1

Introduction

> Not only do I think [that] individual efforts are *a drop in the bucket* – but that the cumulative effect of most environmental movement organizations is extraordinarily limited. What I think we need is a far MORE political effort, culminating in enduring political organizations and coalitions, to provide a predictable set of political incentives and penalties for political representatives who preach environmentalism and practice the expansion of production.
>
> Allan Schnaiberg (2007)

> Voluntary limits on consumption [produce] little more than "*a drop in the bucket*" compared to the huge flows of resources . . . [produced] by [changes in] public policy.
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> Fred Buttel (2003, 330)

Introduction: The Emotional Burdens of Global Environmental Change

These are emotionally difficult times for people who care about global environmental conditions. Report after report provides new evidence of global warming. Greenhouse gas emissions spew forth at accelerated rates from tailpipes all over the world. The prospect of global collective action seems conceivable, but very distant. A sense of frustration, and even despair, at the lack of action creeps into communications by concerned people. "Are words worthless in the climate fight?" asks Andrew Revkin (2007). Myriad reports end with the statement "Technically, it can be done. It is a question of will power" (Kerr 2012). Others talk about the "environmental endgame" (Nadeau 2006). College students characterize their environmental studies courses as "depressing." Plainly, the

ominous projections about global environmental change place an emotional burden on people who attend to them.

For very good evolutionary reasons, people tend to focus on the "here and now," and problems of climate in their most acute form have not had immediate effects on most of us. Temporally, "the sting is in the tail," decades from now when average temperatures will have risen two degrees or more (United Kingdom 2006). Spatially, scale mismatches buffer most humans from the consequences of their own actions. Human activities in the densely populated middle latitudes contribute to global warming, which manifests itself most forcefully in the sparsely populated high latitudes, thousands of miles away. Natural scientists refer to these links between physically separated activities as "teleconnections" (Philander 1990). Even when people acknowledge the connections between their daily activities and a changing global climate, the scale of the problem and the magnitude of the necessary transformations discourage people from taking action. As Tom Lowe writes (quoted in Revkin 2007),

> A common reaction to this stand-off is for risk communicators to shout louder, to try and shake some sense into people. This is what I see happening with the climate change message. The public are on the receiving end of an increasingly distraught alarm call. The methods used to grab attention are so striking that people are reaching a state of denial. This is partly because the problem is perceived as being so big that people feel unable to do anything about it.

Given the prevalent human focus on the "here and now," we often react to large problems only when they present themselves in our daily lives, and then we react by thinking about what we can do, either personally or locally, to counter the effects of these problems. In one observer's words, "there aren't global pathways of progress, but there is incessant local improvement" (Dennett 1995, 308). David Brower has tried to capitalize on this tendency in human behavior with his call to "think globally, but act locally." Many of these local actions, such as fighting to preserve a patch of woods or strengthen a school recycling program, represent efforts to preserve or clean up personal environments. When someone says, "I care about issues that are close to home; I care if it affects me personally; I care if it affects my children" (Eliasoph 2002, 130), she or he expresses defensive environmentalist sentiments. Defensive environmentalists participate in activities that benefit their immediate environment and sometimes the larger world. Do these activities address global environmental changes in efficacious ways? Brower's slogan would suggest that the answer is yes, but the pessimistic assessments cited above say no. This book says "maybe yes," but only when defensive environmentalists

combine with more altruistically oriented activists to produce moments of environmental reform.

Many people already have answers to questions about the global effects of local actions. The many scholarly efforts during the past two decades to understand the workings of local common property institutions testify to the potential that social scientists see in local environmental governance (Ostrom 1990, 2009). Paul Hawken (2007) estimates that worldwide there are now over one million local groups devoted to achieving a more socially just and environmentally sustainable future. Collectively, these groups constitute "global civil society." Federations of local groups exist in some instances, but in other instances group members are not organized beyond the level of the community. They do not profess a single ideology. Rather, they come together around practical ideas that promise to improve the local environment and, more questionably, to provide for social justice. Hawken believes that the members of these groups will in the near future transform our institutional logics in a more sustainable direction.

Lester Brown acknowledges the efforts of local groups but draws a different conclusion. In his words (Brown 2006, 265), "We have won a lot of local battles, but we are losing the war." Vigorous debates about the efficacy of local, voluntary responses fill e-mail inboxes. In an interchange on an environmental sociology listserv during the fall of 2007, several writers, somewhat diffidently, argued for the importance of local, voluntary actions, whereas others asserted, as in the quotations prefacing this chapter, that local actions usually represented a "drop in the bucket" in terms of what needs to be done to stem global environmental change. People of this persuasion argued that, given the existence of a world capitalist system that despoils the environment, only a concerted international effort to rein in global capitalism through reform or revolution could possibly achieve the magnitude of change necessary to address meaningfully the challenges of global warming, fisheries depletion, and biodiversity losses (Roberts 2007; Zavestoski 2007). Taken together, these debates paint a picture of some sustainable localities or practices set in an unsustainable global structure.

The recent history of recycling programs illustrates both the social logic that underlies a localized, defensive environmentalist posture and the overall pattern of environmental conservation. Mandatory municipal recycling programs have spread across a wide range of American communities during the past twenty years. At the same time, cities in China and Japan have begun recycling materials. In most of these instances, governments made recycling mandatory because they had run out of

space in the local landfills. The alternative to recycling, long-distance transport of waste to distant landfills, costs more money. People may have begun to recycle during the 1970s out of a generalized concern for the larger environment, an altruistic concern that would not produce personal benefits, but they continue to recycle in part because it removes waste from their houses and saves their communities money. From the twentieth to the twenty-first century recycling changed from an altruistic to a defensive environmentalist practice.

Do defensive environmentalist practices such as recycling move us in a sustainable direction? The answer to this question is not so clear in New Jersey. Many communities in the state ship their recycled cans and bottles to China for sorting. The recyclables go so far because, otherwise, the ships that bring Chinese manufactured goods to the northeastern United States would have nothing to take back to China. Recyclers in New Jersey are defensive environmentalists, but the routes followed by their recycled goods reflect the larger, unsustainable economic structure in which they are embedded.

To some degree, the naysayers in debates about the efficacy of local environmental actions must be right. If local, environmentally friendly actions were quite common and did scale up to address global environmental problems, then we would not be worrying about global environmental changes in the first place. The magnitude of these changes exceeds the remedial capacities of individuals and local groups. This conclusion does not, however, mean that local efforts are insignificant in the global arena. The successful scaling up of some local efforts may suggest effective strategies for environmental stabilization in other times or places. In this sense, a description of the historical circumstances in which local efforts do and do not scale up into significant reform efforts in the global arena has potentially important implications for political action. This book attempts to provide a preliminary accounting of the historical circumstances in which these local-to-global links occur. To do so, it draws upon the two lines of theorizing that run across the divide between natural and social sciences, one concerned with modular changes in the immediate environments of individuals and the other concerned with systemic changes in larger, coupled natural and human contexts.

Theoretical Approach to Understanding Local and Global Changes

Any explanation for environmental reform must navigate the treacherous theoretical waters of the nature–society binary. A long line of Social

Darwinist theorizing, stretching back into the nineteenth century, has ignored the divide between nature and human societies, most notoriously using theories of natural selection to explain stratification in human societies (Hofstadter 1944). More recently, and in part in response to Social Darwinist thinking, social scientists have erected disciplinary divides between nature and humans, insisting implicitly, if not explicitly, that humans are so exceptional that ecological processes do not apply to them. Environmental social scientists have countered that it would be more accurate to regard human societies as a special case of nature (Catton and Dunlap 1978). Viewed in these terms, environmental reforms could conceivably be understood as both social changes and ecological changes. The theoretical tools for explaining environmental reforms might, by extension, come from both social and ecological theories.

Despite the frequent assertions about the gulf that separates natural scientists from social scientists, many of them share a common intellectual point of departure in their research. They think, as Darwin did, in terms of variations across populations and through time (Mayr 1959; Sober 1980; McLaughlin 2012). To explain these differences in populations, scientists typically refer to genetic changes across generations or cultural shifts over shorter periods of time (Richerson and Boyd 2005). These similarities between social and ecological thinking about populations can be exploited heuristically for theoretical gains. A case in point involves waste. Social theorists have next to nothing to say about it, whereas ecological theorists have much to say about it. This discrepancy could mean that there are some important but overlooked social issues in this domain.

The following arguments about defensive environmentalists, altruistic environmentalists, and environmental reforms have two theoretical sources: the much-maligned grand narratives of the twentieth century and coupled natural and human systems theory. The grand narratives have teleological tendencies. They attribute purposive behavior to higher-level aggregates, so societies "progress" and ecosystems "mature." Despite these dubious assertions, the classical theorists deserve credit for asking important questions about the origins of readily observable historical changes such as fertility decline. How, then, do we explain the cluster of historical changes in humans and other organisms as their communities have become more populous and larger in scale over time? One explanation for many of these "close-to-home" changes could lie, broadly, in the growth in the volume of human activities. Put differently,

reformulated versions of the grand narratives could draw upon density-dependent processes to explain the emergence of defensive environmental practices. As the scale of human activities increased over the past two centuries, human households and communities tried to exert progressively more control over their close-to-home environments through the adoption of defensive environmental behaviors.

Two venerable theoretical traditions, one in sociology and the other in ecology, provide ways to understand the modular changes that occur in small clusters of human activity in households and communities when the scale and volume of human activities grow (Richerson 1977). Modernization theory, derived in part from the work of a nineteenth-century social theorist, Emile Durkheim, explains how, during the course of economic development, people became occupationally specialized and began living in greater numbers in densely populated places. City residents tried to control the use of neighboring spaces, the size of their households, the quality of their food, the amount of energy that they consumed, and the position of their neighbors in the emerging class system (Durkheim 1893). Waste disposal activities received no attention in modernization theory, but in other respects the theory would seem to explain numerous local-level efforts to improve the environment.

Early in the twentieth century, succession theorists in ecology began to outline an equally venerable line of thought about the ways in which vegetative communities change over time as they age. Like the modernization theorists, the ecologists argued that over time land uses diverge from place to place, reproductive strategies shift, and energy sources change. Unlike the social scientists, the ecologists expected waste disposal activities to become more salient in communities as they age (Clements 1916; Odum 1969). In theory, these changes reflect the outcomes of competitive processes that occur as these communities grow in size over the course of decades. Although the ecologists discussed changes in plants and the sociologists discussed changes in people, they described similar processes. In both instances, individuals responded to increases over time in the numbers and volume of neighbors by trying to control their immediate environments. These efforts gave rise to the defensive environmentalist practices described in this book.

Although theories of modernization and succession contribute to an understanding of localized, modular changes, a relatively new theoretical approach, coupled natural and human systems (CNH), clarifies the dynamics of environmental reforms in larger arenas. For more than a decade, groups of human and natural scientists have written manifestos

arguing for a coupled natural and human approach to the study of environmental problems (Liu et al. 2007a, 2007b), and interdisciplinary teams of researchers, funded through governments or large foundations, have initiated field studies using the CNH approach. The most distinctive feature of the CNH approach involves the objects for investigation. CNH studies focus on coupled changes in natural and human systems, on the interactions between changes in natural systems and changes in societies that over time transform both the natural environment and human societies.

The value of a CNH approach has become more apparent in recent years as the scale of human activities has increased and their effects on the natural world have become more visible. When human populations were small, poor, and itinerant, they had a few highly localized effects and little apparent aggregate effect on the larger natural world. In these instances, a CNH approach made little sense because, except in the very-small-scale settings investigated by ecological anthropologists (Vayda 1969), it usually was impossible to trace the effects of human activities on the natural world, and from there back to human societies. Large-scale natural systems had so much slack that the effects of human activities were absorbed into the natural system without apparent changes in its overall structure. Pumping fossil fuel up from subterranean cavities and burning it simply did not create severe enough environmental problems until the volume of burning became very large. Under these circumstances, it made no sense to try to follow the couplings between the natural and the human. The feedback effects from the one to the other were not visible frequently enough to follow.

As the scale of human enterprises grew with the world's population and with globalization, the coupled patterns of change became easier to follow. With the increase in the scale of human enterprises, the natural world had less slack to absorb the large-scale disturbances caused by humans, so humans induced visible changes in the natural world, which in turn had feedback effects on humans and on nature (Liu et al. 2007a). In this sense, one could talk about natural and human communities becoming more tightly coupled, with a reaction in one producing a response in the other. The resulting cascade of effects can best be explained through a CNH approach.

Large-scale events such as a drought in the southern plains of the United States or a hurricane in the Gulf of Mexico often set in motion the cascades of events that culminate in the environmental reform of large organizations. At the same time, more prosaic, local-level defensive

environmentalist sentiments, generated, for example, by federal legislators' exposure in Washington, DC, to the remnants of a Plains dust storm in 1934 (Brink 1951), can contribute to an unfolding reform dynamic. This combination of circumstances suggests that the political bases for large-scale environmental reforms emerge when widespread defensive environmental activities in localities coincide with tumultuous events in the larger system that trigger the expression of altruistic environmental sentiments and presage, at least theoretically, fundamental environmental reforms in the larger system.

The Plan for the Book

The following chapter outlines the theoretical argument. It begins by describing how human ecological succession should over time produce the defensive environmentalist postures that seem so prevalent in contemporary human communities. Then, it describes how coupled natural and human dynamics produce focusing events that, in their aftermath, make social movements and people with altruistic environmental sentiments more effective in larger political arenas. In at least some instances, these bursts of political activity, if supported by defensive environmentalists in localities, could lead to fundamental environmental reforms.

Seven empirical chapters follow. After an initial chapter on the globalization of human activity, five of these chapters use historical data on humans and natural resources, combined with a now-extensive case study literature, to outline how humans have become defensive environmentalists in their personal lives while living in a context shaped by an increasingly connected and large-scale system of world capitalism. The methods are largely historical, with a focus on trends over time, substantiated by aggregate data and case studies that exemplify those trends. The cases come from a wide range of people and places in the Global North and South.

The third chapter in the book focuses on global trends. It describes the global expansion of capitalism over the past forty years, with a focus on the trajectory of changes in production processes and personal consumption practices. It pays particular attention to the degree to which changes in these human practices touched off other social and ecological changes. The increasing frequency and length of these chain reactions signal a more tightly coupled natural and human system.

Chapters 4 through 8 represent the empirical core of the book. They examine different varieties of defensive environmentalist activities that

reward practitioners and that in some circumstances could produce global environmental gains. Chapter 4 looks at issues of resource partitioning, the carving up of natural resources into private, community, or state-owned areas or preserves. Chapter 5 looks at human population dynamics with particular attention to fertility decline. Chapter 6 focuses on changing food preferences and alternative agricultural practices. Chapter 7 examines the waste stream and efforts to minimize it through recycling. Chapter 8 focuses on efforts by companies to create or adopt cleaner technologies, including alternative sources of energy.

Chapter 9 examines focusing events such as natural disasters that, by disrupting the political system, galvanize social movements and promote an altruistic environmentalism in which environmentally friendly actions bring no personal gains. Chapter 10, a theoretical chapter, traces how focusing events, coupled with social movements, an upsurge in altruistic environmentalism, and continuing defensive environmentalist practices could create the political conditions necessary for the emergence of sustainable development states that pursue hegemonic projects of sustainability and environmental reform. Chapter 11 reviews the argument and suggests areas for further research.

This theoretical and empirical account of defensive environmentalists, focusing events, altruistic environmentalism, and sustainable development states addresses pressing questions about the circumstances that give rise to large-scale environmental reforms. I hope that, at a minimum, this analysis will be "usefully wrong," stimulating others to embark on an effort to explain how defensive environmentalists interact with movement activists in efforts to build more sustainable social orders.

2

Meta-Narratives of Environmental Reform

> Communities reconcile partial with general perspectives. A community must recognize the legitimacy of egoism as a basic aspect of humanity and therefore as a necessary starting point for group life. . . . [T]he mission of community . . . is to regulate, discipline, and especially channel self-regarding conduct, thereby binding it, so far as possible, to comprehensive interests and ideals.
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> Philip Selznick (1992, 369)

Introduction

The circumstances in which local, environmentally friendly actions scale up into global environmental compacts need to be understood in terms of the larger-scale historical processes of which they are a part. The increases in environmentally protective behaviors during the past half-century have had their origins in previous human successes. The enormous increases in the human population and the very uneven but still substantial growth in human prosperity over the past two centuries have generated environmental abuses that humans have tried to counter in a variety of ways. This dynamic implies that explanations for environmental reforms have to be couched in terms of theories that explain how communities change over time as they grow. During the nineteenth and twentieth centuries, meta-narratives emerged in both the social and the biological sciences about how inhabitants change as their communities grow, pollution increases, resources deplete, and governments take countermeasures. These meta-narratives span the divide between the social and the biological sciences, work at different geographic scales (Levin 1999), and make a common set of distinctions about processes of change. These distinctions provide