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Science, skeptics and non-state actors in the greenhouse

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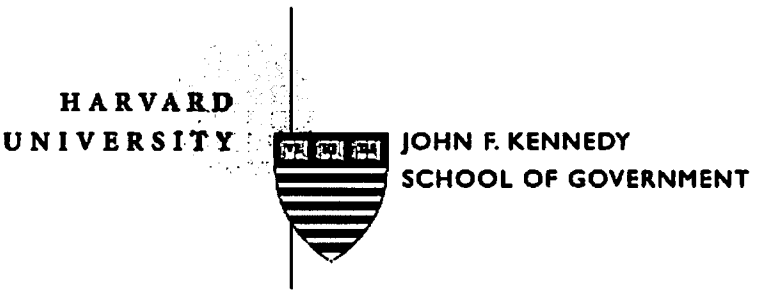

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The Global Environmental Assessment (GEA) project is a collaborative team study of global environmental assessment as a link between science and policy. The Team is based at Harvard University. The project has two principal objectives. The first is to develop a more realistic and synoptic model of the actual relationships among science, assessment, and management in social responses to global change, and to use that model to understand, critique, and improve current practice of assessment as a bridge between science and policy making. The second is to elucidate a strategy of adaptive assessment and policy for global environmental problems, along with the methods and institutions to implement such a strategy in the real world.

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Publication abstracts of the GEA Project can be found on the GEA Web Page at http://environment.harvard.edu/gea. Further information on the Global Environmental Assessment project can be obtained from the Project Associate Director, Nancy Dickson, Belfer Center for Science and International Affairs, Kennedy School of Government, Harvard University, 79 JFK Street, Cambridge, MA 02138, telephone (617) 496-9469, telefax (617) 495-8963, Email nancy_dickson@harvard.edu.

FOREWORD

This paper was written as part of the Global Environmental Assessment Project, a collaborative, interdisciplinary effort to explore how assessment activities can better link scientific understanding with effective action on issues arising in the context of global environmental change. The Project seeks to understand the special problems, challenges and opportunities that arise in efforts to develop common scientific assessments that are relevant and credible across multiple national circumstances and political cultures. It takes a long-term perspective focused on the interactions of science, assessment and management over periods of a decade or more, rather than concentrating on specific studies or negotiating sessions. Global environmental change is viewed broadly to include not only climate and other atmospheric issues, but also transboundary movements of organisms and chemical toxins.

The Project seeks to achieve progress towards three goals: deepening the critical understanding of the relationships among research, assessment and management in the global environmental arena; enhancing the communication among scholars and practitioners of global environmental assessments; and illuminating the contemporary choices facing the designers of global environmental assessments. It pursues these goals through a three-pronged strategy of competitively awarded fellowships that bring advanced doctoral and post-doctoral students to Harvard; an interdisciplinary training and research program involving faculty and fellows; and annual meetings bringing together scholars and practitioners of assessment.

The core of the Project is its Research Fellows. Fellows spend the year working with one another and project faculty as a Research Group exploring histories, processes and effects of global environmental assessment. Academic year 1997-8 focused specifically on the past three decades of climate change, long-range transport and tropospheric air pollution assessment experience with special attention to Europe and North America. These papers look across a range of particular assessments to examine variation and changes in what has been assessed, explore assessment as a part of a broader pattern of communication, and focus on the dynamics of assessment. The contributions these papers provide has been fundamental to the development of the GEA venture. I look forward to seeing revised versions published in appropriate journals.

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ABSTRACT

This paper explores the relationship between the Intergovernmental Panel on Climate Change (IPCC) and the strategies of non state actors in the politics of climate change. The paper develops several conjectures about the relationship between the IPCC, science skeptics, and the arguments of industry interests. It then examines preliminary evidence for the claim that the presence of an international knowledge institution such as the IPCC has implications for the uses of scientific information and choice of audience for organized political interests, particularly those representing the fossil fuel industry. This paper is a work in progress.

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ACRONYM LIST

IPCC	**Intergovernmental Panel on Climate Change**
NGO	**Non governmental Organization**
FCCC	**Framework Convention on Climate Change**
INC	**Intergovernmental Negotiating Committee**
GCC	Global Climate Coalition

1. INTRODUCTION:

The effort to protect the earth's climate is fast becoming one of the most contested international environmental negotiations. Scientists have been raising questions about the impact of human activities on the climate system for more than twenty years; serious international attention was paid to the problem only in the last decade. Serious scientific observation of the earth's climate began in 1952, which marked the International Geophysical Year. The first World Climate Conference, held in 1979, represented an early major international statement on climate change. The conference was organized by the World Meteorological Organization, and called on all nations to unite in efforts to understand climate change and to plan for it. However, it was not until the mid 1980s that the climate change issue broke onto the international policy making agenda in the mid 1980s, between 1985 and 1988. In 1985, an international gathering of scientists in Villach, Austria, noted that the problem of global warming merited international political attention. The Toronto Conference of 1988 represented a major policy declaration on global warming, calling for a 20% reduction in global CO2 emissions by the year 2005. The Intergovernmental Panel on Climate Change (IPCC) was established in 1988 (though proposals for it were circulating as early as 1986), and in 1989 a high level ministerial conference was held in Noordwijk, Netherlands, as intergovernmental science and policy discussions began in earnest. The 1989 Group of Seven Economic Summit in Paris featured environmental issues. At the same time, a group of international non-governmental organizations formed the Climate Action Network (CAN) for improved communication on the climate issue. In 1989, the largest and most vocal of the fossil fuel industry organizations, the Global Climate Coalition (GCC) was established. By 1990, the Intergovernmental Negotiating Committee (INC) had received its charge from the UN General Assembly, and the committee began to meet in early 1991. The Framework Convention for Climate Change was signed at the Earth Summit in 1992; the ink has barely dried on the 1997 Kyoto Protocol.

The issue is scientifically and politically contested. Environmentalists point out the risks of global scale climatic change, emphasizing the potential impact of sea level rise, storm variability, and changes in regional ecosystems. Major environmental organizations have dedicated millions to campaigns on the issue. In 1995, Greenpeace International alone spent $4.35 million on the climate campaign, putting it second only to its nuclear and disarmament issue in that year. In recent years the views of IPCC scientists have come under attack from so-called "science skeptics". A small (compared to the legions of the IPCC), but vocal, group of scientists began, in 1988, raising flags: "Fact and Fancy on Greenhouse Earth", "Global Warming: The Origin and Nature of Alleged Consensus", and "The Greenhouse Climate of Fear", to name a few pieces in the press. Industry groups in the United States mounted a $13 million campaign to discourage commitments to a protocol in 1997. Industry argues that actions proposed by parties to the convention come with high costs to many Americans. In the light of these facts, the climate issue presents an ideal opportunity to examine the politics of an international environmental issue. The uses of scientific information and scientific assessment in this case merit some close attention.

The importance of information is a theme of much scholarship in international relations. The basic claim is that circumstances of uncertainty may severely limit, or constrain the nature of, cooperation that occurs between states. International relations scholars have pointed to the important role that the exchange of information plays in contributing to cooperation. The basic conclusion of this work is that an absence of information, uncertainty about that information, or a condition of asymmetrical information can hinder cooperative efforts.

In the specific issue of international environmental politics, a great deal of emphasis has been placed on the state of scientific knowledge and its effect on the likelihood of cooperation. In many accounts of international environmental policy making, new scientific discoveries, such as the ozone hole, or new ways of gathering data, such as the RAINS model (used in acid rain negotiations), are often purported to be the catalysts for international action, or for changes in international policy. Some of the stories are spectacular, others are more mundane. All are characteristic of the linear model of science and policy making, which points to the idea that the clearer the link between causes and effects can be drawn, the greater the scientific consensus is, the more likely it is that consensus about action (or inaction) will develop. Work on international health regulation, environment, and international institutions have demonstrated the importance of consensual knowledge (Cooper, Stein, Krasner, Benedick). The basic conjecture is that international environmental policy cooperation is more likely to occur under conditions of scientific certainty and consensus. Those opposed to action are likely to exploit uncertainty to stall action.

Even proponents of this claim recognize that while cooperation under conditions of uncertainty may be more difficult to achieve, policy action does take place under such conditions. However, several observers note that the forces that shape policy under conditions of scientific uncertainty is a process of political bargaining. Steven Krasner notes that "[w]ithout consensus, knowledge can have little impact on regime development in a world of sovereign states. If only some parties hold a particular set of beliefs, their significance is completely mediated by the power of their adherents" (p. 20). In other words, without consensus, policy choices will perhaps be dictated by those with power, or by political bargains.

The conjecture that grows out of these studies is that if policy cooperation is attempted under conditions of uncertainty, the policy process is likely to be driven by political concerns, rather than substantive scientific or technical ones. Further, other observers note that politics may play a role even under conditions of scientific certainty. Indeed, most students of international environmental politics would dispute that the link between science and policy is so sharply drawn as to avoid politics, save in a very few unique cases. In general, they claim, there is room for politics, regardless of the conditions of uncertainty (Litfin, Parson).

Therefore, the link between experts and government is rarely so sharply drawn. Sheila Jasanoff suggests that decision making about risks which involve scientific or technical information are "neither wholly scientific nor wholly political, and therefore demand novel collaborations between scientists, public officials, and private interest groups" (Jasanoff, p. 5). Dorothy Nelkin, an analyst of the role of experts in controversies, suggests that "the power of controversy...belongs to those who can manipulate knowledge, challenge evidence, and exploit expertise" (Nelkin 1979). Merrie Klapp suggests that "...the strategic use of scientific

uncertainties enables citizens and scientists to create new possibilities for bargaining concessions" (Klapp, p. 44).

What is not clear from these claims and analyses mentioned above is the way in which information is used by political organizations to create bargaining space for their positions and to shape the political outcomes. As even Litfin notes, "the influence of experts is limited; they do not replace the existing political process. Information is always relayed and exchanged in the larger political arena" (Litfin, p. 31). Jasanoff, Nelkin, and Klapp recognize the power of political controversy. The claims made by Haas, Benedick, and Cooper about the importance of scientific communities in developing scientific consensus and communicating scientific information to numerous national governments suggest that close attention to the various pathways by which scientific information is communicated are essential. In the case of climate change, the assessments of the Intergovernmental Panel on Climate Change are a critical link between science and policy. The connection between the IPCC and the policy making process is one which involves links to and through political interests.

This study considers politically organized non state actors, their use of scientific evidence, and the way that they organize knowledge to create a bargaining space for themselves. To what extent, and to what audiences do organized political interests address scientific uncertainty? What are the strategies used by various interests? Under what conditions can non state actors manage to create such openings for the expression and achievement of their interests? Does the structure of the scientific knowledge producing process affect how political interests can use scientific information with particular audiences, and if so, how? How is information used to capture the attention of states, domestic constituents, or international organizations to achieve political ends? In particular, how have those interested in stalling action on global warming used uncertainty, if at all?

This study explores the consequences of an international knowledge institution, the Intergovernmental Panel on Climate Change, on the strategies available to organized political interests on the issue of climate change. The argument is that the nature and structure of the IPCC and international negotiations may limit the ways in which scientific information is used by particular interests, as well as the audiences that they may effectively target.

The second section of this paper highlights several aspects of the structure and organization of the IPCC and outlines the implications of these features for the strategies and influence of political interests. Section three highlights ways in which to think about non state actors as organized political interests in this context. A broad history and brief evaluation of strategies is in subsequent sections. This paper is a work in progress. The empirical section of the paper takes the form of a plausibility probe of the validity of the hypotheses. The paper will be revised and refined in the coming months.

2. CLIMATE CHANGE KNOWLEDGE INSTITUTIONS AND POLITICS

The IPCC was established in 1988 with a mandate to provide comprehensive reviews of the state of scientific knowledge on climate change. Initially composed of three parallel Working Groups: Working Group I on science, II on impacts, and III on response strategies. The mandates of WG II and III were changed in 1992, and in preparation for the upcoming third assessment. It is now a 'hegemon' of sorts for climate assessment, as national and non governmental assessments of the issue have largely disappeared from the scene.

The IPCC operates as a formal intergovernmental body, and as a scientific and technical assessment body. At the beginning of an assessment cycle, an IPCC plenary is held. Government representatives review and approve the completed reports from the previous cycle and set the agenda for the upcoming cycle. Environmental groups and industry organizations have observer status at these sessions. Each Working Group then formulates workplans and report outlines. Nominations of members are invited for experts from governments, international and non governmental organizations. Lead and contributing authors are chosen for each chapter from among the nominations by the Bureau of the Working Groups responsible for overseeing the report. Finally, each of the writing teams work with the Working Group Chair(s), Bureau and Technical Support Units to draft their relevant section. Authors are charged with reviewing the most up-to-date scientific information (Moss and Schneider).

Beginning in 1992, this process includes comprehensive expert and government reviews. This two tier process involves expert reviews and then reviews by all IPCC member governments and accredited organizations. Experts are those who have established research or technical credentials in a field related to the chapters being reviewed. Documents are also made available to stake-holder groups, including environment and industry organizations. The government review is open to all participating governments, as well as accredited NGOs and experts who participated in the first round of the review. Several meetings are convened to review comments and resolve inconsistencies in the report. Authors must document their responses to comments. In 1989, summaries for policymakers of each of the working group reports were added and in 1993, at the ninth plenary session of the IPCC, made provisions for the line by line approval of all policymaker summaries at a plenary session of the relevant Working Group. The reports and summaries are finally resented for government approval at their respective plenary session, and are then approved at full IPCC plenary session. (Agrawala, Moss & Schneider).

The nature and structure of the IPCC has several plausible implications for the strategies that can be pursued by political interests in their efforts to influence policy on climate change. This paper will suggest several ways in which the organization of scientific knowledge in the climate issue may affect the strategies available to political interests. First, the IPCC report writing team is composed of science professionals, and not by groups of stakeholders, policymakers, or other politically interested parties. In the creation of the IPCC, several political actors (including the various US government agencies, UNEP, WMO, and international scientific organizations) ceded control of the assessment process. Under the leadership of Bert Bolin, the IPCC has established scientific credibility as greater numbers of established experts joined the process (Agrawala, 1997). The lines between who is in and who is out of this community of experts is clearly drawn. This establishes, for purposes of governmental negotiation, who are the legitimate experts. This should limit the extent to which

political interests, and others outside the IPCC community, can claim scientific expertise which can be brought to bear on the negotiation process. As the IPCC has developed therefore, organized political interests should be able to mount fewer challenges to the institution, and increasingly adopt the arguments of the IPCC to bolster their positions. Laggards on the climate issue should turn away from arguments about science and towards those which address other issues in the climate debate.

While national and non governmental assessments were conducted in the late 1980s and early 1990s, the IPCC is now virtually the only climate assessment that informs international political negotiations. This has the effect of creating a locus of scientific debate for elites (government officials and policymakers). Any political interests that want to address the nature of scientific knowledge with governments and policymakers must do so through the IPCC process. Organized political interests have to therefore develop the expertise to serve as accredited reviewers for the IPCC. If they do serve as accredited reviewers, the extent to which they may challenge or criticize the findings outside IPCC channels may be limited.

However, another feature of the institution may serve to limit the audience for challenges to the conclusions of the IPCC. Line by line government approval of the policymakers summary was started in 1993. This addition to the process has had the obvious effect of vastly politicizing the process of writing and approving the policymakers summary. However, once approval is given to a set of statements, backsliding and repudiation of them is difficult. Once governments themselves have signed off on summary statements, arguments for action or inaction which rely on conclusions that are inconsistent with IPCC conclusions are difficult to make without losing credibility. This is not to suggest that the IPCC statements are not subject to interpretation, or framing, by various actors. However, it may mean that arguments that run contrary to IPCC conclusions and findings are less likely to find a receptive audience among government representatives that have been involved in the approval of policymaker summaries. Therefore, we might expect challenges to IPCC conclusions to be directed at non-elites. In particular, the public would be a more likely target for these challenges, and for arguments which challenge the scientific certainty about climate change.

3. ORGANIZED POLITICAL INTERESTS

The above discussion addressed the extent to which the organization and position of the international knowledge institution of the IPCC may affect the strategies of organized political interests in the climate change policy debate. However, it says little about these organized political interests. How are they defined, and why might they be important to our understanding of climate politics?

It is reasonable, if not imperative, that international relations scholars and environmental policy makers understand what kinds of activities non-state actors, such as non profit and for profit organizations, are engaged in at the international level, and what, if any, impact these activities are having on international negotiations processes and outcomes in international politics. Many accounts and observations of the role of non state actors in international politics range

between those which suggest that these actors will be important only when they reach the point of "rivaling or surpassing the great powers, not just a few of the minor ones", which they show no sign of doing (Waltz, 1979), and those that are prepared to hail the end of the nation state and the rise of an international civil society. However, the position which may yield the most interesting insights is one which more subtly explores the ways in which NGOs may be transforming the arena in which states function. As Thomas Risse-Kappen suggested, "[t]o set the debate in terms of a 'state-centered' versus a 'society-dominated' view of world politics misses the mark" (p. 14). Consideration of whether and how the nature and presence of international institutions shapes the strategies and influence of non state actors may be one way to circumscribe the nature of state / non state actor interactions.

Studies of non state actors, as well as surveys and directories of such actors and their activities, typically divide them into several kinds of groups. Non-profit organizations, particularly in international relations literature, are generally termed non-governmental organizations (NGOs). The United Nations Economic and Social Council (ECOSOC) Resolution 1296 of 1968, which governs NGO relations with the United Nations, suggests, in vague terms, that NGOs are organizations not established by intergovernmental agreement, and must be supported by voluntary contributions. NGOs include a wide variety of groups, from grassroots organizations, citizen public interest groups, and religious organizations, to universities, foundations, academic associations, and trade unions.

A vast literature on both domestic and international politics address the strategies, activities and influence of business, or for-profit, enterprise. The behavior of multinational corporations has received considerable attention. There may be reasons to separate not-for profit and for-profit actors in some studies (i.e., those which seek to understand the nature of mobilization for diffuse interests, the provision of public goods, the implications of tax incentives, trade and multinational corporations). For purposes of this study, this distinction may obscure more than it reveals. At the international level, the distinction between for profit and not for profit organizations is blurred. While accreditation to UN negotiations on climate change (or any other issues) rests on the non-governmental and non-profit status of a particular organizations, industry and for-profit interests are represented in international organizations through non-profit organizations which were created to represent the interests of a variety of industries.

NGOs and for-profit enterprise are a subset of the broad category of non-state actors, and are taken here to be organizations which represent a particular set of interests, whether profit or not, diffuse or concentrated. This paper will focus on for profit uses of scientific information, although non profit groups will be mentioned where appropriate.

3.1. Interests and the Climate Debate

Between 1985 and 1988, the issue of climate change broke unto the international policymaking agenda (see Franz, GEA paper 1997). It moved from being an issue discussed primarily in scientific circles to one that permeated many levels of government and the international arena. The Toronto Conference, held in June 1987, came at the end of nearly a decade of increased attention from the international scientific community to the problem of climate change. From

the World Climate Conference in 1979 to workshops held in Villach and Bellagio in 1987 on the development of policies for responding to climate change, a growing group of international scientists had been in engaged in assessing and reporting on the science of global warming. By the Villach conference in 1985, these scientists were willing to assert that "substantial warming" would occur as a result of a doubling of CO2, and to note that increases in CO2 "were attributable to human activities". This statement is widely viewed to mark the emergence of a consensus statement on the nature of the climate change problem. However, the basic range for warming due to a doubling of CO2 had been largely unchanged for the preceding 8 - 10 years. What had changed was a perception that the warming could occur much more quickly that scientists had anticipated, particularly when other greenhouse gases were included in the calculations, and that the consequences for national and international planning were quite significant.

The Toronto Conference "The Changing the Atmosphere", drew on the conclusions of the Villach process, and attracted large numbers of government officials. Due in large part to the sensational story of a very hot summer in the United States, the conference drew a great deal of international attention. Media attention to the issue of climate change began a steep rise in 1987 and 1988, peaking in 1990 (Social Learning). The conclusions of the Toronto Conference are quite well known: "[t]he Conference urges immediate action...to counter the ongoing degradation of the atmosphere...An Action Plan for the Protection of the Atmosphere needs to be developed, which includes an international framework convention, encourages other standard-setting agreements and national legislation to provide for the protection of the global atmosphere" (WMO, 1989, p. 296). The most widely cited conclusion of the conference was the need to "reduce CO2 emissions by approximately 20% of 1988 levels by the year 2005 as an initial global goal" (p. 296). By the end of the 1980s, agreement about the need for action on climate change was so significant that the declaration of a representative of the Soviet Union at a 1988 conference that some countries could benefit from climate change was received like "swearing in the church" (McGourty, 1988, p. 194).

As noted above, the late 1980s and early 1990s saw the formation of an international scientific assessment panel, and the initiation of international negotiations on a framework convention on climate change. The Toronto Conference, the events of the summer of 1988, including the hot temperatures in the United States and the testimony of James Hansen during Senate hearings, were arguably a catalyst for the activities of national governments on climate change, as well as for organized interests that began to formulate strategies and develop positions on international policies to protect the global atmosphere. The process of international negotiations on the issue of climate change began in the early 1990s.

Organized political interests were not involved in the process of putting climate change on the international political agenda, nor was there an effort mounted to keep the issue off of the international agenda. The development of the international agenda for climate change was pressed primarily by increasing numbers of scientific gatherings, the attention of the United Nations to environment and development issues, the success of negotiations to protect the ozone layer, and chance events such as the severely hot weather experienced in the United States during the summer of 1988. However, by the end of 1980s, the climate issue had come to the attention of organized political interests, including environmentalists, fossil fuel industry

leaders, and other business interests. These groups began to organize public campaigns and to form international coalitions.

3.2. Early Environmental and Industry Involvement

Environmental organizations had not paid much attention to the problem of climate change prior to 1988. Attention that was paid was largely internal, and did not take the form of public campaigns until well after the Toronto Conference. An international agenda for climate change was largely developed through the efforts of key international organizations and the international scientific community. Of the big three international environmental organizations, Friends of the Earth, Greenpeace, and the World Wide Fund for Nature, only representatives from Greenpeace (International & Canada) and Friends of the Earth (International, Canada, USA, and Ghana) were in attendance in Toronto. The other environmental organizations represented were largely American. None of these organizations had, at the international level, organized climate campaigns until after 1988. However, representatives of several environmental organizations had been participating in the international scientific and policy meetings. Representation from business at the Toronto Conference reflected the recent conclusion of the Montreal Protocol on ozone. Among the businesses represented were Dow Chemical and Dupont, both active players in the ozone agreement and negotiations. No participants appear to have been present from the fossil fuel, oil, or related industries.

There was a strong policy message which emerged from this conference, the development of proposals for the Intergovernmental Panel for Climate Change were well underway. Further science and policy discussions began in earnest. Organized interest both in favor of, and opposed to, an international climate convention and reductions in CO2 emissions began to organize and to formulate strategies and information campaigns to push their agendas forward.

4. SCIENCE AND POLITICS OF CLIMATE CHANGE

The IPCC has issued statements and scientific material over the last 8 years which suggest that greenhouse gases have increased, global mean surface temperature has increased by between 0.3 and 0.6 degrees C since the late 19th century. Predictions of increases in temperature that would result from a doubling of CO2 and other greenhouse gases has been projected to be in same range (1.5 - 4.5 degrees) by assessments conducted over the last 20 years. By 1995, the IPCC suggested, in a now famous (or infamous) statement, that "the balance of the evidence suggests a discernible human influence on global climate" (a statement unanimously approved by delegates from nearly 100 countries). The scientists involved in the IPCC would hardly suggest that their evidence and the models that they use to predict future climatic change represent scientific certainty. They are clear about the uncertainties that still exist. The estimation of future emissions, the representation of climate processes and feedbacks associated with clouds, oceans, sea ice and vegetation, and the systematic collection of long term observations of climate system variables, still present challenges to the projection and detection of future climate change. However, many scientists involved with the IPCC advocate

following the precautionary principle. As some have pointed out, the uncertainties may mean that the effects will be even greater than those which are predicted. This stands in contrast to a view of uncertainty which suggests that uncertainty means that the projected effects may well be exaggerated, and that costly action in advance of more certain knowledge should be avoided.

Do the statements of the IPCC represent scientific consensus? The authors above who discuss scientific consensus (Benedick, Krasner, and Cooper) do not, in general, carefully define what is meant by consensus. A definition of consensus is necessarily arbitrary. The scientists involved with the IPCC may be counted among those who agree with its statement. For that group, the IPCC findings are a consensus. However, to declare that the IPCC is the scientific consensus, must 100% of scientists worldwide agree? Does agreement by the majority that there is a greater than 50% chance that harm will come if the production of greenhouse gases continues unabated suggest scientific consensus that climate change is here, may have harmful effects, and will continue in the future? If there are any scientists that disagree with the statements of the IPCC, is consensus compromised or in question? An objective definition of consensus is difficult to establish. The very nature of science, and the process of the scientific methods suggests that there will always be those who disagree with a particular finding. Whether or not the findings of the assessments which informed the Toronto Conference and the findings of the IPCC represent scientific consensus is one of the issues at stake in the political debate.

The process of international negotiation uses the findings of the IPCC to inform their deliberations. The first assessment of the IPCC was produced as intergovernmental negotiations on the Framework Convention on Climate Change were beginning. Several mechanisms for communication between the IPCC and Intergovernmental Negotiation Committee (INC), including addresses from the chair of the IPCC, Bert Bolin at all INC gatherings. The 1992 assessment, which came out just prior to the United Nations Conference on Environment and Development, reaffirmed the findings of the first assessment. In March 1993, a joint IPCC-INC Joint Working Party (JWP) was established to coordinate conversations between the organizations. Close consultation has continued with the Framework Convention on Climate Change (FCCC), and after the Berlin Mandate of 1994, the Subsidiary Body for Scientific and Technical Advice (SBSTA) added to the technical advisory procedures of the FCCC. Negotiators have also made requests for additional reports, out of the regular IPCC assessment timetable, to inform their negotiations. For these negotiators, the IPCC represents the scientific basis for negotiation. Jean Ripert, founding chairman of the INC, noted that the "intergovermental nature of the IPCC was in large part responsible for educating many government bureaucrats about the problem which made them more willing to come to the negotiating table (Agrawala, 1997). In addition, Ripert concludes that the negotiation and signing of the climate convention would "definitely not" have been possible without the IPCC (Ripert, cited in Agrawala, 1997).

Given such a endorsement of the importance of the intergovernmental mechanisms, and the agreement reached by a large body of scientists, how does the information provided by the IPCC affect the strategies pursued by non state actors on the climate issue?

4.1. Skeptic Science

A great deal has been made of the extent to which 'skeptic' scientists and support from the fossil fuel industry has served to challenge the science of climate change. In 1989, William K. Stevens, science writer for the New York Times observed the development of a "split forecast: dissent on global warming". "As governments try to come to grips with what is widely depicted as a potentially catastrophic warming of the Earth's surface, dissenting scientists are challenging what they see as unnecessarily gloomy predictions" (Stevens, 1989). Stevens reported that there were three groups in the greenhouse debate. Those who believe, in general, that the greenhouse theory is valid, but that uncertainties persist. This group, according to Stevens, was in the majority. In the minority, he reported, were two other groups. "[t]hose who believe global warming to be a clear and definite threat and those who say there is likely to be no significant warming -- appear to be in a minority". Not surprisingly, however, these are the groups that took each other on directly, and marked opposite ends of the political debate. The term "skeptics" emerged in this article, which was subtitled "Skeptics Are Challenging Dire 'Greenhouse' Views".

What is a 'skeptic'? For many engaged in the academic enterprise, skepticism is an essential part of the development of theory. All hypotheses are considered only provisional true, and could always be falsified in the future. Therefore, skepticism is an essential component of the scientific enterprise. However, in the climate change debate, the term 'skeptic' has come to be used in a very particular way. Headlines, in addition to the one mentioned above, read "Greenhouse skeptic out in the cold" (Science, 1989, p. 118-19) and "Greenhouse Science Survives Skeptics". The distinction is made between the scientific consensus, often identified with the IPCC, and those who dispute a variety of scientific claims about the nature of the climate change problem. A report by the minority member George E. Brown of the House Committee on Science, "Environmental Science Under Seige: Fringe Science and the 104th Congress" considers them to be "scientists that have taken a highly visible public role in criticizing the scientific consensus on ozone depletion and climate change through publications and statements addressed more to the media and the public than to the scientific community" (1996, p. 19). A Greenpeace report identifies the "climate skeptics" as "a handful of scientists, many directly subsidized by the fossil fuel lobby and promoting what numerous mainstream scientists regard as blatant misinformation on climate science, thereby contesting the urgent need to tackle the problem of global warming" (1998).

This paper takes a slightly broader view of this group, identifying them as those that have disagreed with the views presented by statements that are labeled by many (including the skeptics themselves) as consensus statements (or so-called consensus statements) on the science of climate change. This paper leaves conclusions about the nature of their strategies out of the definition, as the methods for transmission of claims will be explored here. Also of interest will be the substance of the disagreements and the extent to which these views connect with organized political interests.

After the Toronto Conference and the summer of 1988, one of the first public and media disagreements with the statements presented there came in the form of a Wall Street Journal editorial by S. Fred Singer entitled "Fact and Fancy on Greenhouse Earth" (1988, p. 22).

Singer is an atmospheric physicist who is now president of The Science and Environmental Policy Project, a non-profit research group founded in 1990. The facts of climate science, as Singer put it, were as follows: the concentration of several minor atmospheric constituents is increasing because of human activities, these molecules enhance the normal greenhouse effect of the atmosphere, and that the enhanced greenhouse effect should increase the earth's average temperature "provided that all other factors remain the same". His claim was that there are questions about the extent to which all other factors will remain the same. What will be the nature of the feedbacks caused by these increases in concentrations? He advocated continued research and highlights several cases of inadequate theories about changes in the earth's atmosphere. These cases, which include the effect of supersonic transport on the stratospheric ozone layer, acid rain as related only to sulfur dioxide, and nuclear winter, should, he notes, "induce a certain amount of skepticism and make us somewhat more humble about the ability of theory to predict the future of the atmosphere and of climate".

Pat Michaels, another of the now prominent challenger of climate science, and self identified "climate contra", cautioned against the "greenhouse climate of fear", which might lead to costly actions, in the Washington Post early in 1989 (1989). He noted that there are questions about the climate which remain unresolved. He highlighted NASA temperature records that showed a 1 degree increase in temperatures this century. However, he questioned the accuracy of the data, as cities have grown up around weather stations during the century, creating heat islands. Second, he noted, Antarctic ozone depletion was three times less severe this past winter than it was in 1987.

By 1990, the Laboratory of Climatology at Arizona State University, department of Dr. Robert Balling, had hosted a research symposium "Global Climatic Change: A New Vision for the 1990s". The research proposals are "built around a central hypothesis: *The Popular Vision is wrong*". The 'popular vision' is one of "apocalyptic climate change in the near future". This vision is supported by news reports and documentaries, and "even...in the more lurid interpretations of the recent UN-sponsored [IPCC] Policymakers Summary". The report suggests that there are "now several lines of compelling evidence that suggest the chance of an ecologically or economically disastrous global warming is becoming more remote..." The warming may not be as much as the popular 4 degree figure, warming may only occur in high latitude winter, which partitions most warming into the night, and plant growth and water use efficiency may be enhanced as CO^2 increases.

These scientists set themselves up against the "popular vision", often described by them as the "apocalyptic vision" of the consequences of climate change. As Richard Lindzen from MIT put it in the early 1990s: "most of the literate world today regards 'global warming' as both real and dangerous. Indeed diplomatic activity concerning this issue would have one believe that this is the major crisis confronting mankind" (Global Warming: the Origin and Nature of Alleged Scientific Consensus, OPEC speech). He noted that the "'present hysteria' formally began in the summer of 1988, though preparations had been put in place at least three years earlier" (citing a 1985 article in Science by James Hansen). Lindzen attributed a considerable degree of policy momentum to environmental organizations, together with the media, which as "unquestioningly [accepted] the pronouncements of these groups as objective truth" (p. 4).

Lindzen noted that the notion of 'scientific unanimity' is currently intimately tied to the Working Group I report of the Intergovernmental Panel on Climate Change issued in September 1990. Notes Lindzen, "[t]his panel consists largely of scientists posed to it by government agencies...Many governments have agreed to use this report as the authoritative basis for climate policy" (p. 5). The summary written by Sir John Houghton, Director of the United Kingdom Meteorological Office, Lindzen claims, largely ignores the uncertainty in the report. "On the basis of the summary, one frequently hears that hundreds of the worlds greatest climate scientists from dozens of countries all agreed that...it hardly matters what the agreement refers to..." (p. 5). However, in confirmation of the idea that the IPCC may constrain the extent to which outside scientists and other interests may influence the debate, Lindzen lamented that "one might think that this growing skepticism would have some influence on public debate, but the insistence on 'scientific unanimity' continues unabated".

Given these public attacks on climate science and on the conclusions of the IPCC, to what extent did / do organized political interests use these claims about uncertainty to stall agreements on climate change, and to what audience do they appeal? A brief note on the challenges of gathering data on lobbying strategies is in order here. Both environmental organizations and industry groups are reluctant to identify their campaign strategies. The analysis here relies on pubic statements, public documents, and hints provided through interviews with organization representatives. Secrecy is not surprising in light of the admonishment provided by long time Washington lobbyist John Zorak in his guide to lobbying, The Lobbying Handbook.

> An adversary lobbyist's advance knowledge and understanding of your strategy and tactics, the amendments and bills you will introduce, and the media and grass-roots support you have marshaled, which he may obtain through third parties, materially improve his chances for success. Keeping a program, amendment or lobbying campaign under wraps is difficult, but be careful not to give information to staff or Members of Congress who are known opponents or 'on the fence'. Label 'confidential' material passed out at strategy meetings. Good security can help prevent sabotage and surprise of a lobbying campaign.

In general, it seems, this warning applies equally well to curious researchers.

5. INDUSTRY ORGANIZATION:

This segment of the paper will evaluate the nature and content of the information used by various industry organizations, in addition to the audiences they address. This material should serve as a preliminary evaluation of the strategies and messages of organized political interests and how these relate to the actions and claims of the IPCC. The Global Climate Coalition, the largest of the industry associations, and the Western Fuels Association will be considered here.

5.1. The Global Climate Coalition

The Global Climate Coalition (GCC) is an organization of private companies and business trade associations representing more than 230,000 firms. The GCC was established in 1989 to coordinate business participation in the science and policy debate on the climate change issue. Several sectors of the US economy are represented by the GCC, including large manufacturers in the aluminum and paper industry, transportation industries, power generating companies, the petroleum industry, chemical firms, and small businesses. The GCC began when the federal affairs representatives of five or six companies realized that they had not been organized for the Clean Air Act and its amendments or for the Montreal Protocol. By 1989, it seemed clear that the climate issue would come to directly address fossil fuels. At first, the organization was one which provided for the informal exchange of information between companies once a month.

As the United Nations Conference on Environment and Development approached, representatives realized that they needed something more formal. The GCC itself was established as a non-profit organization, with a formal structure of dues to be paid by the members (at two membership levels: board and general). The budget of the organization is approximately $2 million annually, although the central coordinating office couldn't provide a copy of the bylaws. The GCC then served "as the vehicle to the Rio process" (Holdsworth, 1998). Five - six delegates from the GCC attended all eleven INC meetings up to UNCED and COP-1. Delegations of slightly larger size were at COPs 1-3 (Berlin, Geneva, Kyoto), and all eight AGBM meetings. A peak in attendance (30) came with UNCED, and a delegation of 50 attended COP-3 in Kyoto.

The Global Climate Coalition has focused most of its international lobbying efforts on its own delegation from the United States, and, to a more limited extent, the JUSCANZ countries (which includes, in addition to the US, Japan, Canada, Australia, and New Zealand). The GCC lobbies most extensively at the domestic level, where existing contacts between coalition members and legislators could be used to their advantage. At the most recent COP, the Global Climate Coalition was pleased that several US legislators attended the negotiations where they, together with the GCC, could explain the nature of the Byrd Resolution which would limit the conditions under which the Senate would ratify a climate protocol.

The GCC is not to be confused with the more secretive Climate Council, represented at international negotiations by Donald Perlman. Perlman is a lawyer at Patton, Boggs and Blow, a DC law firm that represents several large oil companies. Connections between Perlman and delegations from OPEC countries, including Saudi Arabia and Kuwait, are often mentioned by observers of the negotiation process. However, further information about Perlman and his activities is, like the activities of many lobbyists, very difficult to get.

The GCC has also pursued public and media campaigns. The GCC funded Global Climate Information Project spent $13 million on an advertising campaign designed by the same firm that produced the infamous 'Harry and Louise' health care reform ads.

This data suggests that the GCC appeals to a wide set of audiences in its campaign, though activity is concentrated on the domestic arena. This may suggest confirmation of the claim that an international audience may be difficult to address, given the structure and nature of the IPCC. However, it may also be the case that the GCC members have developed expertise and channels of communication at the domestic level which served them well on other issues.

Some have suggested that the organization of international negotiations and secretariats is less conducive to industry activity, as non profit organizations have traditionally been closely associated with the United Nations (Levy, 1997). More analysis is necessary to evaluate this claim.

The overall message of the GCC has four parts. The first is that issues relating to global climate change are serious and must be addressed "comprehensively and equitably by all nations". Second, a "bedrock principle for addressing global climate change issues is that science -- not emotional or political reactions -- must serve as the foundation for global climate policy decisions". Third, even if scientific uncertainties could be resolved, sound policy decisions must consider the economic and social impacts of alternative policy choices. Fourth, technology transfer will need to be an essential part of any agreement. Examination of publicly available statements and documents, as well as reports commissioned for the GCC, suggests that the GCC has largely relied on the first and third principles of its argument.

In the background are typical arguments about the uncertainties of science, but the GCC has not commissioned its own scientific research. To a large extent, it relies on claims like the ones to be found in the World Climate Review and its successor, the World Climate Report (analysis of which are found below). Until 1996, the studies that the GCC did commission focus on economic aspects of greenhouse gas emissions proposals, particularly after the Berlin Mandate in 1995. For example, reports commissioned from Charles River Associates, WEFA Group and NERA, addressed the economic consequences of AOSIS-type proposals to limit carbon dioxide emissions, reviews of economic estimates of carbon abatement policies, While the story of the GCC is one of a relatively significant opponent to mandatory greenhouse gas emissions, it is not one of considerable attention to the uncertainties of science as a lever for debate.

The GCC, rather than engaging directly in attacks on the science of the IPCC, spent several years seeking acceptance as a reviewer for IPCC reports. The importance of participation in this scientific process was not underestimated by the organization. It participates early and often in the review process, and has been charged with providing OPEC countries with information to foot drag during summary approval sessions. It was not until the Second Assessment Report that the GCC became an industry participant. Details of GCC comments and activities at IPCC plenary sessions will need to be examined further to determine the nature and extent of GCC participation.

However, even once it was a part of the process, it initiated one of the most infamous attacks on the IPCC itself in the so-called Chapter 8 controversy. This was not, however, a controversy that focused on the scientific findings. Rather, it was one which addressed questions of procedure. The GCC charged that improper changes were made to the chapter "Detection of Climate Change and Attribution of Causes", lead authored by B.D. Santer, T.M.L. Wigley, T.P. Barnett, and E. Anyamba. The GCC contended that changes made after an IPCC plenary in Madrid in November 1995. The GCC alleged "scientific cleansing" had taken place which "cause the chapter to understate the uncertainties about climate change causes and effects that were clearly evident in the original report and to increase the apparent scientific support for attribution of changes to climate to human activities" (Warmstad). The authors defended the changes, noting that the IPCC allows for responses to comments and

review from governments and non governmental organizations both written and those presented at the Madrid meeting.

This exchange was widely perceived to be an attempt on the part of the GCC to undermine the credibility of the IPCC. This debate ended relatively quickly, but not before the lead authors and others were engaged in a sharp exchange over the accusations. The chair of the IPCC was quick to defend the actions of the authors, and use of the IPCC in negotiations was not significantly affected. The IPCC has made changes for the Third Assessment to oversee any changes made to draft chapters. This will take the form of an Editorial Board. However, the charges of the GCC may also serve to highlight the extent to which the principles which underpin the IPCC have been accepted by a wide range of political interests. The GCC complained that material "that had not undergone scientific peer review or been presented to governments for their consideration". This acceptance stands in contrast to the more general statements about scientific knowledge made early in the debate by the many scientists that were writing editorials for the Wall Street Journal.

The GCC has published one report related to scientific issues and global warming, "Global Warming and Extreme Weather: Fact vs. Fiction", written by a professor at the University of Virginia. The report highlights a lack of public understanding of "scientific theories, advances, and observations" which leads them to rely on the press to communicate scientific issues to them. The report notes that "countless media stories report that global warming is and will be responsible for all manner of disasters worldwide". What source does the GCC use to counteract these statements? "Even the 1995 report of the Intergovernmental Panel on Climate Change (IPCC) -- the report responsible for much of the hyperbole on this issue -- states that:

> Overall, there is no evidence that extreme weather events, or climate variability, has increased, in a global sense, through the 20th century, although data and analyses are poor and not comprehensive. On regional scales there is clear evidence of changes in some extremes and climate variability indicators. Some of these changes have been toward greater variability; some have been toward lower variability. p. 1.

However, many of the items cited in this report adhere very closely to the science skeptic reporting that is being funding by the Western Fuels Association (to be discussed below). Not all of this material is published in peer reviewed journals. However, rather than addressing the claims of the IPCC directly, the material challenges being made by other political interests, namely many of the environmental organizations (in addition to the Clinton Administration). For example, government and environmentalists, eager to provide the "ozone hole" of climate change, highlight melting glaciers, summer heat wave deaths, floods, and hurricanes. The skeptics are quick to counter these claims with data which suggest that the locations of melting glaciers haven't experienced warming, heat wave deaths aren't statistically different from other times, heavy snow associated with Red River flooding is less likely the warmer that region becomes, etc.

The other prong of the GCC strategy concerns global involvement in a global issue. Representatives mention their position on the participation of developing countries as a critical feature of their campaign (Holdsworth, 1998). Indeed, the pre-Kyoto advertising campaign featured two different television and radio pieces. The first displayed a map of the world with

the largest CO2 emitters in the developing world cut out. The ad warned that the protocol and international agreement under consideration were not truly global, particularly if a large number of countries were exempt from the provisions. This campaign fit very nicely with the Byrd Resolution. The first president of the GCC, John Shlaes, was a member of John Sunnu's staff. At the first meeting of the INC he was with the Edison Electric Institute; in a statement he highlighted the need to focus on developing countries. "Adding his voice to the chorus of commentators who have called for global action, Shlaes noted that unless these issues are address, any policies pursued by the United States alone, or even the industrialized world as a group, will be ineffective". (Warmstad, 1992).

In a 1994 speech, Shlaes noted that since developing countries are expected to account for 68% of all greenhouse gas emissions by 2025, "more of the policy focus should center on the developing countries". In 1993, a GCC spokesman noted that "our concern is that the 1990 target is a political target...if the U.S. achieves the 1990 target, it would have almost no impact on global warming. The vast majority of emissions come from developing countries" (The Oil Daily, 1993).

As surprising as it may be to many, the GCC actually supported the ratification of the Framework Convention on Climate Change. The main concern was how the convention would be interpreted and implemented. Noted one representative, ""even if greenhouse gas emissions in the United States and the OECD nations were reduced by 50 percent, by the year 2030 greenhouse gas emissions would be 250 percent higher than today, because of the economic activity of the developing nations" (PR Newswire, 1992). This theme and focus has continued over the years.

5.2 Western Fuels Association

Direct links between skeptic scientists and organized political interests are found most prominently in the case of the Western Fuels Association. The Western Fuels Association, Inc., a non-profit cooperative which supplies coal to the power plants of its members (consumer-owned electric utilities) has been active on the climate issue since 1988. The events of the summer of 1988, including the hot summer, the testimony of James Hansen, and subsequent media attention given to the climate issue caught the attention of Fred Palmer, General Manager and CEO of Western Fuels, and Ned Leonard, director of communications. They concluded that policy would be directed toward coal rather than automobiles. Power plants which had been affected by legislation surrounding NEPA would be targets for further regulation. The board of directors requested a survey of the literature to determine how widespread scientific agreement on the issue was. Western Fuels identified the editorial of Pat Michaels which appeared in the Washington Post after Hansen's testimony. Consultation of the literature led them to Michaels, Robert Balling, and S. Fred Singer. These scientists were invited to the annual meeting of Western Fuels in the summer of 1989. They were asked to give presentations to the members. There were still questions about what to make of the problem.

Balling and Michaels brought the work of Sherwood Idso to the attention of Palmer and Leonard. Idso had published a book in 1982 "Carbon Dioxide: Friend or Foe", and one in

1989, "Carbon Dioxide and Global Change: Earth in Transition". Idso is a government employee (Water Conservation Laboratory, U.S. Department of Agriculture), and published his books under The Institute for Biospheric Research Press, a division of The Institute for Biospheric Research, Inc., a research institute headed by Idso's wife. Western Fuels identified the message that emerged from Idso's work as one which might serve to moderate the claims that increases in CO2 would be harmful to the earth. They decided to convert the medium of the book into a video. The video was produced for $350,000, raised from Western Fuels members, members of other electric cooperatives, and the National Coal Association. The tape entitled "The Greening of Planet Earth" debuted at the October 1991 coal conference. Western Fuels conducted briefings for various departments in the Bush administration (NOAA, OMB, USDA), and held showings for members of the House and Senate.

In the opening of the tape the narrator begin by describing the vast increases in CO2 since the dawn of the industrial revolution. The level of CO2 reaches 315 parts per million in 1950.

> Still more fossil fuels are burned. More and more carbon dioxide is emitted into the atmosphere. More industrialization -- then more. More carbon dioxide -- then more. The year 2085. The atmospheric level of carbon dioxide has doubled to 540 parts per million. What kind of a world have we created?

The answer? A better, greener world. A series of agronomists, botanists, members of the U.S.D.A., including Idso, provide evidence that increased levels of CO2 make plants grow better, produce greater yields, increase water use efficiency. Forests and other plants would extend their ranges. Richard Lindzen of the Center for Meteorology and Oceanography at MIT comments on the accuracy of the predictions of models used to assess the implications of increasing CO2 on global temperature.

Western Fuels has, since 1991, sent tapes to anyone that requested them. They distributed approximately 1,000 in the first month and a half, 1000 in the second month, then 2000 / month after that. Distribution relied mostly on word of mouth in the first year or so. Ads listing an 800 number were run in several magazines to target "liberal democrats", including the New Republic. The number yielded several hundred requests for tapes. After Bush signed the Rio agreements the organizations decided to try "preaching to the choir" in the American Spectator, National Review, and Reason. Several thousand requests hit the 800 number. Idso's research was highlighted in the New York Times in 1990, but the article included considerable caveats from Harvard botanist Fakhri Bazzaz and other researchers in his lab who cautioned that increased levels of CO2 may enhance growth, but may have implications for plant productivity and the activities of essential insects in ways that we don't yet understand.

Western Fuels directly funds the World Climate Report, formerly the World Climate Review. This newsletter, edited by the aforementioned Patrick Michaels, serves to monitor the scientific claims being made by the IPCC, national governments, national representatives, non-governmental organizations, and scientists.

The World Climate Review began in 1992 as a quarterly publication. The title editorial "Uncloaking the Issue" noted that the quarterly publication is designed to "keep you current with the important issues of global climatic change and the greenhouse effect". It noted that

"much of what you see in the Review may seem surprising, given the current popular vision of climate gloom and doom". The publication basically serves to address scientific claims which suggest that the greenhouse effect has arrived, and will have serious consequences. Early issues report on the cautionary claims about extreme weather events, Sherwood Idso's CO2 enhanced trees, and the complications of cloud cover for climate predictions. In 1995, bi-weekly publication began under the name World Climate Report and continues to provide counterpoints to the claims of environmental organizations, Clinton Administration speeches, and statements, and "those who seem bent upon telling half the story about the U.N.'s Intergovernmental Panel on Climate Change, the Rio Treaty, global climate models, and that every hurricane, every disease, and each and every dying tree or butterfly is the result of global warming (regardless of the actual temperature trends" (v.2, no. 1, September 16, 1996).

The scientific information provided by the GCC and other industry organizations draws quite directly on the materials provided by the World Climate Review. However, Western Fuels has not pursued lobbying efforts at the international level with these materials. Rather, domestic, media, and public campaigns have been waged.

6. PERCEPTIONS OF INDUSTRY ACTIVITY

The responses of environmental organizations to the activities of organized industry suggest that there has been a significant effect on the nature of international negotiations an domestic politics. Friends of the Earth notes that the fossil fuel lobby is "lobbying for lethargy", making it their business to prevent international action at every opportunity. They note that the scientific challenges of these groups have "effectively collapsed", that the "scientific consensus around climate change is essentially unshakable". This has forced the lobby to re-emphasize their economic arguments and to "point an accusatory finger at the developing world, especially those countries with the greatest industry potential" http://www.foe.co.uk/climatechange/gcc.html (printed 4/3/98). The economic argument, at least that of the GCC, has been present in the GCC arguments since 1991. However, the observation of Friends of the Earth may suggest that there has been a perceptible change in GCC strategies and arguments over time.

Recently, portions of the fossil fuel industry itself have concluded that despite weaknesses in scientific understanding of climate change, "those who oppose the treaty have done little to build a case against precipitous action on climate change based on scientific uncertainty".

Industry opponents of the Kyoto Protocol, on a Global Climate Science Team, have drafted a plan for a multi million dollar campaign to challenge the science "underpinning the global climate change theory". Among the ideas, is a campaign to recruit scientists to participate in media outreach. These would not be those with a long history of visibility, but rather a team of new voices. The document acknowledges that from a political viewpoint, "it is difficult for the United States to oppose the treaty solely on economic grounds, valid as the economic issues are. It makes it too easy for others to portray the United States as putting preservation of its own lifestyle above the concerns of mankind". Noting that "[t]he advocates of global warming

have been successful...while industry and its partners have ceded the science and fought on the economic issues". $2 million in expenditures was proposed through November 1998, when the parties convene in Buenos Aires.

7. (TENTATIVE) CONCLUSIONS

The perception, even on the part of industry, that its strategies have largely ceded the scientific debate is arguably significant. This is not to suggest that a very vocal groups of science skeptics have ceased to challenge the climate science (witness the recent petition and 15,000 signatures regarding the Kyoto Protocol). Rather, it is an effort to explore the ways in which arguments about science made by organized political interests may have been limited and focused on particular audiences by the presence of the IPCC as an international knowledge institution in the international debate. Domestic strategies may have been more effective in putting future roadblocks against international agreements in place. The Senate resolution largely reflects the economic arguments about developing country participation that have been pressed by the GCC.

However, in what seems to be the ultimate nod to the importance of the public and the strategies of environmental organizations, the large industry groups are now forming organizations which they hope will grow grass. The term coined to refer to these organizations is "astroturf", or fake grass. Western Fuels association has launched "The Greening Earth Society", a web based organization that will be used to distribute further copies of the video and to support the Western Fuels climate cause. A pre-Kyoto version of this featured climate facts and a template for sending a postcard to a congressperson.

While the empirical section of this paper has focused on the activity of the organized fossil fuel lobby, a brief note about environmental organizations is in order. Initial strategies, both on the part of Greenpeace and the international environmental coalition Climate Action Network, was to focus on extreme events to publicize the worst case scenarios for climate change. In 1994, Greenpeace published a catalog of extreme weather events. In general, the IPCC is the scientific source used by the environmental organizations. Almost all of the documentation from the big three environmental organizations features citations of the IPCC and a significant emphasis on the fact that the IPCC represents more than 2000 scientists (including 8 Nobel laureates). However, such support for the IPCC was not always in evidence. In the introduction to "Global Warming: The Greenpeace Report", Jeremy Leggett noted that the scientists of working group 1 were largely ignored by working group 3, where discussions of 'potential climate change' dominated over the claims by scientists that the were 'certain' of global warming unless significant efforts are made to cut greenhouse gas emissions" (p. 5). His edited volume, with contributions from scientists from around the world, "says what the Intergovernmental Panel on Climate Change -- in order to be consonant with the warnings of its own scientists' Working Group -- should have said about how we must respond to the greenhouse threat".

The dynamics of the relationship between the IPCC and organized political interests is, without a doubt, very complicated. This paper represents an attempt to think about the implications that an international institution such as the IPCC, which provides very specific information to international negotiators, has for the arguments available to domestic and international political actors. An initial cut suggests that strategies have been directed in particular ways, though alternative explanations for those choices will have to be more extensively explored. The debate has largely been shaped as one which puts challenges to certainty up against claims that the consequences of inaction are certain to be dire. However, what is surprising in this case is the limited success that concentrated and wealthy interests have had in stalling international agreement. It is nearly a truism in the literature on domestic interest groups that the business lobby wields considerable power, even disproportionate power. Some of the explanation for this anomaly may lie in the extent to which the IPCC has limited the available audience, and necessitated the development of scientific expertise to participate in IPCC reviews. However, the barriers to action that may exist at the domestic level, particularly in the United States, may serve to prevent approval of the international agreement.

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