

PROTECTING THE ENVIRONMENT: DOES THE ENVIRONMENTAL MOVEMENT MATTER?

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PROJECT SUMMARY

Social movements are central actors in civil society, providing an autonomous site for social interaction and discussion about social problems, devising possible solutions and mobilizing to bring about social change. By interacting with other groups in the larger society, including opponents and supporters of specific changes, social movements should enhance the adaptive capacity of society by making it more flexible and capable of responding to underlying problems. We want to know if this “civic potential” is being realized in the case of the environmental movement.

We address this by examining the effects of the environmental movement on public policy, business practices and objective environmental problems over the last 100 years. Emerging during the last quarter of the 19th century, the U.S. environmental movement has been an important voice in debates over environmentally related public policy and its implementation. It has pressured business and other groups to modify practices, reduce negative environmental impacts and improve social performance. By mobilizing citizens and providing a competent, legitimate and authentic representation of their needs, environmental movement organizations should be catalysts for the development of an ecologically sustainable society.

Scientific Merit:

The relationship between social movements and social change is a longstanding area of inquiry. Most studies have focused on policy change, especially the adoption of national legislation and its implementation. But the impact of movements is often problematic and contingent upon other political and social forces. Movements may matter because of their own activity (direct effects), or because of the processes that they set into motion (indirect effects), or because of their joint interaction with allies and receptive institutions (joint effects). Only a few studies move beyond policy enactment to see whether policies are actually implemented, including being translated into social practices, and, most relevant of all, remedying the underlying problems identified. Our research asks whether the environmental movement mattered in terms of environmental policy enactment, its implementation and finally its effects on actual environmental problems.

Building on our ongoing research, we will develop major new measures of: (1) environmental movement actions; (2) cultural attention to environmental issues; (3) governmental policy development; (4) political opportunity; (5) implementation efforts; (6) countermovement and business political actions; and (7) environmental quality conditions. We use multiple analytic techniques, including the description of historical series, annualized time-series, event history techniques, and structural equation modeling to identify the processes involved in environmental change. This project contributes to social movement research by providing a systematic analysis of multiple movement outcomes, including the objective environmental outcomes being addressed. Of special importance is evaluating the significance of cultural production on movement mobilization and bringing this to bear along with analysis of organization change and collective action. Our work will also provide environmental sociologists with a stronger understanding of the environmental movement.

Broader Impacts:

This project will also address central concerns of government policy makers in the environmental field, such as the U.S. Global Change Science Program, the IPCC and the National Research Council, who have called for research on our societal capacity for creative innovation in addressing environmental problems. It will have major audiences in the environmental, corporate, and media communities by illuminating each specific community’s role in creating and implementing environmental improvement activities. We will distribute reports on the project through our project websites as well as through publication in suitable outlets.

PROJECT DESCRIPTION

I. INTRODUCTION

Social movements provide a critical means by which citizens act collectively to pursue their common interests. The important role of movement groups, which range from small ad hoc local networks to large-scale national advocacy organizations, has long been identified as central to the processes by which large-scale social change occurs (Skocpol 2003, Barber 1984, Calhoun 1993, Putnam 2000). This scholarship has identified the institutions of civil society, which lie outside of the dynamics of the market and the state, as a key site for the origination of social change (McAdam and Zald 1996, Sztompka 1993). Civil society is constituted by voluntary institutions that exist outside of the direct controls of both the market and the state, and is comprised by a number of different organizational forms, most notably social movement organizations. Because these organizations are ultimately based in the deliberations of their members, the institutional dynamics defined by market forces and the political power of the state are minimized in their operation. This autonomy is key to the capacity of civil society to serve as a site for the generation of citizen's action (Alexander 2006; Skocpol 2003). Recently, social movement organizations have become more professionalized, speaking on behalf of but not mobilizing their primary beneficiaries. "Protest businesses" (Jordan and Maloney 1997), "astro-turfs" (Cigler and Loomis 1995) and "professional social movement organizations" (Zald and McCarthy 1987) have become central to political advocacy (Skocpol 2003). The environmental movement is no exception (Bosso 2004; Brulle and Jenkins 2008). How has this affected the civic potential of the environmental movement? More generally, is the environmental movement effectively protecting the environment?

We propose to examine the impact of the U.S. environmental movement over the last 100 years on public policy and objective environmental problems. Emerging during the last quarter of the 19th century, the U.S. environmental movement has been a critical voice in debates over environmentally related public policy and its implementation. By mobilizing citizens and engaging in political advocacy, it has been central to major legislation and social innovations on behalf of environmental quality (Andrews 1999). Our object is to see how the mobilization of the movement has affected its effectiveness.

The relationship between social movements and social change is a long standing area of inquiry. Past studies have largely focused on the civil rights, labor and women's movements, examining their impact and the ways in which this has translated (or failed to translate) into social change. Most studies have focused on public policy, especially the adoption of national legislation and its implementation (e.g. Amenta, Carruthers and Zylan 1992; Amenta 2006; Andrews 2001; Burstein 1985; Costain 1992; McAdam and Su 2002; Soule and Olzak 2004). But, as several have argued (Burstein and Linton 2002; Giugni 1998, 2007), the impact of movements is often problematic and contingent upon other political and social forces. Giugni (2007) outlines a set of alternative conceptual models for understanding movement impacts, distinguishing between *direct*, *indirect* and *joint* or contextual effects. Movements may matter because of their own activity (direct effects), or because of the processes that they bring into motion (indirect effects), or because of their joint interaction with political allies and receptive political institutions (joint effects). Only a few studies move beyond policy enactment to see whether policies are actually implemented and, most relevant, actually address the underlying problems identified (Andrews 2001; Button 1989). It is also possible that environmental movements are "useless" (Giugni 2007) or create negative backlashes (Schumaker 1978; Jenkins, Boughton, Carmichael and Brulle 2007a). Our research asks whether the environmental movement mattered in terms of environmental policy enactment, its implementation and finally its effects on actual environmental problems.

This research also addresses the growing call for a better understanding of the role that social, cultural, and political processes have on environmental conditions and, in particular, the effectiveness of citizen action. The U.S. Climate Change Science Program (2003, 2007) specifies a number of priority research questions; two of which are addressed by this research:

Q. 9.2 What are the current and potential future impacts of global environmental variability and change on human welfare, what factors influence the capacity of human societies to respond to change, and how can resilience be increased and vulnerability reduced?, and

Q. 9.3 How can the methods and capabilities of society be advanced to enhance decision making under conditions of complexity and uncertainty about global environmental variability?

Social movement research can make a significant contribution toward answering question 9.2. Social movements are one of the key human responses to environmental degradation (National Research Council 1999: 328). Throughout the world, thousands of environmental organizations have developed in response to increasing environmental pollution. The environmental movement plays a key role in determining how our society will respond to environmental change. Second, to understand decision-making about environmental problems, there is a need to analyze the role of social movements in the environmental policy process. As the Intergovernmental Panel on Climate Change (or IPCC) has concluded, "Making decisions about sustainable development and climate change mitigation is no longer the sole purview of governments. There is increasing recognition in the literature of a shift to a more inclusive concept of governance, which includes the contributions of various levels of government, private sector, non-governmental actors, and civil society (2007: 693)." Thus an answer to Question 9.3 necessarily involves an analysis of the role of social movements in the policy process. The National Research Council has recognized the importance of social movement activities in environmental governance, and has recommended focusing research on institutional decision-making (2005: 46). This has been also recognized by the IPCC, which concluded that "The roles of different actors and joint actions in changing development pathways need further research, particularly the private sector and civil society, and how they relate to government" (2007: 734). Thus an analysis of environmental policy processes involves an examination of the interactions among the business community, social movements, public opinion, and the government (NRC 2005: 4, 17-18). Additionally the NRC has noted that there is a need for research to link institutional analysis with actual environmental impacts. While there may be institutional change in the form of new laws and treaties, this does not necessarily translate into actual measurable environmental improvement. Thus the NRC recommends that any institutional analysis should extend beyond policy enactment into the process of program implementation through the use of program evaluation research (NRC 2005: 4).

Any answer to these two research questions requires research into the environmental movement, and its interactions with other institutions in our society, and ultimately how these actions impact the natural environment. With the increasing focus on the issues surrounding global warming, these questions have taken on an increasing level of sociological interest. However, the research progress in this area has been limited. In their recent assessment of the progress of this research program, the National Research Council concluded that "progress has been inadequate in the development of a quantitative understanding of how societal behavior and choices affect the environment" (2007: 96).

We seek to address this need. One way to understand how U.S. society will respond to global warming is to study how we have responded to past environmental problems. By pursuing this research strategy, we will be able to examine how environmental problems have stimulated movement mobilization, how this mobilization has interacted with government, business and the broader public to change public policy and business practices, and the ultimate impact of the resultant decisions on the natural environment. Environmental problems are slow to develop and difficult to turn around. Capturing this requires a longitudinal design. We propose to examine this over a 100-year time period. We focus on three major questions:

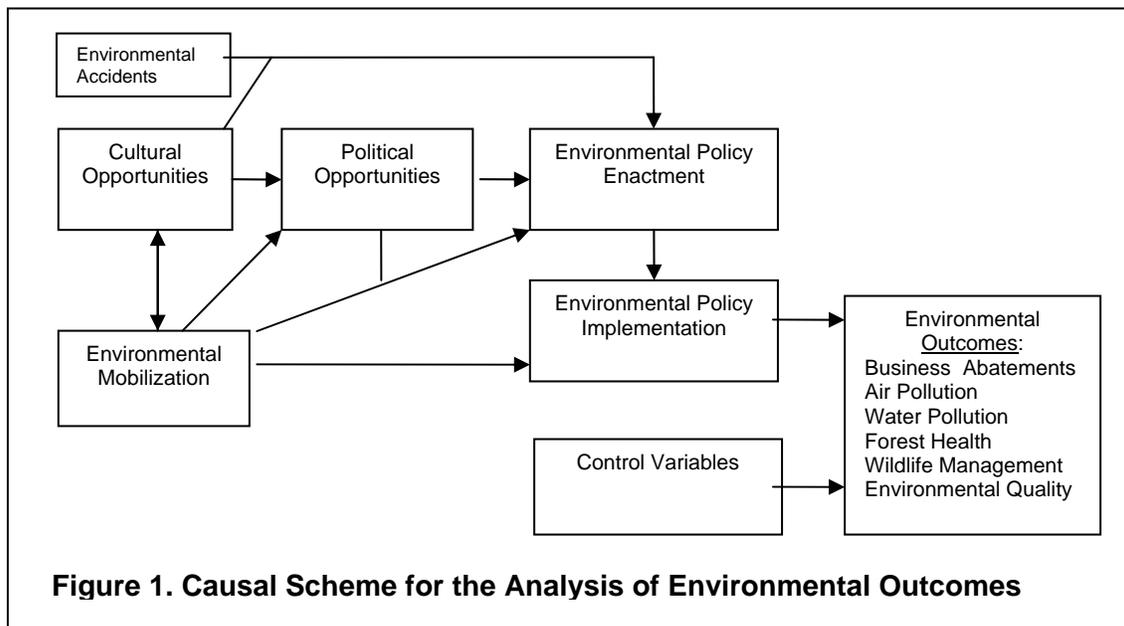
1. Does environmental mobilization and movement activity affect the adoption and implementation of government environmental policy and changes in business practices?
2. What changes in environmental quality have resulted from governmental actions and changes in business practices?
3. What impact has the environmental movement had on these changes in environmental quality?

This research proposal builds on our ongoing research activities, which is posted at: <http://www.pages.drexel.edu/~brullerj/Environmental%20Proposal%20Description.pdf>. In this past research, we have focused on the growth and change of the U.S. environmental movement throughout the 20th century by addressing the following questions: (1) What are the major social/political factors that

contribute to changes in the organization and activity of the environmental movement? (2) How does foundation funding affect the actions and structure of the environmental movement? (3) What is the nature of the interaction between the environmental movement and the anti-environmental movement? We have collected annual time-series data covering a century (1900-2000), focusing on the founding and disbanding of EMOs and counter-EMOs, their discourses, organizational structure and activities of EMOs, and factors influencing the organizational development of this movement. We have also analyzed the legislative success of the environmental movement in terms of the passage of Congressional bills monitored by the League of Conservation Voters (Jenkins et al 2007a). This complements other recent research showing that the environmental movement has indirect and possibly direct effects on the enactment of national environmental policy (Agnone 2007; Soule and Olzak 2007). Does this extend to policy implementation and actual environmental conditions? Is this a new development or, as environmental historians suggest (e.g. Andrews 1999; Fox 1981; Dewey 2002; Stradling 1999; Tarr 1996), an extension of earlier impact?

II. MAJOR HYPOTHESES: FROM MOVEMENT MOBILIZATION TO ENVIRONMENTAL OUTCOMES

The environmental movement is critical to structuring societal responses to environmental problems. To understand how mobilization efforts have attempted to transform society requires the development of a robust model that can connect collective actions by social movements to their political and cultural impacts, and how these changes may in turn affect the natural environment. In our study, we will outline and test a sociopolitical model of the relationship between movement activities, their political and cultural environment, their resultant policy impacts, and their potential impact on concrete environmental outcomes. Our approach to understanding social movements is guided by the following diagram. This framework is, of course, a simplification of a number of complex processes. It forms a heuristic device that structures our discussion of how the U.S. environmental movement can be expected to influence environmental outcomes. Arrowed lines indicate what we expect to be direct effects and arrowless lines moderating effects.



Within this framework, we propose to examine a number of distinct sets of relationships. The first component focuses on the dynamics between cultural ideas and social movements. Social change involves conflicts and processes in both the political and cultural arenas. While political opportunities (discussed below) are critical for translating environmental mobilization into policies, environmental mobilization often requires initial changes in norms and beliefs, i.e. cultural change.

Cultural Opportunities: A number of scholars (e.g. Rochon 1998, Benford and Snow 2000) have highlighted the need to examine the “cultural contexts in which movements grow, flourish and wither” (Williams 2004: 95). Social movements arise within a cultural milieu that can facilitate or hinder movement emergence, and affect movement success. This “channeling power of culture” (Williams 2004:95) is only recently being explored (Benford and Snow 2000). In his analysis, Rochon (1998) ties cultural innovation to small communities of critical thinkers, what he calls “critical communities.” These communities, such as independent scholars and scientists working at universities and research institutes, develop alternative worldviews. Social movements then form around these alternative perspectives, and advocate them to the wider public through mass media and political activity. If successful, the social movement then affects the overall cultural beliefs of society and eventually influences public policy (Earl 2004). Thus there should be a linkage over time between cultural innovations, social movement mobilization, and eventual public policy and implementation related to the environment.

To understand the social processes by which innovative ideas are created and instantiated into organizations requires a consideration of the role of these critical communities and social movement entrepreneurs, who form a vital link in the creation of both new ideas and social movement organizations. As Rochon (1998) shows, the creation and advocacy of alternative discursive frames involves two distinct social groups. The first consists of a self-aware, mutually interacting “critical community.” Arguing that social movements initially form around the ideas generated by critical intellectuals, Rochon (1998:8-22) distinguishes between “critical communities,” i.e., small groups of critical thinkers “whose experiences, reading, and interaction with each other help them to develop a set of cultural values that is out of step with the larger society,” and social movements, which emerge in response to (among other things) the world views developed by these critical communities. Within the environmental movement, natural scientists have long played an important role as critical intellectuals. As early as 1873, the American Association for the Advancement of Science petitioned Congress and the President to take action to address deforestation in the U.S. (Dana and Fairfax 1980: 42). Scientists have played this role throughout the history of the environmental movement (Tschinkel 1989, Hastie 2007), exemplified by the rise of environmental scientists, such as Dr. Barry Commoner, who act as prominent environmental spokespersons (Egan 2007) and Rachel Carson, who was an environmental scientist for the Audubon Society at the time she wrote *Silent Spring* (1962). We propose to study the role of scientific findings in shaping media perceptions of environmental issues through a review of the key scientific publications in the U.S., and how this relates to media coverage of environmental issues. In this research, we propose to empirically test Rochon’s (1998) thesis that frame shifts are first initiated by “critical communities” and then disseminated to the larger public through the popular press. From here, they work their way through the public sphere, and eventually, if successful, into the discourses of elites. We will trace the development of environmental ideas through their origination in scientific articles and environmental books. This will be followed by an analysis of the mass media coverage of these issues in newspapers, magazines, and television news. Finally, we will examine which of these discursive frames makes its way into the discourses of elites and public policy.

Environmental Mobilization: The second component focuses on the activities of EMOs. Social movement organizations employ a wide range of tactics in pursuit of their aims, ranging from institutional tactics, such as educational campaigns, lobbying and litigation, to expressive and direct actions, such as strikes, protests, or other confrontational activities. Most social movement research has focused on protest as reported in leading newspapers. While environmental protest may have a significant effect on the enactment of environmental policy (Agnone 2007; Soule and Olzak 2007; Jenkins et al. 2007a), it is a small component of environmental movement activity. To broaden our understanding of the impact of movement activity, we propose to study six types of environmental movement action: (1) protest and direct action; (2) lobbying; (3) litigation; (4) citizen ballot initiatives, (5) public education efforts; and (6) organizational changes in terms of founding, disbanding and schisms.

Protest. The environmental movement has long employed protests and direct action tactics. Direct action efforts started with Greenpeace sailing into the nuclear test zone of a planned atomic test in 1970. Although there has been a recent analysis of environmental direct actions (Beck 2007), this analysis is very limited in its coverage. It covers the time period from 1998 to 2005, which is well after Earth First! and Greenpeace engaged in their direct action campaigns in the 1970s and 1980s. Thus its assessment

of the impact of environmental direct action on the policy process is highly suspect. We propose to examine the effects of environmental direct actions for the time period of 1970 – 2000, which includes all of the Greenpeace and Earth First! actions. Conventional protests have also played a major role in the advancement of environmentalism. Most notably, during the first Earth Day in 1970, millions gathered to promote a call greater concern for the environment. Numerous other protests have been staged to challenge a variety of environmental hazards, such as the use of nuclear power, the building and use of dams, toxic waste and the like. To capture the extent of protest activity, we will examine the number and participation in protest activities reported in major U.S. newspapers.

Lobbying, Litigation and Ballot Initiatives: The environmental movement is often noted for its professionalization and use of institutional tactics. As several note (Burststein and Linton 2002), the distinction between “movement organization” and “interest group” is often non-existent. Certainly this is the case in the environmental movement where many EMOs function as institutionalized nonprofit organizations active in lobbying, litigation and public ballot initiatives. By our estimates, less than 10% of national and regional EMOs engage significantly in protest activities, focusing instead on conventional tactics. A notable illustration is Environmental Defense. Beginning in the mid-1960s ED began litigating to produce a ban on DDT (a pesticide thought to be responsible for endangering a variety of species of birds, brought to public attention in Rachel Carson’s *Silent Spring*). Their efforts led to a nationwide ban on the use of DDT. Since then, an entire legion of EMOs has developed to pursue similar tactics to bring about environmental change. We propose to examine the environmental movement’s use of institutional tactics through a variety of means. First, following Baumgartner and Mahoney (2005), we will examine lobbying on the part of the environmental movement by collecting data on appearances of EMO representatives at Congressional hearings. Second, we will examine the number of litigation cases from Westlaw. Westlaw provides a comprehensive collection of case law, statutes and administrative hearings related to environmental protection and the conservation of natural resources. The series also covers all government regulation of radioactive, solid, and toxic waste management, pollution, and the clean air and water acts. Finally, we will use and extend Guber’s (2003) list of state environmental ballot initiatives linked to particular environmental quality outcomes.

Environmental Education: A third common strategy is to educate the public through publications, films and other materials aimed at increasing awareness of environmental problems. Two national public education campaigns initiated and sustained by EMOs are Arbor Day and Earth Day. In response to concerns about deforestation, organizers began to encourage individuals and organizations to plant trees in an effort to build awareness of the problem of deforestation. By the late 19th century, Arbor Day was celebrated in every state in the United States. Similarly, the first Earth Day in 1970 brought enormous public attention to the environment. To assess these activities we will review newspaper archives to estimate the level of participation in Earth Day (1970-2005) and Arbor Day events (1900-2005). We will search the historical archives of the EMOs responsible for mobilizing these ceremonies to estimation participation. A third gauge is public education efforts (e.g. press releases, scientific reports, op-ed comments) by the leading national EMOs as reported in newspaper archives.

Political Opportunity: Political opportunities are critical to both movement mobilization and movement impact on the enactment and implementation of environmental policy. The political opportunity thesis contends that political allies, such as a Democratic President and Congress, and divisions among the elite as a result of electoral competition and divided government increases mobilization and the effectiveness of movements (Meyer 2004). The weaker the political opposition, the more likely the movement is to prevail. Support for these claims has been mixed with several finding support (e.g. Amenta et al. 1992; Costain 1992; Jenkins and Perrow 1977; Meyer and Minkoff 2004; McCammon et al. 2001) and others contradictory evidence (e.g. Soule et al 1999; Van Dyke 2003). There are several potential explanations for these inconsistent findings. First is that political opportunity is more critical when certain tactics are employed. Specifically, political allies and elite divisions may be more important when direct action and protests are used but less important when conventional movement actions such as lobbying or public education are employed (Agnone 2007; Costain 1992; but see Soule et al. 1999). Hence opportunity effects are contingent on the tactics of the movement. Second, the effects may depend on the standing of the group. Protests by marginalized groups (e.g. radical feminists, radical ecologists) might threaten allies and provoke a backlash while those by more mainstream groups (e.g.

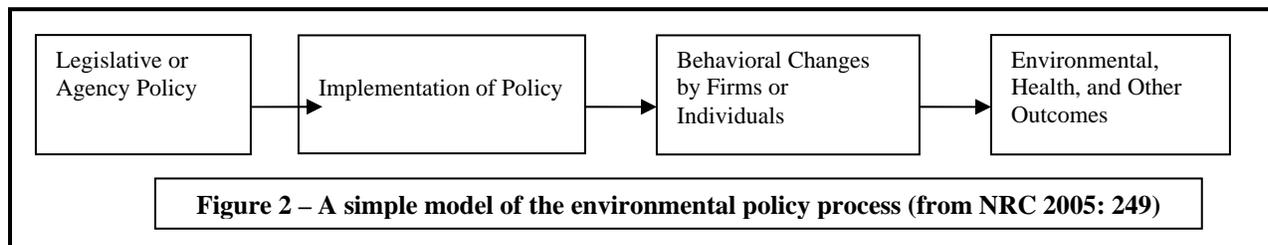
moderate feminists and environmentalists) might gain a more favorable response from allies and divided elites (Schumaker 1978; Jenkins et al. 2007a). A third possibility stems from the “social movement society” thesis (Meyer and Tarrow 1998), which argues that conventional forms of protest (i.e. petitions, demonstrations, marches) have diffused, becoming part of the repertoire of both SMOs and interest groups. Political opportunities may simply be becoming less relevant as conventional protest becomes widely diffused but it may still bear on disruptive protest. This may be time-dependent as well as tactical. To address these controversies, we will assess the impact of political opportunities as both a mediator and as moderating the policy and environmental quality effects of environmental mobilization. This includes examining direct, indirect and joint as well as possible backlash and “useless” (i.e. no) effects.

Environmental Disasters: A traditional explanation that has been advanced for both social movement mobilization and environmental policy is the classic “grievance” or “strain” thesis. These theories focus on sudden disruptions in everyday life which prevent normal activities from proceeding. Several studies show that grievances and strains affect mobilization (e.g. Walsh 1988; Snow et al. 1998; Jenkins, Jacobs and Agnone 2003) and conventional wisdom suggests that these may influence public opinion and public policy. At the same time, threats and strains do not become widely recognized until they are collectively defined and movements mobilize around them. Early nuclear accidents were virtually unnoted by the mass media and policy-makers in the 1950s (e.g. the Fermi near disaster), creating no public response, but Three Mile Island, Chernobyl and other nuclear accidents stirred considerable protest and mobilization in the 1980s (Gamson and Modigliani 1989). In this project, we examine grievances by measuring objective evidence of abrupt negative changes in environmental conditions as well as media coverage of environmental accidents and disasters. We expect that media coverage will be a critical trigger that converts objective environmental hazards into “disasters” that both mobilize the movement as well as lead to the enactment and implementation of environmental policy.

Enactment, Implementation and the Impact of Environmental Policy: While there have been many analyses of movement impacts on legislation (see the reviews in Giugni 1998, 2007; Earl 2000; Jenkins and Form 2005; Meyer 2004), the analysis usually stops after the passage of legislation. However, the political struggle surrounding the legislative process often continues on into the administrative agency. As Bardach (1980:38) notes “the pulling and hauling, of the policy-adoption process carries over into the policy-implementation process.” In the case of a heated controversy, the interests who lost in the legislative battle can continue to strive for more supportive policies (Bardach 1980:93). Despite the importance of administrative politics, the implementation of policy through administrative agencies, and changes in the underlying problems have largely been neglected. Often the time period of analysis is extremely limited, makes the empirical results problematic. For example, Giugni has conducted a time-series of analyses of the U.S. environmental movement (Giugni 2004, 2007). While conceptually rich, the time period (1975-1995) is well after the large scale mobilization of the U.S. environmental movement that began in the 1960s and the passage of major environmental laws in the late 1960s and early 1970s. One notable exception is Andrews (2001). In this analysis, he shows that local movement infrastructures played a crucial role in the politics of implementing Community Action programs. By focusing on the implementation process, this paper illuminates the critical political struggles that occur after legislative enactment.

Thus there is a strong rationale for examining the impact of social movements beyond the legislative process (Press 2007, Amenta and Young 1999). An analysis of movement outcomes is incomplete without some attention to the actual goals advanced by the movement. Differentiating between a substantive or symbolic bill as articulated by the perspective of symbolic politics (Edelman 1971, 1988; Hayes 1978) cannot be fully accomplished without seeing whether environmental mobilization translates into the actual reduction of environmental problems. The National Research Council (2000) likewise emphasizes that research needs to move beyond legislative impacts into the analysis of policy implementation and outcomes. A second problem has been the tendency to focus solely on government, neglecting the fact that changes in business practices and everyday conduct are often critical. In its analysis of the needed research to support environmental decision making, the NRC (2005:4) noted that there was a need to “link the research traditions of policy analysis and evaluation with a research tradition that analyzes environmental policies in terms of institutional design.” To illustrate this point, the NRC developed the simplified model below. Drawn from the extensive literature on program evaluation (Weiss

1998, Kraft and Furlong 2006, Patton and Sawicki 1993), this model illustrates the need to extend the analysis beyond the formal adoption of a particular policy into the implementation of public policy in the administrative agency, and then to measure the impacts of these policies in both the social and environmental dimensions.



We propose to extend the analysis of the impacts of the environmental movement through environmental outcomes. To carry this out, we propose to conduct an in-depth analysis of the development, implementation, and environmental quality outcomes in four key areas: (1) air pollution, (2) water pollution, (3) forestry and (4) wildlife management.¹ These four areas are long standing environmental issues, with extensive historical documentation,¹ and a number of empirical indicators of policy implementation, changes in businesses practices, and environmental quality outcomes. Additionally, this choice of environmental focus areas allows us to examine the process of program implementation in three major federal environmental agencies. Air and water pollution are the primary responsibility of the Environmental Protection Agency (and its predecessor agencies before 1970). Forestry policy is managed by the U.S. Forest Service in the Department of Agriculture, and wildlife management activities are overseen by the U.S. Fish and Wildlife Service in the Department of the Interior.

The implementation process centers on two key factors: (1) the agency's resources (Wildavsky 1979: 126, 2003; Wilson 1980); and (2) the nature of the regulations that are issued (Kerwin: 372). The resource levels of a government agency, in both the dollars appropriated, and the number of employees allowed is key to the institution's capacity to carry out the legislative mandate. Additionally, the nature of the regulations that are issued has a major impact on whether or not the effect of the law is substantive or symbolic. In our analysis, we propose to examine the policy implementation activities of these three federal agencies through measures of their budget authorization levels, personnel levels, number and nature of enforcement actions, direct federal investment expenditures, government grants for environmental actions, and the number and nature of major Federal environmental regulatory actions.

The analysis of environmental outcomes involves two distinct areas: (1) the effects of agency actions on the business community, and (2) environmental quality. The responses of the business community to environmental policy has been the subject of an increasing amount of scholarship (Hoffman 2001, Hoffman and Ventresca 2002, Kamieniecki 2006; Kraft and Kamieniecki 2007, Parris and Kates 2003). In his review of this literature, Press (2007) notes two key limitations in studies regarding how changes in government policy affect environmental quality. First is that these studies skip over an analysis of the intervening causal chain linking government policy to changes in business practices to specific environmental quality measures, and simply relate national variations in environmental conditions to changes in the policy-making arena (such as shifts in the nature of interest representation, changes in the policy networks). Such studies provide little information that can be used to develop meaningful analyses of the actual causal links between environmental policies and the condition of the natural environment (Press 2007: 321). Second, these studies are limited to explaining environmental policy change and fail to measure the links to environmental outcomes. For example, while Hoffman (2001) provides excellent measures of the practices of the chemical and petroleum industries, there are no environmental indicators to gauge the impact of these on environmental quality. Are these purely symbolic change or do they result in protecting the environment?

¹ Key histories include: Air Pollution; Gonzales 2005, Dewey 2000, and Stradling 1999, Water Pollution; Tarr 1996 & Melosi 2001, Forestry Fox 1981, Nash 1967, Andrews 1999, Wildlife Management: Reiger 1975, Trefethen 1961, and Gilbert & Dodds 1987.

Only recently has enough data with sufficient time coverage become available to conduct reliable analyses of the responses of the business community to different environmental policies. There are two key studies that provide examples of how to connect organizational variables to environmental outcomes. The first involves an analysis of pulp and paper firms in four countries (Gunningham, Kagan, and Thornton (2003). Through a careful empirical analysis of the regulatory regime governing the firm's activities, the firm's economic situation, and the extent of environmental movement organizational oversight, the authors were able to explain significant variations in the actual pollution effluent levels of each firm. Similarly, Harrington Morgenstern, and Sterner (2004) used an international comparative analysis to examine the differential environmental outcomes based on whether a regulatory or incentive environmental policy scheme was followed. They found that, while both approaches resulted in environmental improvement, much of the variation in outcomes was due to country specific historical and government factors. These two studies show that it is critical to extend the analysis of policy impacts into the changes in environmental conditions. To examine the actions of the business community, we will extend Hoffman's (2001) research on corporate expenditures for environmental protection and business litigation, and couple this with environmental quality indicators in each of the four areas previously discussed.

To measure actual environmental quality outcomes, we will gather a battery of measures in our four areas. This is based on our assessment of the best available data from existing secondary sources. While there is considerable data on environmental conditions, much of it is location specific, and extremely time bound (USGS 1998, Niemi and McDonald 2004). This makes its suitability for long term measurements of the impact of federal programs highly problematic (National Academy of Engineering 1999). In their analysis of overall measures of environmental quality, the NRC (2000: 1-12), the NAE (1999: 67-115), and the Heinz Center (2008) recommend the use of data on land use patterns and natural resource withdrawals as key indicators of the ecological condition of the U.S. For specific measures of air and water quality, forestry health, and wildlife health, we have reviewed the available measures and identified several data series in each area that provide sufficient quality and time coverage to capture national environmental quality. We discuss the measurement specifics below. In this analysis, we will control for both the impact of governmental policies and movement mobilization, but also processes relevant to the specific environmental indicator, e.g. road miles driven, fossil fuel electricity production and petro-chemical and mining industry production for air pollution. Aggregate measures of economic activity and population will also be included. This will not only improve our knowledge of the capacity of the environmental movement to affect environmental change but also increase our understanding of how social institutions influence human action.

This leads to the following set of guiding hypotheses:

H1: Environmental mobilization contributes directly as well as indirectly and jointly with political opportunities to the enactment and implementation of environmental policy.

H2: Cultural opportunities contribute to environmental mobilization as well as the political opportunities that, in turn, facilitate change in environmental policy.

H3: Media coverage moderates the impact of objective environmental hazards on public policy.

H4: Movement mobilization and counter-movement mobilization have stronger effects on policy enactment than implementation.

H5: The implementation of environmental policy is the major direct determinant of business environmental practices, mediating the effects of environmental mobilization and political opportunities.

H6: The effects of environmental mobilization on objective environmental quality are mediated by environmental policy and implementation.

III. DATA AND MEASUREMENT

How will capture these processes? This project entails significant original data collection, some of which has already been conducted with a prior grant from NSF (*SES 0455195 4/1/05 – 3/31/08. "Civil Society and the Environment"*) and another small grant from the Nonprofit Research Fund of the Aspen Institute (8/30/03-3/31/05). Most of these are annualized time-series with specific time coverage dictated by data

availability. In specific, the project will entail major new data collection on: (1) environmental movement actions; (2) environmental problem definitions; (3) mass media and elite attention to environmental problems; (4) governmental policy enactment; (5) political opportunity; (6) policy implementation; (7) environmental business practices; and (8) objective environmental quality. We discuss each below, including a synopsis of current data in hand. In constructing each of these measures, we will focus on the four major environmental quality outcomes as well as construct general measures where feasible. Examples of the data collected in this research effort can be reviewed online <http://www.pages.drexel.edu/~brullerj/aspden.htm>.

1. *Environmental Movement Action.* We already have measures of EMO founding (1900-2000), disbanding (1990-2000), the primary tactics used by EMO (circa 2006-08), and environmental protest/institutional actions (1955-2000) derived from the *New York Times*. We will build the following additional annualized time-series: (1) membership in the largest 50 EMOs (1960-2005); (2) newspaper mentions of the largest 50 EMOs in the *New York Times* (100 years); (3) appearances at Congressional hearings by the major EMOs (1948-2005) from the Westlaw archive; (4) popular participation in Arbor Day (1900-2005) and Earth Day (1970-2005) as reported in the *New York Times* and the ProQuest newspaper archive; and (5) law suits initiated by EMOs against businesses, government agencies, nonprofit organizations, and private individuals (1960-2005) as provided in the Westlaw electronic archive on Environmental Law (www.westlaw.com).

2. *Critical Intellectuals and Environmental Problem Definition.* The generation of a public awareness of an environmental problem typically begins with a group of critical intellectuals who define an issue, frame it as a problem, and devise various solutions. We already have measures of the activities of critical intellectuals based on their published books as indexed annually by the Library of Congress (1900-2000), which has provided a key factor in the founding of EMOs (Jenkins, et al. 2007b). This does not, however, capture discussions within the scientific community, which likely precede the publication of books, which after all are designed more for policy-makers and general audiences. We will therefore build a new annual time-series focusing on environmental articles published in two leading and longstanding scientific journals: *Nature* and *Science* (1900-2005). This will be organized around keywords linked to our four major environmental quality indicators.

3. *Mass Media and Elite Attention to the Environment.* We have public opinion measures of the willingness to support government spending on environmental protection (1960-2000). But these measures do not tap the broader cultural environment of public concerns about the environment or the attitudes of elites. To capture the first, we will count newspaper mentions of major environmental problems and environmental disasters using keywords relevant each of the major environmental discourses and keywords for “nuclear accidents,” “toxic spills,” “chemical plant explosions,” “oil spills” and the like. These will be applied the *Historical New York Times*, which will require reading at least headlines if not full stories electronically. . In addition, we will code the number of environmental magazine stories published in *Readers Guide to Periodic Literature 1900-2005*. To capture elite opinion, we will content analyze environmental speeches from *Vital Speeches* (1934–2005) and the environmental content of the Presidential State of the Union speeches (1900- 2000). Coding instructions are online at: [http://www.pages.drexel.edu/~brullerj/Coding%20Instructions%20State%20of%20the%20Union .pdf](http://www.pages.drexel.edu/~brullerj/Coding%20Instructions%20State%20of%20the%20Union.pdf). In addition, we will compile counts and the time duration of different forms of television coverage of environmental issues (1970–2005) from the Vanderbilt Television Archives.

4. *Governmental Policy Enactment* occurs in three national arenas: Congress; the federal courts; and the Presidency. We will gauge the first by using the annual series of hearings, bills introduced and enacted in Congress compiled by Sarah Soule and Susan Olzak (personal communication). These cover the period from 1948 through 2005. A full 100 year time-series will be constructed by reviewing lists of major environmental legislation compiled by environmental historians (Andrews 1999; Formica and Chase 2002). To gauge the impact of environmental litigation, we will collect measures of the outcomes of major federal court rulings from the federal Appeals Courts and Supreme Court cases provided in Westlaw’s Environmental Cases archive (1960-2005). Because many environmental policies are the result of Presidential Executive Orders, we will also reviewing all ber and focus of these orders by reviewing *Executive Orders* from 1900-2000.

5. *Political Opportunity* is largely collected from past work in the form of a series of annual time-series measuring political allies, elite divisions and business counter-mobilization. We will capture the strength of political allies by using: (1) Democratic Presidents and Congressional control (dummy variables); (2) northern Democratic power in Congress (% of total seats; see Jenkins et al. 2003); (3) Presidential attention to the environment (Presidential speeches above); and (4) foundation funding for the environment (1961-2000). To capture elite divisions, we use: (1) Presidential election years (dummy); (2) the partisan margin in Congressional control (majority party – minority party); and (3) divided government (dummy for the Presidency, House & Senate in different party control); and (4) political crisis and contest, based a dummy variables for all years in which there was an international war, an economic recession, and a Presidential election in which more than 1 percent of the electorate voted for a 3rd party. Business is often the target of environmental laws and will counter with litigation (discussed below), and counter-mobilization. We will capture counter-mobilization by the number of business appearances at Congressional hearings (new data) and counter-EMO founding (existing data).

6. *Policy Implementation* will be assessed using measures of relevant agency resources and enforcement actions. Because implementation of environmental policy is often seen as a function of the available budget and personnel levels of the relevant federal agencies, we will be collecting data on the budget appropriations and staff size for all the major federal environmental agencies from 1900-2005 (taken from U.S. budget documents, agency annual reports, and OMB publications). To gauge enforcement actions, we will gather data on the number of environmental criminal, civil and administrative actions that have been taken by the Environmental Protection Agency and the Department of the Interior (Annual Enforcement Reports, U.S. EPA, Department of Agriculture, and Department of Interior, and Westlaw Review 1950 – 2000). Many federal policies aimed at increasing environmental quality come in the form of federal grants to state and local governments for the improvement of environmentally related infrastructure. Annualized data on expenditures by type of environmental activity will be collected from U.S. budget documents from 1900-2005. Finally, the issuance of Federal regulations is one of the key major activities in implementing a legislative mandate. To conduct an analysis of Federal Regulations, we will compile a listing of major rules issued by the three focus agencies (U.S. Fish and Wildlife, EPA (related to air and water quality), and the U.S. Forest Service. By law, agencies are required to identify major rules to the General Accountability Office. The GAO maintains the Federal Rules Database, which contains information on the focus of each major regulation. We will use this database to identify the major regulations issued, and each regulations particular focus. Through a review of the comments on the Final Rule in the Federal Register, we will code the extent of support or opposition to the regulations by environmental organizations, and the distribution of institutions providing comments on the regulations.

7. *Business Practices*: Pressure from environmentalists and federal policy often leads business to improve environmental quality. To capture such changes, we will gather data on operating and capital expenditures on environmental protection (U.S. Department of Commerce – Current Industrial Reports; Abatement Costs and Expenditures 1973-2000) and investments to improve environmental quality as a percent of total capital expenditures (Hoffman 2001, p. 170). Businesses may also resist improving their environmental impact by entering into litigation with the government to ease or eliminate policy. To identify such efforts we will gather data on the number and nature of environmental lawsuits filed by corporations by generating annualized counts taken from the Environmental Litigation Series available through Westlaw.

8. *Environmental Quality*: The most important outcomes are a set of indicators that capture objective environmental quality. Table 1 summarized these measures in terms of four major environmental areas and a set of general indicators of environmental quality. These come from the data sources identified below.

Table 1. Measures of Environmental Conditions.		
Natural Resource Use	U.S. Ecological Footprint	<i>Ecological Footprint</i> 1961 - 2000
	Material Flows	U.S. Geological Service 1900 - 2000
	Fresh Water Withdrawals	U.S. Department of Commerce 1900 - 2000
	Total Weight of Raw Material Input to U.S.	Andrews & Warr (2000) 1900 - 2000
Land Use Patterns	Land Use in the U.S.	U.S. Department of Agriculture 1900 -2000
	Ecosystem Area	Heinz Center – <i>State of the Nation’s Ecosystems</i> 1952-2000
	Wetlands Acreage	U.S. Fish and Wildlife Agency 1955-2000
Water Quality	Nitrate Discharge into Coastal Waters by Mississippi River	U.S.G.S. National Water Quality Assessment 1952 –2000
	Farm Pesticide Use	U.S. Department of Agriculture 1964-2000
	Population Covered by Sewage Treatment	Engineering News 1900-2000 (compiled in Tarr 1996)
	Oil Spills in U.S. Waters	U.S. Coast Guard 1968-2000
	Fish Kills in U.S. Waters	EPA Publication “Fish Kills Caused by Pollution 1961–2000”
	Classified Shell Fishing Waters	National Shellfish Register NOAA 1966-2000
Air Quality	Levels of National Criteria Air Pollutants	U.S. EPA 1900 - 2000
	U.S. Production of Ozone Depleting Chemicals	International Trade Commission 1958-2000
Forest Health	% acreage late successional ecosystem National Forests	U.S. Forest Service 1900 - 2000
	% acreage roadless National Forests	U.S. Forest Service 1900 - 2000
	Wildlife Population in National Forests	U.S. Forest Service 1960 - 2000
Wildlife Health	Migratory Wildfowl Population Levels in the U.S.	U.S. Fish and Wildlife Service/U.S. Biological Survey 1900–2000
	Pollution levels in selected fish and birds	U.S. Fish and Wildlife Service–National Contaminant Biomonitoring Program 1965 - 2000
	Large Mammal Populations in the U.S.	Big Game Inventory, U.S. Fish and Wildlife Service 1935 – 2000

IV. DATA, MODELS AND ANALYSIS

To analyze the data above we will use multiple analytic techniques including the description of historical series, annualized time-series, event history analysis and structural equation modeling. Our major analyses will be as follows:

1. *Descriptive trends.* The first step in our analysis will be to describe trends in movement mobilization, cultural and political opportunity, environmental policy, and environmental quality. This process will include an initial examination of whether movement mobilization (density of EMOs, EMO founding and disbanding, membership in the top 50 EMOs), movement actions (protests, litigation and lobbying, public education efforts) are associated with cultural opportunities and media coverage as well as with the enactment and implementation of environmental policy and trends in environmental quality

2. *Cultural opportunity, environmental policy and environmental impact.* For our first major analysis we will use multivariate time-series analysis to assess the role cultural opportunity plays in the legislative process, implementation efforts, and overall environmental quality. As the heuristic model suggests, we suspect that there will be a long causal chain extending from cultural changes (e.g. changes in environmental knowledge production on the part of scientist, elite discourse, mass media coverage) to legislative action and improvement or deterioration of the environment. Because any influence cultural opportunity has on policy and the environment will involve both direct and indirect effect and the precise causal order is in question, we will employ Structural Equation Modeling (SEM) to establish causal order

and account for intervening and latent factors in the process (Bollen and Long 1993, Greene 2003). The purpose will be to test Rochon's (1998) thesis that frame shifts are first initiated by "critical communities" and then disseminated to the larger public through the mass media, and eventually enter into the discourses of elites and public policy. SEM modeling will allow us to accurately trace this path.

3. Movement mobilization and its effects on environmental policy enactment and implementation. Our second major multivariate analysis will use annual time-series regression techniques determine whether movement mobilization has direct, indirect or joint effects on environmental policy. This will be performed using the Congressional, court and Presidential measures. Obviously, no effect and backlash effects are also possible. Using the counts of actions taken by environmental organization, we will test both OLS-derived models and Poisson models (Cameron and Tivendi 1998) to see how and if these actions can predict the enactment of environmental legislation. By including multiple measures of movement mobilization and action, we can see if particular strategies are more relevant. This will also include measures of environmental disasters, cultural opportunity and political opportunity to gauge direct, indirect and joint effects. We will also introduce additional controls for business actions, including corporate environmental suits and counter-EMO founding.

A third major analysis will focus on policy implementation, using time-series measures agency resources, regulatory and environment actions and federal environmental improvement grants to see if environmental mobilization has a direct or indirect effect net of controls for environmental policy enactment. It is critical to know whether any movement effects are mediated through enactment or movement enter into the implementation game, playing a direct role in implementation. It is also possible that counter activity by business (especially business litigation) reduces implementation.

4. Modeling Business Practices: Fourth will be a time-series analyses that tests the influence of environmental action and government policy on business environmental practices. As we mentioned above, pressure from environmentalists and changes in federal policy will often lead corporations to take actions to improve the environmental quality of their companies. Because we believe that environmental business actions are driven directly by government action, and both directly and indirectly by the environmental movement mobilization we will be using modeling strategies that test for direct effects (basic time series regression) as well as techniques that model indirect effects (Structural Equation Modeling and VAR/Granger Causality).

5. From Mobilization to Environmental Quality. Taking into account the possibility that the effects of environmental mobilization may have both a direct and indirect effect on environmental quality as well as the likelihood of a long causal chain in which causal order is in question, we will use a structural equation modeling technique (Bollen and Long 1993, Greene 2003) that will allow us to properly specify a model and determine the correct causal order. Building on our analyses of the effects of mobilization on the enactment and implementation of environmental policy, the structural equation modeling analysis of the influence of movement activity on environmental outcome measures will help us determine the factors that can significantly affect environmental quality. Specifically, we will isolate the causal chain that may or may not exist between mobilization and environmental outcomes. As our heuristic model suggests, it is unlikely that a direct effect exists between movement activity and environmental outcomes but the nature and causal connection of this relationship cannot be known without empirical test. We test this relationship using an extensive list (see Table 1 in the Data and Measurement section) of environmental quality indicators to see if, when and to what extent movement mobilization will have an influence on environmental quality.

V. WORK PLAN AND TASKS

This project reflects a long-term collaboration between Jenkins and Brulle, who have worked on a study of foundation funding and the organizational development of the environmental movement, and Jason Carmichael, who was the major graduate assistant on this project at Ohio State. It builds on this earlier work by constructing new measures of EMO mobilization and environmental actions, public and elite attention to environmental issues, government policy development and implementation, and the impacts of government policy both on corporations and the natural environment. The PIs have already

constructed some of the data in the project (our estimation of current completion as of 1/15/08 is below in parentheses). Jenkins is associated with a major graduate program and therefore will be responsible for the major data management and statistical analyses, as well as oversight of the consultant and post-doctoral graduate assistant. Brulle has access to excellent undergraduate RAs who will be used for primary data collection. He also has extensive contacts in the environmental community, which will be invaluable for primary data collection. Each PI will be responsible for the following tasks:

Jenkins (Ohio State University)

1. Review of newspaper reports of EMO activities (30 percent complete)
2. Levels of Earth Day and Arbor Day participation based on newspaper reviews (0 percent complete)
3. Executive Order review (0 percent complete)
4. Congressional bills and hearings data (Soule and Olzak) (0 percent complete)
5. Collect environmental disaster measures from newspapers (40% complete)
6. Corporate expenditures and environmental investment levels (0% complete)

Brulle (Drexel University)

1. Membership of major environmental groups (15 percent complete)
2. Construction of EMO direct action data based on govt. records and self-reports (0 percent complete)
3. Television news coverage of environmental issues (25 percent complete)
4. Content analysis of environmental articles in *Science* and *Nature* (0 percent complete)
5. Compile budget and personnel data – major Federal environmental agencies (10 percent complete)
6. Construct data set - major Federal Environmental Regulations (0 percent complete)
7. Construction of environmental quality measures (10 percent complete).

Carmichael (McGill University)

1. Compile counts of EMO and business appearances at Congressional hearings – Lexis-Nexis review (10 percent complete).
2. Number and nature of environmental litigation by EMOs, business and government - WESTLAW review (0 percent complete).
3. Environmental enforcement data – Agency reports and WESTLAW review (0 percent complete)
4. Judicial cases review – WESTLAW review (0 percent complete).
5. Environmental administrative and civil action taken by EPA and Dept. of Interior – Agency reports and WESTLAW review (0 percent complete).

Schedule of Activities. The project timeline is three years, which we plan to organize as follows:

Year One:

Compilation of membership of major environmental groups
Television news coverage of environmental issues
Compile budget and personnel data – major Federal environmental agencies
Construction of environmental quality measures.
Compile counts of EMO and business appearances at Congressional hearings (10 percent complete).
Number and nature of environmental litigation by EMOs, business and government.
Construction of EMO direct action data

Year Two:

Content analysis of environmental articles in *Science* and *Nature*
Construct data set - major federal environmental regulations
Environmental administrative and civil action taken by EPA and Dept. of Interior – Agency reports and WESTLAW review
Environmental Enforcement Data Compilation – Agency reports and WESTLAW review
Judicial Cases Review – WESTLAW review.

Year Three:

Analyses

VI. BROADER IMPACTS

As discussed earlier, there is a strong call from the U.S. Climate Change Science Program (2003, 2007), the IPCC (2007) and the NRC (2005, 2007) for research on the impact of citizen mobilization on environmental policy and problems. Since the environmental movement plays a key role in determining how our society will respond to environmental problems, an understanding of the interactions of EMOs with business, political elites, and the federal government can aid in the development of strategies to increase the adaptive capacity of U.S. society. It will tell us whether the environmental movement is living up to its civic potential and provide a better understanding of the logistics of remedying environmental problems. As the IPCC concluded: "The roles of different actors and joint actions in changing development pathways need further research, particularly the private sector and civil society, and how they relate to government" (2007: 734).

It will also produce several new major new data archives on the environmental movement and its impacts in U.S. society. These data sets will be made available for data analysis through our project website. This work will have several audiences. First, it will address central concerns of government policy makers in the environmental field. This research can help inform the formulation of environmental policies that can be effectively implemented at the national and international levels. It will also have major audiences in the environmental, corporate, and media communities by illuminating each specific community's role in creating and implementing environmental improvement activities. We will distribute reports on the project through our project websites as well as through publication in suitable outlets (e.g. Foundation News, E Magazine, Sierra). Dr. Brulle's research has already been featured on the blog of the New York Times environmental reporter Andrew Revkin: <http://dotearth.blogs.nytimes.com/2007/12/03/are-words-worthless-in-the-climate-fight/>. Our project website will be restructured to target these various audiences to distribute our data and articles. We will advertise this web site through professional associations, such as the American Political Science Association, the American Sociological Association, the Society of Environmental Journalists, and the Society for Environmental History. The project will contribute to the education and training of at least one graduate student and several undergraduates and improve the courses taught by both PIs in the areas of social movements, political sociology, research methods, and environment-society interactions.

The major theoretical contribution will be to social movement theory, where the dialogue between cultural, organizational and political theories has been limited by inadequate data. Bringing different components of mobilization together in a single analysis will advance our understanding of how movements mobilize and contribute to social change. Of special importance is evaluating the significance of cultural production on movement mobilization and balancing the analysis of SMO survival and mortality with the analysis of collective action on movement outcomes. It will also provide environmental sociologists with a stronger understanding of environmental mobilization and its potential impact on addressing underlying environmental problems. Our long-term aspiration is to expand this to analyze the political and policy impact of the environmental movement, including the impact of environmental mobilization on underlying environmental problems. This is important to the broader academic community that is concerned with environmental problems and our societal capacity for creative innovation. On the practical plane, this research will foster a reflexive examination within the environmental movement and the philanthropic community.

VII. RESULTS FROM PRIOR NSF SUPPORT

Robert J. Brulle/ J. Craig Jenkins SES 0455195 \$133,706. 4/1/05 – 3/31/08. "*Civil Society and the Environment: The Mobilization of the U.S. Environmental Movement, 1900 – 2000*"

Project Description: The voluntary associations that make up civil society play an important role in the maintenance, legitimacy, and stability of democracy. Through their civic associations, citizens develop and maintain their ethical life and exercise their citizenship through the formation of social movements. This provides society with a self-reflexive capacity to renew social institutions and adapt to changing circumstances. One of the major areas addressed by social movements is the human relationship with the natural environment. This project examines the growth and change of the U.S. environmental movement throughout the 20th century by addressing the following questions: (1) What are the major

social/political factors that contribute to changes in the size and activities of the environmental movement? (2) How does foundation funding impact the actions and structure of the environmental movement? (3) What is the nature of the interaction between the environmental movement and the anti-environmental countermovement? Most of our measures cover the 100-year from 1900 to 2000. To date, we have produced three major analyses. One paper (Jenkins, et al 2007b) examines the founding of EMOs, showing that critical intellectuals, political opportunities and economic affluence (including foundation sponsorship) are central to EMO founding. A second (Jenkins et al. 2007c) shows that foundation funding for environmental advocacy has grown by almost 10 times 1990-2000 and has been central to organizational development of the movement. A third paper (Jenkins, et al. 2007a) shows that protest affects Congressional passage of bills monitored by the League of Conservation Voters both directly and jointly with Democratic power. We are working on a network analysis of foundation giving, examining changes in network centrality over time, and have completed two published articles, one of which (Brulle et al. 2007) evaluates selection bias in organizational data sources and the second (Brulle and Jenkins 2008) provides a general audience overview of the changing political influence of the environmental movement.

Project Publications and Major Presentations:

- Brulle, Robert J. 2008. "The U.S. Environmental Movement" in Gould, K., and Lewis, T. (ed.) *20 Lessons in Environmental Sociology*. Roxbury Press.
- Brulle, Robert J. and Jenkins, J. Craig. 2008. "Is the U.S. Environmental Movement Dead?" *Contexts* (spring issue)
- Brulle, Robert J., Turner, Liesel H., Jenkins, J. Craig., and Carmichael, Jason. 2007. "Measuring SMO Populations: A Comprehensive Census of U.S. Environmental Movement Organizations" *Mobilization* 12(3) 195-211
- Pellow, David, and Brulle, Robert J. 2007. "Poisoning the Planet: The Struggle for Environmental Justice." *Contexts* 6(1) 37-41
- Brulle, Robert J., and Pellow, David, 2006. "Environmental Justice: Human Health and Environmental Inequalities," *Annual Review of Public Health* (27) 107-124
- Brulle, Robert J. and Jenkins, J. Craig. 2006. Spinning Our Way To Sustainability? *Organization and Environment* 19:82-87
- Brulle, Robert J. 2006. "Habermas and Green Political Thought." pp. 52-69 in Piers Stephens, John Barry, and Andrew Dobson (ed). *Contemporary Environmental Politics: From Margins to Mainstream* London, UK: Routledge
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- Brulle, Robert J. and Jenkins, J. Craig 2007. "Civil Society and the Environment: Understanding the Dynamics and Impacts of the U.S. Environmental Movement," presented at What Do NGOs Want? conference, University of Michigan, May 4-5, 2007.
- Brulle, Robert J. and Jenkins, J. Craig. 2005. "U.S. Environmentalism at the Beginning of the 20th Century: Death or Transition?" Environment and Technology Section, ASA meeting, Philadelphia PA, August 2005.
- Boughton, Heather, Carmichael, Jason T., Jenkins, J. Craig, and Brulle, Robert J., "Social Movement Activity, Public Opinion, Partisanship and Legislative Behavior: Do Movements Matter?," ASA convention, August 2007.
- Carmichael, Jason T., Jenkins, J. Craig, Brulle, Robert J., & Turner, Liesel, "Social Movement Action, Public Opinion, Partisanship and Legislative Behavior: Do Movements Matter?," ASA convention, New York NY, August 2007.
- Turner, L.H., Brulle, Robert J. Jenkins, J.C., and Carmichael, J. "Measuring SMO Populations: Methods for Compiling a Comprehensive 100 Year Time-Series of National U.S. Environmental Organizations" ASA convention, August 2006.
- Brulle, R.J., J.C. Jenkins, L. Turner, and J. Carmichael 2005. "The Organizational Development of the U.S. Environmental Movement", presented at ASA convention, Philadelphia PA, August 2005.

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