

Sources of Environmentally Destructive Behavior:
Individual, Organizational and Institutional Perspectives

Max H. Bazerman
Harvard Business School
Harvard University

Andrew J. Hoffman
Stephen M. Ross School of Business
University of Michigan

Ross School of Business Working Paper
Working Paper No. 1350
February 2000
Research in Organizational Behavior, 21

This paper can be downloaded without charge from the
Social Sciences Research Network Electronic Paper Collection:
<http://ssrn.com/abstract=2940342>

**Sources of Environmentally Destructive Behavior:
Individual, Organizational, and Institutional Perspectives**

Max H. Bazerman
Kellogg Graduate School of Management - Northwestern University
Harvard Business School

Andrew J. Hoffman
School of Management - Boston University
Boston University

January 1999

Published as: Bazerman, M. and A. Hoffman (1999) "Sources of environmentally destructive behavior: Individual, organizational and institutional perspectives," *Research in Organizational Behavior*, 21: 39-79.

The authors received support for this research from the Kellogg Environmental Research Center of the Kellogg School of Management at Northwestern University. The first author can be contacted at mbazerman@hbs.edu, (617) 495-6429. The paper benefited from insightful feedback from Bob Sutton and Barry Staw.

INTRODUCTION

The past century has witnessed unprecedented economic growth and human prosperity. Global per capita income has nearly tripled (World Business Council on Sustainable Development, 1997), average life expectancy has increased by almost two-thirds (World Resources Institute, 1994), and people are significantly more literate and educated than their predecessors. Yet, juxtaposed against these encouraging statistics are concerns that the past century has also witnessed unprecedented damage to the natural environment -- that in pursuing an improved quality of life, we are engaging in environmentally destructive behavior that is unsustainable and, therefore, contrary to our long-term interests. The human population is geometrically expanding while crop land is eroding, forests are declining, species are facing extinction, fresh water supplies are dwindling, fisheries are collapsing and pollution threatens human health (Brown, 1998). Overall, society is pursuing economic growth while depreciating the capital in natural resources upon which that growth depends.

This apparent contradiction has led many researchers to analyze the causes and solutions to environmental degradation. This paper offers similar focus, yet applies a lens of organizational behavior to yield insights not otherwise visible. In our view, environmental problems are not primarily technological or economic, but behavioral and cultural. While technological and economic activity may be the direct cause of environmentally destructive behavior, it is our argument that individual beliefs, cultural norms and societal institutions guide the development of that activity (David, 1985; Barley, 1986; Arthur, 1988). The question for us, then, is to consider how individual and social behavior shape how the natural environment is perceived and how individual, organizational, and institutional values perpetuate behavior that damages it.

We begin with a simple assumption that humans have historically engaged in environmentally destructive behaviors that lie contrary to their long-term survival interests and that, because of this tendency, many opportunities have been missed for correcting this dysfunctionality. The earth is not in as good a condition as it could be, and if current tendencies are not corrected, we will continue to miss opportunities to achieve a more desirable state. Many attribute these missed opportunities to the science and politics of the last half century. We do not disagree. However, we focus on how behavioral processes influence the perception and development of scientific, political, economic, and social structures. What lies at the core of environmental mismanagement are behaviors such as focusing on immediately visible needs, discounting the future, and defecting on other members of the society, while ignoring the value of environmental capital and the negative effects such behavior will have on the long-term well being of the planet. These kinds of behaviors lead us to consider how three levels of organizational constraints can restrict our ability to perceive the damage that we, as a society, are doing and craft solutions to that damage.

Our specific focus is a multi-level analysis of the destructiveness of taken-for-granted belief and behavior. First, we consider how individuals are guided in their perception of environmental problems through cognitive biases. Second, we consider how individuals are influenced in these perceptions and biases by the organizations of which they are a part. Finally, we consider the institutions that persist and guide our awareness of our connections and impact on the environment. Only by identifying these core, taken-for-granted beliefs (or myths) that lie on these three levels can we understand

the persistence of environmentally destructive behavior and move beyond our predisposition toward actions that lead us to destroy the environment.

The problem of specifying what humans do to destroy the environment is broad. And, as Weick (1984) argues, such broad problems can lead people to avoid paying attention to the issue. Broad, difficult problems can motivate people to avoid even thinking about the problem. We see our three lenses as providing useful and viable angles of attack, so that more scholars can see more ways of creating “small wins” (Weick, 1984) on one of the critical challenges facing society at the turn of the millennium.

Our multi-level focus on taken-for-granted behavior is also a natural focus for the lens of organizational behavior, an area of academic research notably absent from the debate over this socially important issue. Its absence, however, has not gone unnoticed. Gladwin called attention to this missing contribution by calling for an application of organizational theory to the study of corporate environmental management. He argued that “sociological theory pertaining to organizations holds the greatest promise for improving our understanding of how greening works” (Gladwin, 1993: 47). And later, Stern and Barley (1996) challenged the field of organizational behavior to produce more work dealing with issues of broad social relevance, such as the environment. They argued that most academic contributions to such issues presently come from economists and lawyers, but that these disciplines focus narrowly on the coercive mechanisms of policy and law for explaining and solving societal problems. As such, they neglect the systemic organizational contexts in which these mechanisms are based.

Recently, the environment has begun to grow as a topic of concern in management schools. But, it remains the domain of a special interest group, rather than a topic familiar to most management researchers. Within this specific domain, much of the research focuses on the strategic actions of individual organizations (e.g., Hart, 1995; Porter & van der Linde, 1995; Lawrence & Morell, 1995; Shrivastava, 1995; Lober, 1996) and not on the social issues that interest organizational behavior researchers. But, we believe that environmental issues are among the most important issues for organizational behaviorists to explain, understand, and help correct. Environmental issues lie at a unique juncture of both the physical and the social sciences, incorporating components from a wide group of disciplines such as political science, economics, management, engineering, biology, chemistry, and ecology. (Hoffman & Ehrenfeld, 1998). Organizational behavior's interdisciplinary, multi-level structure makes it well-suited for addressing the human side of environmental behaviors. By its nature, organizational behavior offers multiple lenses for viewing this complex issue. At the individual, organizational, and institutional level, organizational behavior offers insights about how social perception and enactment of environmental issues takes place and, therefore, highlights the fundamental sources of environmentally destructive behavior.

By applying organizational and behavioral theory to understanding the creation of environmental problems, this paper examines the cognitive, cultural, and institutional systems of which individuals and organizations are a part. We intend to go beyond assessments of strict individual action to question exactly what are the fundamental sources of those actions. We see this line of inquiry as critical for understanding the nature of environmental issues: how are conceptions of environmental issues created and

how do those conceptions result in individual and organizational action which may be contrary to our long-term interests?

For the remainder of this paper, we will provide an overview of what we see as critical examples of environmentally destructive behavior. We will then consider the creation and perpetuation of these behaviors with insights from research on three levels - individual behavior, the behavior of organizations, and institutions which guide their perceptions of reality. We will then address prescriptive implications growing out of each field of analysis and offer concluding comments in the hopes of fueling more research in this important area of inquiry.

ENVIRONMENTALLY DESTRUCTIVE BEHAVIOR

We categorize environmentally destructive behaviors into three categories: (1) human population growth; (2) over-consumption of natural resources - forests, fisheries, wetlands, rivers, etc., and; (3) pollution of air, water, and land. Any short review of these broad topics will obviously be very selective and reflect the opinions of the authors. Our goal is to simply provide some perspective to the environmentally destructive behaviors that we are thinking about when we move to the individual, organizational, and institutional roots of environmental destruction.

Human Population Growth

World population is growing at a rate of about 1.5 percent annually, adding roughly 90 million people to the globe each year. In 1990, world population was 5.3 billion. By 2025, it is estimated to reach 8.5 billion. In little more than two decades, farmers will need to produce 50 percent more food than they do now, just to keep up with population demand (Population Action International, 1996). But, this growth is not uniform around the world. Despite the fact that its natural resource base cannot support a large population, more than 90 percent of the world's population growth is occurring in developing countries, where growth rates stand at 2.3 percent (Population Action International, 1996). Africa alone experiences growth rates as high as 3.0 percent (Kennedy, 1993: 24). As a result, most of the estimated 20 to 25 percent of the world's population which live in "absolute poverty" - defined as per capita income of less than \$370 a year - live in developing countries (United Nations Center for Human Settlements, 1996). In such regions, an estimated 800 million human beings are chronically malnourished.

Over-consumption of Natural Resources

This need for expanded material support for the world's growing population highlights the extent to which industrial society places demands on the natural environment for its continued growth and stability. US industry, for example, consumes a staggering 2.7 billion metric tons of raw material each year (not counting stone, sand and gravel) (World Resources Institute, 1994: 214). Worldwide development places equally significant demands on natural resources, thereby threatening the stability of precious ecosystems. To support today's population needs, many resources are being extracted at levels which will inhibit future generations from satisfying their own needs.

For example: Since 1980, tropical forest-land, a critical component of the world's oxygen production, has declined at an estimated rate of 59,500 square miles per year, a

yearly area nearly equivalent in size to the state of Florida. This translates into a disappearance rate of 63 acres per minute (World Resources Institute, 1994). The world loses about 27.5 billion tons of topsoil, a critical component for world food production, through erosion each year (Engelman & LeRoy, 1995). In the US alone, 2.2 billion tons of soil in cropland were lost to erosion in 1992 (US Dept. of Agriculture, 1995). An estimated 11 percent of the earth's fertile soil has been eroded, chemically altered, or physically compacted as to damage its original biotic function. Since 1950, worldwide water use has increased from 1,300 to 4,200 cubic kilometers (World Resources Institute, 1994). With such growth rates, lack of fresh water is expected to affect as many as 2.9 billion people in the next twenty-five years (Population Action International, 1996: 29). Up to 27,000 species of flora and fauna are estimated to be disappearing each year (Wilson, 1992). Scientists estimate that 4 to 8 percent of tropical forest species may face extinction over the next 25 years, despite their unknown links to the complex ecosystem (Reid, 1988: 17). The best current global estimate of the maximum sustainable yield of marine fish is between 62 and 87 million metric tons per year, a level attained in the mid-1980s and surpassed since then. According to the UN Food and Agriculture Organization (FAO), four of the world's seventeen major fisheries are commercially depleted and nine more are in serious decline (Nickerson, 1994). Unless decisive actions are taken, the population of many fish species will drop below levels necessary to assure sustainable yields, leaving many fish dependent populations in search of other sources of food and economic livelihood (World Resources Institute, 1994: 184). It is estimated that the area of continental US wetlands has decreased from 89 million hectares in 1780 to 42 million hectares in the 1980s, or just 53 percent of the 1780 total (World Resources Institute, 1994: 33). This loss continues despite the importance of wetlands as purification and detoxification systems for aquatic environments and critical components for flood control.

Pollution

Beyond the over-consumption of natural resources, industrial society places further demands on the eco-system through the emission of waste by-products from material use and manipulation. US industry, for example, creates nearly 7 billion metric tons of solid waste annually through the extraction of raw materials (World Resources Institute, 1994: 214). Additionally, it releases or transfers off-site for treatment and disposal nearly 5 billion pounds of toxic chemicals created in the material development process (US EPA, 1992) and emits more than 120 million metric tons of conventional air pollutants (World Resources Institute, 1994: 214). Such behavior is not confined to large corporations. For example, residential homeowners in the US spend about \$750 billion a year to care for their lawns, despite the fact that runoff from lawn chemicals contributes to municipal water pollution, grass-clippings to solid waste problems, and exhaust from lawnmowers to urban air pollution.

Much of the world's pollution results from inefficiencies in production systems (Lovins, 1997), resulting in lost revenues and wasted resources. Furthermore, such polluting emissions threaten the health and quality of life for the population being served. In urban areas of the developing world, for example, at least 170 million people lack access to clean water for drinking, cooking, and washing; in rural areas, more than 855

million lack clean water (World Bank, 1992: 47). Residents in cities such as Bangkok, Beijing, Mexico City, and Sao Paulo are forced to live in air that is not fit to breathe (Brown, 1998).

Environmental pollution is not just localized in its impact. Worldwide concentrations of greenhouse gases, such as carbon dioxide (CO₂), have increased steadily. In 1950, world annual CO₂ emissions were 1.6 billion tons per year. By 1997, they had reached 7.0 billion tons per year. As a result, atmospheric concentrations have grown from 290 ppm to 360 ppm since the beginning of the industrial revolution in the middle of the nineteenth century (Office of Science and Technology Policy, 1997). The Intergovernmental Panel on Climate Change has estimated that this has resulted in an increase in the Earth's temperature of 1 °F over the last century and could increase another 2 - 6.5 °F in the next 100 years (Office of Science and Technology Policy, 1997). This buildup is caused by continued economic growth despite its potential to alter the global climate (Hoffman, 1998). Commonly predicted effects include drier weather in mid-continent areas (including the US Midwest), sea level rise, more violent storms, and northward migration of vector-borne tropical diseases and climate-sensitive species (Intergovernmental Panel on Climate Change, 1990). Many species would not be able to migrate quickly enough and would become extinct.

In summary, we seek to explain the destructive tendencies to overpopulate the earth, to over-consume resources, and to pollute the environment. Our tools, as we move forward, are the analyses of our minds, our organizations, and our institutions.

A BEHAVIORAL PERSPECTIVE ON ENVIRONMENTALLY DESTRUCTIVE BEHAVIOR

When citizens, journalists, and academics explain the cause of a behavior (e.g., an environmental destructive behavior), it is common to identify a specific cause (Rein & Winship, 1998). That specific cause will commonly exist on one specific level of analysis (e.g., the organizational level). McGill (1991) argues that individuals seek to explain events based on a singular cause, even when multiple causes are obvious. We argue that this leads to policy failures as decision makers focus on only one of multiple determinants of environmentally destructive behavior. In this section, we argue not only for multiple causes, but also for crossing levels of analysis to understand environmentally destructive behavior. We start with the most micro - the cognitions of decision makers, then move to the organization, and finally, to the institutions that influence individuals and organizations.

Individual Level Perspectives

Core to the earth's destruction are millions of decisions made by consumers, engineers, builders, executives, and policy decision makers, among others. Some destruction occurs because of selfishness. Some decision makers degrade the earth because they are unconcerned with future generations. However, we believe that much degradation can be traced to the poor quality of decisions made by individuals with no intention of being a parasitic influence on the environment. Rather, we argue that people make a wide variety of decisions that are biased in systematic and predictable ways that

are destructive to the environment. These biases most typically occur without the awareness of the individual. In this paper, we present behavioral decision research as the useful micro lens of analysis to understand taken-for-granted behaviors at the individual level that are destructive to the environment.

Behavioral decision research sees individuals as attempting to act rationally, but being bounded in their ability to achieve rationality (Simon, 1957; March & Simon, 1958). The last four decades of behavioral decision research have resulted in researchers being able to predict, a priori, how people will make decisions that are inconsistent, inefficient, and based on normatively irrelevant information. People rely on simplifying strategies, or cognitive heuristics. While these heuristics are frequently useful shortcuts, they also lead to a wide variety of decision biases (Kahneman & Tversky, 1973, 1979; Bazerman, 1998).

More recently, research has emerged that ties these decision biases to environmentally destructive behavior. While any of the many biases documented in behavioral decision research (Bazerman, 1998) would have implications in environmental domains, we selectively review research on a number of specific biases that have been tied specifically to environmental destruction. This section reviews evidence on how the following biases negatively affect the environment: (1) over-discounting the future; (2) egocentrism; (3) positive illusions; (4) mythical fixed-pie bias; and (5) pseudosacredness.

Over-discounting the future. Daly and Cobb (1994) argue that humans treat the earth “as if it were a business in liquidation,” where the future is not valued. People overpopulate, over-consume, and over-pollute. These environmentally destructive behaviors contradict general beliefs that we should leave the earth in good condition for future generations (Bazerman, Wade-Benzoni & Benzoni, 1996). Why the difference between behaviors and attitudes? We argue our common behavior is a result of over-discounting the future.

There is an extensive body of research which shows that people use shockingly high discount rates in their consumption behavior (Gately, 1980; Ruderman, Levine & McMahon, 1986). People under-insulate their homes and purchase energy-inefficient appliances, despite the implications for future energy costs. This is often attributed to the lack of information and sophistication of consumers. But the shocking fact is that most well informed, educated consumers do not take advantage of some of the most simple energy efficiency opportunities - such as energy efficient lighting - which often provide return on investments of 30-50% per year. Many of these consumers would reap greater returns by investing in energy efficiency, rather than their current allocation to stocks, bonds, and money market funds.

While we present over-discounting as a cognitive bias at the individual level (Loewenstein & Thaler, 1989), the problem is related to issues of social dilemmas and intergenerational discounting (Wade-Benzoni, 1996). Social dilemmas refer to situation in which it is rational for each individual entity to defect, while all parties could be better off with a more cooperative set of behaviors. Intergeneration discounting argues that people discount the future because they can benefit now, creating burdens on future generations. Wade-Benzoni (1996) argues that this discounting occurs because the harms that are created are often far off in the future, uncertain, and affect people with little affinity to oneself. We do not seek to review the literatures in dilemmas and

intergenerational discounting here (see Wade-Benzoni [1996] for a comprehensive review). Rather, we argue that time discounting occurs as a cognitive process in ways that increase environmentally destructive behaviors, in addition to the role that time discounting plays in encouraging defection in dilemmas and intergenerational decisions.

Egocentrism. Substantial empirical work shows that people make self-serving, or egocentric, judgments of what is fair (Messick & Sentis, 1983; Bazerman & Neale, 1982; Thompson & Loewenstein, 1992; Babcock, Loewenstein, Issacharoff & Camerer, 1995). The problem may not be in people wanting to make fair decisions, but rather in having very different views of what a fair decision would be (Diekmann, Samuels, Ross & Bazerman, 1997). Egocentrism can have a substantial influence on environmentally destructive behaviors.

Wade-Benzoni, Tenbrunsel, and Bazerman (1996) found evidence of egocentrism in the interpretation of fairness in a simulation of the New England fishery crisis. They created a negotiation simulation in which four parties assumed the roles of four fishing groups involved in harvesting the New England Coast. Like the real world fishers, most MBA and executive students harvested at a level that drove the fishing basin to collapse. The actual collapse has many causes, including no one fisher having the incentive to reduce his catch (Hardin, 1968), fishers not believing scientists, and governments subsidizing the modernization of the fishing fleet. Wade-Benzoni et al. (1996) add evidence that egocentrism was a leading cause of this over-fishing. Specifically, Wade-Benzoni et al. (1996) found that parties tend to believe that they deserve a greater share of the resource than a neutral party would judge to be the case, and egocentrism is an excellent predictor of over-harvesting. In addition, Wade-Benzoni et al. argue, based on their laboratory evidence and an analysis of the New England fisheries, that uncertainty in the magnitude of the problem exacerbates egocentrism. To the extent that many variables are uncertain, each party develops egocentric interpretations of the “facts,” allowing each to harvest at higher levels.

The connection of egocentrism to environmentally destructive behaviors is quite consistent with other real world environmental issues. In the recent global climate change negotiations in Kyoto, the developing nations see the existing problem as having been created by the excessive consumption patterns of the developed nations. In contrast, the developed nations insist that the problem cannot be solved unless the developing world limit their expansion of a polluting power base and cease their destruction of the rainforest. While all parties see both behaviors as relevant to the issue, the allocation of responsibility is very consistent with the egocentric interpretations described above.

Wade-Benzoni, Tenbrunsel, and Bazerman (1997) apply their work on egocentrism to the pollution of the Rhine River, which is shared by Switzerland, France, Germany, Luxembourg, and the Netherlands. The five countries are interdependent, sharing the responsibility for polluting the river and the benefits from using the river. However, pollution and extraction problems are far from simple, with asymmetries driving the egocentrism. Downstream nations (e.g., the Netherlands) are most vulnerable, and upstream nations (e.g., France) the least concerned about a quick agreement. The Rhine tension is replicated around the world, with over 200 international river basins, 13 being shared by five or more nations (Cairncross, 1995). In most cases,

partisans in these disputes are biased toward believing that they deserve greater use of the water than a neutral would judge to be fair.

Positive illusions. Related to egocentrism, positive illusions refer to the tendency of most people to see themselves, their future, and the world in a better condition than what is reality (Taylor, 1989; Kramer, 1994). Bazerman, Moore, and Gillespie (1999) argued that most companies see their products as creating more societal benefit, and less environmental harm, than reality would support.

Wade-Benzoni, Thompson, and Bazerman (1998) provide some direct evidence for this argument in the environmental domain. MBA students were asked to rate themselves on a variety of environmental issues relative to other members of the class. The issues included general items, such as awareness of environmental issues, and specific items, such as recycling activity. Participants were also asked to assess the importance of each issue. Wade-Benzoni et al. argued that people can more easily maintain positive images of themselves on general, ambiguous issues than on specific, observable behaviors. Consistent with expectations, self-serving biases were found on the general items, but not the specific items. Wade-Benzoni et al. (1998) explain this difference as a result of the general items providing more cognitive room for self-enhancement in comparison to the specific items for which the students have direct evidence of their behavior on a regular basis. This research also found a very strong correlation between how the students rated themselves on specific behaviors and the importance that they attached to that behavior. Finally, Wade-Benzoni et al. (1998) found that people were much more likely to deny harming the environment than to claim that they were helping the environment -- despite that the only difference was the frame in which the information was presented. These results imply that it is very possible that most people do not do more to be better environmental citizens because they see themselves as already being environmentally benign.

Mythical fixed-pie. Many negotiations occur between economic and environmental interests. Negotiators commonly fail to find mutually beneficial trades because of the assumption that their interests directly oppose the other party's interests (Bazerman, 1983). This is exacerbated when the other side is viewed as the enemy, which is common in environmental contexts. "What is good for the other side is bad for us" is an unfortunate assumption in environmental disputes. Bazerman (1983) labeled this assumption the "mythical fixed-pie" because while the parties believe that the pie of disputed resources is fixed, in reality, the disputants face a flexible pie that can be expanded if the parties find ways to integrate their interests.

Floyd Spence, Republican member of congress from South Carolina, said, "I have had a philosophy for some time in regard to SALT, and it goes like this: the Russians will not accept a SALT treaty that is not in their best interest, and it seems to me that if it is in their best interests, it can't be in our best interest." This assumption that anything good for them must be bad for us is a prototypic example of the mythical fixed-pie. This confused reasoning is both common and unfortunate. It eliminates the search for solutions that leave both sides better off. Spence's thought processes can also be seen in environmental disputes. For example, a recent article advocating tighter regulation of hazardous waste dumps declared, "We must pass an effective Superfund law. If the polluters win, then we lose - our tax money, our environment, and our health" (Pandya, Rosenfeld & Caffee, 1998). Unfortunately, the government has spent more on many

Superfund sites, trying to force polluters to pay, than on the cost of clean up (Bazerman, Moore & Gillespie, 1999). Better deals were possible for both sides.

Perhaps most vivid is the story of Ben Cone (Hoffman et al., in press). Mr. Cone had sustainably forested his 6,200 acres for 60 years. However, in the 1990s, he clear-cut a large part of his forest. He feared he would find the red-cockaded woodpecker on his property. If the government located this endangered species on his property, severe limitations to his freedom to cut could result. To avoid any risk of losing the rights to forest his land, he cut down all the trees. This behavior was an indirect result of the Endangered Species Act. This legislation protects endangered species and attempts to restore them to a secure status in the wild. After a species is listed, the Endangered Species Act forbids the killing, harassing, possessing, or removing of protected species from the wild. We argue that Mr. Cone's response was a direct result of his mythical fixed-pie between his economic interests and those of the environmental community. In contrast, the Endangered Species Act provides ample opportunity to develop Habitat Conservation Plans that allow for the negotiation of an agreement that would have been more profitable to Mr. Cone and more environmentally friendly. However, with the mythical fixed-pie in place, Mr. Cone failed to obtain these benefits for himself and for the environment.

The mythical fixed-pie leads disputants to believe that they cannot gain by cooperating with the other side. Thus, though negotiators may not be opposed to trade-offs, and finding trade-offs can be quite easy when negotiators look for them, negotiators miss them because of the assumption that parties' interests are perfectly opposed. Executives from corporate and environmental organizations attending negotiation seminars taught by one of the authors are often asked why they fail to make a mutually beneficial trade-off in simulated negotiations. They commonly respond that they did not know trade-offs were possible. Their fixed-pie assumptions kept them from seeking mutual gains.

The mythical fixed-pie may be culturally linked. Individuals from some cultures may enter negotiations with more integrative expectations than others (Brett, Adair, Lempereur, Okumura, Shikhirev, Tinsley, & Lytle, 1998). Given the international dimension of many environmental disputes, the issue of cultural differences in the fixed-pie assumption is an important question, but further empirical research is needed. However, evidence on the mythical fixed-pie now exists in dozens of countries, without a single culture appearing immune. In addition, judging by the global incidences of non-integrative environmental agreements, it seems prudent to work from the basis that the fixed-pie assumption is widespread and not confined to American negotiators.

Pseudosacredness. A fifth cognitive barrier in negotiations that leads to unnecessary destruction is misidentifying the sacredness of issues. Any buyer-seller exchange requires that the buyer be willing to pay at least the minimum amount the seller is willing to accept. In most contexts, determining the worth of an object is accomplished by some objective entity such as an economic market. However, in many environmental transactions, the value on the item may include not only the market value of the item but also a component for an emotional or sacred attachment of the item. Thompson and Gonzalez (1997) and Tetlock, Peterson, and Lerner (1996) view sacred issues as issues that the negotiator sees as unavailable for compromise or trade.

Bazerman, Moore and Gillespie (1999), in contrast, argue that it is useful to distinguish two classes of issues. They argue that there are sacred issues that you would never trade under any realistic circumstance. These issues are so important that to trade them is seen as morally reprehensible. They argue that there exists a second category of issues that are labeled sacred but are actually pseudosacred, for which the potential for trade does exist -- e.g., issues for which you do not expect to ever receive an offer that is good enough. This latter category can result in the sacred label creating a barrier to the discovery of a mutually beneficial trade.

Bazerman et al. (1999) argue that pseudosacred issues are quite common in environmental disputes. Medin (personal communication) reports of the Lacandon Maya indigenous population that believes that when a tree is cut down, a star is removed from the sky. Yet, surprisingly, the Lacandon reached an agreement with the Mexican Government for partial harvesting of their forest, while obtaining guarantees against harvesting the rest of the forest. When asked how they could reach an agreement that caused stars to fall from the sky, the response was that the deal was the best alternative for keeping as many stars in the sky as possible. In contrast, the claims of sacredness often stand in the way of finding mutually beneficial trades.

Finally, Bazerman et al. (in press) tell the hypothetical story of inheriting a 100 acre parcel of land that you have never seen before (in Maine) - market value \$200,000 to \$250,000. Soon after, you are asked how much you would require to sell the land. You say that the land is not for sale. You then get a call asking you if you would be interested in another 100 acres next door, to which you respond "why would I need more acres in Maine?" Diminishing returns, intrinsic value, and a bias toward property that you own play an effect. However, Bazerman et al. (in press) argue that an added input to this discrepancy of response is the pseudosacredness that we often attribute to many assets.

In summary, we argue that a great deal of environmental destruction is the result of faulty decision processes by consumers, politicians, and negotiators involved in environmental disputes. Part of the key to avoiding environmental destruction may be improving the decisions of people making environmental decisions.

Organizational Level Perspectives

While environmentally destructive behavior is influenced by the individual level biases just discussed, it is also affected by the organizations in which individuals reside. Organizations become filters through which the external world is viewed and information is developed, interpreted, disseminated, and acted upon (March, 1981). Just as with individual biases, this filtering process alters rational expectations and perspectives. Information available to individuals regarding issues and events becomes a reflection of subjective organizational goals, routines, and culture as much as objective facts (Allison, 1971).

Organizational culture shapes individual consciousness throughout the organization, imposing routines that reflect socially approved, purposive action (Jackall, 1988). It guides the perception and behavior of all organizational members as it develops over an organization's history and is formed around critical incidents and organizational responses (Schein, 1992). Schein (1992: 12) defines culture as "a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and

internal integration, that has worked well enough to be valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems.” Within this definition lies elements of socialization, reward systems, experiential history, internal structure and interaction, and individual thought and behavior. Support for environmentally destructive behavior can be found in each of these areas. This section will identify organizational sources of environmentally destructive behavior at three levels: (1) artifacts, (2) espoused values, and (3) basic underlying assumptions (Schein, 1990, 1992). Each level differs in the degree to which cultural phenomena are visible and ranges from the very tangible, overt manifestations that one can see and feel to the deeply embedded, unconscious basic assumptions that form the essence of culture (Schein, 1992).

Artifacts. Artifacts include the easily visible structures and processes of the organization, such as its structure, its reporting relationships and communication patterns, its division of responsibilities, its language, its external connections and boundary spanning activities, and its technology. These artifacts support behaviors that have persisted over time and continue to drive behavior in ways that are detrimental to the environment. For example, the structure of the organization defines its boundaries, rules of interaction, and division of responsibilities. It determines the patterns of regulated decision flows (Nelson & Winter, 1982), through which information is passed from one organizational unit to another. These decision flows are not always efficient and tend to distort organizational priorities. As such, they can create communication breakdowns which are often at the center of generating environmental destructive behavior (Lovins, 1997).

An Arthur D. Little survey identified a lack of integration among departments as one of the major roadblocks to the effective management of corporate environmental issues (Treasury Manager’s Report, 1996). Departments within the same organization often do not or cannot communicate their interests or opportunities to one another due to structural limitations. For example, energy costs for most corporations are paid out of overhead expenses. So, while small incremental reductions can yield large company-wide paybacks, most firms overlook them as individual departments and remain unaware of their economic impacts, focusing instead on investments that increase output or market share (Brown & Levine, 1997). When asked to list the primary obstacles to industrial expenditures on environmental programs, many corporate managers rank the accounting department at the top of the list (Hoffman, 1992). Environmental protection costs are generally listed as a liability and not an asset on balance sheets, even if expenditures result in decreased compliance and disposal costs, savings in other areas, such as improved public relations, or liability and regulatory reduction. Departmental managers are often shielded from incentives to seek more efficient solutions to environmental problems as environmental costs are billed not to the department, but to corporate overhead.

Organizational structure can perpetuate the notion of environmental issues as something outside the realm of basic business concerns. For example, with the establishment of environmental regulatory in 1970, most corporations adopted a government-centered approach to handling environmental issues through a segmented division of responsibilities within the organization. A separate environmental affairs department was developed which was often kept organizationally isolated from core

departments. Its objectives were to ensure that the corporation remain in compliance with the law (Hoffman, 1997) so that the operating core could remain both focused on maximizing profits (Thomas, 1994) and buffered from external interference. Environmental considerations for toxicity, pollution, or resource-use reduction were not considered as relevant to the primary objectives of the corporation. Solutions to environmental problems, which could be mutually beneficial to both the environment and the bottom-line, were thus excluded due to structural arrangements, perpetuating a “mythical fixed pie” perception of environmental and economic issues.

A case in point, Balzers Corporation of Hudson, New Hampshire was able to cut costs for cleaning optical components, semiconductors, and compact discs by as much as \$100,000 per year by switching technologies from a freon-based to a water-based system. However, this innovation was not implemented as a self-directed effort. It was found only after the Environmental Protection Agency forced the firm to view its pollution problem in a different way by invoking a regulatory fine that could either be paid directly to the government or used towards capital improvements that reduced pollution (McSorley, 1993). The company was forced to incorporate the process development staff into its environmental compliance strategy in order to develop a solution. Since the established structural arrangements did not allow for a compliance strategy with process department input, the potential for mutual gain was not previously explored.

In another example, a collaborative case study between Dow Chemical and the Natural Resources Defense Council found that organizational breakdowns were the primary inhibitor of the adoption of pollution prevention initiatives at one Dow facility, despite the projection that the company could possibly save more than \$1 million a year by eliminating 500,000 pounds of waste. Since the program was not required for the purposes of environmental compliance, nor was it of central interest to production engineers whose main priorities were in capacity building, nor did it appeal to business line personnel with profit-and-loss authority, the project was not implemented. These staff personnel were more interested in maximizing profit for their business through yield improvements rather than waste minimization (Greer & Van Loben Sels, 1997).

The organizational structure can facilitate sub-optimal decision-making similar to the problem of over-discounting of the future in individual decision-making. Competing departmental interests can shield the organization from potential economic benefits. For example, the federal government buys its buildings with one budget and operates them with another. Any up-front cost increases may be overlooked despite their potential for minimizing operating expenses and yielding short payback horizons (Lovins & Lovins, 1997). Similarly, one of the finest universities in the United States has begun an extensive effort to improve its infrastructure. Because of a limited budget, many decisions were made that failed to use the most long-term cost efficient products. The reason was the limited budget. The result was a very high implicit discount rate being used to guide the construction decisions. A clever economist at the university pointed out that the discount rates that were being turned down in the construction process would have been thrilling to the investment office of the university. The obvious solution would be the investment office making non-traditional investments in high efficiency construction processes. This result can be Pareto efficient from all perspectives of the university (Bazerman, Wade-Benzoni & Benzoni, 1996).

Beyond structural limitations to free flows of information, the language, rhetoric objectives and external constituency of the various departments of the organization can also perpetuate environmentally destructive behavior (Shelton & Shopley, 1995). For example, the environmental management staff often take for granted that the value of their strategic environmental programs is apparent. Yet they fail to adopt the business metrics and lexicon that are employed by other parts of the organization in communicating that value. Return on investment (ROI) remains the most common business validation metric, yet most environmental managers do not provide such economic cost-benefit analyses on environmental initiatives when attempting to gain budgetary approval. To make the boundaries even more impermeable, environmental managers often use non-business acronyms such as BOD, NOD, EIS and LCA,¹ which are familiar to their external constituency but serve to distance other business managers from environmental matters (Shelton & Shopley, 1995).

Espoused Values. The second level of culture is that of espoused values: the professed strategies, goals, and philosophies of the corporation (Schein, 1992). These are more difficult to decipher than artifacts and represent more embedded norms for guiding management behavior. For example, most US Corporations are guided in their notions of purpose by the objective of increasing value for the shareholder (Freidman, 1970). Supported by academic institutions (discussed in the next section), the shareholder model holds that corporations have no “social responsibility” beyond serving as an agent of the stockholder or the customer, provided they stay within the government established rules of the game. Further, some contend that the efforts of advocates for social responsibility are thinly veiled attempts to gain control of the governance structures of the firm (Meckling & Jensen, 1990). This model perpetuates a notion of the firm as physically and socially autonomous from considerations for environmental protection or the demands of other external interests.

These beliefs are perpetuated and replicated within the organization by being taught to new members as the correct way to perceive, think, and feel through selection, socialization, and reward processes. How individuals are chosen for the organization (selection), how they are indoctrinated (socialization) and what incentives are established (rewards) will support existing cultural beliefs about how members of the organization will perceive their responsibilities towards the environment (Kerr, 1995). Rewards take the form of both formal and informal signals, at times being extremely ambiguous or conflicting to be clear. For example, many companies have hoped to foster improved environmental performance through the establishment of highly publicized environmental programs endorsed by top level speeches, only to watch them fail because they did not align the reward structures properly. In one example, a refinery manager quipped that his responsibilities were to protect the environment, maintain safety, and increase process yield. But, when it came time for promotions, they “skipped the first two and went straight to the third.” As a result, reward systems and not corporate policy guided his behavior.

Another example comes from the EPA's Green Lights Program, a voluntary program that encourages businesses to install energy-efficient lighting. These lighting upgrades help prevent unnecessary pollution through the more efficient use of electricity, while saving the organization money on electric bills (US EPA, 1997). Yet, established reward and incentives systems within organizations often mask the opportunities

available through change. Energy costs are often paid out of overhead, while installation and maintenance of lighting systems are billed to the physical plant. Neither department will trigger the need to change due to departmental responsibilities and rewards. The administrative department responsible for overhead may be unaware of the technical aspects and financial opportunities of lighting upgrades. And, the physical plant would be required to commit time and resources to the program while receiving none of the financial and publicity rewards, which would accrue to the administration. (This breakdown has created an opportunity for entrepreneurs to offer lighting retrofit services. These companies provide the audit and the installation and are paid as a percentage of energy savings.)

Basic Underlying Assumptions. This is the most fundamental level of culture. It represents beliefs about appropriate action that are taken-for-granted and perceived as non-negotiable. It is the most difficult level of culture for the researcher to uncover and for the organizational member to detect. It is also at this level that organizational biases most closely resemble the individual biases in the last section and, as will be discussed, the cognitive institutions in the next section. Tying this level directly to individual behavior, Schein (1992: 10) describes this fundamental level of culture as “covering behavioral, emotional, and cognitive elements of the group members’ total psychological functioning.”

Basic underlying assumptions satisfy the basic human need for stability, certainty, and security within the organization. They form the most stable and least malleable level of culture wherein cultural routines become rigidly fixed. At times, this rigid set of routines can allow the organization to react rapidly to changes in the environment that fall within the range of issues previously encountered. But it can also operate as a pattern of thought and action which can limit possibilities for new types of action (Fligstein, 1992). Within the corporate organization, basic assumptions about the purpose and responsibility of the firm can perpetuate environmental destructive behavior. These assumptions include: the notion that the firm is social and physical autonomous; the idea that profit-motive is the singular objective of the firm; the omission of natural capital from market accounting systems; the perception of the environment as a limitless source of resources and a limitless sink for wastes; and the unquestioned necessity of economic growth (Capra, 1982; Daly, 1991; Daly & Cobb, 1994; Gladwin et al., 1994). These assumptions support actions which are detrimental to the stability of environmental (and at times, social) systems surrounding the organization. Further, they are perpetuated within the firm by many mechanisms and forces both inside and outside the organization. This section will consider five: demands from powerful external actors, habitual routine, fear of the unknown, resource limitations, and threats to established power bases.

Stability in patterns of thought and action can be perpetuated by the pressures and demands from powerful external actors (DiMaggio, 1991; Brint & Karabel, 1991). In the case of environmental issues, this is particularly so, as government standards have dominated organizational thought and created uniformity across organizations. Mimicking government regulatory requirements, organizations have enacted environmental programs in a format that is segmented by media (e.g. water, air and land), imposed by command-and-control structures, and driven by adversarial relations with regulators (Hoffman, 1997). This format perpetuates an inefficient mindset for dealing

comprehensively with environmental issues, creating incentives to transfer pollution from one media to another depending on regulatory stringency and opposing any additional regulatory programs regardless of their potential economic merits. More importantly, they support the organizational segmentation by which economic and environmental interests remain separated within corporate decision-making.

Habitual routine can perpetuate behaviors that employees may know are damaging the environment but can fail to take steps to correct it. Often the perpetuation of habit stems from an individual's realization that changing an established habit will involve some form of short-term costs. While inefficient or inconsistent with long-term objectives, these established routines can become familiar, comfortable, and reliably predictable. Clark (1985) notes that the development of cultural inertia and the continued reliance on its artifacts and beliefs can be a chief obstacle to organizational innovation. Habitual routines can take form in taken-for-granted engineering or managerial practice. For example, the Robbins Company, a metal finisher and plater in Attleboro, Massachusetts, began its pollution minimization strategy by reducing its use of what has become an increasingly expensive raw material, water. Since the amount of waste produced is directly correlated to the amount of water used, both raw material and waste disposal costs were dramatically reduced when the company altered its plating operation to make it a closed-loop system, reducing emissions to zero. Savings to the company have been calculated to be \$71,000 per year. Yet, when Robbins' environmental manager, Paul Clark, first attempted to reduce water usage, he was told by plant personnel that it was impossible. So, he resorted to gradually closing the water feed valves late at night. Little by little, water usage was reduced without plant personnel noticing (Berube, 1991).

Fear of the unknown can drive both organizational inertia and the continued reliance on basic underlying assumptions. Both external and internal change can be upsetting for organizational constituents, particularly when the outcome or consequences of change cannot be predicted. And in reality, outcomes or consequences can never be predicted. In one example, Wellcraft Marine Corporation, a boat manufacturer in Sarasota, Florida, went from creating 18.5 percent of Florida's acetone emissions in 1989, to less than 1 percent in 1992 by replacing acetone with a less volatile, toxic, and flammable substitute called diacetone alcohol (DAA). Through this switch, the company has also saved \$91,608 per year while operating at only 33 percent capacity. Yet, the initiative's champion, Bill McDonald, found that workers resisted the switch to DAA since the new solvent required different procedures. To gain acceptance, he worked hard to "sell" the new solvents to the workforce (Melody, 1992).

Resource limitations can restrict the ability of an organization to overcome sunk costs in plants, equipment, and personnel. They can become psychological roadblocks which bias managers away from certain actions or responses to demands for change. Short-term demands may deny the manager any opportunity to consider long term gains, which although they may be encouraging, are only potential. Short-term costs predominate, thus biasing the manager to over-discount the future. For example, in the Green Lights program discussed earlier, many companies resist performing an energy audit of their facilities and developing a new lighting installation program, despite an average 28% internal rate of return on investments in lighting upgrades by Green Lights partners (US EPA, 1997). In many cases, these companies have invested heavily in their

facility lighting plans and have irrationally committed themselves to the system as installed.

Finally, threats to established power biases can resist organizational changes. Culture establishes a structure of power, which will bias the perspectives of those for whom the existing system benefits. Any attempts to restructure will likely undermine these power structures and invite organizational confusion, interdepartmental rivalry, or organizational resistance (Mintzberg, 1979). Self-preservation may override concerns for environmental or economic objectives in managerial decision making. For example, for economic and environmental decision-making to merge in the quest for mutually beneficial solutions, the most obvious source of conflict may develop between the environmental and operating functions themselves. An historic shift in organizational routines among these two groups can already be seen. The evolution from end-of-the-pipe treatment in the 1970s to waste minimization in the 1980s to pollution prevention in the 1990s reflects a progressive shift in focus from after-the-fact treatment to process alterations. As such, it also reflects a progressive shift in responsibility away from environmental management and towards engineering management (Hoffman, 1996). The process of breaking the established routines between these groups invites departmental competition and battles for survival. For example, the environmental managers may resist this shift in responsibility as a threat to their autonomy, purpose, and survival. Conversely, without a clear view of the overall costs and benefits, manufacturing personnel may resist this added responsibility or may resent the economic burden of new process restraints.

In summary, we argue that organizational arrangements and cultural beliefs tend to perpetuate destructive environmental behavior. Individuals within organizations deviate from rational and self-interested behavior through the individual biases discussed in the last section coupled with the organizational level biases discussed in this section. Overcoming these obstacles will require alterations in the organization that integrate environmental concerns into the basic underlying beliefs of the organization, recasting them in ways that are mutually beneficial to the objectives of the organization and the sustainability of the ecosystem on which it depends.

Institutional Level Perspectives

Moving to our third and final level of analysis, we consider how environmentally destructive behavior can be perpetuated by rules, norms, and beliefs at the institutional level. We begin with the assertion that organizations exist within an “open system” (Katz & Kahn, 1978). While it is a term from organizational literature, acknowledging the open system is not inconsistent with economic theory. Group interests and group behavior are often primary forces in economic as well as political behavior (Olson, 1965). For example, few modern writers on economics would discuss their subject matter without references to aggregations, clusters, blocs, and combinations of people and things. Using terms such as “oligopoly,” “imperfect competition,” and “monopolistic behavior,” economists often refer to a firm's competitive field in defining its type of behavior (Latham, 1952).

Organizational activities are inescapably influenced by the external environment, both through technical constraints such as raw materials, labor, and energy and more

importantly, through social influences, embodied in rules, laws, industry standards, best established practices, and conventional wisdom — what are collectively referred to as "institutions" (Scott & Meyer, 1992). Institutions present cultural and contextual constraints which alter individual and organizational perspectives on social issues. They give collective meaning and value to particular events and activities (Meyer, Boli & Thomas, 1987), among them the state of the environment (Hoffman & Ventresca, 1999).

To analyze their influence on environmental destruction, this section will review the environmental implications of institutions in three nominal categories: (1) regulative, (2) normative, and (3) cognitive (Scott, 1995). Regulative (or legal) aspects of institutions are based upon coercive or legal sanctions to which organizations accede for reasons of expedience. They most commonly take the form of regulations, but may also include protests, lawsuits, and political lobbying. Normative (or social) aspects of institutions are morally or ethically grounded, and organizations will comply with them based on social obligation. These take the form of rules-of-thumb, standard operating procedures, occupational standards, educational curricula, and membership requirements and emerge through universities, professional training institutions, and trade associations. Cognitive (or cultural) aspects of institutions are built on a socially supported and conceptually correct basis of legitimacy. The taken-for-granted beliefs, which the organizations will abide by without conscious thought, reside at this level (Zucker, 1983).²

Regulative Institutions. While legal standards regulating behaviors that affect the environment have historically produced positive results (Easterbrook, 1995), the benefits of standards should not blind us to the costs nor deter us from diagnosing problems that may arise from a regulatory approach to environmental problems (Tenbrunsel, Wade-Benzoni, Messick & Bazerman, 1997). Some argue that the existing standards and enforcement programs may be the biggest challenge faced by environmentalists today (Wade-Benzoni, 1996). Tenbrunsel et al. (1997) propose that legal standards become an independent force, taking on a life of their own — leaving rationality, innovativeness, and societal interests behind. They suggest that sub-optimal outcomes can result from an adherence to standards and that this sub-optimality is due to a tendency for standards to direct attention toward the law itself and away from the purpose behind the law. As a result, decision makers may be led to evaluate sub-optimal choices that adhere to a standard more highly than optimal choices that violate the standard.

Once standards are written, program managers within both government and corporations often become constrained by rigid rules which preclude the search for creative solutions to complex environmental problems. At times, these standards can explicitly restrict environmentally optimal solutions. For example, the permitting requirements under the Resource Conservation and Recovery Act (RCRA) often restrict hazardous waste recycling initiatives by strictly imposing regulation on those wastes once created. Any company that creates hazardous wastes and then attempts to recycle or reuse them will be required to obtain a hazardous waste "Part B" permit for treatment of a hazardous waste, an extremely expensive and time consuming process (Byers, 1991). In the eyes of many corporate managers, such as Thomas Zosel, manager of 3M's 3P program, "RCRA permits are so extensive and expensive to develop that many

companies forego recycling to cut all the regulatory hassle required by RCRA” (Ember, 1991).

Tenbrunsel et al. (1997) also suggest a motivational explanation for the “misdirected attention” effect, namely that standard-based systems can change the incentive systems for individuals and promote self-interested behavior that interferes with over-arching societal interests (Tenbrunsel, 1996b). Sub-optimal outcomes are the product of both unintentional and intentional actions on the part of the decision maker. Unintentional actions may result from individuals “just following the rules,” creativity not being rewarded, a “use it or lose it” rationale, intrinsic motivation being replaced with extrinsic motivation, or a “no law against it” mentality. Intentional actions include trying to “beat the system.”

For example, the EPA listed n-methyl pyrrolidone (NMP) in 1995 as one of the chemicals for which industry must report emissions. NMP is a common replacement in the adhesives industry for chlorinated solvents. It is non-flammable, practically non-volatile, and 80-90% recyclable. The listing was prompted by a single study citing a potentially remote health effect. Many companies decided to revert back to flammable and volatile (but non-reportable) solvents in order to avoid the reporting burden of NMP. The end result of the NMP listing requirement was a reversion to less safe and potentially more environmentally harmful option.

Overall, the regulatory structure for controlling pollution has been institutionalized in an adversarial format that many now consider out of date and restrictive of corporate environmental progress beyond mere compliance (Schmitt, 1994). The present structure often dictates which pollutants and sources to control, to what extent, and which technologies to use across a broad spectrum of disassociated industries. It often ignores the technological and logistical issues associated with overlapping regulatory programs as well as the multi-media and multi-objective impacts of a particular rule of policy (Raffle & Mitchell, 1993). For example, the tax code works at cross purposes with the objectives of the Endangered Species Act (ESA). Currently, both estate and property taxes are calculated based on the land's “highest and best use value,” which usually means development. These taxes serve as an incentive for landowners to (a) develop the land, (b) harvest the land's resources to pay the taxes, or (c) sell off parcels of the land to pay the taxes, thereby breaking up biologically valuable properties. Some are pushing for estate tax reform which would allow heirs to defer or avoid applicable estate taxes on inherited land in return for managing their land in ways that benefited endangered species (Hoffman, Bazerman & Yaffee, 1997).

Similarly, national policies on federal lands create incentives for behavior that is contrary to the public interest in environmental protection. Forestry companies often acquire from governments the rights to log national forests at prices far below reasonable market rates. The government pays for miles of logging roads in the 192 million acres of National Forests and often does not enforce reforestation programs once the timber has been cleared. Through such subsidies, the US Forest Service is estimated to have lost more than \$88 million in 1997 (Associated Press, 1998). This provides incentives for companies to cut forests that would not otherwise be economically harvested. Cattle grazing policy on federal lands yields similarly dysfunctional behavior. Select cattle ranchers have been grazing herds for years on the 268 million acres of western range land operated by the Bureau of Land Management (BLM) and the Forest Service. The fees

they pay, however, are up to one-fourth those paid by ranchers for grazing on private lands. This costs the federal government tens of millions of dollars in lost revenue each year, gives an unfair advantage to ranchers with federal grazing permits and does not allow enough income to protect the land from overgrazing. The Natural Resources Defense Council estimates that 68 percent of western range-land is in unsatisfactory condition, where more than half the plants that once grew in those areas have disappeared (Davis, 1991).

Regulative institutions that promote environmentally destructive behavior also exist at the international level. For example, environmental non-government organizations (NGOs) are extremely critical of the environmental implications of the Global Agreement on Tariffs and Trade (GATT). Created as a branch of the United Nations after World War II, GATT is both the framework and governing institution over most international trade. (In 1995, GATT was replaced by the World Trade Organization.) GATT's central premise in establishing fair and free trade is that of "non-discrimination." The environmental implications of this agreement were tested in 1991 with a dispute over dolphin-free tuna. The US Department of Commerce imposed an embargo on tuna from Mexico, Venezuela, Vanuatu and other countries because the "by-catch" of dolphins killed in the process of harvesting the tuna violated the Marine Mammal Protection Act (MMPA) of 1972. Mexico complained to the GATT and won relief. The GATT panel decided that the MMPA was inconsistent with the GATT non-discrimination principle. A country had no right to enforce process restrictions on other countries when those processes have no impact on the product itself (Economist, 1992). Environmental NGOs feel that GATT challenges national sovereignty in developing domestic environmental standards. They fear that pressure from foreign countries (supported by domestically disadvantaged companies) will create pressures to drive domestic environmental standards down to the lowest common denominator. Hard won domestic environmental victories may be lost in the name of international trade equity. Trade interests may rule out any attempt at balancing environmental objectives and commercial objectives (Ferrantino, 1994).

International accords on fishing also tend to exacerbate the already depleted fisheries worldwide. Ninety percent of the world's fish catch is taken from coastal waters (Nickerson, 1994) and is, therefore, under some form of government control. But because governments have invested heavily in protecting domestic fishing industries, subsidies distort economic signals of decline. In 1994, it cost \$92 billion worldwide to pull in \$70 billion worth of fish (Nickerson, 1994). The magnitude of this dysfunctional behavior worsens if you include the cost of capital investments in excess of \$300 billion world-wide (Sissenwine, 1995). And it worsens even further if you include the inefficiency and waste created from "by-catch." The FAO estimates that 27 million tons of fish per year — about 33 percent of the total catch — are discarded dead from fishing boats because they were too small, the wrong species, or out of season (Sissenwine, 1995). Presently, fifteen percent of the yearly take from the Bering Strait off the Alaskan coast is by-catch. This amount of fish equals 50 million meals, enough to treat everyone in both California and New York state to a fish fry (Economist, 1996).

Normative Institutions. Moving beyond the regulative, institutional barriers also become established at the normative level within the norms of educational curricula, business rules of thumb, standard operating procedures, and accepted economic and

business indicators. For example, educational curricula often perpetuate the belief that economic growth and environmental protection are mutually incompatible. Present management theory has been criticized for promoting an uncritical belief in the necessity of increasing economic growth and productivity, the perception of nature as a limitless sink, and the superiority of technological development for controlling natural systems (Gladwin, Freeman & Kennelly, 1994). Similarly, economic education has historically treated environmental protection as an “externality” (Cropper & Oates, 1992). Pollution is conceptualized as the consequence of an absence of prices for certain scarce environmental resources, such as clean air and water. Through this normative perspective, economic and environmental interests will always be separate and distinct (Hahn & Stavins, 1991). The underlying assumption is that corporate managers will never find it in their own economic interests to seek environmental protection.

Standard business practices can perpetuate environmental dysfunctional behavior and preclude the search for more efficient responses. For example, virtually all of the more than \$13 billion spent on environmental equipment and services to industry and government goes for control, analysis, form filling, or remediation with only a minor fraction going to pollution prevention (McKinney, 1992). This institutionalized preference in spending is perpetuated by a consulting industry that thrives off the market for pollution control and regulatory compliance services to the exclusion of pollution minimization and waste reduction. This carries over into the corporate mindset where standard operating procedures, best engineering practice, or established rules of thumb support assumptions about the incompatibility between economics and the environment.

Market incentive structures can also shield opportunities to correct environmental destruction. For example, TV and VCR makers produce equipment that remain in “stand-by” mode while not being used, so that consumers can turn them on with remote controls, save preset stations, and encounter no warm-up delays. They have no incentive to cut the amount of power this mode uses because they do not pay the energy bill. Consumers, likewise, have little incentive to be concerned since the incremental costs are so low. Yet, in the aggregate, the United States uses about 1,000 megawatts continuously to maintain this feature — about the output of one Chernobyl-sized power station (Lovins & Lovins, 1997). Without properly aligned incentives, this energy waste will continue.

Other market incentive structures among organizations yield similarly inefficient action. Architects and engineers, for example, are compensated on a percentage of the cost of the building or equipment specified. They are actually penalized for eliminating costly equipment. This has led the US to misallocate about \$1 trillion to air-conditioning equipment that would not have been necessary had the building been optimally designed to produce the same or better comfort at lower cost (Houghton et al., 1992; Lovins & Lovins, 1997). Landlords have no incentive to improve the energy efficiency of their apartments since renters pay for energy costs (Lovins, 1997). Manufacturers have no incentive to reduce packaging since consumers pay the price of its disposal. And finally, domestic standards on energy pricing allow regulated utilities to increase profits based on increased energy use and conversely, penalize them for reducing your energy bill. As a result, shareholders and customers have opposite goals with wastefully increased energy use as the end result (Lovins & Lovins, 1997).

Normative biases lie in the performance measures used to assess corporate health and success. Financial markets often encourage short-term goals, undervalue

environmental resources, and discount the future in favor of accounting and reporting systems that do not reflect environmental risks and opportunities (Schmidheiny, 1996). For example, economic return on investment must support the debt-load expected by lending institutions and corporate investors. These pressures will lead forestry companies to harvest timber at rates that exceed maximum sustainable yield (MSY), thereby diminishing the natural capital asset base. The short-term payback periods of financial markets take precedent over long-term time horizons of ecological systems.

Beyond the banking system, macro-economic performance indicators also support environmentally destructive behavior. The Gross Domestic Product (GDP), for example, is the foremost economic indicator of national economic progress. It is a measure of all financial transactions for products and services, but it makes no distinction between those transactions that add to the well being of the country and those which actually diminish it. This creates several perverse economic signals that promote environmentally destructive behavior (Redefining Progress, 1996). For example, GDP treats the depletion of natural capital as income, rather than the depreciation of a capital asset. The more a nation depletes its natural capital base — and with it, its ability to produce income in the future — the more its GDP will go up. GDP treats natural disasters as economic gain. Hurricane Andrew, for example, was a disaster for Southern Florida, but GDP recorded it as a \$15 billion boost for the economy due to recovery programs. Finally, GDP increases with polluting activities and then again with pollution clean-up (Redefining Progress, 1996). For example, through the century, economic activity and GDP have increased through the low cost and inappropriate disposal of hazardous wastes. Now, under the aegis of the Superfund program, it is estimated to cost \$750 billion to clean them up (Russell, Colglazier & Tonn, 1992), which will again be added to GDP. As a result, pollution becomes a double benefit for the economy.

Cognitive Institutions. Finally, institutions at the cognitive level form common perceptions of behavior that are taken for granted and remain unquestioned (Zucker, 1983). Much like the individual biases in the first section and the basic underlying beliefs in the last section, these are pervasive, powerful, and resistant to change, often influencing individual and organizational behavior without their knowledge. Environmentally destructive behavior is supported by some very basic taken for granted beliefs of modern society and modern capitalism (Allenby, 1998). For example, capitalistic society has as one of its fundamental assumptions the anthropocentric view that unlimited progress is possible through the exploitation of nature's infinite resources. In the pursuit of that progress, organizations and individuals are perceived as independent, existing in a free market where resource extraction and development are the rights of the property owner to the exclusion of other stakeholder interests. Any incentives to protect the environment are traditionally accepted as being developed from outside. Economic and material growth is taken for granted as mutually incompatible with environmental concerns. At the core, the prevailing belief is that environmental protection must, by its very nature, reduce economic competitiveness (Gore, 1992; Walley & Whitehead, 1994; Palmer, Oates & Portney, 1995).

Consistent with the frameworks developed by the philosophers of the scientific and industrial revolutions, cognitive institutions support the notion that humans are considered separate from and superior to nature, which is itself viewed as inert, infinitely divisible and moved by external rather than internal forces (Gladwin, Kennelly & Krause,

1995). But, concerns for environmental protection challenge these frameworks and the ability of capitalism, in its present form, to provide societal goals (such as prosperity, equity, leisure, satisfaction, etc.) for the long-term. It does not question these social ends, but rather the core assumptions capitalism applies get us there: the social and physical autonomy of the firm, the profit-motive as a singular objective of the firm, and the necessity of economic growth (Daly, 1991; Daly & Cobb, 1994; Gladwin et al., 1994). In so doing it presents new conceptions of the relationship between economics and the environment, one which is mutually compatible. This transition requires a new frame of reference for thinking about environmental improvement (Porter & van der Linde, 1995), one that steps beyond all of the traditionally accepted institutions.

With this as a foundation, various environmental philosophies advocate social and biological arrangements in which there is a balance between the interests of humanity and the interests of nature (Egri & Pinfield, 1994). A fundamental assumption of this world-view is that humans are not separate or superior to nature, but rather occupy an equal place within the entire natural system. The resulting struggle between environmental and free-market assumptions leads to several fundamentally profound questions. First, do we view ourselves as wrapped by the environment or somehow above it? Is it “man [sic] and nature or man in nature” (Dowie, 1995: 224)? Second, is the ecosystem to be protected from destruction for its own sake, or to enhance the welfare of the human beings who depend upon it (Commoner, 1990)? And third, are we capable of understanding the full complexities of the natural ecosystem so as to manage it to our own purposes, or is it so complex as to forever be beyond human comprehension? Issues such as these form the basic ideological conflict which establishes the roots of the environmental movement and the challenges to the prevailing cognitive institutions.

In answering these questions, environmental concerns attempt to alter the economy to accommodate ecological principles (Colby, 1989). They seek to redefine economic growth to include concerns for information intensiveness, community consciousness, and the experiential quality of economic activity, rather than merely its material-energy intensiveness (Daly, 1991). Human societies would be conceived neither as totally segregated from nor totally immersed in nature (Gladwin et al., 1995). They become both part of the biosphere, in organic and ecological terms, and above the biosphere in intellectual terms. Out of this shift emerges both a societal respect for the objective value of nature and an acceptance of the role of steward of nature.

Some argue that this transformation is not possible (Schnaiberg, 1980; Gladwin et al., 1994), that integrating environmental concerns into present day capitalism does not fundamentally change the social rules that are causing environmental problems in the first place. Without changes in the predominant rules, the environment will always remain external to the economy, internalized through the application of norms and rules based principally on human utility and not ecological stability. But, it is also unclear what form of human-centered social structure can possibly result in an alleviation of our impact on the environment. Evernden writes, “the crisis is not simply something we can examine and resolve. We are the environmental crisis. The crisis is a visible manifestation of our very being, like territory revealing the self at its center. The environmental crisis is inherent in everything we believe and do; it is inherent in the context of our lives” (Evernden, 1985: 128).

In the end, institutional structures permeate our beliefs and thoughts. Coupled with individual and organizational biases, they form the systemic aspects of our society's mismanagement of the natural environment. To integrate a concern for environmental protection will require a fundamental adjustment in the entire system of institutions by which society is organized. To change how we think and act as individuals and organizations, we must begin to question basic beliefs of which we may not even be aware.

OVERCOMING BEHAVIORAL SOURCES OF ENVIRONMENTAL DESTRUCTION

The solutions to environmentally destructive behavior must emerge from an alteration of our core beliefs and values toward the natural environment. It involves the unlearning of what has been ingrained. Assumptions, heuristics, norms, and beliefs that have been established within individuals, organizations, and society must be dismantled and reset to reflect new perspectives. Hardin (1968) argues that environmental problems cannot be solved in a technical way and we agree. But we do not agree with his draconian conclusions for coercive mechanisms to the point of "relinquishing the freedom to breed" (Hardin, 1968: 1248). We see evolutionary steps that can be taken to overcome the obstacles we have identified without dismantling the societal foundations that presently exist. We will propose three levels of solutions that correspond to our three levels of analysis.

Individual Level Solutions

Our primary goal is to debias people who make decisions that affect the earth ñ that is everyone. We would like to see people make more rational decisions that help themselves and help the environment. The question is how to change how people make these decisions.

Fischhoff (1982) has provided procedures for debiasing judgment. He proposes four strategies that reflect increasing pessimism about the ease of perfecting decision making: (1) warning about the possibility of bias; (2) describing the direction of the bias; (3) providing a dose of feedback; and (4) offering an extended program of training with feedback, coaching, and whatever else it takes to improve judgment. We believe extended training is what is needed for changes in environmental decision making. Overall, debiasing is a difficult process that must be guided by a psychological framework for changing. Any change effort is well advised to consider Lewin's (1947) classic model of change. He argued that any change effort considers three phases - unfreeze, change, refreeze. We apply these stages to environmental decision making.

Unfreezing. Environmental behaviors at the individual, organizational, and institutional levels are ingrained, part of standard repertoires, and thus quite difficult to change. Protection is found in the status quo. Individuals are often risk averse and prefer the certain outcomes of known behavior to the uncertain outcomes of innovative behavior. In order for change to occur and last over time, an explicit unfreezing process needs to take place. The importance of this unfreezing concept is central to changing the decision-making processes of individuals. This is true for at least three reasons. Decision makers have used their intuitive strategies for many years. To desire change would be to admit that there was something wrong with past strategies. This is likely to

be psychologically disturbing. Thus, individuals may be motivated to avoid the emotionally disturbing information provided by the knowledge of judgmental deficiencies.

Change. The second consists of the change itself. The individual is now unfrozen from past behaviors and is willing to consider alternatives. The resisting forces are likely to remain, and the individual is likely to continually reassess the desirability of change. In terms of changing decision-making processes, there are three critical steps to the change process itself: (1) clarification of the existence of specific changes to be made; (2) explanation of why these changes make sense; and (3) reassurance that these changes can be effectively adopted by the decision maker. We have attempted to outline the content of this change in this chapter.

Refreezing. Once the change takes place, it is still easy for the individual, organization, or institution to revert back to past practices. Old practices still exist and can be easily used. The new procedures are foreign and must be reinforced. The individual needs to knowingly use the new knowledge in multiple applications. Slowly, the new strategies will become second nature and will take the place of old practices as intuitive strategies. However, frequent application and repeat training are necessary if the change is to last and become institutionalized as part of the individual's intuitive strategies.

Lewin's unfreeze-change-refreeze model is central to many management school courses on decision making and negotiation. Students simulate decisions, often fail, learn a better way of thinking about the problem, and rehearse the new strategies. As a result, decision making and negotiation training has become quite effective in undergraduate, graduate, and executive programs. Unfortunately, key environmental decision-makers are too rarely affected by this training. In addition, the training that does occur too rarely focuses on environmental issues.

We see unfreezing as a key to challenging the host of mindless behaviors that we engage in on a regular basis (Langer, 1989; Louis and Sutton, 1991). Once unfrozen, people, organizations, and institutions are likely to be more susceptible to behavioral change. As we have argued throughout this chapter, many of these mindless behaviors negatively affect the environment.

While these thoughts about changing decision processes focus on the individual level, they are obviously relevant to organizational and institutional levels as well, since organizational and institutional decisions are made by individuals. In the following subsections, we develop the uniqueness of making change occur at these more macro levels.

Organizational Level Solutions

Lewin's unfreeze-change-refreeze model has direct applications to affecting change at the organizational level (Nadler & Tushman, 1989; Jick, 1993; Hoffman, 1998b). To begin the process, organizations often must be pushed out of the inertia of their systems through exogenous shocks (Meyer, 1982; March, 1981; Hoffman, 1999). Many have occurred in recent years (such as Bhopal, the Exxon Valdez, the ozone hole and global climate change), which have pushed many organizations into the movement phase of the change process. But, often this change remains behind the curve of what is necessary and change will continue to be required.

To begin, organizations must alter their structural arrangements to adopt a more integrated approach for handling environmental issues. Given that the existing cultural beliefs are perpetuated and replicated through selection, socialization, and reward processes, structural change must begin with a reconfiguration of these organizational components. Managers must focus on developing an organizational culture that will encourage a merge of environmental and economic interests in the decision-making of its employees. The goal is to move away from a segmented distribution of environmental responsibility and push those responsibilities throughout the organization. Thus, environmentalism becomes part of the decision-making responsibilities at nearly every facet of its structure. Departments such as law, operations, finance, and human resources are finding environmental issues encroaching into their realm of responsibilities. A 1991 survey by the Conference Board found that 77 percent of US companies had a formal system in place for pro-actively identifying key environmental issues (Morrison, 1991). Further, environmental interests are infiltrating many aspects of the corporation, from assuming roles on corporate boards (Cahill & Engleman, 1993) to developing alliances with corporate interests (Orti, 1995). Such broad based organizational involvement in and external infusion of environmental interests should create greater efficiencies within the organization as societal demands for corporate environmental action continue.

Evidence shows that environmental management is being reframed as a business issue that complements the overall business strategy. Articles and books touting the economic benefits of environmental management are growing (i.e., Schmidhieny, 1996, Porter and van der Linde, 1995). And, executives from corporations such as Dow, Monsanto, DuPont, and Union Carbide are actively espousing the benefits of pro-active environmental management while instituting programs for community relations, product stewardship, pollution prevention, and environmental leadership, all in the name of increasing corporate competitiveness and shareholder equity. One critical step in this process lies in the rhetoric and metrics for measuring and communicating environmental initiatives. Traditional business terms such as ROI are being investigated to explain the real costs and benefits to business management (GEMI, 1999). For example, in 1998, the New York Society of Security Analysts — the largest and most influential society of investment professionals in the world — launched Uncovering Value, a series of environmental seminars to examine how progressive corporate environmental practices contribute to a company's performance, profitability, and growth (Descano & Gentry, 1998). This shift in language will trigger organizational initiatives that seek environmental and economic benefits simultaneously. Yet, the connection has not yet been fully made as organizations struggle for proper formulas for accomplishing it. Environmental concerns remain a tough sell on Wall Street.

One signal that the connection is being made is that, as the integration of environmental and economic issues persists, there will be less need for an exclusive corporate environmental affairs department and more reliance on an environmental structure that integrates the skills of all operating and support departments. Although an environmental department's role will not disappear as long as environmental regulations continue to be written, the prominence of its role and the relevance of its function to corporate practice will continue to diminish. The more important environmental work will fall to the broadly diffused management staff in the pursuit of internally defined environmental goals (Hoffman, 1996; 1997).

Institutional Level Solutions

Finally, any permanent change in individual and organizational behavior towards the environment must be part of broader changes in the societal institutions which govern our beliefs and actions. Institutions on the regulative, normative, and cognitive levels must occur. However, the mechanisms by which this can happen vary. Change at the levels of regulative and normative institutions is open to direct intervention and manipulation (Hirsch, 1997). But, change at the cognitive level will only occur slowly over time as regulative and normative institutions become gradually accepted and implanted into the deeper structures of our taken for granted beliefs (Hoffman, 1999a). With this in mind, this last section overviews what kind of institutional changes may bring about less environmental destruction.

First, environmental regulations should give flexibility for corporations to focus on the right emission sources and controls by developing site-specific alternative compliance strategies that achieve equal or greater environmental benefits at lower costs (Schmitt, 1994). Recent programs such as the EPA's Project XL are efforts in that direction, allowing individual exemplar companies to have greater flexibility in achieving environmental objectives, provided that they reduce discharges below current regulatory standards. However, the program has not been fully successful as other more dominant institutions supersede (such as the control and oversight responsibilities that are an embedded component of a regulatory agency's identity and purpose).

Environmental policy should also focus on the secondary effects of regulatory programs, facilitating institutional pressures from business partners other than those associated directly with environmental regulation. Policies should begin to move away from a focus on direct, marginal, and incremental mechanisms for bringing about individual corporate change and should start to stimulate both direct and indirect pressures for industry-wide change. Specifically, policy must attempt to change core business networks, such as financial markets, international regimes, and consumer demands. The involvement of these external interests facilitates an alteration of the entire social system and goes to the source of organizational action. This can both trigger new types of organizational responses and eliminate competing institutional pressures from multiple constituencies (Hoffman, 1997).

Second, inconsistent regulatory structures can be altered to balance interests among programs. For example, several tax reform initiatives are being proposed to integrate environmental interests. For example, a bill before the 104th US Congress, proposed to ease inheritance taxes to create incentives for landowners to create and maintain wildlife habitats (Dellios, 1995). Estate tax reform could also allow the estate (or heirs) to do what the deceased could have done before death: to allow the estate (or heirs) to make tax-deductible gifts of land or an interest in land to a qualified organization. With property tax reform, credits for the cost of land management programs that benefit endangered species on private lands could create financial incentives to undertake such practices. In a move that has gained the support of both property-rights advocates and environmentalists, the Texas legislature recently approved proposition 11 (House Bill No. 1298 from the 72nd Legislature, Regular Session, 1991), a new law that allows owners of agricultural land to convert it to wildlife management uses without losing valuable property-tax exemptions (Pendleton, 1995). Or employing

the same idea through a different mechanism, an income tax deduction would allow for the costs of improving the land to enhance its value as an endangered species habitat.

Normative institutions must also be altered to foster long-term behavioral change. For example, management theory and practice must be altered so that they positively contribute to an understanding of emerging environmental issues as they relate to business practice. If models of corporate behavior do not include serious concerns about environmental survival as more than simply another factor to be added to the economic calculus or the political environment, then it is likely that survival within the economy will depart quickly from survival within the ecosystem. But, rather than viewing existing models as obsolete, to be discarded and replaced by a new set of ideas and theories, they must instead be adapted, bringing them closer to a realistic understanding of the behavior of the firm. This adaptation will manifest itself in a holistic approach to understanding corporate behavior (Egri & Pinfield, 1994). Environmentalism lies at a unique juncture of the physical and the social sciences, incorporating components from a wide group of disciplines such as sociology, organizational behavior, political science, economics, management, engineering, science, and ecology. Given this positioning, it offers valuable opportunities to bridge gaps among differentiated fields. An encompassing understanding of corporate environmentalism requires an integration of the philosophies and theories of each of these disciplines (Hoffman & Ehrenfeld, 1998).

Signs exist that this change may be taking place. On college campuses, interest and involvement in ecological issues appear to be on the upswing (Dembner, 1993). Tomorrow's workforce is being influenced by a growing number of environmental courses offered at business, engineering, science, journalism, law, and public policy schools (Makower, 1993; Mangan, 1994; Pham, 1994; Wagner, 1994; Friedman, 1996). However, demand in some areas is growing faster than others. For example, between 1989 and 1992, enrollment in environmental engineering programs in the US jumped more than twenty-five percent and continues to climb (Wagner, 1994). On the other hand, while 100 of the nation's 700 business schools offer elective courses on the environment (Mangan, 1995), the World Resources Institute notes that "only 16 percent of schools report integrating environment into core or departmental requirements, thus only a few MBAs truly receive environment-business training" (Finley, Bunch & Neubert, 1998). And, while environmental education is growing within separate schools, connection among disciplines does not appear to be occurring.

An important actor in driving this shift in norms and beliefs about the environment has been the environmental groups. Moving beyond the strictly confrontational strategies of the 1960s and 1970s, environmentalists have grown in their sophistication to alter institutional beliefs by undertaking scientific research, influencing press coverage and public opinion, counseling government officials, occupying board level positions in major multi-national corporations (Cahill & Engelman, 1993), and developing direct joint alliances with corporations to mutually develop solutions to environmental problems (Orti, 1995). They have become legitimate voices within the fields of science, business management, policy analysis, law, and international institution building.

Underlying all institutional change, environmental attitudes and beliefs must finally evolve at the level of our cognitive institutions. This requires "an internal change in our intellectual emphasis, loyalties, affections and convictions" (Leopold, 1949: 210).

It will involve the social reconstruction of our fundamental values, effectively forcing an alteration of our basic social structures (Evernden, 1992). Fundamentally, this includes a re-examination of ethics (Jonas, 1973), the preeminence of technological development (Piller, 1991), science, and economics (Capra, 1982). Even our religious conceptions, whose alteration Leopold (1949: 210) saw as a necessity for changing society's "foundations of conduct," must undergo change. This process is beginning. The 1986 Assisi Declarations, for example, is an agreement of five world religions to begin to attend to environmental concerns (Rockefeller & Elder, 1992). More recently, the Presbyterian Church placed environmental concerns into the church canon in 1991, making it a sin to "threaten death to the planet entrusted to our care" (Associated Press, 1991); the Catholic church added environmental concerns to its new catechism in 1992 (Woodward & Nordland, 1992); and His All Holiness Bartholomew I, spiritual leader of the world's 300 million Orthodox Christians, dramatically equated specific ecological problems with sinful behavior, announcing that "For humans to cause species to become extinct and to destroy the biological diversity of God's creation, for humans to degrade the integrity of the Earth by causing changes in its climate, water, its land, its air, and its life with poisonous substances — these are sins" (Stammer, 1997).

CONCLUSION

This chapter has highlighted a number of ways in which we engage in environmentally destructive behavior, often without our knowledge. Our species is responsible for tremendous successes but also guilty of inappropriate levels of environmental degradation. This chapter overviews the role of individuals, organizations, and institutions in creating this degradation. It is useful to notice that we rarely highlight "evil" entities. Rather, a key punchline is that seemingly benign individuals, organizations, and institutions create harm without realizing their impact. We attempt to clarify the mechanisms behind their negative influence.

One simplifying and false assumption that we have made in this paper is that our three levels of analysis were discussed independently. Of course, we did this for organizing the ideas in the paper, not as a reflection of reality. Individual decisions influence organizational behaviors; individual and organizational behaviors affect what becomes institutionalized and *visa versa*. The connections between these three levels can be seen in the taken for granted structures among the three levels. We have tried to highlight how individual biases, basic underlying beliefs of organizational culture, and cognitive institutions each represent common concepts of unquestioned beliefs that perpetuate behavior without the knowledge of the actor. We believe that future research should explore these interconnections more deeply.

It is also useful to recognize that that we have not drawn on the full spectrum of organizational behavior research in this paper. Rather, we have restricted our lens for taken for granted behaviors at multiple levels. This focus is consistent with the exploration of ways in which society destroys the earth without intention. We see this as a useful focus, but are very open to other organizational approaches that could lead to wiser environmental behaviors. We would be delighted to see future research on how culture, leadership, and other organization concepts can be used to improve the environment.

Our paper has also been influenced by the selection of descriptive theories that we see as having prescriptive implications. Clearly, our motivation for studying environmental management issues is the desire to play at least a small role in making the earth a better place. We believe that creating change is partially achieved by developing descriptive theories of behavior that directly lead to prescriptions for change.

We also raise the issue of “why the environment?” Why didn't we focus on other aspects of organizational ethics and social responsibility? Part of the answer is a reflection of the intrinsic interest of the authors. However, part of the answer is that the environment provides a context in which we see behavior that is clearly inconsistent with maximizing the utility of the players engaging in those behaviors. We see the mismanagement of the earth as unnecessary. Any other asset this mismanaged would create the need for action - e.g., taking over the company that was so mismanaged. And, there is no asset more important than the earth. Of course, the earth is more complex than any corporation, and it presents many additional challenges.

Finally, we offer a note on the pessimism of this chapter. The authors are not pessimistic people as a dispositional trait (at least according to our own assessments). Rather, our analytic lens leads us to the conclusion that so much opportunity is being missed. Other writers have focused on the improvements that have occurred in recent times (e.g., Easterbrook, 1995). However, our goal is to create a desire for organizational behavior to play a role in improving the environment. And, we do not need to fix what is right, we need to fix what is wrong. We both prefer to see our assessment as a call to action, encouraging people to be part of the solution, rather than part of the problem.

We have attempted to document not only the harm done, but also the behavioral science behind that harm. We have attempted to show how existing cognitions, procedures, and routines have surprising consequence. Finally, we have attempted to use this knowledge to outline the changes that are needed, behaviorally, to create meaningful change. Obviously, more research is needed. We encourage the organizational behavior intellectual community to engage in this research domain. There are few topics where our scholarship could create greater value.

REFERENCES

- Allenby, B. (1998). USA vs. SD: Can American values and sustainable development live together in peace? *Tomorrow*, 4(8), 61.
- Allison, G. (1971). *Essence of decision*. Boston: Harper Collins.
- Arthur, B. (1988). Self-reinforcing mechanisms in economics. In P. Anderson et al. (Eds.) *The Economy as an Evolving Complex System*. Reading, MA: Addison-Wesley.
- Associated Press (1991). Presbyterians ratify teaching on sex, ecology. *The Boston Globe*, June 9, 1991, 4.
- Associated Press (1998). Logging in national forests cost US \$88M last year, congress told. *The Boston Globe*, June 11, A16.
- Babcock, L., Loewenstein, G., Issacharoff, S., & Camerer, C. (1995). Biased judgments of fairness in bargaining. *American Economic Review*, 85 (5), 1337-1343.
- Barley, S. (1986). Technology as an occasion for structuring: Evidence from observations of CT scanners and the social order of radiology departments. *Administrative Science Quarterly*, 31, 78-108.
- Bazerman, M. & Neale, M. (1992). *Negotiating rationally*. New York: The Free Press.
- Bazerman, M. H. (1983). Negotiator judgment: A critical look at the rationality assumption. *American Behavioral Scientist*, 27, 618-634.
- Bazerman, M. H. (1998). *Judgment in managerial decision making*. New York: John Wiley & Sons.
- Bazerman, M.H., Moore, D., & Gillespie, J. (in press). Our mind as a barrier to wiser agreements. *American Behavioral Scientist*.
- Bazerman, M.H., Wade-Benzoni, K.A., & Benzoni, F. (1996). A behavioral decision theory perspective to environmental decision making. In D.M. Messick and A. Tenbrunsel (Eds.), *Ethical issues in managerial decision making*. New York: Russell Sage.
- Berube, M. (1991). *From pollution control to zero discharge: Overcoming the obstacles*. MIT Center for Technology, Policy and Industrial Development, Cambridge, MA.
- Brett, J. M., Adair, W., Lempereur, A., Okumura, T., Shikhirev, P., Tinsley, C., & Lytle, A. (1998). Culture and joint gains in negotiation. *Negotiation Journal*, January, 61-86
- Brint, S. & Karabel, J. (1991). Institutional origins and transformations: The case of American community colleges. In Powell & DiMaggio (Eds.) *The new institutionalism in organizational analysis*. Chicago, IL: University of Chicago Press, 337-360.
- Brown, L.R. (1998). *State of the world 1998 : A worldwatch institute report on progress*. New York: W.W. Norton & Company.
- Brown, M. & Levine, M. (Eds.) (1997). *Scenarios of US carbon reductions: Potential impacts of energy technologies by 2010 and beyond*. Interlaboratory Working Group on Energy-Efficient and Low-Carbon Technologies, LBNL-40533. Washington DC: Office of Energy Efficiency & Renewable Energy, USDOE.
- Byers, R. (1991). Regulatory barriers to pollution prevention. *Journal of the Air and Waste Management Association*, 41(4), 418-422.

- Cahill, L. & Engelman, S. (1993). Bolstering the board's environmental focus. *Directors and Boards*, Fall, 23-25.
- Cairncross, F. (1995). *Costing the earth*. Boston: Harvard Business School Press.
- Capra, F. (1982). *The turning point*. New York: Bantam Books.
- Clark, K. (1985). The interaction of design hierarchies and market concepts in technological evolution. *Research Policy*, 14(5), 235-251.
- Colby, M. (1991). Environmental management in development: The evolution of paradigms. *Ecological Economics*, 3, 193-213.
- Commoner, B. (1990). *Making peace with the planet*. New York: Pantheon Books.
- Cropper, M. & Oates, W. (1992). Environmental economics: a survey. *Journal of Economic Literature*, 30, 675-740.
- Daly, H. & Cobb, J. (1994). *For the common good*. Boston: Beacon Press.
- Daly, H. (1991). *Steady-state economics*. Washington DC: Island Press.
- David, P. (1985). Clio and the economics of QWERTY. *Economic History*, 75, 227-332.
- Davis, P. (1991). East meets west in latest fight over grazing fee increase. *Congressional Quarterly*, June 22, 1656-1658.
- Dembner, A. (1994). Movement is strong on campus. *The Boston Globe*, November 12, 28.
- Descano, L. & Gentry, B. (1998). How to communicate environmental performance to the capital markets. *CMA News*, April, 33-37.
- Diekmann, K.A., Samuels, S.M., Ross, L., & Bazerman, M.H. (1997). Self-Interest and fairness in problems of resource allocation. *Journal of Personality and Social Psychology*, 72, 061-1074.
- DiMaggio, P. (1991). Constructing an organizational field as a professional project: US art museums, 1920-1940. In Powell & DiMaggio (Eds.) *The new institutionalism in organizational analysis*. Chicago, IL: University of Chicago Press, 267-292.
- Dowie, M. (1995). *Losing ground: American environmentalism at the close of the twentieth century*. Cambridge, MA: MIT Press.
- Easterbrook, G. (1995). *A moment on the earth*. New York: Viking.
- Economist (1992). GATTery v. greenery. *The Economist*, May 30, 12.
- Economist (1996). Alaskan fishing: Pollock overboard. *The Economist*, January 16, 21.
- Egri, C. & Pinfield, L. (1994). Organizations and the biosphere: Ecologies and environments. In Clegg, Hardy & Wood (Eds.), *Handbook of organization studies*. (London: Sage Publications).
- Ember, L. (1991). Strategies for reducing pollution at the source are gaining ground. *Chemical and Engineering News*, July 8, 7-16.
- Engelman, R. & LeRoy, P. (1995). *Conserving land: Population and sustainable food production*. Washington DC: Population Action International.
- Evernden, N. (1985). *The natural alien*. Toronto: University of Toronto Press.
- Evernden, N. (1992). *The social creation of nature*. Baltimore: The Johns Hopkins Press.
- Ferrantino, M. (1994). A brief description of international institutional linkages in trade and the environment, US International Trade Commission, Office of Economics. Working Paper No. 94-11-A, Washington DC.

- Finlay, J., R. Bunch & Neubert, B. (1998). Grey pinstripes with green ties: MBA programs where the environment matters. World Resources Institute: Washington DC.
- Fischhoff, B. (1982). Latitudes and plitudes: How much credit do people deserve? In G. Ungson and D. Braunstein (Eds.), *New directions in decision making*. New York: Kent.
- Fligstein, N. (1992). Bank control, owner control, or organizational dynamics: Who controls the large modern corporation? *American Journal of Sociology*, 98(2), 280-307.
- Friedman, M. (1970). The social responsibility of business is to increase its profits. *The New York Times Magazine*, September 13, 32-33, 122, 124, 126.
- Friedman, S. (1996). Teaching the beat: Rising interest in e-journalism reflected in academic option. *SEJournal*, 6(1), 1, 7.
- Gately, D. (1980). Individual discount rates and the purchase and utilization of energy-using durables. *Bell Journal of Economics*, 11, 373-374.
- GEMI (1999). *Environment: Value to Business*. Washington DC: Global Environmental Management Initiative.
- Gladwin, T. (1993). The meaning of greening: A plea for organizational theory. In Fischer and Schott (Eds.) *Environmental strategies for industry: International perspectives on research needs and policy implications*. Washington DC: Island Press.
- Gladwin, T., Freeman, T., & Kennelly, J. (1994). Ending our denial and destruction of nature: Toward biophysical sustainable management theory. unpublished manuscript New York: Stern School of Business.
- Gladwin, T., Kennelly, J., & Krause, T. (1995). Shifting paradigms for sustainable development: Implications for management theory and research. *Academy of Management Review*, 20(4), 874-907.
- Gore, A. (1992). *Earth in the balance*. Boston: Houghton-Mifflin Co.
- Greer, L. & Van Loben Sels, C. (1997). When pollution prevention meets the bottom line: Cost savings are not always enough to convince industry to adopt prevention actions. *Environmental Science & Technology*, September, 418A-422A.
- Hahn, R. & Stavins, R. (1991). Incentive-based environmental regulation: a new era from an old idea. *Ecology Law Quarterly*, 18(1), 1-42.
- Hannan, M.T. & Freeman, J. (1984). Structural inertia and organizational change. *American Sociological Review*, 49, 149-164.
- Hardin, G. (1968). The tragedy of the commons. *Science*, 162, 1243-1248.
- Hart, S. (1995). A natural-resource-based view of the firm. *Academy of Management Review*, 20(4), 986-1014.
- Hirsch, P. (1997). Review Essay - Sociology without social structure: Neoinstitutional theory meets brave new world. *American Journal of Sociology*, 102(6), 1702-1723.
- Hoffman, A. & Ehrenfeld, J. (1998). Corporate environmentalism, sustainability and management studies. In N. Roome (Ed.), *Environmental strategies for industry*. Washington DC: Island Press.
- Hoffman, A. & Ventresca, M. (1999). The institutional framing of policy debates: Economics versus the environment. *American Behavioral Scientist*, forthcoming.

- Hoffman, A. (1992). The hazardous waste remediation market: Innovative technological development, and the market entry of the construction industry, CCRE Working Paper No. 92-1. Cambridge, MA.: M.I.T. Department of Civil and Environmental Engineering.
- Hoffman, A. (1996). Environmental management withers away. *Tomorrow*, 6(2), 60-61.
- Hoffman, A. (1997). From heresy to dogma: An institutional history of corporate environmentalism. San Francisco: The New Lexington Press.
- Hoffman, A. (1999a). Institutional evolution and change: Environmentalism and the US chemical industry. *Academy of Management Journal*, forthcoming.
- Hoffman, A. (1999b). Organizational change management. In Sexton, K., Marcus, A., Easter, W., Abrahamson, D., & Goodman, J. (Eds.), *Better environmental decisions: Strategies for governments, businesses and communities*. Washington DC: Island Press.
- Hoffman, A. (Ed.) (1998). *Global climate change: A senior level dialogue at the intersection of economics, strategy, technology, science, politics and international negotiation*. San Francisco: The New Lexington Press.
- Hoffman, A., Bazerman, M. & Yaffee, S. (1997). Balancing business interests and endangered species protection. *Sloan Management Review*, 39(1), 59-73.
- Houghton, D., Bishop, R., Lovins, R., Stickney, A., Newcomb, J., Shepard, M., & Davids, B. (1992). *The state of the art: Space cooling and air handling*. Aspen, CO: Rocky Mountain Institute.
- Intergovernmental Panel on Climate Change (1990). *Climate change: The IPCC scientific assessment*. Cambridge: Cambridge University Press.
- Jackall, R. (1988). *Moral mazes: The world of corporate managers*. New York: Oxford University Press.
- Jick, T. (1993). *Managing change*. New York, NY: Irwin McGraw-Hill.
- Jonas, H. (1973). Technology and responsibility: Reflections on the new tasks of ethics. *Social Research*, 40, 31-54.
- Kahneman, D., & Tversky, A. (1973). On the psychology of prediction. *Psychological Review*, 80, 237-251.
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47, 263-291.
- Katz, D. & Kahn, R. (1978). *The social psychology of organizations*. New York: Wiley & Sons, 23-30.
- Kennedy, P. (1993). *Preparing for the 21st century*. New York: Random House.
- Kerr, S. (1995). On the folly of rewarding A while hoping for B. *Academy of Management Executive*, 9(1), 7-16.
- Kramer, R. M. (1994). *Self-enhancing cognitions and organizational conflict*. Working paper, Stanford University Business School.
- Langer, E. (1989). *Mindfulness*. Reading, MA: Addison Wesley.
- Latham, E. (1952). *The group basis of politics*. Ithica, NY: Cornell University.
- Lawrence, A. & Morell, D. (1995). *Leading-edge environmental management*. *Research in Corporate Social Performance and Policy*. JAI Press, 99-126.
- Leopold, A. (1949). *A sand county almanac*. London: Oxford University Press.

- Lewin, K. (1947). Group decision and social change. In T. M. Newcomb and E. L. Hartley (Eds.), *Readings in social psychology*. New York: Holt, Rinehart, & Winston.
- Lober, D. (1996). Evaluating the environmental performance of corporations. *Journal of Managerial Issues*, 8(2), 184-205.
- Loewenstein, G. & Thaler, R. (1989). Anomalies: Intertemporal choice. *Journal of Economic Perspectives*, 3, 181-193.
- Louis, M.R. & Sutton, R.I. (1991). Switching cognitive gears: From habits of mind to active thinking. *Human Relations*, 44:55-76.
- Lovins A. & Lovins, H. (1997). *Climate: Making sense and making money*. Snowmass, CO: Rocky Mountain Institute.
- Lovins, A. (1997). Stabilizing the climate is not costly, but profitable. In Hoffman, A. (Ed.). *Global climate change: A senior-level dialogue at the intersection of economics, strategy, technology, science, politics and international negotiation*. San Francisco: New Lexington Press.
- Makower, J. (1993). Business schools get in line. *Tomorrow*, 3(3), 50-53.
- Mangan, K. (1994). The greening of the MBA. *The Chronicle of Higher Education*, November 2, A19-A20.
- March, J.G. (1981). Footnotes to organization change. *Administrative Science Quarterly*, 26, 563-577.
- March, J.G., & Simon, H.A. (1958). *Organizations*. New York: John Wiley & Sons.
- McGill, A.L. (1991). The effect of direction of comparison on the selection of causal explanations. *Journal of Experimental Social Psychology*.
- McKinney, G. (1992). Environmental technology for competitiveness: A call for a cooperative pollution prevention initiative, speech before the national technology initiative conference. February 12, Cambridge, MA: Massachusetts Institute of Technology.
- McSorley, M. (1993). EPA, company happy with freon gone. *Manchester Union Leader*, March 22, 4.
- Meckling, W. & Jensen, M. (1990). Reflections on the corporation as a social invention. In Cooley (Ed.) *Advances in business financial management: A collection of readings*. Chicago: The Dryden Press.
- Melody, M. (1992). Boatmaker finds solvent substitute, cuts emission, costs. *Hazmat World*, February, 36-39.
- Messick, D.M. & Sentis, K.P. (1983). Fairness, preference and fairness biases. In Messick, D.M. & Cook, K.S. (Eds.), *Equity theory: Psychological and sociological perspectives*. NY: Praeger.
- Meyer, A. (1982). Adapting to environmental jolts. *Administrative Science Quarterly*, 27, 515-537.
- Meyer, J., Boli, J. & Thomas, G. (1987). Ontology and rationalization in western cultural account. In Thomas et al. (Eds.) *Institutional structure: Constituting state, society, and the individual*. Newbury Park, CA: Sage Publications, 12-38.
- Mintzberg, H. (1979). *The structuring of organizations*. Englewood Cliffs, N.J.: Prentice-Hall Inc.
- Morgan, G. (1986). *Images of organization*. Newbury Park, CA: Sage Publications.

- Morrison, C. (1991). *Managing environmental affairs: Corporate practices in the U.S., Canada and Europe*. New York, NY: The Conference Board.
- Nadler, D. & Tushman, M. (1989). Organizational frame bending: Principles for managing reorientation. *Academy of Management Executive*, 3(3), 194-204.
- Nelson, R. & Winter, S. (1982). *Organizational capabilities and behavior*. Chapter Five in *An evolutionary theory of economic change*. Cambridge, MA.: Harvard University Press.
- Nickerson, C. (1994). Stripping the sea's life. *The Boston Globe*, April 17, 1, 24, 25.
- Office of Science and Technology Policy (1997). *Climate change: State of knowledge*. Washington DC: Executive Office of the President.
- Olson, M. (1965). *The logic of collective action: Public goods and the theory of groups*. Cambridge, MA: Harvard University Press.
- Orti, L. (1995). *Environmental alliances: Critical factors for success*. New York, NY: The Conference Board.
- Palmer, K., Oates, W., & Portney, P. (1995). Tightening environmental standards: The benefit-cost or the no-cost paradigm? *Journal of Economic Perspectives*, 9(4), 119-132.
- Pandya, A., Rosenfeld, F., & Caffee, V. (1998). A strong Superfund law is crucial to make polluters clean up sites. *Asbury Park Press*, March 11, 13.
- Pendleton, S. (1995). Birds get a break in Texas with land conversion law. *The Christian Science Monitor*, November 15, 8.
- Pham, A. (1994). Business schools see green. *The Boston Globe*, June 28, 35.
- Piller, C. (1991). *The fail-safe society: Community defiance and the end of American technological optimism*. Berkeley: University of California Press.
- Population Action International (1996). *Why population matters*. Washington DC: Population Action International.
- Porter, M. & van der Linde, C. (1995). Green and competitive: Ending the stalemate. *Harvard Business Review*, September-October, 120-134.
- Raffle, B. & Mitchell, D. (1993). *Effective environmental strategies: Opportunities for innovation and flexibility under federal environmental law*. Chicago, IL: Amoco Corporation.
- Redefining Progress (1996). *What's wrong with GDP*. San Francisco, CA: Redefining Progress.
- Reid, W. (1988). How many species will there be? In Kawano, S., Connell, J.H., & Hidaka, T. (Eds.), *Evolution and coadaptation in biotic communities*. University of Tokyo Press: Tokyo.
- Rein, M., & Winship, C. (1998). *Working paper on causal reasoning and poverty*. Harvard University.
- Rockefeller, S. & Elder, J. (1992). *Spirit and nature*. Boston, MA: Beacon Press.
- Ruderman, H., Levine, M., and McMahon, J. (1986). Energy-efficiency choice in the purchase of residential appliances. In W. Kempton and M. Neiman (Eds.), *Energy efficiency: Perspectives on individual behavior*. Washington, D.C.: American Council for an Energy Efficient Economy.
- Russell, M., Colglazier, E. & Tonn, B. (1992). The US Hazardous Waste Legacy. *Environment*, July/August, 12-15, 34-39.
- Schein, E. (1990). Organizational culture. *American Psychologist*, 45, 109-119.

- Schein, E. (1992). *Organizational culture and leadership*, 2nd Edition. San Francisco: Jossey-Bass.
- Schmidheiny, S. (1996). *Financing change*. Cambridge, MA: MIT Press.
- Schmitt, R. (1994). The AMOCO/EPA Yorktown experience and regulating the right thing. *Natural Resources and Environment*, Summer, 11-13, 51.
- Schnaiberg, A. (1980). *The environment: From surplus to scarcity*. New York: Oxford University Press.
- Scott, W. R. (1995). *Institutions and organizations*. London: Sage Publications.
- Scott, W.R. & Meyer, J. (1992). The organization of societal sectors. In Meyer & Scott (Eds.), *Organizational environments: Ritual and rationality*. Thousand Oaks, CA: Sage, 129-154.
- Shelton, R. & Shopley, J. (1995). *Hitting the green wall. Perspectives*. Cambridge, MA: Arthur D Little.
- Shrivastava, P. (1995). The role of corporations in achieving ecological sustainability. *Academy of Management Review*, 20(4), 936-960.
- Simon, H. A. (1957). *Models of man*. New York: Wiley.
- Sissenwine, M. (1995). The current status of America's fisheries. In Blanton, N., Hart, K. & Wittman, S. (Eds), *Summary report: Can American save its fisheries? A Sea Grant National Issues Forum*, September 11. College Park, MD: National Sea Grant College Program, 3-6.
- Stammer, L. (1997). *Harming the environment is sinful, Prelate says*. Los Angeles Times, November 9, 1-A.
- Stern, R. & Barley, S. (1996). Organizations and social systems: Organization theory's neglected mandate. *Administrative Science Quarterly*, 41(1), 146-162.
- Taylor, S. E. (1989). *Positive illusions*. NY: Basic Books.
- Tenbrunsel, A.E., Wade-Benzoni, K.A., Messick, D.M., & Bazerman, M.H. (under review). The influence of standards on judgment and choices.
- Tenbrunsel, A.E., Wade-Benzoni, K.A., Messick, D.M., & Bazerman, M.H. (1997). The dysfunctional effects of standards on environmental attitudes and choices. In Bazerman, M.B., Messick, D.M., Tenbrunsel, A.E., & Wade-Benzoni, K.A. (Eds.), *Psychological perspectives to environmental and ethical issues*. San Francisco: New Lexington Books.
- Tetlock, P. E., Peterson, R., & Lerner, J. (1996). Revising the value pluralism model: Incorporating social content and context postulates. In C. Seligman, J. Olson, & M. Zanna (Eds.), *Values: Eighth annual Ontario symposium on personality and social psychology*. Hillsdale, NJ: Erlbaum.
- Thomas, R. (1994). *What machines can't do: Politics and technology in the industrial enterprise*. Berkeley: University of California Press.
- Thompson, L. & Gonzales, R. (1997). Environmental disputes: Competition for scarce resources and clashing of values. In Bazerman, M., Messick, D., Tenbrunsel, A., & Wade-Benzoni, K., (Eds.) *Psychological perspectives to environmental and ethical issues in management*. San Francisco: The New Lexington Press.
- Thompson, L., & Loewenstein, G. (1992). Egocentric interpretations of fairness and interpersonal conflict. *Organizational Behavior and Human Decision Processes*, 51, 176-197.

- Treasury Manager's Report (1996). Ignoring the environment can be a waste of money. Treasury Manager's Report, 4(3), 23-27.
- United Nations Center for Human Settlements (1996). An urbanizing world: Global report on human settlements. Oxford: Oxford University Press.
- US Dept. of Agriculture (1995). Summary Report, 1992 - National Resources Inventory Washington DC: Natural Resources Conservation Service.
- US EPA (1997). EPA Green Lights Program Snapshot for January 1997. Washington, DC: US Environmental Protection Agency.
- US EPA. (1992). 1990 Toxic Release Inventory, Report No. 700-S-92-002. Washington DC: US Environmental Protection Agency.
- Wade-Benzoni, K., Tenbrunsel, A., & Bazerman, M. (1996). Egocentric interpretations of fairness of asymmetric, environmental social dilemmas: Explaining harvesting behavior and the role of communication. *Organizational Behavior and Human Decision Processes*, 67(2), 111-126.
- Wade-Benzoni, K.A. Intergenerational justice, Dissertation, Northwestern University: December, 1996.
- Wade-Benzoni, K.A., Tenbrunsel, A.E., & Bazerman, M.H. (1997). Egocentric interpretations of fairness as an obstacle to just resolution of conflict. In Lewicki, Bies & Sheppard (Eds.), *Research in negotiation in organizations*. JAI Press, Volume 6.
- Wade-Benzoni, K.A., Thompson, L.L., & Bazerman, M.H. (1998). The malleability of environmentalism, under review.
- Wagner, B. (1994). The greening of the engineer. *US News & World Report*, March 21, 90-91.
- Walley, N. & Whitehead, B. (1994). It's not easy being green. *Harvard Business Review*, May-June, 46-51.
- Weick, K.E. (1994). Small wins. *American Psychologist*, 39, 40-49.
- Wilson, E. (1992). *The diversity of life*. Cambridge, MA: Harvard University Press.
- Woodward, K. & Nordland, R. (1992). New rules for an old faith. *Newsweek*, November 30, 71.
- World Bank (1992). *World Development Report*. Oxford University Press: New York.
- World Business Council on Sustainable Development (1997). *Exploring sustainable development: WBCSD global scenarios*. London: World Business Council on Sustainable Development.
- World Commission on Environment and Development (1987). *Our common future*. New York: Oxford University Press.
- World Resources Institute (1994). *World resources, 1994-1995*. New York: Oxford University Press.
- Zucker, L. (1983). Organizations as institutions. In Bacharach, S. (Ed.), *Research in the sociology of organizations*, 1-47. Greenwich, CT: JAI Press.

FOOTNOTES

¹ Biological Oxygen Demand (BOD), Notice of Deficiency (NOD), Environmental Impact Statement (EIS), Life Cycle Assessment (LCA).

² While each of the three pillars are theoretically described as resting "on fundamentally different assumptions regarding the nature of reality and how to account for behavior" (Scott, 1995: 52), fitting them

empirically into the strict domain of individual categories is problematic (Hirsch, 1997). Instead, institutions straddle domains and influence organizational action as a interdependent collective (Hoffman, 1999). So in the discussion that follows, while institutions will be analyzed separately among the regulative, normative and cognitive pillars for the sake of clarity, distinctions among them are in reality quite blurred. More than any legal, economic or technological barriers, it is the influence of the entire institutional context that often perpetuates environmentally destructive behavior.