Institutions and Environmental Change:
Principal Findings, Applications, and Research Frontiers

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Summary for Policymakers

This book summarizes a decade of research on the question of *whether institutions matter* in tackling environmental problems. Institutional analysis is on the cutting edge of the social sciences today. Institutions have been critical forces in shaping "real world" environmental governance responses and therefore are significant not only for scientific but also for policy advances. Institutions are defined in the research as systems of rights, rules, and decision-making procedures. The studies indicate that institutions play a role both in causing and addressing problems that arise from human-environment interactions but that the nature of this role is complex. The book aims both to inform policymakers in their efforts to address the challenges posed by problems such as loss of biological diversity, degradation of forests and oceans, and the overarching issue of climate change, and to prompt further scientific enquiry.

Overview

Institutions give rise to social practices, assign roles to the participants in these practices, and govern the interactions among the occupants of the various roles. Environmental and resource regimes are types of institution. They address situations in which actions can degrade ecosystems through overuse of natural resources (e.g. fish stocks) or due to unintended side effects (e.g. air pollution). Approached in this way, regimes constitute important components of governance systems at levels of social organization ranging from the local to the global. Institutions are distinct from organizations, which are material entities typically possessing personnel, offices, budgets, a legal personality, and so forth. Organizations play important roles in the administration and management of regimes dealing with a wide range of topics (e.g. the US Environmental Protection Agency, the International Maritime Organization).

The work reported in this volume constitutes the scientific legacy of the International Human Dimensions Programme on Global Environmental Change (IHDP) core project on the Institutional Dimensions of Global Environmental Change (IDGEC). The project's Science Plan highlighted two sets of issues: (i) research foci or questions about the causality, performance, and design of institutions; and (ii) the themes of institutional fit, interplay, and scale. It also focused attention on the science-policy interface, reviewing ways in which research could influence policy and policymakers could help shape research agendas. The synthesis phase of the project harvested the scientific findings, investigated policy implications of those findings, and explored new directions in research. The main topics and policy-relevant findings of the research are outlined below.

Causality

Institutions are important to consider in policy making, but the roles they play are complex and hard to decipher.

- The effects of institutions are typically *non-linear* as they are characterized by thresholds and tipping points and often *contingent* upon a set of other factors. In environmental governance, institutions often work as integral components of processes of complex response, owing much of their influence to other elements, such as NGO activities, but in turn themselves facilitating and focusing collective learning and action.
- Regimes designed specifically for the purpose of environmental governance are not necessarily the institutions most important in causing or addressing environmental change.
- Utilitarian motives (the "logic of consequence" where sanctions and rewards change the cost-benefit calculations of the players) and normative motives (the "logic of appropriateness" where rules are followed because they are seen as rightful and legitimate, and obligations are encapsulated in the identity and social collectivity generated by the institution) are most often both at work and simultaneously so. The relative importance of normative motives tends to increase with the density and stability of inter- and transnational relationships. The more dense and stable the inter- or transnational relationship, the more likely it is that normative motives will prevail.

Performance

The criteria best suited for evaluation of institutional performance by policy makers are efficiency, equity, and sustainability. Key actions for performance assessment include the following:

- Evaluate the extent to which the stated goals are achieved.
- Assess whether any unstated goals have been fulfilled, intentionally or unintentionally.
- Compare the performance of two or more different regimes dealing with related issues (e.g. which fisheries agreements or river pollution agreements are more and which less effective in achieving their goals).
- Estimate trade-offs between different criteria (e.g. equity versus efficiency).
- Evaluate the cost-effectiveness of alternative ways to achieve agreed-upon goals.
- Take baseline and operating circumstances into account in the assessment of similar regimes since they may produce different results under varying conditions (one size/type does not fit all).

Design

Given that one size/type does not fit all, policymakers are more likely to succeed in creating an institution that succeeds in solving (a) specific problem(s) by using a diagnostic method.

- Because institutions interact with a range of other factors, a diagnostic approach to designing specific institutions works better than a search for design principles or generalizations applicable to the full range of environmental and resource regimes.
- Diagnostic queries seek to probe the nature of the problem, the overarching political setting, the character of the actors or players, and the prevailing practices. The goal is to build up a composite picture of all major factors contributing to a specific issue and, in the process, to gain insight into: (i) the scope of the biophysical system to be addressed by the institution; (ii) the appropriate goal(s) and its/their nature - environmental and/or behavioral - to set for an institution; (iii) the rights to be conferred by the institution; (iv) the rules to be implemented; (v) the decision making procedures to be followed; (vi) key agencies responsible for implementation of the institution; (vii) key bodies with which the institution needs to be in communication; and (viii) the hierarchical administration in which the institution will operate.
- Recommendations derived through the use of the diagnostic method must emphasize proposals that are realistic or feasible within the relevant socio-political setting. Yet changes that seem utopian under normal conditions may become feasible during "windows of opportunity" brought about by economic, political, and social changes.

Fit

Misfits between institutions and biophysical or socio-ecological systems are common; they are often extremely difficult to eliminate, even when they are well known, such as water rights in the western United States. Environmental regimes need to account for the fact that such systems are highly dynamic and multilevel, entailing periods of both incremental and abrupt change as well as considerable uncertainty.

- The best way to avoid institutional misfits is to allow for biophysical and socio-economic diversity and to make a case-by-case assessment.
- The promotion of multilevel governance in environmental regimes is important. However, it does not easily produce an enhanced fit between ecosystem dynamics and governance and needs to be better understood.
- The quality of interaction among institutional players is important in the way learning is stimulated, how different interests are bridged and common goals worked out, and how polycentric institutions are used to ensure political, legal and financial support for the sustained existence of the institutional framework.

Interplay

Institutional interplay occurs where one set of institutional arrangements affects the results of another or others. Given rapid increases in institutional arrangements at all levels of social organization, interplay is an increasingly common occurrence, one which can produce positive as well as negative results for environmental governance.

- To the extent that issue-areas overlap, actors can choose the most suitable existing institution(s) for a policy initiative.

- Actors can also develop integrated strategies for the pursuit of preferences that take into consideration the potential of the varying institutions affecting an issue-area both for establishing new norms and for policy implementation.
- Several environmental institutions have successfully created “strategic inconsistency” in terms of their scope by regulating particular areas of international trade or employing trade measures as an enforcement tool. As a result, they have limited the implications of existing free trade rules and have carved out certain areas of the regulatory authority of the WTO.
- Institutional fragmentation of international environmental governance may constitute a strength rather than a weakness. Institutions with large regulatory overlaps appear to create substantial added benefit if they employ complementary governance instruments, represent different memberships, or provide for significantly different decision-making procedures.

Scale

There is no optimal level of socio-political organization from which to address a problem. Rather, levels are determined through a political framing process, a process which itself changes the nature of the problem, the menu of possible solutions, and the way in which the results are evaluated.

- Scalar analysis helps to ensure recognition of complexity in the way a problem is defined and of the appropriate levels for the application of solutions or specific components of solutions.
- Tasks relating only to one solution may need to be assigned at different administrative levels and/or times. An emphasis on co-management, integrated management, and adaptive management comes as a natural corollary.
- Although the principle of subsidiarity has become a widely accepted governing principle, research about how subsidiarity translates into practice shows it is difficult to guarantee its aim of local control over local issues. Subsidiarity has become unworkable, and often an illusory panacea offered to local and national governments in return for loss of sovereignty.
- Scaling can be used to address equity concerns, and to help bring about coordinated, consistent, and effective effort at all appropriate levels to solve problems including those prioritized globally.

Science-policy Interface

There is still a serious communications gap between science and policy in the global environmental change arena. In the face of major environmental changes, the need is greater than ever for scientists and policy makers to engage in “two-way communication”.

- Greater input from policymakers could help meet the need to refine present research findings in depth, detail, and range and to define new research agendas.
- If both sides are well connected in joint research projects or processes, expanded and deeper research will in turn help to produce more useful and more directed advice to policymakers on creating effective institutions.

- New institutions and the redesign of existing institutions are needed to confront emerging environmental problems and sets of inter-dependent problems.
- Obstacles to improved science-policy interaction include vastly different time horizons, lack of opportunities for scientists and policymakers to interact informally, and lack of knowledge about the policy-making process and opportunities for scientific input.
- Ways to overcome these obstacles include the identification and support of knowledge brokers to link the two communities and increased opportunities in the research process and in funding decisions for policymakers to make their knowledge needs known to scientists and funding bodies.

New Directions

Part of the legacy of the IDGEC project is a process of identifying new research themes. A new program of research on earth system governance has emerged that is looking at the role of institutions in a broader governance framework, and that addresses issues of governance from the local to the global level. This new program will be policy-relevant through its development of a new paradigm that reflects the current political context; that is, one that acknowledges the transformation presently occurring from dedicated, single institution environmental policy to governance systems that encompass all aspects of the earth system - geosphere (land), atmosphere (air), hydrosphere (water and ice), and biosphere (life, particularly human life as a primary agent of environmental change). Specific themes include:

- Investigating how specific governance systems fit together to form *architectures* of earth system governance.
- Understanding the *agency* of actors in earth system governance, including both public and private actors.
- Analyzing institutional change with the objective of developing *adaptive* forms of earth system governance.
- Examining how to ensure the *accountability* and legitimacy of the governance systems that are created.
- Enquiring into the distribution of material and immaterial values, i.e. the *access* to goods and their *allocation*.

An Invitation

Those engaged in past and new research welcome input from members of the policy community. What is or is not helpful about the research so far? Can future research become more relevant to the needs of policymakers? What improvements in communication are feasible and desirable? Those who participated in IDGEC as well as those responsible for developing the new Earth System Governance project are interested in comments and ideas and would be pleased to engage in a dialogue about these issues.