
*Environmental Decline
and
Public Policy*

Pattern, Trend and Prospect

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Preface

In August and September of 1988 two subcommittees of the United States Senate *Committee on Environment and Public Works* held joint hearings on S. 2666, the "Global Environmental Protection Act of 1988." To inform their deliberations with a broad range of evidence, staff members for the Senate subcommittees sought testimony from both natural scientists and social scientists acquainted with problems of global change. When the subcommittee staff contacted me, I suggested that as an anthropologist and historian I would best be able to present an overview to the Senate of our contemporary environmental circumstance in light of the larger context of human evolution and the history of cultural adaptation to environmental change. They indicated that this is what they would like me to provide, so I prepared a formal written statement and testified before the Senate subcommittees on 14 September 1988.¹

Having read the Senate proceedings, Mr. Edward Wall, President of the Pierian Press, in Ann Arbor, Michigan, felt that this testimony would be of general interest and that it should be published for broader circulation to expand the range of public discussion of the current environmental crisis. Mr. Richard Gray, Senior Editor of the Pierian Press, agreed to provide supplementary annotations to the works cited in the initial testimony. In the first instance, then, the testimony and annotated sources were published as a collaborative effort in the form of an extended three-part article entitled "The Anthropology of Environmental Decline," in three issues of the professional journal *Reference Services Review* during 1990.

Since that time, substantial new material has been collected both by Mr. Gray and myself to update and supplement the information and assessments first presented to the Senate. The resulting cumulative work is presented here in a single volume to provide college professors, librarians, high school teachers, students, and the general reading public with informative summaries of the key literature touching upon global environmental change and public policy in its widest setting. It can be used in its entirety or chapter by chapter as a useful introduction to much of the background literature relating to large-scale and long-term environmental change as it relates to human history and culture.

If public policy initiatives on environmental matters are going to be effective, a massive shift will be required in public awareness and thinking about global environmental trends. Experts and specialists have been issuing serious warnings for years, but so far the general public continues to believe that environmental matters are secondary or optional issues, to be dealt with only after concerns about jobs and a growing economy are addressed. This public belief needs to change quickly if

industrial societies are to have any realistic hope of sustaining viable economies and creating stable jobs in the years and decades ahead.

Because of the urgency of these issues, specialized environmental research and expert Senate testimony can no longer be confined to the narrow leadership audiences to which it was initially addressed. An informed and involved citizenry is the only hope of generating forward-looking political leadership, and without this kind of leadership public policy will surely fail. The present work, then, should be of interest to anyone engaged in public education—in the broadest possible sense.

* * *

The gist of the evidence presented in the Senate hearing and elaborated with annotated references in the following pages can be summarized quite succinctly. First, environmental crises are not as unheard of in natural and human history as one might think at first. While some of the circumstances we currently face are clearly unprecedented, environmental catastrophes in the past were not rare. On the contrary, periods of environmental decline occurred repeatedly in the past with devastating impact on human populations over the full course of evolutionary history. While some of these environmental disasters have been attributed to "acts of God," it is now becoming clear that many more can be attributed over the long term to ill-conceived or misdirected public policy.

Secondly, as evidence from environmental archaeology is beginning to suggest, the history of environmental decline does not reflect a uniform or gradual process. Instead, the general continuum of the environmental history in most civilizations is punctuated with short intervals of intense environmental destruction, followed by long periods of subsequent recovery. Ecosystems are characterized by the complex interaction of bio-geo-chemical exchanges between life forms and material support systems. As the nature and pace of these exchanges are altered, ecosystems can experience relatively short-lived periods of marked instability, often characterized by the runaway growth of selected populations and the massive extinction of others.

These seemingly sudden syndromes or spasms of environmental instability are expressed in system terms as moments of heightened positive feedback interactions in systems that have become hypercoherent—that is, periods of an explosive chain reaction between two or more mutually aggravating circumstances. Stable ecosystems are characterized by the dominance of negative feedback mechanisms or self-corrective, countervailing processes. It is when these mechanisms are blocked, overwhelmed, or fail to function that positive feedback interactions take over, escalating system exchanges out of control in a vicious circle and

pushing populations toward the classic pattern of "overshoot" and collapse.

Thirdly, while syndromes of environmental degradation constituted an important component in the fall of ancient civilizations, in the modern world the phenomenon of European overseas expansion and subsequent global patterns of natural resource and agricultural commodity trade have been the most powerful driving force behind the radical degradation of ecosystems throughout the world. It is in areas of the Third World formerly under European colonial control that one can witness in our day the most dramatic instances of these runaway syndromes of environmental decline. For this reason it is upon these areas that public policy makers should focus their efforts in trying to formulate policy for global environmental change. In particular, the syndrome of environmental decline in Africa since the end of World War II deserves special attention.

Finally, the evidence presented to the Senate subcommittees emphasized that, despite the new energy sources from nuclear and petroleum-based technologies, modern civilizations—no less than ancient ones—will prove in the long run to be viable only if they can manage to make the transition to a solar-sustainable agriculture designed to support a human population that succeeds in restraining itself to remain below the earth's carrying capacity.

In effect, global industrial civilization is currently bound up in an escalating syndrome of rapid population growth, uncontrolled urbanization, and the accelerated petro-intensification of agriculture. Deliberate public policy needs to be devised now to slow and eventually reverse this large-scale positive feedback syndrome. Failure to recognize this as the long-term goal of public policy, it was argued, will result in public confusion, conflict, and the tragic squandering of remaining natural assets as nation-states and smaller factions within them splinter apart and struggle with one another to control a declining resource base and an ever more precarious food supply.

Tragic cases of this syndrome are already dramatically apparent in the countries in the horn of Africa and elsewhere on that continent. It remains to be seen whether deliberate public policy will be devised by the international community to assure that these instances are exceptional or whether the failure of public policy, on the contrary, will assure that they become the general pattern in growing numbers of Third World countries. If this proves to be the case, the syndrome will not be confined to the Third World. Pressure will build for the massive migration of desperate and destitute souls from Third World cities to any available points of entry in the more prosperous industrial countries of the north, thereby aggravating social, ethnic, and political tensions and exacerbating patterns of environmental decline in these regions as well.

In order to achieve the self-imposed self restraint on the part of the public at large which will be required for secure survival, political leadership will have to devise persuasive means of informing the public about the gravity of our global environmental circumstance and novel ways of eliciting and inspiring cooperation to avoid open conflict. A new style of responsible political leadership based on an enlarged sense of community and citizenship will be required as the basis for effective environmental policy.

Public policy predicated primarily on returning advantage to a narrow electoral constituency or providing particular privileges to a traditional patronage structure is too narrowly conceived and will inevitably fail. Worse yet, such a strategy will most likely accentuate the syndrome of environmental decline as smaller and smaller groups compete more intensely for control over diminishing resources. In short, "politics as usual" is a recipe for ecological disaster. If this is to be avoided, policy makers will need to develop a sober understanding and clear presentation of our collective condition combined with a new willingness to lead the public toward an enlarged sense of responsibility for the broader ecological community we now inhabit.

Natural scientists describe ecosystemic processes as characterized by positive or negative feedback loops. Social scientists add that when human activity is involved it is necessary to include what might be called the "cognitive feedback loop," because human behavior is often altered by what we learn and what we have come to believe. Since as a species we have become an important agent in ecosystemic change, it is the cognitive feedback loop that may well determine the direction and pace of global ecological change.

The question remains, however, whether this cognitive feedback process will in the future improve or diminish the prospect for human survival. In the past, insufficient knowledge and inappropriate beliefs have repeatedly led to public policies that have exacerbated the positive feedback patterns involved in environmental overshoot and collapse. As for the future, it will take a deliberate effort beginning now on the part of a new kind of public leadership and a newly informed citizenry to assure that public policy will be devised instead to stabilize human interaction with the ecosystem and thereby sustain the human prospect for generations to come.

* * *

In developing the initial Senate testimony and subsequent supporting material I have incurred debts to numerous people and institutions which made this work possible. In the first place, I am grateful to Professor William Cronon of the University of Wisconsin, whose suggestion made

the Senate testimony possible and who was a constant source of encouragement and helpful criticism over the years that we both taught at Yale University.

At the time of the Senate hearings I was conducting research on environmental values and belief systems as a Henry Luce Fellow at Harvard Divinity School. In this respect I owe special gratitude to the Henry Luce Foundation, Dean Constance Buchanan, and the entire Theology Department of the Divinity School. Professors Margaret Miles and Richard Niebuhr were especially helpful. Moreover, Dean Constance Buchanan, and Professors Ted Hiebert and Gordon Kaufman deserve particular thanks for their patient discussions with me concerning the values imbedded and implicit in Judeo-Christian tradition and the implications these values have for formulating public policy on environmental matters.

Finally, in this context, I owe special thanks to Professor Ronald Thiemann, Dean of the Harvard Divinity School, for his continuing encouragement and support for my work as Director of the Harvard Seminar on Environmental Values. He has been a strong advocate for exploring the interaction between values questions and public policy, and his commitment to examine environmental issues and religious beliefs has made him a national leader among religious educators on these questions.

During 1989-90, I was granted a year's leave from the Harvard Divinity School, to work as a Warren Weaver Fellow at the Rockefeller Foundation in New York. For this opportunity I am grateful to the officers of the Rockefeller Foundation, and in particular the Senior Vice-President, Dr. Kenneth Prewitt, as well as Dr. Joyce Moock and Mr. Joseph Bookmeyer.

During the year at the Foundation I was asked to develop a system to monitor global environmental change as part of the Foundation's effort to launch an environmental initiative. With the able assistance of Meredith Avril and the support of Frank Karel, I was able to develop a series of software programs known as *Eco-Link*, which made it possible to monitor news and academic research about environmental change from around the globe.² In developing these research tools, I was thankful for the criticism, advice, and encouragement of several other Warren Weaver Fellows, especially Dr. Hadi Dowlatabadi, Mr. Steven Bass, and Ms. Elizabeth Beaman. This software has been used to update much of the information in this book beyond the initial Senate hearings, and it now serves as the basis for a computer research facility in support of the Harvard Seminar on Environmental Values.

Since 1991 I have worked on a joint appointment at Harvard University, on the one hand, as a Research Associate in Environmental Ethics at the Divinity School, and on the other, as Research Fellow in

the Pacific Basin Research Center—a program within the John F. Kennedy School of Government's Center for Science and International Affairs. In this context I am grateful to a number of people at the Kennedy School including Dr. Ashton Carter, Director of the Center for Science and International Affairs, Susan Fox, Program Director at the Center, and particularly Professor William Clark, its Associate Director. Professor Clark has encouraged my work on agricultural policy and environmental issues as part of the broader research I am undertaking on international trade and environment issues. I owe him particular thanks for the support of the Center for Science and International Affairs, and I continue to learn from his wisdom and insight on problems of formulating and implementing effective public policy.

Above all I owe thanks at the Kennedy School to Professor John Montgomery, Director of the Pacific Basin Research Center, and to the Soka University of America for their fellowship support at that Center. In 1990 Professor Montgomery launched a series of investigations on the necessary components of what he called "mega-policies"—major innovative public policy initiatives that can be seen in retrospect to have changed the course of history. In this context he has focused upon the importance of developing policies that transcend the traditional sectoral realms of specialization of defense, cultural development, economic development, and the environment.

Upon examining past patterns and current trends in environmental change for the Pacific basin and elsewhere, Professor Montgomery has suggested that mega-policies on the scale of the historically important Marshall plan will be required to achieve stable and equitable development in the Pacific region. As an aspect of his interest in evolving mega-policies, Professor Montgomery has encouraged, guided, and supported my research on the impact of international trade agreements upon environmental conditions in the Pacific basin and throughout the Third World. Moreover, on a personal level, he has been a source of spirited wit and energetic inspiration for all those around him, goading us to achieve more than we thought possible. For this and many other unsung virtues I owe Professor Montgomery abundant thanks.

Students at Williams College, Yale, and Harvard have always been helpful over the years that I have taught both history and anthropology. In this context Elliott Gimble, Paul Trawick, Dan Smith, Jock Conyngnam, Katina Lillios, Jim McKinley, and Joe Simonetta as well as many others have all asked penetrating questions, and they have proved remarkably patient with the tentative thoughts I have offered in response. They all deserve explicit thanks.

Finally, I wish to express special gratitude to Dr. Peter Weiskel of the U.S. Geological Survey for his continuous instruction and guidance on matters of ecosystem science and to Portia Weiskel of Hillhouse Farm

in Leverett, Massachusetts, for her insight and inspiration on agricultural, food and farming matters. Beyond all words, I am indebted to Catherine Lacny Weiskel for the constant commitment and support she has provided in all my endeavors.

Timothy C. Weiskel
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Notes

1. For the original testimony see: Timothy C. Weiskel, "The Anthropology of Environmental Decline," testimony presented at the *Joint Hearings before the Subcommittee on Hazardous Wastes and Toxic Substances and the Subcommittee on Environmental Protection of the Committee on Environment and Public Works*, United States Senate, on S. 2666, *A Bill Entitled the "Global Environmental Protection Act of 1988,"* (14 September 1988) [Committee Print], pp. 35-37, 114-157.
2. For a description of this program see: Timothy C. Weiskel, "Environmental Information Resources and Electronic Research Systems (ERSs): *Eco-Link* as an Example of Future Tools," *Library Hi Tech* 9:2 consecutive issue 34 (1991), pp. 7-19.