Environment, Technology, and Society

Newsletter of the Section on Environment and Technology of the American Sociological Association

Research Summary: The Impact of Social Context on the Attitude-Behavior Relationship

Jan Buhrmann, University of Colorado

[editor's note: Full paper was presented at the American Sociological Association Annual Meeting, Chicago, Illinois, August, 1999.]

Background

This study focused on the relationship between individuals' beliefs and self-reported actions in the area of recycling and other environmental behaviors. An important component missing from the many earlier studies on the attitude-behavior relationship is the role of social context–the set of customs, norms, and laws that relate to particular aspects of the social world. The present study presents the view that the relationship between environmental attitudes and related behaviors is influenced by the social context within a community or social group. Social context, as defined here, includes both perceived social norms relating to recycling and the institutionalization of environmental norms and values within community recycling programs. An increased understanding of how the social world influences environmental attitudes and behaviors can provide us with insight on what motivates people to recycle and participate in other environmental behaviors, resulting in more effective waste reduction programs and other environmental policies.

Research in this area has produced mixed results in terms of the impact that attitudes have on behavior, and in some cases, the impact of behavior on attitudes (Guagnano, Stern and Dietz, 1995; Scott and Willits, 1994; Gooch, 1995; De Young, 1988-89; De Young 1990-91; Vining and Ebreo, 1990; Heberlein and Black, 1981; Heslop, et. al., 1981). Findings from the present study will help determine whether social context clarifies the nature of the relationship between attitudes and related behaviors, or helps to identify those factors most related to participation in recycling and other environmental actions.

This research is based on survey data generated during July through October 1997, in three geographic areas in Colorado and Wyoming. The cities of Cheyenne, Wyoming, Loveland, Colorado and Park Hill (a Denver, Colorado neighborhood) were chosen for this study. Each area has a different type of waste reduction program in place, ranging from a city-sponsored "pay-as-you-throw" program to limited drop off recycling facilities. Questionnaires were mailed to approximately 200 randomly selected residents in each of the three areas. The survey included questions about environmental beliefs, perceived recycling norms, and self-reported participation in recycling and other environmentally conscious behaviors. (Survey items also included questions on support for various environmental policies and demographic information. These are discussed in a separate paper.) Return rates averaged approximately 60% for all sample areas.

This study includes both micro and macro measures of social context (perceived recycling norms and type of community recycling program, respectively). Environmental behaviors are defined by a set of four self-reported behaviors relating to recycling and the self-reported recycling of nine specific materials. Statistical analysis focused on differences between the three sample communities with regard to environmental attitudes, environmentally conscious behaviors, and the attitude-behavior relationship. (Due to space limitations, this summary presents information on the attitude-behavior relationship only. Analysis of the complete set of variables is presented in the full-length paper.) Factor analysis was performed on the twelve New Environmental Paradigm Scale items (developed by Dunlap and Van Liere, 1978) to assess the degree of congruence between these items and to determine whether, collectively, they represent specific aspects of environmental attitudes or ideologies. Factors derived from the New Environmental Paradigm Scale items are used as environmental attitude variables.

Findings by Guagnano, Stern and Dietz (1995) illustrate one aspect of the effect of social context on attitudes and behaviors. Their research showed that a major barrier to attitude-behavior consistency is removed when recycling is made convenient for individuals (i.e., providing bins for curbside recycling). Their sample however, is limited to two groups: households with access to curbside recycling and those without. The present study expands on this sampling strategy by including two additional sample groups: (1) a community that has no access to curbside recycling coupled with limited access

...Continued on page 4

In This Issue...

Officers of the ASA Section on Environment and Technology

Chair:
Carole Seyfrit (1999-2001)
Phone: 757-683-3803
Fax: 757-683-5746
cseyfrit@odu.edu

Chair-elect:
Loren Lutzenhiser (1999-2001)
Phone: 509/335-6707
Fax: 509/335-6419
llutz@wsu.edu

Secretary-Treasurer:
Dorceta Taylor (1997-2000)
Phone: 360-737-2033
Fax: 503-788-1577
dorceta@umich.edu

Council Members

J. Timmons Roberts (1997-2000)
Phone: 504-865-5820
timmons@mailhost.tcs.tulane.edu

Jean Blocker (1997-2000)
Phone: 918-631-2802
blockerj@centum.utulsa.edu

Stella Čapek (1998-2001)
Phone: 501-450-1308
capek@hendrix.edu

David Pellow (1998-2001)
Phone: 510-531-9456
pellow@colorado.edu

Steve Couch (1999-2002)
(570) 385-6071
src@psu.edu

Adam Weinberg (1999-2002)
315-228-7076
aweinberg@mail.colgate.edu

Committee Chairs, 1999-2000

Program: **Carole Seyfrit**

Publications: **Susan Roschke**

On-line Publications: **Rik Scarce**

Nominations/Elections:
Steve Brechin, Chair
Lori Hunter & Max Pfeffer

Telecommunications Committee:
J. Timmons Roberts

Membership:
Steve Couch, Chair
Melissa Toffolon & Steve Zavestoski

Notes from the Editor

Welcome to the Fall 1999 issue of ET&S!

Yes, this issue is coming out pretty late--Murphy has been hard at work trying to keep it from you! Things should be back on schedule for the Winter issue, barring any major Y2K crises.

In this issue, you can read about our Section award winners. Check out the innovative work being done by young scholars in the field, as well as the distinguished career of one of our established and still lively scholars. As a Section and a field, we really do have some great talent! (By the way, ASA renewals should be in your hands already. The E&T network is one of the best reasons to remain or become a Section member.)

Also, the cover story in this issue was presented at the ASA Meetings. Since the session was first thing on the last day, it was not too well attended, but the paper was very well received. So in case you missed it, an abbreviated version of Jan Buhrmann's work on environmental behavior and social context is included for you here. Again, some valuable work from an up and coming E&T scholar.

After a long search (with only a little arm twisting), the E&T Section has a new WEBMASTER! Rik Scarce has agreed to take over management of the Section website from Greg Guagnano. Note the new address at right. Thanks Greg for your effort putting the pages together, and thanks Rik for agreeing to build on Greg's work! Soon, Rik and I hope to have the entire newsletter online, so watch for that. Please take a few minutes to check out the site--your comments and suggestions are welcome as we work to make this a great resource for environmental sociologists.

Meanwhile, send along your news and notes for the Winter *ET&S*. I am in need of feature articles for the coming year! This is a great way to share your research as you work to get it published in a grander forum. Also, columns on partnering with other disciplines, point-counterpoint, and department spotlights will continue with your input. News and notes from members outside the U.S. would be especially welcome. Please contact me with your ideas.

Award Committees, 1999-2000

Olsen Student Paper Award:
Lori Hunter, Chair
Tammy Lewis & Stella Čapek

Distinguished Contribution Award:
Dorceta Taylor

Outstanding Publication Award (to be awarded in 2000):
Riley Dunlap, Chair
Karen O'Neill & Adam Weinberg

Boguslaw Award (to be awarded in 2001):
Allan Schnaiberg

Environment, Technology, and Society Newsletter

Editor: Susan H. Roschke

Planning Director
City of Norwood
4645 Montgomery Rd.
Norwood, OH 45212

Phone:513-458-4515
Fax: 513-458-4502
E-mail:plan_norwood@fuse.net

Publication Schedule: *ET&S* is published quarterly. The deadline for submissions for the next (Winter) issue is January 3. If at all possible, please submit text items electronically or on IBM-formatted diskette, as this greatly facilitates the newsletter production process. Articles on current research that can be represented graphically on the front page are especially sought.

ET&S is printed on recycled paper.

The Environment and Technology Section on the Internet:

❖ **Listserv:** *Envtecsoc.*
To subscribe, send an email to: listserv@csf.colorado.edu with the message text: *sub envtecsoc yourfirstname yourlastname*

❖ **Resources**: The listserv archives and additional resources for environmental sociologists.
http://csf.colorado.edu/envtecsoc

❖ **Section Websites:**
http://csf.colorado.edu/orgs/roschke/es/env.html
http://www.asanet.org/Sections/environ.htm

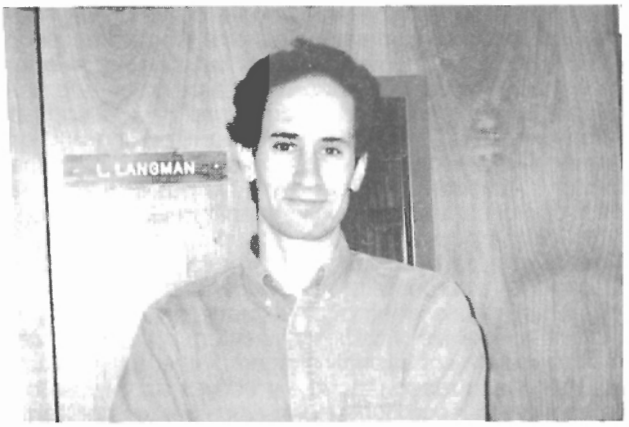
❖ **ET&S Pages:**
http://www.montana.edu/wwwsi/scarce/eandt.htm

ET&S is a publication of the American Sociological Association, Section on Environment and Technology. The newsletter is a member benefit.

Please note that you must be a member of the ASA in order to join a Section. Contact the American Sociological Association, Membership Services, at 1722 N Street, NW, Washington, DC 20035-2981

1999 Environment & Technology Section Award Winners

The 1999 ***Marvin E. Olsen Graduate Student Paper Award*** was presented to **Reid M. Helford** for his paper, "Constructing nature, constructing science: Expertise, activist science and lay complaints in the Chicago wilderness". The paper presents an analysis of the ideological battle for the hearts and minds of Chicagoland residents over the goals and meaning of ecological restoration of the forest preserves. Through in-depth interviews and participant observation, Helford explores the conflicts surrounding the social construction of nature and the authority of environmental science. Reid Helford is a Ph.D. candidate in Loyola University Chicago's Department of Sociology. He has just accepted a position with in Sociology/Environmental Studies at Whitman College in Walla Walla, Washington. (For more on Helford's research, visit his website <www.homepages. luc.edu/~rhelfor/ cwproj/>)



Chris Wellin was awarded the ***Robert Boguslaw Award***, in recognition of his humanistic scholarship on technology, at the 1999 meetings in Chicago. His doctoral thesis, completed in late 1997, was entitled "Liberation Technology? Workers' Knowledge and the Micro-Politics of Adopting Computer-Automation in Industry", at Northwestern University.

The research was focused on a multimethod approach to study the changes imposed on a firm that was moving from more traditional forms of manufacturing a food product, towards a computer-based control system. In the process, the formal computer modelling had to be substantially altered, in light of the actual experience of production workers in this firm. In order to gain the cooperation of workers, managers committed themselves to maintain workers' positions after the introduction of the new technology, and even to improve their working conditions and pay.

While workers ambivalently put aside their past grievances with management to cooperate with the managers and computer consultants, the promises made to most workers were not redeemed. A small segment of the staff was upgraded, to work directly with the computer technology, but the remainder of the staff was essentially downgraded, through a simplification of job categories. The study bears on a variety of social processes related to technological and environmental change, particularly on the competing interests between managers and shop-floor workers, and offers important insights into processes such as "ecological modernization" of firms.

The 1999 ***Distinguished Contribution Award*** went to **Eugene A. Rosa** of Washington State University. Professor Rosa is currently chair of the Department of Sociology and also the Edward R. Meyer Distinguished Professor of Environmental and Natural Resource Policy in the Thomas S. Foley Institute for Public Policy and Public Service.

Eugene Rosa was chosen from a list of stellar candidates. He received his doctorate in 1976 from the Maxwell Graduate School at Syracuse University and spent a year at Stanford as an NSF Postdoctoral Fellow for Energy Studies in the Institute for Energy Studies. He joined the faculty of Washington State University in 1978. Since then he has had visiting professorships at the University of Klagenfurt (Austria) and the London School of Economics; he was also a visiting scientist at the Brookhaven National Laboratory.

Dr. Rosa has published extensively in the field of environmental sociology; his work has been influential in energy policy. His recent works include co-edited volumes such as: *Public Reactions to Nuclear Waste: Citizens' Views of Repository Siting* (1993), Durham: Duke University Press and *Public Reactions to Nuclear Power: Are There Critical Masses?* (1984), Boulder: Westview Press. He has published a number of book chapters and his peer-reviewed journal articles, viz., "Climate Change and Society: Speculation, Construction and Scientific Investigation," (with Tom Dietz) *International Sociology* (1998), v. 13; "Metatheoretical Foundations of Post-Normal Risk," *Journal of Risk Research* (1998), 1(1). His recent articles have also appeared in publications such as the *Human Ecology Review, Public Opinion Quarterly, Risk Analysis, Journal of Cross-Cultural Psychology, Energy Review, Annual Review of Sociology, Sociological Inquiry, Journal of Economic Psychology, American Journal of Sociology,* and *Social Forces.*

Eugene Rosa has also done extensive public service. He has served on the boards of a number of peer-reviewed journals and has been Chair of the Environment and Technology Section of the American Sociological Association.

"Attitude-Behavior Relationship," continued from page 1

to recycling drop-off sites, and (2) a community with a pay-as-you-throw program in place, offering volume-based rates for regular trash pickup.

Findings

Factor analysis of the 12 New Environmental Paradigm Scale items revealed two distinct factors. Factor 1 reflects strong attitudes toward environmental issues, indicating a belief in the necessity of taking action on environmental problems and perceiving potentially extreme consequences for failing to act. This factor also emphasizes the negative impacts of humans on the environment. Factor 2 is more philosophical in nature, reflecting a bio-centric perspective or ideology (as opposed to an anthropocentric perspective), representing attitudes about the larger relationship of humans to the natural world. Results of factor analysis for these data are almost identical to those found for factor analysis performed on data collected in 1982 (by Nielsen and Ellington) in the Park Hill neighborhood, lending strength to the areas of focus embodied in the NEP items. These two factors are used in this chapter as measures of environmental attitudes to examine the influence of social context on the attitude-behavior relationship.

As mentioned earlier, the Loveland, CO sample group represents respondents whose community provides a state-of-the-art "pay-as-you-throw" program. Park Hill, CO respondents were divided into two groups: blocks for which curbside pickup was provided by the City of Denver, and blocks for which only drop-off center recycling was available. The Cheyenne, WY respondents had no access to curbside recycling, and only very limited access to community drop-off centers.

Micro-level Measures of Social Context and the Attitude-Behavior Relationship

Overall, results of the regression analysis do not indicate that recycling norms (micro-level measures of social context) have a large impact on the relationship between environmental attitudes and related behaviors. Of a total of 72 coefficients, only nine are statistically significant, with only four showing moderately strong relationships. One reason for these findings may be the large degree of variability between individual perceptions of what is normative in the area of recycling, even among those who actively recycle. The data in this area, however, do point to some interesting findings. Some individuals who participate in recycling and other environmental behaviors (and who also hold strong environmental beliefs) see recycling as normative, and may feel that their efforts and commitment are resulting in change within their communities or state. Others with the same beliefs and level of activity, however, do not see recycling as normative, and may feel that as a community, state, or nation, we are still far from achieving the critical mass that will significantly impact waste reduction and resource conservation. It is also likely that little correlation is observed (between perceived norms and the attitude-behavior relationship) because a number of individuals who recycle on a regular basis, but don't hold strong pro-environmental attitudes, are divided on their perceptions of what is normative in this area. This finding would make sense in a community such as Loveland, CO, where financial incentives are provided for recycling.

The Attitude-Behavior Relationship and Macro-level Measures of Social Context

Data from this study do indicate an effect of macro-level measures of social context on the attitude-behavior relationship. While findings from this study do not support a linear relationship between the level of structure within community recycling programs and participation in environmentally-conscious behaviors, the data show that the attitude-behavior relationship is influenced by the type of recycling program in place, emerging under specific conditions.

When we control for the type of community recycling program in place, findings indicates that attitude-behavior consistency is greatest when recycling is made only moderately convenient, and weakest when recycling is either very difficult or very convenient. This dynamic is shown in the large number of statistically significant coefficients observed between recycling and NEP Factors in the Park Hill sample group without access to curbside recycling. For these residents, recycling was made somewhat convenient, as the City of Denver provided good access to community drop-off centers, but not extremely convenient, since no curbside recycling service were available for these blocks at the time of this study.

It is also important to note that a majority of the significant correlations were observed between recycling of specific materials and NEP Factor 1. This suggests that the relationship between attitudes and behaviors is more closely related to those environmental attitudes which stress a sense of urgency and time limits for dealing with environmental problems (as reflected by this factor), corresponding less often with overall pro-environmental ideologies (as reflected in Factor 2).

Although earlier findings by Guagnano, Stern, and Dietz (1995) showed that the observed relationship between attitudes and behaviors does change within different social contexts, their findings indicated that when recycling bins were provided to households, there was an increase in attitude-behavior consistency (reasoning that the presence of recycling bins removed a major barrier to such inconsistency).

Discussion

The factors that determine why people do what they do are complex and varied. Understanding what motivates peoples' actions is one of the most challenging tasks of social science. This is especially true when dealing with attitudes and actions involving the environment, since we do not yet have a long history on which to fall back. The phenomena of thinking and acting environmentally have only been a necessity within the last half of this century. Although damage to the natural world has taken place for centuries, we have only recently realized that current levels of human populations and technological capability have combined to pose serious threats (and possibly unalterable harm) to our physical environment. A new paradigm encompassing environmental values goes against many of the fundamental assumptions and values of traditional western cultures. Since we, as a human society, are strongly shaped by the larger culture we live in, it stands to reason that the practices and values of that culture heavily influence our subconscious patterns of behavior. For this reason, understanding the relationship between environmental beliefs and related behaviors will be important in effectively addressing waste reduction and other environmental problems.

Findings from this study indicate that individual perceived recycling norms do not appear to affect the relationship between what people believe and what they do. Since so much variability exists among individuals, these micro-level measures of social context do not appear to be the best means of understanding the attitude-behavior relationship. Macro-level measures of social context, however, do show promise in terms of explaining the relationship between what people believe and what they do environmentally. By controlling for the type of community recycling program in place, the conditions under which the attitude-behavior relationship emerges become more apparent. These data indicate that the attitude-behavior relationship is strongest when recycling is made neither relatively easy (as it is in Loveland) nor relatively inconvenient (as it is in Cheyenne). It is likely that both of these conditions provide a barrier to attitude-behavior consistency, since individuals are likely to recycle (or not), based on the ease or difficulty of recycling, regardless of the environmental attitudes they hold.

This study has tried to examine the matrix of relationships that exist between social context, environmental attitudes, and related behaviors. If we can understand the impact that particular community recycling programs have on the way people perceive recycling, the environmental attitudes they hold, and the environmental actions in which they participate, we can further our understanding as social scientists in the area of environmental sociology and provide recommendations for more effective environmental policies. Waste reduction is an important area of

Continued on page 5

"Attitude-Behavior Relationship," continued from page 4

focus when working to achieve greater environmental quality. Therefore, research that helps us understand the human dynamics behind these processes is both critical and essential. It is my hope that the results of this study will contribute to that larger body of information and to our collective efforts in this area.

References

De Young, Raymond. 1988-89. "Exploring the Difference Between Recyclers and Non-Recyclers: The Role of Information." *Journal of Environmental Systems*, 18(4), 341-51.

De Young, Raymond. 1990-91. "Some Psychological Aspects of Living Lightly: Desired Lifestyle Patterns and Conservation Behavior." *Journal of Environmental Systems*, 20 (3), 215-227.

Dunlap, Riley E. and Van Liere, Kent. 1978. "The New Environmental Paradigm." *Journal of Environmental Education*, Summer, 9(4):10-19.

Gooch, Geoffrey D. 1995. "Environmental Beliefs and Attitudes in Sweden and the Baltic States." *Environment and Behavior*, July, 27(4):513-39.

Guagnano, Gregory A., Stern, Paul C., and Dietz, Thomas. 1995. "Influences on Attitude-Behavior Relationships: A Natural Experiment With Curbside Recycling." *Environment and Behavior*, September, 27(5): 699-718.

Heberlein, Thomas A. and Black, J. Stanley. 1981. "Cognitive Consistency and Environmental Action." *Environment and Behavior*, November, 13(6):717-734.

Heslop, Louise A., Moran, Lori and Cousineau, Amy. 1981. "'Consciousness' in Energy Conservation: An Exploratory Study." *Journal of Consumer Research*, 8, December, 299-305.

Nielsen, Joyce McCarl and Ellington, Barbara L. 1983. "Social Processes and Resource Conservation: A Case Study in Low Technology Recycling." *Journal of Environmental Education*, 19:38-41.

Scott, David and Willits, Fern K. 1994. "Environmental Attitudes and Behavior: A Pennsylvania Survey." *Environment and Behavior*. March, 26(2):239-260.

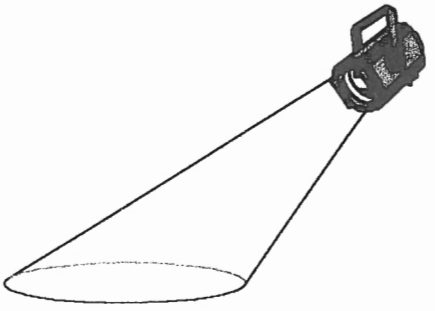
Stern, Paul, C, Dietz, Thomas, and Guagnano, Gregory A. 1995. "The New Ecological Paradigm in Social-Psychological Context." *Environment and Behavior*, November, 27(6):723-743.

Vining, Joanne and Ebreo, Angelo. 1990. "What Makes a Recycler? A Comparison of Recyclers and Nonrecyclers." *Environment and Behavior*. 22 (1), 55-73.

Department Spotlight

Graduate Studies in Sociology at Utah State University

by Lori M. Hunter



The Graduate Program in Sociology at Utah State University offers M.S., M.A., M.S.S. (Masters of Social Science), and Ph.D. degrees. Students have the opportunity to merge basic foundation coursework in sociological theory and research methods with more specialized training in selected specialty areas and apprenticeship roles in both basic and applied research projects. At the graduate level, we place particular emphasis on four areas of specialization: Environmental/Natural Resource Sociology, Demography, Social Problems, and Sociology of Development. Sustained personal interaction between faculty and students is a hallmark and strength of the program.

The M.S. and M.A. programs offer basic training in social science theory and methods, including the required completion of a Master's Thesis. The M.S.S. program is an applied, nonthesis course of interdisciplinary study in International Rural and Community Development. And finally, the doctoral program offers advanced work in theory and methods - while the students pursue specialization in two of the department's four core areas noted above.

Faculty involved in research and training within the Environmental/Natural Resource specialty area include Stan L. Albrecht, Lori M. Hunter, Richard S. Krannich, Ronald L. Little and Gary E. Madsen. Graduate curriculum offerings are focused on the sociology of natural resources, environmental sociology, population/environment relationships, and the sociology of technological risks and hazards. The Environmental/Natural Resource faculty maintain an active research involvement in a wide variety of areas such as natural resource development and social change, resource dependency patterns, land use planning, social responses to hazardous facility siting, environmental equity, human dimensions of environmental change, public perception of environmental issues, and a variety of other natural resource and environmental policy issues.

Consistent with the Land Grant mission of USU and a long-standing research relationship between the department and the Utah Agricultural Experiment Station, rural sociological issues have long been and remain an important component of the graduate curriculum and research efforts of faculty and students. Much of the department's Natural Resource/Environmental Sociological research takes place under the auspices of two research units: the Institute for Social Science Research on Natural Resources and the Population Research Laboratory. However, faculty members have also been engaged in interdisciplinary research ventures with faculty from engineering, forestry, landscape architecture, and various other disciplines.

USU's Sociology graduate program maintains a commitment to the development of teaching and research skills among students. Research assistantships allow important involvement of students in faculty-directed projects. In addition, support is provided for students to present papers at professional conferences and to pursue publication in peer-reviewed outlets. Instructional workshops and faculty supervision are offered to teaching assistants, and many Ph.D.-level students gain experience by teaching their own courses.

If you have questions or would like further information on the Sociology graduate program at Utah State University, please contact Mike Toney, Director of Graduate Studies, 435-797-1238 or mtoney@hass.usu.edu.

Environmental Justice Research Volunteers Sought

The U.S. Environmental Protection Agency is currently developing a voluntary pool of social scientists to work with its Office of Environmental Justice.

If interested, please contact Jan Buhrmann at (303) 312-6557, or by e-mail at: buhrmann.jan@epa.gov

Another (Counter) Point

In response to the Kroll-Smith and Freudenburg Point-Counterpoint discussion in the Spring 1999 issue of ET&S (Number 93), Ruth Love writes:

Never liked dancing with the devil--his breath was too hot and his tail couldn't keep the beat.

Having reached the age of curmudgeonhood, I shall be blunt, plunging right into whether we should be committed forever and anon to the Durkheimian dictum of "Only the facts, ma'am, that is, the SOCIAL facts." I wonder how those who insist that all the world is a social construction including environmental variables, strut and fret their way out of starvation and other physical privation, until their tale, full of sound and fury signifying nothing, is heard no more. George Herbert Mead, whom many of us accept as a patron saint, did, after all, write that he who misperceives what a wall is or where it is will suffer the consequences. Therefore I much prefer the "mutual contingency" or "conjoint contingency" approach outlined by Freudenburg over the seemingly more democratic, pluralistic or "tolerance of different truths" approaches outlined by Kroll-Smith. (Do any social constructionists claim that 2 + 2 = 5? These are, after all, symbols made by us for ordering quantities.)

I interpret the "mutual contingency" approach to mean a perspective that captures both the ecological and social complexity of an ecosystem, of the people who gain their livelihood through it, of the people who live there, and of the people who live more remotely but benefit from ecosystem functions (e.g., supplying water to a city, or as the late Ming scholars knew, retaining trees on ridge tops to slow down horse-riding invaders--Tuan, 1968).

As soon as we talk about social complexity, we need to consider the values and definitions different groups place on an ecosystem and its components. But this does not rule out considering ecological variables; for example, how the logging of a slope can affect soil erosion which in turn can affect stream water quality which in turn can affect salmon reproduction which in turn can affect commercial salmon fishing. This example illustrates how one human/social action (logging) can affect another human/social action (fishing) through a series of ecological connections.

To capture both ecological and social complexity I have developed a perspective called ecological sociology (Love, 1997). To illustrate it I shall use the forest situation in the Pacific Northwest. But the intent is that this mode of thought is applicable to any ecosystem.

Complexity of Old Growth Social and Ecological Systems

From the perspective of an ecological sociology, the old-growth forest case deals not just with timber workers and timber dependent communities; it involves an intricate ecosystem that supports a diversified complex of socioeconomic uses on which various industries and communities depend. The forest streams give salmon habitat; therefore social groups dependent on the ecosystem include those engaged in commercial, sports and Indian Treaty salmon fishing and related work. Not only salmon but also people are dependent on high-quality forest stream water. Municipal water departments such as Portland's have built complex systems over the past century for bringing this water, requiring little treatment, to urban areas. And recently, a small hamlet in the Oregon Cascades, which historically was dependent on both timber and reservoir recreation, has asked the Forest Service to withdraw three proposed timber sales or prepare an EIS on them to disclose the probable impacts of the proposed logging on the municipality's water sources (Merritt, 1998). In contrast, a nearby hamlet dependent mainly on timber but having a different source for municipal water, supported the timber sales.

To continue with the socially diverse uses of an ecosystem, several varieties of mushrooms grow in Old Growth forests, the great economic value of which is now recognized, to the point where fights over mushroom picking turf have led to murders. Other plants on the forest floor support dried flower and fern industries. The ecosystem as a whole supports opportunities for diversified recreation and related industries, whose value is beginning to exceed the value of timber sales.

Possibilities for Hypothesis Formation: No Adverse Effects Through Ecological Linkages--Conflict Absent

All these uses of an ecosystem can lead to a chain of intertwined but possibly conflicting consequences, which opens the door for forming general hypotheses. For example:

1. As long as each user group of an ecosystem has limits on its activities, whether intended or not, so that there are no adverse effects on other users through ecological linkages, there are probably no conflicting consequences.

2. If one group's use of a resource affects the ecological turf of another, there are likely to be battles, especially if no one sees the need for change.

In the 1970s, when reports came out that second-growth forests in Oregon and Washington were not maturing as fast as expected, some service clubs in one timber dependent community began working hard to raise scholarship money to encourage high school students to seek other career options than the timber industry. The clubs, at least, saw the need for social change as the forest diminished, and sought a positive means to help achieve it.

But absent awareness for the need for change, there are likely to be battles over ecological turf. The form and shape that these battles take would depend probably on both ecological and social factors. On the social side:

3. Conflicts are likely to be fiercer when users of an ecosystem are more pluralistic and have fewer social connections among the various users groups.

A fourth hypothesis turns to view matters from the ecological rather than the social side:

4. Conflicts are likely to be severe if people or agencies in control of an ecosystem, or parts of it, only consider the use of one ecosystem component without recognizing its complex biophysical relationships to the ecosystem as a whole.

In recent years we have come to understand the role of fire on forest health, and the beneficial role of some forest bugs and insects in promoting tree growth. This understanding points to the need for land management agencies to reconsider and change their policies regarding fire and other ecosystem factors historically defined as "pests". It also raises the issue of how the affected social groups will become aware of these new understandings, and whether they are willing to help plan for and accept new policies based on them. Whether and how land management agencies and social groups are willing to make and accept policy changes regarding future management of ecosystems are empirical questions that can be studied by graduate students in need of dissertation topics.

By framing hypotheses and research questions to include both social and ecological variables we may be able to develop empirical generalizations that can be used to influence environmental and ecological policy making and planning.

Also by taking into account specific environmental variables as well as sociological ones, we may be able to present our work in ways such that the proper bundle of findings is put into the hands of the proper policy makers, whether in executive departments or legislatures. We have accumulated at least a few empirical generalizations regarding relationships between environmental and social variables. To mention only two well-known examples:

1. A higher percentage of members of minority groups (Afro-Americans, Hispanics, etc.), regardless of income, are exposed to more polluted air than the white population. Relatedly, a higher percentage of members of minority groups live in areas where air

quality standards are more frequently violated than does the percentage of all poor people (Bryant and Mohai, 1992; Wernette and Nieves, 1992.)

2. Risk managers tend to focus on physical variables that can be easily quantified, without clarifying how these variables relate to health and ways of life. This leaves people uncertain about the future quality of their lives and communities in the event of a technical hazard occurring (Clark, 1992; Couch and Kroll-Smith, 1985).

Both of these empirical generalizations belong to the sub-field of environmental sociology. But in the institutional world of policy making and public administration, they would need to be brought to the attention of different actors if our findings are to influence public policy.

Just as the false dichotomy between teaching and research is slipping away, the mistaken distinction between knowledge for its own sake and knowledge for specific applications is eroding (Levine, 1999). Therefore, let us spend our efforts on how the theories, findings and empirical generalizations of environmental sociology can be used to help effect changes in laws, policies and administrative activities that affect environmental outcomes. And let us save the arguments about whether all the world is a social construction, and air and water pollution are only in the heads of Chicken Littles and Fashionable Emperors, for beer time. As Molly Ivins wrote in an August 1999 column, "One of the silliest statements imaginable is, 'I don't believe in global warming.' You may not believe in it, but that's not going to change it."

References

Bryant, B. and P. Mohai. Eds. 1992. *Race and the Incidence of Environmental Hazards: A time for Discourse*. Boulder: Westview Press.

Clarke, Lee. 1992. Personal Communication. Rutgers, The State University, New Brunswick, N.J.

Couch, S.R. and J.S. Kroll-Smith. 1985. "The Chronic Technical Disaster." *Social Science Quarterly* 66:564-575.

Levine, Felice. 1999. "A Walk on the Applied Side." *Footnotes*. Washington, D.C.: American Sociological Association. Vol. 27. No. 6. p 2.

Love, R.L. 1997. The Sound of Crashing Timber: Moving to an Ecological Sociology. *Society & Natural Resources*, 10:211-222.

Merritt, R. 1998. Stopping Timber Sales in the North Santiam. *Wild Oregon*. 25:3 Summer, p. 5.

Tuan, Yi-Fu. 1968. "Discrepancies Between Environmental attitude and Behavior: Examples from Europe and China." *The Canadian Geographer*. 12. 3: 1-16

2000 Annual Meetings of the American Sociological Association

Section on Environment and Technology. The Section invites submissions on a wide range of topics for paper sessions, a roundtable session, and one co-sponsored session.

(1) Send submissions for open sessions and roundtables to Carole L. Seyfrit, Associate Dean for Research and Graduate Studies, College of Arts and Letters, BAL 900, Old Dominion University, Norfolk, VA 23529-0076; (757) 683-3803; cseyfrit@odu.edu

(2) Send submissions for a session (co-sponsored with the Section on Race, Gender, and Class) on "Environmental Justice" to: David N. Pellow, Ethnic Studies and Sociology, University of Colorado at Boulder, Campus Box 339, Ketchum 30, Boulder, CO 80309-0339; (303) 492-1016; David.Pellow@ colorado.edu

2000 Meetings of the American Association for the Advancement of Science

Gene Rosa and Tom Dietz have organized a global environmental change session for the 2000 meetings of the American Association for the Advancement of Science (AAAS), to be held in Washington, DC, 17-22 February. Titled "Global Change: Uncertainty for Science and Democracy," the session is devoted to the question of how to develop science and environmental policy democratically under two conditions of uncertainty: uncertainty in scientific understanding, such as about global environmental change, and uncertainty in understanding environmental risks by citizens and other stakeholders. The speakers include Stephen H. Schneider, Stanford University; Richard H. Moss, Pacific Northwest National Laboratory, Edward (Ted) Parson, Harvard University, Howard Kunreauther, University of Pennsylvania, Granger Morgan, Carnegie Mellon University, and the discussant is Jill Jaeger, Director of the International Human Dimensions Program on Global Environmental Change.

Position in Human-Environment Relations

The University of Colorado, Boulder, Institute of Behavioral Science and the Departments of Geography and Sociology invite applications for an Assistant Professor, tenure-track position in Human-Environment Relations. Ph.D. in required, and preference will be given to candidates with post-doctoral research experience, a track record of funded research, and commitment to collaborative, multi-disciplinary work. Excellence in teaching at both graduate and undergraduate levels is also expected. The position is in the Environment and Behavior Program in the Institute of Behavioral Science, with teaching responsibilities in the tenure-track Department, either Sociology or Geography.

The Environment and Behavior Program currently explores human-environmental relationships through the following three areas: (a) upland/lowland linkages and mountain environments, and (b) water resources and land use interactions. These relationships are explored through three thematic approaches: (1) economic globalization and liberalization; (2) institutional change, and (3) population processes, livelihoods, and environmental sustainability. The Program has established interests in climate-society relations and environmental hazards.

Applications (including statements of research and teaching interests; evidence of teaching ability; curriculum vitae; and copies of two papers, published or unpublished), along with three letters of recommendation, should be sent by February 1, 2000 to the address below.

The University of Colorado at Boulder is committed to diversity and equality in education and employment.

Apply to Prof. Andrei Rogers, E&B Search Committee Chair, Institute of Behavioral Science, Campus Box 484, University of Colorado at Boulder, Boulder, CO 80309-0484.

Member Publications and Other Publications of Interest

Edwards, Bob and Anthony Ladd. Forthcoming 2000. "Environmental Justice, Swine Production and Farm Loss in North Carolina." *Sociological Spectrum.* Advance copies may be requested from Bob Edwards, East Carolina University.

Farhar, Barbara C. and Timothy C. Coburn. 1999. "Colorado Homeowner Preferences on Energy and Environmental Policy," NREL/TP-550-25285, Golden, CO: National Renewable Energy Laboratory, June, 34 pp. http://www.eren.doe.gov/greenpower/farhar_25285.html

Farhar, Barbara C. 1999. "Willingness to Pay for Electricity from Renewable Resources: A Review of Utility Market Research." NREL/TP.550.26148. Golden, CO: National Renewable Energy Laboratory, July, 20 pp. http://www.eren.doe.gov/greenpower/farhar_26148.html

---

Greener Management International, Issue 24, is a special theme issue: "Business-NGO Relations and Sustainable Development," edited by Jem Bendell (University of Bristol, UK)

The number, diversity, and increasing notoriety of relations between businesses and NGOs is the result of global processes: the global market, declining regulatory power of the nation state and the increase in global communications. There are financial reasons, both short- and long-term, why businesses should seek partnership with NGOs. In this new world, the relations between business and NGOs are conceptualised in terms of the regulation of business by civil society.

In this specially extended issue of *Greener Management International*, writers from NGOs, businesses, consultancy and academia consider the problems associated with partnerships between businesses and NGOs and how such relationships can be made to work in practice.

Contents:

- ✓ "Introduction," Jem Bendell (University of Bristol, UK);
- ✓ "The New Gemeinschaft: Individual Initiative and Corporate-NGO-University Partnerships," Elizabeth T. Kennedy, Thomas E. Lacher, Jr. and Professor, Diana M. Burton, Texas A&M University, USA; Abbe L. Reis and James D. Nations, Conservation International, USA; Ray Cesca, McDonalds; and Manuel Ramirez, Conservation International, Costa Rica;
- ✓ "Partners for Sustainability," John Elkington and Shelly Fennell SustainAbility Ltd, UK;
- ✓ "Culture Clash and Mediation: Exploring the Cultural Dynamics of Business-NGO Collaboration," Andrew Crane, Cardiff University, UK;
- ✓ "Learning from the Marine Stewardship Council: A Business-NGO Partnership for Sustainable Marine Fisheries," Penny Fowler and Simon Heap, INTRAC (The International NGO Training and Research Centre), UK;
- ✓ "The Art of Collaboration: Lessons from Emerging Environmental Business-NGO Partnerships in Asia," Christopher Plante, The Asia Foundation, USA and Jem Bendell, University of Bristol, UK;
- ✓ "Changing the Rules: Business-NGO Partnerships and Structuration Theory," Uwe Schneidewind and Holger Petersen, University of Oldenburg, Germany;
- ✓ "Web Wars: NGOs, Companies and Governments in an Internet-Connected World," John Bray, Control Risks Group, UK.

A limited number of individual copies of this special issue is available for purchase at the price of £25.00/$45.00. Postage is gratis. To order, please contact: Samantha Self, Greenleaf Publishing Ltd, Aizlewood Business Centre, Aizlewood's Mill, Nursery Street, Sheffield S3 8GG UK; Tel: +44 114 2823475; Fax: +44 114 2823476; http://www.greenleaf-publishing.com. Abstracts of all articles included are available on request as a PDF document.

The articles contained in this issue will be discussed by an internet discussion group on business-NGO relations and responsible enterprise. If you want to contribute to feedback on the articles, visit this website: http://www.mailbase.ac.uk/lists/business-ngo-relations

---

For sale: Various volumes of *American Sociological Review*, *American Journal of Sociology*, *Rural Sociology* and assorted other journals. $4.00 per issue of each journal. For complete inventory e-mail or write Ruth L. Love 3335 NW Luray Terrace, Portland, Oregon 97210. E-mail: RuthLLove@aol.com

---

Master of Arts in Community Psychology and Social Change

Penn State Harrisburg, School of Behavioral Sciences and Education, has a Master's program in community psychology and social change which includes an "Environmental Issues" concentration. The program draws from both sociology and psychology to teach students to assess the causes and consequences of problems at the community or organizational level, to devise ways to tackle those problems, and to evaluate problem-solving policies. Coursework in the environmental issues area of study covers environmental sociology, environmental law, environmental movements, environmental policy, environmental sanitation, justice and the environment, and the human environment. Students may also draw on the Center for Community Action and Research (CCAR) and the Center for Environment and Community (CEC). Steve Couch is Director of the CEC which coordinates teaching, research, and service activities directed toward improving the community-environment relationship. For more information on the Master's program or the CEC, contact Steve Couch at 201C Administration Building, 200 University Dr., Schuylkill Haven, PA 17972; (570) 385-6072; src@psu.edu.