# The Origins of Environmental Association

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**Abstract**

We examine the origins of voluntary associations devoted to environmental protection across the globe. It is common to characterize environmental associations, and the environmental movement more generally, as a response of affluent and highly educated citizens to the tragedies of environmental degradation. We draw on the social movements literature and neo-institutional theory to highlight the importance of structural and institutional factors at the national and global level. National resources and political institutions generate opportunities and constraints that shape domestic environmental association. Moreover, transnational pro-environmental organizations and institutions in world society provide resources and legitimation that encourage the proliferation of pro-environmental associations on a global scale. We use event history analysis to model the formation of domestic environmental associations for a large sample of countries in the contemporary period. Among highly industrialized countries, domestic factors largely explain the prevalence of environmental associations: resources (e.g., educated citizens, philanthropic support), and political institutions that afford favorable opportunities (e.g., democracy, enactment of favorable legislation). Across the developing world, global forces prove to be a powerful catalyst for environmental organizing. The movement which had domestic origins in the West institutionalizes in the world polity, generating new environmental associations on a global scale. We also find positive effects of democratic institutions and philanthropic foundations. Environmental degradation and societal affluence are not important drivers of environmental association.

## Introduction

Voluntary associations have garnered a great deal of attention as a source of social capital and public goods, and as a critical infrastructure for social movements (e.g., McAdam, McCarthy, and Zald 1996; Putnam 2000; Paxton 2002; Reimann 2006). We look to the formation of associations devoted to environmental protection to explore the following questions: Where do associations come from? And, do the processes that generate associations vary across societies? Environmental associations have proliferated around the globe in recent decades. Examples include household names like the Sierra Club, as well as a host of less-familiar groups such as the Swedish NGO Secretariat on Acid Rain (founded in 1982), the Algerian Ecological Movement (1993), the Bangladesh Environmental Lawyers Association (1992), the Malahai Clubs of Tanzania (1980), and Earthjustice in the United States (1971). This diverse population represents an important organizational infrastructure for the environmental movement and is seen as a potent source of political change (Brulle 2000).

Popular accounts treat the environmental movement – and pro-environmental association more specifically – as a grassroots response to the tragedy of environmental degradation (for an example, see Shabecoff 2003). Scholarly accounts by historians and environmental sociologists frequently retain some of this flavor, but place greater emphasis on the requisite capacities for mobilization and political participation, such as wealth, organizing skills, religious orientation, and pro-environmental values.

We draw upon ideas from social movements, sociology of the state, and neo-institutional theory to situate the formation of environmental associations within a broader political and cultural context. In addition to testing existing arguments about the importance of national democratic institutions and opportunity structures, we posit that *global* institutions and culture

provide resources and legitimation for association. Specifically, we consider how the global environmental regime (Wapner 1996; Meyer, Frank, et al. 1997) seeds domestic environmental association throughout the world (see Figure 1 for an overview of the arguments).

--- Figure 1 ---

We use event history models to analyze the formation of domestic environmental associations over recent decades using a new dataset of domestic organizations in over 100 countries. Our study speaks to environmental sociologists regarding the origins of this important infrastructure of the global environmental movement and contributes to the rapidly growing literature on civic and voluntary associations. Our sweeping empirical analysis offers a unique contribution to the environmental movement literature, which has largely focused on the United States and Western Europe (e.g., Bosso 2005; Brulle 2000; Shaiko 1999; Faber 1998; Diani 1995; Gottlieb 2005; but see Broadbent 1998; Mol and Sonnenfeld 2000; Bunker 1990). Moreover, our study broadens work on civic association overcomes the previous absence of country-level data on associations by turning attention to the entire world, rather than affluent democracies.

We also extend the literature on civic life through our focus on *associations themselves* rather than *citizen participation or membership ties*.[1] While prior work on civic life stresses membership or individual civic engagement, recent scholarship highlights the importance of studying associations as a distinct social phenomenon. For instance, Sampson et al. (2005) find that local associations prove to be a key predictor of both social movement activity and collective civic participation events, quite separate from the impact of individual membership

ties a community.

Finally, our work complements prior scholarship on transnational movements and "advocacy networks," but explores a new outcome with improved data, and goes a bit further in arguing for the importance of global forces in constructing national associational life (e.g., Keck & Sikkink 1997; Bandy and Smith 2005; Smith and Johnston 2002).

*Background*

Our understanding of the global environmental movement stems largely from studies of environmental organizing in the United States and Western Europe. Though the tactics and agendas of the environmental movement remain diverse, scholars have highlighted two periods of intense environmental organizing: the turn of twentieth century, and the post-World War II period (Brulle 2000; Andrews and Edwards 2005; McLaughlin and Khawaja 2000). Environmental associations of the late nineteenth century focused primarily on issues of game management and hunting, the conservation of natural resources for societal and economic development, and spiritual connections to the preservation of nature. Their origins rested in the sporting traditions of the United States and Britain, national commitments to economic development and the pursuit of the "frontier," the transcendental writings of Thoreau and Emerson, and the urban parks movement of the 1850s (Brulle 2000).

The contemporary popular conception of environmentalism took shape after the Second World War, mostly during the social movement boom of the 1960s and 1970s. One strand of postwar environmentalism, now dominant, derived from an ecological scientific framework that stressed functional interdependencies between human life and the natural environment, characterized by rational and universal scientific claims and discourse (Caldwell 1990b; Dunlap

and Mertig 1992; Frank 1997). Countries established new governmental and international agencies in part to assist in postwar environmental planning, such as the Nature Conservancy in Britain (1949) and the International Union for the Conservation of Nature (1948). In the United States formal environmental organizations grew rapidly alongside national legislation, such as the Wilderness Act in 1964 and National Environmental Policy Act in 1969 (Andrews and Edwards 2005). Academics looked to the student movement, a post-war democratic climate, and the emergence of a liberal, highly-educated middle class to explain the rush of environmental activity (Dalton 1993, 1994; Rome 2003). By the 1980s, the environmental movement grew to incorporate more progressive and radical variants, such as the deep ecology, environmental justice, and ecofeminist movements (Brulle 2000; Faber 1998; McLaughlin and Khawaja 2000). Some associations, such as Friends of the Earth and Greenpeace, expanded internationally and became the wellsprings for the broader global environmental movement.

In the developing world, in contrast, formal domestic environmental associations were rare until the late 1970s and early 1980s, and they appear in smaller numbers than in the industrialized Western nations. The origins of these associations remain overlooked and weakly theorized, as do their differences in tactics and agendas. The literature tends to focus on the activities of environmental associations, such as the movement to stop the Planafloro development project in Brazil or the Narmada dam in India (Keck and Sikkink 1998; Rodriques 2004), or the connections between environmentalism and other social movements, such as local land-based and rights movements (Keck and Sikkink 1998; Taylor et al. 1993). Do environmental organizations in the developing world follow the same path as those in the United States and Western Europe, or are their origins indeed different?

We seek to explain the origins of environmental associations throughout the world, with

particular attention given to the sharply different trajectories observed in highly industrialized versus less-industrialized countries. We systematically examine both the conventional explanations of pro-environmental civic participation, as well as newer arguments stressing trans-national associations and institutions.

**The Societal Sources of Environmental Association**

*Environmental Degradation*. The popular press, activists, and scholars alike have argued that pro-environmental attitudes, policies, social movement activities, and associations are spawned in response to environmental problems or struggles over natural resources (for an early example see Walsh 1981; Choucri 1993; Sprinz and Vaahtoranta 1994; Caldwell 1990a; Gardner 1995). Polluted waterways beget river conservation organizations; toxic factory emissions beget pollution watchdog groups; suburban sprawl begets open spaces groups; and so on. The social movements literature offers a healthy dose of skepticism here, pointing out that social problems and grievances are insufficient to produce a movement (Tarrow 1998; Tilly 1986, 2003; McAdam, McCarthy, and Zald 1996). Indeed, some of history's worst environmental catastrophes were not followed by heightened environmental awareness (Turner et al. 1990). Moreover, a recent study of environmental membership found little relationship between pro-environmental activity and actual degradation (Dalton 2005). Nevertheless, the assumption is central to the literature and warrants examination: *Countries with greater levels of environmental degradation will have more domestic pro-environmental associations.*

*Economic Development*. Environmentalism and civic association are both seen as products of societal affluence and/or advanced capitalism. Modernization scholars argued that national

development spurs democratic institutions and modern political behaviors such as participation in voluntary associations (Lipset 1960; Inkeles and Smith 1976). Historical accounts of the environmental movement likewise stress that the movement took off in the wealthy societies of Europe and North America with the support of their more affluent citizens (Hays 1987; Rome 2003). These ideas reappear often in the sociological literature, for instance in Inglehart's "post-materialism" argument – that individuals turn to issues such as environmentalism after basic economic needs are met (Inglehardt 1997; Kidd and Lee 1997).[2] Similarly, ecological modernization theorists argue that advanced capitalism critically enables a variety of pro-environmental changes ranging from the technological to the social (Mol 2001; Mol and Sonnenfeld 2000; Weidner and Janicke 2002). In short, it is common to expect that c*ountries with higher levels of economic development will have more domestic environmental associations.*

*Education*. Classical studies show that education spurs citizen participation and voluntary organizing (Almond and Verba 1963; see Orum 1989 for a review). Education raises awareness of social problems and is a key site for political socialization, as are many extracurricular activities associated with the school experience (McFarland and Thomas 2006). The recent environmental movements of Western Europe relied heavily upon both the student movements and college graduates of the 1960s and 1970s (Dalton 1983:52; Rome 2003). For example, the May Revolts in France generated new cultural criticisms of modernization and its detrimental effects on the environment. Student movements in West Germany and Denmark later burgeoned into ecological movements (Dalton 1993, 1994; Jamison et al. 1990). Finally, highly educated women, students, and recent college graduates comprised a critical mass in the anti-pesticide, open spaces, and Earth Day campaigns in the 1950s and 1960s (Rome 2003). Thus, we expect

that *societies with highly-educated populaces will generate more domestic environmental associations than societies with lower levels of education.*

**The State, Political Opportunities, and Environmental Association**

The previous arguments invoke the image that associations arise from aggrieved individuals who have sufficient skills and resources to seek political change. We turn to a discussion of the broader structural and institutional environment in which environmental association may occur. Recent work on voluntary associations has highlighted the importance of the state, democracy, and political institutions in shaping civic participation (Paxton 2002; Crowley and Skocpol 2001; Skocpol and Fiorina 1999; Schofer and Gourinchas 2001). Likewise, attention to political opportunities and constraints has long been part of the social movements tradition (see Meyer 2004 for a review). We discuss how national and trans-national political structures and institutions provide opportunities, resources, and legitimation for environmental association.

*Democracy*. Beginning with Tocqueville's (2000[1835]) early observations of America's vibrant associational life, sociologists and political scientists repeatedly observe that democratic political institutions support civic association (Paxton 2002; Putnam 2000, 1993; Curtis et al. 2001), though recent research has found opposite effects (Ruiter and De Graaf 2006). Democracies offer a more open political opportunity structure for social movements and legitimate free association in the public sphere. The democratic climate fueled environmental efforts in West Germany, for instance, including the resurgence of the dormant German Federation for Bird Protection and the Nature Protection Federation of Bavaria (Dalton 1993: 49). Thus, we expect: *Democratic*

*societies will have more domestic environmental associations than non-democratic societies.*

*National Institutionalization of Environmentalism*. We further argue that the state's embrace of pro-environmental policies and legislation – creating ministries, adopting clean air and water laws, creating Environmental Impact Assessment (EIA) requirements, and the like – serve to legitimate pro-environmental groups and radically improve the opportunity structure for association. States adopt environmental laws for a variety of reasons: as a response to domestic movements, exogenous global norms, pressures from the scientific community, bureaucratic encroachment of the state into new domains of activity, and so on (Frank et al. 2000; Hironaka 2002). Regardless of the cause, domestic associations may benefit.

The institutionalization of pro-environmental laws represents an important change in the political opportunity structure that opens up avenues for effective domestic mobilization and protest (Tarrow 1998; McAdam, McCarthy, and Zald 1996; Meyer 2004). For instance, EIA laws created huge opportunities for new organizations to form via contestation in the court system, operating as a "node for conflict" for citizens to challenge government or private sector development activities (Hironaka and Schofer 2002). Similarly, many environmental organizations in the United States formed after landmark legislation was passed in the late 1960s, such as the Wilderness Act of 1964 and National Environmental Policy Act of 1969 (Andrews and Edwards 2005). Some laws, such as the Clean Water Act of 1972, included mandates requiring citizen participation (Sirianni and Friedland 2001). The publicist for the National Park Service even helped create a civic organization—the National Parks Association (1919)—to promote the use of parks for recreational and educational activities (Bosso 2005). In addition to providing favorable opportunity structures and incentives, state laws legitimate environmental

concerns and place the issue squarely on the public agenda – and agenda setting is critical to political mobilization and successful organizing (Crenson 1971). In sum, we expect: *National institutionalization of pro-environmental policies increases the formation of environmental association.*

*Environmental Foundations.* As Brulle and Jenkins (2005) point out, philanthropic foundations have long provided financial resources to the U.S. environmental movement. Brulle and Jenkins estimate that grants from the Ford Foundation, Rockefeller Foundation, and others make up one-eighth of the financial resources of environmental organizations. Similarly, foundations played a key role in the emergence of forest certification in the United States, providing funding for some environmental groups and institutional support for others (Bartley 2007). Foundations have also had a paradoxical impact on the U.S. environmental movement, providing the financial resources necessary for short term success while simultaneously channeling them away from more radical goals (Brulle and Jenkins 2005). Still yet, foundations provide the domestic resources necessary for the formation of new organizations and are thus we expect e*nvironmental foundations to increase the formation of environmental association.*

**World Society and Environmental Association**

While domestic factors surely matter, it is increasingly clear that movements and civic association have become profoundly trans-national (Bandy and Smith 2005; della Porta et al. 2005; della Porta and Tarrow 2005; Smith and Johnston 2002; Boli and Thomas 1999). In the following pages, we discuss and elaborate the argument that "domestic" environmental associations are encouraged by global pro-environmental institutions, structure, and activity.

This is particularly relevant for understanding countries of the global South, where local individuals have fewer resources to mobilize, the state may be weaker, and the influence of the international community is oftentimes stronger. We thus build on the neo-institutional tradition which has sought to characterize modern nation-states, organizations, and individuals as constituted by the *world society* or *world polity* – that is, by a cultural system of principles and norms enacted through and embodied in transnational organizational structures and institutions (Meyer, Boli et al. 1997).

There has been a tremendous expansion of pro-environmental activity in the world polity – constituting a global "environmental regime." A web of trans-national pro-environmental organizational structures, discourses, and activities has expanded at enormous rates since the early 1960s, predominately in the form of international nongovernmental organizations (INGOs), intergovernmental organizations (IGOs), international conferences, treaties among nation-states, and so on (Meyer, Frank et al. 1997; Frank et al. 2000; Wapner 1996).[3] Greenpeace and WWF have become household names; the World Bank and International Monetary Fund require environmental assessments in development planning; and nation-states and NGOs together participate in countless environmental conferences and summits each year.

Our conceptualization of an environmental world polity resembles the notion of an "international political opportunity structure" discussed among social movement scholars. For a long time the hypothesized elements of political opportunity structures remained highly state-centric, such as the openness of political systems, the stability of political alignments, and a state's capacity for repression (McAdam 1996; Tarrow 1998; Meyer 2004). Recent extensions of political opportunity theory have pointed to the influence of international pressures on national political systems (Meyer 2003; Lewis 2002), and even the construction of a global opportunity

structure (della Porta et al. 2005; Khagram et al. 2002; Tsutsui 2006). Though an international state does not exist, an international network of environmental organizations provides new opportunities and resources for domestic movements and fosters the creation of a global environmental movement.

While broadly compatible, our approach diverges from the literature on international political opportunity structures in a significant way. The international political opportunity structure literature paints a picture in which domestic movements "tap into" the resources and allies of the transnational system. A world society approach instead looks to the global constitution of domestic contention from the top-down. World society legitimates social problems, channels resources to domestic organizations, and forges "transnational" identities to local actors. In other words, the actual *origins* of domestic contention may rest in the resources and culture of world society. For example, previous research finds that world society, and particularly elements of a global environmental regime, strongly influence state environmental policies (Frank, Longhofer, and Schofer 2007; Frank et al. 2000; Hironaka 2000). Similarly, Olzak (2006) found that international NGOs and social movements have been instrumental in generating domestic ethnic mobilization.

We argue that a pro-environmental world society encourages domestic association in two ways: (1) through direct organizational support and resources, and (2) via the cognitive construction of legitimate cultural models regarding the protection of the natural environment.

*Global Organizational Structure, Resources, and Legitimation*

The global environmental regime directly funds and supports environmentalism on a global scale, generating domestic association in a top-down manner. For example, OECD and

UN agency aid commitments devoted to environmental protection have exploded in recent years, growing from 4 in 1980 to over 1,200 in 2000 (Creditor Reporting System Aid Activity database, accessed online June 16, 2006). These aid commitments frequently support community-based environmental groups, such as the Asri Karya pig farmers in Indonesia (supported by AusAID) and many indigenous groups in Colombia as part of the Coama II project to protect the Amazon (funded by the European Commission, and the Austrian and Danish governments). Similarly, in a survey of environmental organizations in developing countries, Rohrschneider and Dalton (2002: 519) found that over two-thirds of groups surveyed received training or funds from agencies outside their own nation, indicating a high degree of transnational organizational links, knowledge, and resources flowing to domestic organizations. This is not only the case in the environmental arena, but in a number of other advocacy areas via private foundations, bilateral donors, and intergovernmental agencies (Reimann 2006).

Collaboration between transnational and local environmental organizations in the protection of the environment is extremely common, oftentimes in response to development projects and other exogenous global processes. For example, transnational organizations such as Friends of the Earth and International Rivers Network were prominent actors in the Narmada movement in central India (Dwivedi 2001; Rodrigues 2004). The local campaign relied heavily upon the resources, expertise, and political pressures of transnational environmental groups to pressure Japanese investors and the World Bank to withdraw funds from the Sardar Sarovar Project. Similarly, the campaign against the Polonoroeste development project in the Rondônia region of Brazil began as an international movement against multinational development banks (Keck and Sikkink 1998; Rodrigues 2004). As the global campaign moved forward it began to collaborate with previously unorganized local associations, eventually comprising the Rodônia

Forum umbrella organization. Despite conflicts among local groups and international organizations, the network built a local membership base, encouraged the formation of new rubber-tapper and rural workers associations, and eventually filed a grievance with the World Bank (Rodrigues 2004). In short, both the Narmada and Polonoroeste examples demonstrate how "local" environmental movements are often transnational collaborative efforts or, in the case of Polonoroeste, the result of global environmental activity almost completely.

Case study research on Eastern Europe observes similar dynamics. For example, the resurgence of the Hungarian environmental movement in the 1990s was in large part due to the increasing penetration of world society. As Lipschutz notes:

> [T]hese activities are not bounded by the country's borders, and support has been provided from outside Hungary. The Green Alternative has received advice and assistance from other Green Parties throughout Europe as well as those in the European Parliament. Environmental organizations and private foundations in the United States, the United Kingdom, Japan, the Netherlands France, and Scandinavia, among others, have provided resources of various sorts to groups in Hungary. And throughout Eastern and Central Europe, various environmental programs have been established and supported by governmental agencies in the West (Lipschutz 1996:145-146).

Western organizations like the Soros Foundation, Rockefeller Brothers Fund, German Marshall Fund, and USAID provided resources, organized seminars, and disseminated (mostly German) associational models (i.e., corporatist) to Hungarian environmental NGOs, eventually generating a movement with a "heavy American influence: professionally managed, resource mobilizing, and media-orientated" (Kerényi and Szabó 2006). Global collaborations provide incentives for local association through the formation of legitimate spaces for civic action, the necessary financial and cultural resources, and general models for organizational activity.

Cultivating domestic organizations has long been part of the everyday activities of the global environmental movement. Many transnational NGOs engage local communities in wildlife protection efforts, sustainability initiatives, environmental education programs, and so

on. One prominent international organization involved in local societies is the World Wide Fund for Nature, previously known as the World Wildlife Fund. Founded in 1961 primarily as a European fundraising organization for wildlife protection, WWF now maintains national branch organizations in more than 100 countries and works on a number of environmental issues, including wildlife conservation, climate change, sustainable development, and poverty alleviation. WWF, like a number of other international groups, specifically focuses on local empowerment efforts, particularly through sustainability programs and its debt-for-nature swaps (Wapner 1996). Efforts to engage local civil society in transnational environmental activity affects local associational life in myriad ways. As Wapner notes:

> When transnational environmental activist groups undertake eco-development projects in these areas of the world, they intervene in the web of associational life. When they introduce alternative production processes, utilize villagers in conservation activities, or enhance the capability of local NGOs, they reorient the material, social, symbolic, and political dimensions of rural life. At a minimum, this consolidates people into new forms of social interaction. On the one hand, it strengthens existing patterns of social intercourse- for example, when activists enlist traditional community leaders in conservation efforts. On the other hand, it changes or reorients them by providing additional, meaningful frameworks for collective life. One sees this impact most clearly in the emergence of new networks of distribution, avenues of communication, and forms of accumulation (Wapner 1996: 103).

In other words, the transformation of local civil society is a routine consequence of transnational environmental activity.[4] Sometimes the influence of transnational environmental groups translates all the way down to national policy. For example, WWF, Conservation International, and the World Bank, to name a few, were directly involved in funding and drafting national environmental plans and running state-owned parks in Madagascar (Duffy 2006). We argue that such efforts by world society to penetrate local communities not only embolden the local environmental efforts, but also encourage the formation of new local pro-environmental associations.

In addition to the direct transfer of resources and expertise, world society bolsters

associational activity through the construction and diffusion of a highly legitimated global environmental culture (Wapner 1996). Neoinstitutional scholars point to a world culture that includes not only transnational organizational linkages, but also cognitive scripts and social norms that structure collective action (Boli and Thomas 1999; Meyer et al. 1997). A global environmental culture facilitates association formation by creating widely-shared understandings and rules of what counts as acceptable environmentalism (Meyer et al. 1997). These shared understandings serve as powerful frames that motivate people to create and participate in associations, and provide models of how to pursue environmental protection. As environmentalism increasingly becomes "taken-for-granted" in world culture, the probability that a given individual will take up pro-environmental ideas and form an association increases dramatically.

There are many examples of world society at work through these diffuse cultural processes. International organizations "contribute to addressing environmental problems by heightening worldwide concern for the environment" (Wapner 1996: 42). Most notably, Greenpeace explicitly disseminates an "ecological sensibility" through its extensive media campaigns, educational efforts, scientific research, and strategic efforts to persuade the general public (Wapner 1996). Local organizations often emerge out of this more diffuse cultural realm of world society. For example, the largest environmental group in Hong Kong- the Conservancy Association- was founded by "a group of professionals inspired by the 'environmental consciousness' of the West" (Chiu et al. 1999: 57).

Given the rapid growth and institutionalization of global environmentalism in the world polity, we expect: *countries strongly influenced by the resources and culture of a pro-*

*environmental world society will have more domestic environmental associations.* Moreover, we expect particularly strong effects in the developing world where levels of education and resources are much lower (Rohrschneider and Dalton 2002; Gardner 1995). Boli and Thomas (1999:69) argue that poorer countries join international nongovernmental organizations at rates much higher than national resources would suggest and oftentimes at rates higher than the developed world. These organizations typically reflect more "global" issues, such as human rights, development, and the natural environment (Schofer and Longhofer 2005). Thus, we expect: *Pro-environmental world society will have a greater impact in the developing world than in the industrialized West.*

**Methods**

We use event history analysis to examine the effects of domestic and international variables on the formation of new environmental associations from 1960 to 1995 (Tuma and Hannan 1984; Yamaguchi 1991).[5] The unit of analysis is the country, which may experience repeated organizational founding events over time.[6] The dependent variable is the rate at which new domestic environmental associations are founded. We use an exponential model with time-varying covariates to analyze data over the period from 1960 to 1995, consistent with similar studies (Frank et al. 2000; Schofer 2003).[7] Cross-sectional models may be biased due to reverse-causal effects between key variables such as domestic environmental associations (the dependent variable) and citizen memberships in international environmental groups (a key variable of interest). Dynamic models focus on rates rather than levels of the dependent variable, and exploit temporal ordering of independent variables and dependent outcomes in a manner that avoids some of the weaknesses of cross-sectional models. See Blossfeld et al. (2007) for a

discussion of causal modeling and event history analysis.

We conducted corollary analyses to address concerns about unobserved heterogeneity (case-specific omitted variable bias) and endogeneity. First, we estimated frailty models – event history models with a term for case-specific error – to address potential unobserved heterogeneity. Results (not presented here) were similar. Second, we replicated all findings using pooled panel models where the dependent variable was the level of environmental association. This allowed us to utilize both fixed and first-differenced models, again to address case-specific omitted variable bias. In addition, recent innovations in models for dynamic panel data allow us to address both case-specific heterogeneity as well as violations of strict exogeneity, such as the Arelleno-Bover/Blundell-Bond (ABBB) estimator (Arelleno and Bond 1991; Arellando and Bover 1995; Blundell and Bond 1998). These models combine first-differencing with an instrumental variables approach based on multiple lags using a Generalized Method of Moments estimator. Again, results were similar (with some exceptions noted below).

**Data**

Data on domestic environmental associations are derived from the *World Directory of Environmental Organizations* ("the Directory") and the *Encyclopedia of Associations: International Organizations* ("the Encyclopedia"). We draw upon two independent sources to reduce idiosyncratic source-level biases in our dataset. The *Directory*, first released by the Sierra Club in 1973 and published regularly thereafter, provides basic information on governmental and non-governmental environmental organizations across the world, including name, address, contact information, and founding date (California Institute of Public Affairs, 1973-2001). Organizations listed in the Directory include citizens' environmental groups, policy centers,

environmentally oriented development organizations, and academic research centers involved in either environmental policy work or information dissemination. The Encyclopedia includes a broad range of nongovernmental organizations from around the world (Gale 2001). Organizations are categorized by keywords, allowing us to identify those devoted to environmental issues.

The *Directory* and the *Encyclopedia* provide information on the founding date of environmental associations, which we used to construct event history spell data.[8] We began by coding recent editions of each source, taking care to remove the many organizations that were listed in both.[9] In addition, we coded prior editions of our sources to avoid "survivor bias," where organizations that failed prior to the contemporary period are omitted from the data.[10]

Similar to previous studies (see McLaughlin and Khawaja 2000), we collected data on all domestic associations, with the following exceptions: (1) We excluded governmental organizations. (2) We excluded local chapters of major international nongovernmental organizations such as the World Wild Fund for Nature, Friends of the Earth, Greenpeace, and the World Conservation Union. We seek to examine the effect of international associations on the formation of domestic groups. To avoid potential tautology, we do not count domestic groups with such obvious ties to the international sphere.[11] (3) We exclude all academic research institutes, both because they do not fall into some definitions of "private" associations and because we wish to avoid a tautological relationship between our educational measures and our dependent variable. (4) We exclude associations for which founding dates were not available.

The *Directory* and *Encyclopedia* are the most comprehensive cross-national data sources available. Although they do not represent a census of all environmental associations across the globe, there is reason to believe that they do a good job of capturing the *relative* prevalence of

these associations across societies. Both sources correlate with one another at above .9 in 2000, and at a similar strength with other sources such as ecology/environmental science associations from the *World Guide to Scientific Associations and Learned Societies* (Zils 1998). While any given source might be accused of idiosyncratic bias, such bias would likely result in low correlation across sources. Nevertheless, all organizational directories are subject to systematic biases that likely affect our study. While no one (to our knowledge) has examined our international sources against an independent data collection effort, Andrews and Edwards (2005) suggest that the national version of *Encyclopedia of Associations* likely undercounts environmental associations as well as other advocacy organizations. It is a given that organizational directories over-count large and well-funded associations, while undercounting smaller and more peripheral ones. It is also plausible that our sources are biased in favor of "mainstream" environmental groups, and against those with more radical agendas (e.g., environmental justice groups, deep ecology movements) or other groups that fall outside of the mainstream (e.g., indigenous groups that built around highly distinctive conceptions of environmentalism). These limitations must be kept in mind when interpreting our results. However, there is some reason for optimism. First: cross-national differences in civic life (not to mention many other phenomena) tend to be quite large. Variables like GDP per capita vary by factors of up to 100 to 1, and our civic variables show similar variation. In other words, there is a strong "signal" in these data that may be detectable despite various sources of "noise" (i.e., measurement error, bias). Second, potential biases tilt our study toward a type of association that, while not wholly representative of all environmental groups, is of scholarly interest: large and well-funded organizations are often most involved in large-scale movements, lobbying, or other reform efforts. We must take care, however, not to assume that our findings apply equally

well to marginalized or radical branches of the environmental movement.

*Independent Variables:*

*Environmental Degradation*. We examined a variety of environmental degradation measures, including the natural logarithm of organic water pollution emissions per capita, the natural logarithm of electricity consumption per capita, the natural logarithm of C02 emissions per capita, deforestation (% change in land area in prior decade), and various consumption measures such as the natural logarithm of paper and paperboard consumption per capita (World Resources Institute online data portal, accessed July 25, 2005).[12] Our main tables present results based on paper and paperboard consumption. The measure, originally collected by the Food and Agriculture Organization of the United Nations, has the virtue of being highly correlated with other forms of degradation, while also being available for a large sample and lengthy span of time. Our main analyses are replicated in Table 3 using alternative measures of degradation, to assess the robustness of our findings.

*Economic Development*. We measure development by the natural log of real Gross Domestic Product (GDP) per capita, taken from the Penn World Table version 6.1 (Center for International Comparisons 2002). Alternative measures of development or industrialization, such as energy consumption or the Human Development Index yielded similar results.

*Education*. We measure education with the tertiary enrollment ratio, taken from the World Development Indicators dataset (World Bank 2003). We also examined the effects of secondary enrollment, which had no effect on environmental associations.

*Democracy* is measured using an index of two seven-point scales measuring civil liberties and political freedoms, with higher values representing more democratic countries (Freedom House

2004).

*Environmental legislation* is measured as a dummy variable coded 1 for years following the passing of the first comprehensive environmental law in each country (many of which are comparable to the EPA in the United States). Examples include the Afghanistan Environment Act (2005), Ghana Environmental Protection Agency Act (1994), and the Norway Conservation Act (1970). Data was taken from the ECOLEX website (www.ecolex.org), which contains text on environmental legislation for all countries and is maintained by the IUCN, UNEP, and Food and Agriculture Organization of the UN. Alternative legislation measures, such as environmental impact assessment laws, yielded similar results.

*Environmental foundations.* Previous research has emphasized the importance of private foundations in funding and maintaining the environmental movement in the United States (Bartley 2007; Brulle and Jenkins 2005). We include a longitudinal measure of private foundations operating in each country with an explicit environmental focus. Data is taken from the *World Guide to Foundations* (Zils 2004). We use the natural log to account for skew.

*World Polity Influence* is measured in a conventional manner, by national ties to environmental international non-governmental organizations (INGOs). Previous research shows that ties to international environmental organizations reflect the extent to which countries are embedded in a global environmental regime and thus likely to be influenced by pro-environmental cultural models and norms (Frank et al. 2000; Hironaka 2000). Data from the Union of International Associations (1984-2001) measures the number of INGOs to which citizens from a given country hold membership (for example, a country with individual members of both WWF and Friends of Earth is considered to have two ties to the world polity). We take the natural log of the measure to reduce its skew. We also used a more general measure of ties to all INGOs,

regardless of issue area, which presented similar results. [13]

*Additional Controls:*

*Population*. We include a control for national population (World Bank 2001), because large societies typically have greater numbers of voluntary associations. We use the natural log of this variable because it is highly skewed.

*Trade Openness*. In addition, we test for the impacts of international trade using data from the Penn World tables (Center for International Comparisons 2002). Trade openness is measured by the total sum of imports and exports as a proportion of GDP. It has been argued that trade, particularly in developing countries, may have a negative impact on environmental protection (Yearley 1994).

Appendix A includes descriptive statistics for variables used in the main analyses. Our maximum full sample size is 108, but is typically lower due to missing data on particular independent variables. We conduct analyses on our full sample, and also divide the analyses into two subgroups: highly industrialized countries versus the less-industrialized and developing nations.[14] Highly industrialized countries include Western European nations, United States, Canada, Japan, Australia, and New Zealand. Less-industrialized and developing nations comprise sub-Saharan Africa, Latin America, Eastern Europe, and most of Asia. We further examined specific geographical regions (e.g., Latin America, Asia, etc), but we do not present results because they varied little from the general analyses of the non-highly-industrialized world.

*Corollary Analyses and Additional Methodological Issues*

We conducted corollary analyses to address a range of issues. Noteworthy results are mentioned below. First, we examined a range of model specifications to address potential omitted variable bias and to ensure the robustness of our findings. Results were remarkably consistent. Among other things, we included controls for population growth, prior organizational foundings and foundings squared, alternate measures of democracy, foreign direct investment, world system position, oil exporting countries (dummy), geographical region, and others. We also examined various attitudinal measures (pro-environmental views, trust, post-materialist views, egalitarianism, etc) using country means of individual-level survey data from the World Values Survey.[15] We tested for interactions and non-linear effects of key variables, such as a non-linear effect of economic development on pro-environmental association. Finally, we observed that the United Kingdom appeared to be an extreme outlier in our analyses, with a much higher rate of organizational founding than comparable countries. Thus, we opted to exclude the United Kingdom from all analyses.

**Results**

We begin with descriptive statistics and charts that summarize patterns of environmental association formation across geographical regions and over time. We include information on the global environmental movement as a point of contrast, as we are interested in the relationship between domestic pro-environmental association and broader global dynamics. Table 1 presents the average founding date of domestic environmental associations and the average timing of first citizen membership in international environmental associations for major geographical regions. In the industrialized West, the average founding date of domestic associations precedes the

average onset of citizen membership in international organizations by nearly six years. This is consistent with historical accounts, which describe a long history of domestic association prior to the rise of the global environmental regime.

The timing is notably different in other regions, with domestic association following or emerging more or less in tandem with international memberships. In Central and South America, for example, international memberships arrive on average six years before domestic associations. Though domestic organizations precede international memberships by a fraction in Africa, both arrive later than the rest of the world and after the environmental world polity began to take shape. While by no means definitive, the timing is suggestive of a greater role of international dynamics – either that international organizations played a pivotal role in the formation of domestic association, and/or that both domestic and international organizational participation emerge together as part of a globally legitimated package.

---- Table 1 ----

These patterns are even clearer in Figures 2 and 3, which trace the growth of memberships in environmental INGOs and the founding of domestic associations in developed and developing countries. Among the industrialized countries, domestic organizations clearly precede memberships in international organizations, beginning in the late 1800s and rising steadily until a slightly greater expansion in the 1960s and 1970s. Participation in international organizations also begins much earlier in the industrialized countries than in the developing world, although the slope is much steeper in the more recent period in developing countries. In non-industrialized countries, INGO memberships precede the founding of domestic

organizations and begin to rise in the late 1960s and early 1970s. Domestic organizations, on the other hand, expand slowly until the mid-1970s, years after the penetration of the international environmental community.

---- Figures 2 and 3 ----

Table 2 presents event history models of the founding of environmental associations. Models 1 displays results for all countries, model 2 looks exclusively on the highly industrialized world, and model 3 focuses on the rest of the world. It is immediately clear that the global models mask significant heterogeneity between highly industrialized and less-industrialized countries.

---- Table 2 ----

*All Countries*

Model 1, based on our full sample, shows that populous, highly educated, and democratic societies have higher levels of domestic environmental association. Every point increase in higher educational enrollment ratios yields a 3 percent increase in the rate at which environmental associations are founded (exp(.03)*100=1.03).[16] Each point increase in democracy increases the rate of association formation by 31 percent (exp(.27)*100=1.31), a large effect. In the aggregated model, domestic legislation and domestic environmental foundations, measures of political opportunities and resources, respectively, have no effect. Finally, we find a small negative effect of trade on environmentalism, suggesting that highly 'open' economies have fewer environmental groups.[17]

We also see some surprises: Environmental degradation, often thought to prompt pro-environmental organizing, has a positive but insignificant impact on the formation of environmental groups. We do not see clear evidence of a link between country-level degradation and the subsequent formation of environmental associations. We explore the issue further below. In addition, Model 1 finds that wealthier countries (as measured by GDP per capita) have fewer environmental associations, net of other factors, than poor ones.[18] Once key variables are controlled, we see that the formation of associations in the developing world is higher than one might expect.[19] We also find no effect of world society on environmental association. However, the picture changes markedly when we disaggregate our analyses.

*Industrialized Western Countries*

Model 2 contains results for highly industrialized countries. Again, population, education, and democracy have positive and significant effects, though the coefficient for education is only marginally significant in this smaller sample. Like before, we also see a small negative impact of trade and no significant effect of environmental degradation. Among highly industrialized countries GDP per capita has a positive but non-significant effect. The most affluent societies, within this generally wealthy group, do not have significantly more environmental associations than the others.

In Model 2 we see a large positive effect of domestic environmental legislation on the formation of environmental associations. Among wealthy industrialized nations, the enactment of major national legislation spurs the founding of new associations, consistent with opportunity structure arguments developed above. We also observe a positive and significant effect of domestic foundations, which have been identified in the literature as a factor in spurring the

environmental movement.

Finally, in Model 2 we observe a strong negative and significant effect of world society, measured as national memberships in environmental INGOs, on the formation of domestic environmental associations. The reason is quite apparent in Figure 2. Among highly industrialized nations, the explosion of domestic association precedes the emergence of a world environmental regime. National links to environmental INGOs in world society develop only after the formation of domestic groups tapers off. In other words, the negative relationship is likely coincidental rather than causal. However, one could also imagine a possible substantive effect: trans-national environmental associations may begin to supplant or "replace" domestic association, reducing their rate of formation (see Meyer et al. 1997 for an analogous case of environmental IGOs crowding out INGOs). In Europe, for instance, there has been a huge boom in trans-national environmental organizing that might render some national-level groups redundant. However, this argument is speculative. Moreover, caution is also warranted because the negative effect of world society, while consistent in sign, falls shy of statistical significance in the ABBB dynamic panel models (see Appendix B).

*Non-Western Countries*

Model 3 examines countries outside the industrialized West. Results are markedly different, as might be expected given the history of environmentalism in the developing world. The most striking difference is a 180-degree shift in the impact of world society. Among less-wealthy countries, ties to world society have a very strong effect on the formation of domestic association. Each point increase in a country's ties to international environmental associations is associated with a 95% increase in the rate at which domestic associations are founded

(exp(.67)*100=1.95). This large effect suggests that environmental associations in the developing world are intimately meshed with trans-national forces.

Environmental foundations also have a very large effect in this sample of countries. Every additional point in our foundations measure leads to a 45% increase in the rate at which domestic environmental groups are formed (exp(.37)*100=1.45). While this is ostensibly a measure of domestic resources, this finding actually fits well with the large effect of world society. National foundations, such as those tied to George Soros' Open Society Institute, participate in various transnational policy processes and are often key conduits through which global ideas and resources implant in local societies (Stone 2008; Roelofs 2003).

We also observe a substantial effect of democracy on domestic environmental association formation. Each point increase on the democracy scale results in a 25% increase in the rate at which environmental associations are founded (exp(.22)=1.25). As one would expect, associational life is constrained by non-democratic regimes. Other domestic effects are muted. Environmental legislation, which generates powerful opportunities among wealthy nations, has no effect in this sample of less-industrialized countries. The effect of population is diminished and loses significance (though it creeps back in Appendix B which replicates these analyses using an ABBB dynamic panel model). This matches our experience: population size is rarely a determining factor in environmental associations within the developing world. Other factors – such as democracy and world polity embeddedness matter much more, such that small countries (e.g., Costa Rica, Zimbabwe) may have more associations than populous countries (e.g., Indonesia). Likewise the effect of domestic education falls shy of significance in Model 3, but again holds up (marginally) in Appendix B.

We find that national wealth, measured by GDP per capita, has a negative effect on

environmental association in our sample of non-industrialized countries. Given the prevalence of environmentalism in the highly industrialized countries and a positive (though insignificant) effect of GDP in that sub-sample, we had expected the opposite. One explanation is that environmentalism is repressed or set aside by newly-industrializing countries bent on maximizing growth, yielding a non-linear effect of GDP in our full sample. We looked for direct evidence of this in several ways, including testing for non-linear effects of GDP in our full sample, but found no significant effects. Another possibility is that the absence of a thriving economy may actually foster association formation.[20] Lacking private sector opportunities, entrepreneurial individuals turn to international donors or the state for resources. And, those resources are generally allocated to NGOs rather than individuals. Dill and Longhofer (2006) observe this phenomenon in urban Tanzania: NGOs are a route to economic resources and status within an impoverished society. Forming an NGO affords the hope of obtaining donor funds (either directly, or channeled through numerous NGOs and state agencies), which translates to employment, improved local services, and often substantial local prestige. Consequently, individuals create NGOs in substantial numbers.

National participation in global capitalism, as measured by trade openness, has a negative effect on environmental associations. However, the effect falls shy of statistical significance in our full model. We similarly observe a non-significant negative effect of foreign direct investment (not presented here; models available from the authors). Negative effects might suggest that certain structural positions within the global capitalist system – namely, countries that are high-traders within the less-industrialized world – experience pressures that undercut domestic environmental association, consistent with imageries developed by world system theorists and environmental sociologists working in that tradition (Wallerstein 1974; Jorgensen

and Kick 2006; Jorgenson and Burns, forthcoming). The consistency of the negative coefficients is suggestive, but our sample does not provide evidence needed to draw clear conclusions.

*Degradation: A Closer Look*

Table 3 examines several additional measures of country-level environmental degradation. Environmental destruction takes many forms, and consequently any single measure may be insufficient to evaluate the argument that degradation prompts the formation of associations. Results in Table 3 again find no evidence that environmental associations proliferate faster in highly degraded countries. We do observe a very small negative effect in one case: countries experiencing rapid deforestation have lower rates of environmental association formation. We did not anticipate this. It is possible that the social/political conditions generating deforestation (e.g., in Indonesia and Brazil) are linked to repression of voluntary associations. Alternately, the finding may be an artifact of measurement: forest change in small countries is weighted heavily given that our measure is standardized by the overall land area of a country. Forest growth in a few small developed countries with high levels of association (e.g., the Netherlands) generates some moderate outliers that account for much of the effect.

In sum: Country-level degradation is not positively associated with the formation of associations. Yet this does not completely rule out the idea that degradation spawns environmental associations. National-level measures may be simply too imprecise. Environmental damage is typically distributed quite unequally within societies. *Some citizens* may experience a great deal of environmental injustices even if the mean societal levels of degradation are low (Pellow 2007; Clapp 2001). We lack the disaggregated degradation data

necessary to explore this empirically. Nevertheless, we remain skeptical of such grievance-based arguments. Recall that much of the American environmental movement originally arose more from affluent suburbs rather than polluted urban slums; that is, until the environmental justice movements of the 1980s (Faber 1998).

*Environmental Attitudes*

We used aggregated survey data from the World Values Survey and Dunlap, Gallup, and Gallup (1993) to model the effect of ten attitudinal measures on environmental association in a cross-section of countries. Results are exploratory in nature due to small sample sizes (attitudinal data is quite limited, especially in earlier time periods) and therefore are not presented here. We found no effect of post-materialism on the rate of formation of environmental associations, contrary to the predictions of the Inglehart tradition. [21] Likewise, most environmental attitude variables had no effect on the rate of association formation. We did find some small effects, again only in the West, of two measures: feelings on whether environmental issues are the most important problems facing a nation, and whether environmental protection should be given a higher priority than economic growth. We found no effects outside the industrialized West. However, we are cautious in drawing strong conclusions given the small sample size and a lack of data in the 1970s and 1980s. Further research is warranted.

*Regional Differences*

The sharp differences between industrialized Western nations and "the rest" prompted us to disaggregate further, looking for interesting differences based on geographical region, colonial

history, timing of independence, and the like. Interestingly, we found few robust, consistent differences. Obviously, effects fluctuated somewhat in magnitude in sub-analyses, as sample-sizes dwindled for small regions. Overall, however, the same basic picture emerged: world society, democracy, and (to a lesser extent) foundations dominate the models among non-western countries.

**Discussion**

We observe different dynamics in the industrialized West versus the less-industrialized countries. Statistical analyses of the industrialized West support a domestic social movement story. Resources provided by educated citizens and philanthropic foundations are associated with higher rates of environmental association formation. Domestic political opportunities, in the form of democratic institutions and favorable legislation, accelerate the formation of pro-environmental groups. International factors play no positive role in promoting domestic association.

Among non-Western countries, international influences strongly encourage domestic pro-environmental organizing consistent with a world society/trans-national social movement story. Countries strongly tied to international pro-environmental associations have the highest rates of domestic environmental association formation. This finding holds up when our data and analyses have been specifically tailored to address potential simultaneity whereby countries with many domestic associations may join international groups in large numbers (See Data, Appendix B).

If anything, our models understate the effect of world society on domestic association because we excluded the many local chapters of international groups from our dependent

variable. Branch organizations or chapters of international organizations are common throughout the developing world, and represent an important avenue through which global forces shape local civil society. They were excluded for methodological reasons, but in fact they are substantively important. Local chapters often have access to international resources and expertise. While we lack systematic data, anecdotal evidence suggests that they are often significant players in local environmental politics in the developing world. Were we to include such organizations in our analyses, we would observe even stronger world society effects in our models – because their presence is a direct byproduct of ties to international environmental associations.

The positive effect of international associations on the growth of domestic pro-environmental groups in non-Western countries has multiple interpretations. It could be that global forces encourage the formation of *new* domestic groups. Alternately, the agendas and resources proffered by international associations could cause *pre-existing* domestic organizations to shift their attention to environmental causes. We explored this question of formation vs. "repurposing" of existing groups by looking for the appearance of old organizations (i.e., founded prior to previous editions) in successive editions of our data source, and by looking for organizations with names indicating non-environmental aims. Our exploration yielded clear findings: examples of re-purposing can be found, but the vast majority of associations appear to be newly founded and devoted primarily to environmental causes. The environmental movement in non-Western countries is not substantially rooted in pre-existing civil society groups that were re-purposed.

We also see a large effect of domestic foundations among less-industrialized countries. While this is nominally a domestic resource mobilization variable, historical accounts suggest

that Western foundations played a key role in establishing philanthropic traditions in many developing countries in an effort to curb communism and support education and health-related institutions (Roelofs 2003). Anecdotal evidence suggests the same: emergent global philanthropic networks, such as the Worldwide Initiatives for Grantmaker Support (WINGS), have invested millions of dollars in local philanthropic ventures, often under the auspices of venture philanthropy or social entrepreneurialism. Again, international dynamics are likely important. Finally, we observe a big democracy effect consistent with prior studies and basic opportunity structure imagery (e.g., Paxton 2002; Schofer and Longhofer 2005). Political repression hampers associational life generally, and environmental associations specifically.

It is equally interesting to reflect on the things that were *not* associated with the formation of environmental associations:

*Environmental Degradation*. It is common to characterize the modern environmental movement as a response to the horrors of environmental destruction (Brulle 2000; Faber 2005; Pellow 2007; Gardner 1995). Yet, we do not find a positive association between country-level degradation and the formation of new environmental associations. This fits with Tilly's classic point that grievances alone are insufficient to mobilize people.[22]

*Affluence*. Ecological modernization theory argues for a strong link between advanced capitalism and environmentalism. Inglehart's work on post-materialism has also been taken up by scholars of the environment, resulting in the popular notion that people must have basic needs met before they start to care about luxuries such as environmental protection (Kidd and Lee 1997). We find such a relationship only within the industrialized West, and even there the effects are not statistically significant (though this may be due to small sample size). Studies of environmental attitudes in the developing world likewise question the strong relationship

between affluence and environmentalism (Dunlap and Mertig 1997; Brechin and Kempton 1997). Now that environmentalism is institutionalized in a global regime, pro-environmental discourses and organizational forms spread everywhere, regardless of local resources.

*Global Economic Integration.* World-system imageries have remained prominent in global analyses of environmentalism. Indeed, core variables like FDI affect many forms of degradation. Yet, world-system indicators have proved less useful in accounting for the spread of pro-environmental policies (Frank et al. 2000). We find, likewise, that measures of international economic integration are not significantly associated with domestic environmental associations. Strong versions of world-system imagery – which imply that political interests, or even people's 'environmental consciousnesses' are subordinated to economic relations are not supported here. Economic integration may directly contribute to degradation in a narrow sense; we don't see evidence that it shapes political dynamics more broadly.

**Conclusion**

Our study validates prior social movement accounts of environmentalism in the West with a new type of systematic longitudinal data. Alternative traditions emphasizing environmental destruction or affluence are not supported. We also find strong support for recent work on trans-national movements, global civil society, and world society. The emergence of a global environmental regime and pro-environmental associations in global civil society created new platforms for supporting the formation of environmental association around the globe. Thus, environmental associations now appear even in countries lacking domestic infrastructures that proved pivotal in the West.

While there has been increasing recognition of an expanding trans-national civil society,

there is still a strong tendency to characterize domestic environmental associations as local organizations responding to local contexts. Perhaps this results from generalizing from the experiences of the West, where domestic factors are all that matter. Our study is suggestive of another important process: international organizations reach down into domestic civil society, providing organizational models, resources, and legitimation that spurs association. Domestic civil society in the developing world may be significantly global in nature. One can certainly find numerous examples, some discussed above, of domestic groups that were largely the product of top-down resources. Historical accounts of organizational foundings often include a lengthy list of international supporters, affiliates, and donors. The boundaries between domestic and the trans-national may be blurring. This raises questions about the extent to which domestic associations can be viewed as local social capital, as is common in the literature on voluntary association. Concerns that domestic associations may be substantially co-opted by the agendas of trans-national or Western environmentalists are not unfounded.

Our findings open up important questions for future study: What are the consequences of domestic environmental associations for social movement activity and policy reform? And, in particular, do the strong international influences in non-Western nations have any implications for the effectiveness of domestic associations and movements in precipitating social change or policy reform? There is a long tradition of viewing international groups as an ally of domestic movements (e.g., Keck and Sikkink 1998). Yet, domestic and trans-national groups may be more complexly intertwined than that (Tsutsui and Shin 2008). Or, as some scholars in the world society tradition have argued, domestic groups may at times be epiphenomenal to the powerful international forces that generate social change on a global scale (Frank, Longhofer, and Schofer 2007). Beyond the theoretical contributions of our study, we demonstrate that

newly available data sources on domestic civil society can open the door to systematic quantitative analyses of such questions.

[1] It is important not to conflate membership and association. The two are not that highly correlated at the country-level: some societies (e.g., corporatist countries) exhibit very high levels of membership concentrated in relatively few associations, while some societies show the opposite pattern. Both associations and membership may have independent impacts on outcomes of interest (e.g., social movement activity or policy reform) and both are clearly worthy of study. We follow the lead of previous scholars who have studied the history of environmental organizations in the United States (Brulle 2000; Andrews and Edwards 2005).

[2] The connection between national wealth, individual income, and pro-environmental values has received little empirical support. Brechin and Kempton (1994, 1997) argue that individual income is a poor predictor of environmental concern, whereas Dunlap and Mertig (1997) actually found a *negative* relationship between national wealth and environmental attitudes.

[3] Although global environmental concerns can be traced back as early as the 1890s with the formation of the International Union of Forestry Research Organizations (1891) and International Friends of Nature (1895), the growth in international activity accelerated rapidly after the founding of the United Nations Environment Programme (1972) and related environmental conferences in Stockholm (1972) and Rio de Janeiro (1992) (Frank et al. 1999; Keck and Sikkink 1998).

[4] One exception is Friends of the Earth International (FoEI), whose federalist structure requires national member groups to demonstrate a history of independent campaigning before joining FoEI (Doherty 2006). Thus, some member groups, such as Sahabat Alam Malaysia (FoE Malaysia), actually begin locally and "scale up" into transnational campaigns (Keck and Sikkink 1998).

[5] The start and end times of the analysis are largely constrained by data availability. For instance, data on environmental association memberships (taken from Frank et al. 2000) are not available in the late 1990s. Also, several variables have spotty coverage in the developing world prior to 1960. Fortunately, the 1960-1995 period effectively captures the origins and "take-off" of environmental association globally.

[6] All countries enter the analysis in 1960 or the year of independence; thus, we omit the few organizations founded prior to 1960 or the pre-independence era of former colonies.

[7] An exponential (or "constant rate") model assumes that temporal changes in the hazard rate wholly a function of time-varying covariates rather than some intrinsic function of time (as in the cases of, say, a Weibull model) or an arbitrary baseline hazard (in the case of Cox regression).

[8] The data are coded from six printed volumes and one online version. Though we capture the total number of organizations *founded* listed in the directory, we do not have information on when associations dissolved or merged with other organizations. , However, this information introduces little bias in our study, as we are concerned only with when organizations originated.

[9] Like Boli and Thomas (1999), we find that there is a substantial lag – as much as a decade – between the time organizations are founded and when they finally appear in our sources. The decrease in the hazard rate of new association formation in the late 1990s is likely an artifact, rather than a real decline. This is a second reason that we terminate our quantitative analysis in 1995.

[10] We coded all six prior print volumes of the Directory as well as the online version (accessed May 18, 2005). These volumes effectively cover the period of rapid growth of environmentalism around the world. Survivor bias may still be an issue within the handful of countries in Western Europe and North America where environmental associations could be found in substantial numbers prior to 1973. We also examined older editions of the Encyclopedia. However, it is only in recent years that the Encyclopedia has expanded to cover all countries of the world. Prior editions of the Encyclopedia were very sparse and did not substantially add to our dataset.

[11] Excluding these organizations makes our analysis conservative because it excludes one important way that the international sphere shapes domestic associational life. What is 'tautology' from a standpoint of variables in a model nevertheless reflects an important social process. The fact that international organizations tend to form many local branch chapters could be viewed as direct evidence of our argument.

[12] Environmental "footprint" measures are less appropriate for our purposes. The footprint captures overall environmental impact, not local degradation experienced by citizens of a country. Consequently, it does not measure the experiences or grievances that might dispose people to for environmental associations. In any case, we find no effect of environmental footprint in our sample (not presented here, available from the authors upon request).

[13] We also looked at the effect of how much environmental aid a country receives based on OECD data. Though aid does have a positive effect for developing countries, OECD countries do not generally receive aid, and thus we could not include the variable in all of our models.

[14] It is important to keep in mind that measures in any cross-national study may capture slightly different phenomena in different national contexts, and particularly among industrialized versus developing countries. There are many reasons, ranging from simple measurement problems to issues of substantive meaning. Variables such as secondary education and democracy have rather low variance among industrialized countries, so their effects are likely to be muted in analyses of that group compared to analyses that include the developing world. Meanings also differ. Participation in international associations, for instance, likely carries a different social meaning in developing countries (where local movements tend to be weaker, newer, and less resource-rich) than in the industrialized world. Obviously, quantitative models involve the assumption that measures have a consistent meaning everywhere. We note, at points throughout the paper, some instances where these issues might affect our conclusions.

[15] Measures were derived from the 2003 World Values Survey and were not time-varying. Further, WVS data is available for a smaller subset of countries, thus reducing the sample size to under 30 countries. We also used aggregate-level attitudinal measures developed by Dunlap, Gallup, and Gallup (1993), but found only weak support and only in Western countries. We discuss these findings briefly below.

[16] Secondary education also has a positive effect, but it tends not to be significant.

[17] This is a case where the meaning of the variable might differ across cases in our sample. According to world-system theory, openness has more dire implications in the periphery. Results must be interpreted with that in mind.

[18] We also examined alternative measures of economic development, such as the Human Development Index (HDI), infant mortality rate, energy consumption, and others. Results were essentially the same.

[19] They do not have high levels of association in an absolute sense, but some poor countries are higher conditional on other covariates which include education, democracy, and so on. The finding is not due to collinearity with measures such as democracy, education, degradation, and the like. Results are similar when those variables are excluded.

[20] We thank John Meyer for this idea. He observed this phenomenon in Soviet Georgia following economic collapse in the 1990s: there was a rapid proliferation of NGOs seeking to tap into development aid from the state or international donors.

[21] As did general attitude measures like ‘egalitarianism’.

[22] Of course, this only looks at broad metrics of country-level degradation. We cannot easily measure (and thus cannot rule out) the possibility that people organize in response to highly specific forms of degradation (e.g., big disasters) or very localized forms of degradation.

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**Table 1. Average Founding/Joining Dates for Domestic and International Environmental Associations/Memberships by Region as of 1990** [a]

| | Environmental INGO Memberships (Joined) | Domestic Environmental Association (Founded) |
|---|---|---|
| Industrialized West | 1964.20 | 1958.48 |
| Eastern Europe | 1965.78 | 1969.74 |
| Asia | 1976.15 | 1980.34 |
| South and Central America | 1976.27 | 1982.89 |
| Middle East | 1977.74 | 1978.13 |
| Africa | 1979.17 | 1978.79 |

[a] Earliest dates in bold. Domestic average includes all associations formed after national independence.

**Table 2. Event History Analysis of Environmental Association Foundings, 1960-1995**

| Variables | Model 1<br>*All Countries* | Model 2<br>*Industrialized West* | Model 3<br>*Non-industrialized West* |
|---|---|---|---|
| **Control** | | | |
| Population | 0.32** | 0.73*** | -0.01 |
| | (0.10) | (0.16) | (0.09) |
| Environmental degradation | 0.28 | -0.14 | 0.12 |
| | (0.20) | (0.13) | (0.15) |
| **Domestic-Societal Factors** | | | |
| Economic development | -0.50* | 1.08 | -0.56** |
| | (0.24) | (0.70) | (0.19) |
| Education | 0.03** | 0.01$^{+}$ | 0.01 |
| | (0.01) | (0.01) | (0.01) |
| **Domestic-State Factors** | | | |
| Democracy | 0.27*** | 1.52* | 0.22** |
| | (0.09) | (0.65) | (0.07) |
| Environmental legislation | 0.30 | 0.51* | -0.32 |
| | (0.28) | (0.26) | (0.26) |
| Environmental foundations | -0.05 | 0.36** | 0.37** |
| | (0.09) | (0.12) | (0.13) |
| **International Factors** | | | |
| Trade openness | -0.01* | -0.02** | -0.01 |
| | (0.00) | (0.01) | (0.00) |
| World society ties (Environmental INGOs) | -0.15 | -2.18*** | 0.65*** |
| | (0.26) | (0.49) | (0.16) |
| Constant | -1.14 | -16.74*** | 1.36 |
| | (1.85) | (3.65) | (1.67) |
| Wald chi-square | 558.94*** | 1069.11*** | 148.85*** |
| Number of events | 596 | 295 | 301 |
| Number of countries | 92 | 17 | 75 |
| Observations | 3052 | 767 | 2285 |

*** p<.001, ** p<.01, * p<.05 , $^{+}$ p<.10, two-tailed test

Unstandardized coefficients, standard errors in parentheses

**Table 3. Event History Analysis of Environmental Association Foundings Using Alternate Measures of Environmental Degradation**

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 |
|---|---|---|---|---|---|---|---|---|
| **Control variables** | | *All Countries* | | | | *Non-Industrialized Countries* | | |
| Population | 0.45* | 0.36** | 0.28** | 0.35** | 0.22 | -0.03 | 0.05 | 0.03 |
| | (0.20) | (0.11) | (0.09) | (0.10) | (0.19) | (0.08) | (0.09) | (0.07) |
| Economic development | -0.12 | -0.56* | -0.53$^{+}$ | -0.05 | -0.25 | -0.39 | -0.12 | -0.34* |
| | (0.24) | (0.28) | (0.28) | (0.22) | (0.22) | (0.26) | (0.26) | (0.17) |
| Education | 0.03*** | 0.03*** | 0.03*** | 0.03** | 0.01 | 0.01 | 0.01 | 0.02 |
| | (0.01) | (0.01) | (0.01) | (0.01) | (0.01) | (0.01) | (0.01) | (0.01) |
| Democracy | 0.34** | 0.31** | 0.27** | 0.31** | 0.29*** | 0.28*** | 0.23*** | 0.24*** |
| | (0.10) | (0.09) | (0.09) | (0.10) | (0.08) | (0.07) | (0.06) | (0.06) |
| Environmental legislation | 0.29 | 0.29 | 0.26 | 0.20 | -0.42$^{+}$ | -0.35 | -0.39 | -0.42$^{+}$ |
| | (0.28) | (0.26) | (0.26) | (0.28) | (0.25) | (0.24) | (0.26) | (0.24) |
| Foundations | -0.10 | -0.08 | -0.08 | -0.10 | 0.30* | 0.40** | 0.38** | 0.32* |
| | (0.09) | (0.09) | (0.09) | (0.09) | (0.14) | (0.12) | (0.14) | (0.12) |
| Trade | -0.01* | -0.01** | -0.01* | -0.01* | -0.00 | -0.01 | -0.00 | -0.00 |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| Environmental INGOs | -0.35 | -0.54$^{+}$ | -0.11 | -0.06 | 0.47** | 0.38* | 0.67*** | 0.74*** |
| | (0.26) | (0.30) | (0.24) | (0.28) | (0.16) | (0.18) | (0.16) | (0.16) |
| **Degradation variables** | | | | | | | | |
| Organic water pollutant emissions, logged | -0.09 | | | | -0.16 | | | |
| | (0.19) | | | | (0.15) | | | |
| Electricity consumption, logged | | 0.26 | | | | -0.07 | | |
| | | (0.22) | | | | (0.18) | | |
| CO2 emissions, logged | | | 0.28 | | | | -0.19 | |
| | | | (0.25) | | | | (0.18) | |
| Deforestation (percent change in area, 1990-2000) | | | | -0.02** | | | | -0.01* |
| | | | | (0.01) | | | | (0.01) |
| Constant | -3.38+ | -0.87 | 0.11 | -4.68* | -0.84 | 1.61 | -2.74 | -0.81 |
| | (2.04) | (1.79) | (2.57) | (1.95) | (1.92) | (1.88) | (2.53) | (1.47) |
| Wald chi-square | 692.58*** | 568.31*** | 495.04*** | 575.21*** | 94.25*** | 83.57*** | 168.28*** | 161.04*** |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| No. of countries | 89 | 74 | 94 | 92 | 72 | 57 | 77 | 76 |
| No. of events | 514 | 512 | 598 | 595 | 268 | 262 | 303 | 302 |
| Years | 1970-95 | 1970-95 | 1960-95 | 1960-95 | 1970-95 | 1970-95 | 1960-95 | 1960-95 |
| Observations | 2227 | 2031 | 3105 | 3073 | 1640 | 1427 | 2338 | 2342 |

*** p<.001, ** p<.01, * p<.05 , $^{+}$ p<.10, two-tailed test

Unstandardized coefficients, robust standard errors in parentheses

Figure 1. Three Sources of Environmental Association

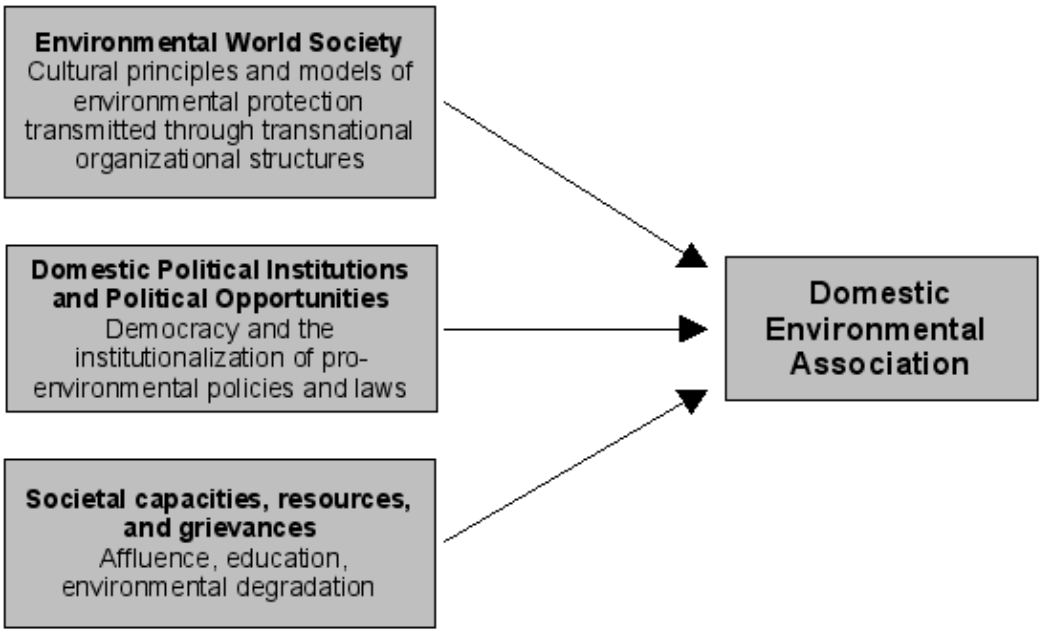


Figure 2. Environmental Organizations in Industrialized Countries: 1900-1990

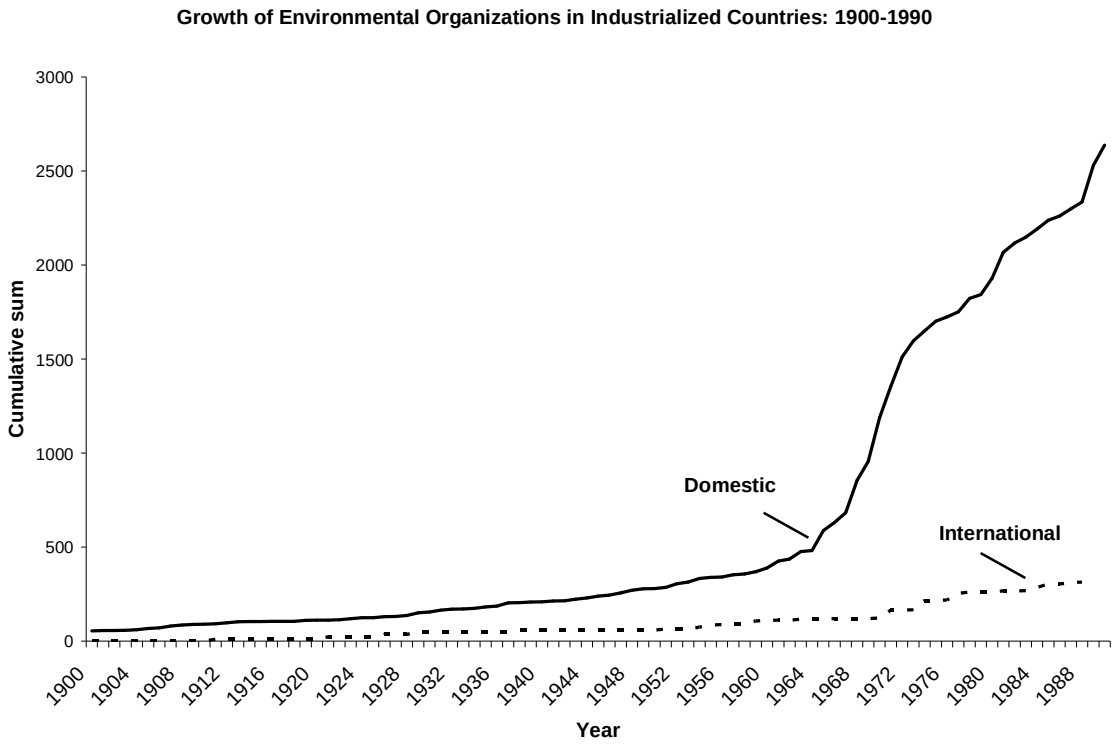
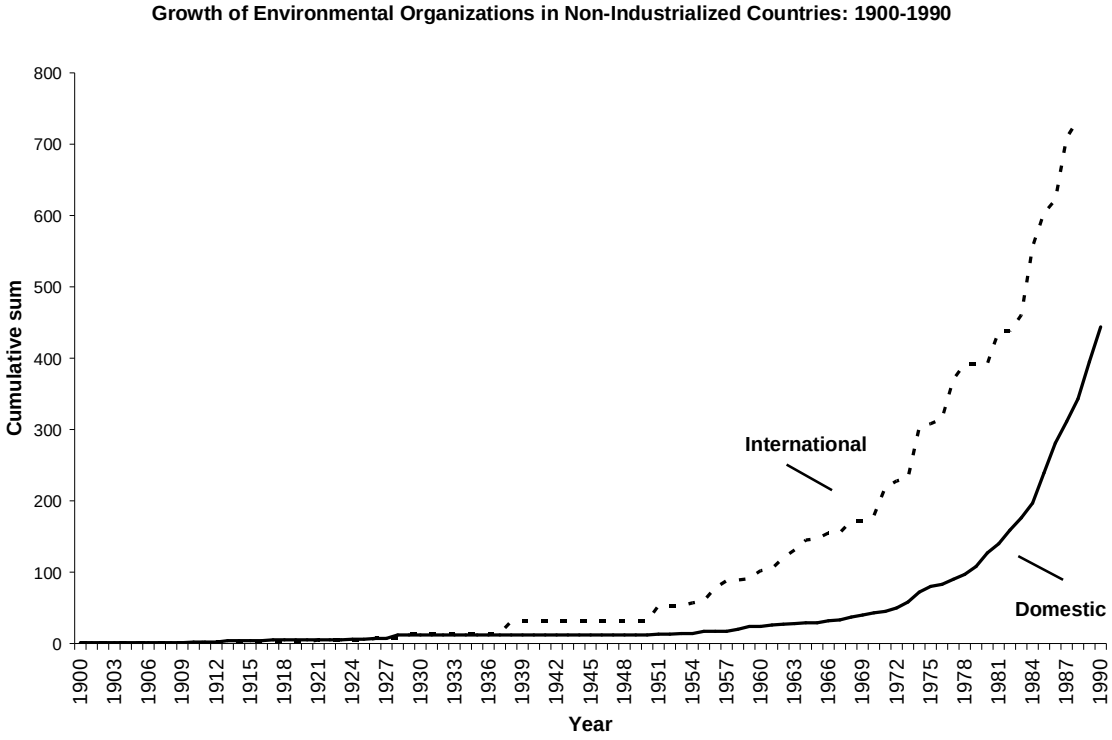


Figure 3. Environmental Organizations in Non-Industrialized Countries: 1900-1980



**Appendix A. Descriptive Statistics for Independent Variables**

| | *1970* | | | *1990* | | |
|---|---|---|---|---|---|---|
| | N | Mean | S.D. | N | Mean | S.D. |
| Population (log) | 90 | 8.93 | 1.56 | 108 | 9.14 | 1.65 |
| Resource consumption (log) | 90 | 2.22 | 1.63 | 108 | 2.35 | 1.79 |
| GDP per capita (log) | 90 | 8.06 | 0.95 | 108 | 8.26 | 1.08 |
| Tertiary education | 90 | 6.55 | 8.92 | 108 | 14.77 | 16.38 |
| Democracy index | 90 | -0.11 | 1.95 | 107 | 0.25 | 1.87 |
| Environmental legislation | 90 | 0.04 | 0.21 | 108 | 0.31 | 0.47 |
| Env. foundations (log) | 90 | 0.16 | 0.46 | 108 | 0.53 | 0.91 |
| Trade openness | 90 | 49.44 | 28.68 | 107 | 65.33 | 37.14 |
| Environmental INGOs (log) | 90 | 1.08 | 0.71 | 105 | 2.22 | 0.53 |

**Appendix B. Dynamic Panel Estimates of Environmental Association Foundings, 1960-1995**

| Variables | Model 1A *All Countries* | Model 2A *Industrialized West* | Model 3A *Non-industrialized West* |
|---|---|---|---|
| **Control** | | | |
| Lagged dependent | 0.94*** | 0.96*** | 0.93*** |
| | (0.01) | (0.01) | (0.01) |
| Population | 0.02** | 0.02* | 0.02* |
| | (0.01) | (0.01) | (0.01) |
| Environmental degradation | -0.01 | -0.01 | -0.01 |
| | (0.01) | (0.01) | (0.01) |
| **Domestic-Societal Factors** | | | |
| Economic development | 0.01 | 0.08** | 0.01 |
| | (0.02) | (0.03) | (0.02) |
| Education | 0.0003* | -0.0003 | 0.002$^{+}$ |
| | (0.001) | (0.0004) | (0.001) |
| **Domestic-State Factors** | | | |
| Democracy | 0.02*** | 0.02** | 0.01*** |
| | (0.004) | (0.01) | (0.004) |
| Environmental legislation | -0.001 | -0.01 | 0.005 |
| | (0.01) | (0.01) | (0.01) |
| Environmental foundations | 0.01 | -0.01 | 0.04** |
| | (0.01) | (0.01) | (0.01) |
| **International Factors** | | | |
| Trade openness | 0.0002 | -0.001 | -0.0002 |
| | (0.0002) | (0.0004) | (0.0002) |
| World society ties (Environmental INGOs) | 0.03*** | -0.01 | 0.03** |
| | (0.01) | (0.02) | (0.01) |
| Constant | -0.30* | -0.80** | -0.27 |
| | (0.15) | (0.26) | (0.17) |
| Wald chi-square | 38073.44*** | 39268.65*** | 32313.68*** |
| Number of countries | 104 | 20 | 84 |
| Observations | 3102 | 655 | 2447 |

*** p<.001, ** p<.01, * p<.05 , $^{+}$ p<.10, two-tailed test

Unstandardized coefficients, standard errors in parentheses