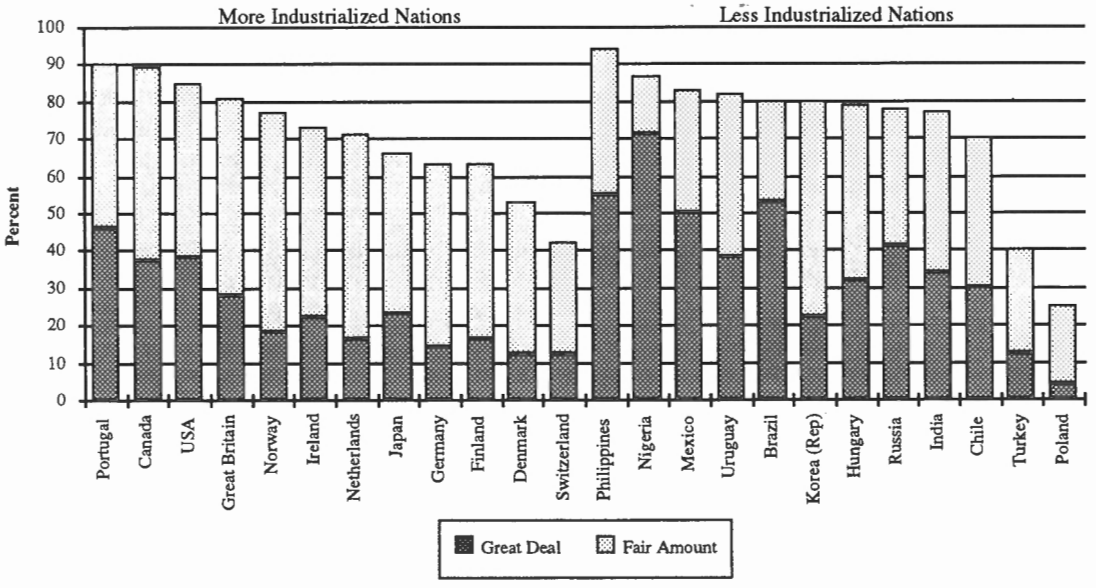
# Environment, Technology, and Society

Newsletter of the Section on Environment and Technology
American Sociological Association

Winter 1993 Number 70

## Global Concern for the Environment

*Percent Who Say Personally Concerned a "Great Deal" or "Fair Amount" About Environmental Problems*




This chart is based on data from an international survey coordinated by the George H. Gallup International Institute and directed by **Riley E. Dunlap**, Professor of Sociology at Washington State University and Gallup Fellow in Environment. See page 11 for additional information on this survey.

*Editor's Note: In the Winter 1992 issue of the Newsletter, we included the full text of Dr. Felice Levine's testimony before the Committee on Environmental Research of the National Research Council and indicated our intent to reprint all the input provided by Section members in subsequent editions of the Newsletter. This is the final contribution to the NRC Testimony, authored by **Penelope Canan**, Chair-Elect of the Section.*

### NRC Testimony Contribution by Penelope Canan

**Problem 1.** There are few models of international cooperation in solving global problems.

(continued on page 3)

### In this issue

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# Notes from the Editor

Having struggled to get the newsletter on schedule with the last issue, I have now managed to let the schedule slip back again. I will labor valiantly to get back on track, and I encourage our membership to submit new and interesting materials for forthcoming editions of the newsletter.

I also had planned to publish a special edition of the newsletter devoted to book reviews. However, I have not received a single new review since my request in the last edition of the newsletter (#69). I will renew the request, and we will put such an edition together if there is sufficient material to warrent it. Tom Dietz wrote me suggesting the idea of a review symposium on the new Academy report *Global Environmental Change: Understanding the Human Dimensions*, or a collective review of the various documents arguing for human dimensions research. He said, "Quite a few groups have produced documents setting forth an agenda for human dimensions work. A serious scholarly discussion of the strengths and weaknesses of each of these proposals would be of great benefit in both making the environmental sociology community more aware of the issues (we have never been sufficiently attentive to science policy) and also in providing the discourse that will lead to better research agenda. Since the Academy's Committee on Human Dimensions of Global Change will continue for several years, and since one of our major tasks is to develop funding priorities for human dimensions research, I can assure you there will be at least one attentive audi ence outside the environmental sociology community." I have included testimony that Tom presented on these issues before the House Committee on Science, Space and Technology Subcommittee on Environment on May 5, 1992. The newsletter would be a good place to discuss this. Please send me your comments and reactions.

A journal that should be of interest to members of our Section is the *Journal of Environmental Systems*, edited by Sheldon J. Reaven and published by the Baywood Publishing Co., Inc. Call 516-691-1270 for information. This journal examines environmental problems as systems in which complex natural phenomena affect, and are effected by, the human world of economics, regulation and law, and culture, behavior, and public perceptions. Some of the problems addressed include waste management, energy and resources, and local and global water, land, and air pollution. Articles range from case studies of particular environment-energy-waste problems or technologies, to assessments of overall system environmental impacts, to broad discussions of theory methodology, and policy.

It's time to start focusing on our forthcoming meetings in Miami. I have included a schedule of events for our "day" – August 15th. There also will be three other environmental sessions in the overall program. More details will be forthcoming in the next edition of *ETS*. ∞


## Environment, Technology and Society Newsletter

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**Publication Schedule**

**The deadline for the spring issue will be April 15, 1993**, an auspicious date indeed. We will strive to have that edition in your hands by mid-May. Please send in book reviews as well. If we reach a critical mass, I will put together a special book review edition of *ETS*. I am also looking for interesting (and relevant) data that can be captured in a graphic on the front page of each issue. If you have ideas, send them to me

# Contribution to NRC Testimony (cont.)

*(continued from page 1)*

Solution: Critically examine the Montreal Protocol for the Elimination of Chemicals That Deplete the Ozone Layer as a model for international diplomacy, cooperation and implementation to solve a globe-threatening environmental problem

- Solution: Immediately involve sociologists in carrying out the Montreal Protocol's provisions to create country-specific CFC reduction and elimination plans and finance their implementation
- Solution: Conduct social science evaluations of international and interindustry technology transfer of CFC elimination programs to understand how to surmount barriers for future similar commitments
- Solution: Immediately conduct case studies of communities near the edge of an ozone hole, like the Chilean port of Punta Arenas. Research on peoples and places that have already experienced dramatic effects of the depletion of the ozone layer could aid their survival, ease their suffering, demonstrate the horror of environmental catastrophe, and help us prepare for the future.

**Problem 2.** The worldwide material prosperity that is dictated on equity and moral grounds cannot be achieved by following obsolescent patterns of industrial development or wasteful consumption and urban design; indeed, assuming so threatens environmental survival.

- Solution: Support work on "Industrial Ecology," the creation of rational industrial ecosystems that replace obsolete patterns of linear "extract and dump" industrial production, reconceptualize waste as products and make industrial development sustainable[1]
- Solution: Support case studies of "leapfrogging" industrial models that disregard old assumptions of a natural progression of heavy to light industrial product development
- Solution: Support case studies of sustainable development at varying levels of population size
- Solution: Support research on alternatives to problematic (contributory) behaviors such as inefficient consumption patterns, the effects of stratification in waste disposal decisions, and lifestyles built on the treadmill of production.[2]

**Problem 3.** Barriers between experts and lay people as producers and consumers of environmental knowledge and responsibility.

- Solution: Provide interdisciplinary emphases in education dedicated to solving environmental problems
- Solution: Support citizen educational opportunities -- more science for the people and people for science
- Solution: Investigate industry reaction to citizen efforts to protect/enhance their environments[3]
- Solution: Support the arts as communicators of science by sponsoring writers, composers, artists to conceptualize scientific challenges
- Solution: Support scientists working with community groups and citizen representatives on local environmental policy working groups
- Solution: Institute rotating agency scientist positions within the academies and within communities around the world
- Solution: Sponsor international scientific teams to foster cooperative solutions to environmental questions.

**Problem 4.** Outmoded information and management systems.

- Solution: Create an index of environmental quality that can be applied to every neighborhood and understood by typical residents so they can be instant monitors, risk assessors, and remediators
- Solution: Create overlapping, global-level information systems so that environmental, technical, management, and socio-economic data are integrated (whereby plankton colony size, rise in sea level temperature, human caloric intake, and GNP might be graphically displayed simultaneously)
- Solution: Sponsor the creation of environmental management programs that transcend physical, geographical or political boundaries
- Solution: Create policy systems driven by long-term environmental goals rather than expedient political agendas
- Solution: Sponsor fundamental research on the bases of teamwork, cooperation, and collaboration.[4]

**Problem 5.** Antiquated values and beliefs that treat the environment as having political and economic boundaries, rather than as naturally shared, interdependent habitats.

- Solution: Create educational programs that promote ecosystem knowledge, especially knowledge of aggregate ecological processes from multidisciplinary viewpoints
- Solution: Understand the implications of environmental vs. technological world views at societal and institutional levels[5]
- Solution: Investigate the implications of valuing the environment for "ownership" (exchange value) as opposed to "stewardship" (use value)[6]
- Solution: Learn about and educate others about peoples whose lifeways are arranged more harmoniously with their physical environments, and whose cultures emphasize cooperation as opposed to competition.

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1 See Hardin B. Tibbs, "Industrial Ecology: An Environmental Agenda for Industry" Cambridge, MA: Arthur D. Little, Inc., 1991.

2 See Allan Schnaiberg (1980) The Environment: From Surplus to Scarcity. New York: Oxford University Press.

3 See Eve Pell, "Stop the Greens," E Magazine, November/December 1991.

4 See Carl Larson and Frank M. J. LeFasto (1989) Teamwork: What Must Go Right/ What Can Go Wrong. Newbury Park, CA: Sage Publications.

5 See Marvin E. Olsen, Dora G. Lodwick and Riley E. Dunlap (1992) Thinking Ecologically. Boulder, CO: Westview Press.

6 See John L. Logan and Harvey L. Molotch (1987) Urban Fortunes: The Political Economy of Place. Berkeley, CA: University of California Press. ∞

# Special Section on Global Environmental Change

**Tom Dietz** provided the following information on the National Science Foundation's Human Dimensions of Global Environmental Change program. This program continues to fund interdisciplinary research on global environmental change. The program is unique in its emphasis on topics of interest to environmental sociologists and in its interdisciplinary review procedures. All proposals submitted to the program are seconded to a disciplinary program officer to handle paperwork. The proposals are then reviewed by individuals and review panels in one or more disciplines. These reviews provide an assessment of methodology and of links to relevant theory and literature. The proposals then go through a parallel review process by the Human Dimensions program itself. The program officer selects a few outside reviewers and then submits all reviews (disciplinary panels and outside reviewers) to the Human Dimensions panel. The panel is a mix of economists, sociologists, anthropologists, geographers, political scientists, etc. It assigns a priority to the proposal based on both its methodological and theoretical quality and its relevance to understanding global change. This last priority is critical for the environmental social science community, since most disciplines do not see environmental work as central. Thus in the past a proposal from an environmental sociologist might have been judged sound, but received a low priority ranking from the Sociology program compared to proposals on stratification, organizational behavior, survey methods, etc. Now the disciplinary review does not determine priority, only quality, while the interdisciplinary panel examines quality and priority.

> ...sociology is still "under-funded" because of the smaller number of proposals submitted.

Until recently, very few proposals from sociologists have been submitted to the Human Dimensions program. This is changing but sociology is still "under-funded" because of the smaller number of proposals submitted. Tom urges environmental sociologists to think seriously about submitting proposals to this program. He has served on the Human Dimensions review panel, reviewed individual proposals and submitted proposals. In his experience the program, while demanding high quality, is very sympathetic to the problems that concern environmental sociologists.

In FY 1992, $3.4 million was budgeted for the program. For FY 1993 this should rise to about $4.8, and the allocation is expected to increase. Submission deadlines are January 15 and August 15. Tom Baerwald (202-357-7326), who directs the overall program, or William Sims Bainbridge (202-357-7802) who directs the Sociology program, can provide further information. The general priorities that have been proposed for human dimensions research can be found in Paul C. Stern, Oran R. Young and Dan Druckman (eds.) Global Environmental Change: Understanding the Human Dimensions (Washington, D.C.: National Academy Press). In addition, Tom would be happy to chat with environmental sociologists who are interested in the program.

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Reproduced below is the testimony that Tom presented before the House Committee on Science, Space and Technology Subcommittee on Environment on May 5, 1992. He also provided testimony before the NRC Committee on Environmental Research in his role as president of the Society for Human Ecology along similar lines.

## Testimony

### I. INTRODUCTION

Research on the human dimensions of global change should be a central element in the U.S. Global Change Research Program. The National Academy of Science's recent report, Global Environmental Change: Understanding the Human Dimensions, calls for a national research program on the human dimensions of global change. In doing so, it agrees with every other major examination of global change research priorities. Few other areas of research can provide as much useful information for such a small cost, and few are so underfunded. But these returns will be achieved only if the federal government supports research on human-environment interactions in an intelligent and sustained way. Because there is such a broad consensus on the value of a human dimension program, and because the Academy has detailed the need for such a program in its report, I emphasize the specific elements that will make such an effort successful. I identify some of the benefits that will result from human dimensions research, both in the short and long terms, and examine the requirements for an effective research program, with some comments on obstacles to success in the current program.

### II. BENEFITS OF HUMAN DIMENSIONS RESEARCH

I will make a distinction between knowledge that is "on the shelf" and can be used almost immediately by drawing on existing expertise, and knowledge that must be developed for guiding policy. But the distinction is somewhat artificial. All of the analyses that can be carried out with existing knowledge will be much improved by further basic research, and all the basic research proposed is closely linked to application. To emphasize this linkage between short term and long term research benefits, I will first discuss a benefit that can be derived in the very near future, and then the longer term research needed to multiply that benefit. The Academy has identified elever criteria for supporting human dimensions research and seven priority topics. For simplicity, I will organize these in a slightly different form than did the report.

A1. Improved Global Change Forecasts. Concerns with ozone depletion, species loss and especially climate change are driven by models that predict several decades into the future. Because these global environmental problems unfold so slowly, it is prudent to take action based on what we can anticipate rather than waiting for all these changes to unfold. A major portion of the global change research effort is intended to improve models, either directly or by building a better knowledge base for modeling.

Modeling efforts include assumptions about the human activities that generate environmental change, including population growth, economic growth, consumption and the choice of technology. These assumptions are critical to the models; without them there would be no human-induced change to study. Unfortunately, the assumptions about human activity are usually naive. Knowledge already exists to sut stantially improve our projections of the human driving forces of global change. This

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will in turn improve our ability to anticipate the future and make reasonable decisions in the present. Indeed, no other line of research may do as much to reduce the uncertainty in global climate forecasting. William Nordhaus of Yale, a member of the National Academy's Committee on Human Dimensions of Global Change, has estimated that better predictions of climate change could save billions by insuring we make the right policy choices.

Guidance for this effort can come from demographic and energy research. Since World War II, studies of population dynamics have shown the patterns of change that lead to slower population growth. As health, education and economic opportunities for men and especially women improve, and when contraception is available, fertility drops and population growth slows. This research has led to better population projections as well as better knowledge for population policy.

Over the last two decades, energy research has demonstrated that the link between economic growth or quality of life nd increased energy consumption is much weaker than it once was. It is possible that nations go through an "energy transition" much like the "demographic transition" that effects human population growth. There is much more to learn about trends in energy consumption and pollution generation. But global climate change models could be substantially improved by incorporating approaches developed for demographic and energy modeling.

A2. Better Understanding of the Human Driving Forces. We know enough to begin to improve forecasts. Because critical and costly decisions hinge on our expectations about global environmental change, much more should be done to improve our understanding of the forces driving these changes. Many writers identify a single factor as the cause of environmental problems— population, economic growth, the wrong technologies, bad attitudes on the part of consumers, poor policies, etc. In fact, driving forces like these act in tandem, and their effects will differ across problems, places nd times. A sustained research effort can dentify the key driving forces in a variety of contexts, provide understanding of how they interact with each other, and how policy may influence them for the better. The beginnings of this knowledge exists, for example in the growing body of studies on tropical deforestation. But much more work is needed to understand energy intensity, the dynamics of land use and food production, choice of technologies and the decision-making of individuals, firms, communities and governments. A better knowledge base will clarify the dynamics of the driving forces and improve forecasts, and also provide a better basis for policy making.

B1. Identifying Resilient and Fragile Systems. Some human systems are remarkably robust and already cope well with changes greater than the global environmental changes now anticipated. Others seem more brittle. We need not worry about the resilient systems, while the fragile ones may need special attention. Existing knowledge can be helpful in identifying the communities, institutions and regions that are robust and those that are fragile. For example, research by anthropologists and political scientists on fisheries, water systems and other "common property resources" demonstrates conditions under which a resource can be managed effectively for the common good, and other circumstances where such management, whether by tradition, government or the market, breaks down, leading to destruction of the critical resource.

> Knowing more about what makes for resilience and adaptability will help us to identify situations that need intervention and those that are best left alone.

B2. Societal Resilience. While we have some specific knowledge that can be used to identify resilient and brittle systems, we know relatively little about the social forms, policies and institutions that make some communities or nations quite adaptable and others fragile. Knowing more about what makes for resilience and adaptability will help us to identify situations that need intervention and those that are best left alone. It will also help promote resilience when that can be influenced by policy.

C1. Identifying Impacts. Environmental problems are difficult because they involve complex tradeoffs and very large costs and benefits. Some of the costs and benefits, particularly those for economic goods and services, are visible and easily calculated. But other important impacts are less visible and cannot easily be assessed. These include effects on human health and on what biologists have called "ecosystem services," valuable natural processes such as the cleansing of polluted water, insect pollination of crops or moderation of climate by forests. We have enough knowledge of these hidden costs and benefits to better identify them for consideration in formulating policy.

> Ultimately a better understanding of how people come to value the environment and better methods for realistic assessment of those values, will provide important input into policy analysis.

C2. Valuation. Though we can identify many of the hidden costs and benefits of environmental policy, much more research is needed to find ways to assign monetary or other quantitative value for them. There is a significant and growing body of research in economics on this problem, and other disciplines are also beginning to make valuable contributions. Ultimately a better understanding of how people come to value the environment and better methods for realistic assessment of those values, will provide important input into policy analysis. It will also help in avoiding the surprises of public outrage that have been all too common over the past decade.

D1. Evaluation of Environmental Policies. Rigorous evaluation studies of existing environmental policies are badly needed. Decades of solid evaluation research on biomedical, education and social service programs have greatly improved the nation's ability to formulate sound policy in those areas. Since the 1970s, there have also been important evaluation studies of energy conservation programs, especially those supported by DOE's National Labs. This kind of knowledge is extremely valuable when programs need to be modified or considered for renewal. The history of work in other fields provides a sound guide for environmental program evaluation; what is lacking is a commitment to such evaluations. I

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would suggest that every new program be required to earmark a small fraction of its funding for formal evaluation studies. Learning what works and what doesn't will save a great deal of money and frustration in the long run.

D2. Analyzing Environmental Institutions. The longer-term parallel to evaluation research is the development of a body of knowledge indicating what institutional forms are most effective and efficient at protecting the environment. This involves understanding the driving forces and the policies and arrangements that can mitigate adverse effects. Studies at a variety of levels, ranging from the individual and household, to the community and firm and on to international agreements on the environment are necessary. Of special importance are studies of both decision-making and of conflict. Supplemented with evaluation research on specific programs, this more general research will aid in the design of policies.

## III. REQUIREMENTS FOR EFFECTIVE RESEARCH

The Academy has estimated that a solid program covering the topics outlined above will cost between $45 and $50 million per year. For purposes of comparison, this is about 5% of the fiscal 1991 budget for the U.S. Global Change Research Program. This modest investment will have substantial returns for improved policy decisions if, and only if, it is properly structured. I want to note some of the requirements for using the funds effectively, and some of the obstacles that must be overcome.

A. Interdisciplinary Efforts. No single field possesses sufficient knowledge to dominate research on global environmental change, nor even on the human dimensions of such change. Both immediate and longer term research priorities will produce useful results if and only if they are conducted with the insights from multiple disciplines. But there are serious obstacles to interdisciplinary communication. The institutions of research, whether in government, academia or the private sector, are organized by disciplines. This division may be obvious, as in university department structures or the program offices at NSF, or it may be subtle, as in the dominance of most major agency programs and private research institutes by one or a few disciplines. The rewards for research, especially but not exclusively in universities, are also accorded by disciplines that control journals for publication and professional meetings.

The Academy, in its Human Dimensions report, strongly recommends a long-term commitment of resources to encourage work that cuts across disciplinary lines. The National Science Foundation's (NSF) program on Human Dimensions of Global Environmental Change has made a good beginning on the kind of work required and I want to use it as an example of what is needed. The NSF program is conducted by the Division of Social and Economic Sciences and funds investigator initiated research proposals. In Fiscal 1989, the program funded 15 proposals, of which about 6 were for workshops or planning activities. In Fiscal 1990 the number of projects funded increased to 28, with only 3 planning efforts. In 1991, the program was divided into an economics competition funded with about $1.2 million and a general competition with about $2.4 million. Overall, about 54 projects, including 4 planning studies, were funded, split evenly between economic and other efforts. For Fiscal 1992, $6.8 million have been requested, again, split evenly between economic and other projects. In addition, the program expects to fund planning grants and pilot analyses for Long-Term Regional Research Sites.

> The increase in funding makes possible some first efforts toward long-term research projects that are critical for understanding global change.

The NSF experience is encouraging. A growing number of excellent proposals are being submitted. The fraction of resources expended on actual research rather than planning efforts and workshops has increased, reflecting serious commitment by the research community. The increase in funding makes possible some first efforts toward long-term research projects that are critical for understanding global change.

One of the reasons for the success of the NSF is its emphasis on interdisciplinary work. The program makes use of disciplinary experts in reviewing proposals. But it also insists on interdisciplinary review of proposals and has given such broader expertise appropriate weight in making decisions. Just such special efforts are required to insure that funds are supporting truly interdisciplinary efforts that will generate new and useful knowledge rather than simply reenforcing conventional wisdom from traditional fields.

Starting in FY 1991, an initiative in economics was allocated a "set-aside." It is my impression that these targeted funds are still subject to the broad interdisciplinary review necessary for a successful program. But care must be taken to insure that disciplinary "entitlements" don't emerge in the future, since such earmarking could greatly reduce the efficiency of funding decisions. And more needs to be done to encourage interdisciplinary work. There is a need for interdisciplinary fellowship programs and for interdisciplinary research centers. Special efforts to encourage communication across disciplines are worth funding. In narrow fields, researchers learn of each other's work because they read the same publications, belong to the same organizations and communicate through the same networks. No special effort is needed to insure communication. In contrast, global change researchers may not know of each other, and will not benefit from each other's work unless some modest but targeted efforts are made to bring them together. I wonder, for example, how many of the 15-20 principal investigators who have been funded by NSF for projects dealing with deforestation have talked with one another.

B. Build on Established Expertise. Work on human-environment interactions, what I will call human ecology, is as old as the sciences. But it has seen a very substantial growth over the last twenty years, and is approaching a vigorous youth if not full maturity. The work has grown out of a variety of subdisciplines: environmental economics, environmental policy analysis, environmental sociology, ecological anthropology, cultural geography, and risk analysis, to name a few. There is now a substantial body of methods, theory and substantive knowledge that can be used to guide policy in the short run and

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that provides the foundation for further research.

Funding for research in human ecology has always been scarce. As a result, most human ecologists, whatever their disciplinary affiliation, have substantial experience working with federal, state and local agencies as well as with the private sector on applied projects. They have mastered compromises involved in designing research that can solve practical problems while advancing fundamental knowledge. Thus they are "pre-adapted" to work on human dimensions.

Because the amounts of funding are increasing, work on human dimensions is attracting many new researchers. To the extent that this provides new insights and energy it is welcome. But a certain naivete comes with it. Over the last few years, I have all too frequently reviewed research proposals and papers whose authors, by omission or commission, suggest that nothing has been written on the topic they are studying, when in fact a substantial body of work, spanning several decades and dozens of papers, already exists. Funding for research on human dimensions of global environmental change must not be wasted on naive efforts that ignore the body of existing knowledge and skills.

One reason for the success of the NSF program is that it strives to identify individuals with research experience in human-environment interactions to provide advice. I believe other agencies would do well to follow this example, a point I'll return to below.

The program needs to recruit researchers who will continue building the skills necessary to conduct research that answers the key policy questions of today while also building fundamental knowledge for the policy questions of the future.

C. Sustained Effort. The research program must be sustained over a considerable period of time. Some of the issues noted above can be addressed in the short term. But the problems of human dimensions, like the rest of the national research program, will require investment over decades. Long term commitments are necessary for several reasons. First, the problems themselves are long term, and will require research programs that span decades to understand key phenomena. Second, research expenditures on global change should be a national investment, not a windfall for those quickest at writing proposals. The program needs to recruit researchers who will continue building the skills necessary to conduct research that answers the key policy questions of today while also building fundamental knowledge for the policy questions of the future. All of this requires a long-term commitment.

D. Upgrade Agency Expertise. The Academy has noted that there is an almost perfect mismatch between the talents and skills available in the lead global change research agencies and those required for human dimensions research. For a variety of reasons, DOE, NASA, NOAA and EPA have never recruited a significant body of social scientists, let alone specialists in human ecology. Nor have scholars with a significant record of research on human-environment interactions been prominent on advisory and review panels for these agencies. This makes it likely that funds expended on human dimensions research by these agencies will be badly allocated and not produce either the short term or cumulative payoff possible.

Of course, there are a few individuals with the requisite expertise in most agencies, and a large community in universities and the private sector who can be mobilized to lend assistance. Agencies can make use of this expertise to insure effective allocation of research funds by

- recruiting new staff with the required expertise to guide programs,
- increased use of advice from researchers with a history of work on human-environment interactions, or
- cooperation with bodies that already incorporate the required expertise.

The experience at NSF suggests that it is possible to develop a sound and innovative global change research program. But it can only be done by drawing on the needed expertise, expertise that is not presently available in the lead agencies for global change research.

IV. SPECIFIC RECOMMENDATIONS

To meet these criteria and realize the potential of a national human dimensions research program, the Academy offers six specific recommendations.

1. The National Science Foundation should increase substantially its support for investigator-initiated or unsolicited research on human dimensions of global change.

2. The National Science Foundation, other appropriate federal agencies, and private funding sources should establish programs of targeted or focused research on the human dimensions of global change.

3. The federal government should establish an ongoing program to ensure that appropriate data sets for research on the human dimensions of global change are routinely acquired, properly prepared for use and made available to scientists on simple and affordable terms.

4. The federal government, together with private funding sources, should establish a national fellowship program. Through it, social and natural scientists prepared to make a long-term commitment to the study of the human dimensions of global environmental change could spend up to two years interacting intensively with scientists from other disciplines from across the social-natural science divide.

5. The federal government should join with private funding sources to establish about five national centers for research on the human dimensions of global change and to make a commitment to funding these centers on a long-term basis.

6. The federal government should increase funding for research on the human dimensions of global change over a period of several years to a level of $45-50 million per year.

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# Section News

## Section Awards and Nominations

The Section on Environment and Technology seeks nominations for two awards. Nominations are requested for the 1994 *Award for Distinguished Contributions to the Sociology of Environment and Technology* to recognize outstanding service, innovation, or publication in environmental sociology or sociology of technology. Nominations and supporting documents should be sent, by May 1st, to **Penelope Canan** at the Department of Sociology, University of Denver, Denver, CO 80208-0209. Manuscripts to be considered for the Section's 1993 *Outstanding Student Paper Award* also should be sent to Canan by May 1st. **Barbara Farhar** will serve as chair for this award.

**Ken Gould**, Chair of the Section Nominations Committee, has received nominations for two open Environment and Technology Section Council member positions and for the Chair-Elect position. Biographies on the nominees will be sent to the ASA by April 1 for distribution to the Section membership requesting your votes. You should receive this around the end of April. Please be sure to vote. Election results will be announced at the Section's business meeting in Miami on August 15th.

### 1993 ASA Meetings

**Penelope Canan** reports the following proposed E&T Section activities for the ASA Meetings in Miami on Sunday, August 15th:

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|---|---|
| 08:30-10:20 | Unequal Risks and Unequal Access to Resources (co-sponsored with the Section on Racial and Ethnic Minorities) |
| 10:30-12:20 | Alternative Methods of Studying the Environment and Technology |
| 12:30-01:30 | Council meeting over lunch |
| 02:30-04:20 | Author Meets Critics: Hardin Tibbs, Global Business Network presents The Ethical Management of Global Technology: Challenges for Transnational Corporations, Nation States, Diverse Cultures and the Law |
| 04:30-05:30 | Section refereed roundtables |
| 05:30-06:30 | Business meeting |
| 06:30-08:20 | Reception (no host bar) held jointly with the Section on Science, Knowledge and Technology (both sections will announce award winners at the reception) |

# Membership News

**Robert Bullard**, a sociology professor at the University of California, Riverside, was appointed to President Clinton's transition team to study possible regulatory improvements in the Environmental Protection Agency, particularly as they relate to poor and ethnic communities. Bullard is a national authority on the practice of concentrating waste dumps and pollution-creating industry in areas with high minority and low-income populations. "The idea is to look at where the EPA is now and where it should be in the coming administration," Bullard said. "The fact that I'm here is a good sign that environmental equity issues are on the table and will be addressed." His advisory group will examine natural resources, the environment, energy and agriculture, consulting with grass-roots and environmental groups.

**Penelope Canan**, a member of Sigma Xi, a scientific research society, received a letter from them that contained the following information of potential interest to ET&S members:

> "In keeping with the Society's expanding mission, Sigma Xi is developing plans for an interdisciplinary research center, where scholars from different disciplines will come together to develop new approaches for addressing complex and critical problems at the intersection of science, technology, and society. Complementing university, government, and industrial research, the Sigma Xi Center will fulfill a need for interdisciplinary collaboration on such far-reaching problems as global change, ethics and research, and science, mathematics, and engineering education. In October, the Executive Committee and the ad hoc Capital Campaign Committee reviewed the architect's design for the proposed Sigma Xi Center, to be built in Research Triangle Park, North Carolina."

Sigma Xi's address is: 99 Alexander Drive, P.O. Box 13975, Research Triangle Park, NC 27709. Tel: (919) 549-4691 and Fax: (919) 549-0090.

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# Current Events

## Position Announcements

1. The Environmental Communication Research Program (ECRP), based at Rutgers University, is looking for a Senior Research Associate (or post-doctoral fellow) with background in qualitative research related to risk communication. ECRP anticipates beginning a multi-year project exploring the relationship between risk communication, pollution prevention, and organizational factors. The senior research associate will have experience applicable to this project. Investigators involved in this project at Rutgers will include Caron Chess (ECRP), Michael Greenberg (Department of Urban Studies and Community Health) and Michal Tamuz (School of Business). Frances Lynn of the University of North Carolina will also be involved.

Opportunities also exist for collaboration with faculty at Rutgers on other projects and for teaching related classes.

Candidates should have an advanced degree, research experience in a relevant discipline, excellent communication skills, and extensive experience conducting in-depth, qualitative interviews. Background in environmental risk communication strongly preferred.

Salary commensurate with experience. Rutgers University is an equal opportunity employer. Please send c.v. to Caron Chess at: Rutgers, Environmental Communication Research Program, Cook College, P.O. Box 231, New Brunswick, NJ 08903-0231.

ECRP conducts research, provides consulting services, and holds training workshops concerning communication with the public about environmental health issues. ECRP is committed to fostering collaborative, interdisciplinary approaches that bring a social science perspective to environmental problem-solving.

2. Whitman College invites applications for a tenure track, inter-disciplinary position at the Assistant Professor level in the Department of Sociology beginning August 1993. Although the deadline for applications was set at March 15, 1993, call William Bogard at (509) 527-5125 to determine whether applications will be entertained after that date. ∞

## Publications

**Carole L. Seyfrit** (Old Dominion University) and Lawrence C. Hamilton (University of New Hampshire). 1992. *Social Impacts of Resource Development on Arctic Adolescents.* in Arctic Research of the United States, Vol. 6 (Fall), Pp. 57-61.

**David A. Sonnenfeld.** 1992. *Mexico's "Green Revolution," 1940-1980: Towards an Environmental History.* Environmental History Review. Vol. 16, No. 4 (Winter).

**Donald R. Field**, Associate Dean and Director of the School of Natural Resources at the University of Wisconsin-Madison, reports on the availability of a Book of Abstracts resulting from the 4th North American Symposium on Society and Resource Management. The Symposium was held on the University of Wisconsin campus in May, 1992. The 312-page book includes an abstract and complete address of the first author of each paper and poster presentation made at the Symposium. It is organized by theme area and indexed by author. The interdisciplinary Symposium was attended by about 700 people and focused on a variety of natural resource management issues and their social implications. A sample of the 19 theme areas contained in the publication include: Conservation and Sustainable Resource Management, Cultural Resource Management, Environmental Education and Interpretation, Environmental Ethics and Policy, Ethnic Minorities and the Environment, Social Forestry, Human Dimensions of Wildlife, Natural Resources and Local Communities and Visual Resource Management. To order a copy send a $20 check payable to UW-Madison to: School of Natural Resources, 1450 Linden Drive - Rm 146, University of Wisconsin, Madison, WI 53706. The 5th International Symposium on Society and Resource Management is scheduled for June 7-10, 1994, at Colorado State University in Fort Collins, Colorado. For further information, contact Michael Manfredo, College of Natural Resources, Colorado State University, Fort Collins, CO 80523 (Tel. 303-491-6591).

**Tom R. Burns** and **Thomas Dietz.** 1992. *Socio-Cultural Evolution: Social Rule Systems, Selection and Agency,* International Sociology, 259-283.

**Tom R. Burns** and **Thomas Dietz.** 1992. *Technology, Socio-Technical Systems and Technological Development: An Evolutionary Perspective,* Pp. 206-238 in B. Dierkes and E. Hoffman (eds.) New Technology at the Outset: Social Forces in the Shaping of Technological Innovations. Frankfurt: Campus.

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## News *(continued from page 8)*

**David Sciulli**, Associate Professor, Department of Sociology, Texas A&M University, reports that the 31st Congress of the International Institute of Sociology will be held June 21-25, 1993, at the Sorbonne in Paris. IIS is the oldest continuous association in sociology and the discipline's senior international body. Although the deadline for paper submission has past (3-1-93), E&T Section members will be interested in many of the topics covered. For a complete listing of sessions, chairs, mailing addresses, and additional information contact David at (409) 845-5133. For information about IIS membership, contact R. Alan Hedley at the Department of Sociology, University of Victoria, Victoria, B.C., Canada, V8W 3P5 (604) 721-8653. ∞

## Papers Presented

Thomas Webler and Ortwin Renn. 1991. *A Normative Theoretical Foundation for Evaluating Public Participation.* Paper presented at the Society for Risk Analysis Annual Meeting. Baltimore, MD. December.

**Phil Brown** was an organizer and presented a paper titled *Lay-Professional Differences in Detecting Toxic Health Effects in Woburn, Massachusetts* at the AAAS meetings in Boston, MA, February 14, 1993.

## Toxicology in Cross-Cultural Perspective: Pickers, Poisons, and Borders

Barbara Deutsch Lynch

Naturaleza Muerta: Los plaguicidas en Mexico, by Iván Restrepo. Mexico, DF: Centro de Ecodesarrollo. 1988. 236 pp. maps, tables.

The Death of Ramón Gonzalez: The Modern Agricultural Dilemma, by Angus Wright. Austin TX: University of Texas Press. 1990. 337 pp. maps, illus.

The Circle of Poison argument widely used by environmental groups to alert their constituents about pesticide export issues focuses attention upon a group at relatively little risk: American consumers of Jalisco strawberries and Sinaloa lettuce. Circle of Poison proponents, including Greenpeace International and the United Farmworkers, may well have trivialized a serious toxicological issue by drawing attention away from farm workers and from residents of areas where pesticides have been casually broadcast by uninformed and unregulated applicators. Two recent books, *Naturaleza Muerta* by Iván Restrepo, director of Mexico's Centro de Ecodesarrollo (Center for Ecodevelopment) and *The Death of Ramón Gonzalez* by Angus Wright, a North American anthropologist, focus our attention back where it belongs – on the impacts of large-scale, chemical-intensive agriculture on the health, safety, and economic well being of Mexican cultivators; on environmental quality; and on the long-term viability of Mexican agriculture. Both authors cogently argue that the human health and environmental problems associated with pesticide abuse cannot be explained in terms of individual behaviors, but must be seen as the by-products of Mexico's increasing dependence on agricultural exports to generate foreign exchange, on regional development policies that have deliberately bypassed the indigenous local market and subsistence cultivation, and on economic policies that have favored creation of new markets for Mexican petrochemical products.

*Naturaleza Muerta* accomplishes three important tasks. The first is to introduce the general, educated reader to the varieties of pesticides used in Mexican agriculture, their functions, their distribution, and their impacts on worker health and the environment. The second is to acquaint its audience with relevant legislation and with the governmental agencies involved in pesticide promotion and regulation. Finally, the book acts as a position paper in support of nascent pesticide regulation programs and policies in Mexico.

Restrepo bases his discussion on a Centro de Ecodesarrollo study of pesticide use in six regions of Mexico – all characterized by heavy investments in export oriented production. One of these is Sinaloa, the focus of Wright's account and producer of 45 percent of Mexico's fruit and vegetable exports. Restrepo assigns fundamental responsibility for over and misapplication of pesticides to the activities of transnational entities, which he argues, is made possible by the absence of a coherent pesticide policy on the part of the Mexican government.

Wright's approach to the problem of pesticides, environment, and farm worker health and safety is broader. He argues that the pesticide problem in Mexico may be due less to the lack of a coherent pesticide policy than to the presence of a coherent policy that has since the end of World War II strongly promoted the development of export-oriented, very large-scale monocultures and the widespread use of agrochemicals.

Wright opens his discussion with the death of a farm worker, most likely – although not definitively – attributable to pesticide poisoning. He goes on to trace the complex causal web that brought Gonzalez in contact with chemicals applied with no regard either to worker health or to the long-term sustainability of agricultural production. His account begins with a trip through the mazes of the public health and phytosanitary bureaucracies in search of information on the epidemiology of pesticide poisoning and agricultural recommendations and controls. The difficulty of tracking the health effects of particular pest management practices in a mobile work force is emphasized as is the social distance between the architects of the nation's pesticide policies and the fields in which they are applied.

Wright's intellectual wanderings take him next to the State of Oaxaca, home of the Mixtec people and Ramón Gonzalez. He examines the impacts of social stratification on land use and deterioration from the preColumbian past to the Salinas de Gotari era to find the reasons why so many Mixtecs leave their homeland to endure desperate living and working conditions in the fields of Culiacán. His story then turns to the production, technical, and regional emphases of Mexican agricultural programs since 1940. Wright suggests that current pesticide practices are a direct consequence of (1) A shift in emphasis from domestic food production to production for export; (2) increasing investment in large-scale irrigated agricultural production in northern Mexico at the expense of small-scale rainfed and irrigated production in the South and East; and (3) wholesale adoption of Green Revolution technologies and agricultural practices.

> ...pesticide misuse... is an inevitable consequence of the choice that Mexico has made to pursue a highly competitive export strategy

In sum, Wright argues that pesticide misuse is not a function of worker ignorance or malice on the part of growers, nor is it a technical problem that can be overcome as Mexican growers gain experience with chemical agriculture. Rather, it is an inevitable consequence of the choice that Mexico has made to pursue a highly competitive export strategy based on agricultural exports to the United States and to adopt an imported reductionist approach to the scientific understanding of agriculture – an approach rooted in yield maximization and a narrow focus on particular practices and technical problem solving. Wright warns that application of this technocentric approach to issues of agricultural sustainability, as in the application of IPM practices or promotion of precolumbian agricultural landscaping like the chinampa or bench terrace, are likely to end in failure as well.

Both books are extremely useful contributions. *Death of Ramón Gonzales* is a favorite text in my environment and society course; *Naturaleza Muerta* is a succinct and useful guide to pesticide practices in tropical America. However, Wright and Restrepo leave open a question ever more salient in the face of opposition to the proposed U.S.-Mexico free trade agreement from environmentalists and the U.S. labor movement. Where should control over pesticide use lie?

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**Book Review** *(continued from page 10)*

Some argue that the free trade agreement will further stimulate movement of agribusiness south of the border beyond the reach of such controls as EPA's pesticide registration process and promote the very practices that currently endanger the environment of export producing states like Sinaloa and Jalisco. These critics argue that any agreement between the United States and Mexico should include adoption of environmental regulations in Mexico comparable to those in place in here. Such regulations would apply not only to agriculture, but to workplace safety and industrial effluents.

Wright and Restrepo leave open a question ever more salient in the face of opposition to the proposed U.S.-Mexico free trade agreement from environmentalists and the U.S. labor movement. Where should control over pesticide use lie?

Sociologist David Barkin has cogently argued that to the extent that extension of the United States environmental agenda to Mexico is instigated by the U.S. government or U.S. environmental groups outside of an equal and open bilateral treaty negotiation process, this extension constitutes a violation of that nation's sovereignty. But Wright's analysis of the ways in which Mexican government policies have favored the use of locally produced petrochemicals and have left agencies charged with agricultural development and monitoring pollution and farm worker health understaffed, underfunded, or notoriously unsympathetic to attempts to introduce IPM or farm worker surveillance programs suggests the unlikelihood of a reasoned ordering of priorities taking place given existing constraints. The questions raised by both Restrepo and Wright indicate that problems of toxics policy go far beyond risk definition and assessment. These problems, which are becoming more pressing as vegetable production for United States markets increasingly moves south from California, have much to do with the need to create institutional frameworks for treating toxicological problems whose causes transcend national boundaries and whose impacts are felt in very different realms of human activity. ∞

## Gallup International Survey Shows Global Concern for the Environment

Conventional wisdom holds that concern for environmental quality is limited primarily to residents of the wealthy industrialized nations of the Northern hemisphere. However, results from a 1992 Gallup International Institute survey conducted in 24 nations show widespread environmental concern among citizens of all types of countries. While the specific problems that generate concern vary from country to country, the results reveal a surprisingly high level of citizen awareness of environmental deterioration and support for environmental protection around the world. Equally important, the results suggest that many issues that hampered efforts to achieve consensus at last year's "Earth Summit" may be less divisive than many world leaders assume. Residents of developing nations, for example, do not put all of the blame for world environmental problems on the rich nations, while those in the latter do not attribute such problems mainly to overpopulation within poorer nations.

The *Health of the Planet Survey* was coordinated by the George H. Gallup International Institute and conducted by Gallup affiliates around the world. Representative samples of approximately 1,000 residents in each of 24 nations were surveyed via face-to-face interviews between January and March of 1992.

The survey was directed by Riley E. Dunlap, Professor of Sociology at Washington State University and Gallup Fellow in Environment at the Gallup International Institute. Dunlap and George H. Gallup, Jr. reported preliminary findings at several venues last year, including the Global Forum at the Earth Summit in Rio de Janeiro.

A Preliminary report of findings from the Health of the Planet Survey are available from Dunlap (Department of Sociology, Washington State University, Pullman, WA 99164). A more detailed report will be available soon from the George H. Gallup International Institute, P.O. Box 140, Princeton, NJ 08542 (609-921-6200). A summary report has been published in The Polling Report, Vol 8, No. 10, May 25, 1992 and Vol. 8, No. 11, June 8, 1992. ∞

**Publications** *(continued from page 9)*

**Thomas Dietz**. 1992. *The Challenges of Global Environmental Change for Human Ecology*, Pp. 30-46 in L. Hansson and B. Jungen (eds.) Human Responsibility and Global Change. Gteborg, Sweden: University of Gteborg.

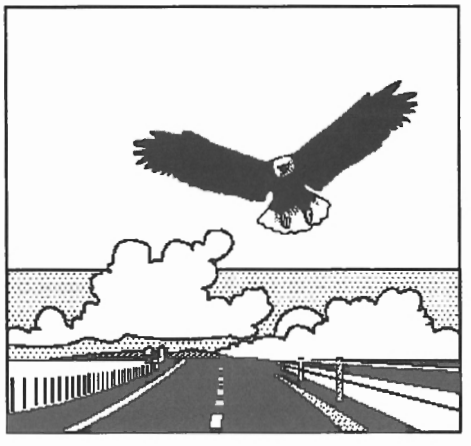
**Thomas Dietz** and **Tom R. Burns**. 1992. *Agency and Evolutionary Theory*, Acta Sociologica, 35:187-200.

**Thomas Dietz** and **Linda Kalof**. 1992. *Environmentalism among Nation-States*, Social Indicators Research, 26:353-366.

**Riley E. Dunlap** and **Curtis E. Beus**. 1992. *Understanding Public Concerns About Pesticides: An Empirical Examination*. Journal of Consumer Affairs. 22:155-171.

**Riley E. Dunlap.** 1993. *From Environmental to Ecological Problems*. In Craig Calhoun and George Ritzer (eds.), Social Problems. McGraw-Hill.

**Riley E. Dunlap** and **William R. Catton, Jr.** 1993. *The Development, Current Status, and Probable Future of Environmental Sociology: Toward an Ecological Sociology*. Annals of the International Institute of Sociology. Vol. 3.



"We must not cease from exploration and the end of our exploring will be to arrive where we began and to know the place for the first time." – T.S. Eliot

TO: Members of the Environment and Technology Section, ASA

FROM: Chris Cluett, Battelle Seattle Research Center, 4000 NE 41st Street, Seattle, WA 98105-5428

**PLEASE SEND THIS TEAR-OFF SHEET OR A COPY FOR INCLUSION IN FORTHCOMING EDITIONS OF THE NEWSLETTER. MANY THANKS.**

*Your current research interest(s) you would like to share with others:*

*New literature you have published, or found especially helpful. Give full citations.*

*Forthcoming meetings and conferences. Calls for papers. Papers you have recently presented.*

*Activities of related social science environmental groups.*

Name: _____

Address: _____