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Climate Change and Knowledge Politics

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ABSTRACT *This paper addresses the paradox that although the Intergovernmental Panel on Climate Change has reached a broad consensus, various governments pursue different, if not opposing policies. This puzzle not only challenges the traditional belief that scientific knowledge is objective and can be more or less directly translated into political action, but also calls for a better understanding of the relation between science and public policy in modern society. Based on the conceptual framework of knowledge politics the use of expert knowledge in public discourse and in political decisions will be analysed. This will be carried out through a country comparison between the United States and Germany. The main finding is that the press in both countries relies on different sources of scientific expertise when reporting on global warming. In a similar way, governments in both countries use these different sources for legitimising their contrasting policies.*

Introduction

Research in the field of science and technology studies has gathered much evidence that science is not separate from society and that it does not discover uncontested 'truths' that are then translated into policies. Rather, we have to assume a co-production of scientific claims, political decisions and social order (Latour, 1987; Jasanoff & Wynne, 1998; Jasanoff, 2004). This goes against the traditional view that science and society are separate and that sound knowledge influences public policy in a rather linear fashion. Climate change is a case in point. There are numerous studies that document the social construction of a consensus view (e.g. Boehmer-Christiansen, 1994a, b; Shackley & Wynne, 1995; Shackley & Skodvin, 1995; van der Sluijs *et al.*, 1998; Miller & Edwards, 2001). However, in contrast to such research findings, the mainstream reflection of involved actors tries to eschew any view that

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points to a social or political 'influence' on its central knowledge claims. The Intergovernmental Panel on Climate Change (IPCC) takes great pains to ascertain its cognitive authority. It characterises outside critics as unscientific as they do not publish in peer reviewed literature (Edwards & Schneider, 2001). What is more, the dominant view espouses a direct link between objective knowledge and political decision making that is crucial for legitimising such decisions (Price, 1965). Behind this position is the belief that objective knowledge can in principle be translated into policies, and that policies should be based on 'sound science'. In this article I try to address a paradox which emerges from such a view, focusing on the role of the IPCC. On the one hand it constantly works at producing a consensus view. On the other hand this is translated into different, even opposing, national policies, especially in the US and European countries (see Vogel, 2003). One may therefore ask: What is the IPCC consensus? Who has been shaping the consensus? How important was it for public policy?

Climate change is a global environmental problem that needs global cooperation for its solution. Several factors have been identified to make international cooperation more likely: greater scientific consensus; increased public concern; burden sharing between nations; short term political benefits; and the existence of previous, related multilateral agreements (Hahn & Richards (1989) as quoted in Sands (2003)).[1] Peter Haas (1992) has made a forceful case for the first of these variables in suggesting that greater scientific knowledge enhances the probability of political cooperation. Let us look at the empirical evidence and review these factors in order to assess how important they were in the shaping of climate change policies. I shall start with the question of scientific consensus and then address specifically the issue of public concern as measured through media reporting. While I shall not address equity concerns and short term political benefits specifically, it is clear that these were important in the case examined here and reference will be made in passing. The prior existence of the Montreal Protocol for the Protection of the Ozone Layer is noted and serves as a reference point in many studies (see also Rowlands, 1995; Grundmann, 2005). If anything the prior existence of this agreement set high hopes for the present case.

The IPCC Consensus

The role of the IPCC is to review and assess the published scientific literature on climate change, its costs, impacts and possible policy responses. It also plays a role in assessing scientific and technical issues for the UN Framework Convention on Climate Change. Founded in 1988, it attempts to reach a consensus view on the scientific aspects of global climate change as this is seen as necessary for obtaining policy decisions that are based on best available knowledge. When the first chairman of the IPCC, Bert Bolin, explained that the IPCC was designed in order to boost trust in the science among nations,[2] this was an expression of an intuitive political strategy assuming that a greater

scientific consensus and wider participation would ensure a stable political outcome. With hindsight we may say that this hope has been disappointed. This should not come as a surprise to social scientists.

In its first report the IPCC stated that continued greenhouse gas (GHG) emissions would enhance the greenhouse effect (Houghton *et al*., 1990). In its second report, it affirmed that 'the balance of evidence suggests that there is a discernible human influence on climate change' (Houghton *et al*., 1996). In its third report, it noted that over the last century, the earth has warmed by 0.6°C, and the increase is at least partly due to the anthropogenic release of GHGs (Houghton *et al*., 2001).[3]

From around the world, more than 2000 scientists have contributed to these reports. The IPCC likes to present itself as the international authoritative body pronouncing scientific expertise on the issue. However, some 'contrarian' scientists and other critics think that the IPCC misrepresents the state of knowledge and exaggerates the size and urgency of the problem. While the sceptics accuse IPCC scientists of being environmentalists in disguise, others point to the processes of exclusion of specific social groups representing different knowledge claims (Boehmer-Christiansen, 1994a, b; Miller & Edwards, 2001). The IPCC has been described as a hybrid organisation, mixing policy and science (Miller, 2001). There is no agreement among commentators about who is ultimately more influential, the scientists or government officials.[4] Be that as it may, it seems as if the strong presence of US scientists does not always dovetail with the line of the US government. In other words, even if politicians have a say in the wording of the IPCC reports, this does not mean that governments are equally happy with the results. It is obvious that various US governments have ignored the IPCC while others (especially in Europe) have endorsed it.

The notion of the IPCC being a hybrid makes reference to Latour's (1993) analysis of two complementary processes, hybridisation and purification. This is to say that the more scientists engage in politics, the more they will stress the validity of their knowledge claims. Conversely, the more politicians engage in science debates, the more they will claim that they make decisions based on the best available knowledge. Knowledge is therefore the central reference point for actors from both fields. This does not mean, however, that knowledge claims are translated directly into political decisions or that scientists would be the ultimate power holders. Quite the contrary, as the article will argue, it is the governments that decide which policy to develop and which knowledge to use for its legitimation.

Although the IPCC says that it is producing policy relevant science but not prescribing policy, it can be shown that over time it has assumed a definitive stance regarding the causes and remedies of climate change (Pielke, 2003). Through scenario building and other rhetorical devices the argument is made that GHG reductions in the order of 60–80% are required to stabilise global climate and that some policy options are to be preferred over others (IPCC, 2001).

Knowledge Politics

I propose to interpret knowledge based policy decisions through a framework of 'politics of knowledge' (Beck, 1992; Grundmann & Stehr, 2003; Stehr, 2005). Its basic feature is the instrumental use of knowledge claims for the achievement of political goals.[5] Knowledge has two crucial dimensions here, content and persons. The politics of knowledge refers to both. In terms of content, it means that specific bodies of knowledge (from specific disciplines, from professional bodies, etc.) are used as a justification for policy. Referring to persons it means that experts are chosen by politicians to perform their role as advisers, usually through advisory committees. This creates an inside/outside distinction conferring on the experts inside an advantage of visibility, prestige and resources. At the same time, experts left out may want to undermine the credibility of the insiders.

However, it seems problematic to think of the policy process simply in terms of experts influencing political decision makers. Nor is it very helpful to draw a sharp demarcation line between experts and non-experts. As many controversies have shown the important opposition is between two alliances that advocate different policies based on divergent basic values and knowledge claims (Hajer, 1995; Tesh, 1999). Representatives of science, politics and the lay public are on both sides of such disputes. Scientific results and their symbolic representation in the public domain are valuable resources. Public trust and credibility are at stake with claims from both sides being tested in public disputes. It may well be that scientific experts are leading in the framing of issues and the invention of symbols and metaphors. But it is the engaged lay people and the wider interested public, including the mass media, that will ultimately decide on the credibility of various propositions. Such shifts in public credibility are unlikely to follow consensus models. It is more realistic to expect one side eventually gaining hegemony over the other (Turner, 2002; see Grundmann (2001) for a similar analysis of the chlorofluorocarbon (CFC) ozone case).

The media hold an important position in influencing public opinion on these matters. The framing of issues is particularly important (Spector & Kitsuse, 1977; Ungar, 1992; Mazur & Lee, 1993). It has been suggested that there is an issue attention cycle (Downs, 1972; Trumbo, 1996) but that the media's influence in the climate case is secondary, 'reinforcing the perceptions of primary definers in the politics of global warming: scientists, states and corporations' (Newell, 2000: 95). We shall examine both framing and the issue attention cycle below.

Looking at the basic values that underlie climate change policies one could identify in an ideal typical way two radically opposing frames which are related to different climatic and economic models. According to the first, the world economy would be fatally damaged if we tried to reduce GHG emissions drastically; according to the second, similar catastrophic results would follow by adopting the opposite course and not taking action. These frames are based

on fundamental values such as 'preventing harm' (to the global environment or to the economy). They also rest on some knowledge of causal chains of future climate states, and of their causes and effects, and on economic knowledge about costs of carbon emissions reduction. In a simplified way, one could describe the policy of the United States government as following the first frame (avoid damage to the economy as a result of GHG emissions cuts), while the European Union (EU) is following the second (avoid global environmental catastrophe).[6] As both are represented in the IPCC, this opens the possibility that the same scientific expertise can lead to different political orientations.

Methodology

For the purpose of the empirical analysis that follows I shall adopt a threefold typology of central actors that are publicly visible: advocates, sceptics and the IPCC.[7] Apart from the IPCC there have been some very vocal and visible scientists on either side of the debate. We can call them advocacy scientists as they represent a body of knowledge that is highly policy relevant, and at the same time more or less openly informed by normative beliefs and values. These are popularizers or advocates who bridge environmentalism and science (Hannigan, 1995: 55).[8] We apply the same logic to advocates from the other side as well, and define the sceptics (or contrarians) as scientists speaking out in favour of the fossil fuel industry, bridging anti-environmentalism and science. Scientists' claims are likely to be taken up by the media if the stakes are high and if the issue can be dramatised by symbolic and visual means (Ungar, 1992).

A LexisNexis search on climate change was performed for the US and German print media. This database contains about 420 US sources and 130 from Germany. The aim was to describe the quantitative distribution of climate change sceptics, advocates and the IPCC in the US and German print media. It was hypothesised that both governments might be influenced by domestic media reports. As Newell (2000: 94) has pointed out, 'by shaping public opinion, a situation can be created where it is conducive for governments to act, or hard for them not to act in the face of perceived pressure to initiate a policy response'.[9]

The database was accessed in September 2005. Available data for the US ranged from 1988 to 2004, and for Germany from 1994 to 2004. Search terms for US sceptics were: 'Fred Singer', 'Richard Lindzen', 'Frederick Seitz', 'Patrick Michaels'. Search terms for advocates in the US press were: 'Robert Watson', 'Bert Bolin', 'James Hansen', 'Stephen Schneider', 'Kevin Trenberth', 'Tom Wigley'. Also the terms 'IPCC' and 'intergovernmental panel' were used to identify articles pertaining to the IPCC. In order to allow for potential variations in terminology, three additional alternative search terms were introduced: 'climate change', 'greenhouse effect' and 'global warming'. The search term for sceptics in Germany was '*Skeptiker*'. Search terms for advocates in Germany were: 'Crutzten', 'Klaus Hasselmann', 'Grassl' and

'Schellnhuber'. Additional search terms were '*Klima*' and 'IPCC'. For both countries only major stories were selected.

In the US press 1349 articles were identified (of which 291 mentioned sceptics, 430 mentioned advocates and 628 mentioned the IPCC, a ratio of 22%–32%–46%). In the German case there was a total of 180 articles of which six were mentioning sceptics, 72 advocates and 102 the IPCC, a ratio of 3%–40%–57% (Figure 1).

Findings

Only in 1988 and 1989 were the advocates the dominating reference point for the US media. Public concern started in June 1988, when National Aeronautics and Space Administration scientist James Hansen during a testimonial statement to US Congress stated he was '99%' certain that global warming was real (O'Donnell, 2000). He said that 'in my opinion the greenhouse effect has been detected, and it is changing our climate now', and even more pronounced, when he told a *New York Times* reporter: 'It is time to stop waffling so much and say that the evidence is pretty strong that the greenhouse effect is here' (*New York Times*, 24 June 1988, p. A1). He was soon attacked by sceptics who described the whole issue as a 'global warming scare'. Sceptics gained enormous visibility given their relatively small number. The sceptics' peak is in 1997, the year of the Kyoto negotiations. The sceptics also scored very high in the years immediately before and after Kyoto. The IPCC is a significant media source mainly in those years when it published its reports, i.e. in 1990, 1995–96 and 2001. Third, the peaks of advocacy coverage in the media occurred in 1988, 1989, 1997, 1999 and from 2002 to 2004. In 2002 Bob Watson was ousted as chair of the IPCC which caused a considerable stir in the media.

Looking at the German data (see Figure 2) it is striking that there is far more reference made to the IPCC and advocates – the sceptics barely get mentioned. Several advocate scientists are highly visible in the media, including Hartmut

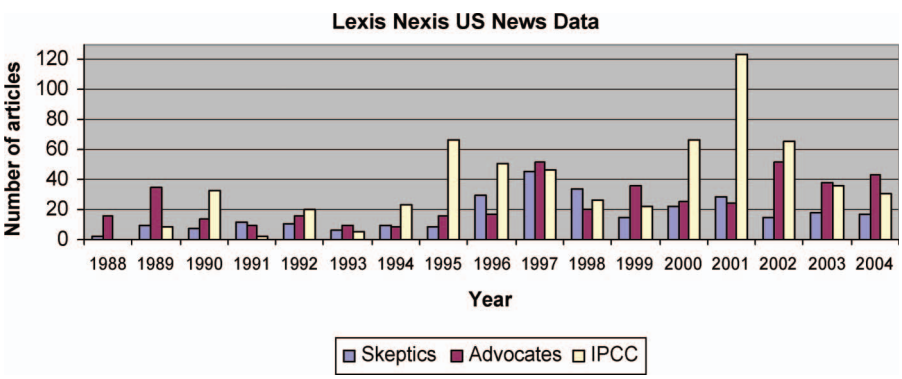

Figure 1. Climate change sceptics and advocates in the US print media, 1988–2004, number of articles per year. *Source*: LexisNexis.

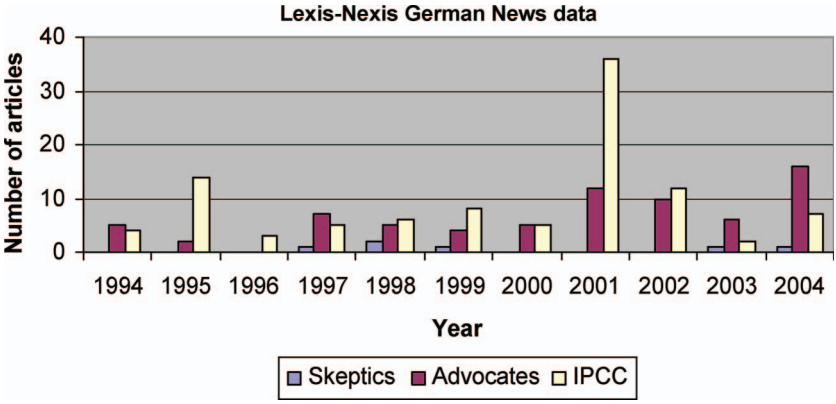

Figure 2. Advocates, sceptics and the IPCC in the German language print media, 1994–2004, number of articles per year. *Source*: LexisNexis.

Grassl, director of the Max Planck Institute for Meteorology, Klaus Hasselmann, director of the Max Planck Institute for Meteorology Hamburg 1975–1999, Hans-Joachim Schellnhuber, director of the Potsdam Institute for Climate Impact Research, and Paul Crutzen, director of the Max Planck Institute for Chemistry and Nobel laureate in 1995. There is no visible contrarian scientist.

Whenever reference is made in the German print media to sceptical scientists, they are from abroad. Apart from the US contrarians (such as Richard Lindzen or Fred Singer, who are given very little attention), two Danish scientists are cited. As in the US, the IPCC is highly visible in the German media during the years when it releases its reports.

Discussion

How can we interpret these data? First, there is no evidence of an issue attention cycle. In both countries attention has grown over the years. Second, sceptical scientists are more visible in the US press compared to Germany. This is broadly in line with the respective government policies, supporting Newell's claim from above. Does it follow that governments are influenced by the media presence of specific scientists or scientific arguments? If we look at the US data, one could interpret the compromise reached in Kyoto as an indication of the influence of advocates in the US media in 1997. However, this would be contradicted by the fact that during 1997 all sources have been heavily quoted, including the IPCC and the sceptics. What is more, the high visibility of advocates in recent years in the US press has not had any visible influence on the federal government. It is ironic that Watson is mentioned frequently in 2002 yet this was mainly to do with his replacement as IPCC chairman. The quantitative analysis is too crude a measure to say anything specific about the general slant or content of the articles. There is a recent qualitative study on

the topic by Boykoff & Boykoff (2004). They have analysed a random sample of US prestige press articles on 'global warming', comparing IPCC statements to the content of press articles, using two measures, scientific facts (anthropogenic warming) and urgency of action. They found that the IPCC clearly states that climate change is anthropogenic and that action is urgently required. The elite press, however, tends to give equal space for views that espouse natural sources of climate change and advocate voluntary approaches to mitigation. The authors identify the journalistic norm of 'balanced reporting' as the cause for this biased representation of scientific findings. Before we can assess this interpretation, we shall substantiate the history in both countries with contextual data.

The US and Climate Change: Scepticism

The US is the world's largest emitter of GHGs. Its per capita emissions are more than 2.5 times the level those of the EU (cf. Sbragia & Damro, 1999). It is very much dependent on (cheap) fossil fuel as the US traffic infrastructure is biased towards air traffic and road traffic in private cars. This means that it is a politically delicate issue to deal with fuel prices (e.g. through higher energy taxes). The US political system is characterised by a pluralist institutional design where interests compete in an adversarial political setting. Public dispute, not consensus, characterises this political culture. Additionally, the US is concerned about the potential loss of sovereignty which could result from international climate treaties. As we shall see, there were slight variations in policies of different US governments, but none showed strong support for emission reductions.

It should be noted that the fossil fuel lobby is very active and vocal in the US, sponsoring many public relations activities including contrarian scientific studies that aim to undermine the credibility of the IPCC process and its findings. It is symptomatic for the political landscape that Exxon Mobile, in 1998 the world's largest private oil company, opposed mandatory carbon emission reductions as exemplified in the Kyoto Protocol.[10] Exxon's chairman stated in 1999 that 'Even if global warming were proven a threat – which it is not – targets agreed on in Kyoto, Japan, fail to provide a fair, practical, or cost-effective solution' (quoted in Rowlands, 2000: 343). He was also pointing to scientific uncertainty as the main reason to reject precautionary policies. Exxon is working closely with like-minded business groups such as the Global Climate Coalition and the Climate Council, all rejecting calls for preventive climate policies.[11]

Broadly speaking the US policy towards climate change can be divided into three periods. These are largely coterminous with the terms of office by George Bush, Sr, Bill Clinton and George Bush, Jr. During this 20-year period a commitment to 'more research' was a lowest common denominator (Pielke, 2000). Shortly after coming into office in 1993, the more pro-environment Clinton–Gore government tried to introduce an energy tax (the so-called

British Thermal Units (BTU) tax) and Clinton announced his commitment to reducing emissions of greenhouse gases to their 1990 levels by the year 2000. However, the proposed tax did not pass Senate. Furthermore, the same house resisted any move towards mandatory carbon reductions with the Byrd–Hagel resolution which passed Senate unanimously, vowing not to commit the US to emissions limitations, unless developing countries made similar commitments. From this it is clear that any overly ambitious policies would be 'dead on arrival' (see McCright & Dunlap, 2003: 349).

US President George Bush, Jr seems to ignore the body of IPCC expertise. Bush pulled out of the Kyoto Protocol, calling it 'fatally flawed'. It would be economically damaging and unfair in that there would be insufficient involvement by the developing countries. Interestingly, he made explicit reference to 'the incomplete state of scientific knowledge of the causes of, and solutions to, global climate change' when he withdrew the US commitment to the Kyoto Protocol and its binding targets (*New York Times*, 17 March 2001). On 11 May 2001, the White House requested a fast-track review of the state of climate science from the National Academy of Sciences (NAS). In its report, 11 leading atmospheric scientists reaffirmed the mainstream scientific view that the earth's atmosphere was getting warmer and that human activity was largely responsible. However, despite the fact that the government could not derive support from the NAS, it nevertheless held firm to the view that Kyoto was fatally flawed and that 'we cannot do something that damages the American economy' (*New York Times*, 7 June 2001).

US Knowledge Politics

From the data shown in Figure 1 the IPCC stands out as a source of reference. How influential has it been in determining US policy? It has been claimed that the Second Assessment Report (SAR) especially, published in 1996, has made an impact. In it, the IPCC famously stated that 'the balance of evidence suggests that there is a discernible human influence on global climate' (Houghton *et al*., 1996). Edwards & Schneider (2001) claim that after a long period in which the US did not support binding targets in international environmental policy making, things started to change after the release of the SAR:

> On July 17, 1996, then US Under-Secretary of State for Global Affairs Tim Wirth formally announced to COP-2 that the United States would now support the adoption of a realistic but binding target for emissions. The exact degree to which the IPCC SAR influenced this policy change cannot be known. But Wirth certainly gave the impression that the report was its proximate cause. (Edwards & Schneider, 2001: 22).

Wirth also noted that 'the United States takes very seriously the IPCC's recently issued Second Assessment Report'. He cited the SAR at length, stating

that 'the science is convincing; concern about global warming is real' (Wirth (1996) quoted in Edwards & Schneider, 2001).[12]

However, apart from this example, there is little evidence that US governments have taken the IPCC messages on board. Instead they seem to have listened more to the sceptics. As Skolnikoff (1997: 4) observed:

> ... there are also, especially in the US, some sceptics who vocally and vehemently deny the validity of the IPCC analysis altogether. That scepticism, though it undoubtedly reflects only a tiny segment of the scientific community, is already being used by Congressional opponents and interest groups in the US that would suffer economically by constraints on emissions.

The rise in visibility of the contrarian scientists in the US media has been explained by the Republican majority in Congress from 1994 (McCright & Dunlap, 2003). This gave the climate change sceptics a boost, helping them to influence the public debate. Analysing witness testimonies in the US Congress, McCright & Dunlap (2003: 363–4) revealed that between 1990 and 1997, 37 hearings primarily dealt with the issue of global warming with an interesting change occurring. There was an 'increased visibility of industrial interests' indicating that 'the 1994 Republican takeover of Congress had a positive effect for industry and conservative interests, as opportunities for such groups to promote their counter-claims in Congressional hearings grew substantially'.

This boost in visibility had a clear knock-on effect on media attention. As Figure 1 shows, the sceptics' visibility rose substantially from 1994 to 1997. It is important to acknowledge that it was the:

> ... Republican majority, which now had institutional control of Congress and the right to call hearings and compose witness lists, [that] expected to demonstrate that the science underlying these ... issues was distorted to serve the political purposes of liberals, thereby justifying both the repeal of environmental regulatory policies created on the basis of this science and the reduction of research funding for these areas of science. (McCright & Dunlap, 2003: 361)

I interpret the US situation as an instance of a politics of knowledge where the power of the IPCC experts and their open environmentalist allies had little influence on US climate policy. Instead, it was the political agenda that drove US climate change policy. The high visibility of sceptical scientists in the media resonates with this. With reference to the hypothesis that scientific knowledge can facilitate cooperation, we have come to a sobering conclusion, aptly expressed by Litfin (1994: 194): 'scientific proficiency does not correlate with political leadership. In fact, once a policy decision is made to resist environmental controls, a country's access to abundant scientific information

can help bolster that decision'. In other words, US scientists play an important role in the IPCC but not in US climate change politics. Let us now examine the case of Europe in general and Germany as a leading country in particular.

Germany: 'Climatic Catastrophe'

Compared to the US, European countries have lower per capita emissions of GHGs (partly as a result of past efforts to increase energy efficiency), and the member states have already grown used to pooling sovereignty within the EU (therefore effects from international treaties are easier to accommodate in psychological terms; cf. Sbragia & Damro, 1999). It is no exaggeration to say that early on the EU had assumed a self-declared leadership role on the climate change issue (McCormick, 2001: 281). It can be speculated that the EU:

> ... saw the issue in broader strategic terms as it sensed a leadership vacuum in the absence of strong US and Japanese climate policy positions. Thus, the EU position was not necessarily only a reflection of concern for an environmental problem, but perhaps equally important as a stepping stone to stand forth as a strong and unified block on the world scene. (Andresen & Agrawala, 2002: 45)

Skolnikoff (1997: 4) points out that European governments:

> ... have accepted the view that whatever the uncertainties, the danger is real, human influence on climate has been demonstrated, and the precautionary principle should apply. The IPCC has come down on the 'safe' side of the question, so there is little point in further debate.

Where the US government claims we know too little about climate change to justify action, EU officials have decided that we know enough (Liberatore, 1994: 192). In contrast to the US, the big European oil companies Shell and BP gave up their opposition to the Kyoto process in 1996. Both companies left the Global Climate Coalition and BP's chief executive is on record saying that 'Of course the science of climate change is still unproved and provisional' but 'the evidence is strong enough to merit precautionary action' (quoted in Rowlands, 2000: 344). The dominant oil businesses are thus in line with European governments regarding climate change (as they are in the US, if in the opposite direction).[13] A further important factor is the political and institutional environment for policy making. It has been argued that corporatist countries like Germany tend to exclude diffuse interests (such as the environment) but take them very seriously once these interests have become incorporated into the system. As Dryzek (2000: 173) put it, 'corporatism associated with ecological modernization (i.e. countries like Germany, Sweden, Norway, Japan) might be

[regarded as] superior to pluralist models of liberal democracy' when it comes to environmental protection.

In what follows, I shall look at the German position in particular as it was among the first to move the EU climate policy and to adopt more stringent carbon reduction targets. German scientists rang the alarm bells back in 1986 when a working group from the Energy Working Group (Arbeitskreis Energie, AKE) of the German Physics Society (Deutsche Physikalische Gesellschaft) drew attention to the 'impending climatic catastrophe' at a press conference. It said: 'In order to avoid the threatening climate catastrophe, it is imperative to start to drastically curb the emission of the so-called trace gases immediately and effectively' (AKE ('Warnung vor der drohenden Klimakatastrophe', press release, 1986), quoted by Weingart *et al*., 2000: 268). This dramatic appeal drew an extreme picture of the possible effects of climate change, one that diverged from the scenarios under discussion at the time. In addition to predicting a rise in the global mean temperature of up to 8°C near the poles, the scientists claimed:

> The possible melting of the West Antarctic shelf ice, presumably within a period of several hundred years, could cause a rise of the sea level by five to ten metres, thus flooding the lower coastal areas such as in the Netherlands and Northern Germany. (AKE (1986), quoted by Weingart *et al*., 2000: 268)

These warnings caused a furore in the mass media and met with a direct response from politicians. The metaphor of a 'climate catastrophe' is radically different from more conventional terms such as 'climate change' or 'greenhouse effect'. It suggests that doom and gloom are near and that there is an urgent need for immediate action. This basic characterisation of the phenomenon had a staying power that extends to the present day.[14] To be sure, many climate researchers felt uneasy with this increased attention because it overly dramatised their scientific claims. However, once the catchy term of an impending catastrophe had been released, it was difficult to put back into the bottle. The term developed its own momentum in public and political fora, as Weingart *et al*. (2000: 271) observed:

> Whereas . . . German scientists tried to revoke the term 'climate catastrophe' and to advance the less dramatic 'climatic changes', the term catastrophe had gained incredible momentum in political discourse and was used from then on, whether speakers were members of the government or of the opposition parties. (Weingart *et al*., 2000: 271)

Recall the analysis of Boykoff & Boykoff (2004) referred to above. They claim that the journalistic norm of 'balanced reporting' led to a bias in climate change coverage to the advantage of sceptical arguments. While this may be the case in the US, no such norm seems to operate in the German

elite press – at least not in the climate case. While in theory the norm of balanced reporting could account for the cross-national variation, this is not a convincing explanation. One would have to show why the norm only applies to the US, not to Germany. There are so many powerful actors resisting mandatory emission controls in the US and powerful actors advocating such controls in Germany that it is difficult to isolate one variable. However, this combined influence left a trace in media reporting. Looking across both countries and their political cultures, in Germany government, scientists, non-governmental organisations and fossil fuel interests are all agreed that climate change is real, anthropogenic and requires action. The same cannot be said of the US.[15]

German Knowledge Politics

In November 1987, 1 year after the dramatic warning and 1 year before the creation of the IPCC, a study commission of the German Parliament was set up, the Enquetekommission 'Vorsorge zum Schutz der Erdatmosphäre' (Precaution for the Protection of the Earth's Atmosphere). The commission published three reports in the years that followed. The commission's major impact on both the scientific and the political debates was to bring together an assessment of the state of the art in climate research, an assessment of the threat of climate change itself as well as suggestions for a clear emissions reduction target. It is striking that the commission's report – unlike other reports of such inquiries – came to a consensus view about the seriousness of climate change given the unique construction of Enquetekommissionen. They are made up of scientists, politicians and representatives of interest groups. Usually, there is a proportional party representation which extends to the experts on the commission, i.e. when there are six politicians from the Conservatives and six from the Social Democrats, the experts will be selected according to their perceived affinities. Usually, this leads to ambiguous recommendations as the commission will be divided. Not so in this case where the study commission recommended strong precautionary action. The commission did not give space to scientific outsiders and climate change sceptics. It has been argued that this result had been targeted politically and was used in European context: '[The study commission] was a pilot project that had gained international attention and was much sooner accepted by parliamentarians than anything that is simply official government opinion' (German official, quoted in Grundmann, 2001: 162).

Apart from this study commission, there have been statements from scientists operating within well-regarded research institutions to the effect that current weather anomalies or an observed rise in global mean temperature were already signs of the anthropogenic greenhouse effect. In 1997 researchers from the Max Planck Institute for Meteorology in Hamburg published results that were later expressed as a 95% probability that the observed climate change was due to an anthropogenic influence (Hasselmann, 1997).

Why did the perception of climate change posing a threat have real staying power in Germany? Here I develop the argument that it was the specific political situation in Germany at the time, which explains why green issues in general, and climate change in particular, were high up on the agenda.

Most importantly, the growing force of the green movement was quite disturbing for the established parties and especially for the Conservative government. The Green Party got a boost in the parliamentary elections in January 1987, increasing their votes from 4.1% to 7%. In April 1986 the reactor accident at Chernobyl had occurred, and numerous chemical accidents along the river Rhine had sensitised the public to environmental questions. In June 1986, the government reacted with the creation of a special Ministry of the Environment (up to this date the environment was part of the Ministry of the Interior). In his government statement of 18 March 1987, Chancellor Kohl mentioned increasing global threats to the earth's atmosphere and the necessity of national and international action (Enquetekommission des 11. Deutschen Bundestages 'Vorsorge zum Schutz der Erdatmosphäre', 1990: 209). This was not mere lip service as the official policy effectively pre-empted the issue from being pushed by the green movement. In this situation, the German government started taking international environmental negotiations more seriously and even playing a leading role, as several observers have noted (von Moltke, 1988; O'Riordan & Jordan, 1995; Grundmann, 2001).

Conclusion

Coming back to the initial question of why the IPCC consensus has led to different policy responses across countries, several conclusions can be drawn. First, climate change policy both in the US and in Germany is driven by domestic political agendas and institutionalised according to national constellations of power. Despite the fact that an intergovernmental panel assembled the best available knowledge, governments in both countries still retrieved expertise from different sources through their usual established channels. Second, the slant of media reporting on climate change issues is broadly in line with government policies and the broader political climate prevalent in both countries. There is a strong green movement and political representation in Germany but not in the US. The US press gives much space to the climate sceptics, in line with its strong fossil fuel lobbies and a wait-and-see government policy. In Germany there is no such lobbying and the media does not boost sceptical arguments. The political and institutional weight given to specific expertise resounds from media reports – in different ways – in both countries. Third, the EU has used the IPCC as a legitimating tool for its proactive climate change policy, whilst the US has not (with the possible exception of Clinton–Gore's line in 1996–97). On the initiative of Germany, and later the UK, the EU took on a leadership role in the climate change issue and did not see further research as essential to defining mitigation strategies. In other words, whereas there was much public wrangling over the evidence for

man-made climate change in the US (with the contrarians eventually getting the ear of Bush, Jr, and thus very much an inside status), in Europe the decision to curb GHGs had been made in the early 1990s and new research was not seen as essential to justify this decision (Liberatore, 1994). Fourth, in both countries a politics of knowledge can be diagnosed. In the US we witness an upfront rejection of a global climate change treaty (or a subtle rejection, depending who is in power), while the EU tries to convince the rest of the world of the merits of exactly such an agreement (largely independent of party politics). Fifth, the influence of the IPCC on national governments is limited by the political dominance in the process of collecting expert knowledge. In the US we saw how Congressional hearings were instrumentalised in order to avoid binding carbon emissions while in Germany the study commission was set up to legitimise exactly such a policy.

It is not surprising that the actors involved (IPCC experts, advocates, sceptics, politicians) will put forward a different, technocratic reading, namely that existing policies are to a large degree the result of their expert knowledge. In the case of climate change policy, the IPCC might interpret the rather ambitious goals of the EU (despite all the shortcomings) as a sign that their expertise has been taken on board. They would see this as an instance of rational policy making where the best scientific knowledge has been put into practice – albeit only timidly and with limitations (conversely, the sceptics might think in a similar fashion about their influence on US policy). In such a view, the technocratic model would be vindicated. European and US politicians, too, would lend support to such a reading as they would be loath to describe their policy as based on pure decisionism (to use a term employed by Habermas, following Carl Schmitt) or on interest politics. In other words, rather than justifying policies with a view to power and interest constellations, without reference to basic values, scientific knowledge as a basic value is invoked. Science as a basis for the legitimation of political decisions is a tried and tested instrument. Technocracy seems to offer a ready-made rhetorical tool for the self-description of knowledge politics. However, it also leads to the paradox examined in this article.

Notes

1. In a similar way, Skolnikoff (1990: 88) writes: 'Unless overwhelmed by a strong and enduring public consensus or by political leadership not yet in evidence, the political processes within and among nations are not likely to bring forth substantial policy action until the uncertainties surrounding climate change are greatly reduced, and probably not until evidence of warming is palpable'.
2. 'Right now, many countries, especially developing countries, simply do not trust assessments in which their scientists and policymakers have not participated. Don't you think credibility demands global representation?' (quoted from Schneider, 1991: 25). This conviction was the initial idea for the intergovernmental organisational set-up of the IPCC and the governmental approval mechanism (Siebenhüner, 2003: 119).
3. At the point of writing the fourth report had not been released.
4. For the first view, see Boehmer-Christiansen (1994b) and Miller (2001); for the second see Siebenhüner (2003).

5. By this I do not mean knowledge embodied in patents or artefacts. This mode refers to the well-established field of research policy.
6. It would be an exaggeration to claim that Europe has tried to reduce emissions drastically; it has tried to take a modest first step. But in fact, emissions in many countries of the European Union have been increasing (European Environment Agency, 2005).
7. For the debate between two well-known protagonists, James Hansen and Patrick Michaels (2000), see O'Donnell (2000).
8. While the selection of sceptical scientists was based on self-labelling, the case of the advocacy scientists was slightly more complex as they would reject this label, preferring to see themselves as 'objective scientists' and part of the IPCC. However, their public pronouncements are clearly not neutral but geared towards raising public concern over climate change. The list of advocates was compiled with the input from commentators on an early draft of this paper.
9. According to a recent worldwide poll conducted by Globescan (2006), 73% of Germans see climate change as a very serious problem (compared to 54% in 2003). The figures for the US are 49% (31% in 2003).
10. For a good overview of business lobbying in the climate case, see Newell (2000, chapter 5).
11. Texaco is an exception as it left the Global Climate Coalition in 2000 (see Kolk & Levy, 2001).
12. It is interesting to contrast this with Boehmer-Christiansen's view (1994b: 197) that in the transition from the First Assessment Report to the Second the IPCC switched from an 'action now' to a 'wait and learn' perspective.
13. As Kolk & Levy (2001: 503) put it, 'Shell and BP have thus felt pressure from their stakeholders, including employees, for a constructive approach to secure credibility, legitimacy, obtain reliability and a seat at the table'.
14. Incidentally, only in Germany is the threatening term 'climatic catastrophe' (*Klimakatastrophe*) used. Elsewhere, talk is more neutrally of 'global warming' or even of the 'greenhouse effect'.
15. One referee asked if there were not other possible explanations for the differences between the two countries which go beyond my analysis of a politics of knowledge. S/he mentions differences in economic structure, the power of particular industrial lobbies, policy style and culture, institutional structure and social movement articulation with the state, which all have influence over policy, and all are significantly different in the US and Germany. While this is certainly true, I have limited myself to the science policy interface, and found specific differences with regard to climate change policies in both countries. This is significant in the light of the great importance given to the IPCC in global climate change politics and the self-portrayal of the IPCC.

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