Book Review

Precaution, Environmental Science and Preventive Public Policy
Joel A. Tickner, editor
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A new collection of essays, *Precaution, Environmental Science and Preventive Public Policy,* edited by Joel A. Tickner, advances the theory that the precautionary principle is not anti-science, but welcomes the support of "sound science." The interdisciplinary essays promote the principle and see it as a tool for policy makers to determine a course of action that will prevent harm and enhance the relationship between science and thoughtful public policy that protects human health and the environment in the face of uncertain risks. Under the principle, unless a policy maker is certain that the negative consequences of an action or activity will be foreseeable, minor and correctable, he or she should take action to prevent or limit them. The precautionary principle is posited against risk assessment, one of the current models for environmental policy analysis. Risk assessment, of course, has its own biases; the burden is on the public and science to prove something is not safe. With the precautionary principle, the burden of proof is on the proponent of the new activity, product, or process.

In September 2001, a group of international experts from a variety of fields assembled in Lowell, Massachusetts for the International Summit on Science and the Precautionary Principle. These scientists, philosophers, legal scholars, and other environmental and health professionals explored the relationship between science and the precautionary principle, and also developed a vision for scientific methods, tools, and policies that would more effectively support precautionary decision-making, particularly in the face of complex, highly uncertain human and ecosystem health risks. This book of 23 separate essays, each from the geographic and professional perspective of the author, is one outcome of that summit. The constant theme of all the essays is that science can enrich and be enriched by the precautionary principle rather than weaken it.

The essays seem aimed at convincing a U.S. audience of the value of the precautionary principle because Europe has a much more robust tradition of inserting it in legislation and implementing it in practice. The U.S. has a more subtle relationship with precaution. For example, Barry Commoner, in "A Cautionary Tale," provides four large 20th-century examples of how the United States would have profited by employing the principle in these areas: nuclear testing, pesticides, petrochemicals, and genetic engineering. He states that in each case "unintended consequences of some new technology led to serious risks to the biosphere" and urges that we avoid those consequences by implementing the precautionary principle as new issues arise. Developing countries are urged in other essays to strongly consider the value that the principle could provide in their analysis of their unique environmental problems.

In the global context, Donald A. Brown, in "The Precautionary Principle as a Guide to Environmental Impact Analysis: Lessons Learned from Global Warming," reaches the same conclusion regarding planet-wide issues. He suggests that what uncertainty exists about global warming regards its timing and eventual magnitude, *not* whether the phenomenon is occurring. That makes global warming an excellent candidate for implementation of the precautionary principle—taking preventive action when a threat of harm exists, even though portions of the problem are uncertain. Using cost-benefit analysis with global warming would have limited usefulness in Brown's view, because its full cost has not been and cannot be calculated precisely, as the damaging impacts continue if no action is taken.

Mary O'Brien, in "Science in the Service of Good: The Precautionary Principle and Positive Goals," refuses to assume the defensive posture of many of the other essays, i.e., that the principle exists solely to avoid harm. Instead, she focuses on using it for the positive public and environmental health results that can be achieved. Her shift in emphasis would expand the role of science "to provide evidence not only about potential harms but also the potential benefits of various activities. . . ." Her focus is on public involvement and goal-based processes. She suggests that science that incorporates these processes will indeed be "science in service of the good."

The one criticism we have of the book is inter-

twined with its stated purpose—to promote the role of science in the precautionary principle and its implementation in policy decisions—and, is therefore, perhaps, unavoidable. The collection does not anywhere reflect the direct voice of its opponents, who support risk assessment or cost-benefit analysis. Individual authors attack the "straw man" of traditional risk assessment methodology proponents who oppose the precautionary principle as "soft" science, but that voice is not heard directly. The book's unremitting effort to establish science as the ally of the precautionary principle is persuasive in dispelling its perception as anti-science, but without contrasting views the book remains one-sided.

Tickner has assembled a world-class roster of respected scientists, policy analysts, and legal scholars who make a thoughtful argument for a precautionary approach to environmental science. Often quite eloquently, they describe enlightened strategy that shifts the burden of proof to the producers of potentially harmful environmental contaminants or processes from the consumers (all of us). Precautionary assessment is argued to be inherently scientific and sufficiently flexible to accommodate innovation with a built-in measure of safety.

Although this collection is at times repetitive and could benefit from the inclusion of at least one counter-balancing essay, we recommend it to anyone with an interest in environmental science and its relationship to public policy. Scholarly in tone, the work is nonetheless an approachable and often enjoyable read. Unfortunately, this may be the right book at the wrong time. With the distractions of a stagnant economy and international unrest, the United States at least may miss the force of the well articulated arguments in these 23 essays. And yet, for a saner world at a saner time, Tickner and his fellow authors offer a compelling case for long-term, cautious, science-backed approaches to our national and international environmental problems. For more information, visit the web site of the International Summit on Science and the Precautionary Principle available from: URL: http://www.uml.edu/centers/lcsp/precaution/

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