



Neil E. Harrison, Gary C. Bryner. *Science and Politics in the International Environment*. Lanham: Rowman & Littlefield Publishers, 2004. xiv + 379 pp. \$96.00 (cloth), ISBN 978-0-7425-2019-6; \$39.95 (paper), ISBN 978-0-7425-2020-2.



Reviewed by Victoria Garcia (Department of History, University of Houston)

Published on H-Environment (December, 2004)

On Common Ground: Understanding the International Environment

Science and Politics in the International Environment (pp. 13-14).
by Neil E. Harrison and Gary C. Bryner is a collection of ten case studies arranged in four parts to introduce students to the range of issues confronting scientists and public officials engaged in international ecosystem management and cooperation. Each case study is designed for use in a classroom setting, providing participants with a condensed body of research on a particular topic. The authors provide helpful questions to help facilitate discussion, but these articles are intended to help readers raise questions of their own about the roles of science and politics in a variety of cultural and ideological venues. Topics include transboundary ecosystem management, food security, climate change, acid rain deposition, forest regulation, international agreements regulating common-good resources, and the movement of transboundary pollutants. The authors introduce the book with the statement: "Individually and collectively, the case studies demonstrate the weaknesses in current thinking about the relationship between science and politics in international environmental issues. We show that current models ... are too limited." The authors then present alternate ways of thinking about and researching this relationship

For the environmental historian, this volume provides a thought-provoking introduction to scientific methodology and its role in environmental policy. That "science" is inextricably bound to any discussion of the environment goes without comment. The scientist and the historian alike have a mutual regard for context-specific research based on empirical standards and verifiable data related to time and space. Both use inductive and deductive tools to clarify and examine the range of potential responses to a particular situation. The rigor of the tested hypothesis gives the historian one more tool for understanding the variables that modify a given range of decisions at particular points in time.

After presenting these ten case studies, the editors end with the comment that the articles are intentionally rich in data and short on theoretical explanations (p. 353), in order to demonstrate that "the relationship between science and politics is more varied and more complex than current theories predict" (p. 347). This viewpoint is carefully presented by the twelve contributing authors. Part 1 opens with the topic, "Regional Issues."

Two very different studies examine the political, cultural, and economic constraints that modify public response to a potential crisis. Chapter 2, “A Case Study of Two Mexican Biosphere Reserves: The Upper Gulf of California and Colorado River Delta and the El Pinacate and Gran Desierto de Altar Biosphere Reserves” by Richard C. Brusca and Gary C. Bryner, introduces the reader to the Sonoran Desert, a region with ecological and economic habitats that are tightly linked. The Colorado River that winds its way through the desert to the Gulf of California has its own history that spans hundreds of years. Water rights play a central role in that history. This article documents the desertification of riparian areas, leading to the steady loss of biodiversity along the Colorado River and its delta due to dam irrigation, pesticides, urban growth, ranching, groundwater overdraft, the introduction of non-native plants, and marine resource exploitation. Despite the lack of good data and scientific research, there was still enough visible evidence of environmental degradation to prompt government officials to act. Citizen groups and NGO’s helped to create a network that raised a local issue into the international limelight (p. 43). In order to address the economic and ecological impacts in the area, the El Pinacate/Gran Desierto Biosphere Reserve was formed by the Mexican government in 1993, and accepted into the UNESCO-MAB program in 1995.

The next study, “Scientists and Scientific Uncertainty in EU Policy Processes: Bovine Spongiform Encephalopathy and Bovine Hormones” by M. Leann Brown, describes the dilemma that confronted scientists and policy-makers in the United Kingdom when bovine spongiform encephalopathy (BSE or “mad cow” disease) was diagnosed. Food security issues are a fundamental concern of public health officials, subject to scientific and political pressure alike (p. 54). These issues are further complicated when humans intervene in natural processes, using artificial hormones to enhance food production. This article documents the international response to this outbreak and its affect on EU food policies, galvanized by the entire scientific advisory system that supports the British Royal Commission and its meat safety practices (p. 71).

Part 2, “Global Issues,” presents two case studies with different responses to climate change, demonstrating how scientific research can raise a problem that sets off an intense public outcry. “Science and International Climate Change Policy” by Marvin S. Soroos and “Political Responses to Changing Uncertainty in Climate Science” by editor Neil E. Harrison provide the student with a fundamental background for understanding human impacts

on global climate, measured in the rise of greenhouse gases or GHGs common to the planet. Author Soroos writes from the viewpoint of the scientific community engaged in verifying that international global warming is correlated to rising concentrations of GHGs, notably carbon dioxide. The article provides an excellent short history and timely statistics on atmospheric GHGs and global warming, emphasizing the varied responses of developing and industrialized nations to emissions control. Soroos cites domestic politics as a complicating factor.

One of the strengths of this collection of articles is that key environmental variables are introduced in different scenarios, giving the reader the opportunity to think across the board about the interplay of different sets of interests in international negotiations. Soroos describes the creation of the Intergovernmental Panel on Climate Change (IPCC), its role in providing a rubric for understanding climate change, and the response of the international community to the IPCC reports published in 1990, 1995, and 2001. Following these reports, the Second World Climate Conference was held in Geneva in 1990, and the Kyoto Protocol was established in 1997. Neil Harrison picks up the story line in his article, giving additional historical background focusing on the national and international responses to climate research and to the IPCC reports. Both authors describe the scientific uncertainty that troubled researchers including poor historical data, limited understanding of the long-term effects of GHGs, poor prediction of future levels of GHGs, and poorly understood natural cycles (p. 118). The risk and uncertainty underlying the climate issue heightened political tensions at all levels of government.

Harrison concludes with an ongoing secondary commentary of the roles of science and public policy in articulating effective responses to environmental issues. He takes a longer look at some of the mainline concepts raised in the book’s introduction, suggesting nine possible ways of approaching that relationship. He discusses “epistemic communities,” or particular communities of scientists that influence policymakers attempting to resolve an issue. “Discursive practices” or continuing discussion about a potentially serious issue can affect a policymaker’s perception of the problem. “Mutual construction” refers to processes with some legitimacy among scientists and policymakers alike. “National interests” are difficult to quantify, much less compare on a global basis. This is particularly true about attempts to compare “natural resources and economies.” These in turn inform “domestic politics” and the “personal beliefs” of those in a leadership role. While both camps are quick to respond

to a crisis, frequently a broad “public response” to an issue will force the hand of an unwilling public leader or organization. Finally, all public leaders struggle to balance or “redistribute the costs” of environmental management in a fair and equitable way among participants.

These concepts provide a broader framework for approaching subsequent articles. Part 3, “Science and Precaution” presents cases where very good science was not sufficient to obtain an appropriate political response to a problem. “Using Science, Ignoring Science: Lake Acidification in Ontario,” by Don Munton addresses the acid rain issue and Ontario’s response to the conclusions of scientific research in the limelight during the late 1970s. Munton points out that the issue was not a new one; what changed were the societal and political values of the time which helped sharpen people’s perceptions and response to acid rain. Canadian citizens were also more inclined to participate in the public forum because the source of the problem was extranational, resting in locations within the United States.

The second article in this section, “Lost in the Woods: International Forest Policy” by Radoslav Dimitrov, explores the reasons for the breakdown of efforts to create an international policy for sustainable forest management. While all the countries represented agreed that forests were one of a nation’s most valuable resources and should be carefully maintained, broad socioeconomic differences between industrialized and developing nations sharply curtailed efforts to come to a consensus about regulation. These differences came into focus at the 1992 United Nations Conference on the Environment and Development (UNCED) held in Rio de Janeiro. They resurfaced at subsequent meetings of the Intergovernmental Panel on Forests (IPF) in the late 1990s and during meetings of the Intergovernmental Forum on Forests (IFF) held 1997 through 2000. Despite the strength of scientific data supporting forestry conservation, regional differences made it difficult to conceive of a plan that would equitably address national resource policies. Local and regional timber economies play an important role in determining a public official’s response to global treaty.

This article sets the stage for the fourth group of essays which emphasize the local context and its role in shaping public policy. Part 4, “Science, Ideas and Culture,” examines four instances where ideology and culture have had a determining effect on how scientific information is used to influence public policy. “Localizing Universal Science: Acid Rain Science and Policy in Europe, North America, and East Asia” by Kenneth

E. Wilkening offers a comparative analysis of three nations and their response to acid rain deposition. Echoing Munton’s article on lake acidification in Ontario, Wilkening broadens the reader’s view of the issue to show how culture and politics shape and define particular applications of science. Wilkening explains that the strength of the scientific method is that it generates multiple sets of data; one is independent and universal, the others are dependent and localized. The article focuses on three national responses to evidence of environmental degradation due to acid rain. The slow death of Europe’s ancient forests, or *Waldsterben*, brought about an immediate understanding that acid rain was a continental issue. Similar responses occurred in Japan where rain and forests are revered. In North America, acid rain issues were more quickly incorporated into the political system, attributed to the role of special interests and corporate influence.

Wilkening offers three hypotheses for understanding the relationship of science and politics in local circumstances. These hypotheses emphasize variations in regional scientific knowledge, variations in how political actors use information, and differences in political and cultural contexts (pp. 210-211). Culture and economics influence the way scientific knowledge and public policy are interpreted to protect a country’s interests in “The Effectiveness of the U.N. Convention on the Law of the Sea in Resolving International Fisheries Disputes: The Southern Bluefin Tuna Case” by Jeremy Firestone and Tom Polacheck. Referring to Garrett Hardin’s essay on the “Tragedy of the Commons,” the authors introduce the difficulties of regulating and setting standards for harvesting and replenishing fish stock. Statistics on loads are nebulous because stocks are difficult to quantify and predict.

The UN convention on the Law of the Sea (1982) gave nations exclusive jurisdiction over fisheries located within two hundred nautical miles of their shores. Australia, New Zealand, and Japan are the principal harvesters of southern bluefin tuna (SBT). In 1985 these countries established formal arrangements to protect the fish population. Total allowable catch limits were introduced and then reduced to 50 percent by 1989. Japan, whose trade in SBT is lucrative, requested and received permission by UNCED to engage in a controversial experimental fishing program, allowing them to increase their catch under the umbrella of scientific research. This action was formally disputed by Australia and New Zealand. This article highlights the role of institutions and legal arrangements in helping to establish procedures for governing sustainable common pool resources.

Firestone and Polacheck's article on a viable, sustainable resource stands in contrast to "No Fence Can Stop It: Debating Dioxin Drift from a Small U.S. Town to Arctic Canada" by Michael S. Carolan and Michael M. Bell, where the authors present a different threat, one that cannot be directly experienced by the senses. Dioxin is an invisible substance, a toxic byproduct of modern technology. Its presence is ubiquitous and can be discerned in the body fat of human communities as far away as the Arctic Circle. This article examines the response of the citizens of Ames, Iowa, when renowned scientist Barry Commoner published findings that cited the city's power plant as one of the nation's major producers of dioxin. Local interests challenged Commoner's report and published one of their own, the Brown Report, which repudiated his findings. City officials held faith with the opinion of their own local engineering experts, deferring to them despite Commoner's status in professional scientific circles. In the end, officials accepted the recommendations of the local scientific community not to investigate the power plant.

The final case study in the series compares two examples of regional ecosystem cooperation. "International Cooperation in Environmental Politics: Ecosystem Management of the Great Lakes and the Baltic Sea," by James Eflin, presents the stories of two regional entities, the International Joint Commission in North America and the Helsinki Commission in Eastern/Central Europe, both engaged in monitoring the quality and remediation of their water resources. The Great Lakes, straddling the U.S.-Canadian border, is the largest freshwater body in the world, representing 18 percent of the world's total freshwater. Both countries have long-established industries and lake communities comprising more than 10 percent of the total North American population. This water system borders eight states, the St. Lawrence River, and Quebec, including thousands of municipalities and governing agencies (p. 306).

Similarly, the Baltic Sea in Europe is circled by nine countries (Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden) and five others are in proximity (p. 307). Thriving saltwater communities raised flags during the 1960s, signaling concerns for eutrophication, rising levels of toxic waste, and declining fish and bird populations. By the 1980s it was considered one of the most polluted bodies of water in the world (p. 309). The 1990 Baltic Sea Declaration recognized the need for cooperation to effectively restore the sea's marine environment and in 1992 the Baltic Sea Joint Comprehensive Environmental Action Program (JCP) was signed.

The Helsinki Commission, established in 1974, was reorganized for implementation of the JCP. Cooperation was reinforced at UNCED and Baltic 21 was adopted with four major objectives: sustainable fishery, energy, and industry; and planning for sustainable development.

Throughout the article the authors highlight the common and uncommon attributes of both regional ecosystems, demonstrating the possibilities for cooperation when science, public policy and public awareness groups are mutually engaged in partnerships for improvement. The study ends with a recapitulation of the 1999 Baltic Sea Partnership Program, established to foster international cooperative learning between university communities studying the Great Lakes and Baltic Sea ecosystems.

The authors conclude with a synthesis of the materials presented. They make these final remarks: first, science is intimately related to politics and policymaking, and relationship is reciprocal and varies in degree and scope. Next, environmental issues are invariably complex, novel and interdisciplinary by context. Third, uncertainty is inevitable and the international system, with its varied customs and cultures, complicates negotiations. Fourth, science is specific to place, time, and context. Fifth, rules bind international environmental policy, and their construction leaves nations open to varying levels of interpretation. Sixth, individual knowledge brokers have a stake in interpreting uncertainty and giving it meaning. Seventh, ideas and belief systems are an important component of environmental policy. Finally, both politics and science are components of social action.

Moving beyond the prescriptions of rational choice, epistemic communities, discursive practices, and mutual construction, the authors suggest that the relationship of science and public policy can be constructed around the following alternate theories. The first is political construction: science is but one stream of information feeding into a political system to help create a consensus on environmental policy. The second involves Emergence Processes: rather than considering environmental policy as a linear construct, the authors suggest that environmental policies are created by a very dynamic interplay of different systems, each continually evolving as different factors come to the foreground. Events move both up and down and across different disciplines. In this framework, some tension between science and politics is inevitable as a program or issue moves back and forth between arenas. And third is Critical Theory Option: this process looks to identify the shortcomings of particular

environmental policies and then searches for alternative explanations and solutions for the problem. Other disciplines, such as economics, may provide better prescriptions for action in a particular situation.

This book was written for use in a classroom setting; I would highly recommend its use as a resource for an introduction to environmental policy. Different social and scientific disciplines will find it a valuable companion in any discussion of current global environmental protocol. Some familiarity with one's "home" environment and politics is advisable before attempting to understand the nuances of global negotiations. This selection of case studies is written at a high level of abstraction; it should

be balanced with a variety of other texts that can help "fill in the blanks," particularly when following the "moves" and agendas of well-known public figures. Finally, this collection of essays invites the reader to think "out of the box" when examining events and policies relevant to the environment. As the authors are well aware, international politics are an inevitable part of the environmental package and will continue to play a controversial role in global dialogue about natural resources and pollution control. The international playing field in itself is a test of diplomacy and cooperation among very different players. Mastering the field will require diligent study for participants and serious observers alike.

If there is additional discussion of this review, you may access it through the network, at:

<https://networks.h-net.org/h-environment>

Citation: Victoria Garcia. Review of Harrison, Neil E.; Bryner, Gary C., *Science and Politics in the International Environment*. H-Environment, H-Net Reviews. December, 2004.

URL: <http://www.h-net.org/reviews/showrev.php?id=10071>

Copyright © 2004 by H-Net, all rights reserved. H-Net permits the redistribution and reprinting of this work for nonprofit, educational purposes, with full and accurate attribution to the author, web location, date of publication, originating list, and H-Net: Humanities & Social Sciences Online. For any other proposed use, contact the Reviews editorial staff at hbooks@mail.h-net.org.