

**Institutional Dimensions of Global Change:**

7/3/96

**A Preliminary Scoping Report**

WORKSHOP IN POLITICAL THEORY  
AND POLICY ANALYSIS  
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by

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**1. Introduction**

Institutions have been recognized as an important factor in understanding both anthropogenic drivers of global environmental change and human responses to such changes from the earliest days of the Human Dimensions Programme (HDP). During its first few years of operation, however, HDP was unable to develop a module or project focusing specifically on the role of institutions. A small workshop, held at the Second HDP Symposium in 1992, began to explore the theme but failed to produce a scoping report on the role of institutions. The HDP Scientific Steering Committee, at its meeting in May 1995, subsequently asked the two of us to prepare a short memorandum exploring how the study of institutions might be fitted into the HDP program. After reviewing this memorandum at its September 1995 meeting, the committee asked us to develop our ideas into a scoping report and allocated core funding in the amount of \$15,000 for that purpose.

In carrying out this mandate, we have sought the advice of a number of colleagues. We convened a small workshop at Dartmouth College, 19-20 January 1996, and benefited substantially from the discussions in that small group. What we now present is a preliminary scoping report. It provides, we

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believe, a sufficient basis for the new International Human Dimensions Programme (IHDP) Scientific Committee to decide whether or not to move toward the development of an integrated module or project on institutions and - if the decision is positive - to give important feedback on the general purpose and scope of such a module. More time is needed, however, to specify precisely how a module on institutions should be designed in order to maximize "value added" in relation to extensive research on institutions already underway in the various social sciences. Among the tasks that remain to be performed are in-depth literature reviews and additional work to specify and establish productive links to other IHDP activities, in particular research in substantive problem areas such as land use/land cover change.

## 2. The Focus on Institutions

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The purpose of this effort is to consider the design of a program of studies that will allow us to determine how much of the variance in (1) anthropogenic impacts on global environmental systems and (2) human responses to global environmental changes can be explained in terms of the operation of social institutions. Institutions constitute only one of a number of categories of social drivers that are relevant to global environmental change. Others include material conditions (e.g. prevailing technology) and cognitive forces (e.g. belief systems and values). There is no need, in this connection, to argue that institutions are more important than other types of social drivers. Rather, the goals of this effort are to separate out institutional drivers from other social drivers in order to pinpoint the proportion of the variance in human actions relating to global change that can be shown to flow from the operation of institutions and to explore how institutions

interact with other social drivers to produce anthropogenic impacts and to control human responses to environmental change.

Institutions are constellations of rules, decisionmaking procedures, and programmatic activities that define social practices, assign roles to the participants in these practices, and guide interactions among the occupants of these roles. Familiar examples are systems of property rights that guide the actions of individual users of land and natural resources and legislative arrangements that guide the process of making collective choices about publicly owned lands or about regulations to be imposed on the actions of individual land owners. The rapidly growing literature on the "tragedy of the commons," including studies of the reasons why the tragedy does not occur in many social settings featuring common property arrangements, is fundamentally a debate about the role of institutions as determinants of human actions affecting nature and natural resources (Hardin and Baden eds. 1977, McCay and Acheson eds. 1987). Similarly, recent debates regarding the extent to which public lands should be transferred into various forms of private ownership are premised on the idea that institutional arrangements are key factors in determining the outcomes resulting from the human use of nature and natural resources (Nelson 1995).

This report casts a wide net in setting boundaries on the universe of social institutions to be considered in examining the impacts of human actions on largescale environmental systems and the responses of humans to environmental changes. Various types of market arrangements, for example, as well as familiar political arrangements are members of this universe. Not only do exchange relationships themselves rest on widely understood rules

but also markets cannot operate effectively in the absence of associated institutional arrangements dealing with matters like contracts, financing, liability, and exchange rates. Similarly, institutions include both formal and informal social practices. Thus, the common property systems developed by smallscale, traditional societies on the basis of trial and error and in the absence of conscious efforts to design social practices are just as much a part of the universe of institutions as the formal arrangements spelled out in legislative enactments and international conventions or treaties. As anthropologists and sociologists have often observed, moreover, institutions in operation or, as some would put it, rules in use frequently include a complex mix of formal arrangements and informal practices. Over time, institutions may move well beyond or away from formally articulated constitutive rules. Yet these living practices are generally well understood by members of the social groups within which they operate.

Institutions come in many sizes and shapes. Both local arrangements dealing with the management of irrigation systems and international arrangements pertaining to lakes and river basins, for example, are narrowly focused in spatial and functional terms. But other social practices, like the system of commonfield agriculture in traditional societies or the international rules governing the use of marine areas, are cast in broader terms. It is apparent as well that in a world involving the operation of many institutions at the same time, there is a need to recognize the existence of a wide range of linkages among institutions that are differentiable from each other but that produce significant effects on one another. Broadly, such linkages may be separated into (1) horizontal connections among institutions operating at the same level of social organization (e.g. the regimes governing

trade and the protection of the ozone layer at the international level) and (2) vertical connections among arrangements operating at different levels of social organization (e.g. local subsistence practices of indigenous peoples and national rules pertaining to the use of the public domain). Institutions are typically complex, and students of these arrangements have exhibited an understandable tendency to focus on specific institutions as if they were stand alone arrangements. But it is clear that institutional linkages constitute an increasingly important phenomenon that will require increased attention in the future.

Those seeking to understand the operation of institutions have directed attention to several distinct clusters of issues relating to (1) the actors who participate in such arrangements, (2) the character of the interactions among the actors, and (3) the social and environmental settings in which these arrangements operate. With regard to the actors, there are lively debates concerning the relevance of such variables as the total number of actors, the degree of heterogeneity among the membership, and the extent to which participants behave as unitary actors or collective entities. Discussions of the relationships among the actors range from analyses of the effects of role differentiation to assessments of the differences among arrangements that are primarily regulative, procedural, or programmatic. Setting refers both to social considerations, like the extent and nature of community feelings among the participants in an institutional arrangement, and to biological or physical considerations, like the population dynamics of stocks of fish or animals whose use on the part of humans gives rise to the institutions in the first place. The study of these matters constitutes a common agenda for those interested in the role of social institutions, and individuals representing a

number of disciplines (e.g. anthropology, economics, political science, sociology) have made major contributions to our understanding of the effects of variations along all these dimensions. Needless to say, however, there are numerous uncertainties about the relationships among these variables, and the scientific agenda confronting those interested in institutions is large.

Recently, a movement commonly described as the "new institutionalism" has emerged in most of the social sciences (Powell and DiMaggio eds. 1991, Furubotn and Richter eds. 1991, March and Olsen 1989). Although there is considerable variation among individual strands of this movement, its hallmarks are an aversion to formalistic or legalistic perspectives on institutions and a clear distinction between institutions construed as social practices and organizations treated as material entities with offices, personnel, equipment, budgets, and so forth. The leaders of this movement have sought to shed light on (1) the processes through which institutions form or become established, (2) the effectiveness of institutions or the extent to which they determine the course of collective outcomes, and (3) the dynamics of institutions or the processes through which social practices change over time. The new institutionalism is still in a relatively early stage of its development, and it is too soon to make an accurate appraisal of the contributions the movement can be expected to yield over time. But it is already clear that this movement offers an attractive vehicle for individuals from all the social sciences to interact with each other around a research program that is of interest to all and that is the property of none.

In thinking about environmental phenomena, the study of institutions emerges as a crosscutting theme. While institutions are by no

means the sole driver of human impacts or the only determinant of human responses to largescale environmental change, there is an institutional dimension or element to be considered in analyzing most environmental concerns. A few examples relating to other global change projects will suffice to make this clear. With regard to land use/land cover change (LUCC), institutions are a force to be reckoned with in explaining both changes in land use practices and human reactions to changes in land cover. A dramatic case in point can be seen in Cronon's study of "changes in the land" following European settlement in eastern North America (Cronon 1983). Similar observations are in order with regard to land/ocean interactions in the coastal zone (LOICZ), where institutions play a role in determining how humans use coastal resources as well as human reactions to natural changes in coastal ecosystems. Thus, public sector programs play a critical role in influencing the choices homeowners make regarding the rebuilding of coastal dwellings destroyed by natural forces like hurricanes or earthquakes. It follows that a science plan dealing with the institutional dimensions of global environmental change is not simply another initiative running parallel to existing IGBP and IHDP core projects. Rather, it calls for a set of initiatives that are orthogonal to the themes of these projects and that can be examined in conjunction with each of the other projects. If developed with care, the result can be a set of interlocking projects producing major insights into global change concerns rather than a growing list of projects dealing with largely unrelated themes.

### **3. Planning Criteria**

The Hanover workshop yielded consensus on the proposition that a science plan dealing with the institutional dimensions of global change must focus on themes or problems that are (1) of obvious and central relevance to the international effort to understand global environmental change, (2) sufficiently central to basic concerns of the social sciences to be capable of retaining the interest of social scientists on an ongoing basis, and (3) tractable or ripe for study during the near future in both analytical and empirical terms. All three of these considerations are critical to the success of the research program under consideration.

First and foremost, the social sciences must demonstrate that they can produce results that are directly and unambiguously related to central concerns on the global environmental change agenda (e.g. climate change, ozone depletion, loss of biodiversity). This is why we think it is important to link research on institutions explicitly to one or major substantive concerns (see Section 4 below). The ultimate goal must be to develop models of social processes relating to global environmental change that are compatible with counterpart models of biological and physical processes developed by natural scientists. Eventually, this should yield a coupled system in which models of anthropogenic drivers feed into models of physical and biological processes which link with models of human and non-human responses that feed back into the models of forcing functions. This is a major intellectual challenge, and we are not yet at the stage where we can successfully link the two sets of models. Nonetheless, we think it is important to initiate planning from an early stage to ensure that we work systematically toward the goal of linking social science models with parallel models constructed by natural scientists at a later stage.



Of equal importance, however, is the need to capture and retain the interest of leading social scientists. If members of the social science community see this initiative as one that involves nothing more than a service role for natural scientists working on climate change and similar issues, the study of global environmental change will not be appealing to leading social scientists. The major implication of this fact is that the IHDP agenda must relate to current research agendas in mainstream social science communities, and be seen as relevant and interesting also by social scientists not (currently) engaged in research focusing specifically on global environmental change issues.

The importance of tractability needs little elaboration. A research program that focuses on issues that are acknowledged to be important will not yield significant results unless it assigns scientific priority to cutting edge concerns or themes that are amenable to significant advances given the current state of play in the relevant disciplines. More specifically, we should pay particular attention to themes where a collaborative and cross-disciplinary program such as IHDP can be a useful vehicle for "adding value" through focusing and coordinating research efforts.

The need at this juncture is to design a research program that meets all three planning criteria at the same time. The agenda set forth in the following sections seeks to do so and should be judged in terms of its success in meeting this goal.

#### **4. Initial Substantive Target: Greenhouse Gas Emissions**

The Dartmouth workshop reached agreement on the proposition that a research project on the institutional dimensions of global change should focus initially on greenhouse gas emissions. This target is attractive not only because it is central to the whole problematique of global change but also because it offers an analytic target that is tractable and even quantifiable in many instances. Thus, those seeking to understand the links between institutional arrangements and greenhouse gas emissions can often look forward to being able to make relatively precise empirical assessments of the behavior of their dependent variables. Similarly, those endeavoring to understand variations in both the timing and nature of human responses to trends in greenhouse gas emissions can expect to have access to more or less exact measures of emissions to relate to different social responses. Given the empirical complications associated with the study of institutions themselves, this tractability of greenhouse gas emissions as a suite of target variables is a substantial attraction for those interested in the institutional dimensions of global change.

At the same time, a focus on greenhouse gas emissions is broad enough to allow for the launching of a wide range of institutional studies (Smil 1994). It includes carbon releases from such diverse sources as the combustion of fossil fuels and the destruction of forests and therefore encompasses issues relating to both advanced industrial societies and developing societies. It encompasses fluxes of greenhouse gases other than carbon (e.g. CFCs, methane, nitrous oxides), a fact that extends interest all the way from the production of refrigerators in China to farming in South Asia and the release of methane clathrates in the Arctic. Conversely, this focus

covers efforts to mitigate or adapt to greenhouse gas emissions ranging from global initiatives like the Framework Convention on Climate Change (FCCC) to local initiatives aimed at curbing deforestation like the Chipko movement in India. A particular attraction of the focus on greenhouse gas emissions is the opportunity it affords to examine the role of institutions in explaining variations in emission rates across social settings, through time, and from one greenhouse gas to another. This should facilitate efforts to use natural experiments to gain insights into the role of institutions in connection with global change. Thus, we can address questions like: (1) why do advanced industrial societies that resemble each other in many ways nevertheless vary greatly in terms of energy intensity? (2) are differences among political systems related to variations in patterns of greenhouse gas emissions?.

Needless to say, a research program on the institutional dimensions of global change need not confine itself to greenhouse gas emissions indefinitely. There are many interesting questions to be asked about such matters as the institutional drivers of changes in patterns of land use and differences in the success of various efforts to establish regimes to protect biodiversity. There are attractive opportunities to compare and contrast the role of institutions with respect to different types of global change, like ozone depletion and loss of biodiversity in addition to climate change. As we pointed out in a previous section, moreover, the role of institutions constitutes a crosscutting theme that should be examined in conjunction with global change core projects dealing with matters like land use/land cover change and land/ocean interactions in the coastal zone. As a research program on institutions matures, it should expand to encompass this broader agenda. Nonetheless, there is a compelling case to be made for starting a

program of studies on institutions with a target that lies at the center of the global change problematique and that facilitates efforts to frame tractable analytic problems of clear interest to many social scientists. The Dartmouth workshop produced consensus on the recommendation that such a program should initially target greenhouse gas emissions as a means of producing focused results in a timely manner that are of obvious relevance to global change concerns. Once established in this initial area, the program could expand to examine analogous substantive issues associated with other substantive themes.

## 5. Analytic Foci and Approaches

In seeking to develop a research program on the institutional dimensions of global environmental change, we need not only to agree on a substantive focus but also to devise a common set of core questions and an integrating analytical framework. We address this challenge, in three steps, in the discussion to follow. First, we point to three dimensions of institutional impact that seem particularly important to the human dimensions program. Second, we suggest two cutting edge questions that call for collaborative and interdisciplinary research and that offer opportunities for IHDP to make a significant contribution. Finally, we recommend a particular analytical approach that we believe can serve as a productive, integrating framework for the kind of work proposed.

**Dimensions of institutional impact.** The interest in institutions as one component of a comprehensive human dimensions research agenda is premised on the proposition that institutions are important determinants of

human behavior affecting natural systems as well as of human behavior in response to environmental problems. The Dartmouth workshop accordingly agreed that the overall purpose of a module focusing on the role of institutions in global environmental change should be to improve our understanding of how institutions affect the behavior of individuals and other social actors. This involves at least three major areas of research.

One focuses on the impact of institutions as systems of rights and rules providing prescriptions, clues, and incentives that shape the behavior of individuals, groups or societies. We know, for example, that systems of property rights can have a substantial impact on the way natural resources are utilized. As pointed out above, the study of common property resources is essentially concerned with understanding how a particular class of institutional arrangements affect the behavior of harvesters or users. Similarly, we know that the kinds of rules established through an international regime can profoundly affect actor behavior in international society (Haas, Keohane, and Levy eds. 1993). For example, efforts to prevent the depletion of fish stocks by putting an upper limit on total allowable catches tend, unless translated into some system of individual quotas or rights, to lead to overinvestment in vessels and/or fishing gear (McGoodwin 1990). This will in turn dissipate profits and generate increasing pressure on stocks - sometimes including other stocks than those to which the regulations apply. It is equally well known that procedures for monitoring or evaluating performance can provide important incentives for compliance (Chayes and Chayes 1995). In most cases, complex institutions work through multiple mechanisms to shape the character of individual and collective behavior. One major task for an IHDP subprogram on institutions will be to help us

understand better what difference institutional arrangements (can) make in shaping behavior causing or mitigating global environmental change and what makes one kind of institution work differently from another.

Another important dimension encompasses the role of institutions as systems of rules and procedures constituting arenas for making collective decisions. Here we are concerned with institutions as mechanisms for aggregating individual preferences and inputs into collective decisions. The basic question can be formulated as follows: to what extent and how do decision rules and procedures affect the output of decision-making processes? It is well-known that decision rules can have a substantial impact on outputs (Buchanan and Tullock 1962). Thus, hierarchical and polyarchic systems will normally produce outputs that differ significantly from those that flow from systems constrained to operating under the rule of consensus. Yet, the impact of decision rules and procedures on the use of environmental resources and on collective responses to environmental problems needs to be further explored. The sweeping conclusion suggested by some natural scientists - that only a "dictator" can prevent the "tragedy of the commons" - is clearly wrong (Ostrom 1990). In the most general terms, "institutions-as-arenas" regulate both the access of actors or parties to problems and the access of problems to formal occasions for decisions (Cohen, March and Olsen, 1976). Moreover, they specify the procedural rules of decision "games." Rules of access are often an important issue in considerations of such matters as the (formal) status of non-governmental organizations in policy-making and implementation processes at the national as well as the international level. Some argue that including non-governmental organizations would be a major step towards infusing environmental concerns with "political energy" (Wapner 1996).

Such propositions call for refinement and more systematic testing. Other things being equal, the less compatible the basic values and interests of the parties concerned and the less symmetrical the consequences of a certain problem or a particular course of action, the greater the difference that rules of access can make. The same applies to decision rules and rules of procedure.

Finally, institutions that materialize in the form of organizations can influence behavior by providing independent inputs into decision-making processes and/or by amplifying the outputs of such processes (Moe 1984, Williamson 1996). In other words, organizations can become more or less independent actors in their own right, empowering officials acting on their behalf. This is undoubtedly one reason why organizational restructuring - more specifically the establishment of a special ministry or agency to deal with environmental problems - seems to have been an important strategy in the early development of environmental policies in western countries (Weale, 1992). Although by now common, it is clear that these ministries and agencies differ substantially in terms of actor capacity. This is even more striking at the level of international organizations. In terms of capabilities, there is a substantial difference between, for example, the Commission of the European Union and the secretariat of the International Whaling Commission. The basic challenge to those who study organizations as actors is to understand how organizations generate and wield "institutional energy," and how they can be deliberately designed and used for that purpose.

All these dimensions of institutional impact are relevant to the study of global environmental change. In our judgment, however, the first two are particularly promising foci for collaborative and interdisciplinary research on

global change, and we suggest that at least the initial efforts of a research program be concentrated on these aspects.

**Cutting edge questions.** In examining these aspects of institutional impact, IHDP will need to identify a small number of cutting edge questions that can serve as main analytic foci for the core activities of the program. One important consideration in identifying these questions will be the prospects for producing "added value" through collaborative and cross-disciplinary research efforts. The major purposes of an IHDP module on the role of institutions should be to (1) integrate, extend and refine existing findings and propositions relevant to global environmental change, (2) bring them to bear on substantive problem areas being targeted for IHDP core projects (this involves, *inter alia*, "translating" models and propositions into a format conducive to this particular kind of interdisciplinary research), and (3) stimulate, focus and coordinate research efforts so that they can help fill important gaps or cultivate particularly promising areas of study. We suggest that in studying the dimensions of impact described above, IHDP pay particular attention to two sets of cross-cutting analytic questions that call for exactly the kind of collaborative, cross-disciplinary research that the program could initiate and coordinate.

One centers on the problem of transferability of models and propositions from one institutional level to another ("scaling"). The challenge here is to determine the extent to which existing models and propositions developed or formulated with reference to one particular level of social organization also apply to institutions at higher or lower levels (Young 1995). Do small-scale local institutions have different dynamics than



national or international institutions? Can micro-, meso- and macro-level institutions be conceptualized and modeled in similar terms, or do we have to deal with profoundly different "institutional logics"? In thinking about how institutions affect behavior and outcomes, we need to explore other institutional attributes as well, such as scope, heterogeneity, and so forth (Keohane and Ostrom eds. 1995). Nonetheless, we believe there is a persuasive case for starting with the problem of scaling. One reason is simply that social science research in different disciplines and fields has already accumulated a sizable collection of models and propositions referring to particular levels of social organization. However, little has been done so far to compare, contrast and integrate these models and propositions. We think the time has come to make such efforts. Another reason is that analogous problems of "scaling" constitute an important challenge in the natural sciences as well as the social sciences (see, for example, the Lucc science plan). Even though the problems differ somewhat in scope and implications, we think there is much to be learned from "matching" concerns in this area.

The other problem concerns the interplay of and linkages among institutions both horizontally (i.e. among institutions operating at the same level of social organization but with different substantive functions) and vertically (i.e. among arrangements operating at different levels of social organization). For a number of perfectly understandable reasons, students of social institutions have focused most of their attention either on single units or on systems of institutions operating at one particular level (e.g. national political systems). It is abundantly clear, however, that multiple and complex links exist among institutions operating in different domains (for an initial typology see Young 1996). For example, regimes governing international trade

and investment may significantly affect the actual impact of regimes designed to protect biodiversity or control the emission of greenhouse gases. Similarly, international regimes may affect the operation of small-scale local arrangements. This observation leads to questions such as: does the effectiveness of an international regime depend on the congruence between macro-level arrangements and institutions operating at lower levels, and vice versa? To the extent that it does, which configurations are the more conducive to regime effectiveness? These are truly complex questions to which no easy and quick answers can be expected. But they are also precisely the kind of questions where a program such as IHDP could serve as a vehicle for stimulating innovative research of great potential importance to the overall purpose of the program. Moreover, good answers to such questions would be of considerable interest to decision-makers involved in designing or rearranging institutions.

We see these questions as cross-cutting analytic foci in the sense that they apply to all the dimensions of institutional impact described above. This relationship is indicated in the matrix below.

		Questions	
		Scaling: micro-macro	Interplay/links
Dimensions	Provider of rules, clues, incentives		
	Mechanism for making collective decisions		
	Organizations as actors		

**Analytic approach.** The Dartmouth workshop also agreed that a program on institutions should be framed in terms of a coherent conceptual framework. The workshop furthermore recommended that the rational choice "paradigm" be chosen as the integrating framework, at least in the initial phase. This recommendation is based mainly on two considerations. First, since we are eager to produce usable results in the short run, it seems prudent to start with analytical tools that are already at a relatively advanced stage of development and refinement. Building on explicit assumptions and applying the logic of individual utility-maximizing behavior, the rational choice paradigm offers a combination of transparency, rigor, precision and conclusiveness that are needed to ensure consistency and cumulation, particularly in a collaborative program such as the IHDP. Second, since the IHDP is an interdisciplinary program, it is desirable to frame the analysis in "transdisciplinary" terms whenever such tools are available. In some form, rational choice modeling is used in all the social sciences (although more so in economics than in anthropology). It probably also provides a "language" that is particularly well-suited for communication and collaboration with natural scientists.

At the same time, we recognize that the rational choice paradigm imposes substantial constraints and that much current research relevant to our agenda is framed in terms of other and to some extent quite different analytical perspectives and models. This applies, *inter alia*, to much important work subsumed under the label of "new institutionalism." We would therefore encourage, as the program gets under way, some supplementary work to bring knowledge and insights from other traditions to

bear on the IHDP agenda. We must realize, however, that there is a trade-off to be made between the need for consistency, precision and transdisciplinarity on one hand and the desire for a richer variety of inputs and perspectives on the other. The "ecumenical" strategy of trying to include everything is hardly a recipe for cumulative research. Particularly in the early and formative stages of a program such as this, we see the adoption of a coherent analytical framework as a necessary (although by no means sufficient) condition for progress.

## **6. Research Products**

A module on institutions may contribute to the overall IHDP agenda in two ways: (1) as a "subcontractor" providing inputs to integrative modeling exercises, and (2) as a source of principles for the "design" of new or restructured institutions.

One major purpose of including research on institutions in the human dimensions program would be to improve the validity and sophistication of assumptions made in integrated models of anthropogenic sources of and human responses to global environmental change. In integrative modeling exercises, such as LUCC and LOICZ, the relevance of institutions in predicting and explaining individual and collective behavior is explicitly recognized, but their presumed impact is rarely if ever specified. Unfortunately, the proposition that institutions affect behavior and outcomes is useful only to the extent that we can specify their impact and identify the mechanisms at work. In the role of "subcontractor" to a more comprehensive IHDP agenda, this is where a module on institutions could contribute.

To the extent that research on institutions can help us understand how institutions work and what difference variance in institutional arrangements makes, it can also produce findings with important practical implications for the "design" or modification of social institutions. One example may suffice: we know that to encourage actors motivated by self-interest to act in such a way as to promote "the common interest" in a decentralized system, marginal costs of the activities concerned should be distributed in proportion to marginal benefits (Olson 1965). The greater the deviance from this "principle," the more suboptimal will be the outcomes produced, everything else constant. We suggest that a module on institutions be framed with the explicit goal of drawing attention to whatever "design principles" can be derived from models and propositions.

The present state of the art is hardly such that a recipe of concise inputs or a compendium of precise and straightforward design principles can be expected. Achievements will to some extent depend on the amount of resources invested, but what we can realistically hope for will be contributions that can help us move beyond the present stage of unspecified assumptions and offer some useful suggestions for "institutional engineering" (Underdal 1990). At least within the constraints of what we see as a feasible investment on the part of IHDP, we believe that a module on institutions is likely to maximize its contribution to the basic purpose of the program if its is designed to work primarily towards these two categories of products.

## **7. Next Steps**

The first and most basic decision to be made by the IHDP Scientific Committee must be whether or not to move ahead with the development of a research module on the role of institutions. If the Scientific Committee decides that such a module is to be included in (the next stage of) the human dimensions program, it should also give some direction to future work - particularly if major modifications or changes are required in relation to the approach outlined in the present document. What follows is premised on the assumption that the Scientific Committee will conclude that a module of research on the role of institutions should be developed as an integral part of the IHDP agenda and accept the general approach outlined above as the basis for further work.

On this assumption, we would continue developing this document with an eye toward expanding it into a full scoping report by 1 September 1996. In the process, we will continue consultation with a number of colleagues in different disciplines. We plan to present a draft of the report for comments at the Sixth Annual Conference of the International Association for the Study of Common Property, 5-8 June, 1996. We have chosen this arena because the IASCP brings together a wide range of social scientists from various disciplines and all parts of the world in common pursuit of insights into a problematique central to the global environmental change agenda. The panel will be organized so as to maximize feedback. (A draft will be circulated well in advance, and a number of people from different disciplines and research communities will be invited to respond.)

We assume that the Scientific Committee will examine the full scoping report sometime during the fall of 1996. If the scoping report is approved, work to develop an operational science plan can begin. In that process, we should look for opportunities to solicit feedback and ideas from colleagues. Next year's annual conference of the International Studies Association (22-26 March 1997) will be one such opportunity. When we reach this stage, however, we believe that it would be highly desirable to convene a 1-2 week summer institute bringing together a somewhat larger group of key people for intensive discussions in this area. The meeting should be devoted specifically to surveying relevant fields of research and developing ideas into a coherent and feasible science plan. (What we have in mind is a meeting that, in terms of purpose and scope, would correspond to the "1991 Global Change Institute on Global Land-Use/Cover Change"). We would hope that such a meeting could be held in the summer of 1997. The planning time required will be a minimum of one year.

A key feature of the planning process described here will be an effort to identify projects carried out under other auspices that deal with one or more aspects of the research agenda set forth in this memorandum and that would benefit from being linked together and focused on the institutional dimensions of global change. Many such projects are currently in progress or under development. Concrete examples include the International Forestry Resources and Institutions project organized by the Workshop on Political Theory and Policy Analysis at Indiana University, the International Regimes Database being developed under the auspices of the International Institute for Applied Systems Analysis (IIASA), the project on the implementation of international conventions and treaties being initiated by the Netherlands

HDP Committee, and the program on the institutional issues associated with the sustainable use of living resources being developed under the sponsorship of the International Arctic Science Committee. Given the limited resources at the disposal of the IHDP and the need to integrate the efforts of a large number of social scientists concerned with different levels of social organization, an integrative strategy of this sort seems essential to the success of a research project on the institutional dimensions of global change organized under the auspices of the IHDP.

## **8. The Role of IHDP**

What specific actions are required on the part of the IHDP to make progress in the development of the research project on the institutional dimensions of global change discussed in this preliminary scoping report? What actions are feasible given the resources likely to be available to the IHDP? We close with a set of four specific requests for action on the part of the programme. The first two (possibly also the third) should be acted on at the next meeting of the IHDP Scientific Committee. The third and fourth will become relevant by the end of 1996.

**Endorse the initiative.** We ask that the IHDP Scientific Committee formally decide to move ahead with planning a research module on institutions and agree to sponsor the steps included in the action plan outlined in the preceding section. This would mean that proposed activities like the panel at the IASCP meeting in June 1996, the ISA workshop in March 1997, and the summer institute in 1997 can be represented officially as IHDP



events. If co-sponsors and funding sources are to be approached, the approval and the seal of the IHDP would be required.

**Commit core funding.** We request that the IHDP commit core funding to this enterprise over the next three years at a level of \$15-20,000 per year. Launching a substantial research project on the institutional dimensions of global change will obviously require considerably greater funding, and we are prepared to play an active role in fundraising for the program. But some secure core funds are required to cover the costs of travel and meetings needed for program development.

**Form a working group for the project.** We suggest that the IHDP Scientific Committee form a working group for the research module on the institutional dimensions of global change by the end of 1996. This group would assist us in the next stages of developing the project; it would be particularly helpful to receive input from such a group well in advance of the summer institute proposed for 1997. This group could become the nucleus a Scientific Committee for a research module on the institutional dimensions of global change, if this initiative achieves the status of an IHDP core project.

**Help with fundraising.** We seek assistance from the Scientific Committee and the IHDP Director in identifying potential funding sources and preparing submissions to interested funders. Like all IGBP and IHDP core projects, a module on the institutional dimensions of global change will need to generate its own funds. But a commitment to providing assistance to the fundraising process, especially in the early stages, is a priority.

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