

Environmental Economics

& Policy

third edition

Tom Tietenberg



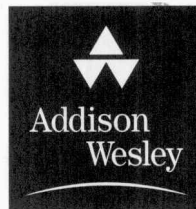
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TOM TIETENBERG

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Preface to the Third Edition

About two decades ago, while on a plane heading for a conference, I struck up a conversation with the passenger next to me. During the course of that conversation he asked me what I did for a living. After mulling over my response that I was an environmental economist, he asked, “Isn’t that a contradiction in terms?”

He had a point. The economy has been a major source of environmental degradation. Developers pave over wetlands. Timber companies denude the forests. Fishermen deplete the oceans. Industries pollute the waters. And on and on.

Recently, however, those same powerful forces that have historically been associated with environmental degradation have been enlisted in the struggle to protect the environment. Buying and selling quotas have helped restore New Zealand fisheries. Pharmaceutical companies are investing in biodiversity preservation. Peak-load and congestion pricing have encouraged the better use of existing power plants and roads rather than the building of new ones. By-the-bag charging for solid waste has stimulated recycling and reduced the volume of waste. “Green fees” are raising revenues for environmental improvement while discouraging environmentally destructive behavior. The list goes on.

The success of these approaches in providing a politically feasible and effective means of changing environmentally destructive behavior has attracted much wider interest in the field of environmental economics. Environmental groups, states, local governments, national governments, and even international organizations are beginning to incorporate the principles and techniques of environmental economics in their efforts to preserve and protect the environment.

But environmental economics is not a naturally hospitable field. Most of the economic principles that underlie these approaches flow from some intimidating mathematical models, making them inaccessible to all but those who are willing to invest the time and effort to learn the underlying mathematics. This lack of accessible textbooks has created a void. *Environmental Economics and Policy* is designed specifically to fill that void. It was written to communicate the powerful insights of the field to those taking economics courses designed for nonmajors or, more generally, to an audience with little or no training in economics.

With its strong emphasis on public policy, this book shows how economics can be used both to understand the behavioral sources of environmental problems and to provide the foundation for innovative solutions. Chapters 1 through 5 of the book describe the basic economic approach to the environment, laying out the underlying values, as well as the procedures used to translate those values into policy-relevant principles. Chapters 6 through 19 deal with natural resource economics (analyzing the flow of materials and energy from the environment into the economy) and environmental economics (analyzing the flow of waste products into the environment). Chapters 20 through 22 focus on sustainable development, reflecting the demonstrated, current global interest in finding new, environmentally compatible means of lifting the world’s poor out of poverty. Throughout, the manner in which the principles can be applied is illustrated by a host of specific international examples. Considerable attention has

been paid to environmental problems and policies in Eastern and Western Europe, Japan, and the developing nations, as well as in the United States.

This third edition of *Environmental Economics and Policy* is an economics book, but it goes beyond economics. Insights from the natural and physical sciences, literature, and political science, as well as other disciplines, are scattered liberally throughout the text. In some cases, these references raise unresolved issues that economic analysis can help resolve, whereas in others they affect the structure of the economic analysis or provide a contrasting point of view.

Students looking for additional sources of information on this subject don't have to look very far. A number of journals are now devoted either exclusively or mostly to the topics covered in this book. One, *Ecological Economics*, is a journal dedicated to bringing economists and ecologists closer together in a common search for appropriate solutions for environmental challenges. Interested readers can also find advanced work in the field in *Land Economics*, *Journal of Environmental Economics and Management*, *Environmental and Resource Economics*, *Resource and Energy Economics*, and *Natural Resources Journal*, among others.

New resources for student research projects have been made available in response to the growing popularity of the field. Original research on topics related to international environmental and natural resource issues was formerly very difficult for students to conduct because of the paucity of data. A number of good sources now exist; among these are *World Resources* (Washington, DC: Oxford University Press, published annually), which has an extensive data appendix, and *OECD Environmental Data* (Paris: Organization for Economic Co-operation and Development, published periodically).

Further sources on the field and the profession of environmental economics can be found on my web site. The address is: <http://www.colby.edu/personal/thtieten/sustain.html>.

NEW TO THIS EDITION

The third edition has increased the international focus of the book. Greater attention has been paid to environmental problems and policies in Eastern and Western Europe, Japan, and the developing nations than was the case in the previous edition.

The introductory material on sustainable development now appears as a separate chapter. Economic valuation of the environment is now addressed in two chapters, rather than one. While the first deals with the concepts that lie behind economic valuation, the second focuses on measurement concepts. Both chapters contain several practical illustrations. The two chapters on forestry and fisheries have been rewritten to focus on the two threats to biodiversity coming from destruction of habitat (with forests as the main example) and over exploitation of species (with fisheries as the main example). A large number of related web site addresses have been added to chapters. A new glossary defines and explains over 200 terms.

New boxed examples highlight special topics, including: (1) Does Reducing Pollution Make Economic Sense?; (2) Valuing Damage from Groundwater Contamination Using Averting Expenditures; (3) Valuing Diesel Odor Reduction by Contingent Ranking; (4) Shrimp Farming Externalities in Thailand; (5) Nauru: Weak Sustainability in the Extreme; (6) Water Pricing in Zurich, Switzerland; (7) Producing Sustainable Forestry Through Certification; (8) Environmental Taxation in China; (9) The Particulates and Smog Ambient Standards Controversy; (10) Project XL—The Quest for Effective, Flexible Regulation; (11) Car Sharing: Better use of Automotive Capital?; (12) Pricing Trash in Marietta, Georgia; (13) Jobs versus the

Environment; What Is the Evidence?; (14) Resource Depletion and Economic Sustainability: Malaysia; and (15) Controlling Land Use Development with TDRs.

New topics covered include:

- Averting expenditures
- Contingent ranking
- Economic pressures for converting habitat to alternative uses
- Sustainable forestry
- Forestry certification
- Preventing poaching
- Voluntary programs for controlling pollution
- Kyoto protocol and emissions trading of greenhouse gases
- The “hot air” problem
- The Total Maximum Daily Load program to control water pollution
- Controlling land use with transferable development rights

Some completely new data and artwork have been added.

This edition retains a strong policy orientation. Though a great deal of theory and empirical evidence is discussed, their inclusion is motivated by the desire to increase understanding of intriguing policy problems, and these aspects are discussed in the context of those problems. This explicit integration of research and policy within each chapter avoids the problem frequently encountered in applied economics textbooks—that is, in such texts the theory developed in earlier chapters is often only loosely connected to the rest of the book. The many insights gleaned from other disciplines have an important role to play in overcoming the typical textbook’s tendency to accept the material uncritically at a superficial level; instead, this text highlights those characteristics that make the economics approach unique.

ACKNOWLEDGMENTS

Perhaps the most rewarding part of writing this book has been that it has put me in touch with so many thoughtful people I had not previously met. I very much appreciate the faculty and students who pointed out areas of particular strength or areas where coverage could be expanded in this edition. The support this book has received from faculty and students has been gratifying and energizing. One can begin to understand the magnitude of my debt to my colleagues by glancing at the several hundred names in the lists of references contained in the name index. Because their research contributions make this an exciting field, full of insights worthy of being shared, my task was easier and a lot more fun than it might otherwise have been.

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*Tom Tietenberg
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