

## Politics and the Environment

Robert J. Brulle  
Drexel University

Forthcoming in Kevin T. Leicht and J. Craig Jenkins (eds), *The Handbook of Politics: State and Civil Society in Global Perspective* Springer Publishers, New York, NY

---

For nearly 150 years, environmental concerns have been part of the U.S. political agenda. As early as 1864, the U.S. Congress debated the proper use of national lands, and, motivated by press accounts of the logging of Giant Sequoia trees, decided to protect Yosemite Valley for aesthetic reasons (Brulle 2000). Since then, as industrialization and environmental impacts have risen in tandem, environmental politics has expanded its range over an increasingly wide spectrum of political action, ranging from local level land use decisions to global controls over CO<sub>2</sub> emissions. Thus the study of environmental politics encompasses a range of issues across virtually all political arenas. As the range of environmental politics has expanded, so too has the scholarship on this topic. Using a wide variety of intellectual tools, ranging from legal studies to geospatial analysis, the literature on environmental politics has expanded into an immense field.

In this essay, I seek to summarize the key theoretical approaches that define this academic subfield, and some of the leading research topics in environmental politics. It is important to realize that there is not one universal definition of environmentalism. Rather, environmentalism is defined by numerous discursive frames that define distinct policy fields. Thus environmental politics is carried out in distinct communities, each focused on a particular aspect of environmental concerns. Thus this essay begins with a discussion of the multiple frames that define environmentalism. Secondly, there are several intellectual frameworks that define the causes and cures to environmental problems. In the second part of this essay, I describe the major models regarding the causes of environmental degradation, and how these models inform different approaches to their solution. In the third section, I summarize the analysis of the drivers that are unique to the development of environmental policy. Here I focus on specific applications of standard approaches to understanding environmental politics; 1) Changes in the political opportunity structure, 2) Movement activities, 3) Development and promulgation of new cultural belief systems, and 4) Condition of the natural environment, including major environmental disasters. This section concludes with a review of the literature on the dynamics of environmental policy.

### I. The Range of Environmentalism

The U.S. environmental movement is perhaps the largest, most long lived, and complex social movement in the U.S. There are over 6,500 national and 20,000 local environmental organizations, with an estimated 20-30 million members. It is also the longest running social movement. Several still existing national environmental organizations, such as the Sierra Club, the National Audubon Society, and American Forests, were founded in the late 19<sup>th</sup> century.

One way to understand the diversity of the environmental movement is through the use of discourse analysis. From a discursive viewpoint, social movement organizations can be seen as cultural rules that identify categories of social actors and their appropriate activities or relationships (Lounsbury, Ventresca and Hirsch 2003: 75; Spillman 1995: 141; Sewell 1992: 8). Through the definition of the nature of the social reality in which a movement organization exists, the discursive frame creates and defines movement organizations (Bittner 1965; Brown 1978: 373-74). Based on this collective identity, a network of interaction is formed which constitutes a social movement. Thus within any social movement, there are generally multiple frames, defining distinct movement sectors or “wings” which diverge in terms of their definition of problems, strategies and methods of organization.

Within the environmental movement, there are eleven significant frames, defining distinct movement sectors or “wings” which diverge in terms of their definition of problems, strategies and methods of organization (Brulle 2000: 96-99, Brulle and Jenkins 2008). Subsequent analyses have verified this framework (Dreiling and Wolf 2001; Carmen and Balsler 2002; Clark 2002; Lankard and McLaughlin 2003; Brechin, Wilshusen, Fortwangler, and West 2003; Dalton, Recchia and Rohrschneider 2003; Rootes 2004, Oelschlaeger 1991). These discursive frames are listed in Table I. These discursive frames form the basis for the many different forms of action, organization, and objectives within the current environmental movement. As framing theory and “ideologically structured action” shows, (Benford and Hunt 1992, Benford 1993, Benford and Snow 2000, Zald 2000, Diani 2000) ideas, discursive frames shape a number of internal organizational characteristics of movements. Knoke (1990) found, organizational culture outweighs resources, constituencies, and political alliances in defining movement strategies and tactics. Once instituted, the ideological frame of an SMO forms a collective identity that guides the subsequent socialization of leaders and activists and is therefore highly resistant to change (Gamson 1991). Research has also shown that, for the environmental movement, discursive

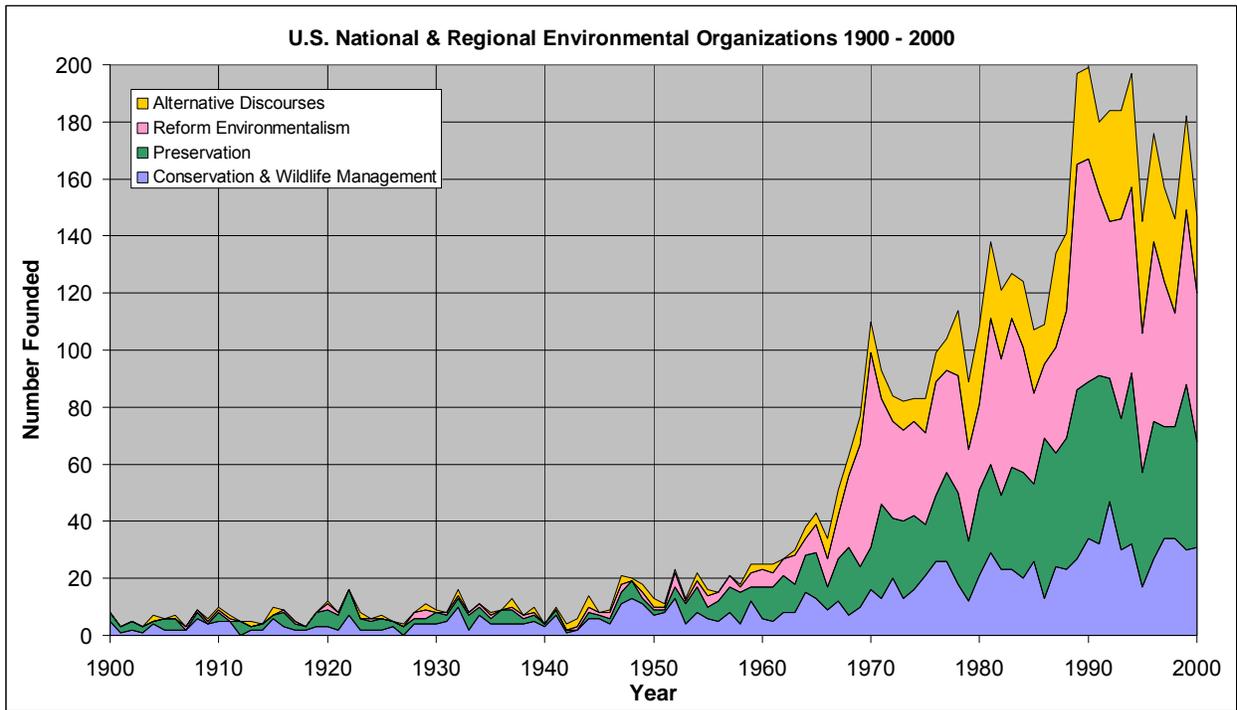
frames are a critical factor defining the practices of environmental groups, and often outweigh their resource base or political alliances (Dalton 1994, Dalton Recchia and Rohrschneider 2003, Dreiling and Wolf 2001, Carmon and Balser 2002).

**Table 1. Major Discursive Frames in the U.S. Environmental Movement**

<p><b>Wildlife Management:</b> Wildlife should be managed to insure adequate supply to provide for the recreational use of humans in terms of hunting or fishing.</p>
<p><b>Conservation:</b> Natural resources should be technically managed from a utilitarian perspective to realize the greatest good for the greatest number of people over the longest period of time.</p>
<p><b>Preservation:</b> Nature is an important component in supporting both the physical and spiritual life of humans. Hence the continued existence of wilderness and wildlife, undisturbed by human action is necessary.</p>
<p><b>Reform Environmentalism:</b> Human health is linked to ecosystem conditions. To maintain a healthy human society, ecologically responsible actions are necessary. These actions can be developed and implemented through the use of natural sciences.</p>
<p><b>Environmental Health:</b> Human health is the outcome of interactions with physical, chemical, biological and social factors in the natural environment, especially toxic substances and pollution. To ensure community health requires a livable and healthy community, with adequate social services, and elimination of exposures to toxic or polluting substances</p>
<p><b>Deep Ecology:</b> The richness and diversity of all life on earth has intrinsic value, and so human life is privileged only to the extent of satisfying vital needs. Maintenance the diversity of life on earth mandates a decrease in human impacts on the natural environment, and substantial increases in the wilderness areas of the globe.</p>
<p><b>Environmental Justice:</b> Ecological problems occur because of the structure of society and the imperatives this structure creates for the continued exploitation of nature. Hence, the resolution of environmental problems requires fundamental social change.</p>
<p><b>EcoFeminism:</b> Ecosystem abuse is rooted in androcentric concepts &amp; institutions. Relations of complementarity rather than superiority between culture/nature, human/nonhuman, and male/female are needed to resolve the conflict between the human and natural worlds.</p>
<p><b>EcoSpiritualism:</b> Nature is God's creation, and humanity has a moral obligation to keep and tend the Creation. Hence, natural and unpolluted ecosystems and biodiversity needs to be preserved.</p>
<p><b>Green:</b> All humans and their communities deserve to live in an equitable, just and environmentally sound world. Global abuses - such as ecological destruction, poverty, war, and oppression - are linked to global capitalism and the political and economic forces that have allowed the development of social inequality and injustices.</p>
<p><b>Animal Rights:</b> All species have intrinsic rights to realize their own evolved characteristics, and to live an independent life free from human direction or intervention.</p>

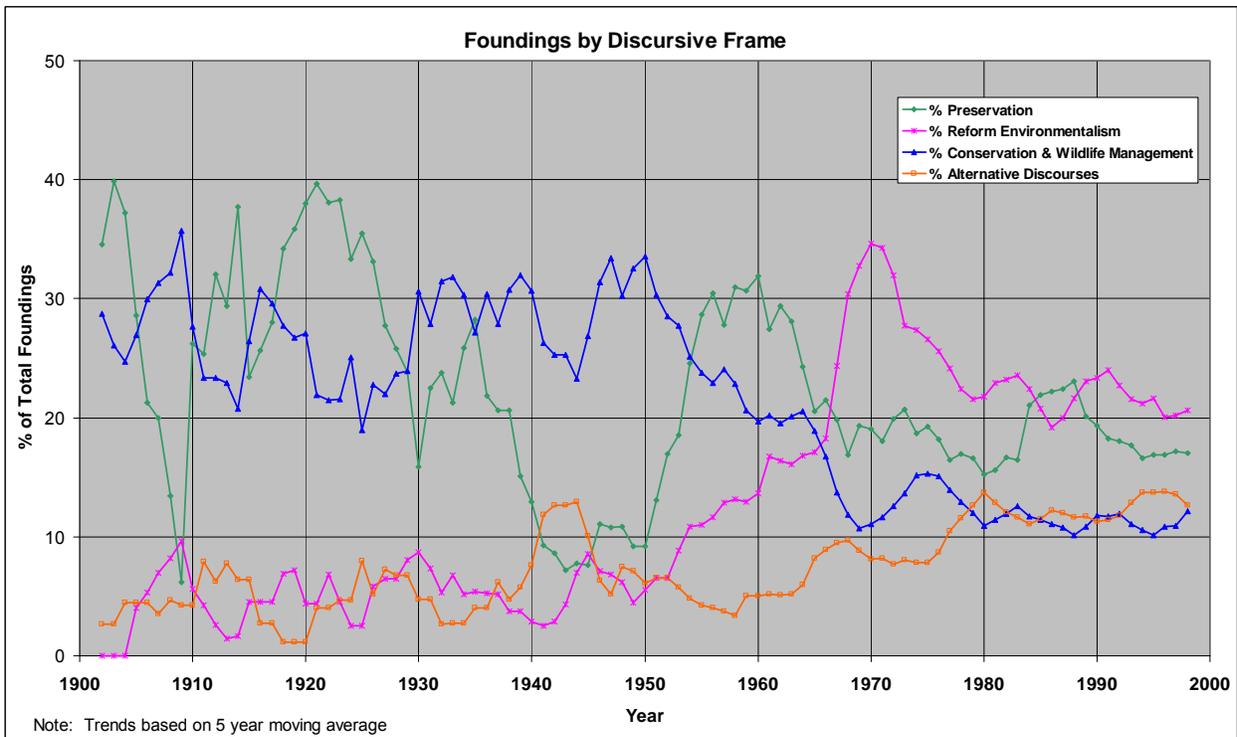
The development of specific movement organizations is the outcome of processes of contingent historical events, the development of specific discourses, and the mobilization of material resources used to create these organizations. This broad pattern of development shows that the current population of environmental movement organizations originated in very different historical circumstances. These historical processes have created the numerous, partially overlapping communities that form the current environmental movements in the United States. For example, the community defined by the discursive frame of wildlife management is composed primarily by hunting and fishing organizations. These organizations frequently form coalitions regarding policies involving water quality in important fishing streams, or the management policies of the U.S. Fish and Wildlife Agency. This community is quite unique and separate from other parts of the environmental movement, such as environmental justice organizations. However, within the environmental movement, there are several very large frame spanning organizations, such as the Environmental Defense Fund, the Natural Resources Defense Council, or Greenpeace. Most notably is the Sierra Club. With over 750,000 members, and active grass-roots chapters throughout the U.S., this organization spans the range of environmental concerns, and has engaged in collaborative action across a number of different environmental communities.

Using a comprehensive data set of national environmental organizations (Brulle, Turner, Carmichael, and Jenkins 2007), the growth of the different components of the environmental movement can be empirically shown. The overall growth in organizations is shown in Figure 1. To simplify this presentation, the number of discourses illustrated has been reduced. First, due to the relatively small number of organizations with the discourse of Wildlife Management, and its close ideological similarity with Conservation, these two discursive frames have been combined. Secondly, due to their small numbers, organizations with the discursive frames of Animal Rights, Deep Ecology, Ecofeminism, Ecospiritualism, Environmental Health, Environmental Justice, and Anti-Globalization/Green have been combined into one category, labeled here as "Alternative Discourses." As this graph illustrates, there was a substantial increase in the levels of organizational foundings starting in the mid 1950s up until around 1967. This was followed by explosive growth starting in the time period 1968 - 1970, and again in the 1988 - 1990 timeframe.



**Figure 1**

To further examine this growth by different discursive frames, the relative growth rates of the different communities are shown in Figure 2. This graph clearly shows that the discursive frames of Preservation and Conservation/Wildlife Management were dominant up until the end of the 1930s. In the 1940s, there was a significant rise in the number of alternative discursive organizations. This was due primarily to the increase of environmental health organizations founded during World War II. Additionally, the founding of Preservation organizations dramatically declined



**Figure 2**

in the 1940s. However, in the 1950s, Preservation foundings increased rapidly, and Conservation/Wildlife Management foundings started a long slow decline. Additionally, Reform Environmental organizational foundings started a long and steady increase, which culminated in an explosive rate of growth in 1970. Additionally, as more alternative discursive frames were developed in the 1970s and 1980s, there was a slow but steady growth in these organizations in the time period from 1960 on. What this graph shows is that there are unique developmental dynamics to each discursive community. It is the cumulative impact of these different developmental dynamics that have lead to the highly differentiated environmental movement we encounter today.

The current number of organizations and their financial resources in each discursive frame are shown in Table II. As this table shows, the largest numbers of organizations are found in the long established discursive frames of Reform Environmentalism, Preservation, and Conservation. Together, these three discursive frames represent 83% of the environmental movement. All of the other discursive frames represent 5% or less of the total organizations. Thus, although a great deal of attention is given to the newer discursive frames in the academic literature, the environmental movement continues to be concentrated in these more conventional and long lived discursive frames.

**Table 2 - Income Distribution by Discursive Frame - 2003**

Frame	N	% of N	Total Income	% of Total	Mean Annual Income	Median Annual Income
Animal Rights	35	2.5%	95,542,298	1.9%	2,729,780	420,819
Conservation	223	16.0%	627,813,084	12.2%	2,815,305	345,421
Deep Ecology	34	2.4%	17,763,087	.3%	522,444	270,092
Ecofeminism	4	0.3%	2,027,480	>.1%	506,870	115,100
Ecospiritualism	12	0.9%	8,776,361	.2	731,363	149,452
Environmental Health	33	2.4%	36,683,659	.7%	1,111,626	503,346
Environmental Justice	38	2.7%	57,301,562	1.1%	1,507,936	385,728
Green/Anti-Globalization	9	0.6%	8,844,870	.2%	982,763	571,318
Preservation	536	38.6%	2,590,627,143	50.3%	4,833,260	296,873
Reform Environmentalism	404	29.1%	1,048,293,688	20.4%	2,594,786	395,409
Wildlife Management	62	4.5%	656,084,214	12.7%	10,582,003	310,477
Total	1,390	100.0%	5,149,757,446	100.0%	3,704,861	348,058

Additionally, using information compiled in the comprehensive data set on organizations with income listed in the IRS nonprofit organizational data file (Brulle, Turner, Carmichael, and Jenkins 2007), the annual income for the organizations in each discursive frame was calculated. Based on the 1,390 organizations with IRS income data, Table 2 shows the total income of these different discursive communities in 2003. As this table shows, fully 50% of the funding of the environmental movement is found in organizations with a Preservationist frame. This is followed by the other three mainstream discursive frames of Reform Environmentalism, Wildlife Management, and Conservation, ranging between 12.7% to 20.4% of total income. The alternative discourses have very low levels of economic resources. Even if they are all combined, they total less than 5% of the total income distribution. As these data show, the different components of the environmental movement have widely varying histories of development and vast differentials in terms of income. These differentials need to be acknowledged in any analysis of the dynamics of environmental politics in the U.S.

## II. The Social Origins of Environmental Problems

A second key to understanding the range of environmental politics is through the analysis of the different underlying models of the interactions between society and the natural environment. These approaches cross discursive communities, and thus define a second dimension in environmental politics. The nature of the specific models of the driving forces has an important impact on the nature of environmental policy. Forsyth (2003) argues from a Foucaultian perspective, that environmental science and politics are coproduced and reinforcing processes. This means that politics

is not strictly limited to responding to neutral scientific finding. Political forces also work to shape the nature of and dissemination of environmental frameworks that reflect certain political or economic interests, resulting in implicit social and political models being built into statements of supposedly neutral explanations (Forsyth 2003:20). These frameworks then are used to guide the development of environmental policy along certain lines. These analyses then form the “institutional basis of truth claims” which are presented as non-negotiable forms of truth to legitimate certain political objectives (Forsyth 2003:275).” Thus it is important to see the connections between different models of environmental degradation, and how they define a certain political approach.

There is no single, universally accepted or consistent formulation of the driving forces of environmental change (Berkes and Folke 1998: 9). Scholars have worked on developing a number of perspectives on the key driving forces. While several different theoretical models have been formulated, only three of these models have developed into a substantive literature: Neo-Malthusian Models, Ecological Modernization Theory, and Political Economy/World Systems Theory (Cantor and Yohe 1998: 69, Dietz and Rosa 2002: 385-389). All three of these models define different approaches to the solution of environmental problems, and thus have significant political impacts.

## **IIA. Neo-Malthusian Models**

There are several related models regarding the key driving forces of environmental change. For example, the NRC (1992:75) identifies (1) population change, (2) economic growth, (3) technological change, (4) political-economic institutions, and (5) attitudes and beliefs as the key drivers of ecological change. Recently, the Millennium Assessment identified six major global environmental driving forces: (1) Demographic Drivers, (2) Economic Drivers, (3) Sociopolitical drivers, (4) Science and technology drivers, (5) Cultural and religious drivers; and (6) Physical, biological, and chemical drivers (MEA 2003:91). What is common to these models is that the various drivers are listed without any connections drawn between them or any overriding theoretical model to inform their selection or interactions.

One effort to develop a more comprehensive model between society and the natural environment is the neo-malthusian formulation known as the IPAT model. Originally developed in 1971 (Erlach & Holdren 1971), the IPAT model “represents the efforts of population biologists, ecologists, and environmental scientists to formalize the relationship between population, human welfare, and environmental impacts (Dietz and Rosa 1994:278).” The IPAT model postulates a causal sequence of the impacts of human activity on the natural environment. Environmental Impacts (I) are seen as a function of three variables 1) P–Population, 2) A–Affluence Level, and 3) T–Technological Development. The IPAT model forms the basis for a number of significant reports, including the Millennium Assessment and the IPCC reports. For example, this framework has been utilized extensively as an overall framework by the IPCC to develop emissions scenarios (IPCC 2000). What this analysis does is to collect a listing of relevant driving factors under each variable. So while the emissions scenarios of the IPCC have a greater degree of inclusion of specific variables, the analysis remains piecemeal, and lacking any overall theoretical integration.

There are a number of empirical and theoretical difficulties with this approach. Mishra, Prakash and Wexler (1998: 126-135) argue that the IPAT model is fundamentally flawed as an empirical research tool. They point to two areas, first is the assumption of the independence of population, affluence, and technological development. Instead, the authors maintain that these variables are interrelated, and thus not independent. Secondly, while technology is seen to be a major driver of environmental change, thus far to date, the application of the IPAT model has yet to develop and include an empirical measurement of technology. So instead of measuring T, it is treated as a residual category that includes virtually all of the other possible explanations of environmental change, and the error term of the model (Dietz and Rosa 1997: 177).” Thus the meaning of technology originally specified in the IPAT model dissolves in this analysis into a completely residual category.

Additionally there are two major theoretical critiques of the IPAT model. First, the IPAT model treats each nation state as independent from other states. So thus the internal conditions of a country alone account for its environmental impact. The IPAT model is unable to view these relationships, and hence they remain unexamined in the IPAT models (Fischer-Kowalski and Amann 2001:36). Secondly, the IPAT model is its grounding in agent based and individualistic analysis. The key drivers of environmental degradation in the IPAT models are increasing individual levels of consumption and population growth. This analysis leaves out the social, economic, and cultural forces that create changes in consumption levels or in population growth (Mishra, O’Neill, Prakash, and Wexler 1998:119), which the IPAT model fails to consider this dynamic (Douglas, Gasper, Ney, and Thompson 1998:259). By being bound to an individualist analysis, the IPAT model is unable to examine the social, cultural, and institutional factors that drive environmental change (Cantor and Yohe 1998: 64-65). Thus the IPAT model is unable to connect to social theory (Mishra, O’Neill, Prakash, and Wexler 1998:129). Thus the IPAT model is decontextualized in that it does not situate the process of ecological degradation within a specific social, cultural, or historical dynamic. Accordingly, this model fails to elaborate on the aspects of the current social order that contribute to the process of ecological degradation.

Accordingly, Forsyth (2003:37) argues that the IPAT model as an excellent example of an “Environmental Orthodoxy” i.e. an institutionalized, but highly criticized conceptualization of environmental degradation. Since the IPAT model does not address the role of social norms and organizations in the production of environmental degradation, Forsyth (2003: 46) argues that it effectively obscures the institutional factors driving environmental degradation, and legitimates a political solution not based on systematic institutional reform, but specific actions based on analyses provided by the natural sciences. This focus on the proximate determinants of environmental degradation leaves the dominant social institutions unchallenged. Thus the IPAT model serves to delegitimize institutional critiques, and thus maintains the existing system of economic and political power (Maniates 2002:59-62, Cantor and Yohe 1998 64-65). Without a critical perspective on both the limitations of the IPAT approach and its political functions, this model becomes reified and forms a virtual ideology that conceals relationships of power and domination regarding environmental degradation.

In practice, this leads to the legitimation of natural scientists as the key to effective governance. This model takes the form of Green Governmentality (Bäckstrand and Lövbrand 2007: 126-129) or global environmental management (Glover 2006: 3-6). In this approach, the solution to environmental problems is the implementation of a strong system of governance of the economy, natural resource use, and individual behavior informed by the natural sciences. This places scientists as the key role of defining the nature of this problem, and proposing mechanisms for their resolution. In essence, this viewpoint legitimates the creation of an ecotocracy. This approach underlies the many of the existing international treaty frameworks, in which science-based resource management plays a central role. It also informs actions aimed at the proximate causes of environmental degradation, such as creating parks or land trusts to preserve ecosystems, or developing methods to limit population growth.

## **IIB. Ecological Modernization**

The second major approach is known as Ecological Modernization. This theoretical approach focuses on the role of technological development, economic expansion, and the growth of environmental governance in creating and also mitigating environmental problems. In this perspective, economic development and shifts in technology lead to the initial generation of environmental problems. However, further economic development can also mitigate these problems. The process of modernization leads to the development of more advanced technologies and a shift from highly polluting production to less polluting production methods (Cantor and Yohe 1998:70-71). This shift in production results in a decrease of environmental pollution and a decoupling of economic growth and the use of ecological resources (Murphy 2000:1-2). This process takes the form of an Environmental Kuznets Curve (EKC), i.e. - levels of environmental degradation follow an inverted U curve, in which at a certain point of development, environmental degradation will quit increasing and start decreasing. Thus in this perspective economic growth can result in an absolute decline in levels of environmental pollution (Mol 2001:56).

In addition to the dynamics of an industrial economy pointing to the resolution of environmental problems, the process of modernization is also theorized to increase social transformations that increase the capacity of industrial societies to address environmental degradation. The development of environmental interests and ideas is seen to lead to a constant transformation and “ecological restructuring” of industrial societies (Mol 2001:59).” This restructuring is based on two related dynamics of modernization. First, concern over environmental degradation is linked to increasing affluence and education as theorized by Inglehart (1990, 1997, Inglehart and Welzel 2005). For Inglehart, environmental quality is a concern that emerges only after lower levels of need, such as basic requirements for food and security, are met. Thus rising affluence, higher levels of education, and increased communication capabilities associated with economic expansion can lead to a greater capacity for political mobilization to demand environmental quality (Cantor and Yohe 1998:70-71). As affluence and education increase, the public concern over environmental degradation will also naturally increase. This translates into increased formation of environmental movement organizations and pressure on both the government and business to address environmental pollution. Secondly, the institutionalization and expansion of democracy and civil liberties in advanced capitalist societies increases the potential levels of public participation and social movements (Spaargaren and Mol, 1992; Hajer, 1995, Mol and Sonnenfeld 2000:3-4). These institutions, based in civil society, can create effective political pressure on the state to address environmental degradation (Murphy 2000:4 Mol 2001:222).

Thus through the rise of civil society and the environmental movement, social change can be brought about that can lead to the ecological restructuring of social institutions. Thus capitalism is seen as being flexible enough to adapt its institutions to environmental limits (Murphy 2000:1-2, Crenshaw and Jenkins 1996, Spaargaren 1997, Buttel 2000: 61). Thus at the core of ecological modernization theory is that the existing social, economic, and governmental institutions can effectively deal with environmental issues, and there is no need for radical structural changes in industrial society (York and Rosa 2003:274, Buttel 2000: 62).

While the ecological modernization approach has enjoyed a widespread acceptance within sociology, it has also been subjected to a rigorous critique. First, the EKC hypothesis has been subjected to extensive scientific analysis. Based on his analysis, Stern (2004: 1420) concludes that “the EKC does not exist.” Rather, a careful empirical analysis of this phenomena reveals that the proximate causes for the appearance of the EKC are due to growth in the economy, changes in economic production, and shifts in raw material and technology of production (Stern 2004:1421). The apparent decline in a country’s level of environmental degradation as economic growth increases merely reflect the increasing globalization of production (Stern 2004: 1426, Fischer-Kowalski and Amann 2001: 28) In fact, the increase in environmental impacts through economic growth has been well documented in a detailed study of the U.S. economy over the time period from 1905-1995 (Ayers, Ayers and Warr 2004). Based on an analysis of the material flows into the U.S. economic system, they demonstrate that “There is little evidence of per capita dematerialization of the U.S. economy. On the contrary, increased demand seems to overcompensate for efficiency gains in every case we have investigated (Ayers, Ayers and Warr 2004:80).”

Additionally, ecological modernization fails to engage with the extensive and well developed empirical analyses regarding both the factors driving individual environmental beliefs, and the creation, maintenance, and impact of social movement organizations. First, the theory of ecological modernization relies heavily on Inglehart’s notion of post-materialism, i.e. - as wealth increases, this will lead to the growth of concerns beyond economic survival and security, and lead to expansion of environmental concerns. What this ignores is the well developed literature based on international polls on environmental attitudes (Dunlap 1993, Dunlap and York 2008, Dunlap and Mertig 1995) regarding international environmental attitudes. Secondly, ecological modernization arguments generally point to the growth of institutions to address environmental issues as demonstration that an ecological sphere is growing to address environmental issues. First, it is not at all clear that the growth of institutions to address environmental degradation will actually result in this occurring (York and Rosa 2003:282). Additionally, this approach fails to take into account several different explanations for the expansion of international environmental associations and legislation (DeSombre 2000). Third, while ecological modernization asserts the growing political influence of the environmental movement, it fails to build on the many theoretical and empirical studies of the actual influence of social movements in industrialized society. A number of recent analyses challenge the assertions of ecological modernization of the growing influence of the environmental movement. Rather, they show a relative decline in the importance of social movements (Barber 1984, Habermas 1996, Putnam 2000, Fiorina and Skocpol 1999, Fung 2003 Brulle 2000). This directly contradicts one of the central premises of ecological modernization theory. Overall then, ecological modernization fails to engage with the detailed empirical literature regarding the phenomena it lumps together under the rubric of “ecological modernization.” The end result is that ecological modernization has not developed a set of hypotheses that can be the focus of a research agenda (Buttel 2000: 64). Nor can this approach make any meaningful contribution to the relevant sociological literatures on the processes it purports to examine.

Yet despite its theoretical and empirical deficiencies, ecological modernization has risen to a high degree of prominence in public discourse regarding environmental problems. This theoretical perspective underlies many approaches to environmental degradation that stress technological innovation and economic growth. Buttel (2000) argues that this rise to prominence is that it “accorded particularly well with a number of intellectual and broader political-economic factors.” Ecological modernization argues that capitalism can be modified to be ecologically sustainable, and that these modifications are both economically and politically feasible (Fisher and Freudenberg 2001:702). We can continue to grow and, in fact, it is through economic expansion that we can effectively deal with environmental problems. In this view, capitalism can be readily modified to be ecologically sustainable and no changes in our style of living, consumption patterns, or basic institutions are needed (Buttel 2000).

Politically, this approach legitimates a liberal market approach to the resolution of environmental problems. The mechanisms involved include the use of market based user fees for pollution, tax incentives, increases in energy efficiency, or the shifting of production toward “green” products. This position legitimates a corporatist approach to environmental problems, in which corporations and government develop a joint environmental approach. One excellent example of this approach can be seen in the development of the Obama administration’s “green” infrastructure investment plan. So despite its tenuous intellectual foundations, this approach has found a wide audience among corporate and government elites (Glover 2006: 4-6, Bäckstrand and Lövbrand 2007: 129-131). This argument has obvious appeal to entrenched interests and to those who wish to avoid significant change. A number of scholars have argued that ecological modernization is essentially a discourse to ensure economic growth and to co-opt industrialism’s environmental critics (Torgerson 1995: 15; Bernstein 2001: 178-179; Blühdorn 2000: 30).

## **IIC. Political Economy and the Environment**

The final major model of environmental degradation is the use of political economy to explain the development and continued persistence of environmental problem (Schnaiberg 1980, Schnaiberg & Gould 1994, O'Connor 1973, 1984,

1987). This perspective maintains that the capitalist economy forms a “treadmill of production” that continues to create ecological problems through a self-reinforcing mechanism of ever more production and consumption. The logic of the treadmill of production is an ever-growing need for capital investment to generate goods for sale in the marketplace. Corporations seek to maximize the return on capital investment. Thus they continuously attempt to reduce production costs through improved technology. While this technology may improve the efficiency of resource in one area, and thus lead to the appearance of environmental improvement, it ultimately increases environmental impacts, as the profits are reinvested to increase production in a different area, increasing economic growth. From an ecological perspective this process requires continuous and growing inputs of energy and material. The expansion of the economy drives two fundamental dynamics of a market economy: first, the creation of economic wealth, and second, the creation of the negative byproducts of the production process. Thus the treadmill operates to maintain a positive rate of return on investments and externalizes the environmental costs of its activities. The social and economic benefits of the treadmill are unevenly distributed in favor of business and affluent communities, whereas the environmental risks associated with the treadmill are disproportionately concentrated among specific groups of people with the least ability to resist the location of polluting facilities in their community. Thus polluting facilities are sited among “the most vulnerable groups: the poor, unskilled laborers, and the skilled blue collar” residents (Gould, Schnaiberg, and Weinberg 1996: 13).

The Treadmill of Production has been extended into an analysis of global economic systems through the development of World Systems Theory (WST). WST is based on the application of political economy to a global scale (Bunker 1984, 1985; Burn, Kick, Murray and Murray 1994; Kick et al. 1996). The central point of world-system theory is that all nations of the world are organized into a single global economy. Nations are divided into three different locations, the core, semiperiphery, and the periphery. The core nations consist of wealthy and powerful nations that control economic trade relationships, and dominate global politics. The periphery nations are primarily small and politically weak. They have a minimal level of industrialization, and their economies are dominated by the export of natural resources. Finally nations in the semiperiphery, occupy an intermediate position between the core and periphery. They have some political power, and a developing industrial base. Within this system, core nations are dominant economic and political powers. It is in these nations that the greatest levels of economic production and consumption occur. They also have the power to set favorable terms of trade. Peripheral nations serve as sources for the basic raw materials needed for production, and also as the site for the disposal of hazardous waste from the core (Bunker 1984, 1985; Frey 1995, 1998). Thus the world systems perspective, environmental impacts will continually increase with economic growth. However, the impacts will not be limited to the nation in which the economic growth occurs. The fundamental conclusion of this perspective is that reformist policies and new technological developments will not result in a decrease of the extent of environmental degradation. Rather, the fundamental solution rests on a restructuring of societies away from economic expansion and toward ecological sustainability.

There are several emerging critiques of this perspective. First, the treadmill sees political economy as a unitary cause of social relationships i.e. - in the end, the treadmill of production is seen to govern all production relationships. Thus this perspective is unable to explain the significant variance of environmental degradation within capitalism between different nation states (Mol 2001:203). Additionally, as Wright (2004: 317-322) has noted, the treadmill of production has not produced any form of alternative other than a vague notion of socialist control over the economy. Finally, as was well noted by Habermas (1975), the political economy approach to social relationships is unable to examine the social and cultural relations that make up advanced societies. Specifically, he maintains that political economy limits the discussion to the sphere of society concerned with the production, distribution and consumption of goods and services, thereby ignoring the social relations involved and the socialization processes that enable the stable role production in capitalist society. Thus the cultural drivers of environmental degradation are invisible to this perspective.

The political economy approach informs a resistance movement to both the liberal environmental mechanisms legitimated by ecological modernization, and the notion of global governance associated with neo-malthusian models. This alternative takes the form of civic environmentalism. Both market based and global governance approaches are seen to favor the existing power elites, and the marginalization of poorer, less developed countries. So rather than advocating either approach, civic environmentalism is seen as the radical democratization of global governance and economic processes. It aims at “a fundamental transformation of consumption patterns and existing institutions to realize a more eco-centric and equitable world order (Bäckstrand and Lövbrand 2007: 132). Hence the political economy model places a great deal of emphasis on the notion of environmental justice, and the equitable sharing of technology and capital to enable the poorest nations to address environmental problems, as well as the reform of large multi-lateral institutions, such as the International Monetary Fund, and the World Bank.

## **IID. Empirical Research on the Driving Forces of Environmental Change**

Recently, there has been the emergence of empirical research programs to sort out the validity of these different models of environmental change. This research program centers on the development of the STIRPAT model. In 1994,

Dietz and Rosa (1994) reformulated the IPAT equation as STIRPAT— defined as the “Stochastic Impacts by Regression on Population, Affluence and Technology”. The objective of this model is to disaggregate P, A, and T and utilize regression analysis to test the relationships between Population, Affluence and Technology and Environmental Impacts. The STIRPAT equation takes the form  $I = aP^bA^cT^d e$ , where P, A, and T are included in a regression equation, and are modified based on statistical analysis, where variables a–d take the form of specific parameters or complex function (Dietz and Rosa 1994, 1997). As a result, York, Dietz and Rosa (2002) maintain that the STIRPAT model can be used “to test hypotheses and develop a more sophisticated and subtle analysis than can be done with the original  $I = PAT$  formulation.” In the application of the STIRPAT model, T (Technology) represents “not just physical infrastructure but also social and economic organization, culture, and all factors whose effects are not captured by population and affluence (Dietz and Rosa 1997: 177).” Since there is no clear empirical measure of T, the value of this independent variable is typically included in the error term. With T left out of the model, this allows for the entry of additional factors (such as social or ecological variables) that are not included in Population or Affluence to be entered into the equation. Thus the final equation takes the general form: Environmental Impact (I) = a + B<sub>1</sub>(Population) + B<sub>2</sub>(Affluence) + B<sub>3</sub> (Other Variables) + e

There have been a series of empirical tests and elaboration of this model (Dietz and Rosa 1994, 1997, Rosa 1997). These analyses take the form of a statistical analysis utilizing historical or cross-sectional data to assess the relationships between Environmental Impacts and the “Driving Forces” of environmental degradation (Fischer-Kowalski and Amann 2001: 9-10). Some of the key findings show: (1) a declining rate of CO<sub>2</sub> emission increases per capita in countries with a GDP over \$10,000 (Dietz and Rosa 1997), (2) considerable nonlinearity in the impacts of changes in population and affluence on energy use and CO<sub>2</sub> emissions (Mazur 1994, Shi 2003, York, Rosa, and Dietz 2003b, Waggoner and Ausubel 2002), and (3) significantly different contributions of population, affluence, or technology depending on the nature of the environmental degradation – e.g. toxic chemical production is a function of technology change, where as impacts of food production are highly related to population changes (York, Rosa, and Dietz 2002). Additionally, variations of the IPAT model have been applied toward understanding CO<sub>2</sub> impacts at the local level (Soule and Dehart 1998). Recently, the STIRPAT model has been expanded to assess the validity of ecological modernization (York and Rosa 2003, York, Rosa and Dietz 2003a, 2003c), and the factors that influence motor vehicle use and their associated environmental impacts (York 2003). Additionally, further multi-national studies have shown that the major causes of greenhouse gas emissions and other environmental problems turn out to be economic growth and population, magnified by open trade policy and foreign investment in developing countries. Open trade allows for the movement of polluting industrial processes to pollution havens (York, Dietz, and Rosa 2003a, Jorgensen and Burns 2007, Dinda 2004, Jorgensen, Dick and Mahutga 2007). Additionally, what these empirical models show is virtually no empirical support for either ecological modernization, and many of the proximate causes identified by the natural sciences. Rather, the empirical evidence to date supports the treadmill of production approach most strongly.

### III. Drivers of Environmental Politics

To understand the unique factors that influence environmental politics requires the consideration of four key theoretical approaches. The first factor is the shifting political opportunities that frame environmental politics. Changes in political opportunities may have both a direct effect on policy and an indirect effect through facilitating and channeling the environmental movement. The second component focuses on the mobilization and activities of the environmental movement, including the formation of new environmental movement organizations (EMOs), their strategies and tactics, and their direct and indirect influences. Cultural dynamics comprise the third component of the framework. Media coverage and the environmental beliefs of both elites and the public have impacts on both the environmental movement and its activities, as well as on environmental policy. Finally, environmental politics is deeply impacted by the condition of the natural environment, especially in the form of major environmental incidents. Together, these four areas exercise critical and unique influences on the dynamics of environmental politics.

#### IIIA. Political Opportunity Structure

One of the key influences on environmental politics is the enduring split between Democratic and Republican elites. As Dunlap, Xiao, and McCright (2001) shows, there has been a continuous and increasing divergence on environmental issues between the Democratic and Republican parties over the last three decades. Thus shifts in party control have major influences on the legislative success of the environmental movement (Rubin et al. 1983; Issac and Christensen 2002; Minkoff 1997; Jenkins, Jacobs and Agnone 2003). A second factor driving environmental politics are third party challengers. In a forthcoming analysis (Jenkins, Boughton, Carmichael, and Brulle 2008), 3<sup>rd</sup> party votes in Presidential elections are a key contributor to the formation of new EMOs, indicating the mobilization of a significant segment of the population that is alienated from the major political parties.

A compliment to influential allies or external support is the extent of opposition encountered by a social movement. Some advance the thesis that movements respond to political threats, i.e. “the costs that social groups will

incur from protest, or that it expects to suffer if it does not take action” (Goldstone and Tilly 2001: 183). In the case of the environmental politics, one major factor is a strong countermovement mobilization (Meyer and Staggenborg 1996:1632, Gale 1986: 207, Pichardo 1995). Over the past century, a number of short-lived anti-environmental countermovements have mobilized (Short 1989: ix, Brulle 2000 119-129). These included: (1) demonstrations against the development of the national forests from 1891-1914 (Robbins 1962: 316, Maughan & Nilson 1993:2, Richardson 1962: 36-40, 155), (2) protests over grazing fees in the Stanfield Rebellion (1925-1934), and McCarran Protests (1941-1946) (Cawley 1993, Maughan & Nilson 1993 Clepper 1966: 140, Graf 1990: 166), and (3) the attack on Silent Spring in 1962 (Brulle 2000: 123-124). The nature of the countermovement quantitatively and qualitatively shifted in the late 1970s with the development of the “Sagebrush Rebellion.” (Shabercoff 1993: 164). The agenda remained the same, as previous countermovements, (Graf 1990: 228, Short 1989: 15, Cawley 1993:103). However, in distinction to previous countermovements, this phase resulted in a number of new countermovement organizations (Graf 1990: 243). The Sagebrush Rebellion expanded and gave birth to a larger organized countermovement in the late 1980's know as the "Wise Use Movement" (Cawley 1993: 166, Knox 1990, O'Callaghan 1992, Stapleton 1993, Helvarg 1994:9). This movement continued to expand in the 1990's, and is now a potent political force (Brick and Cawley 1996: 7, Canan and Pring 1988, Helvarg 1994, Grumbine 1994, Austin 2002).

### IIIB. The Environmental Movement

The second component focuses on the activities of the environmental movement. Movements can have both direct and indirect effects on environmental policies. For the environmental movement, this impact is dependent on the levels of foundation funding, organizational governance characteristics, and activities of the movement. First, the environmental movement is heavily influenced by foundation funding. Since the late 1950s, foundations have provided critical startup funding and currently roughly a quarter of the annual budgets of the major environmental organizations (Godwin and Mitchell 1984: 837; Johnson 1998; Jenkins and Halcli 1998). Brulle (2000: 256) shows that foundation grants were the second largest source of income (between 22 and 29% of total income) for the major environmental EMOs in the mid-1990s. Brulle and Jenkins (2005) shows that most foundation funding goes to the moderate organizations that use the traditional discourses of conservation, preservation, and mainstream liberal environmentalism. Although the total pool of environmental funding has grown rapidly almost fivefold per decade since the 1970s, it has been concentrated on a relatively small number of large EMOs involved in political advocacy work. The impact of this funding has been to channel the environmental movement into more moderate discourses and conventional forms of action. While there are notable cases of foundations attempting to directly control movement activities, the general pattern is a more indirect process of creating incentives for specific discourses, styles of organization, and tactics, thereby drawing the movement into the institutional system. A typical case is the conversion of the tropical forest products boycott organizations into sustainable forest products monitoring (Bartley 2007). Under pressure from the boycott, Home Depot and other forest product marketers met with Pew Foundation officials and boycott leaders to develop a new system for monitoring the sustainability of tropical forest production. Pew then worked with other foundations to legitimize this new system of monitoring, bringing a disruptive boycott to a close and instituting a new system of tropical forest production.

Additionally, little environmental funding goes to participatory membership associations, meaning that instead of being governed by citizens, the environmental movement has become increasingly controlled by foundations that represent large corporate wealth and rationalized power in the American political economy. Most are professional movement organizations with at most a “paper” membership of direct mail contributors who lack participatory mechanisms. The role of the so-called members is to be donors, not participants who actively guide organization programs and activities. Decision making is concentrated in the hands of the staff and board, who are largely self-selecting and autonomous from member control. Critics argue that this blunts the potential impact of movements, promotes nonparticipatory civic organizations and limits the range of viewpoints represented in the public arena (Skocpol 1999; Brulle 2000).

**Environmental Movement Tactics**

<b>Tactic</b>	<b>Percent Distribution</b>
Public Opinion and Media Advocacy	86%
Political Advocacy	28%
Support Services	42%
Physical Activities	22%
Community Organizing	21%
Protest	2%

**Table 3**

The final area 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. In a forthcoming analysis Jenkins Boughton, Brulle and Carmichael (2008) show the distribution of movement tactics provided above in Table 3.

As this table shows, protest actions are only engaged in by 2% of environmental movement organizations. The largest component is spent on general public environmental education. This is followed by the provision of support services to the other components of the environmental movement. Political advocacy is the third most common activity. What is unique about the environmental movement is that a large number of movement organizations engage in physical activities to improve the environment. Most notably are the activities of large environmental land trusts, which aim to improve the environment by buying and preserving land. Another major activity engaged in by environmental movement organizations is the planting of trees to combat deforestation. This is a unique activity that is not usually found in any other social movement.

### **IIIC. Cultural Dynamics of Environmental Politics**

To examine the specific dynamics of environmental politics, it is necessary to consider the cultural dynamics of the rise and fall of environmental issues. The cultural approach to environmental politics (Melucci 1989, 1996; Rochon 1998; Zald 2000; Williams 2004; Snow 2004) emphasizes the creation and dissemination of new worldviews, the development and structuring of social movements based on these alternative worldviews, and the competition of these movement worldviews with dominant worldviews for cultural hegemony. Specifically, 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). 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. As Rochon (1998:22) argues, the key process is the creation of a new alternative worldview displaying “sensitivity to some problem, an analysis of the sources of the problem, and a prescription for what should be done about the problem.” This alternative worldview and its dissemination by a movement is a critical condition for the collective perception of a social problem. Without the language to define and evaluate problems, potential grievances and opportunities/threats are ignored. For example, in 1966, a serious nuclear accident at the Fermi nuclear reactor in Detroit stirred neither protest nor public demands for closer regulation (Gamson and Modigliani 1989). Thirteen years later when the Three Mile Island nuclear accident occurred, the local response in terms of protests and demands for shutting down the nuclear reactor was prompt and widespread (Walsh 1988), reflecting the intervening changes in environmental frames.

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). Thus the environmental movement is unique in the critical role that environmental scientists play in the development and promulgation of environmental issues.

### **IIID. Environmental Conditions**

For the most part, environmental politics are driven by large long term trends in economic development, demographic change, and the slow degradation of natural systems. The response to the deterioration of the natural environment tends to be incremental and piecemeal. A traditional explanation that has been advanced for environmental policy shifts is the classic “grievance” or “strain” thesis. 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. In this sense, the environmental movement is very similar to other social movements.

However, one unique characteristic of environmental politics is the policy impact of dramatic incidents. Unlike most social movements, environmental conditions can create large scale incidents that have the power to shift environmental politics. In the U.S, there have been a number of significant environmental incidents that led to rapid changes in environmental policy. These events, such as the Exxon Valdez oil spill, the Three Mile Island and Chernobyl nuclear accidents, and the Love Canal Toxic Waste site incident, all catalyzed public and policy concern, and greatly accelerated policy action in these areas (Leiserowitz, Kates and Parris 2006: 50).

A key framework in examining these events is the notion of punctuated equilibrium developed by Baumgartner & Jones (1993, Repetto 2006). The core idea of their model is that the U.S. policy system is characterized by relatively stable relations, with intermittent shifts in both the nature of the policy discussion and the venue in which the political process takes place. A punctuated equilibrium refers to the situation in which the ways an issue is characterized in the mass media shifts, and new political venues are created in response to these shifting public concerns (Gormley 2007, Baumgartner & Jones 1993, Bosso 1987). For example, 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 and Chernobyl stirred considerable protest and mobilization in the 1980s (Gamson and Modigliani 1989). This was due to a reframing of nuclear incidents as potentially catastrophic in nature.

In his analysis of environmental disasters and their impact on the policy process, Birkland (2006: 168) centers on the concept of focusing events. He defines focusing events as large disasters that “change the salience of issues and sometimes replace indicator-based analyses with much more emotionally charged examples of policy failure and the need for reform (Birkland 2006:168).” His empirical analyses show that focusing events draw increased attention to a problem. However, “increased attention is a necessary, but not sufficient, condition for event-related policy change (Birkland 2006:180, 1997).” Rather, the increased attention creates a window of opportunity in which political actors can mobilize for new policy directions.

The news coverage of an event generally focuses on the scope, extent of visible and tangible harm, and the novelty of the event (Birkland 1997: 31-32). Under certain conditions, this event can develop into a longer-term reaction in the policy making community. The response of the political community is dependent on two factors. First is the degree to which the pro-change community is organized. “If no group exists to react to the event, the event will fail to gain more than passing attention (Birkland 1997:43).” Thus without an organized institutional advocacy component, the window of opportunity created by a focusing event can pass without any significant policy change. Secondly, the degree of polarization in the policy community impacts the extent of policy change. As Birkland (1997: 39) notes: “The most polarized communities will find that events have relatively little influence on the overall trend in policy. A greater extent of polarization results in a vigorous defense of a coalition’s core beliefs, even in the face of a highly dramatic event.” However, if the pro-change community is well organized, and the policy community is not highly polarized, focusing events can lead to a process of event related learning, in which new ideas and information are applied to environmental policy decisions and greater potential for policy change (Birkland 1997: 134, 2006: 22).

#### **IV. Conclusion**

Thus environmental politics has several unique characteristics that make its analysis significantly different from most policy fields. First, environmental politics does not center on a single discursive frame. Rather, it has multiple discursive frames that define distinct fields of interaction. Secondly, there are competing notions of what constitutes the driving forces of environmental degradation, which results in different political approaches that are adopted by distinct communities to forward their particular interests in the adoption of environmental policies. Finally, there are several characteristics of environmental politics that make its study unique. This includes: a large foundation presence, a well developed counter-movement, the importance of science in defining environmental issues, and the potential for dramatic incidents to shift environmental policies. Together, these factors overlay the traditional approaches to the study of politics. A combined approach that recognizes both the common and unique factors that comprise environmental politics offers the best approach for scholarship on this topic.

#### **References**

- Agnone, Jon. 2007. “Amplifying Public Opinion: The Policy Impact of the U.S. Environmental Movement.” Social Forces. 85:1593-1620.
- Austin, A. 2002 Advancing Accumulation and Managing its Discontents: The U.S. Anti-environmental Countermovement Sociological Spectrum 22: 71-105
- Ayers, R.U., Ayres, L.W., and Warr, B. 2004. Is the U.S. Economy Dematerializing? Main Indicators and Drivers, pp. 57-93 in Bergh, CJM van den, and Janssen, M.S. 2004. Economics of Industrial Ecology: Materials, Structural Change, and Spatial Scales. MIT Press: Cambridge, MA

- Bäckstrand, K. and Löfbrand E. 2007. Climate Governance Beyond 2012: Competing Discourses of Green Governmentality, Ecological Modernization and Civic Environmentalism”, pp. 123-148 in Pettenger, M.E. (ed.) The Social Construction of Climate Change: Power, Knowledge, Norms, Discourses. Ashgate, Hampshire UK
- Barber, Benjamin. 1984. Strong Democracy Berkeley: University of California Press
- Bartley, T. 2007. How Foundations Shape Social Movements: The Construction of an Organizational Field and the Rise of Forest Certification. Social Problems. August 2007, Vol. 54, No. 3, Pages 229–255
- Baumgartner, F.R., and Jones, Bryan D. 1993. Agendas and Instability in American politics. University of Chicago Press
- Benford, R. D. & Hunt, S. A. 1992. Dramaturgy and social movements: The social construction and communication of power. Sociological Inquiry, 62(1), 36-55.
- Benford, R. D. & Snow, D. A. 2000. Framing processes and social movements: An overview and assessment. Annual Review of Sociology, 26, 611-639.
- Benford, R. D. 1993. Frame disputes within the nuclear disarmament movement. Social Forces, 71, 677-701.
- Benford, Robert D., and Snow, David A. 2000. “Framing Processes and Social Movements: An Overview and Assessment.” Annual Review of Sociology 26 611-639
- Berkes, Fikret and Folke, Carl 1998. Linking social and ecological systems for resilience and sustainability, pp. 1-29 in Berkes, Fikret and Folke, Carl (eds.) 1998. Linking Social and Ecological Systems: Management Practices and Social Mechanisms for Building Resilience New York: Cambridge University Press
- Bernstein, S. 2001. The Compromise of Liberal Environmentalism. Columbia University Press: New York
- Birkland, Thomas A. 1997. After Disaster: Agenda Setting, Public Policy, and Focusing Events. Georgetown University Press, Washington DC
- Birkland, Thomas A. 2006. Lessons of Disaster: Policy Change after Catastrophic Events. Georgetown University Press, Washington DC
- Bittner E. 1965. "The Concept Of Organization." reprinted on 69-82 in Turner, Roy. 1974. Studies in Ethnomethodology. Baltimore: Penguin.
- Blühdorn, I. 2000. Post-ecologist Politics: Social Theory and the Abdication of the Ecologist Paradigm. Routledge
- Bosso, Christopher J. 1987. Pesticides and Politics: The Life Cycle of a Public issue. University of Pittsburgh Press, Pittsburgh PA
- Brechin, S.R. 2003. Comparative public opinion and knowledge on global climatic change and the Kyoto Protocol: the U.S. versus the world? International Journal of Sociology and Social Policy 23(10) 106-134
- Brick, P., and R. Cawley. 1996. Knowing the wolf, tending the garden. In A Wolf in the Garden, ed. Brick and Cawley. Rowman and Littlefield.
- Brown, R.H. 1978. "Bureaucracy As Praxis: Toward A Political Phenomenology Of Formal Organizations." Administrative Science Quarterly 23(September): 365-382.
- Brulle RJ, Jenkins JC. 2005. Foundations and the environmental movement: priorities, strategies, and impact. In Foundations for Social Change: Critical Perspectives on Philanthropy and Popular Movements, ed. D Faber, D McCarthy, pp. – 74. New York: Rowman & Littlefield
- Brulle RJ. 2000. Agency, Democracy, and Nature: The U.S. Environmental Movement from a Critical Theory Perspective. Cambridge, MA: MIT
- Brulle, Robert J. and J. Craig Jenkins. 2008. “Fixing the Environmental Movement” Contexts (spring).
- 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
- Bunker, Stephen G. 1984. “Modes of Extraction, Unequal Exchange, and the Progressive Underdevelopment of an Extreme Periphery: The Brazilian Amazon, 1600–1980.” American Journal of Sociology, 89(5):1017–1064.
- Bunker, Stephen G. 1985. Underdeveloping the Amazon: Extraction, Unequal Exchange, and the Failure of the Modern State. Urbana, IL: University of Illinois Press.
- Burns, Thomas J., Edward L. Kick, David A Murray, and Dixie A. Murray. 1994. “Demography, Development and Deforestation in a World-System Perspective.” International Journal of Comparative Sociology, 35(3–4):221–239.
- Buttel, Frederick H. 2000 Ecological Modernization As Social Theory Geoforum 31, 57-65
- Canan, Penelope, and George W. Pring. 1988. Strategic lawsuits against public participation. Social Problems 35: 506–519.
- Cantor, Robin, and Yohe, Gary 1998. Economic Analysis: Chapter One, Volume 3, in Rayner, Steve and Malone, Elizabeth (eds.) 1998. Human Choice and Climate Change. Columbus OH. Battelle Press
- Carmin, JoAnn, and Balser, Deborah, 2002. Selecting Repertoires of Action in Environmental Movement Organizations: An Interpretive Approach. Organization and Environment 15(4).
- Carson, Rachel. 1962. Silent Spring. Boston: Little & Brown.
- Cawley, R. McGregor. 1993. Federal Land, Western Anger: The Sagebrush Rebellion and Environmental Politics. University Press of Kansas.
- Clark, B. 2002. The Indigenous Environmental Movement in the United States, Organization and Environment 15:4, 410-442
- Clepper, Henry. 1966. Origins of American Conservation. Ronald.

- Crenshaw, Edward M, and Jenkins, J. Craig 1996 Social Structure and Global Climate Change: Sociological Propositions Concerning the Greenhouse Effect. Sociological Focus 29:341-358
- Dalton, R., Recchia, S., and Rohrschneider, R. 2003. The Environmental Movement and the Modes of Political Action Comparative Political Studies 36:7, 743-771
- Dalton, Russell. 1994. The Green Rainbow: Environmental Groups in Western Europe. New Haven, Ct.: Yale University Press.
- Dana, S. T., and S. K. Fairfax. 1980. Forest and Range Policy: It's Development in the United States. McGraw-Hill: New York
- DeSombre, B. 2000. Domestic Sources of international Environmental Policy; Industry, Environmentalists, and U.S. Power. MIT Press
- Diani, M. 2000. The relational deficit of ideologically structured action. Mobilization 5(1), 17-24.
- Dietz, Thomas and Eugene A. Rosa. 1994. "Rethinking the Environmental Impacts of Population, Affluence and Technology. Human Ecology Review. 1.2:277-300.
- Dietz, Thomas and Eugene A. Rosa. 1997. "Effects of Population and Affluence on CO2 Emissions. Proceedings of the National Academy of Sciences, USA. 94: 175-179.
- Dietz, Thomas and Rosa, Eugene A. 2002. Human Dimensions of Global Environmental Change, Chapter 12, pp. 370-406 in Dunlap, Riley E., and Michelson, William (eds.) Handbook of Environmental Sociology, Westport CT: Greenwood Press
- Dinda, Soumyananda. 2004. "Environmental Kuznets Curve Hypothesis: A Survey." Ecological Economics 49:431-455.
- Douglas, M., Gasper, D., Ney, S., and Thompson, M., 1998. Human Needs and Wants, pp. 195-263 in Rayner, S., and Malone, E. (eds.) 1998. Human Choice and Climate Change. Battelle Press: Columbus Ohio
- Dreiling, M., and Wolf, B. 2001. Environmental Movement Organizations and Political Strategy, Organization and Environment 14:1 34-54
- Dunlap, R.E. 1993 "From Environmental to Ecological Problems" 707-738 in Calhoun and Ritzer (eds.), Social Problems
- Dunlap, Riley E. and Angela G. Mertig. 1995. "Global Concern for the Environment: Is Affluence a Prerequisite?" Journal of Social Issues 51:121-137.
- Dunlap, Riley E. and Richard York. "The Globalization of Environmental Concern and the Limits of the Post-Materialist Explanation: Evidence from Four Cross-National Surveys." Sociological Quarterly 49: In press.
- Dunlap, Riley E., Chenyang Xiao and Aaron M. McCright. 2001. "Politics and Environment in America: Partisan and Ideological Cleavages in Public Support for Environmentalism." Environmental Politics 10:23-48.
- Egan, M. 2007. Barry Commoner and the Science of Survival: The Remaking of American Environmentalism. MIT Press: Cambridge MA
- Ehrlich, Paul R. and John P. Holdren. 1971. "Impact of Population Growth." Science 171:1212-1217.
- Fiorina, M.P., and Skocpol, Theda. 1999, Civic Engagement in American Democracy. Brookings Institution Press
- Fischer-Kowalski, M. and Amann, C. 2001. Beyond IPAT and Kuznets Curves: Globalization as a Vital Factor in Analyzing the Environmental Impact of Socio-Economic Metabolism. Population and Environment 23(1) 7-47
- Fisher, D.R., and Freudenberg, W.R. 2004. Postindustrialization and Environmental Quality: An Empirical Analysis of the Environmental State Social Forces 83:1, 157-188
- Forsyth, Tim 2003. Critical Political Ecology: The Politics of Environmental Science New York: Routledge
- Frey, R. Scott. 1995. "The International Traffic in Pesticides." Technological Forecasting and Social Change 50:151-169.
- Frey, R. Scott. 1998. "The Hazardous Waste Stream in the World-System." Pp. 84-103 in Space and Transport in the World-System, edited by Paul Ciccantell and Stephen G. Bunker. Westport, CT: Greenwood Press.
- Fung, Archon, 2003. Associations and Democracy: Between Theories, Hopes, and Realities, Annual Review of Sociology 29
- Gale, Richard. 1986. Social Movements and the State: The Environmental Movement, Countermovement, and Government Agencies. Sociological Perspectives 9, no. 2
- Gamson, William 1991. "Commitment and Agency in Social Movements", Sociological Forum 6:27-50.
- Gamson, William and Andre Modigliani. 1989. .Media Discourse and Public Opinion on Nuclear Power.. American Journal of Sociology 95:1-37.
- Glover, Leigh. 2006. Postmodern Climate Change Routledge: New York
- Godwin, R. Kenneth, and Mitchell, Robert Cameron, 1984, "The Implications of Direct Mail for Political Organizations." Social Science Quarterly 65:829-839.
- Goldstone, Jack and Charles Tilly. 2001. .Threat (and Opportunity).. Pp. 179-194 in Ronald Aminzade, Jack Goldstone, Doug McAdam, Elizabeth Perry, William Sewell, Sidney Tarrow and Charles Tilly, eds. Silence and Voice in the Study of Contentious Politics. N.Y.: Cambridge University Press.
- Gormley, W.T. 2007. Public Policy Analysis: Ideas and Impacts. Annual Review of Political Science 10: 297-
- Gould KA, Schnaiberg A, Weinberg 1996. Local Environmental Struggles: Citizen Activism in the Treadmill of Production. Cambridge, UK: Cambridge Univ. Press
- Graf, William L. 1990. Wilderness Preservation and the Sagebrush Rebellions. Rowman and Littlefield.
- Grumbine, R. E. 1994. .Wildness, Wise Use, and Sustainable Development.. Environmental Ethics 16: 227.249

- Habermas, Jürgen 1975. Towards a reconstruction of historical materialism. Theory and Society 3(1) 287 – 300.
- Habermas, Jürgen. 1996. Between Facts and Norms: Contributions to a Discourse Theory of Law and Democracy. MIT Press
- Hajer, M 1995. The Politics of Environmental Discourse: Ecological Modernization and the Policy Process Oxford University Press, Oxford
- Hastie, J. 2007. The Role of Science and Scientists in Environmental Policy. pp. 519-535 in Pretty, J., Ball, A.S., Benton, T. Guivant, J.S., Lee, D.R., Orr, D., Pheffer, M.J., and Ward, H. The Sage Handbook of Environment and Society. Sage: Los Angeles
- Helvarg, David. 1994. The War against the Greens: The .Wise-Use. Movement, the New Right, and Anti- Environmental Violence. Sierra Club.
- Inglehart, Ronald and Christian Welzel. 2005. Modernization, Cultural Change and Democracy. N.Y.: Cambridge University Press.
- Inglehart, Ronald. 1990. Culture Shift in Advanced Industrial Society. Princeton, NJ: Princeton University Press.
- Inglehart, Ronald. 1997. Modernization and Postmodernization. Princeton, N.J.: Princeton University Press.
- Intergovernmental Panel on Climate Change 2000. Special Report on Emissions Scenarios Cambridge University Press, Cambridge, UK
- Issac, Larry and Lars Christiansen. 2002. .How the Civil Rights Movement Revitalized Labor Militancy.. American Sociological Review 67:722-746.
- Jenkins, J. C., H. Boughton, J. Carmichael and R. Brulle. 2007. "When Does Protest Matter? The Environmental Movement and Environmental Policy, 1971-2001." Paper presented at American Sociological Association meetings, New York, August 2007.
- Jenkins, J. Craig and Abigail Halcli. 1999. "Grassrooting the System? Recent Trends in Social Movement Philanthropy, 1953-1990 Pp. 277-299 in Ellen Condliffe-Lageman (ed.) Studying Philanthropic Foundations. Bloomington, IN: University of Indiana Press.
- Jenkins, J. Craig, David Jacobs and Jon Agnone. 2003. .Political Opportunities and African-American Protest, 1947-1997. American Journal of Sociology
- Johnson, Paul E. 1998 Interest Group Recruiting: Finding Members and Keeping Them In Cigler, A.J., and Loomis, B.A. Interest Group Politics, Congressional Quarterly Press: Washington DC
- Jorgenson, Andrew K. and Thomas J. Burns. 2007. "The Political-Economic Causes of Change in the Ecological Footprint of Nations, 1991-2001." Social Science Research 36:834-53.
- Jorgenson, Andrew K., Christopher Dick, Matthew C. Mahutga. 2007. "Foreign Investment Dependence and the Environment: An Ecostructural Approach." Social Problems 54:371-394.
- Kick, Edward L., Thomas J. Burns, Byron L. Davis, David A. Murray, and Dixie A. Murray. 1996. "Impacts of Domestic Population Dynamics and Foreign Wood Trade on Deforestation: A World-System Perspective." Journal of Developing Societies, 12(1):68–87.
- Knoke, David. 1990. Political Networks. N.Y.: Cambridge University Press
- Knox, Margaret L. 1990. .The Wise Use Guys. Buzzworm 2, no. 6: 30.36.
- Lankard, A., and McLaughlin, W. 2003. Marketing an Environmental Issue: A Case Study of the Wilderness Society's Core Message to Promote national Forest Conservation from 1964 to 2000, Society and Natural Resources 16:5, 415-434
- Leiserowitz, A., Kates, Robert, and Parris, T. 2006. Sustainability Values, Attitudes, and Behaviors: A Review of Multinational and Global Trends. Annual Review of Environment and Resources. 31:413–44
- Lounsbury, Michael, Marc Ventresca and Paul M. Hirsch. 2003. .Social Movements, Field Frames and Industry Emergence. Socio-Economic Review 1:71-104.
- Maniates, M. 2002. Individualization: Plant a Tree, Buy a Bike, Save the World? Pp. 43-66 in Princen, T. Maniates, M. and Conca, K. (eds). 2002. Confronting Consumption MIT Press: Cambridge MA
- Maughan, Ralph, and Douglas Nilson. 1993. .What.s Old and What.s New About the Wise Use Movement.. Presented at Western Social Science Association Convention.
- Mazur, Allan. 1994. "How Does Population Growth Contribute to Rising Energy Consumption in America?" Population and Environment 15:371-378.
- Melucci, Alberto. 1989. Nomads of the Present Philadelphia, PA: Temple University Press.
- Melucci, Alberto. 1996. Challenging Codes. N.Y.: Cambridge University Press.
- Meyer, David S., and Suzanne Staggenborg. 1996. .Movements, Countermovements, and the Structure of Political Opportunity. American Journal of Sociology 101:1628-60.
- Millennium Ecosystem Assessment (MEA) 2005. Ecosystems and Human Well-being: A Framework for Assessment. Island Press, Washington DC
- Minkoff, Debra. 1997. The Sequencing of Social Movements. American Sociological Review 62:779- 799.
- Mishra, V., O'Neill, B, Prakash, S., and Wexler, L. 1998. Population and Climate Change, pp. 89-194 in Rayner, S., and Malone, E. (eds.) 1998. Human Choice and Climate Change. Battelle Press: Columbus Ohio

- Mol, A.P. 2001. Globalization and Environmental Reform: The Ecological Modernization of the Global Economy. MIT Press: Cambridge MA
- Mol, Arthur and Sonnenfeld, D. 2000. Ecological Modernization Around the World - Introduction Environmental Politics (9)1: 3-16 Spring 2000
- Murphy, J. 2000. Editorial: Ecological Modernisation Geoforum 31: 1-8
- National Research Council 1992. Global Environmental Change: Understanding the Human Dimensions Washington DC: National Academy Press
- O'Callaghan, Kate. 1992. Whose agenda for America? Audubon Magazine, September-October
- O'Connor, James. 1973. The Fiscal Crisis of the State. Blackwell.
- O'Connor, James. 1984. Accumulation Crisis. Blackwell.
- O'Connor, James. 1987. The Meaning of Crisis. Blackwell.
- Oelschlaeger, Max. 1991. The Idea of Wilderness: From Prehistory to the Age of Ecology, New Haven: Yale.
- Pichardo, Nelson A. 1995., The power elite and elite-driven countermovements: The Associated Farmers of California during the 1930s. Sociological Forum 10, no. 1
- Putnam, Robert D. 2000. Bowling Alone. NY: Simon and Schuster.
- Repetto, Robert (ed). 2006. Punctuated Equilibrium and the Dynamics of U.S. Environmental Policy. Yale University Press: New Haven CT
- Richardson, Elmo R. 1962. The Politics of Conservation: Crusades and Controversies 1897 - 1913. University of California Press.
- Robbins, Roy M. 1962. Our Landed Heritage: The Public Domain, 1776 - 1936. University of Nebraska Press.
- Rochon, Thomas R. 1998. Culture Moves. Princeton, N.J.: Princeton University Press.
- Rootes, Christopher. 2004. .Environmental Movements.. Pp. 608-40 in D. A. Snow, S. A. Soule, H. and Kriesi (eds.) The Blackwell Companion to Social Movements. Oxford U.K.: Blackwell.
- Rosa, Eugene A. 1997 "Cross-National Trends in Aggregate Consumption, Societal Well-Being and Carbon Releases." Pp. 100-109 in Environmentally Significant Consumption: Research Directions. The National Research Council/National Academy of Sciences. Washington, DC: National Academy Press.
- Rubin, Beth, Larry Griffin and Michael Wallace. 1983 Provided That Their Voice Was Strong Work and Occupations. 10: 325-347.
- Schnaiberg A, Gould K. 1994. Environment and Society: The Enduring Conflict. New York: St. Martin
- Schnaiberg A. 1980. The Environment: From Surplus to Scarcity. New York: Oxford Univ. Press
- Sewell, William H. 1992 A Theory of Structure: Duality, Agency, and Transformation. American Journal of Sociology 98(1) 1-29
- Shabecoff, Philip. 1993. A Fierce Green Fire: The American Environmental Movement. Hill and Wang.
- Shi, Anqing. 2003. "The Impact of Population Pressure on Global Carbon Dioxide Emissions: Evidence from Pooled Cross-Country Data." Ecological Economics. 44:24-42.
- Short, Brant. 1989. Ronald Reagan and the Public Lands. Texas A&M University Press.
- Skocpol, Theda. 1999 Advocates without Members. In Fiorina, Morris P. and Skocpol, Theda, eds. Civic Engagement in American Democracy. Washington, D.C.: Brookings Institution Press
- Snow, David A., Daniel M. Cress, Liam Downey, and Andrew W. Jones. 1998. .Disrupting the .Quotidian... Mobilization 3:1-22.
- Soule, S. and S. Olzak. 2007. "The Cross-Cutting Influences of Environmental Protest and Legislation." Paper presented at the American Sociological Association meetings, New York, August 2007.
- Spaargaren, G. (1997), The Ecological Modernization of Production and Consumption. Essays in Environmental Sociology. Wageningen: WAU
- Spaargaren, G. and A.P.J. Mol (1992), 'Sociology, Environment and Modernity: Ecological Modernisation as a Theory of Social Change', Society and Natural Resources 5, 4, pp.323-344
- Spillman, Lyn 1995. Culture, Social Structures, and Discursive Fields, Current Perspectives in Social Theory 15:129-154
- Stapleton, Richard M. 1992. Greed vs. Green. National Parks Magazine, November-December.
- Stern, David I. (2004) 'The Rise and Fall of the Environmental Kuznets Curve', World Development 32:8 1419-1439.
- Torgerson, Douglas. 1995. The uncertain quest for sustainability: Public discourse and the politics of environmentalism. In Greening Environmental Policy, ed. F. Fischer and M. Black. St. Martins Press.
- Tschinkel, V.J. 1989. The Rise and Fall of Environmental Expertise. Pp. 159-166 in National Research Council. Technology and the Environment. National Academy Press: Washington D.C.
- Waggoner, P E; Ausubel, J H A framework for sustainability science: A renovated IPAT identity Proceedings of the National Academy of Sciences of the United States of America. 99, no. 12, (2002): 7860 (6 pages)
- Walsh, Edward. 1988. Democracy in the Shadows. N.Y.: Greenwood.
- Williams, Rhys H. 2004. .The Cultural Contexts of Collective Action: Constraints, Opportunities, and the Symbolic Life of Social Movements.. Pp. 89-115 in D. A. Snow, S. A. Soule, and H. Kriesi (eds.). The Blackwell Companion to Social Movements. Oxford UK: Blackwell.

- Wright E. O. 2004. Interrogating the Treadmill of Production: Some Questions I Still Want to Know about and Am Not Afraid to Ask. Organization and Environment 17(3) 317-322
- York, Richard 2003. Cross-National Variation in the Size of Passenger Car Fleets: A Study in Environmentally Significant Consumption Population and Environment 25, no. 2 (2003): 119-140
- York, Richard and Eugene A. Rosa. 2003. "Key Challenges to Ecological Modernization Theory: Institutional Efficacy, Case Study, Evidence, Units of Analysis, and Pace of Eco-Efficiency." Organization and Environment. 16:273-288.
- York, Richard, Eugene A. Rosa and Thomas Dietz. 2002. "Bridging Environmental Science with Environmental Policy: Plasticity of Population, Affluence and Technology." Social Science Quarterly. 83:18-34.
- York, Richard, Eugene A. Rosa and Thomas Dietz. 2003a. "Footprints on the Earth: The Environmental Consequences of Modernity." American Sociological Review. 68:279-300.\*
- York, Richard, Eugene A. Rosa and Thomas Dietz. 2003b. "STIRPAT, IPAT and ImPACT: Analytic Tools for Unpacking the Driving Forces of Environmental Impact." Ecological Economics. 46: 351-365.
- York, Richard, Eugene A. Rosa and Thomas Dietz. 2003c. "A Rift in Modernity? Assessing the Anthropogenic Sources of Global Climate Change with the STIRPAT Model." International Journal of Sociology and Social Policy. 23.10:31-51.
- Zald, Mayer N. 2000. Ideologically Structured Action: An Enlarged Agenda for Social Movement Research. Mobilization 5:1-16.