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Economics of the Environment

Theory and Policy

Seventh Edition

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Preface

> *The labor of nature is paid, not because she does much, but because she does little. In proportion as she becomes niggardly in her gifts, she exacts a greater price for her work. Where she is munificently beneficent, she always works gratis.*
>
> David Ricardo[1]

This book interprets nature and the environment as a scarce resource. Whereas in the past people lived in a paradise of environmental superabundance, at present environmental goods and services are no longer in ample supply. The environment fulfills many functions for the economy: it serves as a public-consumption good, as a provider of natural resources, and as receptacle of waste. These different functions compete with each other. Releasing more pollutants into the environment reduces environmental quality, and a better environmental quality implies that the environment's use as a receptacle of waste has to be restrained. Consequently, environmental disruption and environmental use are by nature allocation problems. This is the basic message of this book.

If a resource is scarce and if a zero price is charged for its use, then misallocation will result. The environment as a receptacle of waste has been heavily overused, and consequently environmental quality declined. Scarcity requires a price. This book analyzes how this price should be set, whether a correct price can be established through the market mechanism, and what role the government should play. The book offers a theoretical study of the allocation problem and describes different policy approaches to the environmental problem. The entire spectrum of the allocation issue is studied: the use of the environment in a static context, international and trade aspects of environmental allocation, regional dimensions, environmental use over time and under uncertainty. The book incorporates a variety of economic approaches, including neoclassical analysis, the public-goods approach, benefit-cost analysis, property-rights ideas, economic policy and public-finance reasoning, international trade theory, regional science, optimization theory, and risk analysis.

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[1] D. Ricardo, *Principles of Political Economy and Taxation*, 1817, quoted according to Everyman's Library, London 1911, Dent, p. 39.

This book grew out of my research at the University of Mannheim, of Konstanz and at the Kiel Institute for the World Economy, Germany, and visiting positions at the University of Aberdeen, Scotland, the Australian National University in Canberra, the Energy Laboratory of the Massachusetts Institute of Technology as well as the Sloan School of Management, the University of California at Riverside, the University of New Mexico at Albuquerque, New York University, and Resources for the Future in Washington. I appreciate critical comments to previous editions from Ralph d'Arge, Ferdi Dudenhöffer, Helga Gebauer, Ralf Gronych, Gernot Klepper, Allen V. Kneese, John V. Krutilla, Ngo Van Long, Peter Michaelis, Toby Page, David Pearce, Rüdiger Pethig, Michael Rauscher, Cliff Russell, Hans Werner Sinn, Walter Spofford, Frank Stähler, Sabine Toussaint, Wolfgang Vogt, and Ingo Walter. For this edition, I received critical comments from Rüdiger Pethig and Michael Rauscher. My research assistants Mark Bousfield, Alexander Schrats, and Michael Trinkus helped to update data. Michael Trinkus has prepared the bibliography.

I am delighted that this book has been accepted by the international academic community as a standard work in the economics of the environment, including editions in Chinese (2001) and in Japanese (2006). This seventh edition has been systematically revised and enlarged. Empirical references, tables, and figures have been updated. The recent literature has been integrated into the text. New sections have been added on abatement costs, ambient air quality standards in the European Union, environmental legislation, the empirical relationship between trade and environmental quality, global warming, self-enforcing contracts, the Kyoto Protocol and other global approaches, and EU emission trading.

I hope that the analysis presented in this book contributes some insights to the emotional debate on environmental disruption, and I wish that it incorporates nature and the environment as a scarce good into the body of economic thought and that it provides an answer of economics as a discipline to a problem of great importance to our societies.

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