

Precaution, Environmental Science, and Preventive Public Policy

Edited by Joel A. Tickner

Washington, DC: Island Press, 2003. 406 pp. ISBN: 1-55963-331-X, \$60 cloth; ISBN: 1-55963-332-8, \$30 paper.

Except perhaps for SARS, few things have spread across the planet as quickly as the precautionary principle (PP). In just the past decade, the PP has been incorporated into an untold number of international environmental agreements, national, state, and local laws, and judicial decisions. Despite this phenomenal success, the PP remains inchoate and controversial.

One unresolved issue is how the PP relates to risk analysis. The European Commission published an influential communication in 2000 asserting that the PP applies only to risk management and not to the preceding risk assessment step, which is primarily a scientific undertaking. *Precaution, Environmental Science, and Preventive Public Policy* advocates a contrary position, arguing that the PP should apply throughout the risk analysis process, particularly to science and the assessment of risk.

This collection of 25 papers, resulting from a September 2001 conference, the International Summit on Science and the Precautionary Principle, makes no attempt to provide a balanced debate on the interaction of science and precaution. Rather, it is a manifesto for a more precautionary science that gives greater weight to preventing false negatives than do current practices, which the book argues are unduly preoccupied with preventing false positives. The authors approach this common theme from a variety of national perspectives, disciplines, contexts, and case studies. It is impossible to do justice to these diverse contributions in this brief review. Suffice it to say, as with any such heterogeneous collection, some of the chapters are stronger than others; but altogether, this volume offers a wealth of new arguments, experiences, and ideas that will give both proponents and critics of the PP much to consider.

The book seeks to attack directly the frequent criticism that the PP is anti-science and to show how the PP and science can work hand in hand to address environmental risks. It sets forth a framework for a more precautionary science, which incorporates a number of familiar and widely supported measures. These include greater emphasis on interdisciplinary efforts in evaluating hazards, better methods for analyzing the cumulative and interactive risks, more explicit discussion of



uncertainties, and postmarket surveillance for unforeseen risks. Other suggestions are more controversial, including relaxing scientific conventions on statistical significance and giving greater weight to lay opinions in scientific assessments.

The key limitation of this collection is its failure to address two common criticisms of the PP. First, the PP lacks a uniform, operational definition. Several chapters in this volume argue persuasively that the application of precaution is complex and context-specific, which precludes a single, simple definition of the requirements of the PP. This may

be the case, but how then can we ensure that decision makers don't apply the PP in an arbitrary, unreasonable, or protectionist manner? The book provides little or no discussion of this problem, which increasingly complicates application of the PP.

The second issue left unaddressed is the problem of false positives. Many of the authors argue for the need to reduce false negatives by adopting less stringent scientific standards of proof. One inevitable consequence of such a shift toward minimizing false negatives is an increase in false positives. What harms will result from this increase in false positives? How much of an increase in false positives should we accept? How should false positives be weighed against false negatives? These fundamental issues underlying the PP will have to await another day to be addressed.

Notwithstanding these limitations, this book makes a meaningful and provocative contribution to the debate about the PP, especially the interaction of science and precaution. Perhaps the nature and significance of this book is best summarized by the comment of one of the signatories to the conference statement that concludes and summarizes the book: "On its surface the statement is quite rational and logical, but underneath it [are] far-reaching implications for science and policy."

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