Scientific Evidence as "Proof" and "Proxy" for Policy Debate

-The Case of Global Warming"\(^1\)

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I. Introduction: ‘Climategate’ and the loss of public trust

This chapter asks what lessons can be learnt from the experiences of the Intergovernmental Panel on Climate Change (IPCC) with regard to the relationship between science and global environmental governance. In early 2009, few would have expected that the IPCC would come under such massive attack. The IPCC had enjoyed a pristine reputation and had even advanced to become a role model for biodiversity and food security assessments (Loreau et al. 2006; Watson 2005). However, public trust and, with it, the organization’s credibility eroded dramatically after November 2009 with the events that became known as ‘climategate’. ‘Climategate’ began with the controversial publication of stolen professional correspondence between a small number of leading climate scientists from the Climatic Research Unit (CRU) at the University of East Anglia, UK. It continued with the discovery of errors and distortions in the

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supposedly authoritative 2007 IPCC report (Sarewitz 2010; Hulme 2009c; 2010a; b). The media focused mainly on claims that the Himalayan glaciers might melt by 2035 (glaciologists say they are unlikely to melt so quickly) and that more than 55 per cent of the Netherlands lies below sea level (the actual figure is 26 per cent) (Schiermeier 2010).

This chapter focuses on the role played to date by the linear model of expertise in setting the stage for scientific and political controversies involving the IPCC. It argues that major flaws exist in the design of the IPCC which are rooted in the linear model of expertise and are helping to stoke the backlash against the IPCC. ‘Climategate’ offers an important and useful demonstration of the limited nature of the linear model of expertise.

Section II discusses the IPCC’s role in policy making in relation to the linear model of expertise. The aim here is to examine the assumptions underlying the linear model of expertise and to consider its consequences with regard to the dynamic of current climate policy debates. It demonstrates that the idea of the IPCC being a ‘trigger’ for policies based on the linear model does not correctly describe the IPCC’s relationship to decision making. It then explains why the idea that science compels policy fuels the backlash against the IPCC. Since being accepted as a neutral and ‘authoritative source’ of expertise, the IPCC has become victim of its own ‘success’, in that, paradoxically, its assessments have come to be politicized. Section III demonstrates why the defensive strategy of the IPCC to provide scientific ‘proof’ upon which to base policy leads to ‘proxy’ debates about scientific evidence, resulting in the depoliticizing of policy making and the politicizing of science. This reopening of the proxy debate in the aftermath of the Copenhagen conference in 2009 has also distracted
attention from the real problems that exist within the IPCC. Finally, the chapter calls for the debate to be opened up to accommodate alternatives to the linear model of expertise (section IV). It explains the ever-changing challenges and demands, involved in generating authoritative, policy-relevant knowledge in the context of global environmental politics and discusses them in the light of alternative models of expertise.

II. From ‘trigger’ to ‘scapegoat’ – the paradoxical relevance of the IPCC in international negotiations

This section examines how the IPCC uses the linear model of expertise, analysing the assumptions that underlie this particular model. Although social scientists questioned it at an early stage, to some extent the linear model of expertise still dominates perceptions among climate scientists, policy makers and advisors (Elzinga 1996; Jasanoff and Wynne 1998; Pielke 2007; Beck 2009; Sarewitz 2010). The analysis presented here combines approaches from science and technology studies (STS, see Jasanoff and Wynne 1998; Miller and Edwards 2001) and science and public policy (Pielke 2005; 2007; Sarewitz 2010).

The IPCC as a trigger: science compels policy

For many of those working with international organizations, the IPCC represents the scientific trigger that led to the Framework Convention on Climate Change (FCCC) and the Kyoto Protocol (Dickson and Masood 2005). According to Bob Watson (2005), a former IPCC chairman, the panel is ‘successful’ because it had the ‘kind of impact’ that
‘good’ scientific assessments should have, namely to influence policy formulation significantly at both the national and international level. ‘Success’ here is synonymous with ‘impact on decision making’. The idea underpinning this – that ‘science compels action’ – derives from the linear model of expertise, in which the interaction between science and politics is conceived of as unidimensional, linear, and one-way: from science to policy (‘truth speaks to power’).

When the IPCC portrays itself to external audiences such as the decision-making bodies under the FCCC, it clearly uses the linear model of expertise (see Figure 1).

Figure 1: Science and policy making

This model of expertise is based on a linear sequence: first science has to ‘get it right’ and after that policy comes into play. The influence of science on policy is assumed to be strong and deterministic: if the scientific facts are ‘sound’, then they have an immediate, direct impact on policy. It is scientific consensus that determines and thus drives policy making. The basic logic of the linear model also seems to dominate ‘climategate’: all the parties involved into this debate act as if they should turn to science to establish the facts about climate change before deciding what policies to implement (Sarewitz 2010).

**From the determinist to the heuristic role of the IPCC in international climate policy**
Case studies on the IPCC demonstrate that the linear model does not correctly describe the IPCC’s relationship to decision making. The equation between ‘success’ and ‘impacts’ (= trigger), for instance, has been shown to be too simplistic in empirical terms. There is ample evidence – even in the case of climate change – to show that policy does not emerge in a simple, straightforward way from scientific understandings. Although climate change has been identified by science, its uptake in the policy arena has been highly uneven and selective (see Owens 2010; Oreskes 2004; Jasanoff and Wynne 1998). The biggest contribution of the IPCC has arguably been not to prompt spectacular decisions but to stimulate low key interactions with its users (Agrawala 1998b). Even if the IPCC does not control policy, it has been and still is relevant in politics and decision making.

Since being set up in 1988, the IPCC has produced four extremely wide-ranging assessment reports. With its First Assessment Report (AR1), the IPCC became the ‘cockpit’ for political negotiations on climate change and established a skeleton agreement for the FCCC (Skodvin 2000). When the IPCC published its Second Assessment Report (AR2), it concluded – for the first time – that ‘the balance of evidence suggests that there is a discernible human influence on global climate’ (IPCC 1995). This marked the first occasion of the IPCC reaching a consensus on two key points: first, that global warming is probably occurring (‘detection’) and, second, that human activity is more likely than not a significant cause (‘attribution’). The publication of the latest IPCC report in 2007 (AR4) demonstrates that the scientific evidence supporting these two basic points is now overwhelming, even if scientific predictions of future climatic changes remain shrouded in uncertainty (IPCC 2007). President Barack Obama signalled that America was at last willing to act on the IPCC’s reports. The
IPCC has indeed been instrumental in issuing warnings, setting agendas, and turning climate change from a scientific into a political problem. In 2007, climate change became a priority political issue in many industrialized countries (Mickwitz et al. 2009). In 2007, the Nobel Peace Prize was awarded jointly to the IPCC and former US vice president Al Gore for their efforts in consolidating and disseminating greater knowledge about human-induced climate change. Thus the IPCC has provided inputs to the international negotiation processes, which may not have simply triggered climate policies but may nonetheless have made decision making more politically relevant (Agrawala 1998a; b). The relationship between science and policy is thus weak and heuristic rather than strong and deterministic, as assumed by the linear model. The primary role of the IPCC in politics is not to compel action but to develop and spread heuristic knowledge about global change and to inform policy makers about the general extent and structure of the problem (Edwards 1999).

**The IPCC as scapegoat**

The linear model focuses solely on the impact of experts on policy making and thus fails to take into account the larger implications for science. An indirect and indeed paradoxical indication of IPCCs relevance to policy making stems from the fact that many lobbying groups have invested a remarkable amount of resources in attacking and discrediting the IPCCs findings and authors. To put it in counterfactual terms: climate sceptics and lobbying groups would not have invested so much time and money if they had not perceived the IPCC as playing a key role in policy making (Agrawala 1998a; b).
Thus, paradoxically, as soon as it was accepted as an authoritative source of expertise, the IPCC fell prey to the politicization of its assessments.

In the late 1980s, a small group of ‘climate sceptics’ began denying that climate change represented any risk. This effectively triggered a scientific controversy over the evidence for climate change. It has become common for opponents of climate action to expose weaknesses in the underlying science and to argue that the scientific basis for global warming and purported harm is uncertain, unreliable, and fundamentally unproven. As the climate sceptics attempt to re-focus disagreements over how to respond to climate change back onto science, these disagreements become transformed into scientific disputes over the scientific evidence for climate change. As a result, the key question is whether existing scientific knowledge is certain enough to compel political action.

In response to the sceptics, the IPCC has attempted to provide logically indisputable ‘proof’ as a ‘sound’ scientific foundation upon which to base policy (Oreskes 2004). To keep political opposition at bay, the IPCC has also relied on science to provide ever greater certainty about the ‘reality’ and consequences of climate change. The idea was that the mounting weight of scientific evidence would gradually overwhelm ideological opposition to the climate policy regime (Sarewitz 2010). As a consequence, the IPCC has spent much time and a great many resources on conducting a comprehensive assessment of the scientific evidence for human-induced climate change.

While the climate sceptics have sought to ignite scientific controversy over the empirical evidence for climate change, the IPCC has responded by attempting to dampen down this source of debate. The decision to come up with a single, unitary
international authoritative assessment and to deliver scientific assessments by consensus can be read as strategy to maintain the scientific credibility and political authority of climate science.¹ The active and ongoing consultation process launched by the IPCC has done much to iron out differences and to marginalize opposition.

As a result, potential opponents had neither the time and resources nor the organizational clout to challenge the IPCC reports in any detail (Elzinga 1996). Since this IPCC strategy left no room for coherent scientific alternatives, the sceptics directed their immediate criticism more at the form and procedure than to the content of the IPCC’s reporting. When the IPCC released its Second Assessment Report, a number of dissenting scientists immediately launched a major organized attack designed to discredit the report’s conclusions, especially those relating to the crucial question of whether human activities are responsible for changes in the world’s climate. These climate sceptics claimed that the IPCC had inappropriately altered a key chapter for political reasons. They alleged that the IPCC had ‘corrupted the peer review process’ and violated its own procedural rules. These accusations ignited a major debate — widely reported in the press — lasting several months (Edwards and Schneider 2001). Arguments about errors and the failure of quality control in the latest IPCC report were also used to undermine years of hard-fought scientific consensus building on this topic, to re-ignite the scientific controversies and thus to transfer the debate on climate policy back to science, particularly after the failure of the Copenhagen climate conference in late 2009.
III. Proxy debates between depoliticizing politics and politicizing science

Proxy debates

The attacks on the IPCC have, paradoxically, contributed to attracting more attention and attaching greater relevance to the IPCC reports than the latter would have enjoyed without these criticisms. The various controversies ignited by the climate sceptics’ scrutiny of the IPCC’s knowledge claims serve not to challenge but to reinforce the linear model, by perpetuating the argument that politicians cannot act until the science is sound. The climate sceptics are effectively using the linear model in a strategic way: their insistence on ‘sound’ science serves to block – or at least hinder – climate negotiations. The irony, of course, is that both sides of the controversy agree on where the battle should be waged, and both act as if the outcome will be decided by science alone. One of the constitutive features and problems of the linear model of expertise is that it places science at the centre of political debate. Because scientific understandings are thought to motivate political action, winning a scientific debate means attaining a privileged position in political battle.

The linear model has served to set the stage for proxy debates on the scientific evidence for global warming. Disagreements about scientific evidence thus become a surrogate for broader policy discussions. Rather than arguing about the political interests and values which motivated the political controversy in the first place, all the parties become embroiled in a controversy over the scientific foundations on which their views are based. In this manner, scientific controversies over attribution and detection
become a proxy for political battles (Pielke 2007). In other words, scientific debates become political debates insofar as the resolution of scientific debates is supposed to resolve political conflicts. The strategy of delivering proof to compel policy action unduly narrows the scope of climate debate to questions of detection and attribution. The debate about how to adapt to extreme events such as floods and heat waves is one example that illustrates this dynamic. The discussion is limited to the question of whether such events can be attributed to human-induced climate change. The post-Katrina debate, for instance, focused on whether or not the event bore the signature of global warming (Pielke et al. 2007). If climate change is not detected, or is not attributed to greenhouse gas forcing, there is no formal basis for action under the Framework Convention on Climate Change (Pielke 2005).

Paradoxically, these proxy debates result in politicizing science. Both the theft itself and the alleged contents of some of the stolen e-mails make public the strong polarization and intense antagonism now found in some areas of climate science. This serves to fuel the debate, to reduce all complexities into a simple litmus test of whether or not someone believes orthodox scientific claims about the causes and consequences of climate change and to divide the policy world into ‘believers’ and ‘deniers’ (Hulme 2010a). Science is reduced to a spectacle of assessments competing against one another for supremacy – a kind of ‘contact sport’ (Schneider 2009).

**Alarmism – the debate heats up**

In the current ‘climategate’ controversy, climate scientists have also been accused of publishing exaggerated predictions in order to attract public attention and thereby
facilitate the acquisition of research funds (Kerr 2009). James Hansen, a climate scientist and director of NASA’s Goddard Institute for Space Studies, often speaks of ‘tipping points’ to express the dangers of climate. He is representative of the tendency of some sections of the scientific community and the media to present climate change in ever more catastrophic and apocalyptic terms (Hulme 2009a; Sunstein 2007). The basic logic holds that if people are concerned enough about climate change – that is, if they are sufficiently alarmed – they will then have the motivation needed to support policies that carry high costs and involve considerable sacrifice. IPCC Working Group 2 has also come under suspicion of portraying climate change as a bigger problem than is scientifically justified (Pielke 2010a). By sounding the alarm on climate change too loudly, various observers warn, campaigners may be causing important segments of the audience to tune out their message, possibly even provoking a backlash and creating ‘climate fatigue‘ (Kerr 2009; Nisbet 2010). The louder and more agitated climate advocates become in these efforts, the more they polarize the issue, driving away a conservative or moderate for every liberal they recruit to the cause. As a result, policies come to be built on one of two opposing and unhelpful responses: panic and overreaction on the one hand or apathy on the other (Sunstein 2007). As a result, the public is reduced to illiterate and passive resource of support in scientific battles.

Stealth advocacy

The proxy debate also facilitates the instrumental use of science as a ‘political resource.’ All the parties begin to ‘cherry-pick’ scientific uncertainties in order to support or delay immediate political action. When an issue is both politically and scientifically
contentious, one’s own point of view can usually be supported with an array of legitimate facts that seem no less compelling than those assembled by others advocating a different perspective (Sarewitz 2010).

These debates invite all the parties involved to map their political preferences onto the scientific debate, so that the IPCC almost automatically internalizes both the technical and political conflicts latent in the controversies and faces the challenge of resolving them. Disagreements that present as disputes over scientific evidence are in fact rooted in more fundamental differences regarding epistemology, values, or the role of science in policy-making (Hulme 2009a; Jasanoff 2010a). As numerous negotiation processes inside the IPCC – for example concerning the ‘value of life’ – demonstrate, invoking a univocal and supposedly value neutral science to resolve such deep-seated normative divergences is a recipe for discord rather than harmony (Jasanoff and Martello 2004).

The events of 2009/2010 also reveal the IPCC’s ambiguous position in relation to politics. The IPCC uses the phrase ‘policy relevant but not prescriptive’ (Watson 2005) to define its political role. The IPCC never clarifies what is meant by this phrase, and its practices have often been criticized (Pielke 2005). In order to make its work more politically relevant, the IPCC broadens the scope of its assessments to aspects of risk assessment and risk management (Watson 2005). Thus the IPCC has to perform not a single, clear-cut task but rather a mix of functions. One of the major challenges of such an integrated assessment is to combine the rather precise statements of science with a set of more contested political interpretations of such knowledge (Hulme 2009b). The phrase ‘not prescriptive’ indicates that the IPCC avoids addressing value-based decisions and openly advocating or rejecting a particular policy option (IPCC 2007).
Most notably, IPCC representatives contend that this approach was the only way the body could preserve its scientific credibility (Bolin 1994). At the same time, IPCC representatives hold on to the conception of science as value free and neutral and to science’s relative autonomy from politics, ideas deriving from the linear model of expertise. The linear trajectory from scientific closure to political closure is thought to enable science to serve as a neutral arbiter or harmonizing force in politics. Since scientific closure precedes political battles, scientific advice is supposed to be independent of political values and interests and to offer a forum where people with different perspectives can be brought together to set aside their differences in favour of a common, rationalistic approach to problem solving. However, its use of the linear model of expertise leads to the ‘schizophrenic’ position of having an awareness of the political terrain while at the same time ignoring it. The linear model of expertise serves to detach expertise from its political and cultural context and decouple it from systems of experience and understanding (Jasanoff 2010a). This position reflects an understanding of experts as being both ‘part of and apart from politics’ (Pielke 2005). It allows IPCC experts to act in an overtly political manner while simultaneously claiming to be disengaged from politics. Most scientists remain either unaware of or unburdened by its implications.

The IPCC reports and the body’s main figureheads frequently engage in implicit and explicit policy advocacy. For instance, leading IPCC figures often take public stands in support of, or opposition to, certain policies on climate change. The IPCC reports, particularly from Working Group III, reflect a particular policy orientation. It has been accused of systematically portraying climate policy as more straightforward and cheaper than can be responsibly concluded on the basis of academic research.
Scientists largely claiming to be speaking on behalf of science have uttered strongly-worded ideological and political commentaries based on the unstated assumption that science compels action on climate change. Science has thus been called upon not just to improve people’s understanding of the world but to compel people to act in a particular way (Pielke 2010b; Sarewitz 2010). The problematic implications of this position are generally neglected. Scientists neither accept the label of advocate, nor do they see the paradox in their position. As a result, scientific and political statements become inseparable: it has become difficult to disentangle political arguments about climate policies from scientific arguments about the evidence for human-induced climate change. If science leads inexorably to particular policy outcomes, then it would seem to favour autocratic forms of governance. The quality of both political debate and scientific practice suffers as a consequence (Hulme 2009c).

These forms of stealth advocacy also contribute to the current loss of trust. To those who already distrust climate science because it is used to justify action that they deem ideologically repugnant, such revelations make it look as though the science is systematically, if not fundamentally, biased. The use of allegedly neutral climate science to justify a policy regime fuels deep suspicion of the science (Sarewitz 2010).

**Implications for science policy**

As demonstrated above, there are both empirical and political-normative reasons to suggest that the linear model of expertise constrains the debate about climate policy. Consequently, when scientists reinforce the linear model of expertise, this has the potential to generate adverse implications for expertise and decision-making.
First, it necessarily restricts the value of expertise, as the IPCC is thought of in terms of forcing political consensus, being unable to resolve political disputes; it results in inaction and fosters political gridlock (Pielke 2007). Supporters of business-as-usual could not have wished for a more effective recipe for protracted inaction (Pielke 2010b; Oreskes and Conway 2010).

Second, the linear model of expertise is also politically risky and results in a depoliticization of politics. The term ‘not prescriptive’ indicates the IPCC’s reluctance to interpret the concrete economic, social and political implications of scientific findings and to come to a judgement on the scientific evidence. Considerably more attention has been paid not only by researchers but also by decision makers to the details of detection and attribution than to providing decision makers with useful knowledge. Following the ideal of the neutrality of science, politically relevant questions are framed and addressed in a very abstract, disembodied, and non-political way. Solutions often follow the path of seeking a technological fix for a technologically created problem. Climate change is framed as a relatively ‘tame’ problem that requires a straightforward solution, namely the top-down creation of a global carbon market. The narrow focus on issues of attribution was instrumental in masking major political implications in terms of winners and losers, benefits and costs and, last but not least, the right to develop. It has tended to sideline political discussion of the uneven pattern of past emissions, the attribution of responsibility for their accumulation in the atmosphere, and the unequal distribution of impacts, thereby marginalizing issues around adaptation and development while also distracting from the specific information needs of climate policies and from the acceptable, grounded solutions available to address them (Demeritt 2001).
Third, as long as the IPCC remains reluctant to address the policy-relevant implications of scientific findings, it fails to address the core societal, political and cultural problems involved and to meet the information needs of decision makers. Decision makers need to know how climate change will affect specific political jurisdictions and, more importantly, what types of interventions will make a difference, over what time scales, at what costs, and to whose benefit.

Fourth, the linear model of expertise also tends to stifle discussion of alternative policy approaches. The IPCC has emphasized emissions trading over other policy options, largely endorsing the approach of the FCCC. As a result, the broad spectrum of potential policy options is closed down in favour of a single option, as if ‘Kyoto is the only game in town’ (Prins and Rayner 2007). The IPCC fails to engage with alternative approaches and to generate ideas to inform its ‘solutions.’

Finally, the back and forth between depoliticized politics and politicized science has marginalized the question of what ‘climate democracy’ might mean for citizens around the world. Many argue that this sterile approach may have made the IPCC less useful than it might otherwise have been (Agrawala 1998a; 1998b; Hulme 2009b; Sarewitz 2010).

IV. Alternatives: Moving beyond the linear model

The current events also call for a more productive role for the scientific community in contributing to the information needs of decision makers in international climate politics. In this final section, the chapter concludes with a discussion of alternatives that are currently being discussed as a means of moving beyond the linear model of
expertise. Arguably, the IPCC itself has begun to move in a new direction. In preparing for the Fifth Assessment Report (AR5), the IPCC has called for its position as an honest broker to be strengthened (see IPCC 2009: 18; Tollefson 2007). In response to the crisis of faith on climate science, the InterAcademy Council (IAC) was set up to conduct an independent review of the policies and procedures of the IPCC under UN mandate. In August 2010, the IAC submitted a report. The IAC focused on recommendations aimed at strengthening the IPCC’s processes and procedures so as to be better able to respond to future challenges and ensure the ongoing quality of its reports. At the 32nd IPCC plenary session, the IPCC started with intergovernmental negotiations how to implement the IAC recommendations. The robustness of the IPCC will be dependent on how thoroughly the governing body of the IPCC responds to these recommendations. This final section outlines these challenges and discusses them in the light of alternative models of expertise.

‘Stop debating science’ – from an ‘excess of objectivity’ to a spirit of ‘professional humility’

The linear model of expertise places approaches centre stage that promise to deliver a ‘sound’ scientific foundation on which to base climate policy. Given the deep-seated uncertainties involved in predicting climate impacts and given that climate is usually only one factor among many others in decision making, the linear model of expertise is significantly flawed. Epistemological limits to climate science and corresponding ambiguities in the available knowledge should neither be concealed behind monolithic claims of scientific certainty nor be interpreted as a restriction on
decision making. IPCC representatives would thus do best to make transparent the complexity and limits of their expertise and the extent of their uncertainty in a spirit of professional humility. The situation would also be improved if leading climate scientists, who for many good reasons are the authoritative voices in the climate debate, decided that wise policy does not necessarily depend on debating the science (Jasanoff 2008; Sarewitz 2010). Rather than assuming that disputes are solely scientific, opening up these decision-making processes would render their primary nature more honestly political and economic, while giving proper weight to scientific reason and evidence (Wynne 2010).

**From stealth advocacy to honest brokering**

In its new assessment cycle, the IPCC calls for the policy debate to be opened up to consider ‘practicable and consistent alternatives’ (IPCC 2009: 18). The panel redefines its political role as presenting ‘policy-relevant’ alternatives and expanding the array of technically feasible options without ‘prescribing’ decisions (ibid.). Thus one of the major challenges is how to cope with the variety and diversity of scientific approaches, knowledge sources, framings and options. This also requires a deeper understanding of the nature of policy relevant uncertainties and disagreement (see also Hulme 2009a).

The IPCC also tends to be reluctant to translate scientific findings into informed judgements. In order to maintain its political relevance, the IPCC cannot delegate this task to stealth issue advocates and the media; instead, it must take on the responsibility to do this itself. This task also indicates the need for a more distributed and participatory approach – one that engages scientists, governments, and publics in a shared enterprise of responsible knowledgemaking (Jasanoff 2010b). As an alternative to providing
logically indisputable proof from a neutral arbiter, the role that science can
constructively play in policy making is to provide a robust assessment of the knowledge
base that allows for continued scrutiny, reexamination, and revision not only including
expert but also a variety of stakeholders.

Such an approach feeds informed opinion about the effectiveness of response
strategies over a wide range of plausible futures and their possible consequences (Dessai
et al. 2009). It also calls for reframing debates. There are many good non-scientific
reasons to justify policies such as social justice and social benefits. If the many factors
that go into a policy commitment are recognized, science does not become the sole
centre of authority and the sole target for opposition. The reframing would foster wider
debate about the implications of interventions, and of burdens of proof weighed against
social benefits and the costs of erroneous outcomes.

It also encourages discussion around alternative representations of climate
change and may open up discussion of paths not previously identified and options not
previously considered (Pielke 2007). This novel approach seems to be a much more
effective way to communicate to policy makers the risks and opportunities associated
with climate change, rather than forming a consensus about policy options. Science
would thus place itself in the role of being a tool for policy action rather than a tool for
political advocacy (Dessai et al. 2009).

Equally, it is necessary for scientists to become sensitive to the political contexts
in which their knowledge assessments are made and used. The linear model serves to
obscure the local and situated characteristics of knowledge which are central to
understanding both the credibility of and resistance to the knowledge claims made by
the IPCC (Jasanoff and Martello 2004; Beck 2004; Hulme 2009a). It also neglects the
broader political context in which the IPCC is embedded. From this perspective, the backlash against the IPCC has to be seen in the broader context of the failure of the Copenhagen Climate conference in late 2009. The IPCC is often used as scapegoat to delay ‘inconvenient’ political decisions. The crucial point here is to correct not only the flaws in the IPCC design but also in the dominant approach to climate policy. As Sarewitz puts it: rehabilitation of climate policy is a matter not of getting the science right, but of getting the politics right (2010).

Performing the role of an honest broker would be a very useful step forward for the IPCC. It is not yet clear what is meant by this statement and what the concrete consequences would be. Is the IPCC indeed willing to move beyond the linear model of expertise to accept uncertainties and political differences and not expect them to be resolved by science?

From Truth to Trust

Given this context it is important to see the IPCC as producing policy-relevant knowledge rather than yielding ‘sound’ science. The stolen emails and errors in the IPCC report appear to have contributed to the public mood of suspicion; in some instances, admissions of errors appeared to be reluctant or were tardy.

These examples indicate that the IPCC has fallen well short of performing as a credible, trusted, and legitimate advisory body. They also resulted into larger concerns: could politics and society still rely on the IPCC for an assessment of the scientific knowledge on climate change and could policymakers and the public at large still trust the IPCC’s key messages?
The recent bad publicity has exacerbated a several-year decline in public confidence about climate science. All of this has spread fear among climate scientists that they are losing the war over public opinion. The ‘climategate’ turned out not only a question of the technical integrity of science but also one of public confidence. These events have prompted scientists to rethink the way in which they address critics and engage the public. Scientists are also trying to take a proactive approach, often based on the assumptions that the problem can be solved simply by transferring knowledge. Trust does not necessarily flow from the quality of the science, as many scientists may hope or believe. As the PBL report demonstrates: ‘Telling people “Hey, I’m an expert — you need to trust me”, is just no longer enough’ (Schiermeier 2010: 170). More and better information and communication are not enough to resolve the problems facing climate experts such as public doubts and the lack of political action on climate change. As Jasanoff puts it: ‘It is not just a function of information that matter, but an ongoing relationship with the public, a willingness to show why experts should be believed’ (Broder 2010). The IPCC thus faces two significant challenges: to produce the highest quality information about climatic changes, and to build public trust (Jasanoff 2010c). The public must also believe that these experts are not conspiring to dupe them.

From outcomes and products to social processes

What the turbulence of recent months shows is that it is the social practices of knowledge-making that matter as much as the substance of the knowledge itself. The controversial publication of climate scientists’ e-mails and arguments about errors in the most recent IPCC report have raised important questions about the process of scientific
knowledge-making rather than seriously challenging the core substance of that knowledge (Hulme 2010c). The turn from outcome to process often coincides with the turn from linear to interactionist models of expertise.

Table 2: Models of Scientific Expertise

[[insert Table 2 here ]]

How, different authors ask following the turn from product to process, can the IPCC as a self-governing institution simultaneously maintain its political relevance and scientific integrity in the face of intense political pressures (both internal and external) and tightly constrained deadlines (Edwards and Schneider 2001) The major challenge posed by ‘climategate’ is to rebuild public faith in the credibility of climate science in this context of heightened demand for accountability (Jasanoff 2010c).

**Reflexivity and organizational learning**

When evidence emerged that the IPCC had adopted unsubstantiated data about rates of Himalayan glacier retreat, the problem signalled not just a failure in the organization’s review process, but a failure of organizational culture. Errors such as the incorrect date for the projected melting of Himalayan glaciers matter, but what is more important is whether mistakes are honestly admitted and whether procedural lessons are learned. The credibility of the IPCC and public trust in it will depend on its willingness to commit itself to rigorous self-examination and to implement organizational learning.
Reflexive models of expertise follow the pragmatist model while at the same time placing emphasis on the constructed, contingent and negotiated nature of the relationship between science and politics (Jasanoff 1990; Jasanoff and Wynne 1998). The context of global governance also requires the refocusing of some of the model’s central features by taking into the more complex, contingent, and contested settings of global politics. From this perspective, the particular challenge for expert bodies such as the IPCC is not only to find common approaches to conceptualizing and analysing global change, but also to develop appropriate procedures for proceeding in global governance which can bridge culturally divergent styles of reasoning that are deeply embedded in national political cultures (Jasanoff 2005).

The backlash against the IPCC demonstrates that the lack of formal rules in a contested political ‘climate’ creates potential for public misunderstanding, as well as potential for corruption, as only those with access to the relevant technical communities can fully appreciate why choices were made in one way and not in another. Improvements to procedures and organizational innovations are thus vital. The IPCC, as a dominant institution through which climate knowledge is produced and validated, has operated in largely uncharted territory, and with no shared, pre-articulated commitments (Jasanoff 2010a). Procedural rules are critical for the governance of the IPCC as a hybrid organization, since they spell out a variety of methods and procedures designed to ensure that its reports include the best available scientific knowledge and that they represent this knowledge fairly and accurately. They also define how expert authors from around the world were to be recruited, and how governmental and non-governmental interests and expertise were to be integrated. When the IPCC was created in 1988, there was no model to follow. The IPCC has to invent its own rules and
become a pioneer in developing procedural rules for the governance of expertise at the global level. Starting out with relatively few formalized rules in 1988, the IPCC has gone through two major revisions of these rules, in 1993 and 1999 (IPCC 1999). The IPCC reacted to criticism of the Second Assessment by revising and formalizing its procedural rules.

In order to maintain its scientific integrity, peer review became a fundamental formal principle of its self-governance and a basic informal principle of its consensus-building process. The IPCC’s widely inclusive, extremely intensive peer review process has opened up the debate about climate change to a far wider range of actors than is usually consulted in science. By doing so, it has created a fairer, more thorough, and hence more powerful method for reaching consensus on the knowledge required for good public policy (Edwards and Schneider 2001). While contributing towards enhancing the openness and transparency of the process in some respects, these revisions nevertheless serve to add further complexity and bureaucracy to the process (Skodvin 2000: 409-415).

‘Climategate’ also highlights the novel challenges that have to be taken into account by this revision of procedural rules.

First, well-established rules and norms exist for traditional, national science. One important lesson of ‘climategate’ is that while existing quality control procedures are good enough to satisfy many scientists, they rest on traditions of scientific, rather than public, accountability and will never satisfy powerful external sceptics that IPCC findings are not simply the consensus of narrow elite (Jasanoff 2010b). Policy-relevant knowledge typically grows from interdisciplinary collaborations in which methods and criteria for quality control are not well established in advance.
Second, though intergovernmental in name, the IPCC is subject to none of the legal political requirements that constrain, but also legitimate, national expert committees. Not least because climate scientists are now highly exposed to public scrutiny and criticism, the IPCC has to be responsive to the ways in which scientific knowledge is validated and made authoritative for public use. National legal and administrative systems have developed many mechanisms for enabling publics to question the scientists who advise governments. Mechanisms for enabling publics to question the scientists who advise governments are scant or entirely lacking at the global level, although the need for them nowadays is, if anything, more critical than ever. These problems mirror the structural problems inherent in the existing system of global governance, which suffers from significant deficits of accountability and inclusion; this can result in less economically powerful states and, hence, their entire populations being marginalized or excluded from decision making (Held and Hervey 2010). If expert bodies gain ‘delegated’ authority, they should be held to norms of transparency, accountability and deliberative adequacy (Jasanoff 2010a). The very act of using science to inform public choices confers power upon some actors in the policy process while removing it from others. This empowering function of science raises questions of legitimacy and representation as science becomes more central to shaping public policy and the organization of politics in democratic societies.

Third, divergent national traditions of openness and confidentiality present additional hurdles for climate scientists. The IPCC inevitably functions as a site of contestation among competing models of knowledge making and governance (Jasanoff 2010a). The major challenge for global governance is to build procedural rules that
bridge cultural styles of expertise and are able to acknowledge and legitimize the
text expression of plurality of values.

One of the main challenges for the IPCC is to develop approaches and
procedures that allow judgements to be tested publicly, not only with regard to
substance but also in terms of process (Jasanoff 2010b). In the past, the IPCC has also
shown organizational learning insofar as it was able subsequently to implement what
had been lacking in its structure and design (Agrawala 1998a; b). These learning
processes need to be conducted in the open, so that public confidence and trust in its
judgements is retained. It is an open question as to how seriously the IPCC actually
takes these challenges and how far and radical the relevant institutional reform (of its
procedural rules) will go.
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1 This strategy does not preclude other bodies working on the issue, but it did help to establish the IPCCs role as a privileged authority and discursive ‘trend-setter’ to whom all others would henceforth have to refer (Elzinga 1996). This is one way of avoiding a repeat of the experience of the nuclear power debate, when contradictory expert views neutralized each other, presenting the spectacle of an academic farce. In essence, the attempt to restrict the knowledge admitted into the policy process is an effort to control the influx of knowledge and thus to limit the de-legitimizing impact of contradictory pronouncements made by scientific experts (Weingart 1999).

2 http://reviewipcc.interacademycouncil.net/IACIPCCMontreal.html

3 www.ipcc.ch/meetings/session32/draft_report_32.pdf

4 Reflexivity is a term that emphasizes the capacity of social arrangements to recognize and cope with claims regarding the limitations, underlying assumptions, and power relationships of any given epistemological framework. Reflexive forms of governance thus systematically pay attention to their own epistemological and ontological frameworks and the knowledge framings, tacit assumptions, normative commitments, and power relationships they embed (Miller and Erickson 2006).