

EDITORIAL OVERVIEW: STRATEGIES OF INQUIRY INTO INTERNATIONAL ENVIRONMENTAL POLICY

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INTRODUCTION

The international environment has received both major public as well as scholarly attention since the early 1970s. The generation of academic contributions which were published during the preparatory period for the 1972 United Nations Conference on the Human Environment (Stockholm) and soon thereafter can be termed as the "frontrunners" of the "international environmental policy" field. While some of the optimism generated by the Stockholm meeting may have evaporated during the late 1970s, it seems very clear that a renewed academic interest in international environmental policy arose during the late 1980s. With the emergence of global climate change (including stratospheric ozone depletion) as a challenge and opportunity to humankind, environmental policy became an important part of the public policy agenda in many countries. The research agenda of this period appears to be much broader and systematic as compared to the frontrunner generation, and this set of contributions on the state of the art of scholarly thinking on "strategies of inquiry into international environmental policy" is geared to provide an overview of the advances made during the past decade of research.

ESTABLISHMENT OF A FIELD OF STUDY

The strongest indications of the viability of research in international environmental policy is its establishment as a field of study within International Relations or World Politics, institutionalization of university courses, increased research funding, and growth in scholarly output.

First, university courses on international environmental policy have become part of the standard repertoire of the international relations coursework, and students seem to appreciate this broadened menu of choice. Furthermore, several institutions have been funding specialized research institutes which either focus on the interface of natural and social science modeling on global environmental change or are geared towards global environmental governance.

Second, research support is growing with the help of specialized research programs of various national or supranational institutions, such as the United States

National Science Foundation and the Commission of the European Union. Many other countries have also instituted research programs on social science aspects of environmental change or are actively contemplating to do so. Besides governmental institutions, philanthropic organizations have been helpful in getting a broadened research agenda funded.

Third, scholarly contributions are published as monographs, edited books, and journal articles at a scale which was unforeseen a decade ago. In combination with favorable public attitudes on prioritizing environmental issues in advanced industrialized countries as well as heightened media attention, I expect the field of international environmental policy to enjoy continued public support.

PURPOSE

The major goal of the group of articles to follow is to provide an overview of prominent strategies of inquiries and, thereby, to assess the state of the art of research on international environmental policy. For this relatively new and very dynamic field of research, a set of concise articles seems to be well suited to achieve this goal.

In particular, this series of articles is geared towards three audiences. First, researchers in the field of environmental policy shall afford a brief updating of the latest accomplishments of various strands of analysis. Second, academic teachers may appreciate the articles when selecting the readings for a course on international environmental policy. Third, students wishing to enter the field may be interested to get a first, extremely dense introduction to this field before deciding to get more in-depth training in international environmental policy.

OVERVIEW

The basic idea for this overview on international environmental policy originates from a panel which I convened at the 1993 Annual Meeting of the International Studies Association, Acapulco, Mexico. All authors accepted responsibility for those topics where they contribute to the frontiers of research on international environmental policy.

The set of short articles can be divided in three

groups. First, two articles cover methodological approaches. In a second set, three articles cope with concepts which have gained prominence over the past years. And third, a survey of the area studies literature on international environmental policy is presented. While not all important strategies of inquiry of contemporary research can be presented here, we hope that the reader will get a well-rounded perspective on the study of international environmental policy.

Methodology

The first group of articles focuses on the use of rational choice methodology (Luterbacher) and the prospects of empirical-quantitative methods (Sprinz) in the field of international environmental policy.

In his contribution, Urs Luterbacher emphasizes that rational choice methods can make valuable contributions to a better understanding of international environmental policy because many of the advances in general rational choice methodology can be applied to this particular field. These include, inter alia, (i) decision-making under uncertainty, (ii) the problem of providing collective goods (while facing the so called "conservationist's dilemma"), (iii) pursuing a policy of sustainable development while having to attend to intergenerational equity, and (iv) problems of international negotiations posed by strategic constellations, such as the prisoner's dilemma.

Empirical-quantitative methods have been only recently introduced to the field of international environmental policy. For this reason, Detlef Sprinz (i) outlines a set of standards for contributions by empirical-quantitative studies, (ii) points to the practical challenges which such a strategy of inquiry faces, and (iii) provides a brief outlook on the use of such methods during the next decade.

Prominent Concepts

Two prominent concepts have been included in this section. In particular, the concept of sustainable development (Princen) and international environmental regimes; both regime initiation (Young) as well as their effectiveness (Wettestad and Andresen) will be emphasized.

In his treatment of a "theory of the international political economy of sustainability," Thomas Princen provides a justification of the usefulness of the concept of sustainability for theory-building in international environmental policy. He especially attends to the scale problem for effective social organization and emphasizes that more research is needed on (i) discovering the conditions under which existing sustainable systems have continued to exist and (ii) how they were able to resist infringements to their continued existence.

While the concept of sustainability can be seen as

a Leitmotiv for international environmental regulations, international regimes can be thought of as the most prominent "tool" to accomplish such policies in the international context. In the article on regime initiation, Oran Young outlines the processes and stages of regime formation. In addition, he describes the driving social forces which are associated with regime initiation. In my view, the notion of "equifinality" - i.e., assessing alternative routes to the same (or equivalent) outcome(s) - will be of long-term relevance to research on regime initiation as well as the assessment of their effectiveness.

Do regimes matter? In essence, this is the question which Jørgen Wettestad and Steinar Andresen wish to resolve in their research on the effectiveness of international regimes. By using (i) counterfactuals so as to assess the relative improvement of the environment, (ii) the degree of distance between actual regulations and a social optimum, as well as (iii) dynamic and synchronic comparisons, both authors demonstrate the advantages of the various routes taken to answer the question on the effectiveness of international regimes. By using carefully selected examples, they caution the reader not to jump to inappropriate conclusions.

Area Studies and International Environmental Policy

In this third part, Barbara Jancar-Webster provides a summary of the areas studies writing on international environmental policy. While comparing the literature in this field across nearly all continents, she points to the characteristics of area studies (such as lack of cross-area comparability) difficulties in problem selection as well as substantial variation in data quality and value assumptions. Despite these challenges, Jancar-Webster comes to an optimistic assessment about the further proliferation of area studies and the study of international environmental policy.

CONCLUSIONS

The articles to follow provide an overview of the advances made in the field of international environmental policy over the past two decades. A plurality of foci in terms of methodology, concepts, and geographical coverage characterize the recent wave of strategies of inquiry into international environmental policy. A variety of such strategies will be presented in more detail below. Since this field of research is undergoing a stage of dynamic development, these strategies are likely to be refined in view of new and rewarding research results.

The challenge for all authors was to condense their messages on just a few pages. I thank all authors for participating in this project and their enthusiasm in face of a tight production schedule. May the readers find the articles as useful as I found the collaboration

International Studies Notes

among this international group of authors.

RATIONAL CHOICE ANALYSES AS TOOLS FOR SOLVING INTERNATIONAL ENVIRONMENTAL POLICY QUESTIONS

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INTRODUCTION

Global environmental change occurring for whatever reasons or policies to prevent some of its consequences could contribute significantly to the already substantial political problems about the distribution of resources in the world. Whenever distribution questions arise, conflicts of interest between countries, regions and different generations emerge as well. Rational choice analysis of decision making has traditionally been concerned with the study of conflicts of interest and their solution through "efficient" means, i.e. means that tend to avoid joint losses for all the parties involved. It seems, therefore, natural to apply rational choice methodologies and concepts to international environmental policy questions as well.

Distribution issues related to global environmental change with a clear cut political or politico-economic impact are numerous. Some of these political consequences concern distribution problems posed by the likely increase in emigration from developing to industrialized countries. These problems are already acute and could become more so if the climate evolves unfavorably in marginal production areas or if important coastal regions are flooded. A model of a marginal regional system developed recently (see Luterbacher and Wiegandt 1990) shows that societies of small agricultural producers are, for mostly economic reasons, prone to "demographic collapse," i.e. massive emigration which, in turn, reduces their population size to a bare minimum. Such demographic collapse can be accelerated by adverse weather conditions that reduce the long-term productivity of marginal agriculture. If many regions experience such collapse, the population of more advanced economic areas in developing countries, particularly their cities, will increase and direct emigration to industrialized countries will also occur.

Other international or interregional flows of resources and factors of production could create environmental problems. This is, for instance, the case with international trade and even with international financial movements. There is a world demand, mostly in industrialized countries, for only slowly renewable natural resources, such as tropical wood or other similar types of raw materials. These natural resources are then transformed by industrial processes or used for construction. Increased governmental regulations in

some countries can drive polluting industries to other, less demanding regions. Financial problems, such as debts, can create incentives to quickly deplete natural resources in order to get cash to pay for interest and repayment charges. To understand the distributive problems raised by such cases, rational choice models in general and one of their most important subsets, game theoretical models that deal with government and important political groups' decision making about migration, trade, and financial problems, can be developed. Such approaches can then be generalized to other distributive problems raised by implementing policies aimed at reducing greenhouse gases or ozone depleting emissions, i.e. the institution of quantitative restrictions or generalized taxation schemes (such as energy and/or carbon taxes). The unavoidable regressiveness of some of these schemes raises the question of their efficiency and distribution of wealth between countries of the North and South.

ISSUES IN RATIONAL CHOICE MODELING

Rational choice approaches can shed some light on the questions raised above with respect to six important issues.

The Role of Risk and Uncertainty

One of the fundamental tasks of human institutions has always been concerned with the management of environmental risks and uncertainties. The rational choice analysis of decision making under risk and uncertainty can highlight some of the problems associated with human adaptation to global environmental change. The particular incentive structures which exist in different societies to deal with environmental risks will also influence individual behavior and encourage or discourage conservation of resources. Moreover, different types of institutional settings connected with the management of environmental risks will either exacerbate or mitigate the two difficulties connected with institutions, the principal agent and/or the moral hazard problem. Finally, the analysis of decision making under risk and uncertainty can also generate more information about how to deal with enacting environmental policies in the face of uncertain future developments and costs

associated with them.

Property Rights

Traditionally, managing the environment like other assets is achieved through specific property rights structures. This particular aspect has been emphasized in Garrett Hardin's work on "The Tragedy of the Commons." He tried to point out the inefficiency and environmental inadequacy of common property arrangements. Private property situations should lead to a more efficient, and therefore environmentally more adequate use of resources. Subsequent research has shown, however, that Hardin's criticism of common property systems was misguided and that the deficiencies which he pointed out are only characterizing uncontrolled open access property regimes. Common property structures that limit the access to resources and control their utilization can be as effective as private property ones in managing the environment. Indeed, such common property regimes can even be more adequate than private ones if certain conditions that are necessary for the efficient working of private ownership are not present. These include a limited variation of the yield of the resource, enforceability of property rights, low costs of surveillance and maintenance, and an adequate level of information about the legal system which is supposed to guarantee the property rights. If these conditions are not met, the famous Coase theorem on private property structures breaks down and other arrangements will lead to more efficient results. The rational choice analysis of Pareto optimal and suboptimal outcomes is useful here in determining how and under which conditions private or common property arrangements at the national and/or international level are most efficient.

Collective Goods Problems

A deeper analysis of the property rights problem in relation to environmental questions shows that these different types of regimes constitute alternative ways to solve the collective goods problem. Both common and private schemes to manage resources imply the solution of some types of collective good: (i) a direct cooperative arrangement between parties who want to manage assets in common or (ii) the establishment of a legal structure with a judicial system to settle disputes in the case of a privatization of these resources. The latter constitutes an indirect form of cooperation. Mancur Olson, the author who has most extensively dealt with the notion of collective goods, has emphasized the importance of the size of the user group of such goods as well as of the asymmetries between the interests of its users in terms of if and how a collective good will be provided. International environmental regulations or agreements often have the characteristics of collective goods where the number of participants and different

interests between countries matter. Again, rational choice in the form of collective action analysis can help solve questions about how difficult it will be to set up environmental regulations and institutions at the international level and how efficient these are likely to be.

The Conservationist's Dilemma

The problem of exhaustible resources raises the so-called "conservationist's dilemma": While it is advantageous to exchange exhaustible resources for other assets if interest rates are high and therefore deplete them, high interest rates also hinder heavy investments with strong environmental impacts, such as roads, dams, and power plants. However, under certain conditions, such heavy investments could become desirable if they help to mitigate costs due to global environmental change. In other words, a conservationist will have to cope with the dilemma of facing difficult environmental consequences with either high or low interest rates. The question is therefore to distinguish between environmentally favorable and unfavorable investments and cost assessments in order to solve the conservationist's dilemma and try to associate different interest rates with different types of activities. Such problems are particularly important in terms of the relationships between developed and developing countries where high interest rates during the debt crisis have already contributed, as mentioned above, to the depletion of non- or only slowly renewable resources (such as forests).

Sustainable Development

The notion of sustainable development raises the problem of the transfers of resources from one generation to the next. This concept is therefore much more concerned with questions of equity rather than efficiency, since there cannot be a general answer to the conservationist's dilemma in terms of an efficient allocation of resources between generations. Sustainability thus presupposes the adoption of rules and norms that permit a continuation of resource use by society. A look at the various legal systems shows that such norms involving the transfer of resources already exist in the form of inheritance rules, succession taxes, and specific property structures. The important issue of population growth is also contained in the notion of sustainability, since it ultimately results from the adoption of long-term family strategies by individuals or by society. Such strategies will ultimately determine fertility levels and future population size. Rational choice analyses of the interplay between these norms, rules, strategies, and their influence on relations within and between societies can determine the feasibility and desirability of policies of sustainability.

International Agreements

All the issues mentioned above have far reaching consequences for the distribution of resources and wealth at the international level. Therefore, they become the subject of international environmental negotiations and attempts to create new international environmental

institutions. These problems of distribution lead, in general, to "Prisoner's Dilemma" or other mixed motive-type situations or collective goods questions. They can be resolved by agreements if parties want to avoid suboptimal outcomes which are characterized by joint losses. Rational choice analysis suggests some mechanisms for negotiating and implementing such agreements within specific institutional frameworks. The use of surveillance schemes and threat strategies plays a crucial role here, both at the bilateral and multi-lateral level. The use of analytical methods should shed some light on both efficiency and equity issues raised by environmental questions in the international system.

References

- HARDIN, Garrett (1977). "The Tragedy of the Commons." In *Managing the Commons*, eds. G. HARDIN and J. BADEN. San Francisco, CA: W.H. Freeman and Company, pp. 16-30.
- HARTWICK, John M., and Nancy D. OLEWILER (1986). *The Economics of Natural Resource Use*. New York, NY: Harper and Row.
- LUTERBACHER, Urs (1994). "A Theory of Cooperation in the Triad." In *Cooperative Models in International Relations Research*, eds. Michael D. INTRILIGATOR and Urs LUTERBACHER. Dordrecht: Kluwer Academic Publishers.
- LUTERBACHER, Urs, and Ellen WIEGANDT (1990). *Modeling the Impact of Climate on Society*. CIESIN

Working Paper. Ann Arbor, MI: Consortium for International Earth Science Information Network.

NORDHAUS, William (1991). "To Slow or Not to Slow: The Economics of the Greenhouse Effect." *The Economic Journal*, 101: pp. 920-937.

NORGAARD, Richard B., and Richard B. HOWARD (1991). "Sustainability and Discounting the Future." In *Ecological Economics: The Science and Management of Sustainability*, ed. R. COSTANZA. New York, NY: Columbia University Press.

OLSON, Mancur (1965). *The Logic of Collective Action*. Cambridge, MA: Harvard University Press.

OSTROM, Elinor (1990). "Institutional Arrangements

for Resolving the Commons Dilemma: Some Contending Approaches." In *The Question of the Commons*, eds. Bonnie J. McCAY and James M. ACHESON. Tucson, AZ: University of Arizona Press.

SANDLER, Todd (1992). *Collective Action: Theory and Applications*. Ann Arbor, MI: The University of Michigan Press.

WARD, Hugh (1993). "Game Theory and the Politics of the Global Commons." *Journal of Conflict Resolution*, 37: pp. 203-235.

YOUNG, Oran (1989). *International Cooperation: Building Regimes for Natural Resources and the Environment*. Ithaca, NY: Cornell University Press.

EMPIRICAL-QUANTITATIVE ANALYSES OF INTERNATIONAL ENVIRONMENTAL POLICY

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INTRODUCTION

Whereas many social science disciplines have gone through a phase of emphasis on empirical-quantitative studies, this cannot yet be said of research on international environmental policy. This contribution tries to shed some light on why this is the case and what the prospects are for empirical-quantitative studies in this field of inquiry.

In the following, I will summarize the (i) major characteristics of current inquiries into international environmental policy, (ii) standards for a contribution by empirical-quantitative approaches, (iii) practical challenges which this type of research strategy faces, and (iv) prospects for empirical-quantitative analyses of international environmental policy.

CHARACTERISTICS OF CONTEMPORARY RESEARCH

Much of contemporary research on international environmental policy is descriptive, historical and problem-oriented, but it is rarely systematic or cumulative. As a consequence, we have learned much about the history of environmental regulation, why such regulations come about, and under which circumstances domestic and international environmental regimes are formed. Normally, single pollutants or a family of related pollutants are studied, but we rarely find a

focused structured comparison (Almond) which would shed light on broader explanatory factors. In conclusion, we would hope that the external validity of many studies were much stronger. While there are a few examples of well-conceived comparative studies, they have not yet become the rule in this field of inquiry.

AN AGENDA FOR EMPIRICAL-QUANTITATIVE STUDIES

In order to establish the rationale for empirical-quantitative analyses, I briefly outline a set of standards against which to judge the success of empirical-quantitative approaches.

First empirical-quantitative studies of the international environment should be cumulative, i.e., they should be part of a progressive research program. Explicit specification of hypotheses and comprehensive model tests should permit rigorous comparisons of theories.

Second, empirical-quantitative studies should foster comparability, across time (longitudinal design), across countries (cross-national design), or across substantive domains of regulation (comparative case study design). Employing the same (or equivalent) standards for comparison, as reflected in coding rules and formal testing methods, reduces threats to internal validity (especially statistical conclusion validity).

Third, empirical-quantitative studies should be reproducible, if and only if researchers agree on the same coding rules and the same statistical procedures. Then, the statistical and substantial conclusions would be independent of the researcher. In particular, quantitative methods foster more transparency in the research process.

While these three aspects of quantitative studies are largely geared towards statistical designs, it has to be noted that these aspects also hold for simulation studies. Regrettably, simulation models are even less often employed than statistical approaches in research on international environmental policy.

In conclusion, empirical-quantitative studies do not necessarily provide new insights, but they offer clearer tests of relevant research hypotheses.

PRACTICAL CHALLENGES FOR EMPIRICAL-QUANTITATIVE ANALYSES

If empirical-quantitative analyses have important advantages, why do we have so few quantitative inquiries into *international* environmental policy? The answer to this question touches on three aspects which hamper the widespread application of quantitative analyses: (i) problem selection, (ii) data problems, and (iii) interpretation problems.

First, some international environmental problems are better suited for empirical-quantitative analysis than others. While quantitative analyses ideally rely on a large number of cases for making inferences, this requirement is rarely met in the field of international environmental policy. For example, theories of international environmental regimes operate on the system level. A proper test can only deal with the few incidence of regime change in order to attribute change in dependent variables to variation in independent variables. Because system level changes are comparatively rare, empirical-quantitative analyses cannot easily show their comparative advantages. Furthermore, it is quite difficult to develop indicators which allow comparisons across (pollution) media. As a consequence, single pollutant studies are more easily approached quantitatively (longitudinal design). In a cross-national design, it may be relatively easy to compare relative economic efforts of pollution abatement (by relying on deflated cumulative shares of Gross Domestic Product), but it is more challenging to assess relative political efforts cross-nationally (e.g., overcoming institutional hurdles or mobilizing the mass public). In addition, we often lack adequate social science data on environmental phenomena (as opposed to natural science data). Fortunately, the current social science data deficit may be reduced by data collection efforts under the auspices of the Human Dimensions of Global Environmental Change Program of the Interna-

tional Social Science Council as well as other organizations.

Second, even if we find high quality data, enthusiasm for quantitative analyses may be hampered for various reasons. Relying on few cases may lead to the well-known problems posed by outliers, influential cases, and heteroskedasticity. In addition, high quality data are often available only for the member countries of the Organization for Economic Cooperation and Development (OECD). As a consequence, non-OECD countries cannot be analyzed on equal footing with more industrialized countries. In addition, data quality may vary because of (i) governmental focus on some areas of environmental management at the expense of others, (ii) limitations of technical facilities (which may lead to unreliable natural science data), and (iii) lack of proper interpretation of natural science data by social scientists. In the long run, the last shortcoming can only be circumvented by relying on integrated teams of social and natural scientists. However, one particular problem with data may persist: discrepancies in spatial (and temporal) resolution of data for the natural and social sciences. Spatial data for ecologists (e.g., 100 m x 100 m or 150 km x 150 km) rarely coincide with political and economic "grid sizes" (political-administrative or economic units). In addition, the optimal time scales may be very different for ecosystems as compared to political units. The development of Geographic Information Systems (GIS) and the analysis of these data will have to tackle the problem of non-congruent scales in space and time (e.g., "humanscapes").

Third, quantitative studies may run into interpretation problems. For example, "objective" pollution exposure (as measured in ambient air) may simply not covary with human perception across a wide range of doses. In fact, the covariation between objective exposure and subjective perception remains an important area of research. Given the small number of cases (as mentioned above), quantitative analyses may easily run into the problem of model specification and more elaborate models may easily face the challenge of "negative" degrees of freedom or omitted variable bias.

THE FUTURE OF EMPIRICAL- QUANTITATIVE ANALYSES

While the challenges to high-quality empirical-quantitative analyses of international environmental policy may seem difficult to overcome, I remain cautiously optimistic that more quantitative research (besides contributions by economists) will be forthcoming in the next decade for the following reasons.

First, quantitative analyses espouse explicit standards for the assessment of hypotheses. In

particular, decision-makers prefer natural science techniques for reasons of (presumed) removal of the predispositions of researchers. Funding of empirical-quantitative studies will become more common in the near future.

Second, it seems fair to expect that we will have much easier access to social science data in ten years time. Besides international data gathering programs, I expect national governments to get more interested in a more adequate understanding of the political, social, and economic consequences of their national and international environmental policies. In the long run, we will be able to conduct secondary analyses of data, and central archives for social science data on environmental protection will facilitate quantitative research comparable to the advancements the field of international relations made in the late 1960s and 1970s - after embarking on collecting data on international war.

Third, quantitative researchers are encouraged to cooperate with their more qualitatively-minded colleagues, because qualitative research often provides the heuristic impetus for a progressive research program. It seems not to be far-fetched to predict that the successful maturation of the field of international environmental policy will only occur by way of a fruitful interaction among the various research communities.

Fourth, it appears to me that more generic (rather than issue-specific) models of comparative and international environmental policy will be developed in the next few years which will allow us to make comparisons across environmental domains as well as across various public policy domains (e.g., international environmental and migration policies). In particular, I expect that generic models of international environmental policy will be developed so as to facilitate comparisons across pollutants, regions (spatial resolution), and time.

While we presently find few empirical-quantitative inquiries into international environmental policy, I expect empirical-quantitative analyses (e.g., on the "proximate driving forces") to be funded on a much larger scale in the near future in order to respond to societal demands for a better understanding of the human dimensions of global environmental change. As a consequence, theory development and theory testing by way of empirical-quantitative studies will contribute to the development of the field of international environmental policy.

References

CRANDALL, Robert W. (1983). *Controlling Industrial Pollution - The Economics and Politics of Clean Air*. Washington, DC: The Brookings Institution.

SPRINZ, Detlef F. (1992). "Why Countries Support International Environmental Agreements: The Regulation of Acid Rain in Europe." Ph.D. dissertation, Ann Arbor, MI: Department of Political Science, The University of Michigan.

SPRINZ, Detlef F. forthcoming. "Domestic Politics and European Acid Rain Regulation." In *The International Politics of Environmental Management*, ed. Arild UNDERDAL. Dordrecht: Kluwer Academic Publishers.

WIDMER, Thomas (1991). *Evaluation von Massnahmen zur Luftreinhaltepolitik in der Schweiz - Eine quasi-experimentelle Interventionsanalyse nach dem Ansatz Box/Tiao*. Zürich: Verlag Rüegger.

TOWARD A THEORY OF THE INTERNATIONAL POLITICAL ECONOMY OF SUSTAINABILITY

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INTRODUCTION

In the emergent field of international environmental politics, many strands of inquiry are likely to occur until a core set of concepts develop. One strand that has received little analytic attention and yet may be critical to the development of the field, let alone to the generation of useful policy prescriptions, might be called the international political economy of sustainability. It examines the nexus of politics and economics as these two spheres interact to alter ecosystems over long time periods. It pays particular attention to economic and cultural globalization as well as global environmental degradation. That is, it tries to account for the simultaneous processes of increasing flows of goods and services and improving communications and transportation, on the one hand, and of widespread resource depletion and waste sink unavailability, on the other. Finally, this strand of inquiry explicitly incorporates the notion of sustainability and the roles of actors at all levels, state and non-state.

SUSTAINABILITY AND INTERNATIONAL COOPERATION

Why is the development of a political economy of sustainability needed? As the Brundtland Report and many subsequent studies have concluded, environmental decline cannot be divorced from economic and political factors, whether they are development programs, investment strategies, or trade and foreign aid policies (World Commission on Environment and Development 1987; MacNeill et al. 1991). At the international level, these processes are intimately linked to political processes via diplomacy and national policy making.

The concept of sustainability makes an essential contribution to theory building, because it is grounded in the analytical concept of biophysical processes. This foundation permits a distinction between international environmental issues from the traditional realms of security and trade. In these traditional realms, international cooperation has been closely correlated with stability, order, peace, and economic progress which is not, a priori, the case for international environmental issues. The international tropical timber trade

regime illustrates the inadequacies of international cooperation as a policy goal.

In this regime, a clearly articulated set of norms and principles can be found in the International Tropical Timber Agreement of 1983. The International Tropical Timber Organization, operational since 1987, has promulgated a set of rules and procedures. The regime provides useful resource management and trade information and, thus, reduces transaction costs for its members. Moreover, trade among its member states has grown, revenues have increased, and cartelization, boycotts, and other threats to regime maintenance have not arisen. In short, international cooperation is virtually perfect. The only problem is that "the extent of tropical moist forest which is being deliberately managed at an operational scale for the sustainable production of timber is, on a world scale, negligible" (Poore 1989, 207). In other words, these forests and all their associated values - carbon sink, biodiversity, watershed, extractive products, fuel, fodder, and so forth- are being permanently removed and at a rate that will put most tropical timber trading countries out of business by the turn of the century.

International cooperation is clearly not enough to promote sustainable resource use and, in fact, can contribute substantially to exploitation that has short-term benefits and long-term costs. The timber trade case thus forces us to ask two questions, Cooperation by whom? and Cooperation for what? In the timber trade regime, cooperation occurs among states with state agencies and multinational corporations leading the way. But a wide range of actors utilize forest resources directly and indirectly, and many have done so on a sustainable basis. Their efforts to resist encroachments tend to bring in a variety of actors, public and private, domestic and international, as well as governmental and non-governmental. For the purpose of theorizing, analytic attention to a wide range of non-state actors appears to be essential to a political economy of sustainability.

The "cooperation-for-what?" question is addressed by explicitly considering the issue of sustainable use of resources -- whether of forests, water, soils, or the atmosphere. Tropical deforestation, pollution with persistent toxic chemicals, soil depletion, mining of

aquifers, atmospheric warming, and ozone depletion all share characteristics of irreversibility and non-substitutability. Sustainable use is not being practiced when persistent toxic chemicals do not disappear through dilution and dispersion, when nutrients wash away after vegetation is removed and will not be replaced for centuries, when species permanently disappear with the loss of habitat, when the atmosphere heats up at an unprecedented rate and with inertia that spans generations, and when none of the associated resources (drinking water, soil, biodiversity, atmosphere) have ecological or economic substitutes.¹

The analytic task is two-fold. First, we have to understand the political and economic factors that contribute to unsustainable practices. We must comprehend, for example, how state practices to handle wastes (recycling, disposal) drive corporate practices and have transnational effects (ocean dumping, incineration, and waste trade). Second, research has to be undertaken to characterize a sustainable economy and its institutional and behavioral prerequisites. In the following, I will focus on the latter point.

AN AGENDA FOR FUTURE RESEARCH

To date, much of the work along these lines has been highly normative, if not idealist. It is possible, however, to define a research agenda that relies on existing or obtainable evidence for sustainable economies, yet does neither depend on prevailing assumptions about primary actors (states and intergovernmental organizations), nor on an appropriate scale of activity (global), nor on a level of analysis and intervention (international, managerialist, and top-down).² There is growing evidence that the scale of social organization necessary to induce sustainable resource systems is often, but not always, small. Institutionalists, economists, anthropologists, and others examining durable common property resource regimes appear to conclude that scale limits are necessary to successful, long-term resource management (Bromley 1992). Development specialists have long cited the need for local solutions, but are now grounding their claims in both social and ecological terms (Leonard 1989; Korten 1990). Environmental psychologists and behavioral ecologists are coming to similar conclusions.

These findings can be considered in conjunction with the discovery of tremendous uncertainties associated with modeling of global systems. Moreover, we learn that these uncertainties are compounded by interventions, both to correct deficiencies and to expand economic activity. With findings in chaos theory, modeling of complex systems to assess the impact of interventions are increasingly seen as impossible.³ Prediction is being replaced by precaution as a principle of resource and waste sink use (see Stairs and Taylor

1992).

The combination of an apparent scale limitation to social organization for sustainability and a modeling limitation to global systems suggests two avenues of inquiry to develop a theory of the political economy of sustainability. The first option is to look empirically at small-scale, ecologically based, durable resource systems. The second option is to focus on the political and economic environment in which these systems operate in order to see how, inter alia, institutional or cultural factors have allowed for or encouraged such durable systems. This would present a sufficient challenge for descriptive theory. But since all social science theory has policy implications, the next step could be prescriptive. This theory would posit the conditions at the local, national, regional, and international levels that would promote such regimes.

It is important to stress that when taking existing durable resource systems as a starting point, we do not have to demonstrate the unsustainability of the current global economy or to find correlations between international cooperation and sustainable resource use. I might speculate that in the proposed research program, we will find a wide range of actors involved in the "international" politics of small-scale resource systems. Moreover, it is likely that individual leaders will be critical not just to regime formation (Young and Osherenko 1989), that epistemic communities will be critical not just to formal diplomacy (Haas 1992), and that "moral entrepreneurs" and NGOs will be critical not just to social learning (Nadelmann 1990; Princen and Finger 1994). Rather, such transnational actors will be critical to translating locally tailored approaches into enabling institutional environments. It is also likely that what is critical is not scale, per se, but the ability to resist intrusions when resource use is durable and the ability to resist conversion of property - private, common, or state owned - into open access areas.⁴ The politics of such resistance remains, to my knowledge, entirely unexplored.

Endnotes

1. An implicit assumption in promoting the concept of sustainability is its usefulness. The debate over its meaning and its political appropriation for everything from poverty alleviation to mining leads some to dismiss the concept as worthless. In this regard, it is not unlike other common, and analytically useful, concepts such as power, interests, peace, order, progress, and development. Thus, although I do not venture my own, all-encompassing definition, the qualities of irreversibility and non-substitutability -- which biophysical processes such as bioaccumulation, synergistic and threshold effects, and climate change

exhibit -- will suffice. Moreover, I take Robert Repetto's approach as the most useful from both an analytic and a policy perspective: Given a choice between two policy options, it is generally possible to decide which is more likely to get us on a path to sustainability (Personal communication 1993).

2. For arguments against these prevailing assumptions, see Princen (1994).

3. Thomas Schelling, one of the first economists to address the global warming question, points out that the range of uncertainty regarding the degrees of warming with a doubling of CO₂ has not changed after 15 years of massive research, and he predicts that it will not change over another 15 years period of data collection and modeling. This holds, because as we solve one mystery about climate dynamics, we raise many more (Lecture given at The University of Michigan in 1993). Economist Charles Perrings comes to a similar conclusion in a decision making approach:

As our knowledge of the global system increases, so does our uncertainty about the long-term implications of present economic activity. Combined with the uncertainty caused by the rapid pace of change in resource use technology, this suggests that the increasing flow of information does not in fact give more complete information. The problem for decision makers does not get easier. Not only is the perceived range and severity of the possible environmental effects of economic activity expanding, so is the gestation period (Perrings 1991, 153-66).

And climatologist Stephen H. Schneider comes to similar conclusions from the biophysical perspective (Schneider 1993). To conclude that such modeling is impossible is not to say that such approaches are not useful for technological innovation (see Holland 1992).

4. The dilemma associated with open access property -- as opposed to common property -- were characterized in the seminal article of Hardin (1968). For elaboration of the distinction, see Runge (1992).

References

- BROMLEY, Daniel W. ed. (1992). *Making the Commons Work: Theory, Practice, and Policy*. San Francisco, CA: Institute for Contemporary Studies Press.
- HAAS, Peter M. ed. (1992). "Knowledge, Power, and International Policy Coordination." Special issue of *International Organization*, 46(1).
- HARDIN, Garrett (1968). "The Tragedy of the Commons." *Science*, 162: pp. 1243-48.
- HOLLAND, John H. (1992). "Genetic Algorithms." *Scientific American*, 267(1): pp. 66-72.
- KORTEN, David (1990). *Getting to the 21st Century: Voluntary Action and the Global Agenda*. West Hartford, Conn.: Kumarian Press.
- LEONARD, Jeffrey H. (1989). *Environment and the Poor*. Washington, DC: Overseas Development Council.
- MacNEILL, Jim, Pieter WINSEMIUS, and Taizo YAKUSHIJI (1991). *Beyond Interdependence: The Meshing of the World's Economy and the Earth's Ecology*. New York, NY: Oxford University Press.
- NADELMANN, Ethan A. (1990). "Global Prohibition Regimes: The Evolution of Norms in International Society." *International Organization*, 44: pp. 479-526.
- PERRINGS, Charles (1991). "Reserved Rationality and the Precautionary Principle: Technological Change, Time and Uncertainty in Environmental Decision Making." In *Ecological Economics: The Science and Management of Sustainability*, ed. Robert COSTANZA, New York, NY: Columbia University Press, pp. 153-66.
- POORE, Duncan (1989). *No Timber Without Trees: Sustainability in the Tropical Forest: A Study for ITTO*. London: Earthscan.
- PRINCEN, Thomas (1994). "NGOs: Creating a Niche in Environmental Diplomacy." In *Environmental NGOs in World Politics: Linking the Local and the Global*, Thomas PRINCEN and Matthias FINGER. London: Routledge.
- PRINCEN, Thomas, and Matthias FINGER (1994). *Environmental NGOs in World Politics: Linking the Local and the Global*. London: Routledge.
- RUNGE, C. Ford (1992). "Common Property and Collective Action in Economic Development." In *Making the Commons Work: Theory, Practice, and Policy*. ed. Daniel W. BROMLEY, San Francisco, CA: Institute for Contemporary Studies Press, pp. 17-39.
- SCHNEIDER, Stephen H. (1993). "The Future of Climate: Potential for Interaction and Surprises." Department of Biological Sciences, Stanford University (draft manuscript, 15 September, 1993), Typescript.
- STAIRS, Kevin, and Peter TAYLOR (1992). "Non-Governmental Organizations and Legal Protection of the Oceans: A Case Study." In *The International Politics of the Environment: Actors, Interests, and*

International Studies Notes

Institutions, eds. Andrew HURRELL and Benedict KINGSBURY. Oxford: Oxford University Press, pp. 110-141.

World Commission on Environment and Development (1987). *Our Common Future*. New York, NY: Oxford University Press.

YOUNG, Oran, and Gail OSHERENKO, ed. (1993). *Polar Politics: Creating International Environmental Regimes*. Ithaca, NY: Cornell University Press.

INTERNATIONAL REGIME INITIATION

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INTRODUCTION

International environmental regimes, like other institutions in international society, are sets of rules that define social practices, assign roles to the participants in these practices, and govern relations among the occupants of those roles. For the most part, environmental regimes are functionally specific, as in the cases of the institutional arrangements for whales and whaling, transboundary air pollution in Europe, and the control of chemicals that deplete ozone in the stratosphere. In many cases, they are aimed at well-defined geographical areas, like Antarctica, the Mediterranean Basin, or the Rhine River Basin. Membership in international environmental regimes varies from as few as two (for example, the Canadian/American boundary waters regime) to as many as 150 (for instance, the newly emerging climate change regime). In virtually every case, however, the basic provisions of international environmental regimes are set forth in formal, though not necessarily legally binding, agreements.

Regime formation, a subject that encompasses the reconstruction of existing institutional arrangements as well as the creation of new arrangements where none has previously existed, has emerged as one of the central concerns of the "new institutionalism" in international relations (Moravcsik 1992; Zacher and Matthew 1992; Young 1994). The study of regime formation can be broken down into three distinct, albeit interrelated, topics (Young and Osherenko 1993). There is, first, the basic question of whether those parties interested in a given issue succeed in forming a regime or fail to reach closure on the terms of a mutually agreeable institutional arrangement.

In cases where regime formation is ultimately successful, it is pertinent to proceed to a second concern by asking how long it takes to move from the appearance of an issue on the active international agenda to the conclusion of an agreement setting forth the terms of a regime. As the cases of Antarctica and the northern fur seal attest (Beck 1986; Mirovitskaya, Clark, and Purver 1993), it is not uncommon for a decade or more to elapse in the effort to reach agreement on the terms of an international regime, a matter of growing concern to those who believe we have entered an era of rapidly escalating environmental crises.

Third, we want to ask about the substantive con-

tent or character of the regimes created to deal with environmental issues. This is a matter of particular concern to those who emphasize the importance of tailoring the features of specific institutional arrangements to the nature of the problems they are created to solve. A comprehensive theory of regime formation, then, should allow us to account for success or failure in efforts to establish regimes, the time it takes to reach agreement in successful cases, and the substantive provisions set forth in constitutional contracts for individual regimes.

The major analytic issues raised in the study of regime formation can be grouped into five broad categories: (i) processes of regime formation, (ii) stages of regime formation, (iii) driving social forces, (iv) crosscutting factors, and (v) multivariate models.

PROCESSES OF REGIME FORMATION

Three distinct visions of the process of regime formation have emerged in the literature on international regimes: self-generation, negotiation, and imposition (Young 1983). A self-generating or spontaneous regime is one that emerges through some process of converging expectations that does not involve any conscious effort on the part of those expected to become participants in the resultant social practice. Much favored by political conservatives because it obviates the need for institutional design or social engineering, this process is often described as a means of producing order without law (Ellickson 1991). A negotiated regime is one that arises from a process of bargaining in which the parties engage in conscious efforts to hammer out mutually agreeable provisions to be incorporated into an explicit agreement. Thought by many, including most diplomatists, to be the primary process of regime formation in international society, negotiation has become a familiar feature of the landscape of international environmental affairs. An imposed regime, by contrast, is an arrangement that is favored by a single powerful actor (or, in some cases, a small coalition of powerful actors) who succeeds in compelling others to accede to its institutional preferences. Favored by those who think in terms of dominance and look for ruling elites as the prime movers in the creation of institutions, imposition can also be interpreted more benignly as a process through which leading actors supply institutional arrangements looked upon as public goods to privileged groups

(Olson 1965; Snidal 1985).

The study of actual cases of regime formation suggests that these distinctions are best thought of as analytic rather than concrete in character. What this means is that specific instances of regime formation are apt to exhibit elements of all three processes, though one or another may be particularly prominent in individual cases. As those who have analyzed tacit bargaining have made clear, for example, successful negotiations regularly involve some convergence of expectations that cannot be explained through a study of the explicit bargaining process (Schelling 1960; Axelrod 1984; Downs and Rocke 1990). Similarly, studies of bargaining power have produced a rich set of observations about factors governing success or failure on the part of powerful actors seeking to bring their structural resources to bear on the process of regime formation (Young 1994). The fact that the terms of international regimes are generally articulated in formal agreements, therefore, should not lead us to overlook self-generation and imposition as important aspects of the process of regime formation. The challenge before us, at this point, is to improve our grasp of the interactions among these processes as they play out in specific cases.

STAGES OF REGIME FORMATION

Recent work has made it clear that it is useful to divide the process of regime formation into at least three stages: agenda formation, institutional choice, and implementation. The stage of agenda formation encompasses the emergence of an issue on the political agenda, the framing of the issue for consideration in international forums, and the rise of the issue to a high enough place on the political agenda to warrant priority treatment (Stein 1989). Institutional choice takes an issue from the point where it becomes a priority item on the international agenda to the point of agreement on the terms of a specific regime. Implementation covers all those activities required to transform an agreement on paper into an operational social practice (Jacobson and Weiss 1990). In international society, the implementation stage generally features efforts on the part of member states to bring a regime's rules to bear on various non-state actors (for example, fishers, oil tanker owner/operators, power plant managers) operating under their jurisdiction. It may also stimulate efforts on the part of those expecting their interests to be adversely affected by the operation of the regime to redefine some of its provisions. In some cases (for example, the whaling regime or the vessel-source oil pollution regime) it also involves setting up international organizations to make periodic decisions about the operation of the regime, to handle financial matters, and to deal with various administrative issues.

It appears, at this point, that the relevance of the

different processes of regime formation varies from one stage to another. Again and again, issues requiring the creation of international regimes are defined and developed conceptually in the absence of any explicit process. As the recent shift from single-species perspectives to whole ecosystems thinking suggests, this phase of the process is apt to reflect broader developments in the intellectual capital available to deal with such concerns. Similarly, there are severe constraints on the usefulness of imposition as a means of compelling individual states to act vigorously during the implementation stage of regime formation. As recent experience with issues like transboundary air pollution and deforestation makes clear, in fact, powerful states sometimes find that they can make more progress through measures to build capacity and otherwise assist weaker states in their efforts to implement the terms of international regimes than they can through threats or sanctions intended to force weaker states to comply with the terms of international regimes.

DRIVING SOCIAL FORCES

Much of the energy of those interested in regime formation has gone into efforts to identify specific factors that play a causal role in the process of institutional development and to assess the relative importance of these factors in actual cases (Haggard and Simmons 1987). Three clusters of factors have emerged as the primary claimants for the attention of those concerned with regime formation: power, knowledge, and interests. Realists and many neorealists regard agreements setting forth the terms of international regimes as reflections of the distribution of power in the material sense (Strange 1983). Regimes can, therefore, be expected to change from time to time in the wake of shifts in the distribution of structural power in international society. Those who stress the role of ideas often treat knowledge as a form of power that is distinct from structural power. They emphasize the role of consensual knowledge and social learning in the processes giving rise to international regimes (Haas 1990). In extreme cases, institutional arrangements may be expressions of hegemony in the Gramscian sense (Cox 1983). Analysts stressing the role of interests look to interactive decision-making and the search for solutions to collective action problems as the motivating force underlying regime formation (Young 1989). They conceptualize regime formation as a mixed motive process in which individual parties seek to arrive at mutually agreeable deals.

Empirical work on regime formation has produced a number of notable conclusions about the role of these clusters of factors. Recent studies have provided little support for the theory of hegemonic stability which has loomed for some time as a central concern of those who

stress power factors (Keohane 1984; Young and Osherenko 1993). Yet, this does not mean that the role of power more generally is unimportant in the process of regime formation. It is worth considering a variety of other power-based arguments, such as the idea that some rough parity among the participants is important in moving beyond the increasingly sterile debate about hegemony. Research on the role of ideas has focused recently on arguments pertaining to social learning and to the role of epistemic communities, construed as transnational groups of scientists and policy-makers who become carriers and transmitters of ways of thinking about environmental problems and their solutions (Haas 1992). Studies of actual cases have made it clear that these arguments will require considerably more development in analytic terms before they can be properly tested as contributions to our understanding of regime formation. Work on interest-based arguments is now centered on the idea of institutional bargaining, a form of bargaining featuring efforts to arrive at consensus on the terms of institutional arrangements under conditions of imperfect information about the payoff possibility set (Young 1989). These studies stress the importance of integrative as well as distributive bargaining and suggest that the image of "life on the Pareto frontier" (Krasner 1991) is a misleading one, at least when it comes to regime formation. Stressing the creative role of institutional bargaining, this way of thinking raises questions about the arguments many observers have made concerning the significance of problem structure as a determinant of regime formation (Rittberger 1990).

CROSSCUTTING FACTORS

Efforts to sort out the relative importance of power, knowledge, and interests through an examination of actual cases have revealed the significance of two additional factors that cut across the three original clusters: individual leadership and context. Again and again, careful reconstructions of the creation stories of specific environmental regimes point to the roles prominent individuals play at critical junctures in the formation processes (Young and Osherenko 1993). In this connection, it is helpful to distinguish three types of leadership that parallel the driving social forces described in the preceding paragraphs (Young 1991). Structural leaders are individuals who devise stratagems for bringing power in the material sense to bear on processes of regime formation. Intellectual leaders, by contrast, develop and exploit ideas to shape the way issues are framed and to energize the occurrence of social learning during formation processes. For their part, entrepreneurial leaders endeavor to highlight the integrative aspect of institutional bargaining, to craft new options capable of producing consensus, and to broker deals that lead to closure on the terms of

constitutional contracts. Different types of leadership are apt to loom large in one or another of the stages of regime formation. Whereas intellectual leadership is particularly prominent at the agenda formation stage, entrepreneurial leadership is more important at the stage of institutional choice. But in virtually every case of successful regime formation, one or more key individuals have provided leadership at crucial turning points.

The process of creating international regimes, environmental or otherwise, does not occur in a vacuum. Rather, this process unfolds in a setting in which any number of other issues can intrude to promote or impede the creation process. The outbreak of World War I in 1914, for example, terminated efforts to craft an international regime for the Svalbard Archipelago for a period of six years and ushered in a political setting in which the regime concluded in 1920 was radically different from the proposals on the table in 1914 (Singh and Saguirian 1993). The initiation of the Conference on Security and Cooperation in Europe (CSCE) process in the 1970s and the desire on the part of the (former) Soviet Union to convey a spirit of cooperation in this connection, by contrast, provided the impetus to reach agreement on the terms of the Geneva Convention of 1979 setting forth initial provisions of a regime for long-range transboundary air pollution (Soroos 1993), an arrangement which has subsequently evolved into a complex institution with considerable impact on the behavior of its members (Levy 1993). Because they are not connected with processes of regime formation in any substantive sense, the role these contextual factors play in specific cases is difficult to anticipate. Yet they can have drastic effects on regime creation, a fact that means we must be on the lookout for them at all times.

MULTIVARIATE MODELS

The challenge before us now is to move beyond efforts to highlight the role of individual factors in processes of regime formation in international society (Young and Osherenko 1993). In part, this endeavor must involve a recognition of the role of equifinality in the formation of international regimes or, in other words, the existence of multiple tracks along which such processes can move toward the same end (or equivalent ends). It is no doubt true that there are cases in which a dominant state or hegemon supplies institutional arrangements to the members of a privileged group as a kind of public good. Yet there are many cases in which regime formation takes the form of a bargaining process among actors that are more nearly equals. Similarly, while integrative bargaining and social learning loom large in some cases, other cases appear to be better understood in terms of the striking of deals among actors possessing a clear sense of the

contours of the payoff space or the negotiation set associated with the institutional options available to them. The importance of equifinality indicates that we should not be overly concerned with the search for necessary conditions for success in the process of regime formation, a search that is likely to prove frustrating and relatively fruitless. Yet there is nothing in this realization to prevent us from identifying a number of tracks that successful processes of regime formation can follow, such as provision on the part of a single dominant actor or action on the part of a "k group" or small number of leading actors (Schelling 1978), and from spelling out the sorts of cases that are likely to proceed along each of these tracks.

Finally, it is critical to acknowledge that all the distinctions laid out in the preceding sections are analytic in character and that interaction effects between and among them are the rule rather than the exception. Institutional bargaining, for example, often leads to a recasting of the nature of the problem under consideration; efforts to implement the terms of constitutional contracts frequently trigger a reconsideration of provisions accepted at an earlier stage or a move to augment or extend the provisions in an initial agreement. Knowledge can produce new technologies that alter the relative bargaining power of those engaged in processes of regime formation. But power in the material sense sometimes allows its possessors to maintain and even increase their access to superior knowledge. These subtleties should not be allowed to derail efforts to construct generalizations that can help us to identify patterns in complex processes of regime formation. But they do emphasize the value of careful efforts to reconstruct the creation stories of individual regimes through procedures like process tracing and thick description.

References

- AXELROD, Robert (1984). *The Evolution of Cooperation*. New York, NY: Basic Books.
- BECK, Peter (1986). *The International Politics of Antarctica*. London: Croom Helm.
- COX, Robert W. (1983). "Gramsci, Hegemony, and International Relations: An Essay in Method." *Millennium*, 12: pp. 162-175.
- DOWNS, George W., and David M. ROCKE (1990). *Tacit Bargaining, Arms Races and Arms Control*. Ann Arbor, MI: University of Michigan Press.
- ELLICKSON, Robert (1991). *Order Without Law: How Neighbors Settle Disputes*. Cambridge, MA: Harvard University Press.
- HAAS, Ernst B. (1990). *When Knowledge Is Power: Three Models of Change in International Organizations*. Berkeley: University of California Press.
- HAAS, Peter M. ed. (1992). "Knowledge, Power, and International Policy Coordination." Special issue of *International Organization*, 46(1).
- HAGGARD, Stephan, and Beth A. SIMMONS (1987). "Theories of International Regimes." *International Organization*, 41: pp. 491-517.
- JACOBSON, Harold K., and Edith Brown WEISS (1990). "Implementing and Complying with International Environmental Accords: A Framework for Research." Presented at the annual meeting of the American Political Science Association, San Francisco, CA.
- KEOHANE, Robert O. (1984). *After Hegemony: Cooperation and Discord in the World Political Economy*. Princeton, NJ: Princeton University Press.
- KRASNER, Stephen D. (1991). "Global Communications and National Power: Life on the Pareto Frontier." *World Politics*, 43: pp. 336-366.
- LEVY, Marc A. (1993). "European Acid Rain: The Power of Tote-Board Diplomacy." In *Institutions for the Earth: Sources of Effective International Environmental Protection*, eds. Peter M. HAAS, Robert O. KEOHANE, and Marc A. LEVY. Cambridge, MA: MIT Press, pp. 75-132.
- MIROVITSKAYA, Natalia S., Margaret CLARK, and Ronald G. PURVER (1993). "North Pacific Fur Seals: Regime Formation as a Means of Resolving Conflict." In *Polar Politics: Creating International Environmental Regimes*, eds. Oran R. YOUNG and Gail OSHERENKO. Ithaca, NY: Cornell University Press, pp. 22-55.
- MORAVCSIK, Andrew (1992). "Liberalism and International Relations Theory." Working Paper No. 92-6, Cambridge, MA: Harvard Center for International Affairs. Mimeo.
- OLSON, Mancur Jr. (1965). *The Logic of Collective Action: Public Goods and the Theory of Groups*. Cambridge, MA: Harvard University Press.
- RITTBERGER, Volker ed. (1990). *International Regimes in East-West Politics*. London: Pinter.
- SHELLING, Thomas C. (1960). *The Strategy of*

Conflict. Cambridge, MA: Harvard University Press.

SCHELLING, Thomas C. (1978). *Micromotives and Macrobehavior*. New York, NY: W.W. Norton.

SINGH, Elen C., and Artemy A. SAGUIRIAN (1993). "The Svalbard Archipelago: The Role of Surrogate Negotiators." In *Polar Politics: Creating International Environmental Regimes*, eds. Oran R. YOUNG and Gail OSHERENKO. Ithaca, NY: Cornell University Press, pp. 56-95.

SNIDAL, Duncan (1985). "Limits of Hegemonic Stability Theory." *International Organization*, 39: pp. 579-614.

SOROOS, Marvin S. (1993). "Arctic Haze and Transboundary Air Pollution: Conditions Governing Success and Failure." In *Polar Politics: Creating International Environmental Regimes*, eds. Oran R. YOUNG and Gail OSHERENKO. Ithaca, NY: Cornell University Press, pp. 186-222.

STEIN, Janice Gross. ed. (1989). *Getting to the Table: The Processes of International Prenegotiation*. Baltimore, MD: Johns Hopkins University Press.

STRANGE, Susan (1983). "Cave! Hic Dragones: A Critique of Regime Analysis." In *International Regimes*, ed. Stephen D. KRASNER. Ithaca, NY: Cornell University Press, pp. 337-354.

YOUNG, Oran R. (1983). "Regime Dynamics: The Rise and Fall of International Regimes." In *International Regimes*, ed. Stephen D. KRASNER. Ithaca, NY: Cornell University Press, pp. 93-113.

YOUNG, Oran R. (1989). "The Politics of International Regime Formation: Managing Natural Resources and the Environment." *International Organization*, 43: pp. 349-375.

YOUNG, Oran R. (1991). "Political Leadership and Regime Formation: On the Development of Institutions in International Society." *International Organization*, 45: pp. 281-308.

YOUNG, Oran R. (1994). *International Governance: Protecting the Environmental in a Stateless Society*. Ithaca, NY: Cornell University Press.

YOUNG, Oran R., and Gail OSHERENKO. eds. (1993). *Polar Politics: Creating International Environmental Regimes*. Ithaca, NY: Cornell University Press.

ZACHER, Mark W., and Richard A. MATTHEW (1992). "Liberal International Theory: Common Threads, Divergent Strands." Presented at the annual meeting of the American Political Science Association, Chicago, Illinois.

THE EFFECTIVENESS OF INTERNATIONAL RESOURCE AND ENVIRONMENTAL REGIMES

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INTRODUCTION

The research question of the effectiveness of international resource and environmental regimes had not been given serious attention till about 1990. Until then, the empirically oriented regime debate focused on the question of regime formation (Young 1989; Rittberger 1990; Young and Osherenko 1993). This is not surprising since the bulk of the over 140 international environmental and resource agreements currently in operation has been concluded in the period after the "catalytic" 1972 Stockholm United Nations Conference on the Human Environment.

More specifically, the following contribution builds on the project "The Effectiveness of International Resource and Environmental Regimes," conducted jointly by a group of researchers from the Fridtjof Nansen Institute, Oslo, and Arild Underdal, University of Oslo.¹ The research carried out so far has been conducted along two lines, namely (i) conceptual framework and research design and (ii) empirical analysis of seven resource and environmental regimes. They include the ECE Convention on Long-Range Transboundary Air Pollution (LRTAP), Paris Convention for the Prevention of Marine Pollution from Land-based Sources (PARCOM), Barcelona Convention for the Protection of the Mediterranean Against Pollution, Vienna Convention for the Protection of the Ozone Layer, Oslo Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft (OSCOM), International Convention for the Regulation of Whaling (ICRW), and the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR). In this strand of analysis, we gained particular insights in using counterfactuals, diachronic vs. synchronic designs, and attributing explanatory power with regard to regime effectiveness.

USING COUNTERFACTUALS

Defining and measuring regime effectiveness is a major challenge. Gradually an international consensus seems to be emerging among scholars working in the field that the measurement of the effectiveness of an international agreement has to involve a counterfactual element (Underdal 1990, 1992; Wettstad and Andresen 1991; Levy 1992; Haas, Keohane, and Levy 1993). If natural scientists, for instance, conclude that the North Sea environment has improved over the last decade, and administrators and politicians proudly point to North Sea regulatory interventions, it seems tempting to conclude that the North Sea regime has been very effective. This straightforward conclusion may be misleading, since the improvement of the marine environment of the North Sea may have been caused by reductions in polluting inputs caused by economic

recessions and general industrial restructuring, reductions in inputs from the air due to air pollution regulations, and longer term "natural" ecological variations. None of these aspects is directly related to the North Sea regulatory interventions. Hence, effectiveness is more convincingly demonstrated by studies which show that environmental or resource improvements would not have come about if the regime had not existed. Accordingly, one effectiveness indicator seems obvious: relative environmental or resource improvement caused by the regime.

Preferably, we would solely rely on this indicator. However, as Underdal (1990) so pertinently reminds us, it is perfectly possible that a regime leading to substantial environmental improvements may fall far short of solving the environmental problem at hand. Returning to the North Sea example, international regulatory measures may bring about a far cleaner marine environment, but given that the starting point was severely polluted coastal areas, "cleaner" may still mean pretty dirty. It is even conceivable that "cleaner" may still qualify as "not within long-term assimilative capacity." Therefore, we need an indicator which tells us something about the degree to which the problem has been "solved" or not by regulations.² In other words, our second indicator suggests to address the following question: How large is the distance between the state of the environment caused by the regulations agreed upon and the "ecological" or "economic" optimum?

In practical terms, both of these indicators are difficult to measure in a precise manner. Counterfactual assessments are obviously tricky. In some cases, we can derive information from official documents predicting, e.g., future energy use, industrial growth, emissions of polluting substances, etc. However, we conclude that "the task of determining what would otherwise have happened simply calls for the best judgment that the analyst can make himself/herself, on the basis of available sources" (Underdal et al. 1992). Defining the ecological optimum precisely is not much easier. In all cases, we found some sort of natural scientific advice from advisory committees to which regulations can be compared. However, this yardstick is problematic in several respects. First, in some instances, scientific committees primarily produced scientific information and did not provide explicit advice. Obviously, it is somewhat easier to assess the political impact of specific, quantitative advice than more general, qualitative observations. Second, scientific or technical bodies very often have administrative participants, acting more as "agents" of national bureaucracies than as independent scientific experts. Thus, the advice offered by these bodies may sometimes tell us just as much about "politically

feasible" as about "ecologically optimal" solutions. Still, the solution to such problems is not to discard this source of information completely; rather, it calls for cautionary use.

DIACHRONIC AND SYNCHRONIC COMPARISONS

First, comparisons can only be conducted on an ordinal scale. Turning to our preliminary efforts at measuring effectiveness, our first observation is that diachronic comparisons are easier to undertake than synchronic comparisons. As an example, it is easier to establish that, for instance, the whaling regime was more effective at one point in time than at another point in time, than it is to decide whether the whaling regime has been more effective than, e.g., the ozone depletion regime. In almost all of the regimes, effectiveness has increased over time. Second, our preliminary efforts at synchronic comparison indicate that it is possible to establish with a fairly high degree of confidence that some regimes are more effective than others. For instance, by almost any reasonable indicator the whaling regime appears to be significantly less effective than the transboundary air pollution regime or the ozone depletion regime.

EXPLAINING REGIME EFFECTIVENESS

On the explanatory side, we focused on two main explanations. First, "effectiveness" will probably vary due to differences in types of problems and related state preferences. Some problems are harder to solve than others due to differences in "intellectual" and "political" characteristics. The intellectual characteristics primarily refer to the degree of certainty/consensus regarding knowledge of the problem. But the sheer complexity of problems (e.g., the many facets of the greenhouse problem) obviously also implies intellectual challenges. Political characteristics point to the (i) type of interdependence mechanism at work (i.e. "benign" cost-efficiency relationships and/or "malign" relationships involving externalities or competition), (ii) degree of asymmetry in states' affectedness by the problem, (iii) nature of the collective good (e.g., divisibility), (iv) degree of complexity (i.e., number of issue dimensions affected, and (v) degree of issue linkages (positive or "contaminating"/complicating).

Second, we assume that "effectiveness" will also be influenced by the problem-solving capacity related to the cooperative arrangement under scrutiny. According to Underdal, problem-solving capacity can be conceived of as a function of three determinants, namely the (i) institutional setting, (ii) distribution of power/capabilities, and (iii) skill and energy invested in the political engineering of cooperative solutions (Underdal 1990). In our research, we specifically focused on three

aspects of the institutional setting. First, we concentrated on the provisions of actors who have incentives for constructive problem-solving (e.g. by facilitating the institutionalization of the cooperative arrangement and building capacity for the production of reliable and consensual knowledge). Second, we attended to the provision of procedural opportunities for transcending initial constraints, primarily in the form of a flexible agenda as well as physical and technical facilities for efficient work. Third, we assessed the provision of institutional capacity for integrating/aggregating actor interests and preferences. Important aspects of this third aspect may include the position of the conference chair(s), the capacity of the secretariat, and the decision rule (where majority rule is "stronger" than consensus).

Our preliminary analyses indicate that the type of problem accounts for the largest share of the variance in degree of effectiveness (Wettestad and Andresen 1991; Underdal et al. 1992). However, our case studies indicate the need to distinguish between "objective" and "subjective" problem structure. Changing perceptions, values, and beliefs change the nature of the problem and may have just as important an impact as the more "objective" problem structure (e.g., the transboundary resources or environmental problems as described and analyzed by scientists). Within the whaling regime, for example, the arguments of several important actors changed from a resource management perspective to a preservationist perspective, where the latter perspective ultimately focused on what is good from nature's perspective. This change had seemingly little to do with changing knowledge on whale stocks.

Defining and measuring the impact of "problem-solving capacity" is still in its infancy (at least as far as our research is concerned). Our research so far indicates that institutional factors sometimes provide sufficient (but not necessary) explanations for changes in regime effectiveness. Turning again to the whaling regime, we would argue that organizational changes can be sufficient for explaining effectiveness in the most recent phase of the policies promoted by the International Whaling Commission (IWC). A three-fourths majority was needed to have the 1982 moratorium adopted. The open access structure of the IWC, making few formal demands on newcomers, made it possible for skillful entrepreneurs to "pack" the commission with new members in favor of a moratorium.

A final lesson from our project is that in order to learn more about the "effectiveness issue," more focused research is needed on the links between the national and the international dimensions. Thus, it is very timely that there are currently a number of international research programs under way in which several of the previously mentioned research groups

deal with this particular issue.

Endnotes

1. In conjunction with the newly established international research program on "International Environmental Commitments" under the auspices of the International Institute for Applied Systems Analysis (IIASA; Laxenburg), efforts are under way to give a more systematic outline of the status of research on regime effectiveness.
2. Here we amicably part company with Underdal (1990), whose framework is meant to cover various types of international problems, not only environmental or resource depletion problems. Thus, he is more generally concerned with solutions to the general "collective action problem" at large.

References

HAAS, Peter, Robert KEOHANE, and Mark LEVY (1993). *Institutions for the Earth - Sources of Effective International Environmental Protection*. Cambridge, MA: MIT Press.

LEVY, Marc (1992). "Political Science and the Question of Effectiveness of International Environmental and Resource Agreements: A Status Report." Presented at the Workshop on International Environmental and Resource Agreements, Oslo, 19-20 October 1992. Mimeo.

RITTBERGER, Volker. ed. (1990). *International Regimes in East-West Politics*. London: Pinter.

UNDERDAL, Arild (1990). "Negotiating Effective Solutions: The Art and Science of Political Engineering." Department of Political Science: The University of Oslo. Typescript.

UNDERDAL, Arild (1992). "The Concept of Regime Effectiveness." *Cooperation and Conflict*, 27: pp. 227-40.

UNDERDAL, Arild et al. (1992). "The Effectiveness of International Resource Cooperation." Presented at the Inaugural Pan-European Conference on International Relations, Heidelberg, 16-20 September 1992. Mimeo.

WETTESTAD, Jørgen, and Steinar ANDRESEN (1991). *The Effectiveness of International Resource Cooperation: Some Preliminary Findings*. Report R:007. Oslo: The Fridtjof Nansen Institute.

YOUNG, Oran (1989). *International Cooperation: Building Regimes for Natural Resources and the Environment*. Ithaca, NY: Cornell University Press.

YOUNG, Oran R., and Gail OSHERENKO. eds.

International Studies Notes

(1993). *Polar Politics: Creating International Environmental Regimes*. Ithaca, NY: Cornell University Press.

AN OVERVIEW OF AREA STUDIES

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CHARACTERISTICS OF AREA STUDIES

The focus of area studies is the description of the ecological situation in a specific region of the world. This focus tends to concentrate on describing problems rather than developing systematic approaches to solutions. The literature suggests that there are methodological differences of approach across studies of the United States, as well as Western or Eastern Europe. However, Asia, Latin America, and Africa continue to be treated together under the designation Third World, even though the same environmental problems on the three continents differ substantially in scope and severity.

Third World environmental problems seem to lend themselves particularly to the problem-description approach. Population and food production were one of the four original factors chosen by the Club of Rome in their model which predicted the collapse of the world's ecosystem by 2050, and population and survival has remained the most ubiquitous theme in environmental area studies (Durham 1979; Repetto 1985; Gorman 1987). Colonialism and imperialism are most often presented as the root cause of environmental deterioration (Blakemore 1974; Larson 1988; Naylor 1989), while the reasons for Third World practices such as the destruction of the tropical forest (Cockburn and Hecht 1989; Repetto 1988) are sought in links between corrupt or weak Third World governments, predatory MNCs, an insensitive World Bank, GATT or other international institutions, and victimized natives or peasants (Shiva 1987; Hurst 1990; Agarwal and Narain 1991). Where solutions are presented, these are generally solutions devised by Western or international institutions, such as the World Bank or the Inter-American Development Bank (McNeely 1988; DeBoer 1989; Comision de Desarrollo y Medio Ambiente 1990).

In studies of environmental issues in the industrial world, environmental issues have historically tended to be considered subsets of other issue areas, such as political parties (Müller-Rommel 1989; Kitschelt and Hellemans 1990; Rüdig 1990), interest group analysis (Jamison, Eyerman, and Cramer 1991), or public administration (Baden and Stroup 1981). Although this practice is now changing, it is notable that students of American politics continue to relegate environmental policy studies to the domain of regulatory action, with a few possible exceptions (Vig and Kraft 1990). In an edited book, Kamieniecki devotes five chapters to

comparative politics and public policy (Kamieniecki

1993), but none of these includes the North American continent. Paehlke and Torgerson's impressive study of the administrative state, "Managing Leviathan" (1990), is an excellent example of the subsuming of environmental politics to the general problems of public administration (bureaucracy and state regulation) in the US and Canada, while Jancar's study (1987) of environmental management in (former) Yugoslavia and the (former) USSR provides a similar example for the former Communist world. Although one of the starting premises of both studies is that environmental policy is an autonomous subject in its own right, in fact, both books argue that for environmental policy to become effective, the current public administrative structure of the polities under study must be radically changed.

To date, there has been little cross-area comparative analysis. As a partial exception to this rule, Kelly, Stunkel, and Wescott (1976) attempted to compare the environmental policies of the United States, Japan, and the (former) USSR. Regrettably, the study lacked a coherent framework and fell far short of its title's potential. The lack of cross-area studies may be attributed to the generally compartmentalized nature of area studies. In addition, the research demands for an individual research project frequently preclude cross-regional comparisons.

A final characteristic of environmental area studies is their domination by western analysts and specialists, including western environmental institutes, such as the U.S. World Resources Institute and international organizations, such as the World Bank, OECD, and the European Union (EU). This trend is starting to change. Central and South America have now developed their own cadre of national environmental specialists. With the collapse of the Soviet empire, the work of East European researchers and scholars from the Soviet successor states is starting to enter the global environmental literature (DeBardeleben 1991; Stewart 1992; Jancar-Webster 1993). Such developments bring different perspectives and methodological diversity to the field and, in this writer's opinion, are very much welcomed.

PRACTICAL CHALLENGES OF AREA STUDIES

In order to make area studies more comparable, three major points have to be addressed: (i) problem selection, (ii) data problems, and (iii) interpretation problems.

Problem Selection

Absence of common methodology makes it difficult to develop common frameworks of analysis. All too often, population is seen as a specifically Third World problem, but growth in population is also one of the most serious problems in formerly communist Central Asia (Second World). Third World environmental scholars tend to see reduction in population growth as a key to environmental remedial action in their region, whereas writers on formerly Soviet Central Asia tend to fault the industrial policies of the former communist regime (Jancar 1987; Stewart 1992). What is needed is a common analytical framework encompassing the relationship between population, environmental degradation, government economic policies, and socio-political institutions. A further difficulty in problem assessment is that degradation is evaluated differently across areas of the world with sharply different value assignments. Communist institutions and MNC behavior in the Third World tend to be accorded an inherently negative or regressive value, while U.S. or Western European regulatory institutions tend to be considered progressive or positive. The assumptions of these assessments are seldom made explicit, nor is the reasoning behind the assumptions explained. While regulatory practice of the industrial nations has brought environmental amelioration, it has also brought its share of criticism. By contrast, the former communist nations and some countries in the Third World have an excellent environmental regulatory system -- on paper. More research is needed to determine those kinds of conditions under which published regulations become effective, as well as which values, institutions and behavior promote implementation and which do not.

The sheer size of the subject makes it difficult to develop environmental area studies on a continental basis, and it is debatable whether continents are a useful variable in area studies. The trend towards analysis by bioregion and the recognition of the bioregion at the UNCED conference are encouraging. Still, given NAFTA, an expanding EU, transboundary pollution, global environmental problems (such as stratospheric ozone depletion), and NAFTA's pioneering incorporation of environmental safeguards into an economic agreement, analysis on a continental and, in part, global scale will not be long in coming.

A final challenge in the area of problem selection is represented by the sparse visible communication on problems and issues between natural and social scientists. Unfortunately, the division between the two research communities was institutionalized by the international decision to have separate programs, such as the International Geosphere Biosphere Program (IGBP) and the International Social Science Council's Human Dimensions of Global Environmental Change

Programme (HDP). Hopefully, this division will not be permanent. Until more cross-disciplinary work is accomplished, our knowledge of the human/nature relationship will continue to be inaccurate and woefully impressionistic.

Data Problems

First, data problems reflect the difficulties inherent in problem identification. In many areas there is insufficient national data. This insufficiency is heightened by the absence of cross-national data of comparable quality. The World Resources Institute has done an admirable service in attempting to provide comparable cross-national data from around the world on numerous environmental indicators, but the collection is not complete. Data gaps for many countries in Asia, Africa, as well as the successor state of the (former) USSR are especially pronounced.

A second dimension of the data collection problem is reflected by the lack of consensus on indicators of environmental quality or the total absence thereof. Without these indicators, cross-area comparisons are virtually impossible.

The third dimension of the problem is the absence of international standards of measurement and methodology. One of the most significant tasks of the European Union has been the standardization of these processes for its member countries. In preparation for membership in the EU, the East European countries are working to standardize their procedures between themselves and with the EU. In Russia, the U.S. EPA has started a few pilot programs to understand Russian monitoring procedures and to assess the degree of comparability between Russian and U.S. monitoring systems.

A final problem of data collection is that data very often tends to be used for pro-active rather than analytic purposes. Murray Feshbach's "Ecocide in the Soviet Union" (1992) or many studies of tropical deforestation are cases in point. When the data are not set against any comparable statistics (Smil 1993), their political significance is magnified, while their theoretical or scientific significance is greatly weakened.

Assumptions About Values

The writings of many Western scholars, such as Pirages and Ehrlich's seminal *Arc II* (1974) or Milbraith's *Learning Our Way to a Sustainable Society* (1989), assume a deterministic shift in values from a so-called "industrial paradigm" (based on hierarchy, the competitive work ethic, as well as belief in science, technology, and progress) to a "post-industrial" paradigm (based on democracy, cooperation, rejection of environmentally damaging technologies, and a reverence for life on earth in all its forms). Similar to Marx's hypothesis of historical determinism, it is

suggested by these authors that as societies move through the various stages of industrialization, their values will gradually but inevitably shift to the green paradigm. Much research in the United States and Europe is oriented towards determining to what degree this shift may or may not have already occurred (Kitschelt and Hellemans 1990). One problem with the paradigm shift assumption is that regional environmental studies risk being characterized by an over- or under-appreciation of local cultural behavior or value preferences, based on the "fit" of local cultures into the model of paradigm shift. A second problem is a tendency by many scholars to reject industrialization and entrepreneurship as a priori "bad," in and of themselves.

What is needed are more environmental area studies from a non-Western perspective. While lip-service is given to the idea of cultural diversity, in practice, Western environmental preferences are implicitly assumed to be the standard by which all others are judged. The ascribed universality of Western environmental values results in the underestimation of regional environment problems in a regional context and a search for environmental solutions from within the Western environmental experience.

SIGNS OF HOPE

Among the signs of hope are the proliferation of studies with eclectic approaches, the rapid accumulation of data from all regions of the world by the U.N., OECD, World Resources Institute, and other data collecting organizations, the increasing focus of Western scholars on environmentally sensitive regions of the world, and the promotion by foundations and other funding institutions of inter-disciplinary and inter-regional research. Of particular interest should be cited the growing literature on communal property relations (Berkes 1989), the attention being paid to Arctic studies (Young and Osherenko 1989), and the entrance of indigenous peoples into the environmental debate (Wilmer 1993). The reference section provides examples of how major international institutions have contributed to efforts to develop positive models of sustainable development in Latin America, Africa, and Asia, rooted in their local culture (McNeely 1988; Leonard 1989; Ercal 1991). Perhaps the greatest sign of hope is the proliferation of environmental studies by scholars from all parts of the globe.

References

AGARWAL, Anil, and Sunita NARAIN (1991). *Global Warming in an Unequal World: A Case of Environmental Colonialism*. New Delhi: Centre for Science and Environment.

- BADEN, John, and Richard L. STROUP. eds. (1981). *Bureaucracy vs. Environment: The Environmental Costs of Bureaucratic Governance*. Ann Arbor, MI: The University of Michigan Press.
- BERKES, Fikret. ed. (1989). *Common Property Resources: Ecology and Community-Based Sustainable Development*. Irvington, NY: Columbia University Press.
- BLAKEMORE, Harold (1974). *British Nitrates and Chilean Politics, 1886-1896: Balmaceda and North*. London: Athlone Press for the Institute of Latin America Studies.
- COCKBURN, Alexander, and Susanna HECHT (1989). *The Fate of the Forest: Developers, Destroyers, and Defenders of the Amazon*. Los Angeles, CA: Verso Books.
- COMISION DE DESARROLLO Y MEDIO AMBIENTE DE AMERICA LATINA Y EL CARIBE (1990). *Our Own Agenda for Development and the Environment*. Washington, DC: Inter-American Development Bank, UN Development Programme.
- DeBARDELEBEN, Joan, ed. (1991). *To Breath Free*. Baltimore, MD: Johns Hopkins University Press.
- DeBOER, A. John (1989). "Sustainable Approaches to Hillside Agricultural Development." In *Environment and the Poor: Development Strategies for a Common Agenda*, ed. Jeffrey H. LEONARD. Washington, DC: World Bank, pp. 135-163.
- DURHAM, William (1979). *Scarcity and Survival in Central America: The Ecological Origins of the Soccer War*. Stanford, CA: Stanford University Press.
- EROCAL, Denizhan. ed. (1991). *Environmental Management in Developing Countries*. Paris: Development Centre of the OECD.
- FESHBACH, Murray (1992). *Ecocide in the Soviet Union*. New York, NY: Basic Books.
- GORMAN, Robert F. (1987). *Coping with Africa's Refugees Burden: A Time for Solutions*. Dordrecht: Nijhoff.
- HURST, Philip (1990). *Rainforest Politics*. London: Zeed Books.
- JAMISON, Andrew, Ron EYERMAN, and Jacqueline CRAMER (1991). *The Making of the New Environmental Consensus*. Edinburgh: Edinburgh University Press.
- JANCAR, Barbara (1987). *Environmental Management in the Soviet Union and Yugoslavia: A Case Study of Regulation and Structure in Communist Federal States*. Durham, NC: Duke University Press.
- JANCAR-WEBSTER, Barbara, ed. (1993). *Environmental Action in Eastern Europe: Responses to Crisis*. Armonk, NY: M.E. Sharpe.
- KAMIENIECKI, Sheldon, ed. (1993). *Environmental Politics in the International Arena: Movements, Parties, Organizations, and Policy*. Albany, NY: State University of New York Press.
- KELLEY, Donald R., Kenneth R. STUNKEL, and Richard R. WESCOTT (1976). *The Economic Superpowers and the Environment: The United States, the Soviet Union and Japan*. San Francisco, CA: W. H. Freeman.
- KITSCHOLT, Herbert, and Staf HELLEMANS (1990). *Beyond the European Left: Ideology and Political Action in the Belgian Ecology Parties*. Durham, NC: Duke University Press.
- LARSON, Brooke (1988). *Colonial Rule and Agrarian Transformation in Bolivia*. Princeton, NJ: Princeton University Press.
- LEONARD, Jeffrey H. ed. (1989). *Environment and the Poor: Development Strategies for a Common Agenda*. Washington, DC: World Bank.
- McNEELY, Jeffrey A. (1988). *Economics and Biological Diversity: Developing and Using Economic Incentives to Conserve Biological Resources*. Gland, Switzerland: International Union for the Conservation of Nature.
- MILBRAITH, Lester W. (1989). *Envisioning A Sustainable Society*. Albany, NY: State University of New York Press.
- MÜLLER-ROMMEL, Ferdinand (1989). *New Politics in Western Europe: The Rise and Success of Green Parties and Alternative Lists*. Boulder, CO: Westview Press.
- NAYLOR, Robert A. (1989). *Penny Ante Imperialism: The Mosquito Shore and the Bay of Honduras, 1600-1694*. New York, NY: Farleigh Dickinson Press.
- PAEHLKE, Robert, and Douglas TORGERSON (1990). *Managing Leviathan: Environmental Politics and the Administrative State*. London: Belhaven Press.

PIRAGES, Dennis, and Paul R. EHRlich (1974). *Arc II: Social Responses to Environmental Imperatives*. San Francisco, CA: W. H. Freeman.

REPETTO, Robert. ed. (1985). *The Global Possible*. New Haven, CT: Yale University Press.

REPETTO, Robert (1988). *The Forest for the Trees*. Washington, D.C.: World Resources Institute.

RÜDIG, Wolfgang. ed. (1992). *Green Politics Two*. Edinburgh: Edinburgh University Press.

SHIVA, Vandana (1987). *Forest Crisis and Forestry Myths*. Penang: Rainforest Movement.

SMIL, Vaclav (1993). *China's Environmental Crisis*. Armonk, NY: M. E. Sharpe.

STEWART, John M. ed. (1992). *The Soviet Environment: Problems, Policies and Politics*. Cambridge: Cambridge University Press.

VIG, Norman J., and Michael E. KRAFT (1990). *Environmental Politics in the 1990s*. Washington, DC: CQ Press.

WILMER, Franke (1993). *The Indigenous Voice in World Politics*. San Francisco, CA: Sage Publishers.

WORLD RESOURCES INSTITUTE (1992). *World Resources, 1992-1993*. London and New York: Oxford University Press.

YOUNG, Oran, and Gail OSHERENKO (1989). *The Age of the Arctic*. Cambridge: Cambridge University Press.