NON-STATE ACTORS AND ENVIRONMENT ASSESSMENT: NORTH AMERICAN ACID RAIN AND GLOBAL CLIMATE CHANGE

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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.

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ABSTRACT

Rather than as a form of interdisciplinary science-policy integration, assessment is defined as a dynamic process involving the interaction of diverse agents that co-evolve over time and is based on both cognitive and moral tenets. Non-state actors are examined as significant assessment agents and concepts are developed to consider issue salience, timing, actor structure and cultural setting as important factors in determining assessment participation strategies and tracing influence. Cases for acid rain (the US-Canada Air Quality Accord, 1991) and global climate change (greenhouse gas emissions trading under the Kyoto Protocol) are examined. Tentative conclusions indicate that these two cases share strong similarities in the way various non-state actors (environmental groups, businesses, scientists, etc.) evolve, interact and influence the assessment process over longer time periods.

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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ACRONYM LIST

AOSIS	Association of Small Island States
AEI	American Enterprise Institute
API	American Petroleum Institute
ARF	The Acid Rain Foundation Inc.
BCSEF	Business Council for a Sustainable Energy Future
BP	British Petroleum
CAN	Climate Action Network
CCAR	Canadian Coalition on Acid Rain
CHC	Cooler Heads Coalition
CSCAR	Citizens for Sensible Control of Acid Rain
CSE	Centre for Science and Environment (New Delhi)
CVC	Consumers for Vehicle Choice
DDC	(CSE) Developing Country Coalition
DOE	Department of Energy
EDF	Environmental Defense Fund
ESEF	European Science and Environment Forum
FOE	Friends of the Earth (International)
GCC	Global Climate Coalition
GEA	Global Environmental Assessment (Project)
GET	Greenhouse Gas Emissions Trading
GHG	Greenhouse Gas
ICA	International Co-generation Alliance
ICC	International Chamber of Commerce
NAPAP	National Acid Precipitation Assessment Program
NCAC	National Clean Air Coalition
NGO	Non-Governmental Organization
NRDC	Natural Resources Defense Council
SARS	Swedish Acid Rain Secretariat
TASSC	The Advancement of Sound Science Coalition
UCS	Union of Concerned Scientists
UNFCCC	United Nations Framework Convention on Climate Change
WBCSD	World Business Council for Sustainable Development
WCC	World Council of Churches
WWF	World Wide Fund for Nature (International)

INTRODUCTION

Assessment as a dynamic process

Assessments are widely acknowledged to be pivotal interfaces of communication between science and policy that are nested within society's broader efforts to cope with problems of global environmental change. Generally speaking, such endeavors are seen to be traditionally led by, and based on, science. They are often defined and analyzed as a type of "bridge", focusing on the integration of science and policy through methodological innovation by such means as interdisciplinary models. This approach is particularly fruitful in building approaches such as 'integrated assessment' which seek to combine, interpret and communicate knowledge from diverse disciplines and provide decision-makers with a synoptic perspective on the problem at hand (e.g., Dowlatabadi and Morgan 1993). Viewed in this way, assessments seek to build consensual answers to a set of well-defined questions through combining various disciplines and research programs.

Rather than viewing assessments as a form of science-policy integration—where interdisciplinary research more or less objectively feeds policy—an alternative view sees assessment as part of a dynamic *process* in which knowledge is produced and communicated by a diverse set of actors, views, and values which co-evolve over time (GEA 1997). In this way, assessment is seen as a process whereby various actors interact in areas of contested knowledge, ultimately producing knowledge which is perceived by the participants to be less contested—both cognitively and morally. The assessment process may therefore be seen as a type of "co-production" zone in which the cross-fertilization of world-views, ideas and data may lead to forms of consensus-building among the agents involved at various levels of interaction. As Jasanoff (1996) points out, co-production essentially amounts to "the simultaneous production of knowledge and social order," and offers more potential for broader understanding than the dualistic view of "controversy".

Analyzing assessments as a process based on the co-production of knowledge is not free from its own normative agenda—at least in so far as it consistently opposes unilateral explanations. However, to its reflective critics, it should be acknowledged as a useful counterbalance to what are often default perspectives based on dominant, unquestioned paradigms. One of the broader implications of this alternative perspective would appear to be increasingly obvious in a number of recent environmental assessments. A prominent example is the National Acid Precipitation Assessment Program (NAPAP), for which the final report was released in 1991. Although the science was generally thought to be solid, the NAPAP report was widely criticized for not providing the right kind of knowledge needed to improve policy decisions (ORB 1991). Typically, the response to this type of failure has been to suggest that, next time, one needs to ensure that the right questions are posed at the beginning phase of the assessment (Rubin, Lave and Morgan 1991-92). However, the idea of co-production points in another direction, suggesting a more fundamental critique. Analyzing NAPAP along similar lines, Herrick and Jamieson (1995: 111-12) conclude that "[f]or such a programme to be successful there must be widespread agreement on what questions are being asked, why they are important, what counts as answers to them and what the social use of these answers might be." Some critics may see this perspective as a plot to deny the value of scientific knowledge, but in

fact, it is essential in order to place uncertainty in context (van Asselt and Rotmans 1996) and underline that science is but one element in the production of knowledge.

Viewing assessment as a process does not exclude one from attaching particular importance to specific events (e.g., a consumer boycott, a new scientific report, an opinion editorial, etc.). However, it does require that such events be viewed as products formed non-linearly within the context of the broader processes in play. For example in the context of global climate assessment, the 1985 Villach conference is often viewed as a specific turning point at which scientific consensus secured climate change on the international political agenda. However, careful analysis of this meeting within the broader context suggests a more subtle transformation: While similar scientific findings had been previously presented, Villach emphasized certain scientific facts, exuded more credibility through its prominent and international participants and coincided with growing public awareness about related environmental issues (Franz 1997). If the link between scientific consensus and political action is non-linear, it can also be discontinuous, as in the case of acid rain in North America. After President Carter addressed the issue, based on scientific evidence, and declared acid rain as one of the most serious environmental problems—leading to the US/Canada Memorandum of Intent (MOI) in 1980—the issue was subsequently knocked off the American governmental policy agenda by the Reagan Administration and was repackaged as a basic research question, only to resurface politically again in 1988.

Taken in its broader context, assessment is a *process*. As such, it consists of a number of products ranging from formal scientific reports and governmental implementation strategies to environmental group protest marches and business lobby newspaper advertisements. For example, the 1990 climate change assessment report by the Intergovernmental Panel on Climate Change (IPCC) is very much part of a broader assessment process which continues through, not only its own updates, but in parallel to countless reports and other actions.

Assessment agents: non-state actors

If the facts, problems and action strategies which constitute an assessment are seen as part of a whole system of creation, production and use, and not as truths stemming from the nature of things, a good starting point for analysis is found in the relationship between knowledge, knowledge communities and their intercommunications. It is precisely in the interactions between various knowledge communities—constituted by diverse stakeholders—where many of the most revealing elements of the assessment process are to be found. As Parson and Fisher-Vanden (1993) note, "nobody, no organization, no government has the authority or power to manage the issue unilaterally: Others' decisions matter." Central to this view is the idea that the participation and meshing of various assessment agents (e.g., governmental agencies, scientific bodies, environmental groups, private sector interest groups, etc.) ensure that assessments evolve, and that they do so along a number of different possible paths. However, assessments—even assuming a system of open, democratic governance—do not ensure that all groups participate equally, or even at all, in assessments. Although in many broadly participatory cases all assessment agents are, in principle, equal, an analysis of the resulting outputs and decisions shows that some are clearly more equal than others.

In addition to the most obvious assessment agents—governmental and scientific groups—a broad group of non-state actors contribute to framing, shaping and packaging assessments. In general terms, these groups have received increased attention by scholars during recent years (Prince and Finger, 1994), and are widely recognized as playing various active roles in environmental affairs (e.g., Young 1989; Rowlands 1989; Sands 1989). Moreover, it is powerfully argued that governance structures are transforming into less hierarchical forms, particularly in areas such as environment, and that such issues areas increasingly allow for greater expression of 'soft power' by groups that have traditionally been smaller players (Nye 1990). As Mathews and others have noted, this evolution, combined with revolutionary information and communications technology, may favor non-state entities in so far as "transnational, regional and global entities better fit the dimensions of trends in economics, resources and security" (Mathews 1997: 66). Others, however, suggest that the importance of non-state actors is exaggerated and is really more hype than substance (e.g., Lindborg, 1992). Nonetheless, whether they are hailed as saviors or criticized as undemocratic interest groups, the influence of non-state actors on policy outcomes calls out to be scrutinized in more detail. This paper asserts that non-state actors are—for better or worse—consequential players in environmental assessment. Cases for North American acid rain and global climate change are investigated here to explore pathways of this influence.

The case of the *Brent Spar* oil platform provides a good illustration of an environmental assessment, both as a form of process and one in which non-state actors are prominent. While apparently having access to the same basic scientific information, the oil company Shell and the environmental group Greenpeace produced polar opposite assessments of the potential ecological damage which would result from the dumping of the *Brent Spar* in the North Sea. Ultimately plans to dump the platform were shelved and Shell was widely criticized for having a cavalier attitude and ignoring public concern. Although Greenpeace received an outpouring of public sympathy in Europe (particularly in Germany) it was later claimed that the science behind their arguments was full of holes. The respected scientific journal, *Nature*, expressed serious doubt about the validity of Greenpeace's scientific "assessments" and assumptions (*Opinion*, Nature, 1995). Furthermore, another article in the same issue expressed skepticism about Greenpeace's scientific methods as well as their political ones, concluding that: "By concentrating on and sensationalizing relatively small problems, we risk making poor judgments and neglecting more serious issues facing the environment" (Nisbet and Fowler, 1995: 715). Such controversy highlights the role of values underlying the positions of assessment agents and the inseparable relevance of both cognitive and moral arguments. Physical science alone is hardly the only card being played to justify arguments. For example, in an 1995 report entitled *The Role of Science in Abandonment Policy*, Greenpeace examines the *Brent Spar* case, making a generalized assertion that "[a]bandonment policy decisions depend not only on the scientific knowledge and viable engineering options available but also on how deeply we value our environment and what damage and precedents we find unacceptable".

It is important to be clear about exactly which groups are included under the banner "non-state actor". Often the term is reduced to include only those groups identified as non-profit, grassroots or advocacy groups—broadly labeled "NGOs" (non-governmental organizations). A set of criteria for this definition is rarely provided. Indeed, the term NGO is so commonly used and so inconsistently defined as to be highly confusing. For example, groups representing

business and industry and academic research institutes are not typically viewed to be NGOs, but, in some cases, they are non-profit or grassroots. Broadly defined and as used here, the term "non-state actors" includes those groups which have a substantial power base independent of the state. This independence is most easily, but not exclusively, expressed in terms of structurally unconstrained financial means. In this paper, non-state actors therefore include the following: *environmental groups* (e.g. Greenpeace), *business and industry groups*, including manufacturing, trade and other groups (e.g. Chambers of Commerce), *consumer groups* (e.g. Cooler Heads Coalition), *labor groups*, including unions (e.g., American Auto Workers), and *scientific networks* (e.g., Union of Concerned Scientists). This list is neither intended to be exhaustive nor rigid, but merely as a guide to survey various players on the field.

That one should find a diversity of views among actors, state or non-state, on a particular issue is to be expected. For example, looking at the US domestic view on climate change, a recent report prepared by Resources for the Future finds that "there is no single US view on any of the positions. Various interests and factions within the US hold strongly different views on many issues, and there are differences of view within and among the various branches of national government" (Toman *et al.* 1997). This is an important observation which is only amplified in the international and non-state arenas, where assessment agents, cultural orientations and data sources are even more diverse.

Research issues and questions

This paper draws attention to the diversity of views among non-state actors within the context of environmental assessment for global climate change and acid rain. In the context of these two cases, the paper bases its analysis on the following two policy instruments which emerged from, and are a continuing part of, the wider assessment process in these issue areas: the 1991 US-Canada Air Quality Accord and the UNFCCC 1997 Kyoto Protocol.

In examining the influence of non-state actors on the larger assessment processes surrounding these policy instruments, we look at—although not in equal detail—temporal, structural, cultural and strategic elements. This raises two central questions, forming the backbone of this paper:

- What different strategies do non-state actors employ in assessment processes and what are their consequences?
- How does the effectiveness of strategies vary in timing, actor structure and cultural setting?

Timing and salience

Several parallel lines of investigation in the Global Environmental Assessment Project suggest that assessments play a highly variable role during different phases of a given issue's evolution (Clark, Dickson and Parson 1997; Jaeger 1997; Keohane 1998). Based on this work, three general phases can be identified as follows:

1. *Pre-salient.* The first phase of the assessment process involves a relatively small community of specialized scientists and technical civil servants.

2. *Emergent-salient*. The second phase is a period of flux between the other two characterized by a strong increase in political and media attention.
3. *Post-salient*. The third phase relates to an issue that is already well established on the policy agenda and being addressed largely as technical regulation or management question.

The division of issues into phases of salience immediately raises a set of questions concerning the role of the various assessment agents—for our purposes, non-state actors:

- Do various types of non-state actors have more, less, or different influence during each of these phases?
- Do various types of non-state actors employ different strategies for engaging the assessment process in each phase? Are they equally present in assessment debates at all stages?
- Are some strategies more effective at engaging the assessment process at a specific stage of issue evolution?

The multi-year, international research effort, Harvard's Social Learning Group—SLG (Clark, Jaeger, van Eijndhoven and Dickson 1998), finds that the balance of evidence for acid rain and climate change suggests that industrial groups get into the assessment game, if at all, only in the latter stages of phases 2 and 3. Green groups perhaps fair a little better and earlier than industry in phase 2 and may serve to amplify various viewpoints, possibly influencing the process based on cognitive, and especially, moral tenets. Scientific groups, in general contrast to other non-state actor groups, appear to be largely out in front in phase 1, but are less evident already by phase 2. Phase 2 would appear to be crucial to key "framing" activities, but actors are not as visible as one would expect for this to occur.

The findings of the SLG are provocative not because they offer a final word on the case studies they examine, but rather because they provide the outline of a framework to improve our understanding of the interactions and influence of various types of actors in different phases of an issue's evolution. This paper seeks to build on some of these insights.

Actor structure and cultural setting

Abundant research in international relations supports the notion that the structure of the actors and institutions involved in a given environmental issue area is a major, if not predominant, factor in the related interactive dynamics (e.g., Haas, Keohane and Levy 1993). This paper assumes the same basic proposition, but draws attention to the importance of distinguishing between varying forms of actors which may confusingly be lumped together in a single category (see discussion of NGOs above). In particular, this distinction is relevant to examining the role of formal and informal coalitions, where common strategies are formed from a—often temporary—set shared of goals designed to influence the assessment process. At this level, structure can become more pliable than general theory would suggest and actors can therefore interact and influence each other in unexpected ways within this limited context. In this way, it is useful to conceptualize in terms of ideas, positions and issues as well as structured interactions and look at non-state actors, or any actors, in terms of relationships and function. For example, environmental groups represent numerous viewpoints on how best to deal with issues such as acid rain and global climate change. However, taken as a whole, these groups

serve a common function as a funnel for bits and pieces of society's viewpoints which fail, or are unable, to be expressed or acted upon through more traditional forms of governance. A focus on non-state actors provides insight into the conditions under which assessments become credible to, and are used by, nations, sectors and actors beyond the core group (e.g., state agencies) most centrally involved.

Cultural setting has been shown to be of primordial importance in environmental assessments by various types of research; perhaps most powerfully by cultural anthropology (e.g., Thompson and Rayner 1998). This paper, while recognizing this as a critical line of research, does not explicitly analyze assessment in this context. Observations here concerning cultural setting are limited to the recognition of different characteristics in the national structure in which assessments take place.

Participation strategies and consequences

The strategies employed by non-state actors to participate in, pronounce upon and otherwise influence assessments are numerous. A broad classification is given as follows:

Guild
--preferred by epistemic (scientist) groups as a method to control the "quality" feeding the assessment process. One of the biggest limitations of this strategy lies in its inability to integrate perspectives that are seen to be important, yet fall outside the strict confines of scientific method, peer-review, etc. The IPCC has experienced this problem first hand with the issue of "indigenous knowledge".

Post-hoc
--used by big, and usually wealthy, non-state actors such as Greenpeace, business lobbies, etc. as an intended means of directly challenging an existing assessment report, key document or even a largely consensual view. Often entails an expensive, time-consuming and specialized effort beyond the means of many smaller non-state actors.

Tag-along
--used in various forms as active, partial or passive "buy-in" to an ongoing assessment process. Need to fit-in makes extreme positions generally untenable. Participation here would include such diverse tactics as direct participation in national delegations and holding parallels events at formal meetings, to participating as observers and lobbying in the hallways between formal assessment meetings.

Scare
--used to promote more extreme viewpoints which are perceived to be not adequately addressed within the boundaries of the existing assessment process. Negative aspects (e.g., impacts on human health, the economy, etc.) may be underlined, or even distorted, in order to capture media or other broad attention. Moral tenets are key drivers, often explicitly.

The single most difficult problem in this analysis concerns the issue of consequence. Since the pathways of influence being traced here are part of a larger process, even if they were causal (and it is held here that they are not), it would be impossible to trace them in a useful manner. How then can we say that a particular non-state actor's participation was or was not

consequential for a given assessment? Most probably, there is no way to do this convincingly over shorter time periods for specific events. However, over the longer run, trends of consequence become detectable, although they admittedly also become less traceable to a single or particular source. Summaries providing a combination of these concepts and the two cases are provided in Tables 1 and 2 (in annex).

ACID RAIN[1] AND THE NORTH AMERICAN AIR QUALITY ACCORD

Background

The signing of the USA-Canada Air Quality Accord in 1991 came less than one year after the Clean Air Act Amendments. For the USA, the Accord provided a bilateral recapitulation of commitments for reducing SO_2 and NO_x made under Title IV of the Amendments.[2] An obvious and basic question arises immediately: How and why did we get from there (an esoteric scientific problem of the 1960s) to here (the 1991 Accord)? A number of explanations are possible, including general ones such as 'it was part of a broader social awareness of environmental problems that was planted during the 1960s, blossomed during the 1970s and bore fruit by the end of the 1980s'. Another explanation could be that the Accord is an example of physical science slowly translating—with various fits and starts—into government policy. Not only are such explanations unsatisfying, they are not our principal concern here either. Regardless of various broad explanations, our question is: Did non-state actors influence the process of acid rain assessment in any discernible way so as to ultimately effect the outcome of the Accord? Once again the difficulty of tracing consequences is raised. No causal explanations are attempted here. However, in reviewing a number of key non-state actors in this process some generalizations as to how these actors participate in the process of assessment are offered along with some tentative suggestions as to how they may have exerted influence, both overall and in particular instances.

The history of assessment of acid rain has deep roots and a multitude of connections (Cowling 1982; Cowling and Nilsson 1995). Nevertheless, in the context of the Accord most assessment activity of importance took place domestically (at least within the North American context) roughly between the mid-1970s and 1990-91. One of the first important actions in the assessment process was the creation of the National Atmospheric Deposition Program (NADP) in 1976, which had the goal of coordinating a long-term precipitation chemistry monitoring and effects research program. Shortly after its launching, NADP drafted a report entitled *A National Program for Assessing the Problem of Atmospheric Deposition (Acid Rain)* (Galloway, *et al.* 1977) which provided important background for President Jimmy Carter's call for a 10-year program of research on the causes and consequences of acid rain 1979 and later the 1980 Memorandum of Intent with Canada which stated an intent to work toward bilateral cooperation and agreement. Thus began an arduous decade of debate over impacts, costs, mitigation strategies, targets and the like. Our focus here mainly concerns the issue of targets for emission reductions of SO_2 and NO_x.

The evolution of the acid rain issue moved beyond the pre-salient (phase 1) stage by 1980, symbolically indicated by the bilateral MOI—even if it did experience some important reversals making it appear otherwise during the subsequent Reagan Administration. The post-salient (phase 3) stage is, for our purposes here, the period after the signing of the 1991 Accord,

which continues to the present. The predominant force of non-state actor activity took place during the emergent-salient phase (phase 2), covering roughly the period from 1981-1991. These same actors either had not yet been formed or were apparently concerned with other issues during phase 1 of the broad assessment process which was largely dominated by scientists and peer-reviewed literature. Phase 3 is also a period of much reduced activity on the part of non-state actors, with many disbanding or refocusing on other issues (often related) such as climate change and tropospheric ozone.

Actor structure appears to be an important factor in enabling a non-state actor to exert influence to ultimately meet its goals. Acid rain provides an example where structure—in the form of various coalitions and movements—was particularly important in providing for effective strategies. In the following paragraphs, a review of some of the most active and largest groups gives more details on these strategies and their perceived consequences.

The Canadian Coalition on Acid Rain

The Canadian Coalition on Acid Rain (CCAR), formally launched in March 1981, was composed of a diverse group of supporters from the environment, health, sport and tourism sectors—in all, some 825,000 Canadians. The original idea to create the coalition came from the Canadian Government, as did some 30-35 percent of the initial and continuing funding. By late 1983, the numbers had reached $1.5 million and 50 member associations (see Table 3). CCAR used this diversity of members to claim broad credibility throughout its existence. With the signing of the 1991 bilateral Accord, CCAR closed up shop, a decade after its launch, claiming success in meeting its objectives for targeted emissions reductions. Although the CCAR had originally pushed for an enforceable treaty rather than an accord,[3] its objectives for targets throughout its campaign were set at a 50 percent reduction in 1990 levels for industrial SO_2 and NO_x emissions—roughly what was agreed to in the Accord. According to the co-Executive Coordinator of CCAR, Michael Perley, the objectives for reductions were "based on good scientific evidence" (1995).

The fact that the Coalition did not yet exist during the pre-salience phase and was already dissolved before the post-salient phase started is not a coincidence. Given the structure of the Coalition—a diverse and broad group of organizations and interests. CCAR's principal activities of raising awareness and lobbying politicians took place during the emergent-salient phases from the early to late 1980s, targeted largely at an American audience and, especially, Congress. During those years, the CCAR produced, at its offices in Ottawa and Washington, hundreds of lobbying letters and newspaper articles aimed at promoting their targets for reducing emissions.[4] Amongst the most important individual actions were the feeding of materials to journalists at high-profile magazines such as *Time*, *National Geographic*, *Sports Illustrated* and *Field and Stream*, as well as published pleas for action in the *New York Times* and *Washington Post*. The newspaper ads were done to coincide with Canada-USA bilateral summits (CCAR 1986). The CCAR also worked closely with northern US states, and their representatives, who were increasingly dismayed with official policy in Washington.

One of the highest-profile and crucial actions in CCAR's history surrounded the so-called "Shamrock Summit" which was held in Ottawa over St. Patrick's Day in 1985 between Prime Minister Mulroney and President Reagan. There was enormous press coverage of the two-day

meeting. For example, in its editorial on March 16th the *New York Times* urged Reagan to take action on acid rain. More significantly, two American groups, the National Audubon Society and the Sierra Club sent a telegram to Mulroney before the summit, urging him to insist on more than talk and adopt an "aggressive" program. The CCAR, went further, erecting a giant billboard outside the meeting place which read "No more Blarney!" When the outcome of the meeting led to the appointment of the two special envoys Drew Lewis (US) and William Davis (Canada) "to explore, consult, pursue, enhance, identify, and report a year hence" the CCAR openly broke with official Canadian pronouncements and loudly criticize this step. This led to a changing relationship with the Federal Government. When the special envoys' report was released in January 1986 it recommended the "endorsement of a five-year, $5 billion spending program for the U.S. Government and industry to promote commercial demonstrations to technology to combat acid rain". CCAR and environmentalist groups immediately denounced the report's call for more research as a delaying tactic, while Government representatives such Canada's Washington Ambassador Alan Gotlieb, called it a significant step forward. The CCAR expressed amazement that there was no consideration of existing structures and initiatives (*Toronto Star* 9 January 1985). Around the same period, the (Conservative Party) Environment Minister at the time, Tom McMillan, became increasingly skeptical about the CCARs usefulness, and in hindsight he claimed that "as the cause gained momentum, stridency replaced toughness. Then, no matter what the Canadian government did, in the eyes of the Coalition it was not enough and never on time" (1992: 27). After this point, CCAR increasingly took on a life of its own, although it maintained its relationship with the Canadian Government and continued to received funding from it.

Despite the fact that CCAR criticized the Canadian Government (or more specifically certain parts of it), the Coalition never really broke from its initial "tag-along" strategy. CCAR produced no formal assessments of the assessments that were being carried out, nor did it ever fundamentally break with the government policy in the way that Greenpeace and other green groups did. Overall, and over the course of the full 2nd phase (emergent-salience), the consequences of CCAR's actions appear to have been fairly influential in gelling the established frame and guiding the shape of the assessment process, whereas it appears to have had little influence in packaging the final details and no role in implementation.

Greenpeace, WWF, FOE and other environmental groups

Greenpeace, World-Wide Fund for Nature (WWF), Friends of the Earth (FOE) and a number of other medium- to deep-green groups appeared on the acid rain scene in both North America and Europe by the early 1980s during the 2nd, or emergent-salient, phase of the assessment process. The large organizations, such as those mentioned above, all had activities and/or offices in a number of the countries (including Canada, the USA and much of northern Europe) where acid rain was being actively discussed in terms of impacts and sources. As a result of this international organizational structure, these groups had the highest levels of cooperation going beyond the regional level. However, based on the examination of correspondence, meeting minutes and some interviews, even this cooperation was minimal, although it surpasses the superficial contact maintained between CCAR and European groups such as the Swedish Acid Rain Secretariat. At the regional level, cooperation between regional offices of all of these organizations was well coordinated, although more so in Europe than North America. Interestingly, none of these three main environmental organizations was a formal a

member of CCAR despite having several offices in the region and a significant local support group. Nor were Greenpeace or WWF members of the US National Clean Air Coalition (NCAC) discussed below. In the case of the CCAR, members of these three and other environmentalist groups not formally in the coalition were nevertheless actively involved and coordinated with whenever possible (Perley 1998). Regardless, the CCAR did not always know how to respond to Greenpeace invitations to join them in protests which might upset some of their formal Coalition partners. As a rule, CCAR declined to participate in demonstrations, such as those in the spring of 1985 in Canada (*Globe and Mail* 1985: B11).

These environmental groups—even the biggest amongst them, Greenpeace—did not produce comprehensive "post-hoc" assessment reports on acid rain and relied on informational pamphlets and brochures to exert influence. Instead, efforts were focused on pushing national governments to adopt strict emission reduction targets and targeting specific companies judged to be amongst the highest emitters of SO_2. To this end, Greenpeace staged a number of protests in Europe and North America, usually involving banners and smoke-stack climbing. One of the most spectacular of the former took place on October 4, 1987 when a huge banner was hung on the Mount Rushmore Memorial. On several occasions, Greenpeace protesters climbed Ontario Hydro stacks to draw attention to proposed increases in emissions. For example, in 1982, two activists spent three days atop the Nanicoke stack to draw attention to an Ontario Hydro proposal to increases sale of electricity to the USA.

Overall, these groups maintained a "scare" strategy throughout their involvement in the 2nd phase of the assessment process, occasionally toying with more "tag-along" notions but never actually embracing them. Efforts to reframe the debate in more fundamental terms (e.g., proposing strategies for a clean-fuel society rather than reductions) failed, although these actions possibly led to an over-all strengthening of the green case on other fronts. Unlike CCAR these large environmental groups did not vanish from the landscape after the 1991 USA-Canada Accord was signed, and although their campaign foci have since shifted to others issues, linkages and some monitoring functions remain. As a result, these groups continue to have discernible influence on the 3rd, or post-salience, phase and could presumably remobilize at a higher level quite quickly should they find reason to do so.

The National Clean Air Coalition

The National Clean Air Coalition (NCAC) serves—although relatively dormant since 1990—as a network of individuals, state, and local organizations concerned with the environment, health, labor, parks, and other resources threatened by air pollution. It was launched by a group of established environmental groups in 1980 and includes nearly 30 organizations, among which are the Sierra Club, American Lung Association (ALA), Natural Resources Defense Council (NRDC), National Wildlife Federation (NWF), Environmental Defense Fund (EDF), National Audubon Society, and The Izaak Walton League of America (IWLA) (see table 4). The Coalition, although of a formal nature, maintained a loose structure even during its most active period during the late 1980s and members cooperated on some issues as a whole, while acting in sub-groups and individually on others. The NCAC worked closely with CCAR and other green groups throughout the period leading up the to 1991 Accord. Like the Canadian group, NCAC also proposed a 50 percent reduction in SO_2, but took more care to investigate and promote actual means for implementation.

Some of the more active members of the NCAC initiated sub-group actions using legal means. Several of these involved legal action against the Environmental Protection Agency (EPA). For example, in 1985, the EDF, Sierra Club, NRDC, National Parks and Conservation Association, and the New York Attorney General's Office, sued the EPA in a US district court under a "citizen suit" provision of the Clean Air Act which requires the Agency to protect the public against all adverse effects of sulfur oxides and to revise standards every five years (the existing SO_2 standards dating to 1973). Although this suit was initially denied, it grew in the appeals phase to include other US States and Canadian Provinces.

Ultimately, the NCAC (some parts more than others) provided what appears to be key input into President George Bush's 1989 Clean Air Act proposals which formed part of his commitment to find a solution for acid rain. This input, Project 88, sprang from the work of the NCAC and was formally sponsored by Senators John Heinz (R-Penn) and Timothy Worth (D-Colo). It influenced George Bush's proposal by helping to promote the ideas of reducing SO_2 emissions in half by 2000 through the use of innovative market mechanisms (including tradable permits) combined with legally mandated reduction requirements. But the whole process had consequences not only for the assessment process *per se*, but also for the organizations themselves. Prior to the introduction of the Bush bill, several coalition members—notably the NRDC—had been opposed to emissions rights trading, which was perceived to be easy on industry compared to more strict guideline approach (e.g. one that mandates SO_2 scrubbers). However, once the emissions trading scheme was proposed and adopted (and it is now apparently successful), the NRDC and other groups had to reassess and adapt their own views. In this way, the dynamics of the coalition itself displayed processes of consensus-building and learning processes.

Using "tag-along" strategies, the NCAC was active, both as a whole and in parts, during the 2nd phase (emergent-salience) and the early 3rd phase (post-salient) of the assessment process. Although the NCAC did not produce formal assessments as a coalition, several of its members, such as the EDF, did author detailed analyses of the physical science (e.g., Oppenheimer 1984) as well as suggesting effective implementation strategies.[5] Overall, the CCAR's combined actions were probably influential at the crossroads of the 2nd and 3rd phases of salience, from 1988-89, when the ideas of the Group of 88 meshed with then Vice President Bush's vision of an effective regime for acid rain—input he later explicitly commended in his Clean Air Act proposals on June 12, 1989 (EDF, 1989: 1). In contrast to the CCAR, the NCAC was formed by organizations that continue to actively pursue issues relating to air pollution.

Other Groups

A number of important groups fall outside of the main coalitions and organizations already discussed. First and foremost, it should be stressed that several "brown" groups, were actively working against the grain of the acid rain assessment process during the crucial latter part of the 2nd phase. For example, the group Citizens for Sensible Control of Acid Rain (CSCAR)—a "citizens" group set up in 1983—received several million dollars in support from utilities and high-sulfur coal producers to garner support against growing support for action.[6] Interestingly, this group did not focus its attack on the physical science used by others to justify action on the acid rain issue, but rather underlined disputed economic issues involving costs. In a 1986 letter sent to more than 600,000 constituents, CSCAR claimed that the acid rain bill would cost some

$110 billion to industry and utilities and increase the electricity rate by 30 percent (Weisskopf 1986). This argument failed to bolster an effective attack on the increasingly powerful consensus and suffered from problems of credibility.

CSCAR remains alive, as do other ad hoc groups largely supported by the National Association of Manufacturers and the American Petroleum Institute.[7] Such groups continue to argue against new regulations and control mechanisms based largely on economic cost-benefit analysis rather than disputed physical science. However, groups such as the Advancement of Sound Science Coalition—supported by dozens of major corporations[8]—remain active in promoting the idea that public policy is not currently based on "sound science," and to counter excessive regulations that are based on "junk" science, but they appear to place less emphasis on this aspect for the issue of acid rain than for climate change. The use of "scare" strategies does not appear to have worked effectively for groups such as the CSCAR. Attempts to reframe the issue in the lead-up to the 1990 Amendments failed, and as a result these groups isolated themselves from actively participating in the shaping and packing processes. Many of these industry-backed organizations are criticized by watchdog groups as being falsely labeled as "citizens" organizations or "scientists" in the sense used by research academics.

For the purpose of brief comparison, it is worth mentioning the Swedish Acid Rain Secretariat (SARS) which brings together an informal coalition of European environmental groups and publishes the newsletter *Acid News*. It was created in 1982—roughly the same time as CCAR—and continues to the present. What is interesting here lies in the strategy employed by SARS and many other environmental groups across Europe to press for 80-90 percent reductions in both SO2 and NOx—now based on a 1990 baseline (Elvingson and Agren 1997). This strategy has remained essentially unaltered since the organization was founded in 1982. In the North American context, such a strategy would likely be considered radical enough to be part of a "scare" strategy bent on reframing the assessment process—in fact Greenpeace and other deep ecologist groups in the North America suggested comparable targets for emissions reductions and were seen to be on the extreme edge of the debate. In Europe—at least in the northern part—such high targets are seen to be less radical and are therefore part of an active "tag-along" non-state actor strategy which envisages longer-term change through gradual consensus building, improvements in efficiency, etc. Does such variance suggest the crucial importance of different cultural settings—northern Europe being "greener" as a society? In any event, the SARS appears to have met with success in influencing the framing and shaping of the European assessment process in a way not unlike that of the CCAR in North America although across an even longer period.

GLOBAL CLIMATE CHANGE AND TRADABLE EMISSIONS PERMITS

Background

Since the United Nations Framework Convention on Climate Change (UNFCCC) was signed (1992) and entered into force (1994), various alternatives have been discussed to reduce greenhouse gas (GHG) emissions as part of the broader, ongoing assessment process. Intense and divisive negotiations have taken place over the last few years in many fora, finally leading to an agreement in the form of the Kyoto Protocol, signed at the Third Convention of the Parties (COP 3) in Japan in December 1997. This Protocol, if ratified, would require most of the world's

industrialized countries (so-called Annex 1) to mitigate climate change through quantified emission limitation and reduction objectives during a commitment period from 2008-2012.[9] The Kyoto Protocol explicitly includes tradable permits as one means of meeting commitments (Articles 3, 6 and 16bis) and this issue was one of the most actively discussed at COP 3. The idea of creating a GHG emissions trading (GET) regime has been around for some years, but it has recently become a favored mitigation strategy in many policy and academic circles for climate change.[10] Undoubtedly, one important factor in this change was the Clinton Administration's favorable pronouncements—even insistence—on tradable permits in the Protocol, which appears to have encouraged some supporters. As preparations are made for the 4th Conference of the Parties (COP 4), to be held in Buenos Aires in November 1998, issues relating to GET will continue to be actively discussed among various actors.

Viewing assessment as a dynamic, iterative process it is not hard to conceptualize a temporal flow between the earliest stage of pre-salience in the climate change debate (pre-Villach) and the more advanced, current stage of emergent-salience (post-Kyoto). The broad sweep of climate change assessment is at a critical stage in its evolution: a discernible physical scientific frame has clearly emerged from the IPCC and other work but remains, for the moment, semi-pliable to external influences from various actors. The emergent-salient phase still appears to be nascent. One reason for this is perhaps due to the characteristics: an issue of the global commons as opposed to one of a transboundary nature, such as acid rain, where there is directionality in the perceived harmful effects. Moreover, due to the nature of climate change as a global commons issue, an immense range of moral issues is raised—providing further issues to divide the range of opinion. For example, in the case of a market-driven GET scheme designed to stabilize the atmosphere at 500 ppm we are faced with the inevitable question of selecting the "right" allocation of annual income amounting to approximately one trillion dollars per year (Wigley *et al.* 1996). As Edmonds (1998: 130) points out, there is no "right" allocation, even among researchers, and certainly not among the multitude of stakeholders. On what grounds should we make a choice between basing a decision on cumulative historic emissions? equal per capita allowances? current emissions? a combination of these? or some other formula? Sound arguments can be found to support most, if not all, positions. How can we determine which is best?

The number and type of stakeholders involved in the assessment process relating to climate change has continued to grow. As of early 1998, the UNFCCC had been ratified by more than 170 nations, representing most of the world's governments. At COP 3, an estimated 1000 representatives from business and industry attended, matched by roughly the same numbers from environmental groups. This meeting included a range of actors: from the largest CO_2-producing governments to multinational corporations and international environmental organizations, through to tiny, locally based lobbying groups. In general terms, the opinions of these groups cover the entire spectrum of actor structures (organizations, coalitions, governmental agencies, scientists, etc.) and base strategies (guild, tag-along, post-hoc and scare) with regard to the assessment process as it relates to the GET debate.

Since the assessment process, both as it relates to the GET debate and other aspects, remains in a quite early emergent-salient phase, it is more difficult to clearly distinguish strategies—and more difficult to sense consequences—amongst the non-state actors which are examined

below. The broad findings presented below (summarized in Table 2) are therefore of a more tentative nature than those presented in the section on acid rain.

In assessing the best option for responding to Kyoto, the views of non-state actors—at least those willing to engage the issue—fall into three broad categories. First, *supporters* include those groups who are generally favorable to the idea, although not necessarily preferring it over other options (e.g. carbon taxes, altering subsidies, etc.). An example, of this group would be the insurance industry, which may be less concerned with the mitigation or other mechanism than with the end result. Therefore, actors in this category could easily be convinced to agree to a GET regime. These actors are likely to prefer relatively passive "tag-along" strategies which allow them to remain within the general assessment process while more clearly defining their own position. This group is more likely to be the subject rather than the object of influence in this process.

Second, *promoters* are active in leading the GET idea; a stance which may be based on economic arguments, organizational history, or an assessment of the most workable solution. As an example, EDF has long been a promoter of market-based environmental solutions, including emissions trading for SO_2 in the USA. Although EDF is a US-based group, its influence is international (and the USA is the largest gross emitter of CO_2). Such actors are likely to prefer proactive "tag-along" and/or "post-hoc" strategies which allow them to maximize potential influence on the assessment process while further cementing their own position. This group is more likely to be the object rather than the subject of influence in this process.

Finally, *opponents* include those groups actively working against the GET idea due to the belief that it is not addressing the issue in the right way (some environmentalists), is unnecessary and costly (some business and industry groups), is inefficient (some economists) or could make developing countries dependent (some developing country groups and environmentalists). To give two examples of this group, the Global Climate Coalition (GCC) has long been one of the most active and vocal opponents of all mitigation mechanisms, including GET. In the USA, the GCC-related Global Climate Information Project[11] spent approximately $13 million on anti-mitigation advertisements in the three months prior to the Kyoto meeting in December 1997. As an unlikely ally on this score, Greenpeace International—among the deepest green of the mainstream environmentalist groups—adamantly pursues its own ambitious climate change policy agenda, but opposes the idea of a GET regime as grossly inefficient. This is an important group to watch if broader agreement on a GET begins to fall into place. Although it is unlikely that the GCC or Greenpeace would alter its basic stance on the issue, members and associated funders can change and weaken coalitions or other groupings. In the case of the GCC, several members have broken on precisely this issue (BP, Shell and the companies representing BCSEF). Equally, Greenpeace International is not always invited to participate in environmental coalitions and, even if they were, would likely not wish to sign some joint NGO statements such as one sent by a group endorsing the Clinton Administration's Kyoto strategy. Such actors are likely to prefer active "scare" and/or "post-hoc" strategies that seek to reframe the general assessment process while attracting allies to their own position. In the shorter term, members of this group are unlikely to have much influence on the assessment process but cannot be counted out over the longer term. Failure to adapt to an increasing consensus away from their position is likely to lead to marginalization, a prospect a number of these groups are now facing.

The Global Climate Coalition

Since its creation in 1989, the GCG has been a leading critic of climate change, and one of the most influential, as it represents a number of important groups from U.S. electric utilities, railroads, transportation, manufacturing, mining, oil, and coal sectors (see Table 5). Traditionally the GCC has denied that global warming is a real issue and attacked the science of climate change as having no credibility. Even recent documents maintain that "existing scientific evidence does not support actions aimed solely at reducing or stabilizing greenhouse gas emissions" (1997b). This strategy seems to have produced mixed results. On the one hand, the CCG has been able to attract some prominent physical scientists who are card-carrying "guild" members and produce "post-hoc" assessments and critiques that carry weight in many circles. On the other hand, the GCC as a whole is totally unable to present itself as a credible scientific organization on par with the likes of the IPPC and has thus failed to produce convincing scientific arguments as a whole. Perhaps partly as a result of this failing, the GCG's position increasingly is tempered with claims such as "[the GCC] does support actions to reduce greenhouse gas emissions or to increase greenhouse gas sinks that are justified for other economic or environmental reasons". Regardless of the details, the general position is essentially "business as usual" or "scare" and shows some signs of shifting it attack on economic costs rather than flawed science. Responding to the US Government's pre-Kyoto position, the GCG (1997b) declared that: "The only new markets that will be created by additional government regulation will be markets of inefficiency; companies straining under ill-conceived political targets that have no connection to real need or sustainable environmental progress. This will not bring about the most cost-effective policies, and it certainly will not help American workers whose jobs are at stake in Kyoto." This view is also echoed by groups such as the American Petroleum Institute (API).

Since the signing of the Kyoto Protocol, the GCC shows no signs of altering its position and calls the Protocol "fatally flawed" because it "It transfers power to UN bureaucrats who could control U.S. economic and foreign policy and limit our economic growth, with little if any environmental gain" (1998). Industry organized its own conference at Kyoto entitled the "International Conference on Voluntary Business Initiatives for Mitigating Climate Change", which was sponsored by the Federation of Economic Organizations, a group of 60 Japanese companies. The importance of "independent action" was stressed as more effective than general regulations.

Most recently, shifts in positions have taken place as some groups and companies accept the scientific consensus on global warming and the political commitment to take some form of action on it. Some groups see the writing on the wall (i.e. some form of mitigation mechanism) while others view this change as an opportunity to gain a competitive advantage through ecoefficiency. Others, of course, remain ardently opposed to any action. Evidence of divergence on positions within coalitions and multinationals has become increasingly evident. The most graphic example is the split between European and American oil companies. BP, Shell and other European-based companies have altered their position to one which generally favors a GET regime and the "precautionary principle", while their sub-divisions in the USA remain opposed to the idea. For example, BP left the GCC in 1996 due to the latter's strident opposition to the whole climate issue. Another example concerns the Business Council for a Sustainable Energy Future (BCSEF), a lobbying group (since 1994) representing companies which stand to gain by a

movement away from fossil fuels, but which also includes a number of former members of the anti-mitigation GCC. As discussions on the implementation of a GET regime progress, more splits are likely to emerge and some of these actors will likely, or are already in the process of, adopting active "tag-along" strategies.

The Environmental Defense Fund

As discussed earlier, EDF is a relatively small but influential, USA-based organization, representing some 300,000 members. EDF has long been a key player in the American domestic debate over policy design for acid rain and smog issues, particularly on the issue of emissions trading. In trying to promote the adaptation of policies and instruments which have been successful in the USA, EDF released *More Clean Air for the Buck: Lessons from the Acid Rain Emissions Trading Program* (1997). According to this report:

> The market-based acid rain program has achieved dramatic and measurable clean-up faster and at a far lower cost than previous environmental programs... With governments meeting in December in Kyoto, Japan to strengthen the UN Framework Convention on Climate Change, this report demonstrates how a cap-and-trade system can help both our country and the rest of the world meet their greenhouse gas reduction targets, perhaps even ahead of schedule, at the lowest cost possible. Cap-and-trade programs reward industries that achieve early reductions with emissions credits which can be saved or sold. These incentives for companies to lower emissions quickly spur technologies and efficiencies that will strengthen the US economy while simultaneously improving our environment.

Although many people are skeptical as to the transferability of the lessons from SO_2 trading to climate change, EDF has nevertheless emerged as the leading promoter (at least among environmental groups) for the basic idea. In a letter signed by 17 leading American environmental groups,[12] EDF called for "an agreement in Kyoto that commits industrialized countries to reduce greenhouse gas emissions well below 1990 levels, starting no later than 2005, with no escape clauses" (EDF 1997d). EDF has based its strategies on an active "tag-along" (which still allows for leadership within the broader context) and occasional "post-hoc" evaluation of policy options (e.g., a response to the specifics of the Kyoto Protocol). As compliance and rules for trading are fleshed out in more detail, EDF is likely to play an increasingly important role in the debate, possibly influencing traditional partners such as the NRDC (which was influenced during in the 2nd phase of the acid rain assessment process) and less traditional ones such as BP.

Greenpeace International

Greenpeace International is the largest and most active green activist group with a long history of serious and credible involvement on a range of climate change issues. It has traditionally relied on "scare" strategies to make its point and has occasionally produced full-fledged "ad-hoc" counter-assessments in response to other assessments (e.g., Leggett 1992). Currently Greenpeace is campaigning to promote a range of technological solutions to combat climate change and transform the way society uses energy. In this way, it claims to promote technologies that have been ignored or suppressed, either through a lack of knowledge, or political and corporate self-interest. It has generally been opposed to the idea of emissions trading as a grossly inadequate

means to deal with the problem—and an inequitable one at that. Greenpeace is concerned that far too little has been done and states (1997), for example, that they "are not yet convinced that the US is prepared to negotiate a treaty which would mark the beginning to the end of fossil fuels and a shift to solar and renewable energy in order to avert dangerous climate change." Since Kyoto (1998), Greenpeace has stuck to its original position and added its disappointment: "We needed a commitment to reduce CO_2 emissions by at least 20% from 1990 levels by 2005. What we got instead was an abject failure. There is virtually no incentive to replace oil and coal with clean energy solutions." In the coming months, Greenpeace faces the difficult task of tackling the GET issue more directly—as much as they might like to avoid it altogether. Since they cannot support such a measure without going against some of the basic pillars of their world-view, they are unlikely to do so and will likely be marginalized in the GET debate in a way not dissimilar to the GCC.

Friends of the Earth

Similar to Greenpeace, Friends of the Earth (FoE) International (1997) has sought a 20% reduction of CO_2 emissions over 1990 levels by 2005 for Annex 1 countries as a first step towards the stabilization of atmospheric concentrations. It also relies on similar, although milder, "scare" and even "post-hoc" assessment strategies. For example, in November 1997, FoE released a report entitled *Cool It!* focusing on subsidies and tax loopholes which are believed to accelerate global warming. They have suggested that the resulting savings should be used to promote energy alternatives and economic solutions and called for an effective compliance and monitoring scheme. At Kyoto, FoE criticized those business groups it saw as undermining the UNFCCC—this "Dirty Dozen" included the GCC and Exxon at the top of the list. After Kyoto, FoE (1998) declared that: "No one expected the Kyoto climate summit to achieve miracles but the outcome confirmed our worst fears, namely that governments (especially the US) continue to pander to industry at the expense of the environment". FoE will face difficulties similar to Greenpeace as the GET debate evolves, but it is probably more likely to eventually become at least a reluctant supporter.

WWF International

WWF International, one of the world's largest environmental organizations, had a straight-forward pre-Kyoto position (WWF 1997): "In order to stop climate change, the worldwide emission of CO_2 has to be reduced by 50% by the year 2050; the rich countries even have to reduce their emission by 80%. This can be achieved, even with a continuing economic growth of 2% per year by choosing for energy efficiency and renewables. These are the keys to solve the problem of CO_2 emission and climate change". After Kyoto, the organization reluctantly acknowledged that the "protocol was a first step from which there is no going back", adding that "WWF believes it is an important first step towards reversing the growing threat global climate change poses to wildlife and nature. However, the treaty contains several significant loopholes that may allow countries to do very little"(1998). WWF is clearly facing a crossroads in its policy and will soon have to take a clear position on GET. Since WWF has a tradition of working with market mechanisms, a shift toward support is possible.

The International Chamber of Commerce

The International Chamber of Commerce represents over 7500 businesses and associations in 130 countries around the world and has followed and participated in the UNFCCC since the

beginning. Prior to Kyoto (where the it was represented by more than one hundred persons), the ICC summarized its views as follows: "COP 3 should recognize voluntary actions as an effective policy option for implementing the goals set out in Kyoto. Voluntary measures reduce emissions; encourage ingenuity, technology and private sector financing; offer flexibility; and are therefore often a tool of choice among government and industry representatives working towards a balanced climate policy objective" adding that "The UNFCCC should undertake further analysis of innovative market-based instruments, such as joint implementation and emissions trading." (ICC 1997b). Although the American Chamber of Commerce remains an active supporter of the GCC, the ICC appears open to the idea of a GET regime. A number of similar groups such as the BCSEF and the International Co-generation Alliance (ICA) also hold similar views to the ICC, although they are even more explicit in their support of emissions trading schemes. In Kyoto, these three groups made a joint statement proposing that the UNFCCC "enact Joint Implementation only for energy-related projects and use emissions trading only between Parties with commitments". These actors may well develop increasingly active "tag-along" strategies and provide a significant push to further secure a dominant frame in the currently "emergent-salient" phase of the broad process of assessment.

Union of Concerned Scientists / 2000 Economists

In 1997, the Union of Concerned Scientists (UCS) initiated the "World Scientists' Call for Action at the Kyoto Climate Summit". This statement urges all government leaders to "act immediately to prevent the potentially devastating consequences of human-induced global warming and demonstrate a new commitment to protecting the global environment". It was signed by more than 1500 scientists, including 99 of 171 living Nobel Prize winners. Presenting a contrarian view, the Advancement of Sound Science Coalition (TASSC) and the European Science and Environment Forum (ESEF) announced that more than 500 physicians and scientists had signed an open letter to world leaders opposing the climate change treaty now being negotiated in Kyoto, Japan. In February 1997, over 2000 economists, including six Nobel Laureates, signed a brief statement supporting steps toward climate change mitigation using market-based approaches (Krugman 1997). All of these actions represent important "guild" strategies and highlight the continuing volatility of the general debate.

British Petroleum

BP (1997) has stated that it seeks solutions to the climate change challenge in four areas: conservation, new energy technologies, joint implementation and international processes. This includes being an active participant in the climate change policy debate, an investigation of innovative solutions such as tradable permit schemes and a contribution to the design of new international institutions and processes. As noted earlier, this stance highlights a progressive view away from the anti-mitigation views held by groups such as the GCC. Since Kyoto, BP CEO John Browne has pledged to voluntarily limit its emissions of GHG and adopt a "flexible" approach, including emissions-trading programs, accelerated technology development and joint projects with developing nations to reduce emissions. Significantly, BP has formed an agreement with the American-based environmental group, EDF, to develop emissions-trading schemes within different divisions of the company. In addition, BP America has recently embraced the UNFCCC's ideas for joint implementation (Percy 1998). Shell has taken a similar stance on

climate change and GET and it also showing movement toward becoming a powerful advocate active in "tag-along" strategies, although Shell USA remains a member of the GCC (Rank 1998).

Other Groups

Consumer interest groups have come to the climate debate later than many other actors, but are now increasingly active. They appear almost exclusively in the USA and as opponents of any mitigation mechanisms. One example is the Cooler Heads Coalition (CHC), which was formed in 1997 "to dispel the myths of global warming by exposing flawed economic, scientific, and risk analysis". The CHC is one of three sub-group of the National Consumer Coalition and consists of a coalition of "market-oriented national and state-level policy and activist groups" which represent over 2,000,000 individuals through 24 groups. The CHC strongly denounced the Clinton Administration's proposal for Kyoto (NCC 1997) and has since attacked the Kyoto Protocol (NCC 1998). Other consumer groups appear to hold similar views. The Coalition for Vehicle Choice (CVC) "wants to help cut through the rhetoric, to help consumers and policy-makers learn the facts about climate policy—including the scientific and policy debates, the effects on the economy and consumers." CVC represents more than 40,000 automotive, construction, farm, safety and small business organizations and individuals working to preserve Americans' access to safe and affordable cars and light trucks. The strategies adopted by consumer groups will be an interesting area to watch.

Environmental groups might be the most active and committed players in the climate change / GET debate—although business is not as far off as one might think. Hundreds, perhaps thousands, of environmental groups are active on climate change and it is impossible to effectively trace them all, partly because of the grass-roots nature of many of them. For example, some 170 Japanese groups participated in Kyoto. The most influential ones—many having research and lobbying resources which rival those of small countries—have been considered in this paper, but it is hard to estimate the global cumulative effect of the whole green movement on mentalities and assessment processes, and ultimately, the evolution of positions. One example of such possible influence, is found in the position of the intergovernmental organization, the Association of Small Island States (AOSIS), which seems to have jointly developed the requirements of its alternative protocol (20% reductions of emissions by 2005) with environmental groups.

Although the issue of development has not been dealt with in this paper, it is highly relevant to the actions of many non-state actors in various parts of the world, not just in developing countries. For example, the globally influential World Council of Churches (WCC), a long-time observer and activist on climate, addressed the conference in Kyoto (WWC 1997), regretting the failure of the developed world to fulfill the promises made it in 1992, and called for solidarity among rich and poor alike. Groups and opinions from non-state actors in the developing world have suffered at the hand of the high costs related to attending meetings, producing reports and even accessing information (e.g., through the Internet). Kyoto was a graphic example of high costs preventing some groups with minimum funding from directly voicing their opinion. Many environmental groups (not just in the developing world) are very sympathetic to these problems of participation, as they are with equity, poverty and the right to development. Nevertheless, these issues often given too little attention, given their centrality amongst much of the world's population. Groups like the African-based organization, *Environnement et développement du Tiers-Monde* (ENDA) is working to underline these concerns in the climate debate. To this end, ENDA feels that the UNFCCC process has failed to sufficiently integrate and account for

developing country perspectives in such crucial areas as JI (Thomas 1997). One coalition-based view that has emerged among developing country environment groups, argues for a fair approach to rationing remaining "space" for CO_2 emissions based on a population formula. Anil Agarwal, who is with the Center for Science and Environment (CSE) in India and an important supporter of this idea, also supports JI in so far as it spurs international cooperation and that the meaning of "cooperation" is defined equally by the developing countries (Agarwal and Narain 1998).

COMPARING AND EVALUATING THE CASES

Assessment strategies

Summaries for a variety of strategies, cross-tabbed with timing, structure and consequences are presented for both acid rain and climate change (Tables 1 & 2). Although these two cases have some fundamental differences (e.g., different spatial scales) there is a discernible continuity in the actor dynamics and a number of general observations can be made here.

A tradition of employing science for "scare" and "post-hoc" strategies is clearly evident in both cases among actors—of widely varying ideological or cultural persuasions and structures—who find themselves in strident opposition to the composition of a frame which is by carried forward by the assessment process (most notably in emergent-salient phase).

"Guild"-based strategies are particularly suited and powerful in the pre-salient phase, but become outmoded to the process as it evolves through later phases. Acid rain, now with at least one foot in the "post-salient" phase offers less opportunity for purely epistemic influence while the climate change process would seem to still be open to such influence but may be moving beyond it.

"Tag-along"-based strategies offer a range of speeds and directions of influence. Active forms can potentially influence general processes, while more passive forms may be prone to assimilate influence. Both cases suggest a variety of forms and examples.

Tentative conclusions

The structure of an actor is largely important in the form and level of influence it is likely to exert on assessment processes. Non-state actors consisting of diversified and broad interests (e.g., in the form of a coalition) are likely to be more effective due to their ability to bring both cognitive and moral weight behind their positions combined with comparatively greater levels of legitimacy and credibility.

Timing is essential to effective strategizing. Some strategies are shown to be more or less effective depending upon in which phase they are employed.

Consequences resultant from influence on the assessment process, or lack thereof, may be characterized in terms of framing, shaping and packaging.

Although not investigated in detail here, "cultural setting", appears to be an important factor in determining the parameters of the three dimensions above, drawing attention to crucial, although probably often misinterpreted, differences across cultural or national boundaries.

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George Rejhon, Former Environment Counselor, Canadian Embassy, Washington DC.
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Allan Gotlieb, Former Canadian Ambassador, Washington DC
March 16, 1998

Christer Agren, Swedish Acid Rain Secretariat
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Archives

Canadian Coalition on Acid rain Archives, University of Waterloo

TABLES

Acid Rain Assessment-- Targets for emission reduction

Actor / Grouping	*Timing*	*Structure*	*Strategies*——————>		*Consequences*
NRDC	phases 2	org.	tag-along/ post-hoc	lobbying: legal action and proposals	shaping/packaging
EDF	phases 2,3	org.	tag-along/ post-hoc	lobbying: evalutions and proposals	shaping/packaging
Greenpeace	phase 2	org.	scare	protests: news headlines	framing (apparent failure)
CCAR	phase 2	coalition (f)	tag-along	lobbying: influence targeted actors	framing/shaping
NCAC	phase 2	coalition (f)	tag-along	lobbying: legal pressure on Gov.	shaping/packaging
SARS	phases 2, 3	coalition (i)	tag-along	lobbying: sustained pressure	framing/shaping
CSCAR	phase 2	coalition (f)	scare	information: refocus the debate	framing (apparent failure)

Key: *Timing-Phases: (1)= pre-salient, (2)= emergent-salient, (3)= post-salient*
Structure: (f)= formal, (i)= informal
Strategies: see page 4

Table 1: Acid Rain Assessment Dynamics

Global Climate Change Assessment-- Emerging Strategies for Tradable Permits

Actor / Grouping	*Timing*	*Structure*	*Strategies*——————>		*Consequences*
IPCC	phases 1, 2	intgov. org.	guild	science: formal reports	framing
UCS	phase 2	org.	guild	science: information	framing
Economists	phase 2	coalition (i)	guild	science (?): policy advice	packaging
Greenpeace	phase 2	org.	scare / post-hoc	protests/science: contestation	framing (failure?)
EDF	phases 1? 2	coalition (i)	tag-along / post-hoc	lobbying/science:	framing? shaping, packaging
ENDA TM	phase 2	coalition (f)	tag-along / post-hoc	participation: alternate view	shaping?
BCSEF	phase 2	coalition (f)	tag-along	lobbying: participation	shaping
GCC	phase 2	coalition (f)	scare / post-hoc	protests/science: contestation	framing (failure?)
CHC	phase 2	coalition (f)	scare	lobbying: find allies	framing (failure?)
FOE	phase 2	org.	tag-along / post-hoc	lobbying: participation	shaping?

Table 2: Global Climate Change Assessment Dynamics

Canadian Coalition on Acid Rain (Member Groups, as of 01/01/1989)

Accommodation Motel Ontario Association
Allied Boating Association of Canada
Amalgamated Clothing and Textile Workers Union
Anglican Church of Canada
Animal Protection Institute
Association Quebeçoise de Lutte Contre les Pluies Acides
Association Quebeçoise de Techniques de l'Eau
Atlantic Salmon Federation
Canadian Auto Workers
Canadian Federation of Agriculture
Canadian Fishing Tackle Industry
Canadian Lung Association
Canadian National Sportmen's Shows
Canadian Nature Federation
Canadian Paperworkers Union
Canadian Parks and Wilderness Society
Canadian Sport Fishing Institute
Canadian Sporting Goods Association
Canoe Ontario
Conservation Council of Ontario
Federation of Ontario Cottagers' Associations
Federation of Ontario Naturalists
Heritage Canada
International Maple Syrup Institute
Inuit Tapirisat of Canada
Lake of Bays Assocation
Movement Against Acid Rain
Muskies Canada Inc.
Muskoka Lakes Association
National Union of Provincial Government Employees
Natural History Society of P.E.I.
New Brunswick Federation of Woodlot Owners Inc.
Northern Ontario Tourist Outfitters Association
Ontario Federation of Agriculture
Ontario Federation of Labour
Ontario Forestry Association
Ontario Log Builders Association
Ontario Lung Association
Ontario Maple Syrup Producers Association
Ontario Private Campground Association
Pollution Probe
Public Service Alliance of Canada
Sierra Club of Ontario
Société Pour Vaincre la Pollution
Society Promoting Environmental Conservation
Society to Overcome Pollution (S.T.O.P.)
Student Centre for Public Issues
Temagami Lakes Association
Toronto Sportsmen's Association
Tourism Industry Association of Canada
Tourism Ontario
Union of Ontario Indians
Union Quebeçoise pour la Conservation de la Nature
United Church of Canada
Waterloo Public Interest Research Group
Watson Lake Trust
West Coast Environmental Law Association
Wildlands League

Table 3: The Canadian Coalition on Acid Rain

National Clean Air Coalition (Member Groups)

Amalgamated Clothing and Textile Workers
Americans for Democratic Action
American Lung Association
Asthma and Allergy Foundation of America
Center for Auto Safety
Citizens for a Better Environment
Environmental Action
Environmental Defense Fund
Environmentalists for Full Employment
Friends of the Earth
Garden Club of America
Int'l Association of Machinists and Aerospace Workers
Izaak Walton League of America
League of American Wheelmen
League of Women Voters of the United States
National Association of Railway Passengers
National Audubon Society
National Consumers League
National Farmers Union
National Parks and Conservation Association
National Urban League
National Wildlife Federation
National Resources Defense Council
Oil, Chemical and Atomic Workers International Union
Union of American Hebrew Congregations
United Methodist Church—Board of Church and Society
U.S. Public Interest Research Group
United Steelworkers of America
The Wilderness Society
Western Organization of Resource Councils

Table 4: The National Clean Air Coalition

Global Climate Coalition (membership)

Coal:
BHP Minerals, Western Fuels Assn, Atlantic Richfield Coal Co., National Mining Assn.

Oil:
6 of the "seven sister" international oil companies (Chevron, Exxon, Mobil, Texaco, Amoco, Shell plus the American Petroleum Institute, which includes BP as well)

Gas:
Process Gas Consumers

Utilities:
Allegheny Power, American Electric Power Service Corp, Duke Power Co, Edison Electric Institute, Illinois Power Co, TECO Energy, Southern Company, Union Electric Co, Northern Indiana Public Service Co, Ohio Edison, National Rural Electric Coop Assn

Cars:
American Automobile Manufacturers Assn, Chrysler, Ford, General Motors, Assoc of International Automobile Manufacturers, Goodyear Tire & Rubber Co.

Other transport:
Air Transport Assn, Assn of American Railroads, American Commercial Barge Line Co, CSX Transportation Inc, Burlington Northern Railroad, CONRAIL

Primary industry:
associations which cover aluminium, forest and paper, iron and steel, mining, and lime

Chemical industry:
Chemical Manufacturer Assn, Dow Chemical, Union Carbide, Eastman Chemical, Hoeschst Celanese Chemical Grp, Kaiser Aluminium & Chem Corp

Other industries:
Society of Plastics, National Manufacturers Assn, Council of Industrial Boiler Owners, Greencool, Drummond Co, Norfolk Southern, ELCON and Cinergy

US Chamber of Commerce

Table 5: The Global Climate Coalition

ENDNOTES

[1] Acidifying deposition or acid rain is caused primarily by emissions of sulfur dioxide (SO_2) and nitrogen oxides (NO_x), which, when released into the atmosphere, may be carried long distances by prevailing winds and deposited by rain, snow, fog or dust. Extensive damage occurs when the environment cannot neutralize the excess acid. The negative effects are broad, damaging not only aquatic life in lakes and streams, soil water, forests, waterfowl, buildings, and monuments, but also possibly causing respiratory problems in humans. The principal sources of SO_2 have been identified as coal-fired power generating stations and non-ferrous ore smelters, while the main suppliers of NO_x are from motor vehicle and fuel combustion emissions. Over 90 percent of these emissions are from anthropogenic sources. The problem has ostensibly been addressed in North America and Europe, but is only now starting to emerge as an issue in China and some other newly industrialized countries.

[2] Air Quality Accord, 1991. US commitments. SO_2: 10 million tons below 1980 levels by the year 2000. NO_x: 2 million tons below 1980 levels by 2000. Canadian commitments. SO_2: 2.3 million tons per year by 1994 with a cap at 2.3 million tons from 1995-99. NO_x: interim requirement of 100,000 tons below 2000 forecast of 970,000 tons.

[3] The 1991 Accord does include a dispute resolution mechanism, but does not constitute a legally binding instrument.

[4] This correspondence and related material may be found in the "Acid Rain Archives" at the University of Waterloo, Canada and was extensively consulted by the author.

[5] In EDF's own words: "through atmospheric scientist Dr. Michael Oppenheimer, EDF has become the scientific resource on acid rain for the environmental community. Oppenheimer developed a "climatological model" for acid rain with which he answered some key unknowns that have blocked Congressional action. He showed that reducing utility SO2 emissions would effectively reduce acid rain, and confirmed the importance of long-range transport of Midwestern pollutants to the Northeast". EDF Annual Report, 1982.

[6] Sponsors include the American Cyanamid Co., Consolidation Coal Co., Indianapolis Power and Light Co., Jersey Central Power and Light Co., Metropolitan Edison Co., Ohio Edison Co., Pennsylvania Electric Co., Peabody Holding Co., Southern Co. and the Services Union Electric Co.

[7] Two such groups recently created to continue the same lobbying tactics against the EPA are the Foundation for Clean Air Progress and the Air Quality Standards Coalition.

[8] Funding sources include: 3M, Amoco, Chevron, Dow Chemical, Exxon, General Motors, Lawrence Livermore National Laboratory, Lorillard Tobacco, Louisiana Chemical Association, National Pest Control Association, Occidental Petroleum, Philip Morris, Procter & Gamble, Santa Fe Pacific, Gold Corp, and W.R. Grace & Co.

[9] In order to reach an approximate 5.2% aggregate GHG emissions reduction to 1990 levels, Annex 1 Parties have negotiated a differentiated set of objectives, which includes national policies and measures. A "comprehensive approach" has been adopted, including all crucial GHGs not covered under the Montreal Protocol. Cuts in the three most important gases–carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O)–will be measured against a base year of 1990 (with some exceptions). Cuts in three long-lived industrial gases–hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6)–can be measured against either a 1990 or 1995 baseline.

[10] On the other hand, preference for a GET regime over a number of alternatives (e.g., taxes, voluntary measures, regulatory measures, education, etc.) remains debatable (Baranzini and Hamwey 1998) in terms of effectiveness and acceptability. Therefore, although our focus here is on tradable permits, we are reminded that this is just one mitigation mechanism among many and that preferences could yet change.

[11] The Main sponsors included the American Automobile Manufacturers Association, the American Iron and Steel Institute and the American Trucking Associations.

[12] The following organizations signed the letter to President Clinton: American Oceans Campaign, Defenders of Wildlife, Environmental Defense Fund , Environmental Information Center, Friends of the Earth, Izaak Walton League, League of Conservation Voters, National Parks and Conservation Association, National Wildlife Federation, Natural Resources Defense Council, Physicians for Social Responsibility, Population Action International, Rails to Trails Conservancy, Sierra Club, Union of Concerned Scientists, United States Public Interest Research Group, The Wilderness Society.

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