



# ENVIRONMENTAL ANTHROPOLOGY

## Human Dimensions of Environmental Policy

**A**chieving sustainable ecosystems and communities presents a formidable public policy challenge. Legal and regulatory approaches to environmental protection are important, but by themselves not enough. Additional achievements will require efforts at promoting institutional and behavioral changes. Promoting such changes, in turn, relies on models of why people act as they do, how they interact with one another and with the environment around them, and how these patterns of interaction become formally and informally instituted over time. In short, efforts to achieve environmentally sustainable societies need to be based on comprehensive models of human behavior in its social context.

Environmental policy has relied heavily on "individual decision-making," or *rational-choice* models of human behavior, which assume that behavior is the result of active choices. From this perspective, choices affecting the environment are made in several steps: (1) identify a problem (e.g., how can I commute to work efficiently, comfortably, and affordably?); (2) identify a range of possible solutions (car, bus, train, move closer to work, change jobs); (3) seek information on the costs and benefits of each alternative; (4) assess the respective costs and benefits, and (5) choose the outcome with the greatest benefits and fewest costs.

While this is recognized as an over-simplification of human choice-making, many behavioral scientists believe that such models can predict behavioral outcomes with reasonable accuracy. How have individual decision-making models influenced environmental policy? Such models imply that if people are given more information or more appropriate incentives, they will make better choices. Following this logic, if we want to motivate individuals to change behavior that would otherwise result in environmental degradation, we will inform them of the likely consequences of their choices. If they care about the environment, they will then make appropriate changes. If they are unconcerned, we will teach them why they should care. After these efforts, if their behavior remains unchanged, we will hold them responsible for the environmental problems to which they have contributed.

One of the aims of the Environmental Anthropology Project, established through a cooperative agreement between the U.S. Environmental Protection Agency and the Society for Applied Anthropology, has been to open up our collective thinking about where people fit into the environmental protection equation. Instead of thinking about environmental problems as primarily the result of individual decision-making, environmental anthropology focuses attention on how solutions to these problems can and should take into account a complementary set of factors that are often "externalized" in other disciplines: the institutional and cultural settings that constrain our choices and shape our judgments about what is in our collective interest.

## The Importance of Properly Defining the Policy Problem

- Consider some of today's "big picture" environmental policy challenges:
- Slowing the rapid rate of global environmental change
  - Preserving species diversity and abundance
  - Strengthening protection of our oceans and coastal zones
  - Reducing the urban environmental health penalty
  - Keeping water safe to drink
  - Cleaning up the hazardous legacy of industrial and military contamination

This is a formidable list. Indeed, the problems we leave for government to tackle are among the stickiest, those for which no simple, ready-made solution can be found, where the stakes are high, the uncertainties are great, and the impacts will be broadly felt for the longest time. If they were easier to solve, government intervention probably would not be needed.



Photo: Ed Liebow

*Farmers in North Dakota compete in a global wheat market with their counterparts in Australia, Russia and Canada. The "world price" does not merely reflect local conditions of supply and demand. To compete in a world market, many wheat growers are forced to choose production practices that have long-term adverse environmental consequences. It would be incorrect to blame the producers alone for these environmental problems, or to expect effective solutions to result solely from changing their outlook.*

But what public policy interventions are most likely to work? A host of laws and regulations have been developed to help meet these challenges - from protecting endangered species and their habitats to outlawing CFCs, and limiting the discharge of pollutants. Acknowledging that further progress may be beyond the reach of regulation, public investment opportunities have been designed to create market incentives (e.g., carbon credits) or provide public goods (riparian conservation buffers). But whether regulations, incentives, or public goods are used, how one defines the problem in the first place will greatly affect the potential solutions that appear relevant, as well as the possible points of intervention that seem feasible.

Where the human dimensions of environmental management are concerned, problem definition needs to consider explicitly several linked levels of analysis. Individual behaviors that affect (and are affected by) environmental conditions are important. But patterns of interaction among family, friends, neighbors, church congregations, community groups and so forth are often equally important. Regional, national, and even international institutions also play a critical role in shaping the conditions that create environmental problems.

Often environmental problems result from a combination of factors at all these levels. It is reasonable to attribute environmental degradation to population growth and consumerism, holding individuals at least partially responsible because of a failure to recognize the link between consumer choices and their ecological impacts. The policy remedies at this level are educational — by teaching people to consider the ecological consequences of their choices, they may make better choices, and thus preserve the earth.

It is also reasonable to attribute environmental problems to the decisions of corporate institutions. The policy remedies here are structural — businesses need to be offered incentives to adopt different criteria for what to produce and how to produce it.

On a larger scale, governments must be held responsible for environmental problems, because of inadequate laws and regulations and their ineffective enforcement. The policy remedies derived from this view are regulatory and organizational — the institutions we trust to protect the public interest must have the necessary tools and the organizational capacity to use them.

## Fact, Value and Expert Knowledge

A related but distinct issue is the matter of *voice*. Whose values should inform policy choices at each of these points of intervention? Who ought to sit at the table when policy problems are defined and decisions are made about how best to deal with flood hazards, dirty air, disappearing wetlands, or toxic workplaces?

From the perspective of many environmental professionals, such decisions are usually assumed to require the assessment of technical data through professional judgment. In this view, what matters are "facts", not values. Only persons with suitable training and credentials are considered to have applicable knowledge or expertise. Non-specialists are effectively excluded as inexperienced, and their judgments discounted as ill informed, politically motivated, or both.

However, this is a path to conflict, not consensus. Among the disabling effects of exclusion from such decisions are: a lack of trust in specialists, a lack of confidence in the fairness of policy decision-making, and a feeling that the hazards and remedies are beyond the control of those people affected most by them.

One aim of anthropologists' involvement in environmental management has been to give voice to the knowledge and insights of non-specialists, whose experience - often with a series of highly relevant events - should make us pay attention to laypersons' judgments about environmental and health impacts and the public agencies responsible for managing those impacts. These people *are* experts about their own cultural values, and their views about their own judgments often give us great insights into the extra-local institutional forces that shape and limit their choices locally.

Many scientists are trained to think that "experts", or specialists, form judgments based on systematic observation and statistical reasoning, while "lay" persons, those who lack specialized credentials, use some sort of intuitive approach that is not suitable as a basis for policy decisions. Using an intuitive approach is seen as troubling because it is based on mental short cuts that lead to judgments scientists find to be at odds with expected outcomes.

These mental short cuts, also called heuristics, come in several flavors, with names like "representativeness," "availability," "anchoring," and "framing." It is popular to blame a dramatically hot, dry summer on global warming, for example, while the past two years of extra rain are forgotten. Plans to transport nuclear waste are labeled a "Mobile Chernobyl," while the environmental hazards posed by triple-length petroleum trucks routinely jangling across the washboard highways are overlooked.

But even if laypersons generally do not form judgments solely on the basis of analytical reasoning, does this necessarily disqualify them from taking part in environmental management decisions? Moreover, if violating principles of analytical reasoning is a disqualifying criterion, what are we to do with the experts, whose judgments also can be shown to depart from these principles? When citizens and their representatives want to know the consequences of environmental planning decisions, experts must almost invariably extrapolate and generalize from the "pure science" of the laboratory to circumstances not yet studied. To do so, they must resort to "judgment." Yet this judgment is subject to much the same uncertainty and distortion that supposedly characterize laypersons.

Anthropologists are convinced that non-specialists *do* have expertise to offer. They build this expertise out of participation in everyday events, which are widely observed, measured, labeled, discussed, and otherwise given shared meanings. They also have indirect knowledge of exceptional events, which do not occur even once in a lifetime, but have effects of extreme and lasting magnitude. And intermediate events—in between these two extremes—are likely to occur at least once in a lifetime, and therefore require a model of interpretation. Floods, hurricanes and

earthquakes are examples of such intermediate events, where a calamitous and unexpected natural force occasionally sweeps across the landscape, leaving in its wake both the common experience of exposure to hazard and the highly personalized circumstances of vulnerability, loss, response and recovery. Cultural practices develop to ensure that the experience of an older generation will be brought to bear when the event recurs. Problems of forecasting and contingency planning can occupy as large a place in the popular domain as they do in more specialized domains of knowledge.

Anthropologists have learned to credit non-specialists with insights about what problems should matter - a lesson highly relevant to building policies that serve the public interest. It suggests the need to refocus the practice of the environmental sciences, and to re-examine critically the underlying premise of "scientific authority" on which science-based policy is founded.

### Don't Blame the Victim

**T**he transformation of policy-making to accommodate both specialists and non-specialists begins with one recommendation: *Refrain from blaming the victims for the environmental degradation to which they are exposed.*

Instead, it pays to focus less on individuals and instead think structurally about:

- population growth, resource scarcity and uneven resource distribution as causes of conflict
- how different sub-populations have different vulnerabilities to environmental hazards, and how this difference in vulnerabilities is produced
- how the environmental risks on which we choose to focus our attention are a reflection of more encompassing societal values
- the importance of preserving traditional ecological knowledge as sources of appropriate strategies for land restoration and conservation.

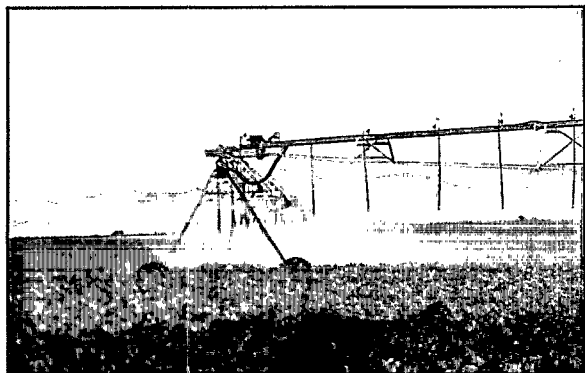


Photo: Ed Liebow

*In the arid American West, water scarcity makes it an extremely valuable commodity, a commodity around which an extensive body of law exists to assure that those who have water rights can exercise them. Under that law, the right to use water is often more valuable than the land to which it applies, for without the water the land has little economic value. As Mark Twain once said about the West, "whiskey's for drinkin', water's for fightin'."*

**Population Growth, Scarcity, and Conflict:** The need for environmental protection is often justified by showing that population growth heightens natural resource scarcities. Some great puzzles in

human history - for example, the decline of the Mayan Empire, the Hohokam diaspora from the American Southwest - appear to have resulted from population growth and concentration outstripping the local resources.

Population growth is difficult to separate from a larger set of questions of economic and social development, and from the environmental concerns related to the issues of production and consumption throughout the world. Thus, such driving factors as the causes of fertility changes and migration are of interest because of the implications for patterns of land use, settlement, and resource consumption. Rapidly increasing stress placed on natural resources creates social tensions and conflicts between as well as within nations. Such conflicts likely will occur before there is an actual ecological breakdown.

In this context, however, scarcity is the target problem to be explained, not population growth. Resource scarcity - for example, declining old growth conifer forests - reflects insufficient supply, excessive demand, or unequal distribution, which singly or in combination can force communities into a condition of deprivation. These sources of scarcity are in turn the result of factors such as population growth, economic development, and pollution. Declining supply, for example, can prompt one group to seize control of a resource, simultaneously forcing another group onto an ecologically marginal landscape.

Faced with growing scarcity, sub-groups within our society may experience health problems, social factionalism, and relative declines in economic productivity. Many logging and fishing towns in the Pacific Northwest, for example, have seen their natural

## Human Dimensions of Environmental Policy

resource-based economies dry up, only to be replaced by tourism, the development of vacation homes, and huge disparities between the local folks and their new neighbors. Local people may be forced to move in search of economic opportunity. This movement, in turn, often intensifies group tensions. Demands on government for intervention and redevelopment may increase while tax bases are being eroded. Conflict may ensue or, if already present, deepen. In this volatile, interactive and complicated context that environmental scarcity can be described as a cause of conflict. Scarcity is not likely to be a sufficient or necessary cause, but its growing presence in the causal network that generates conflict is clear and growing clearer.

### Social production of vulnerability to environmental hazard and deterioration:

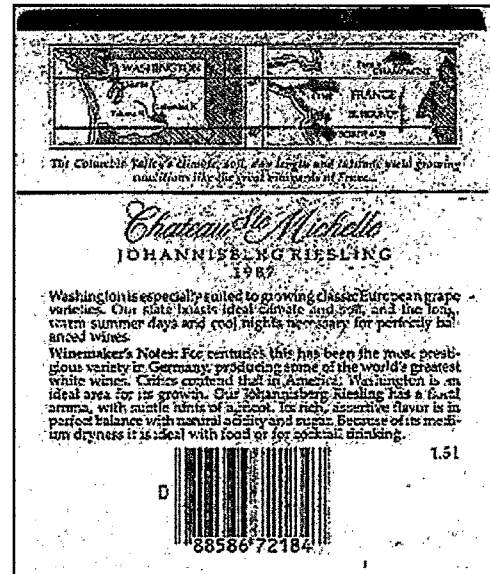
We often think of disasters as departures from "normal" social functioning. In this view, recovery means a return to normal. This thinking directs policy-makers and preparedness planners to focus their efforts on improvements in prediction, preparation, relief and reconstruction, while the unequal distribution of vulnerability to natural hazards remains unchanged. However, for some social groups, "normal" daily life is difficult to distinguish from disaster. In downtown Los Angeles, for example, one of the larger apartment buildings suffering partial damage from the 1987 Whittier Narrows earthquake was notorious and nationally newsworthy. Its 400 units occupied largely by recent arrivals from Central America, the building had been the site of terrifying gang and drug activity. Just prior to the earthquake, the City Housing Authority had successfully prosecuted its owner for failing to provide standard housing conditions. The convicted owner was given his choice of sentencing, a 30-day jail term or a week living in his building. He chose the jail term.

Anthropologists think it is useful to think of vulnerability as a progressive series of social and economic pressures, which, when combined with exposure to a hazardous event, result in disaster. The progression of vulnerability leads from "root causes" to intermediate ("dynamic pressures"), and finally, the most proximate ("unsafe conditions"). *Root causes* of vulnerability are to be found in limited access to power, structures, and resources, and in ideologies that reinforce inequalities. *Dynamic pressures* are processes and activities that channel the root causes into particular forms of insecurity. Rapid population growth, depletion of timber, fish, and soil productivity are all seen as macro-forces derived from underlying causes that lead to unsafe conditions for some population sub-groups. These *unsafe conditions* may include environmental and economic fragility, a lack of preparedness, endemic diseases, and a lack of local institutions to fall back on when conditions of scarcity are exacerbated.

**Risk and culture:** Life is full of risks, but if we dwell too long on the lengthy list of potential sources of harm, we probably would not get out of bed in the morning. But we *do* get out of bed, because we choose to ignore some potential risks, while turning our attention to others. How do we select from among the onrushing stream of possible environmental, health, and safety hazards the ones that we consider significant? If there is not universal agreement on what constitute the most important sources of hazard, how does this judgment vary among population sub-groups?

The prevailing view of risk and culture among risk specialists has been to treat "risk" as a dependent variable. That is, certain groups lead specific lifestyles that result in variable exposure to environmental, health and safety hazards. If you are part of a group that relies on subsistence fishing, for example, and the fish are feeding in contaminated sediment beds, then you are more likely to be at elevated risk due to your group affiliation.

A variant of this model regards "perceptions" of risk – and not "risk" itself as the dependent variable subject to cultural influence. As mentioned earlier, distortions in probabilistic reasoning due to heuristics, biases, and other cognitive sources are often associated with group affiliation. By focusing on differences in the perception of risk among distinct cultural groups, environmental planners often look to educational campaigns and other information-based interventions aimed at adjusting public thinking about risk attribution.



Courtesy Chateau Ste. Michelle Wineries  
What is normal and natural? What is unfamiliar and risky? It depends on one's cultural perspective. In this wine bottle label, Washington state wine grape growing conditions are compared favorably to the great vineyards of France. The gray shaded area on the left, however, also corresponds to the Hanford Nuclear Reservation, one of the more polluted spots on earth.

There is an alternative way to understand the relationship between risk and culture. Instead of assuming "culture" to have a static, one-to-one relationship with a local population, anthropologists regard culture as the encompassing context within which local problems are framed. The goal in making decisions about how best to reduce risk is to do so fairly, but fairness is itself culturally defined. One should anticipate that local constituents will clash over what they consider to be fair outcomes. The US Energy Department's "Site-Specific Advisory Boards" are local forums created to give full airing to widely divergent views about how site cleanup should proceed at the dozen or so locations (e.g., Hanford, Washington, Oak Ridge, Tennessee, Savannah River, South Carolina) where nuclear weapons components were produced and tested throughout the Cold War era. Given competing views of fairness, the challenge is to transform an unproductive conflict into a productive one. Environmental specialists should seek a collaborative approach to defining the legitimacy of perceived problems and the standards by which to judge potential outcomes. There is no substitute for understanding how potentially affected persons judge the burdens and benefits associated with the deployment of risky technologies.

In fostering a dialogue over risk and remediation, it is important to probe for underlying assumptions, and to recognize the variability in viewpoint that may exist even in seemingly homogenous groups. Some critical questions to consider:

- ☐ **Consent** - By what means are different sorts of joint actions agreed to? Different types of consent include, for example, implicit consent; through deference to group leader authority; or explicit consent from "talking things out" or negotiating
- ☐ **Equity** — By what principles of fairness are resources ideally allocated to address imbalances (e.g., proportionate to need; absolutely equal regardless of need; or according to rank or status, regardless of need)
- ☐ **Liability** — What happens if something goes wrong? Who will be held accountable for making restitution or compensation? Is this a shared responsibility, or placed at the feet of the party with the greatest ability to pay?
- ☐ **Time** — How far out into the future do contemporary events retain their salience? What constitute locally relevant "everyday," "exceptional," and "intermediate" events.

Traditional ecological knowledge: An "indigenous knowledge system" is what anthropologists call the way members of a particular community define and classify phenomena in the physical/natural, social, and ideational environments. Examples include local classifications of soils, knowledge of which local crop varieties grow in difficult environments, migratory patterns for game animal herds and anadromous fishes, and traditional ways of treating human and animal diseases. Indigenous knowledge systems often provide the basis for local-level decision-making. This frequently occurs through formal and informal community associations and organizations. Communities often identify problems and seek solution to them in such local forums, capitalizing on information exchanges among knowledgeable persons, and leading to experimentation and innovations. Such traditional (in contrast to imposed) forms of communication are vital to the preservation, development and spread of indigenous knowledge.

The aim of identifying and classifying traditional ecological knowledge is quite practical: preserving biodiversity while producing equitable, ecologically sustainable economic development. Many out-of-the-way places where traditional ecological knowledge still flourishes are vulnerable to degradation as resources become more accessible and disappear. Often they remain repositories of considerable biological and financial significance. If commercially viable uses can be found for local traditional resources, the pressure to realize short-term gains from natural resource exploitation (such as cash wages, or return on corporate investors' shares) may be reduced and biodiversity conserved for future generations. Indigenous classification schemes for plants, animals, and landscapes have other practical uses as well, offering appropriate strategies for land restoration, conservation, and nutrition.

## Summing Up: Collaboration in Environmental Problem-Solving

**T**he key environmental policy questions concern how best to protect natural resources and reduce the public's exposure to the risk of environmental and health hazards. Finding acceptable answers to these questions involves value- and conflict-laden choices over where local burdens will be created while trying to achieve a widespread benefit.

Discussions about these choices must acknowledge the linkages between the local and the global. Policies that focus on individuals while ignoring the more encompassing forces that shape and constitute everyday behavior are likely to meet with failure. Choices and judgments are never made in a vacuum. Understanding the institutional and cultural settings where behaviors are shaped, decisions are made, and risks are perceived, is a necessary step in effective policy formulation.

The best way to make choices about local burdens and widespread benefits so that they lead to lasting solutions – fixing problems so they stay fixed – is by building partnerships with the local communities most directly affected by the decisions. People who feel they have had a hand in crafting a solution are much more likely to abide by the outcome than those who feel ignored.

### Additional Resources

Blaikie, Piers, Terry Cannon, Ian Davis, and Ben Wisner (1994) *At Risk: Natural Hazards, People's Vulnerability, and Disasters*. New York: Routledge.

Douglas, Mary, and Aaron Wildavsky. (1982) *Risk and Culture: An Essay on the Selection of Technological and Environmental Dangers*. Berkeley: University of California Press.

Goldman, Laurence R., ed. (2000) *Social Impact Assessment: An Applied Anthropology Manual*. New York: Berg Publishers.

Posey, Darrell, ed. (1999) *Cultural and Spiritual Values of Biodiversity*. London: Intermediate Technology Publications.

Townsend, Patricia. (2000) *Environmental Anthropology: From Pigs to Policies*. Prospect Heights, IL: Waveland Press.

Winthrop, Robert. (1991) *Dictionary of Concepts in Cultural Anthropology*. Westport, CT: Greenwood Press.

#### Online Resources:

The SfAA Environmental Anthropology Project (<http://www.sfaa.net/eap/abouteap.html>)

The US Environmental Protection Agency's Community-Based Approaches to Environmental Protection (<http://www.epa.gov/ecocommunity/>)

Sustainable Development Tools (<http://www.ncedr.org/tools/othertools/sdtools/indicators.htm>)



Environmental Anthropology Projects focused on community-based approaches to environmental protection throughout the U.S.

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*Environmental anthropologists analyze and resolve human and ecological problems posed by energy extraction and use; agriculture, forestry, fisheries, mining, and other resource development; pesticide exposure, toxic waste disposal, and other environmental health issues; environmental restoration; tourism, public lands, and cultural resource management; the protection of traditional knowledge, values, and resource rights; and environmental education*

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**T**he Society for Applied Anthropology was incorporated in 1941, with the mission of promoting the scientific investigation of "the principles controlling the relations of human beings to one another" and the wide application of those principles to practical problems."

In 1996 the Society established the Environmental Anthropology Project, funded through a five-year cooperative agreement with the U.S. Environmental Protection Agency. The aims of the project were to provide technical support for community-based approaches to environmental protection and to improve the understanding of how cultural values and social behavior affect environmental management decisions.

Theresa Trainor served as EPA's project officer from the project's inception. Barbara Rose Johnston directed the project for its first four years; Robert Winthrop served as director for the final year of the project. The Review series was produced by Barbara Rose Johnston, and Gabrielle O'Malley and Edward Liebow of the Environmental Health and Social Policy Center. The Reviews solely reflect the views of their authors, not those of the Environmental Protection Agency. Society officers (including Jean Schensul, John Young, Linda Bennett, and Noel Chrisman) and a project advisory group provided oversight during the course of the agreement. Many Society members served as mentors for the project's interns and fellows, and as reviewers for its reports and publications.

The Society for Applied Anthropology is grateful for the financial support and professional cooperation of the Environmental Protection Agency and its staff. For more information on the Society and the Environmental Anthropology Project, please see our web site: [www.sfaa.net](http://www.sfaa.net).

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