

Session 1: Introduction

Session Chair: Dr. Jill Jaeger, International Human Dimensions Programme On Global Environmental Change (IHDP)

Presenters: Dr. Oran Young, Chairman, Institutional Dimensions of Global Environmental Change, Dartmouth College
Granville Sewell, Massachusetts Institute of Technology

An Introduction to the IDGEC and the CMRA

Dr. Oran Young
Chairman

Institutional Dimensions of Global Environmental Change
Dartmouth College

My role here is to provide a very brief overview of the Institutional Dimensions of Global Environmental Change project as a context for this workshop and to tell you a little about the IDGEC flagship research activities, of which the Carbon Management Research Activity is one. I will talk about three questions:

- What is the IDGEC?
- What are IDGEC Flagship Activities?
- What are the goals of this meeting?

Others who follow me will then focus more specifically on introducing the Carbon Management Research Activity.

The IDGEC

The IDGEC is a long-term, large scale, international research project that is operating under the auspices of the International Human Dimensions Program (IHDP). Figure 1 provides some sense of the broad perspective of this project. The IDGEC is focused on the role of institutions both in causing large-scale environmental problems and as responses or partial solutions to large-scale environmental problems. We are concerned with the ways in which institutions create incentives or influence behavior that may be problematic from an environmental point of view. This includes, for example, "the tragedy of the commons," where externalities arise from private property systems. It then looks at institutional responses to these problems. Much of what we will be talking about today and tomorrow will be on the institutional response side of the picture in the sense that we are looking at international regimes or international institutional arrangements and how they get implemented not only at the international level but domestically in a number of countries to determine whether they are able to move us towards the objectives of the regime, in this case controlling or regulating emissions of greenhouse gases.

The IDGEC as a whole has what we would call a crosscutting perspective. Instead of being a project that focuses only on climate change, for example, it is a project that focuses on the institutional dimensions of a variety of different kinds of large-scale environmental problems. As such, it has a number of research foci. As shown in Figure 2, these include:

- What roles do institutions in causing and confronting global environmental changes?
- Why are some responses to global environmental changes more successful than others?
- What are the prospects for designing or redesigning institutions to confront global environmental changes?

This translates into what we call the hierarchy of research foci shown in Figure 3. These are, in a sense, our fundamental science questions. They include the problems of causality,

performance and design. We want to know how much of the variance in biophysical systems, are attributable to the influence and impact of institutions. Why are some institutional responses to environmental problems more successful than others? How can we structure institutions to be more successful? These are the basic science questions of the entire project, and we all always asking ourselves, with some prodding from our friends at IHDP, if we are able to provide better answers to these questions, not only with respect to climate change but with respect to large-scale environmental change in general.

IDGEC Flagship Research Activities

To address these research questions, the IDGEC is moving forward with a number of flagship research activities. These are core research projects that would allow us to move toward that goal or objective of better answers to the science questions. The flagship activities can be thought of as research "streams." They are flows of coordinated or collaborative research projects that have a number of defining research characteristics or futures. They are, first of all, directly relevant to the IDGEC science questions. They are designed in such a way as to give us better opportunities to answer the three causality, performance and design questions. They are issue areas that seem to us in our best judgment to be ripe for focused research such that we can push forward in a timely fashion. They are projects that are interesting to leading social scientists, including people who have necessarily been focusing on environmental issues or environmental change in the past but whose main concerns are to increase our generic or general knowledge of institutions. We want to draw in these people to focus some of their attention on these environmental questions. But at the same time they are issues that are likely to lead to results that are policy-relevant. We want to be able to contribute significantly to the kinds of concerns that Mr. Hamanaka and his colleagues are wrestling with in the context of the COP process. They are also issues that are of interest to several members of the IDGEC Scientific Steering Committee.

Based on these criteria, we have in the project, at this stage, three distinct flagship activities. The Carbon Management Research Activity is one of them. Along with the Carbon Management we have a project called the Performance of Exclusive Economic Zones that is looking at issues of ocean and marine governance. The third flagship activity deals with the political economy of boreal and tropical forests. In this project we are trying to understand the institutional forces at work and shaping outcomes with respect to forest management and issues of biodiversity and so on. We may at some stage have additional flagship activities, but this is the basic group of activities at this point.

Goals of the Workshop

The goals of this workshop are to move from paper to practice, to move from a planning process into an active flow or stream of research. This workshop occurs at a very strategic point in the life cycle or the trajectory of the project. We have engaged in a fairly large-scale and lengthy science planning process. We are now ready to drive this project forward into the actual conduct of the research. We see this workshop as an absolutely critical step, and we will judge our success in terms of the degree to which it contributes to making this transition and moving forward into the substance of the research agenda. We believe that it is critical to have the right balance between what we call a common structure and personal niches. In other words, we are looking for a flow of research that is operating within a common structure that will allow us to compare and contrast the results and build cumulative knowledge rather than a collection of loosely-related findings. However, this common structure should at the same time allow individual participants

ample opportunity to use their own creativity and find their place within this common structure.

We also want outcomes that are relevant to what social scientists call the "New Institutionalism," that shed light on the larger institutional questions. We are particularly interested in this context in finding ways to bridge the gap between the natural sciences and the social sciences. We believe that in looking at the institutional dimensions of large-scale environmental change, we need to find ways to bring together collaboratively the natural sciences and the social sciences.

This is a process that I am happy to say now seems to be on a good track. Our relations with our counterparts in the International Geosphere-Biosphere program are improving and our relations with people in the IPCC are strong. But we now need to really make progress in this area. I am delighted that people like Pep Canadell of the IGBP are a part of this workshop, and I am delighted that the Institutions project is very much connected to the cross-cutting theme on carbon that is being developed by the IHDP and the IGBP. We want to contribute to and strengthen these linkages.

Finally, we want to add to the so-called "usable" knowledge that will be seen not just as an academic exercise but knowledge that will be seen as contributing in a very clear and direct way to the world's troubles. We want to make a strong input into understanding, for example, in the case of climate change, the pros and cons and strengths and weaknesses of different kinds of emissions trading systems, different kinds of joint implementation, different kinds of carbon sequestration. I am delighted to be able to say that we have opened up a good dialogue with the FCCC Secretariat to discuss their needs and our research capabilities.

This should give you a little sense of the larger context and the general goals that we are trying to achieve at this meeting. I will now turn over the floor to the next speaker who will bring this set of general goals down to an even more concrete level and tell us about the kind of things that we need to be thinking about in the next few days. Thank you.

Figure 1: Institutions and Their Effects on Global Environmental Change

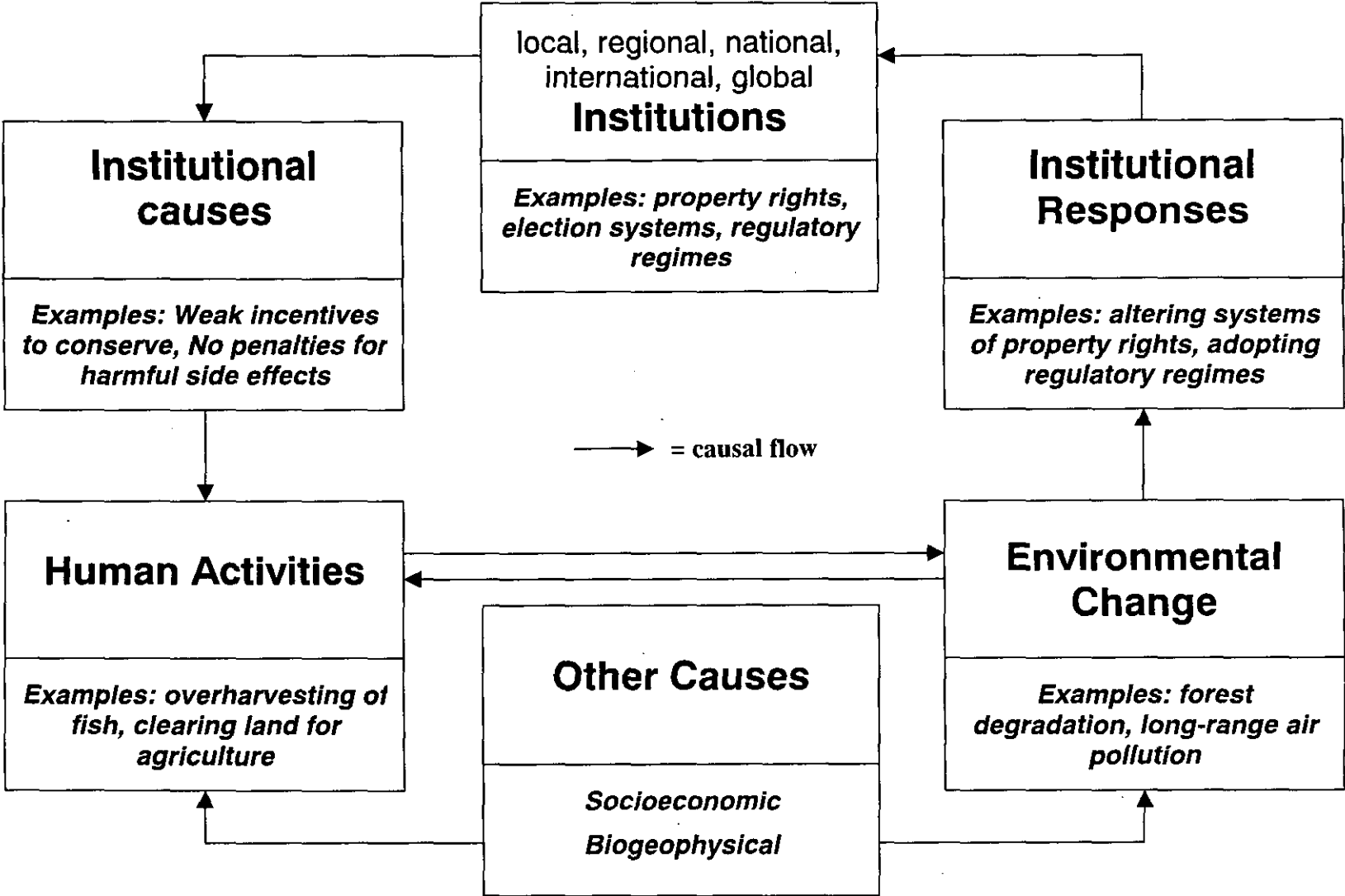


Figure 2. IDGEC Research Foci

Focus 1: What roles do institutions play in causing and confronting global environmental changes?

- 1.1 What is the role of environmental and resource regimes in causing/confronting global environmental changes?
- 1.2 What is the role of other institutions (e.g., trade and investment regimes) in causing/confronting global environmental changes?
- 1.3 What factors determine the resilience of institutions in the face of global environmental changes?

Focus 2: Why are some institutional responses to global environmental changes more successful than others?

- 2.1 Are there common features or elements of (un)successful institutional responses?
- 2.2 What factors threaten the development or the survival of institutional responses?
- 2.3 What unintended consequences do institutional responses produce?

Focus 3: What are the prospects for (re)designing institutions to confront environmental changes?

- 3.1 What are the (dis)advantages of creating new institutions versus reforming existing institutions?
- 3.2 How can we incorporate flexibility, self-correcting procedures and social learning processes in environmental institutions?
- 3.3 What are the relative merits of (1) formal arrangements vs. informal social practices, (2) hard law vs. soft law arrangements, (3) alternative decision rules, and (4) alternative funding mechanisms?
- 3.4 Can we integrate environmental and economic institutions at different stages of societal development?

Source: IDGEC Scientific Planning Committee

Table 3. Hierarchy of IDGEC Research Foci

FOCUS 1 - CAUSALITY

How much of the variance in human/environment relations is attributable to institutions?



FOCUS 2 - PERFORMANCE

Why are some institutional responses to environmental problems more successful than others?



FOCUS 3 - DESIGN

How can we structure institutions to maximize their performance?

Source: IDGEC Scientific Planning Committee

An Overview of the Carbon Management Research Activity

Granville Sewell

Research Fellow

Department of Urban Studies and Planning
Massachusetts Institute of Technology

Thank you. The purpose of my talk today is to give you a brief overview of the IDGEC's Carbon Management Research Activity Scoping Report. In doing so, I will focus primarily on describing the two CMRA research themes and the core questions that will be explored in each theme. I will also talk a little bit about CMRA organization and linkages that will be made with other projects and programs.

The Carbon Management Research Activity (CMRA) is a flagship activity of the International Human Dimensions Program's (IHDP) long-term project on the Institutional Dimensions of Global Environmental Change (IDGEC). The purpose of this activity is to investigate the critical near- and long-term institutional issues associated with controlling greenhouse gas emissions, the cause of global climate change.

As you all know, the international community has embarked on an effort to develop a global regime to address climate change. Two international treaties, the Framework Convention on Climate Change and the Kyoto Protocol, currently form the core of this regime. CMRA research will be directed towards two "themes" important to policymakers and researchers that are associated with this regime. Because the international community is particularly concerned with the nearer-term issues of implementing the FCCC and the Kyoto Protocol, the first CMRA theme explores those institutional issues associated with administering these existing agreements. The second theme focuses on the longer-term issues of learning and adjusting the climate regime to changes in technology, scientific understanding, and global socioeconomic conditions.

Theme 1: Administering the Current Climate Regime

The first substantive area of CMRA is concerned with the nearer-term institutional issues associated with administering the FCCC and the Kyoto Protocol. With the FCCC in force and the Protocol in the process of ratification, both Annex I and developing countries are moving forward with the development and implementation of measures to meet their commitments. For Annex I countries, this includes not only the development of policies to reduce emissions from sources and enhance sinks and reservoirs, but also the development, transfer, and diffusion of environmentally-sound technologies, practices, and processes to developing countries.

Annex I countries can adopt a range of market-based and regulatory policy instruments to meet these commitments. Some are "market"-based in that they use economic forces to change behavior, while others employ the more traditional regulatory approach. The particular mix of these instruments that countries ultimately adopt depends very much on their national circumstances. The degree to which these instruments are effective in mitigating climate change will be a function of mix of the instruments adopted, the design and implementation of the policies themselves, and the institutional framework within which they must operate.

The development and administration of this regime is complicated by the Protocol's call for the development of three interlocking "flexibility" mechanisms. The clean development mechanism (CDM), joint implementation (JI) and emissions trading (ET) will allow Annex I countries to obtain some a portion of their required reductions through collaborative efforts with other countries. The role that the Protocol establishes for private sector in the development and operation of these mechanisms also adds complexity to the regime, as it will require the private and public sectors to interact on an unprecedented scale. The governments remain the responsible parties in the regime, however, and the system through which any emissions trading will occur, while market oriented, will be constrained by domestic and international institutions established by these governments. These constraints include the rules that the international community adopts governing the operation of the Kyoto mechanisms, the rules each country creates to manage the exchange of permits domestically and internationally, and the interactions among these different international and domestic institutions.

To explicate these complexities and their ramifications, the CMRA will explore two related sets of institutional issues. The first of these concerns the international and national implications of the development of the Kyoto mechanisms. As the CDM, JI and ET are developed, institutional questions will need to be addressed concerning both interactions among the operational international rules and interactions between these international rules and concomitant national rules. The development of these mechanisms will also raise institutional issues about the mix of and effectiveness of policy instruments that nations adopt. For example, the Protocol specifies that units of emissions reductions acquired through emissions trading are to be supplemental to domestic action. However, the international community has not yet agreed on a definition of the term 'supplemental', and each of the options being considered could substantially alter the nature and mix of policies instruments that different countries choose to adopt. Finally, important questions arise concerning whether or not these mechanisms are to function as the primary means for the transfer of technology to developing countries and how technologies being transferred through these mechanisms can be screened to ensure their appropriateness and long-term effectiveness.

A second set of issues involves how the mix of market-based and regulatory measures adopted to implement these agreements could affect the regime's objectives of promoting sustainable development and protecting the global climate in a cost-effective manner. For example, the implementation of the Kyoto mechanisms could have a substantial impact on the balance between emissions reductions and carbon sequestration efforts. Because carbon sequestration measures are perceived as being less costly than emissions reduction measures, the number of carbon sequestration activities is likely to increase substantially as countries move forward to implement the FCCC and the Kyoto Protocol. Issues associated with this increase, as well as those associated with deforestation and land use changes, are of particular concern to developing countries. The relationship between the regime's two objectives is also not clear. While they are not necessarily incompatible, rules adopted to implement one objective can create conflicts with the other. For example, the choice of rules governing supplementarity could have important implications for the sustainable development path of Annex I countries. Similarly, rules restricting the use of ODA for CDM investments could force developing countries to choose between emission reduction/sequestration measures and other development objectives.

CMRA research under this first theme will be focused on two core questions:

- What are the implications of this market-oriented climate change regime for operation of the Kyoto mechanisms and the mix and effectiveness of policy instruments adopted by national governments?
- What are the implications of the emerging regime, and of the mix of market-based and regulatory measures adopted under it, in terms of climate protection and sustainable development?

Research efforts conducted under this theme would focus on a number of specific research questions derived from these core questions. Examples of these research questions might include:

- How will international rules governing each of the Kyoto mechanisms affect the administration of the others?
- How do the rules governing this regime affect the development and implementation of policy measures in different countries?
- How do these rules affect the development, transfer and diffusion of environmentally sound technologies, practices and processes?
- What are the relative merits of market-based versus regulatory instruments in the context of the regime?
- What are the implications of differences among these national and international rules for the effectiveness of the climate change regime and the goal of sustainable development?

Theme 2: The Long-Term Evolution of the Climate Regime

The second theme of the CMRA focuses on issues associated with the evolution and redesign of the climate regime over time. Research efforts under this theme will explore the longer-term questions about the regime's adjustment to both national experiences with its implementation and changes in technology, scientific understanding, and global socioeconomic conditions.

The CMRA will again explore two sets of institutional under this theme. The first of these concerns compliance and the long-term implementation of the climate regime. The relationship between international compliance mechanisms and the processes through which domestic policy change occurs is not well understood. As we all know, most industrialized countries committed in 1994 to reducing their emissions to 1990 levels by the end of the decade. Emissions have continued to rise unabated, however, due in part to a failure by these countries to implement fully the policies they proposed to meet these commitments. Because implementation is difficult, an understanding of how nations make policy changes in response to international treaties and which factors influence this process is crucial to the effective design and long-term evolution of the climate change regime. Compliance issues such as liability that are associated with the emissions-trading mechanism and the role of the private sector are also particularly important.

The second set of longer-term issues on which the CMRA will focus concerns the processes through which regimes adapt to changing technology, scientific understanding, and global socioeconomic conditions. All regimes must adapt to changing circumstances and underlying conditions if they are to persist. This is particularly important for regimes addressing large-scale environmental problems such as climate change, as these problems involve poorly understood, complex systems that are subject to

rapid, nonlinear change over short time frames. Because the processes through which international regimes are negotiated unfold over years to decades, opportunities exist for learning and adaptation. For the case of climate change, the processes through which national climate change policies are developed and implemented have also been found to foster learning and adaptation. Questions remain, however, as to how changes in science and socioeconomic conditions is best incorporated into the regime, as well as the role of environmental and business interests, the media and the public in overall learning and adaptation process.

The core questions regarding this theme are:

- What are the essential factors shaping compliance with and long-term implementation of the evolving climate change regime?
- How can flexibility, self-correcting procedures, and social learning processes be incorporated into the evolving climate change regime?

Some of the specific issues that could be explored under these core questions include:

- How have coalitions of interests at the national and international levels shaped the development and implementation of national climate change policies?
- How does the unique role of the private sector in this regime affect compliance and implementation?
- How might the regime be redesigned to better promote compliance and implementation?
- How effective are current processes and procedures in informing decision-makers at the national and sub-national levels about the science of climate change?
- What are the roles of the media, interest groups, and the public in learning and adaptation process at both the national and international levels?

Analytical approaches, Organization and Linkages

I should say something briefly here about analytical approaches, organization, and linkages for the CMRA. We anticipate that research efforts conducted under the CMRA will employ a range of analytical techniques, including quantitative studies, modeling, and structured case studies. To narrow the scope of the project and to maximize the potential for comparative analyses, emphasis will be placed, where appropriate, on the Arctic and Southeast Asia, the IDGEC's two core regions, and on the international, national, and local efforts to enhance GHG reservoirs and sinks. We recognize, however, that this focus may not be appropriate for investigations into such issues as compliance. We anticipate that CMRA research will be initiated and conducted through a network of researchers and research institutions with expertise in fields relevant to the institutional questions being examined, and the CMRA Scientific Steering Committee and the IDGEC International Program Office will work together ensuring that CMRA research projects are coordinated both with each other and with other relevant research efforts through workshops, formal and informal meetings, and other means of communications. Finally, the IDGEC will undertake the CMRA through extensive collaboration with other projects, including activities being undertaken by the International Geosphere-Biosphere Program (IGBP), the World Climate Research Program (WCRP), and other programs of the International Human Dimensions Program (IHDP), as well as policy research efforts being undertaken by the FCCC Secretariat, non-profit organizations, and industry groups.