

Stanislav E. Shmelev

Ecological Economics

Sustainability in Practice

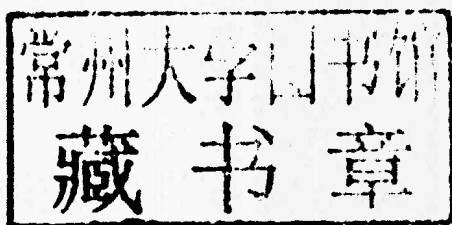


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Introduction

This book is devoted to the M.Sc. and first year Ph.D. students reading for degrees in Environmental Change and Management, Sustainability, Ecological Economics, Environmental Management, Philosophy, Politics and Economics and taking part in similar programmes. It is aimed to provide an overview of a range of new methodological tools: environmentally extended input–output analysis, multicriteria decision aid, optimization, geographical information systems, life cycle assessment, material flows analysis and modern applications of these tools to the most pressing today's problems: assessment of sustainability, climate change and renewable energy, loss of biodiversity, global resource use and sustainable waste management, corporate sustainability and other relevant themes.

There have been textbooks published on Environmental and Resource Economics i.e. Turner, Pearce and Bateman (1994), Hanley and Shorgen (2001), Perman et al. (2003). All of them as well as this present text have their peculiarities: Perman et al. devote considerable attention to the environmentally extended input–output analysis covered in this volume, however do not cover the important field of multicriteria decision aid. Turner, Pearce and Bateman was a groundbreaking text at the time but is a little bit out of date at the moment, it also involves a strong emphasis on monetisation and cost-benefit analysis, which is not shared by the author of the present volume. Hanley and Shorgen (2001) is more focused on market instruments and less on the systems perspective.

Several strong textbooks on Ecological Economics have been issued in the past, i.e. Daly and Farley (2004), which comprises chapters on macroeconomic theory (IS-LM model) and new ways of assessing sustainability (ISEW) but doesn't cover such important applied areas as corporate sustainability, renewable energy or waste management and is more targeted at the US audience. Common and Stagl is probably the best available modern text in Ecological Economics however it is a bit too long for a semester course (592 pp) and although the text covers very relevant areas of environmental policies, the environmental effects of international trade, and involves two applied chapters on climate change and biodiversity loss, it does not discuss such methodological tools as multi-criteria decision aid or explore applications of principles of sustainability in the urban or corporate context, and is written

at a more elementary level, than e.g. Perman et al. (2003). Faber and Proops (1998) is a wonderful theoretical introduction to the field, the book has a distinct philosophical focus but does not have many practical applications and is a little bit out of date over 10 years after its publication.

The current text is designed to be a concise, crisp, and elegant guide packed with references for students with some background in economics, environmental science or mathematics aimed at developing their analytical skills required for redirecting our development path towards sustainability in government, international organisations, academia, non-profit sector and business. It builds on the idea that a significant adjustment of the current economic theories is required, which was recently supported by the emerged world economic crisis, the climatic and biodiversity crisis the world is currently facing and the enormously slow progress that has been made in the field of reorientation of the global economy towards sustainability. We have chosen a positive approach for problem solving and strategic development, which is aimed at educating the future decision makers and business leaders.

The content of the book is envisaged to be the following: the first part of the book is theoretical, it is designed to give the methodological background and the tools for subsequent analysis; the second part is devoted to the applications.

Chapter 1 presents the subject of ecological economics, the interaction between the economic system and the environment; Chap. 2 explores the ideas of material and energy flows from the point of view of industrial ecology; Chap. 3 explores the ethical and world systems basis for sustainability thinking; Chap. 4 looks at decision making and the methods that could be used to support such processes, especially Multicriteria Decision Aid; Chap. 5 studies the concept of externalities and macro-economic basis for environmental policy; Chap. 6 explores the potential of environmentally extended input–output modelling for sustainability analysis; Chap. 7 looks at another important aspect of ecological economic analysis: macro assessment of sustainability, the method invented by the author of this book and essentially the application of multicriteria decision aid to the dynamic comparison of periods in a performance of a country or a region.

Part two includes a chapter on the renewable energy, biodiversity assessment, sustainable cities, regional waste management, and Corporate Sustainability. The author felt that such a composition of subjects will give the students a holistic perspective on sustainability issues.

I would like to express my sincere gratitude to Prof. David Orr for giving me the International Society for Ecological Economics membership as my 21st birthday present, my Ph.D. advisors Dr. Gerald Shalabin and Dr. John Powell, my parents, as well as Prof. John Proops, Prof. Beat Bürgenmeier, Prof. Robert Ayres, Prof. Jeroen van den Bergh, Prof. Peter Söderbaum, Prof. Joan Martinez-Alier and Prof. Bernard Roy for our discussions with them, their support and encouragement. I am particularly grateful to Dr. Barbara Cowell for carefully reading the manuscript and suggesting ways to improve the style. Chapter on sustainable cities is written in collaboration with Prof. Irina Shmeleva, chapter on sustainable waste management with Dr. John Powell.

I sincerely hope that the methods and ideas presented in this book are going to be taken on by the students and developed further by the next generation of economists. The students using this textbook will undoubtedly benefit from reading the original scientific papers quoted in the literature reviews in respected chapters. I would highly encourage the interested readers to find and explore the original sources. Each chapter in this book is designed in such a way that it could be read independently. All chapters taken together will give the reader a “bigger picture”, an interdisciplinary and holistic perspective on ecological economics and sustainability analysis as seen by the author.

Oxford

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