching interests in international cooperation, and international political developments that allowed for an emerging diplomacy of sustainable development.

Has the strong global framing affected what is considered legitimate science? It has without doubt favored knowledge traditions that share this view. This is clearly illustrated by the language of the titles of IPCC reports, where Working Group I that provides the "Science of Climate Change" (IPCC, 1995) or the "Scientific Basis for Climate Change" (IPCC, 2001) has been dominated by physical sciences. It was not until the Fourth Assessment that this was qualified as the "Physical Science Basis" (IPCC, 2007b).

The global framing has been productive in the sense of increasing our understanding of the climate system, but no framing is neutral and the links between framing and responsibility for doing something is a central issue in the global climate negotiations and arguments about division of responsibilities between developed and developing countries for limiting future emissions (Kjellén, 2007). The exclusively global framing has also been challenged by an increasing number of local and regional initiatives to limit emissions (Selin et al., 2007; Bulkeley et al., 2005). There is today also an increasing recognition that knowledge production that focuses only on global processes is not sufficient for addressing how society should adapt to climate change (Klein et al., 2007; Pielke Jr. et al., 2007).

The latter examples represent an ongoing shift in focus in climate science and governance and the ACIA can be seen as an expression of this shift. The initial aim was to gain a better understanding of the Arctic region but my analyses shows that the ACIA went further in that the global framing was challenged by knowledge traditions that have the local scale as their starting point. These often emphasize that climate change is only one of many interacting factors that will determine vulnerability and society's capacity to adapt. This extra step compared gives me reason to discuss how regimes can give some actors a power base from which to highlight their spatial scale preferences. In the ACIA, the Arctic Council played a major role in allowing new actors with other scale preferences into a scientific assessments and thereby into mainstream scientific knowledge production. Specifically, the Arctic Council allowed local perspectives connected to a social science knowledge base on indigenous cultures and to the participation of indigenous peoples and I argue that the local emphasis is a result of the power base that indigenous peoples have in the Arctic Council. By contrast, the relative weakness of a sub-regional perspective in the ACIA could be a sign that sub-regional decision makers lack real influence in the Arctic Council.

The concept of politics of scale is also useful in understanding the ACIA policy process, where one of the major issues was how the importance of the Arctic for global climate change should be articulated and if the Arctic Council should play a role in climate policy. These disagreements illustrate that political struggle over the appropriate analytical and governance levels. For the indigenous peoples' organizations, the circumpolar perspective has many political advantages. First of all, it gives them a stronger power position than they would have if the state-level is the governance level of choice. At this level, they have been, historically, at the periphery with the power core in capitals south of the Arctic. The circumpolar scale has also been important in giving them a role in a global context as spokespeople for nature (Nuttall, 2000). For nation states, a circumpolar perspective can have advantages but only if it does not entail any threat to national interests. Because climate politics are so intimately connected to energy and also historically to economic growth, national interests were much more important in this assessment than in previous scientific assessments under the auspices of circumpolar political cooperation. Thus it should not come as a surprise that the regional arena was challenged, especially by the United States whose climate policies were most at odds with a message of the Arctic as a bellwether for climate change.

The politics of scale is also useful for understanding the links between knowledge production and larger political developments. As an example I will use my observation of a surprisingly weak focus on the circumpolar level in many of the individual chapters of the ACIA scientific report, relative to references to the global and local contexts. It is surprising based on the fact that the assessment was carried out as part of the circumpolar political cooperation in the Arctic Council. There is no challenge to the circumpolar perspective and several efforts to accommodate it, but nevertheless it appears that the circumpolar context of the assessment process, as a whole, was not quite able to overcome the preferences embedded in different scientific disciplines. I suggest that the relative weakness of circumpolar

perspectives could at least partly be understood by geopolitical history of the region and that the current regime for environmental cooperation has not been able to influence knowledge production for long enough, or is not strong enough, to have had a significant impact of the scientific framing of Arctic climate change. It may also reflect remnants of the colonial view of the Arctic within many natural science disciplines, where the Arctic is primarily of interest because of its global role. The efforts to try to accommodate the policy wish for circumpolar assessment would then be a sign of the growing role of Arctic political cooperation for knowledge production. The inclusion of more local perspectives could be viewed as an expression of peoples in the region striving for increasing independence, not only politically but also in questions about power over knowledge production about the region. The attempts to combine local indigenous observations across the Arctic can similarly be viewed as a mirror of the increasing political circumpolar cooperation among indigenous peoples.

What could help the merging of local and global perspectives of climate change and thus help bridge different ways of framing an environmental issue in ways that can bring useful knowledge to the fore? The history of climate science illustrate that international cooperation can muster financial and technical resources for knowledge production with a certain scale preference, in turn reinforcing a particular framing. The choices that are made in setting up a monitoring system is an example. Facilitating the mustering of resources for new technical and administrative systems could thus potentially provide a venue through which knowledge production with different scale perspectives can be linked. However, the ACIA case shows that there are major barriers to be overcome, such as poor communication between different scientific networks. There may also be a need to review the organization of political cooperation so that responsibilities for different perspectives are not split into different organizations.

Another lesson from the ACIA is that norms about what constitute legitimate knowledge can vary between regimes. To safeguard against an over dominance of one particular preference or knowledge tradition and to ensure that more aspects of a challenge become visible, it would thus be wise to promote a diversity of assessment processes. Here the history of the ACIA is sobering. In spite of indications that climate change may be especially rapid and severe in the Arctic, it was not until global and regional interests merged that this large-scale effort was launched. This raises questions of whether political preferences for global perspectives may have delayed knowledge syntheses about the impact of climate change in the Arctic. Combining lessons from different knowledge systems has been identifies as key strategy in creating systems of adaptive governance (Folke, 2006). There is thus also a need to discuss how the regime context affects who is allowed to participate in assessments in order to ensure that diversity of scale perspectives become part of the mainstream climate debate.

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