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Landscapes: The Social Construction of Nature and the Environment

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ABSTRACT A theoretical framework is provided to understand a cultural group's definition of and relationship with nature and the environment. The framework draws on a social constructionist perspective that includes aspects of phenomenology and symbolic interactionism to define "landscape" as the symbolic environment created by a human act of conferring meaning on nature and the environment. This landscape reflects the self-definitions of the people within a particular cultural context. Attention is directed to transformation of the physical environment into landscapes that reflect people's definitions of themselves and on how these landscapes are reconstructed in response to people's changing definitions of themselves. Case studies from sociology and anthropology illustrate the social construction of nature and the environment. A discussion of the applied implications of the theoretical framework in social impact assessment and the global implications in the shifting power struggle over competing landscapes concludes the paper.

Introduction

Every river is more than just one river. Every rock is more than just one rock. Why does a real estate developer look across an open field and see comfortable suburban ranch homes nestled in quiet cul-de-sacs, while a farmer envisions endless rows of waving wheat and a hunter sees a five-point buck cautiously grazing in preparation for the coming winter? The open field is the same physical thing, but it carries multiple symbolic meanings that emanate from the values by which people define themselves. The real estate developer, the farmer, the hunter are definitions of who people are, and the natural environment—the physical entity of the open field—is transformed symbolically to reflect these self-definitions. These symbolic meanings and definitions are sociocultural phenomena, not physical phenomena, and they transform the open field into a symbolic landscape.

"Landscapes" are the symbolic environments created by human acts of conferring meaning to nature and the environment, of giving the environment definition and form from a particular angle of vision and through a special filter of values and beliefs. Every landscape is a symbolic environment. These landscapes reflect our self-definitions that are grounded in culture. This essay focuses on the transformation of the physical environment into landscapes through cultural symbols and on how these landscapes reflect our definitions of ourselves. A sociology of knowledge approach, specifically social

constructionism, is combined with phenomenology and symbolic interaction and applied to a variety of examples from sociology and anthropology to highlight the concept of landscapes. A discussion of the applied and political implications of the sociological framework of landscapes concludes the essay.

Landscapes as definitions of ourselves

Our understanding of nature and of human relationships with the environment are really cultural expressions used to define who *we* were, who *we* are, and who *we* hope to be at this place and in this space. Landscapes are the reflection of these cultural identities, which are about *us*, rather than the natural environment. When attempting to identify and understand the potential human consequences of changes in the natural environment, it is imperative that these consequences are understood from the many cultural definitions that create landscapes. Is it the landscape created by the real estate developer, the farmer, or the hunter? Actually, any physical place has the potential to embody multiple landscapes, each of which is grounded in the cultural definitions of those who encounter that place. Every river is more than just one river. Every rock is more than just one rock.

Cultural groups transform the natural environment into landscapes through the use of different symbols that bestow different meanings on the same physical objects or conditions. These symbols and meanings are sociocultural phenomena; they are social constructions (Berger and Luckmann 1967), and they result from ongoing negotiations in a cultural context. Of course, humans reside in a natural ". . . world that is there . . ." to use Mead's phrase (1938: 30); but this world is meaningless. Meanings are not inherent in the nature of things. Instead, the symbols and meanings that comprise landscapes reflect what people in cultural groups define to be proper and improper relationships among themselves and between themselves and the physical environment.

Through sociocultural phenomena, the physical environment is transformed into landscapes that are the reflections of how we define ourselves. Thus, when events or technological innovations challenge the meanings of these landscapes, it is our conceptions of ourselves that change through a process of negotiating new symbols and meanings. These self-definitions, the processes of negotiation over landscapes, and subsequent social actions ought to be the foci of social science inquiry, because there are no natural meanings inherent in the world that is there.[1] Some contemporary examples from around the world illustrate how landscapes are the reflection

[1] But see Weigert (1991) and Bord (1991) for debate on the possibility of natural meanings and a generalized environmental other.

of sociocultural symbols and meanings that define what it means to be a human being in a particular culture.

In India, the World Bank is financing a major development project to construct two superdams, 30 large dams, 150 medium-sized dams, and 3,000 smaller dams, dikes, and irrigation projects along the 800-mile course of the Narmada River (Fineman 1990). The Narmada is the holiest of holy rivers for people who espouse the Hindu religion. The river is known and revered for its great healing power. It is sacred. Over the centuries, thousands of Hindus have walked the 1,600 miles of the Narmada's banks in a healing pilgrimage. When the World Bank project is discussed, the focus typically is on the costs of the lakes created by the dams as they flood thousands of acres of highly productive farmland versus the benefits from the jobs that will be created by the new sources of hydroelectric power. There is, however, an alternative way to frame the question of how the World Bank project will affect the human-environment relationship along the Narmada River—a frame that focuses on the landscape that reflects Hindu people's definitions of themselves. How will the healing powers of the Narmada River be affected by damming the river into a series of pools?

In the American southwest, the U.S. Department of Energy (1988) is conducting studies to determine whether a geologic formation known as tuff at Yucca Mountain, Nevada, is suitable for a high-level radioactive waste repository. Tuff is a form of compressed volcanic ash. As part of these studies, engineers are developing canisters to safely hold the waste for about 300 years, after which the canisters will disintegrate and the tuff, which is thought to be impervious, is expected to form a natural barrier around the waste to safeguard the environment for another 10,000 years. Nearly all the scientific debate revolves around technical questions about the geologic stability of the site and whether tuff will act as an effective natural barrier to the radioactive waste.

Southern Paiute elders, however, might offer a very different perspective on the repository as a reflection of the landscape emanating from Southern Paiute beliefs and definitions of themselves (Stoffle et al. 1989). Southern Paiute people believe that rocks are spiritually powerful elements of the natural environment. Different rocks can heal, bring luck, or bring problems. "Yellow cake" was known as a spiritually powerful paint made from fine radioactive rock dust that was used only after taking culturally appropriate precautions. The place where yellow cake was gathered was also a spiritually powerful place and Southern Paiute people were taught not to spend long periods of time there. Some Southern Paiute elders interpret the problems of radioactivity in fundamentally different ways than the scientists and engineers involved in the repository program—ways that are consistent with their landscape and definition of themselves.

For these elders, the problems of high-level radioactive waste are the result of the angry spirit of the rock that was mined without appropriate cultural precautions and put to uses that the spirit did not approve. Southern Paiute elders ask: Can engineered and natural barriers to the escape of radioactive waste ever stop the angry spirit of the rock?

In another part of the world, the more urban Lexington, Kentucky, the great thoroughbred estate of Calumet Farm had fallen on hard times. The estate had been the home of many world champions and had come to symbolize the place of Lexington in the international world of the "sport of kings." Local people expressed great concern that the estate would be subdivided and developed as residential housing or a shopping mall. The local government began to consider expensive schemes to save this locally important site. Every major metropolitan newspaper in the country reported that Calumet Farm—the home of internationally famous thoroughbreds and the heart of the Bluegrass horse country—would be put on the auction block. A collective sigh of relief and a standing ovation greeted the new owner of Calumet when he proclaimed that he intended to change not a single blade of grass. For many people of the Bluegrass and thoroughbred breeders, something much more, something qualitatively different from just a farm, was saved that day. The symbolic representation of a collective local history—the essence of a collective self-definition that has dominated the region for generations and was embodied in the landscape of Calumet Farm—had been saved.

What these landscape examples suggest is that the definitions of nature and the environment are grounded in various symbols through which cultural groups transform nature and the world that is there into meaningful subjective phenomena. These subjective phenomena are reflections of how people define themselves *as people* within a given group or culture. Faced with change, the process of negotiating new self-definitions begins, but the negotiations occur within the context of existing landscapes that frame the directions that the new self-definitions may take.

Alternative perspectives on the human-environment relationship have been offered, but we believe they place too much emphasis on the deterministic aspects of nature, the environment, and culture, to the exclusion of human volition and negotiation in constructing landscapes. Some cultural ecologists argue that nature and the environment are givens and that different cultural groups simply adapt to that environment. Some psychologists and sociobiologists argue that human actions are genetically oriented in certain directions and, again, people tend to respond in certain ways to a given environment. Others, including some sociologists and anthropologists, suggest that if we continue to harvest the rainforest, allow a certain

species to become extinct, or permit the world's population to grow, certain human consequences inevitably will occur.

These perspectives imply an environmental as well as a cultural determinism and have long and respected histories in the social sciences. Yet, Soja (1989) critiques the "new social sciences" that arose at the turn of the century and after, such as historical materialism, Fordism, and socialism, for de-emphasizing the meaning of space or geography and treating space as a given. For Soja and other postmodern theorists (e.g., Harvey 1989; for a general review see Rosenau 1992), space or the physical environment is not a given; it is socially constructed to both "... reflect and configure being in the world" (Soja 1989:25). This postmodernist critique of traditional social sciences reflects our concern that deterministic theories tend to ignore socially-constructed symbols and meanings that create nature and the environment and the processes through which these symbols and meanings are negotiated, renegotiated, and imposed on other groups through the use of power.

Do deterministic theories contribute to understanding whether the Narmada River will lose its healing power or whether science can contain the spirit of an angry rock? To better understand these types of sociocultural issues, an interpretive framework that views landscapes in terms of symbols and meanings that reflect the definitions people construct of themselves is needed. As environmental sociologists, we believe the field needs to move away from an objectification or reification of natural meanings and a generalized environmental other (see Weigert 1991) and away from an increasingly dominant focus on the world that is there. A renewed focus on how human actors creatively use culture as a resource to construct symbols and meanings that define nature, the environment, and human-environment relationships and on how power is used to impose these social constructions on other groups is necessary. This essay attempts to elaborate this focus on landscapes.

An interpretive framework for symbolizing landscape

To understand human relationships with the natural environment, the subjective symbols and meanings through which a group of people socially constructs the landscape must be described. Natural phenomena are sociocultural phenomena in the sense they are constructed through social interactions among members of a culture as they negotiate the meanings of nature and the environment. "The origin of natural resources are to be found in society, not in the earth. Unlike nature, the web of human society is woven of myth and rhetoric, of faith and persuasion, which filter and sort the meanings of man and nature" (Burch 1971:9). Various conceptions of nature are created from different social and cultural contexts and

nature then becomes indistinguishable from that context. "Each culture constructs its own world out of the infinite variety of nature. . . . [Nature is] socialized . . . reorganized . . . [and] made into a material manifestation of social structure" (Busch 1989:7). The natural environment is transformed into culturally meaningful phenomena and then is viewed from the perspective of these cultural definitions.

In essence, a sociocultural group constructs a landscape from nature and the environment through culturally meaningful symbols and then reifies it. "Humans are constantly engaged in seizing natural phenomena, converting them into cultural objects, and reinterpreting them with cultural ideas" (Bennett 1976:4). In this sense, the natural world ". . . is presented in a kaleidoscopic flux of impressions which has to be organized in our minds. . . . We cut up nature, organize it into concepts, and ascribe significancies as we do largely because we are parties to an agreement to organize it this way" (Whorf 1956:213).

Shared, taken-for-granted, and reified symbols and meanings that emerge through processes of negotiation thus define social and natural phenomena and the situations in which they are located. These intersubjective definitions of the situation, rather than the situations per se, constitute reality for the group of people (Thomas and Thomas 1928). Cultural groups continue to reconstruct and redefine their realities—past, present, and future—through ongoing social interactions, which may be thought of as negotiations over meaning, that reinforce and change the symbols, meanings, and definitions of the situation (Corsaro 1985; Denzin 1977; Fine 1991; Goffman 1974).

Symbols and their meanings change over time, but they have a persistence that gives them long-term continuity. Human societies have experienced natural and social calamities—earthquakes, volcanic eruptions, hurricanes, wars, riots—since the beginning of time, but ". . . with a core of continuity, survival and reconstruction evident" (Burch 1971:53). It is the use of systems of symbols that makes this core possible. Thus, as Burch argues, understanding symbol systems is essential to understand relationships between human societies, nature, and the environment.

This core of continuity, survival, and reconstruction is demonstrated in the works of Jorgensen (1990) and Brody (1982, 1987) about native peoples of Alaska and northern Canada and their relationships with each other and the natural environment. Each of these authors writes of the tenacity of traditional values, which Jorgensen (1990:262) defines as ". . . significant symbols attached to things . . . ." Even as these peoples adopted snowmobiles, rifles, frame houses, and Christian beliefs over the past 100 years, they continue to define themselves as subsistence hunters. The adoption of tech-

nological innovations and the responses to externally driven changes must be viewed in the context of this self-definition. By defining themselves, they create their own landscape, one that can accommodate innovations without substantially altering how subsistence hunting defines their relationships with each other and imbues the natural environment with symbolic meaning.

How can a landscape persist and sustain a core understanding of human-natural environment relations among a group of people in the face of technological, economic, and other changes? Tax (1990) offers an explanation for the tenacity of significant symbols and values. Lying beneath what he calls the relatively observable world view of a culture is a structure of beliefs that is ". . . shared in a community. These shared convictions of what is proper form a system of values . . ." (Tax 1990:280). This structure of beliefs is comprehensive and is so taken for granted, so implicitly obvious to the individual, that it is indistinguishable from the person's self-definition. It is here, then, in the structure of beliefs that the most tenacious, most significant symbols are embedded and maintained.

Overlaying this structure, Tax (1990) argues, are superficial manifestations of the structure of beliefs and these manifestations are quite changeable. New technologies or other externally-introduced changes may represent such superficial manifestations and may be voluntarily incorporated into the lives of people in ways that enhance or, at a minimum, do not contradict their self-definitions and taken-for-granted relationships to each other and to their landscapes.

Another form of cultural determinism of the human-environment relationship is not suggested by introducing Tax's notion of a comprehensive structure of beliefs. Instead, the belief structure is something that people bring to a new situation that needs definition (Blumer 1990) and provides a context within which negotiations over the meaning of the situation occur. Thus, the more durable traditional symbols and beliefs provide people with an interpretive framework—a familiar context—within which they can construct the meanings of new technologies and other changes. The snowmobiles, rifles, frame houses, and expressions of Christian beliefs among the peoples described by Jorgensen (1990) and Brody (1987) had no implicit meanings when they entered the lives of people of the North. Rather, the meanings were negotiated within the context of the structure of beliefs used by these people to define themselves as subsistence hunters within their landscape.

Authors use different words to express the notion of landscape and the need to inquire into these social constructions to comprehend the human consequences of environmental change. There seems to be a general tacit understanding, however, that these land-

scapes are created out of the natural environment as reflections of our cultural definitions of ourselves.

Symbolic transformation of the environment

Cultural groups use symbols to define the natural environment and fit it into their ongoing, everyday, taken-for-granted worlds within which they organize both their relationships to each other and their relationships with the environment. The natural environment is transformed through symbols and concepts that organize peoples' relationships in the social world.

The natural environment as a symbolic social construction is reified by the sociocultural group (Fine 1991). Berger and Luckmann (1967:89) suggested that "[r]eification implies that man is capable of forgetting his own authorship of the human world. . . . Human meanings are no longer understood as world-producing but as being, in their turn, products of the 'nature of things'." As such, the symbolic social constructions—and here the landscape is included—become part of the world taken for granted (Schutz 1967). Members of the group act with the intuitive knowledge that their relationships to the natural environment could be no other way. Geertz (1983: 58) calls these reified elements ". . . experience-near concepts . . ." by which he means ". . . that ideas and the realities they inform are naturally and indissolubly bound up together." Jorgensen (1984: 181) suggests something similar to this reification of the landscape in his discussion of the meanings of soil and sea mammals to different groups: "Sentiments and ideas attached to practices of using and inheriting soil, or killing, butchering, and distributing *ugruk* (bearded seals), for instance, are cultural phenomena and the understanding of these phenomena requires an understanding of cultural organization, not soils and seals." Soil and seals are elements of the natural environment that have been transformed into symbols that represent the essence of what it means to be a human in a particular sociocultural group.

Cultural groups socially construct landscapes as reflections of themselves. In the process, the social, cultural, and natural environments are meshed and become part of the shared symbols and beliefs of members of the groups. Thus, the natural environment and changes in it take on different meanings depending on the social and cultural symbols affiliated with it. As a group's definition of itself—the essence of what it means to be human—is renegotiated, so too is the definition and conception of the environment. Blumer (1969:238–39) captures the essence of this relationship:

> Human beings are seen as living in a world of meaningful objects. . . . This world is socially produced in that the meanings are fabricated through the process of social in-

> teraction. Thus, *different groups come to develop different worlds*—and these worlds change as the objects that compose them change in meaning. . . . *To identify and understand the life of a group it is necessary to identify its world of objects . . . in terms of the meanings objects have for the members of the group* (emphasis added).

Note that Blumer did not say that groups' worlds change as their objects change. Such a statement would have landed him in the camps of ecological or materialist determinism. Rather, he asserts the primacy of meaning over material and locates the origin of meaning in the negotiations of social interaction. The sociological idea of landscape expands the definition of "object" to include nature and the environment. Thus, it is not an environmental change per se, but the meanings of that change that are negotiated within and between groups of people, that result in sociocultural outcomes.

A broader interpretive framework for understanding people's relationships with each other and the environment is needed, one that links people's changing conceptions of nature and the environment with people's changing conceptions of themselves. A sociology of knowledge perspective (Berger and Luckmann 1967), combined with phenomenological and symbolic interaction perspectives, provides a framework for understanding the symbolic transformation of the environment into cultural reflections of ourselves. From a sociology of knowledge perspective, reality is socially defined and the meanings of things within this reality are created by people. Concurrently, this reality and the meanings of things stand as empirical facts confronted by people; they are reified phenomena. A phenomenological perspective emphasizes the taken-for-granted nature of everyday life, ". . . the accomplishment and maintenance of a shared reality, an ordered, meaningful field of action and interaction . . . the interplay of commonsense knowledge, anonymity, and social relationships in everyday life" (Rogers 1981:134). A symbolic interaction framework emphasizes, among other things, the importance of shared symbols and meanings, the importance of symbols and meanings in a group's definitions of the situation, and the negotiation of meaning as a change in context occurs (Stryker 1987).

Taken together, these perspectives suggest that individuals perceive and categorize that which is given—the social and natural environment—in terms of intersubjective, taken-for-granted symbols and meanings and thereby define the situations in which they are located. These definitions of the situations constitute reality for those who share these meanings. As the context changes—as environmental change occurs, for example—there is no inherent meaning to the change (Blumer 1990). Instead, people negotiate the meaning of the contextual or environmental change as a reflection

of their changing definitions of themselves. In this sense, then, nature and the environment are socially and culturally constructed through these social processes and become landscapes through social interaction and negotiation.

Competing and changing landscapes

There are many examples of the symbols associated with the natural environment and the cultural relationships among people that result in these landscapes. A few studies that are cross-cultural illustrate that both western and non-western peoples create landscapes as a reflection of their definitions of themselves. These case studies came from diverse theoretical perspectives that incorporate cultural characteristics in their analyses. However, a common but missing thread through all of them is the notion of landscape, which illuminates the use of culture to socially construct symbolic environments and highlights the negotiation of meanings attached to these environments.

Aborigine people and park rangers in Australia have distinct meanings of fire and very different management practices based on these meanings (Lewis 1989). These meanings reflect self-definitions of the two groups of people. To Aborigines, the meaning of fire derives from traditional ecological knowledge that is holistic with respect to their overall knowledge of hunting and gathering, that is, to their traditional culture—their definitions of themselves. To them, setting fires is the most important management tool used to influence the distribution and relative abundance of plants and animals that form (or formed) the economic basis of their society and culture. Fire setting is not done haphazardly, but is based on a myriad of environmental signs that have been taught orally across generations of Aboriginal people for 35,000–40,000 years.

The Aborigines' indigenous knowledge, however, is not part of the management knowledge of park rangers, one of whom states: "There are so many unknown factors in the total question that we may be best advised to adopt a cautious approach" (Lewis 1989: 951). The park rangers define themselves as scientists, which defines their landscape and the meaning of fire. The unknown factors, however, are not unknown to Aborigines, for they are but parts of the whole world which native people know implicitly. Fire is a part of this holistic landscape. The differing bases of knowledge and self-definition—one scientific, one sociocultural—have embedded within them very different meanings associated with fire and the practice of burning: "For Aborigines, burning, like other subsistence activities, is part of daily life . . . it is explained by events in the Dreamtime. . . . For Europeans, it is a special field of research and a specific set of activities" (Lewis 1989:953).

Scientists and American Indian people use very different epistemologies to make sense out of their worlds and very different cultural resource management recommendations result from these epistemologies (Stoffle et al. 1990). The landscapes of the two groups reflect these differing epistemologies. To Indian people, artifacts, plants, rocks, springs, and other elements in the nonhuman environment connect Indian people to their creation, to their ancestors, to each other, and to their future. They do not have to understand the specific interconnections between these parts of the cosmos in order to have a complete and comprehensive cosmology. Thus, disturbance of any part disturbs the whole, which includes disturbing Indian people. Scientists, however, use the verification and hypothesis-testing of positivist science to understand the cosmos and cannot understand the whole without testing the interconnections between the parts. These are diametrically opposed epistemologies: "To western scientists the world as a whole is not confidently understood, but gradually becomes known by analysis of the interrelationships of its components. To Indian people the whole world is confidently known, but the interrelationship between some of the components may not be understood" (Stoffle et al. 1990:13).

Knowledge of the whole leads Indian people to recommendations for holistic conservation (Stoffle and Evans 1990), wherein the importance of one creosote bush, for example, which played an important role in the creation of the Western Shoshone and Southern Paiute peoples in the U.S. Southwest, is equivalent to all creosote bushes in the region. Disturbance of one creosote bush disturbs Shoshone and Paiute people because it disturbs the holistic landscape that reflects their definitions of themselves. Scientists, however, discount the importance of a single creosote bush, since it is one of the most common plants in the region. How can the destruction of one creosote bush or even a thousand make any difference in an environment where hundreds of thousands of others can be found? These competing epistemologies lead to very different assessments of the sociocultural and environmental consequences of development projects, even those as common as the construction of a road.

Farmers and ranchers of the American West and native peoples of the American West and Alaska have very different meanings associated with land and these meanings reflect definitions of themselves (Jorgensen 1984). Along with these different meanings come different responses to the development of coal mines or oil and gas fields. The meaning of land to farmers, even though they are frequently deeply attached to their land, is similar to the meaning of land to business entrepreneurs. Both groups view land as a commodity and they generally welcomed the coal mines and other developments of the 1970s and 1980s. The meaning of land to ranch-

ers is more expansive than the meaning of land to farmers; ranchers incorporated the values of vistas, open spaces, physical isolation, and disapproval of trespass into the meaning of land. Ranchers are wary of the energy developments and express much concern about adverse consequences to the land. The meaning of land to Indian and Eskimo peoples is even more expansive: ". . . spaces where livelihoods are obtained, places where present and future generations will reside, and spaces that are part of nature, yet endowed with spirits that are more than natural and that are of special consequences and meanings to past, present, and future generations . . ." (Jorgensen 1984:182–83). The fact that Indian and Eskimo peoples have rejected more energy developments than they have accepted ". . . and then worry about those that have been accepted" (Jorgensen 1984:180) is a reflection of the symbolic meaning of land to them. All of these groups—ranchers, farmers, entrepreneurs, and natives—have constructed different symbolic meanings for the land thereby creating different landscapes that reflect their definitions of themselves. These definitions lead to different attitudes toward potential changes in their landscapes and to different human consequences of environmental change.

The idea of landscape assists in understanding different organizations that manage natural resources. For example, there is a rich symbolism and set of symbolic meanings that are part of the organizational culture of the U.S. forestry profession (Kennedy 1988). These symbols and meanings define the self-images of foresters, appropriate relationships with others in the context of forest management, appropriate relationships with the forest, and natural phenomena, such as fire. Within the forestry profession, the landscape has changed dramatically during the past 50 years, as evidenced by the let-burn policy adopted in the 1988 Yellowstone National Park fires. Over time, fire has been deemed as an adversary, a deliberate management tool, and an inevitable natural occurrence. Of course, with each symbolic definition, there was good science that contributed directly to the landscape that was created. The symbols of the profession and the symbols' meanings have changed over time, reflecting changing self-images and changing definitions of appropriate relationships with others and with the natural environment. The forest and fire—the world that is there—have not changed. But their meanings have been renegotiated and reconstructed by those whose social identity and self-definition incorporates both aspects of the natural environment.

The concept of landscapes also can help us interpret conflict within communities or differences between ethnic groups, with respect to the natural environment, within the same culture. For example, very different meanings associated with water emerged in a rural community of the Intermountain West as the community faced a

proposed environmental change (Greider and Little 1988). Before the proposed change, community members shared a taken-for-granted symbolic meaning attached to water in its role in irrigated agriculture, to which most members were connected in some way. After a proposal to transfer a large quantity of water from agriculture to an electricity-generating power plant, competing symbolic meanings of water emerged and led to significant social consequences. One group of community residents asserted a quasi-religious meaning to the use of water in irrigated agriculture, strongly opposed the transfer, and condemned neighbors who supported the transfer. Another group symbolically attached to water the meanings associated with the rights of private property and, just as strongly, supported the transfer. The consensus on the symbolic meanings of the landscape broke down in the face of the proposed environmental change, leading to a renegotiation of the symbolic meaning of water and the relationship of humans to water among those who once shared a common interpretation based on their social interactions. The resulting competing definitions of themselves and their relationships with each other led to the emergence of competing landscapes.

In rural Illinois, the meanings of land to two ethnic groups of farmers reflect differences between the groups' definitions of themselves. These meanings and self-definitions lead to divergent patterns of land use and intergenerational land transfers (Salamon 1980, 1984, 1985a; Salamon and O'Reilly 1979). German "Yeoman" farmers who settled on the prairies of Illinois brought with them a strong attachment to the land as a sacred possession that led to an emphasis on maintaining family control of land across generations (Salamon 1985b). Irish "Yankee" farmers who moved to the Illinois prairies from New England had a more entrepreneurial view of land as an investment without any significant sentimental attachment. For Irish Yankee entrepreneurs, intergenerational transfer of the land is secondary to a desire to maximize profits and there is no preference for setting up the next generation in farming. On the prairies of rural Illinois, different ethnic identifications and self-definitions within the same physical environment led to different landscapes and, together, these influence farming goals, agricultural strategies, kinship patterns, patterns of intergenerational relations, community structures, and social relations. The character of farming and the nature of these rural communities today are a direct result of different cultural definitions surrounding ethnicity, which lead to different landscapes among German and Irish farmers.

Implications of landscapes

The sociological framework of landscapes provides insight into why different groups clash over the meaning of a change in the natural

environment and the definition of potential human consequences from that change. What scientists or developers may define as a simple modification of the natural environment—construction of a desert road, for example—may be defined as a threat to the fundamental meaning of a group's lifeworld, as with the creosote bush for Western Shoshone and Southern Paiute peoples of the American Southwest. Alternatively, what scientists or other professional specialists define as unacceptable alterations of the natural environment—uncontrolled but intentional burning of brush, for example—may be simply the persistence of a traditional relationship to the environment identified in cultural legend, as with the Aborigines in Australia. Thus, the framework of landscapes provides a vehicle for interpreting the sociocultural consequences of technological and environmental changes from the diverse perspectives of all participants.[2]

Applied implications

In the applied arena, more effective management of project development and community responses to environmental change can result from the sociological framework of landscapes. The framework emphasizes that the environment has multiple meanings, that these meanings are symbolic reflections of how people define themselves, and that changes in the environment can challenge these cultural expressions and require a renegotiation of the meaning of both themselves as people and their relationships to the environment. In the arena of social impact assessment, this framework suggests that there are sociocultural impacts of an environmental change precisely to the extent that the new cultural definitions and expressions of a group of people that are negotiated in the face of the change differ from the cultural definitions and expressions that existed prior to the change. The framework also suggests that the potentially affected population should include all peoples whose cultural self-definitions and landscapes include the physical environment in which the change is occurring or is proposed to occur.

As others have noted (e.g., Freudenburg and Gramling 1992; Gibbs 1990; Ridington 1982; Stoffle et al. 1991), social impacts occur prior to the actual implementation of the development project or environmental change. Social impacts occur from the points of in-

[2] Nothing we have said about landscapes should be interpreted as favoring qualitative over quantitative methods. We thank an anonymous reviewer for bringing this point to our attention. In the words of Berger and Kellner (1981:46): "There is nothing wrong whatsoever with quantitative methods—*as long as* they are used to clarify the meanings operative in the situation being studied." Indeed, the use of both qualitative and quantitative methods in the study of landscapes would contribute to understanding the web of social interactions that are the basis for negotiations over environmental meanings and definitions.

ception and, especially, announcement of the planned change. The framework of landscapes accounts for the occurrence of sociocultural impacts prior to actual change. Within this framework, the sociocultural impacts are created as a group interprets the proposed change within the context of their definitions of themselves and begins the process of renegotiating these definitions in light of the proposed change. These definitions, of course, incorporate the group's social, political, and economic resources and how these resources are used in ongoing social relations and negotiations with other groups. If the proposed change can be incorporated into their ongoing self-definitions and taken-for-granted symbols and meanings with minimal conflict, then renegotiation of their definitions of themselves will not be needed and sociocultural impacts will not occur from the change. If, however, the development project or environmental change cannot be incorporated into these everyday lifeworlds or threatens access to valued resources, then negotiations among members of the group about who *they* were, who *they* are, and who *they* hope to be at this place and in this space will occur. These new definitions are the sociocultural impacts.

A brief example is needed to better understand the implications of this definition of sociocultural impact. Suppose the military proposes to withdraw a piece of land from the public domain to be used for on-the-ground training maneuvers. The land will be closed to public access twice a year for three weeks. The land has no roads traversing it and is used currently as open range for cattle, a use that will be permitted to continue after the land is withdrawn. There is a considerable amount of complaining about the proposed withdrawal among local ranchers who use the land. They fear that their cattle may be in danger from the military training maneuvers and that increased dust may result in respiratory problems for the cattle. The consequences to cattle may have a high likelihood of occurring and they would be addressed in the environmental assessment or environmental impact statement for the land withdrawal. Most social impact assessment practitioners would probably agree that these impacts are not sociocultural impacts, nor are the many complaints from ranchers stemming from the proposed land withdrawal.

Now, consider the same proposed land withdrawal, but this time rumors begin circulating that the land will be used for top-secret experimental testing of vaccines for defense against biochemical agents. Nothing military officials say stops these rumors from spreading and gaining strength. Some of the ranchers even believe that the military has already begun the tests. Events that happened in the recent past and that happen today—some trees die, a spring dries up, a couple of calves are stillborn—are reinterpreted as evidence that the rumors are true. Ranchers and their families become fearful and begin talking about (negotiating) what the land with-

drawal means to them in the context of their definitions of themselves as ranchers and as people. They begin the process of negotiating the meanings of their landscape in terms of changing definitions of themselves. These new definitions and subsequent meaningful actions comprise the sociocultural impacts that are highlighted by the framework of landscape.

International development efforts could also benefit through an understanding of a cultural group's landscape, as a study of Bali's traditional cropping and irrigation systems demonstrates (Cowley 1989). Bali's agricultural system was maintained by a network of temples and priests who determined whether *DewiDanu,* the water goddess, approved of the plans by individual villages to tap a new spring or divert water from a canal. Temple priests not only allocated water resources among hundreds of farming villages but also set planting and harvesting schedules to please the water goddess. Unintentionally, their religious practices maximized soil conservation and minimized crop losses due to pests. Temple priests would direct villages to plant and harvest nearby lands simultaneously, then allow these lands to lie fallow for a common period. This technique effectively reduced forage opportunities for rats and other pests. By pleasing the water goddess, Bali people kept soil nutrients and produced tons of the same crop every year for centuries, with no decline in yield.

The remarkable success of Bali's priests as ecological master planners became apparent several years after the initiation of an Asian Development Bank project to expand the system of dams and canals and to introduce new higher-yielding varieties of rice. The project led to dramatic declines in productivity and the loss of fish and eels in the rice paddies. Subsequent computer modeling demonstrated that the biggest harvests accompanied simulated models that most closely resembled practices the farmers had been following for hundreds of years. Cowley notes that the Bali study demonstrates that local wisdom is often overlooked by development agencies as they try to fix what isn't broken.

Political implications

As the status of and prospects for the physical environment become a focus of national and international debate, the question of whose landscape is being protected, altered, or exploited becomes more important. As Bord (1991) suggests, the issue of symbolic politics in the realm of the global environment is becoming significant given the inherent uncertainty of environmental problems, which leads to competing scenarios. When society addresses diverse environmental questions—Is global warming occurring, and if so, does this constitute a threat? What is the appropriate method of disposing of toxic wastes? What role should tropical rainforests play in national devel-

opment strategies?—knowledge of the groups with vested interests in that particular physical environment by having incorporated it into their landscapes becomes a factor in understanding subsequent events. This knowledge enables us to consider who influences the definition of the situation and how this influence is accomplished, as well as how the definitions of the situation reflect the groups' definitions of themselves. The sociological framework of landscapes provides a vehicle for understanding the use of power and political conflicts that emerge around the issue of global environmental change.

Events in the political arena depend on and reflect power relationships. Lamont and Wuthnow (1990:295) "... define power as the capacity to impose a specific definition of reality which is disadvantageous to others ... or as the capacity to structure the situation of others so as to limit their autonomy and life-chances." In the context of landscapes, power is the capacity to impose a specific definition of the physical environment, one that reflects the symbols and meanings of a particular group of people. Politics is about a negotiated order, "... one characterized by a complex network of competing groups and individuals acting to control, maintain, or improve their social conditions as defined by their self-interests" (Hall 1972:45). In the political arena of environmental issues, self-interests are embodied in a group's definition of itself as reflected in its landscape. The particular landscape that comes to dominate and thereby influence social actions and the allocation of social resources is the one that represents the group exercising the greatest degree of power.

What factors influence the processes of creating, sustaining, negotiating, and imposing symbolic landscapes? Three key factors underlie power in these processes: the ability to define what constitutes information (i.e., the ability to construct knowledge), the control of this socially-constructed information, and the symbolic mobilization of support. These factors are part of a larger process of impression management.

The power to define what constitutes knowledge and to control this information reflects the old axiom that knowledge is power but recognizes that some forms of knowledge can assert more power than other forms of knowledge. Goffman (1959:141) argues that "... the audience must not acquire destructive information about the situation that is being defined for them." Thus, it is critical to manage the definition and flow of information in terms of who knows what and who knows when. Symbolic mobilization of support entails using knowledge to shape the definition of issues, alternatives, and other groups so that those who are not directly involved in the situation are moved to accept one landscape over another. Hence, we arrive at a broader concept of impression management.

"The maintenance and activation of power come from being able to convince others of the correctness of your position, of being able to appeal to those symbols which strike a resonance, of presenting one's self in the appropriate and desired style" (Hall 1972:51). Simply replace position and self with landscape and the maintenance and activation of power in the creation and negotiation of landscapes become evident.

Impression management of landscapes occurs through a variety of cultural media. Laws, customs, myths, legends, novels, poems, stories, histories, biography, art, photography, music, and movies are only some of the media through which landscapes are created, recreated, and redefined. Indeed, any human activity (including talk) or product intended to communicate meaning to others is a potential medium for symbolizing landscape. Differential access to the media through which landscapes are maintained or changed affects the degree to which one landscape—one set of cultural self-definitions—is likely to prevail over others. Access to these media is affected by the power relationships in local, national, and global arenas. The power of some groups to access and control the increasingly global media has direct consequences on whose symbolic definitions of nature and the environment get imposed, sometimes through the use of force, on others with less power.

The power relationships that enable certain landscapes to dominate political decision-making are experiencing interesting shifts in the postmodern world. There is now a world full of images that lie outside of people's everyday experiential knowledge, images on which they are nevertheless expected to form beliefs. Cultural groups that once had limited access to media, and therefore limited opportunities to influence the definition and flow of messages that are essential to establishing and sustaining a particular landscape, have acquired new resources as well as become more sophisticated in mobilizing support. For example, a full-cover picture of Paiakan, a chief of the Kayapo Indians of Brazil, appeared recently on the cover of *Parade: The Sunday Newspaper Magazine* under the title "A Man Who Would Save The World" (Whittemore 1992). The article describes Paiakan's village of Aukre and his travels around the world, ". . . even touring briefly with the rock star Sting, to make speeches about the growing urgency of his people's plight." The Kayapo people are representative of indigenous rainforest peoples throughout Central and South America who are renegotiating their definitions of themselves as people in the face of substantial logging activities.

What is interesting in this global struggle over landscapes is the supplanting of the development interests' landscape by the landscape of the Kayapo and other rainforest people. The timber companies, the workers who rely on timber cutting and processing of timber around the world, state and national governments who profit

from the current patterns of rainforest use, and other groups with a financial interest in the development of the rainforests had, until recently, successfully mobilized support for their landscape. Whittemore (1992:7) states that today "[t]he Brazilian rain forest itself has taken on tremendous symbolic value worldwide, says Thomas Lovejoy, a leading Amazon researcher and assistant secretary for external affairs of the Smithsonian Institution. 'It's a metaphor for the entire global crisis,' Lovejoy adds."

The renegotiation of the meaning of the rainforest landscape and the mobilization around the Kayapo peoples' definition of themselves demonstrate the importance of cultural messages and access to media in political debates over environmental change. More traditional political resources—economic and demographic—no longer account for success or failure in the contest over landscapes. The growing attention to the definition of the situation advanced by the indigenous peoples of the Sarawak (Malaysian) rainforest, who number about 7,600, and the tendency to discount the landscape advanced by the 46,000 workers and their families who gain their livelihoods by logging the rainforest in Sarawak, provide further evidence for a redefinition of the politics of the environment (Davis and Henley 1990).

In the global struggle over landscapes, new alliances are being formed, such as the Joint Appeal by Science and Religion for the Environment (Sagan 1992), which will profoundly influence the social construction and control of information, access to global media, and outcomes of conflicts over technological and environmental change. These alliances are increasingly likely to have the opportunity to further particular definitions of landscapes in the global media. For example, the vice-president of environmental policy of the Turner Broadcasting System (TBS) states: "I don't think issues like ozone or global warming have two sides. . . . Facts don't entertain, they numb. If people want facts, they'll get them from the news department" (quoted in Royte 1993:49). At TBS, this person is also supervising a history of American Indians and the cartoon "Captain Planet," which is seen in 60 countries and is the top-rated syndicated cartoon show in the U.S. Among the topics addressed by Captain Planet are threats to biodiversity and habitat, animal poaching, toxic wastes, and the green industry. The TBS vice-president is quite explicit on her goals for the cartoon: "Ten years from now, when they can vote, that's when you'll see the effect of 'Captain Planet' " (quoted in Royte 1993:118).

Berger and Luckmann (1967:116–19) argue that as forms of knowledge increase in complexity and become far removed from the everyday lives and experiences of people, experts arise who claim special status: "[t]hey are not only experts in this or that sector of the societal stock of knowledge, they claim ultimate jurisdic-

tion over that stock of knowledge in its totality. . . . They claim expertise in the ultimate definitions of reality as such." We believe that such universal experts (e.g., Sting, a rock star; Paiakan, chief of a rainforest tribe; Carl Sagan, an astronomer; a television vice-president) have arisen in the context of defining global landscapes and environmental issues and have acquired the power to impose a particular definition of reality.

What is the role of social scientists in this global struggle? Many social scientists are involved in the research agenda surrounding issues of global change. For example, the National Research Council has published *Global Environmental Change: Understanding the Human Dimensions* (Stern et al. 1992) and the National Academy of Science has published *One Earth, One Future: Our Changing Global Environment* (Silver and DeFries 1990). The basic assumption inherent in much of this research agenda is that humans are now the primary cause of potentially catastrophic global environmental change. Thus, humans can solve the problem only through voluntary or forced behavioral change. The following except is quite explicit (Stern et al. 1992:27):

> . . . the global changes we are concerned with today are largely anthropogenic in origin. Humans are no longer simply innocent victims compelled to adapt, in some cases rapidly, to large-scale changes in environmental systems resulting from forces beyond their control. Instead, it is human behavior itself that must be controlled if we are to succeed in ameliorating or redirecting global change.

While trying to avoid the debate raging among other scientists about the very existence of many of these global changes (see Balling 1992; Broecker 1992; Idso 1989; Lips 1992), we suggest that the idea of global environmental change is another landscape and that groups of people are calling for social and political action on the basis of this definition of the situation. As such, the role of sociologists in this global struggle should be expanded to focus more attention on classic sociological questions. What are the class, ideological, institutional, and organizational bases for the struggle over the landscape of global environmental change and how does this struggle illustrate the changing nature of power in a global context? As Berger and Luckmann (1967:116) state so eloquently:

> Reality is socially defined. But the definitions are always *embodied,* that is concrete individuals and groups of individuals serve as definers of reality. . . . [I]t is essential to keep pushing questions about the historically available conceptualizations of reality from the abstract "What?" to the sociologically concrete "Says who?"

Conclusion

Some might argue that the sociological framework of landscapes is anthropocentric and, therefore, denies a separate reality to the physical environment and its component animal, plant, and mineral systems. This assertion misses the point of this discussion. The framework of landscapes emphasizes that what is important in any consideration of environmental change is the meaning of the change for those cultural groups that have incorporated that aspect of the physical environment into their definition of themselves. Biophysical changes in the environment are meaningful, or socioculturally significant, only insofar as cultural groups come to acknowledge them through a redefinition of themselves. For over a century, logging has been done in the American Northwest and for over a century the physical environment that sustains the spotted owl has been diminishing. The framework of landscapes contributes to understanding the recent political conflict over the spotted owl by focusing attention not on the number of owls but on the fluctuating power of different groups—loggers, rural businesses, international logging companies, environmentalists—to shape the definition of the situation and the social actions that result from these often divergent landscapes.

The heuristic value of the interpretive framework proposed here is that it emphasizes a well-established school of thought in sociology and role for the discipline in the debates over environmental issues. It focuses attention on the social construction of reality by highlighting the need to explore the symbolic creation of landscape, the cultural meanings of aspects of the physical environment and biophysical changes in this environment, and the values and beliefs that sustain these symbols and their meanings. And, it emphasizes a classic sociological problem, that of changing power relationships in the increasingly global struggle over landscapes and environmental change.

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