
The Structuring of a World Environmental Regime, 1870–1990

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In recent decades a great expansion has occurred in world environmental organization, both governmental and nongovernmental, along with an explosion of worldwide discourse and communication about environmental problems. All of this constitutes a world environmental regime. Using the term *regime* a little more broadly than usual, we define world environmental regime as a partially integrated collection of world-level organizations, understandings, and assumptions that specify the relationship of human society to nature. The rise of an environmental regime has accompanied greatly expanded organization and activity in many sectors of global society.¹ Explaining the growth of the environmental regime, however, poses some problems. The interests and powers of the dominant actors in world society—nation-states and economic interests—came late to the environmental scene. Thus these forces cannot easily be used to explain the rise of world mobilization around the environment, in contrast with other sectors of global society (for example, the international economic and national security regimes).

We see the world environmental regime as produced through another process, starting from the rise of much international nongovernmental association and discourse and leading to interstate treaties and later to intergovernmental organization. Behind this long process, we argue, lie two larger forces that help drive its development: the long-term expansion of rationalized and authoritative scientific interpretation, which structures perceptions of common environmental problems, and the rise of world associational arenas—principally the United Nations (UN) system—with agendas open to broad concerns such as the environment.

We lay out a brief description of the environmental regime and consider several explanations, including our own, for its expansion. We then describe in more detail

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1. See Robertson 1992; Smith, Pagnucco, and Romeril 1994; and Boli and Thomas 1998.

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the processes by which the world environmental regime expanded and provide quantitative event history analyses that show the impact of the main forces involved. Finally, we consider the characteristics of different patterns of regime development in world society—for instance, why the environment regime developed differently from the international security regime commonly taken as canonical.

Evidence of Increasing Domain Structure

World society is filled with communication, association, and organizational structure concerned with the relation of society to the natural environment. This has greatly increased over time. There is much world-level scientific (and broader cultural) discussion of environmental issues such as greenhouse effects and the overproduction of carbon dioxide, the ozone layer and methane generation from the expanded production and consumption of cattle, declining biological diversity and species extinction, deforestation, and the effects of a wide variety of dangerous chemicals (including DDT, heavy metals, and plutonium). In addition, many international nongovernmental associations focus on the environment; for example, the International Union for the Conservation of Nature, which had representatives from 118 countries in 1990 and takes policy positions on a wide range of issues.

Much activity of an official sort also occurs. Many intergovernmental treaties are concerned with the environment, such as the 1973 Convention on International Trade in Endangered Species, which had been ratified by 107 countries in 1990. Many formal intergovernmental organizations deal with the environment; for example, the International Whaling Commission has been joined by 40 countries (an increasing number of which do not hunt whales but choose to have input on whaling decisions). Following the 1972 Conference on the Human Environment held in Stockholm (attended by 114 governmental representatives and a great many representatives of nongovernmental organizations), the UN Environment Programme (UNEP) was formed. UNEP is a special body within the UN Secretariat established by resolution of the UN General Assembly and has taken some jurisdiction over the environmental domain.

Quantitative data describing the extraordinary expansion of international nongovernmental and governmental organizations (and treaties) concerned with the environment are presented in Figures 1 and 2 (The data, sources, and coding rules for these figures are discussed later; an overview is presented here to make clear the dramatic changes involved). Figure 1 shows the cumulative numbers of organizations and treaties in existence at any given time; Figure 2 shows the rates of formation of these new entities and how they vary over time. Both figures show patterns of extreme growth.²

2. When we plot the logarithm of variables on the vertical axis against year, the relationships are roughly linear, suggesting exponential growth of environmental activity.

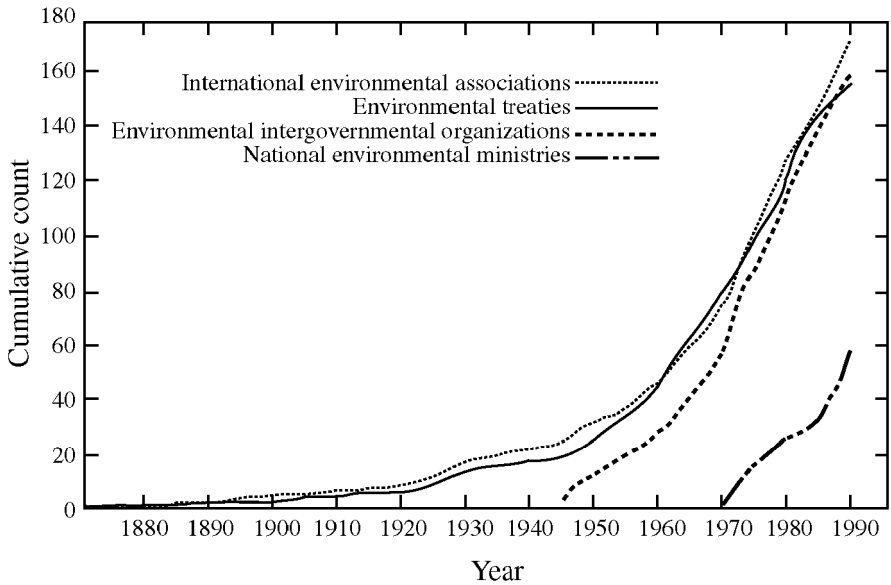


FIGURE 1. *Cumulative counts of international environmental activities, 1870–1990*

Examining data on how the environmental regime has developed since 1870, we describe and analyze its developmental process. The core intellectual problem is how so much organized collective action has arisen in a world society that so clearly lacks a strong central actor (or state), that organizationally resembles an anarchy, and in which the dominant state organizations until recently formed few and weak environmental agendas.³ (To illustrate this point, Figures 1 and 2 also show the recent expansion in national ministries concerned with the environment.) Our core answer is that this same world is a strong, though stateless, polity increasingly integrated around a common rationalistic and scientized culture.

The world environmental regime is filled with both discourse and organization, and these obviously affect each other. By discourse, we mean worldwide discussion and communication, universalistic, rationalized, and authoritative in character, occurring in international public arenas among policy professionals, scientists, and representatives of nation-states, in intergovernmental organizations, and in international nongovernmental associations. Our analyses focus on explaining the organizational side of the world environmental regime, and discourse enters as an explanatory factor. A parallel analysis would focus on explaining the discursive side of the system. We offer commentary on this, but lacking the necessary data, we do not analyze it.

3. The anarchy image is taken very seriously in the field of international relations, compare Gilpin 1981.

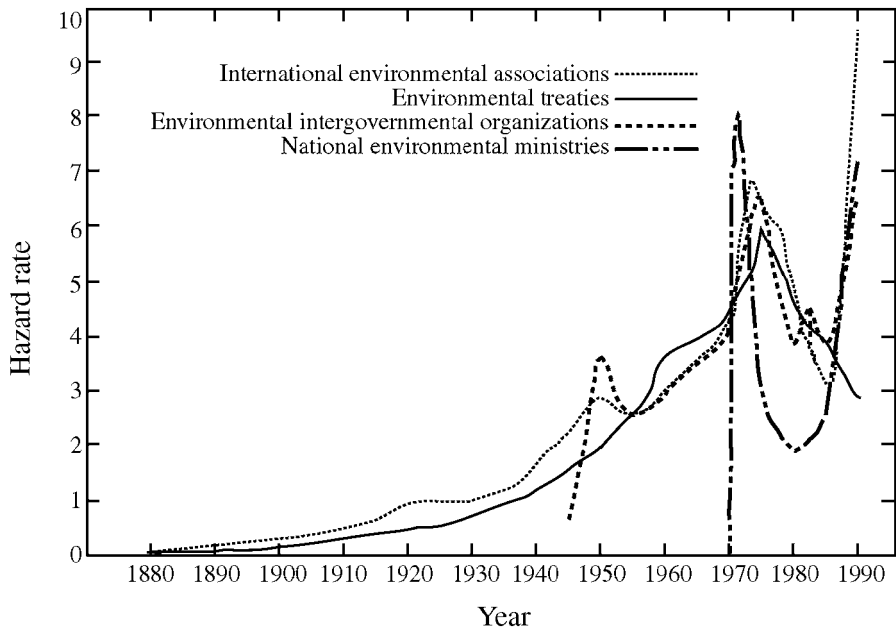


FIGURE 2. *Smoothed hazard rates for initiation of international environmental activities, 1870–1990*

The foci of this article are the explanation of (1) the overall rise of environmental organization, indicated by international environmental nongovernmental associations, international environmental treaties, intergovernmental environmental organizations, and national environmental ministries; and (2) the change over time in the character of this organizational system. Our main arguments are that the overall rise of environmental organization occurs with the expansion of a worldwide scientific culture and the creation of a broad world organizational structure, and that the character of the environmental regime shifts over time from informal international discourse and association to more official intergovernmental activity and organization.

Alternative Explanations

If we imagine that collective action must be built on individuals as natural actors, or on nation-states as natural actors, it becomes difficult to explain the extraordinary profusion of world-level collective action in such arenas as the environment.⁴ By common agreement and observation, no strong world collective actor exists. Without

4. For individuals as natural actors, see Olson 1965; and Coleman 1986. For nation-states as natural actors, see Gilpin 1981; and Waltz 1979.

such an actor, collective action in a generalized domain such as the environment should be extremely difficult and tenuous.

Existing analyses of the world-level environmental structure tend to emphasize precisely this fragility. Whether focused on the emergence of a single international environmental treaty or intergovernmental organization or on the general conditions under which such structures appear, theories of international relations underscore the conflicts inherent in nation-state negotiations and delineate the exceptional circumstances under which such conflicts may be resolved.⁵ In empirical reality, however, great and highly collective environmental goods have been rather quickly created, and much mobilization has ensued. All this has occurred in a world society without a sovereign collective actor.

Realist accounts root the explanation of the rise of world collective action on the environment in the powers and interests of dominant state actors. There is some discussion of the idea that the world environmental regime appeared at the behest of powerful Western nation-states, for example, to control resource flows or to tip the scales of environmental security.⁶ Although such factors may motivate particular treaties or organizations, there is scant support for a theory of Western hegemony on a wider scale. Western nation-states have proved to be at least as reluctant as others to participate in international environmental structures—whether reluctance is measured by speed to ratify, discipline to comply, or willingness to lead. The roots of modern environmentalism clearly lie in Western societies and cultures, as we elaborate later, but they do not principally lie in dramatic state action and purpose. In this matter, the environment sector provides an important contrast with others (for example, the national security sector).

As a second possible line of explanation, the environment movement itself, as with all such movements, provides its own story of its rise: a highly functional one. The claim is that the urgency of the problems created by environmental degradation makes collective mobilization functionally necessary.⁷ This is unconvincing. First, massive environmental degradation has been occurring for a long time without much corresponding mobilization; for example, world croplands doubled between 1700 and 1850 and nearly doubled again by 1920, with devastating losses to biodiversity.⁸ This problem did not “cause” much world-level action until the 1990s. Likewise, fishery collapses (for example, during the Hanseatic League), the degradation of international rivers and seas (for example, in nineteenth-century Europe), and air pollution throughout the industrial period generated few visible responses. Even now, poorly understood but potentially disastrous problems, such as those posed by industrial gas “cocktails,” barely appear on the global agenda.⁹ The point is that no matter how dire or widespread, environmental problems do not automatically generate organized so-

5. See Benedick 1991; Levy 1993; Sprinz and Vaahoranta 1994; and Young 1989.

6. See Gould, Weinberg, and Schnaiberg 1995; and Homer-Dixon 1994.

7. See McCoy and McCully 1993; and Walsh 1981.

8. See Turner et al. 1990; and Groombridge 1992.

9. Yearley 1996.

lutions, nationally or internationally. Second, like all functional explanations, this one, hinging on degradation, can explain why environmental action is needed but not why it happens in the absence of a collective actor. We need an explanation for the presence of environmental mobilization after World War II that also explains the absence of much activity before.¹⁰

Our argument starts from the sociological assumption that modern individuals, organizations, and nation-states by their construction have been deeply embedded in a wider world society, polity, and rationalistic culture.¹¹ This wider system defines, legitimates, and supports the identities of these entities; constructs appropriate purposes and technologies for them; and helps enforce their sovereignty, responsibility, and control capabilities.¹² In our view, the world environmental regime derives fundamentally from changes in this wider polity rather than from changes in the interests and capabilities of individuals and states as prior natural actors. Of course, in a world in which nation-states have primacy as actors, world changes mainly occur through changes in the social construction and modification of the goals and interests of these scripted “actors.”

The sociological conception of a world polity is closely related to two conceptions employed more often by political scientists: the idea that much international behavior is structured by more or less organized regimes, and the more recent idea that important components of these regimes are rooted in discursive or epistemic communities and a world civil society.¹³ In comparison, the sociological conception of a world polity calls attention to the underlying cultural and organizational base that facilitates and helps to empower specific organizational (regime) structures and the associated epistemic communities; we use the term *regime* in this broader sense.¹⁴ Using regime in this way helps to avoid two limitations sometimes built into narrower uses of the term: the assumption that regimes are almost by definition organizational products of state action, and the assumption that regimes can be defined in terms of their effectiveness in controlling practical state policy and action (a matter we separately address in our concluding discussion). Neither assumption helps describe, or understand the rise of, an elaborated world environmental regime. A broader conception of regimes is useful for our analysis, which traces the formation of—and the sociocultural roots of—an international system and epistemic community, with uncertain and diffuse effects on specific state policies and actions, over a long period of time.

10. On an organization-by-organization or treaty-by-treaty basis, other explanations of international environmental structure are available; for example, some have emphasized the promise of CFC substitutes in facilitating the ozone treaty. Such explanations, however useful, do not attempt to address the rise of the whole world environmental structure, as we do here.

11. See Finnemore 1996a; Thomas et al. 1987; Meyer 1994, 1997; McNeely 1995; and Robertson 1992.

12. See Powell and DiMaggio 1991; and DiMaggio and Powell 1983.

13. Compare chapters in Krasner 1983; and Haggard and Simmons 1987. See Adler and Haas 1992; Haas 1992; Nadelman 1990; Young 1986; Falk 1992; and Wapner 1996. This overall line of thought is developed in Rosenau and Czempiel 1992.

14. Thomas et al. 1987.

Explaining the Rise of the Environmental Regime

The preceding discussion suggests two conditions that make the environmental regime distinctive. The first condition is the long-term degradation of the environment—a continuous feature of modern history that continually provides issues that could at any time become arenas for collective action. The second condition is the absence of strong collective actors (either at the world or the national state level) with environmental issues central to their agendas. At the end of this article, we suggest how variations in these conditions might be expected to produce variations in the development of different sectors of world society (such as international security, international economic organization, human rights, education, or the status of women). Our arguments—and the environmental example—may be of special use to a field of international organization that has tended to focus on social domains that are central to nation-state agendas throughout the modern period. Ronald Jepperson, Alexander Wendt, and Peter Katzenstein, for instance, argue that academic research in international relations has tended to form its agenda by looking principally at those social domains that are foci of interstate purpose and contest and by remaining inattentive to others.¹⁵ Considering the environmental case may provide a useful corrective.

Under these conditions, we argue that two dramatic changes in world society serve as variables that explain the rise of the contemporary environmental regime. The first change is cultural in character and involves the expansion of rationalized scientific analyses of nature that define and codify environmental degradation in terms that enable widespread collective mobilization and action. The other change is organizational and involves the rise of an international associational framework, principally the UN system, that provides arenas that encourage mobilization around broad interests transcending nation-state agendas. Together, these two forces provide an expanded world-level frame within which interaction and discourse about environmental issues could expand rapidly. The current literature on the rise of social movements and collective action increasingly emphasizes the importance of such frames.¹⁶ In our view, the rise of the world environmental regime and many of its properties follow from changes in the wider frame involved. We discuss our two explanatory variables in turn.

The Scientific Rationalization of Nature

Early efforts to mobilize environmental concerns around sentimental attachment to nature—or around nature as a set of resources to be allocated—provided weak frames for the mobilization of international activity.¹⁷ Western-style sentimentalization presumed values that were parochial. Even now, animal-rights principles are not widely

15. Jepperson, Wendt, and Katzenstein 1996.

16. See Goffman 1974; Snow et al. 1986; and Gamson 1995.

17. See Frank, in press; and Pepper 1984.

accepted in the larger world society. Thus an early attempt at selective conservation failed to garner much support: The 1900 Convention for the Protection of Savage Species in Africa aimed to protect the magnificent fauna of Africa, including giraffes, elands, and hippos. To do so, the treaty sought the reduction of other, “noxious” species, such as lions, baboons, and pythons. The distinction between magnificent and noxious species earned the treaty disapprobation from international conservation associations, such as the Fauna and Flora Preservation Society, and contributed to the treaty’s failure to win ratification.¹⁸

The same limited success resulted from an early attempt to see whales as a resource to be partitioned: A few whaling countries were involved in this effort, but the resource frame pitted national interests against one another and inhibited the matter from being generalized as a worldwide concern. Thus the 1937 Agreement for the Regulation of Whaling, “desiring to secure the prosperity of the whaling industry and, for that purpose, to maintain the stock of whales,” received only eight ratifications or accessions, and some major whaling countries, such as Japan, refused to be involved.¹⁹

By contrast, the scientific view of nature, which has spread with increased scientific knowledge and public awareness, asserts the existence of a global and interdependent ecosystem that encompasses human beings and sustains the very possibility of life.²⁰ Some components of this ecosystem are local and regional; others are intercontinental and global; rarely are they coterminous with national boundaries. The universalized conception of interdependence inherent in such a view of nature provides a much stronger frame for international discourse and activity around the environment than did sentimental or resource views.

The ecosystemic view has grown more prevalent with the massive expansion of both national and international scientific activity in the twentieth century.²¹ As an example, the International Council of Scientific Unions (ICSU) was founded in 1919 with five scientific organizations involving people from a limited set of countries. Expansion of the organization, both in the number of sciences involved (it is now twenty) and the number of countries represented (currently almost all, in one or another specific field), has been rapid. From its origins, the ICSU has acted as a platform for advocates for the environment in international forums, though environmental organizations are not included in it.²²

In a world in which most countries are organized around rationalistic models of state and society, a scientific conception of nature can frame environmental issues in a way that involves the legitimate and almost universal interests and perspectives of

18. Hayden 1942.

19. Hayden 1942. The eight parties were the United States, Great Britain, Norway, Germany, Ireland, New Zealand, Mexico, and Canada.

20. See Taylor and Buttel 1992; Dunlap 1994; Haas 1989; Nanda 1983; and Stern, Young, and Druckman 1992. Models of moral integration have arisen with models of the scientific integration of humans and nature; see, for example, Bergesen 1995.

21. See, for example, Finnemore 1993, 1996b; and Schofer, 1998.

22. See Hayden 1942; and McCormick 1989.

people, organizations, and nation-states.²³ Thus when scientists first suggested in 1973 that chlorofluorocarbons (CFCs) break down in the stratosphere and release ozone-destroying catalysts, they raised the possibility of global environmental damage.²⁴ Developing countries, responsible only for a tiny portion of the CFCs released, nevertheless took part in the international negotiations that ensued because they too faced risks to human health and declines in agricultural and fishery production.

Viewed scientifically as an ecosystem, nature lacks clear national boundaries. Thus our first guiding hypothesis is

The worldwide expansion of scientific discourse and association over this century facilitated the rise of world environmental organization.

The Formal Organization of the World Polity

A great barrier to constructing a world environmental regime early in this century lay in the fact that no organizational frame existed within which environmental issues could enter the world's agenda. There was neither a central authoritative world actor (a situation that remains) nor any organizational structure within which environmental issues might legitimately fall.²⁵ Thus early environmentalist discourse could occur at informal world conferences (for example, the International Congresses for the Protection of Nature) but only on an ad hoc basis. Later, and very rapidly after World War II, many intergovernmental organizations arose, and these increasingly provided platforms for environmental mobilization.²⁶

In the earlier period, the international organizational frame did little to facilitate environmental organizing. Specifically, the creation of the League of Nations in 1919 helped little. The League was defined principally as an international security system and actively resisted adoption of agenda items that might seem to constitute interference in the affairs of sovereign countries. Thus efforts to encourage the League to act on environmental issues failed in every instance except in the case of whale protection.²⁷ In 1935, for example, under pressure from the Conseil International de la Chasse and the British government, the League authorized a subcommittee to draft a treaty to reduce oil dumping on the high seas. After some exploratory efforts, however, including two international conferences, the issue was dropped from the League's agenda.²⁸

The UN system, weak as it is in terms of sovereign authority, changed this. A broad agenda was established by the mostly liberal powers that won World War II. It included concern for national and international development, for national and inter-

23. See Thomas et al. 1987; Drori 1997; and Schott 1993.

24. See Benedick 1991; and Parson 1993.

25. Nanda 1983.

26. Over seventeen hundred intergovernmental organizations existed by 1994; see Union of International Associations 1994.

27. For a discussion of the League's environmental activities, see Hayden 1942, 148, who notes that "the whale question alone was treated by the League" since there was never "any unit of the League's structure specifically charged with handling items of this nature."

28. See Hayden 1942; and Mitchell 1993.

national human rights, and for a world society collectively concerned with a worldwide view of nature. Thus the Food and Agricultural Organization and the World Health Organization provided a legitimate structure within which to consider worldwide environmental issues.²⁹ So, too, did the UN Educational, Scientific, and Cultural Organization, where scientized concerns about the world as an overall natural environment became organizationally central.³⁰

In this period, mobilizing worldwide concerns around the environment made practical organizational sense. Individuals could reasonably assemble to create legitimated interests and associations. Nation-states could forward their concerns and propose rules and treaties to each other with perfect propriety, and scientific bodies could find arenas and agendas in terms of which to formulate their general concerns and models. Thus our second guiding hypothesis is

The rise of a world organizational regime with an agenda broad enough to include environmental issues facilitated the expansion of organization around these issues.

A Note on the Changing Form of World Environmental Organization

A further hypothesis in our analysis qualifies the two main hypotheses. We envision an evolutionary sequence in the forms of world environmental organization. We see the expansion of the forms of organization we study as driven by expanded scientific rationalization and by generally expanded and open international association, as we argued earlier. We also argue—though because of methodological limitations we are unable to examine this argument very rigorously—that expanded informal international environmental association leads to more formal intergovernmental transactions (such as treaties), which in turn lead to the expansion of more permanent intergovernmental organization.

First, since the world polity had a stateless and Tocquevillian character, especially in the environment domain, worldwide social mobilization around world environmental issues almost inevitably began with decentralized and nongovernmental associational activity, as is characteristic of such systems. Only as a result of later extensive associational activity was there much development and expansion of more official state and state-like activity in the international arena. Thus nongovernmental discourse and associational activity preceded and helped to produce the formation of more formal and official organizational structure. The extraordinary success of the environmental movement in gaining the attention of world society has ultimately produced central official world organizations concerned with the environment, most prominently UNEP.

Because the variables in our analysis are too highly correlated, we are unable to directly examine quantitative evidence supporting the hypothesized evolutionary sequence of the rise of environmental organizational structures, over and above our two main hypotheses. We support the idea of an evolutionary sequence with descriptive information showing that the sequence in time follows the pattern we propose.

29. See Caldwell 1990; and McCormick 1989.

30. Finnemore 1993, 1996b.

One indirect implication of the argument, however, can be examined empirically. The institutionalization of environmental concern in a central world organization (UNEP, in 1972) seems to have modestly affected the character of the whole world environmental enterprise. Extant nongovernmental organizations gained structural strength, resources, and centrality, but the rate of formation of new international associations in the domain (holding constant the effects of our two main explanatory variables) may have slowed. The growth rate in new intergovernmental treaties also slowed as treaties became less common instruments of world activity, in deference to the administrative and regulatory expansion of the official organizations involved. We will examine evidence on the more derivative proposition that

The formation of official world environmental organizations structures and organizes the whole environmental system, slowing rates at which new nongovernmental and multilateral activity increase.

We argue that this effect is produced by expanded and centralized intergovernmental organization. One could argue that the effect is simply produced by the overall exhaustion of topics in the environmental domain. This argument, however, is unrealistic. While seeming to slow rates of new activity, the formation of official world environmental organizations clearly expands the meaning and enhances the legitimacy of existing associations and treaties. Once UNEP was formed, for example, many existing world environmental associations expanded rapidly in terms of membership, budget, and staff size.³¹ Likewise, some treaties experienced resurgent attention; for example, in the years surrounding the 1972 Stockholm conference at which UNEP received its charter, seven countries (including Belgium, France, and Spain) acceded to the 1958 Convention on Fishing and Conservation of the Living Resources of the High Seas. With heightened official attention to the environment, nation-states were eager to prove their credibility. The point is that official world organization has consolidated the environmental realm, slowing the proliferation of new associational and multilateral activity and simultaneously authorizing and strengthening that which already exists.

In what follows, we bring evidence to bear on these ideas, first with descriptive data and then with event history analyses of the hazard rate, over time, of several types of events. In particular, we discuss the dramatic expansion in international nongovernmental association, the rise in international treaties, and the expansion of official governmental organizations concerned with the environment. We show, with event history analyses, the effect on each of these variables of our hypothesized explanatory variables: the expansion of scientific discourse and organization and the rise of a general and open international associational system.

From Informal to More Official Structures

The Rise of Discourse and Association

Figure 1 graphs the cumulative number of international nongovernmental associations concerned with the environment from the late nineteenth century, along with

31. Frank et al. 1998.

several other measures of world environmental activity discussed later. Figure 2 gives the same information using a smoothed plot of the hazard rate at which international nongovernmental associations concerned with the environment have been founded.³² (Few of these organizations have disappeared.³³) Here we define an international association as an organized body that has not been established by intergovernmental agreement, has members from at least three countries, and has environmental matters prominent on its agenda.³⁴ An association was categorized as concerned with the environment if its stated aims mentioned environmentally related goals or concerns. We intentionally employed a broad conception of the environment, including mention of natural resources, energy, and mining, but we excluded associations concerned principally with agriculture or with science. Examples of included organizations (with founding dates) include the Fauna and Flora Preservation Society (1903), the International Fur Trade Federation (1949), and the International Organization for Human Ecology (1980).

Three key points are revealed by the graphs in Figures 1 and 2. First, the number of nongovernmental environmental associations has increased extraordinarily, especially since World War II, after which, we argue, the official international agenda made it easier and more legitimate to raise environmental matters in world discourse. Similar increases in rates of association formation occur in many other sectors of “modern” activity, including health, science, and business and trade.³⁵

Second, the expansion of international associational activity in the environmental domain occurs a little earlier than the rise of treaties and considerably earlier than the rise of the intergovernmental organizations and ministries plotted in Figures 1 and 2. We argue that this temporal order reflects a substantively meaningful sequence in which the development of world social discourse and activity (of which international associations are one element) creates the grounding for more official multilateral and international structuration.

The rise in the rate of formation of international environmental associations seems to continue, but the growth occurs at a slower pace in the most recent decades. We argue that this reflects changes resulting from the relatively recent rise of official governmental and intergovernmental activity in the environmental domain; we test

32. A hazard rate is defined as the limit of the probability of the occurrence of an event per unit of time; see Tuma and Hannan 1984. Here the event being considered is the founding of another international nongovernmental association. Later we consider other events. We use the approach to smoothing hazard rates developed by Wu 1989; the basic notion is analogous to forming a running or moving average.

33. The data are from *Yearbook of International Organizations 1995* and include all organizations from sections A–D, including inactive organizations but excluding internationally oriented organizations grounded in a particular country; see Union of International Associations 1995. Naturally, some associations are not recorded in the data, though the compilers have, over many decades, made efforts at completeness. For other uses of similar data from the same sources, see Boli and Thomas 1997. Editions of the yearbook begin in 1906 but contain information on the founding dates of associations formed long before then.

34. Union of International Associations 1995.

35. Boli and Thomas, in press. For the environment as well as other sectors, periods of war temporarily slow rates of formation of associations. Taking this minor factor into account does not modify the discussion or results reported later.

this idea controlling for other causal factors that drive expansion. We suspect that more centralized and official institutionalization tend to produce growth in existing international associations rather than proliferation of new ones.³⁶ As an example, the recent attention to acid rain has been accompanied by few new international associations devoted to its cause; however, many older organizations, including Greenpeace, Friends of the Earth, and the International Union for the Conservation of Nature, have added acid rain to their agendas.³⁷

In the post-UNEP period, the central environmental associations expanded not only their agendas but also their memberships and resources.³⁸ International Greenpeace, for example, was founded in 1971, one year before UNEP. Since then, Greenpeace has gained more than six million members worldwide and has an estimated income of more than \$100 million, making it one of the largest international environmental associations in the world.³⁹

We argued earlier and show later that the scientific legitimization of environmental discourse in world society increases the hazard rate of formation of new associations. A qualitative inspection of the types of such organizations founded over time supports the point. Through the first third of the century, such organizations tended to be formed around sentimentalized concerns with specific aspects of nature, as exemplified by the International Friends of Nature (1895) and the International Bureau of Antivivisection Societies (1925). Other organizations were formed around a conception of nature as a set of resources to be organized and allocated—for example, the International Union of Forestry Research Organizations (1891) and the Commonwealth Forestry Association (1921). In recent decades, environmental associations have tended to form based on much more general and more scientized conceptions of nature as an ecosystem—for example, the Asian Environmental Society (1972) and the International Society for Ecological Modelling (1978).⁴⁰

In the background (we argue as an important causal force) is the enormous rise in world structuration and discourse in the scientific domain. Structuration refers to the creation and elaboration, within and among social actors, of organizational structures with increased capabilities, rights, duties, and obligations.⁴¹ Actors become more elaborately organized in a domain and enter into more differentiated and more elaborate formal and informal relations with one another. The creation and expansion of the world science system established a frame in which all sorts of environmental issues could be seen as universally significant and in which many kinds of policy activities could be seen as rational. To describe the expansion of “scientization” in world society we show, in Figure 3, cumulative data on indicators of the emerging scientific organizational system of world society. Each indicator shows dramatic changes, especially after World War II. Clearly, the expansion of this system pro-

36. Frank et al. 1998.

37. Levy 1993.

38. Frank et al. 1998.

39. Wapner 1996.

40. For a more complete analysis of the distinctions here, see Frank 1994, 1995.

41. Giddens 1979.

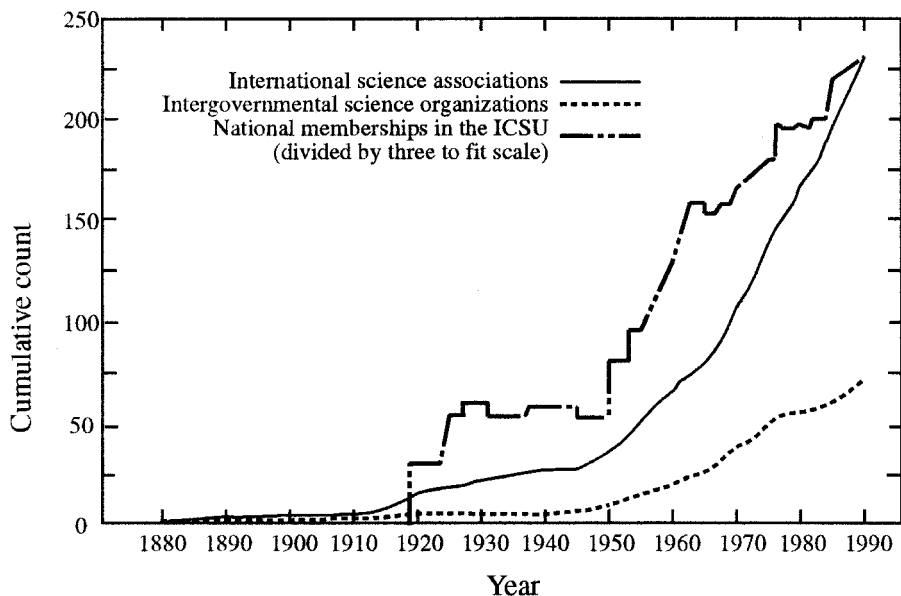


FIGURE 3. *Indicators of international science activity, 1880–1990*

duced many organizations and professions that could speak authoritatively and with putative objectivity on a wide range of environmental issues.

Treaties

Official involvement in world environmental issues by nation-states, the central (and powerful) actors legitimated in world society, arose slowly. Nation-states often took some jurisdiction over internal environmental matters (for example, by forming national parks or managing natural resources). For the most part, however, the environment did not become a major focus of intergovernmental relations until scientific and associational developments created an appropriate arena in world political culture. World political culture is the broad set of institutionalized conceptions and assumptions, often taken for granted, that define, permeate, and support the modern nation-state system.⁴² Thus a long-term rise occurred in the number of intergovernmental treaties concerned with the environment, as shown in Figures 1 and 2, but this rise is somewhat slower and later than the growth of international association in this arena.⁴³

Early treaties tended to be specific, signed by limited numbers of developed countries, and concerned with the management of specific international dependencies, as

42. See Thomas et al. 1987; and Meyer 1994; see also Jepperson, Wendt, and Katzenstein 1996.

43. We define an environmental treaty as one that is primarily focused on some aspect of the relationship between human society and nature and that involves three or more nation-state parties. For a description of the coding rules and a list of the treaties involved, see Frank 1994.

was the case with the 1911 Fur Seal Convention. A few treaties, very much restricted to core Western countries given to a distinctive sentimentalization of nature, took a more romantic view, as exhibited by the 1933 Convention Relative to the Preservation of Fauna and Flora in their Natural State. None of the early treaties took a broadly ecosystemic view; this view arose later with the scientific rationalization of the field.

More recent treaties, following scientific rationalization and the rise of worldwide environmental association, have a very different character.⁴⁴ They emphasize regional and global interdependencies, and they are rooted in a broad and universalistic scientific conception of nature as an ecosystem with which human society must come into balance. Recent treaties include the 1979 Convention on Long-Range Transboundary Air Pollution and the 1985 Convention for the Protection of the Ozone Layer.

The total number of international environmental treaties has continued to rise in recent decades, but growth in the rate of treaty formation has slowed, reflecting the emergence of more official intergovernmental organization. New issues are increasingly likely to be handled by the expansion of extant official organizations rather than by the signing of new, specialized treaties. This process is clear, for example, in various recent proposals to extend the domain of the International Whaling Commission to include porpoises, dolphins, and other cetaceans, rather than to negotiate new, special-purpose agreements.

Intergovernmental Organizations

The twentieth century buildup of world-level discourse and association concerned with the environment, and the creation of a world organizational frame broad enough to include an environmental agenda, culminated in an extraordinary profusion of official intergovernmental organizations in this domain, as Figures 1 and 2 show.⁴⁵ Early organizations of this sort tended to be specialized in focus and membership (for example, the International North Pacific Fisheries Commission, founded in 1952). Later organizations were broader on both dimensions. Especially prominent in this sense was the creation of a genuine umbrella organization in the domain, UNEP, in 1972. Its central office is in Nairobi, and more than ten thousand nongovernmental associations have found it useful to maintain a liaison there, through the Environmental Liaison Center.⁴⁶ UNEP now has several subcomponents that deal with specialized environmental matters, such as the ozone layer and regional seas.⁴⁷

The creation of a more centralized official world environmental structure slows the rate of formation of new official intergovernmental organization. This process is

44. For a detailed analysis of the content of environmental treaties, see Frank, in press, from which the present analysis is derived.

45. Data are from *Yearbook of International Organizations 1995* (intergovernmental organizations, sec. A–F; inactive organizations, sec. H). We define an intergovernmental environmental organization as one established by official agreement (often in the form of a treaty) between three or more countries that has some aspect of the natural environment as its primary concern.

46. Trzyna and Childers 1992.

47. For descriptions, see Caldwell 1990; and Trzyna and Childers 1992.

analogous to the notion of “competition” found in population ecology approaches.⁴⁸ The more elaborated and dominating the extant official structure, the more likely that new functions and activities will be absorbed by it in preference to the creation of new organizations.⁴⁹ World concerns about ozone, for example, led not to the creation of a new official organization but to the elaboration of the structure of UNEP.⁵⁰ As another example, the 1972 Convention for the Protection of the World Cultural and Natural Heritage directly produced the World Heritage Foundation. The 1973 Convention for the Prevention of Pollution from Ships led to the addition of executive functions to the International Maritime Organization.⁵¹

Of course, overall international activity has increased in the most recent period, though not through new organizations; for example, both the European Union and the Council of Europe have pressed for vigorous environmental activities among their nation-state members. They have done so, however, through the elaboration of existing organizational structures rather than through the creation of new, independent ones.

A Note on Nation-level Structuring

It is sociologically easiest to think of the creation of rationalized and organized world society as a bottom-up process in which activities are rationalized in local and then national settings and only gradually evolve to the world level through international interdependencies and perhaps cultural processes. This picture probably describes many aspects of world society (for example, features of economic regulation).

The bottom-up view, however, describes the environmental domain poorly. Widespread and mobilized world concern about the environment is heavily dependent on universalistic and scientific ideologies and principles. These have tended to arise and achieve codification in world discourse before, not after, they became local and national issues in most nation-states. In fact, the rise of the world environmental domain clearly precedes and causes the formation of generalized national structures that formalize and manage the issues involved.

To illustrate this point, again consider the cumulative number of and the hazard rate of formation of national ministries concerned with the environment (shown in Figures 1 and 2, respectively).⁵² Strikingly, national ministries arose only in the period since the creation of the world-level UNEP in 1972.

48. For example, Hannan and Freeman 1989.

49. For national-level discussions of parallel processes, see Dobbin 1994; Fligstein 1990; and Hamilton and Biggart 1988.

50. See Benedick 1991; and Parson 1993.

51. Mitchell 1993.

52. Data are from *Europa World Yearbook 1970–96*. All ministries with the words “environment,” “conservation,” and “ecology” in their titles are included. The first national environmental ministry appeared in 1971. There were 52 ministries by 1989 (the final year of our analysis) and 57 more by 1996. National environmental agencies, which are often but not always directly connected with national environmental ministries, proliferated during the same period, rising from 25 in 1972 to 140 in the current period; see Wapner 1996.

One might view this matter cynically, with the idea that formalized national ministries arise only when enough international conferences and organizations exist for ministers to attend, and that such ministries are only ritual showpieces.⁵³ It is probably more reasonable to see the distinctive situation here as reflecting the highly abstract, rationalized, and scientized nature of the modern conception of the natural environment—a conception that arises in a transnational cultural system and achieves an organizational base there before entering most national states.⁵⁴

Statistical Analyses of International Structuration

We turn now to a statistical analysis of the rise of the various measures of international environmental structuration discussed earlier. The aim is to show that measures of our two main explanatory variables—the rise of international scientific discourse and organization and the expansion of the international associational arena—affect the rise of nongovernmental and governmental organization, and international treaties, concerned with the environment. Because the variables under analysis are so highly correlated, we are unable to show that the different forms of environmental organization affect each other in a causal sequence, but we can examine one implication of this idea: the rise of official intergovernmental organization in the domain, other things being equal, slows down the hazard rates of expansion of numbers of treaties and nongovernmental and intergovernmental organizations (that is, these rates continue to grow over time, but more slowly).

We analyze the dependent variables using event history (or hazard rate) analysis, a method for analyzing the processes generating change over time in categorical dependent variables, usually as a function of the current or earlier values of certain hypothesized explanatory variables.⁵⁵ We examine the effect of several indices reflecting the underlying forces discussed earlier on the hazard rates of formation or founding of international environmental nongovernmental associations, environmental treaties, and intergovernmental organizations.⁵⁶ The following analyses are exploratory in character and cannot produce definitive confirmation of our hypotheses. First, the variables we discuss are, for the most part, interrelated with one another, and they all covary markedly with time as we have shown. Hence, it is difficult to show convinc-

53. For example, one recent study found 180 international environmental bodies with some claim on the active involvement of the Swedish government; see Levy et al. 1993.

54. Treaty ratification demonstrates the same pattern: the nation-states that ratify the most treaties are consistently the ones that participate most actively in the world environmental, scientific, and political sectors, even when environmental degradation and economic infrastructure are controlled; see Frank, in press.

55. Tuma and Hannan 1984. Whereas time-series analysis is the standard method of analyzing change over time in an outcome measured with a continuous or metric scale (for example, variables measured in dollars), event history analysis is a method for analyzing change over time in an outcome measured as a categorical variable. Here we analyze longitudinal data on several categorical outcomes: founding of a new international environmental association, formation of a new environmental treaty, and creation of a new intergovernmental organization.

56. The data set is available from the authors.

ingly and consistently the independent effects of scientific expansion and of the rise of an open system of international association. It also means that we cannot examine whether nongovernmental association, treaties, and intergovernmental organization form a causal sequence, though we can study whether expanded intergovernmental organization slows growth rates in the other two variables (with the other variables controlled). Second, it is difficult to find independent indicators that can be measured over a long time period and that clearly capture the separate effects we propose. It is also hard to show that the indicators of the different explanatory variables form distinct clusters. We must rely on the face validity of the indicators we use, rather than on strong statistical support for their clustering. Third, because of a lack of data covering a long time period and for statistical reasons, we are limited in the range of control variables we can employ to control the hypothesized effects of other factors.

Our basic aim is to show three main effects on world environmental organization corresponding to our three guiding hypotheses: a positive effect of the increased rationalization of scientific discourse and organization, a positive effect of the increased formal structuration of a world agenda hospitable to environmental issues, and a negative effect of the more recent consolidation of this agenda (for example, through the formation of UNEP). A further goal is to show that measures of environmental degradation do not eliminate these effects; we show that measures of environmental degradation do not add much by way of explanatory power. Our analyses are highly suggestive of the processes involved but by no means conclusive from the viewpoint of formal statistical tests.

Discourse

To capture the scientific rationalization of world discourse about nature, we use three world-level indicators that vary over time: the cumulative number of scientific unions in the International Council of Scientific Unions (ICSU), the logarithm of the cumulative number of science-oriented international nongovernmental associations, and the cumulative number of nation-states (of those in existence throughout the time period) with at least one national park.⁵⁷ We suppose that this last indicator captures not only the scientific rationalization of nature but also something of the earlier sentimentalization of it.⁵⁸ We are trying, with these indicators, to capture the causal

57. The cumulative worldwide total of domestic environmental nongovernmental associations would also be a plausible, though indirect, measure of the scientific rationalization of nature in world discourse; see Princen and Finger 1994; and Wapner 1996. It is difficult, however, to get reliable data on these associations over time. Domestic environmental nongovernmental associations certainly facilitate the rise of the world environmental structure, as the National Resources Defense Council did in advocating international ozone regulations; see Benedick 1991. In general, however, the effects of these associations are similar to those of other indicators of the scientific rationalization of nature in world discourse. Thus the World Meteorological Organization (an international science association) served as an important advocate of international ozone regulation, as did the National Resources Defense Council. The sources of the data are as follows: ICSU (International Research Council 1922–1952; International Council of Scientific Unions 1954–90); international science associations (Union of International Associations 1994); national parks (International Union for the Conservation of Nature 1990).

58. For analyses supporting this view, see Schofer 1996.

impact of general scientific rationalization of nature on environmental structuration. Note that no directly environmental organizations are in the ICSU, and no environmental organizations are included in our count of science-oriented nongovernmental associations.

Structuration

To measure the structuration of the world polity in terms hospitable to an environmental agenda, we employ four indicators: the cumulative number of independent nation-states in existence; the cumulative number of intergovernmental organizations (not counting those in the environment sector itself); the cumulative number of multilateral treaties (other than environmental treaties); and a trichotomy scored zero for the period before the League of Nations, 1 for the League period, and 2 for the period since the UN has been in existence.⁵⁹

Consolidation

To measure the central consolidation of the official intergovernmental environment domain, which we argue has negative effects (with the other forces controlled) on the creation of separate new structures, we employ three indicators: the cumulative number of intergovernmental environmental organizations, the cumulative number of nation-states with an environmental ministry (from a fixed set composed of the nation-states that were independent in 1971, the date of the first environmental ministry), and the staff size of UNEP (which is zero before the founding of the organization).⁶⁰

Size and Degradation

As a control variable, we employ the logarithm of the total world population (in billions). The purpose is to capture the effect of the overall size of world society, along with the commonly argued effects of environmental degradation produced by population growth. In preliminary analyses not reported here, we also included direct measures of this degradation.⁶¹

59. The sources of the data are as follows: for nation-states, see Europa Yearbook 1990; for intergovernmental organizations, see Union of International Associations 1994; for multilateral treaties, see Mostecky 1965; and Bowman and Harris 1984, 1993. In the case of multilateral treaties, no single source covers the whole period. Therefore, we used two sources that employ different criteria for counting treaties; see Lechner 1991. To render the two compatible, we calculated the average multiplier for a ten-year period of overlap that made counts based on the less comprehensive source equal counts based on the more comprehensive source. We used this multiplier to adjust the counts for the remaining years covered by the less comprehensive source.

60. The sources of the data are as follows: for intergovernmental environmental organizations, see Union of International Associations 1995; for environmental ministries, see Statesman's Year-Book 1960–89; for UNEP staff, see United Nations Environment Programme 1992.

61. In other analyses, we have also considered direct measures of environmental degradation; see Frank, in press. Factor indicators used were the logarithm of anthropogenic carbon dioxide emissions; see Keeling et al. 1989; and United Nations Environment Programme 1991; and the logarithm of CFC emissions; see Council on Environmental Quality 1991. The resulting factor shows almost no effect when included in analyses like those discussed later. Of course, emissions are not the same as perceived effects—the latter are much closer to the discursive and associational variables that we emphasize.

Indicators of each of the three main independent variables (discourse, structuration, and consolidation) were separately factor analyzed using SPSS, and factor scores were computed based on these analyses.⁶² Event history analyses were conducted using the RATE program.⁶³ The model employed assumes that the hazard rate of an event (for example, founding of an environmental organization) depends not on any inherent characteristics of time but rather on the time-varying explanatory variables included in the analysis.

Results

Table 1 reports the results of the main analyses. In each analysis, our measure of the hospitable structuration of the world polity shows a positive effect, as hypothesized. An expanded world structure open to environmental issues produces more intergovernmental and international nongovernmental organizations and more multilateral environmental treaties.

In each analysis, our measure of the central consolidation of an official international governmental sector around the environment also has the expected negative effects. With other factors controlled, consolidation operates to slow the growth rate in the creation of new governmental and nongovernmental organizations and of new intergovernmental treaties. We do not argue that this indicates a weakening of the structures involved. Although centralization may lower the creation of new nongovernmental environmental associations, it clearly increases the size and strength of the older ones.

Our measure of the scientific rationalization of nature in world social discourse shows the hypothesized positive (and significant) effects on the creation of international nongovernmental associations and of international environmental treaties. In the analysis of the formation of intergovernmental organizations, the effect is positive but is significant only at the 0.17 level in a one-tailed test. Our measure of discursive rationalization seems to be rather distant from the process by which intergovernmental organizations are created.⁶⁴

Overall, the analyses in Table 1 support our guiding hypotheses. In the face of high multicollinearity among our explanatory variables, however, we took one further

62. SPSS 1988. In each of the three cases, indicators were loaded on a single common factor and had very high weights. Given high multicollinearity among all ten indicators used to construct the three measures, it was not possible to differentiate clearly among the three concepts by factor analysis of all ten indicators simultaneously. Our grouping of indicators into three different constructs and factors rests on substantive and theoretical grounds rather than on statistical evidence. The factors for the international environmental associations and treaty analyses were constructed with data beginning in 1870, corresponding to the starting time for their analyses. Likewise, the factors for the intergovernmental organizations analysis were constructed from 1919.

63. Tuma 1992.

64. In our preliminary exploratory analyses, the rationalization of nature in world discourse factor consistently showed positive effects on the rate of formation of intergovernmental environmental organizations. These effects varied in statistical significance, depending on the exact time periods used for the construction of the factor and on the time periods used for the analysis (here, the analysis begins in 1919, with the formation of the League of Nations). In few cases, however, were the effects highly significant.

TABLE 1. Maximum likelihood estimates of the hazard rate at which international environmental associations, treaties, and intergovernmental organizations are formed in the world^a

Indicators	Independent variables	Associations, 1870–1989	Treaties, 1870–1989	Intergovernmental Organizations, 1919–90
Cumulative number of unions in the ICSU	Rationalization of nature in world discourse	1.44* (.82) ^b	2.13** (.88)	0.72 (.77)
Cumulative number of science international nongovernmental associations, logged				
Cumulative number of nation-states with national parks (constant cases)				
Cumulative number of international treaties (nonenvironmental)	Structuration of world polity	2.61** (.86)	1.96* (.85)	2.99** (.76)
World organization (0 = pre-League; 1 = League; 2 = UN)				
Cumulative number of intergovernmental organizations (nonenvironmental)				
Cumulative number of independent nation-states				
Cumulative number of intergovernmental environmental organizations	Consolidation of official intergovernmental environmental domain	-0.59** (.19)	-0.41* (.19)	-0.61* (.30)
Cumulative number of nation-states with environmental ministries (constant cases)	Population	-5.90* (3.28)	-5.96* (3.36)	-6.90* (4.09)
Staff of UNEP		4.25	4.19	9.78*
World population in billions, logged		(2.63)	(2.69)	(5.14)
Constant		196.31**	201.97**	158.44**
Chi-squared improvement over baseline				

Note: N = 153 associations, 156 treaties, 157 intergovernmental organizations.

^aEach column reports analysis of a separate dependent variable. As a guide to interpretation, we report statistical significance levels, even though we are studying the whole population of cases.

^bStandard errors are shown in parentheses.

**p < 0.01 (one-tailed test).

*p < 0.05.

step to check the robustness of these findings. We disaggregated the factors back into single indicators. For each of the three dependent variables, we then estimated the resulting thirty-six event-history models (three indicators of rationalization \times four indicators of structuration \times three indicators of consolidation, each including the logarithm of world population); we hoped that the directions and significance levels of effects would be consistent with the results reported in Table 1.

For international environmental associations, the effect of the indicator for the rationalization of nature in world discourse was positive in twenty-nine of thirty-six equations and significant in eighteen of these (0.05 level, one-tailed test). The effect of the indicator for the structuration of the world polity was positive in thirty-two of thirty-six equations and significant in fifteen of these. The indicator for the consolidation of an official intergovernmental environmental domain had a negative effect in twenty-seven of thirty-six equations and was significant in twenty-four of these.

For international environmental treaties, the effect of the indicator for the rationalization of nature in world discourse was positive in all thirty-six equations and significant in sixteen of these (0.05 level, one-tailed test). The effect of the indicator for the structuration of the world polity was positive in thirty-two of thirty-six equations and significant in six of these. The effect of the indicator for the consolidation of an official intergovernmental environmental domain was negative in thirty of thirty-six equations and significant in eighteen of these.

For intergovernmental organizations, the indicator for the rationalization of nature in world discourse showed a positive effect in twenty-one of the thirty-six equations but was significant in only three cases (0.05 level, one-tailed test). As in the main analyses reported in Table 1, our measure of discourse seems to be too remote from the processes producing official international organization. The indicator for the structuration of the world polity had a positive effect in only eighteen of the thirty-six cases and was significant in only seven. Of the four indicators on which the factor is based, two (the number of independent states in existence and the cumulative number of intergovernmental organizations) tended to show negative effects, though the overall effect of the factor was positive and significant. These two indicators appear to capture some of the negative effect accompanying the consolidation of the official environment. The indicator of the consolidation of the official intergovernmental environmental domain had the expected negative effect in twenty-nine of the thirty-six analyses and was significant in eighteen of these.

In these disaggregated analyses, the effects are fairly stable and usually have the expected signs; the significance levels are encouraging. Overall, the results are consistent with the findings in Table 1. The results are less convincing in the analyses of intergovernmental organizations than in the other two cases; however, we take the results of these disaggregated analyses as offering some support for our three guiding hypotheses.

Limitations

We have noted some limitations that make our statistical analyses exploratory in character, rather than more definitive. First, the explanatory variables describing sci-

entific rationalization and the world associational system vary together over time. This turns out not to be a major problem, since we have been able to show stable differential effects of these variables. Second, although the indicators of each explanatory variable statistically covary, they cannot be clearly differentiated in a statistical sense into separate clusters, and much of the justification for treating them separately is conceptual. The findings that they have distinct effects, two of which are positive and one of which is negative, lend support to the differentiation of the concepts involved. Third, we are limited in the control variables that we can use to examine other possible effects, but we note that our control variables have weak effects and do not alter our main conclusions.

Discussion

We have traced the rise of a large-scale sector of world society concerned with the environment. The rise of scientific discourse and association has been central. It universalized and legitimated earlier and narrower conceptions of the environment as the locus of either sentiment or particular resources.⁶⁵ The creation of an open, world organizational frame in the UN system greatly facilitated mobilization. In contrast, highly organized and interested action by nation-states—the bread and butter of international organization in much theory and practice—seems to be a later and less important feature of the system. Most nation-states had no central organized structures (such as ministries) dealing with the environment until late in the process. This reflects, in a sense, a top-down history, in which the rise of universalistic discourse and organization rather belatedly construct nation-states' aims and responsibilities more than the bottom-up political processes of power and interest that are mentioned more often.

There is no reason to generalize this situation across sectors or domains of actual or potential world sociocultural organization. Speculatively, we suggest two properties of a sector that affect trajectories of its organization in world society. First, to what extent do strong universalistic and rationalized cultural frames make a particular sector of common and general interest beyond local or national levels? Second, to what extent do the constituted nation-state models give the state monopoly or dominant responsibilities, interests, and international aims in that arena? Thus sectors that fit with the liberal, individualistic organization of world society will more quickly develop at the world level.

In the absence of either factor, we might anticipate little world-level mobilization or structuration in the domain. The lack of much world-level mobilization around ethnic and religious claims, especially given the intensity of local mobilization on these issues, illustrates a domain where our perspective predicts little world-level activity.⁶⁶ Religious and ethnic claims tend to apply to only a fraction of the world

65. Frank, in press.

66. See Boli and Thomas, 1998.

polity rather than the entirety, and they emphasize alternatives to the state system rather than rationalized action in it. These matters tend to be low on the agendas of legitimated states, and it is difficult to universalize these ideas in modern world culture.

When the opposite holds, as in the contemporary world economic or “development” sectors, we expect rapid sector development with a complex mix of intergovernmental and nongovernmental world activity.⁶⁷ States clearly see national and world development as central to their mission. Beyond this, however, a wider and now scientized culture of human progress and development fuels an enormous amount of nongovernmental activity at the world level.

When states take monopoly and sovereign responsibility for a domain, and when weakly rationalized or universalized common interests are available, a sector dominated by intergovernmental relations and organizations may result. This seems roughly to describe the international security sector. In view of practical human concerns, it is striking that during most of this century, the international nongovernmental arena concerned with peace, arms control, and international security has been weakly developed. It was probably relatively more central in international life at the turn of this century than now. Unfortunately, this sector seems to dominate academic discussion of organized world society, leading to misleading generalizations that overemphasize the role of national interests, state action, and intergovernmental organization.⁶⁸

Finally, in sectors such as the environment, human rights, the status of women, education, or the status of children, world concerns, rationalized and universalized in terms of general legal and scientific principles, may transcend the limited international interests of states in these areas and foster worldwide movements, associations, and mobilizations.⁶⁹

Whatever the trajectories involved, sectors change their status over time. Deborah Barrett and David John Frank show that a rationalized world movement concerned with population control operated throughout this century, against the considerable resistance of both states and intergovernmental bodies.⁷⁰ In the 1950s, as states took on increasing functions for managing economic development, and as economic development came to be scientifically analyzed as requiring population control, an official governmental and interstate sector blossomed.

A Note on Effectiveness

The preceding discussion bears directly on the question of whether the international environmental sector is “effective” in managing environmental problems. It clearly has *affected* a wide range of policies and practices, from the extraordinary recent rise in numbers of national parks to widespread protection for air and water and forests

67. Chabbott, 1998.

68. Jepperson, Wendt, and Katzenstein 1996.

69. For human rights, see Smith 1995; Smith, Pagnucco, and Romeril 1994; and Boli and Thomas, 1998. For the status of women, see Berkovitch 1994. For education, see Hüfner et al. 1987.

70. Barrett and Frank, 1998.

and the routine employment of environmental impact assessments.⁷¹ How well it actually *solves* environmental problems is unclear.⁷²

The environmental sector is clearly ineffective in comparison to the rapidly expanding claims on it. This follows from the nature and trajectory of the sector as we have described it. A sector arising out of highly legitimated but essentially unlimited discourse and association, rather than fixed and limited state interests or a fixed and limited world order, is a factory that creates and defines problems at a rate faster than that at which feasible solutions can be organized. The Tocquevillian features of modern world society can be expected to produce continued collective problem definition and mobilization around the environment, producing (as in the U.S. case) much more collective action than narrow theories can explain.

As we have shown, however, the rise of an official intergovernmental system, together with highly codified national interests and structures, may have slowed the rate of nongovernmental mobilization in the area. Although the system may not solve problems, it may tame them, and it may even slow the rate of formation of new problems.

Conclusion

We have examined the rise of a world environmental regime in a discursively volatile but organizationally stateless world society. In such a system, it makes sense that this regime arises in discourse and association, and that its growth depends heavily on the rise of a worldwide scientific culture. The regime turns out also to have depended heavily on the creation of a world organizational structure (principally, the UN system) with a frame and agenda broad enough to include environmental matters.

An associational system began to develop late in the nineteenth century. Facilitated by the broader world structure, the structure and discourse involved in this associational system clearly led to an expanded wave of intergovernmental treaties and then to an official world intergovernmental environmental system. Only at that point did nation-states begin to formalize environmental issues as central to their internal agenda-setting structures.

Given the dependence of the modern world on rationalized scientific culture, it has been difficult for states and their intergovernmental bodies to obtain the kind of monopoly authority over environment issues that would be required to slow down the development of the broader movements involved. Some “progress” has been made in creating formal structures that at least co-opt expansive forces of discourse and association, but it is plausible to expect continuing rapid creation and discovery of environmental issues, continuing conceptions of failure to deal with them effectively, and continuing world-level social mobilization around them.

71. On national parks, see IUCN 1990.

72. See Haas, Keohane, and Levy 1993.

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