

## Publications

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### **Colin Kirkpatrick and Norman Lee, eds., Sustainable Development in a Developing World: Integrating Socio-economic Appraisal and Environmental Assessment, Edward Elgar, 1997, ISBN 1–85898–581–1**

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Many physical and social scientists lament the dominance of economics in development decision-making. According to Charles Hall, ‘to many physical scientists it is absolutely remarkable, even frightening, that economics can be taught and practised without reference to the physical facts of production’. And Robert Chambers criticizes economists for neglecting social reality, particularly in the developing world—‘it is not the local, complex, diverse, dynamic and unpredictable reality of those who are poor, weak and peripheral that counts, but the flat shadows of that reality that they [economists] . . . fashion for themselves’.

This book answers one of the most important questions of sustainable development: How do you integrate social, economic and environmental assessments in decision-making? The thirteen papers that make up this book were presented at a conference held in May 1996, jointly organized by the universities of Bradford and Manchester. The papers are organized in three main sections: (1) integrating appraisal within the development process, (2) appraisal and integration: frameworks and methods, and (3) appraisal and integration: case studies.

In the first chapter of the book, Lee and Kirkpatrick provide an overview. They distinguish between two forms of integration of appraisals, namely ‘strong’ and ‘weak’. In strong integration, environmental, social and economic assessments are fully integrated with each other, and the decision-making authority is explicitly required to use the recommendations of the overall appraisal. In weak integration, environmental, social and economic assessments have more space to be

themselves but the decision-maker is less constrained to use the results of the appraisal.

The overview of issues is followed by Hussein Abaza's paper, which draws attention to the need to assess, and incorporate in policy-making, the environmental impacts of structural adjustment programmes. This requires strategic environmental assessment at a broader level than project appraisal and hence is far more complex. The slew of variables and the possible cross-linkages make this a daunting task. Although the paper describes the task of the analyst, it does not tell us how different analysts have gone about this task. What, for instance, is the role of computable general equilibrium modelling or of the more qualitative action-impact matrix? The paper by Michael Potier, on the other hand, while restricting itself to the environmental assessment of trade liberalization, is more specific about the analytical framework used by OECD.

The section on appraisal and integration: frameworks and methods begins with Alan Grainger's piece on the environmental impacts of national development. The task of monitoring the progress of sustainable development is presented as having two aspects, namely, compliance with international environmental agreements and the environmental impacts of such external financial agreements as structural adjustment programmes. This requires the development of a sustainable development index that is dynamic and can help track each country's movement in comparison with a normative path that will be uniquely determined by that country's circumstances. This is illustrated with a brief description of a geographic-information-system-based study of continental South and South-East Asia. Grainger's paper emphasizes the need to take into account not merely technical factors but also social realities.

By far the most satisfactory answer to the questions raised in Hussein Abaza's paper can be found in the paper on a methodology for investigating the impact of agricultural and macroeconomic policy on the natural resource base and environment of developing countries. Jamie Morrison and Richard Pearce develop a rather neat flow diagram, which captures the essence of their argument: agricultural policy and macroeconomic policies act in a certain socio-economic and natural resource context (parameters) to determine farming practices, which in turn have impacts on the environment. While interrelationships are many and multi-directional, they separate out the more important causal flows. Morrison and Pearce then go on to examine the dynamic question of how population growth and technological change further change the nature of the impacts of economy-wide and agricultural sector policy on the natural resource base and the environment.

Integrating environmental and economic assessments often requires environmental valuation. James Winpenny takes stock of, *separately*, (1) the applications of and (2) the outstanding issues in, economic valuation. As would be expected, the largest portion of his paper is devoted to contingent valuation methods. While Winpenny's paper helps make the book complete, had the review not separated the description of the applications of economic valuation and the discussion of issues in economic valuation, it may have been more useful. For instance, the specific issues arising from

the application of economic valuation to natural resource accounting could have been discussed.

Lichfield and Lichfield present a delightful short history of the 'cost-benefit family', from which they sketch out the contours of community impact evaluation. This member of the cost-benefit family can be used to assess the impacts of development activity on different stakeholders and, through the planning process, to alter its direction to best serve the community (or a greater proportion of its members). A specific example of the application of the method to the Manchester Airport Second Runway project helps in understanding the method.

Integrating the economic valuation and environmental assessment of such projects as groundwater remediation will require inter-disciplinary teams of hydrologists, biophysical scientists, engineers and economists. The paper by Larry Canter does not merely develop an integrative methodology in seven steps for the assessment of such remediation projects under the Superfund programme in the US—it also indicates the kinds of inputs that the seven steps require from the different disciplines.

This book is not only about the integration of different kinds of assessment but also about the ways in which integrated assessment can be an important part of the development process. This requires the management of information and communications. David Hickie, who at times wears the hat of Regional Assessment Co-ordinator for the Midlands Region of the UK Environment Agency, explains how this section of the agency has improved the integration of the environmental assessment process. In developing countries, information about development projects has generally been poorly managed and communicated. Development practitioners in developing countries would do well to take note of David Hickie's case study.

In Kenya, river sand harvesting is an important economic activity. However, it can have significant impacts on water supply and quality. John Kitetu and John Rowan describe a study of its long-term environmental effects. An interesting feature of the study was the ranking of a variety of impacts by local residents on a 1–5 scale, ranging from insignificant to very significant.

Access to water for both domestic use and irrigation remains one of the biggest factors influencing people's health and their livelihood in the developing world. It is, therefore, vital to assess people's preferences for different mechanisms that deliver such access to water. The paper by Chris Lovell, Dominic Moran and Dominic Waughray describes the potential uses of contingent valuation in evaluating an irrigation project in south-east Zimbabwe. Methodological pluralists will be happy to see the authors point out the complementarity between such rapid and qualitative evaluation methods as participatory rural appraisal and the more structured, quantitative method of contingent valuation.

Another case study describes the application of the contingent valuation method for assessing the economic valuation of the impacts of solid waste on human welfare in Bangkok. Ian Blore and Fiona Nunan make a case for contingent valuation on the grounds that such other methods as estimating a dose-response function are far more demanding in terms of their require-

ments for data and other resources. Of course, as Winpenny has pointed out in his paper, the contingent valuation debate will continue for some time, even though it remains true that CV (contingent valuation) is good for your CV (curriculum vitae)!

The last paper in the book is by Behrooz Morvaridi, who points out that project operation is important, not just design. Though primarily a verbal narrative, Morvaridi skillfully weaves together environmental, economic and social information into a coherent assessment of the changes in the landscape brought about by an irrigation project in Sultanpur, India.

This book offers a variety of papers on a range of topics. It is easy to follow and the language is fairly non-technical, though some readers will think that there is a surfeit of flow charts and such somewhat pedagogical devices as 'seven steps' (both of which I like). Perhaps the editors should have included the discussions that followed the presentation of each paper in the workshop; it would have conveyed a flavour of debate and discussion. Consultants, researchers, policy makers, and students; read on.

## **Fikret Berkes and Carl Folke, eds.: Linking Social and Ecological Systems. Management Practices and Social Mechanisms for Building Resilience**

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It is possible to have an entire academic workshop about say, environmental valuation or environmental law, in which the economic and social concepts of valuation and regulation are discussed at length without once linking those concepts to the actual properties of the environment. That is not to dismiss the discussions at these workshops, they are often brilliant and incisive. But the environment is simply an icon that could be replaced by a completely different topic without much changing the conclusions. For example, a lawyer might set about valuing the environmental damage caused by oil spills in the recent Gulf war so that reparations could be made by using the case of the *Exxon Valdez*. The ecology of the two sites is completely different, but the environment as an icon is the same. Ancient churches or other manifestations of cultural values could equally represent the environment and the process of establishing the level of reparation

would be similar. However, it is axiomatic that human social systems are highly dependant on natural ecosystems and that the two must have co-evolved. Laws and taboos are created to prevent unsustainable exploitation of natural resources, and cultures reflect Nature's rhythms and cycles. The modern natural resource management crisis appears to have arisen because the links between social and ecological systems are remote and the consequences of management do not feed back to the responsible institutions.

If the real environment, as opposed to our image of it, is to be included in social systems, then the linkages between the two have to be explored. In 1993 the Beijer Institute initiated a research programme on Property Rights and the Performance of Natural Resource Systems. Within this programme Fikret Berkes and Carl Folke co-ordinated a component on *Linking Social and Ecological Systems for Resilience and Sustainability*. This book is the main result. The aim of the book was to overcome the entrenched approach of studying ecological and social systems separately by deliberately adopting an interdisciplinary framework in which both systems were analysed together using a diverse series of case studies. In so doing the book attempts to understand management practices and social mechanisms that are resilient to resource and ecosystem change in the hope that we can learn something from traditional and contemporary systems. The result is a major contribution to the understanding of ecological-social linkages that is of interest to ecologists, anthropologists, economists, and politicians. There are 16 chapters in four sections contributed by 23 authors from eight countries. The book is well structured and edited, each section is prefaced by a short introduction and an introductory chapter to the book as a whole presents objectives, definitions and an analytical framework. A wide range of ecosystems and societies are covered. For example, the first section, learning from locally devised systems, contains a modelling approach to the close linkage between village societies in India and their environment, an analysis of the trawling rally in Iceland which bridges the gap between scientists and fishermen, and a history of land rights in Dalecarlia in Sweden. The second section, on the emergence of resource management adaptations, again has a remarkable geographical spread of case studies from indigenous knowledge in the Canadian subartic, to rural management systems in the Brazilian and Nigerian forests and clam fisheries in Maine. The third section deals with success and failure in regional systems with chapters on property rights in Mexican forests, pastoral herding in the Sahel of Africa, the decline and revival of environmentally sustainable resource use in the Himalaya and the commercial extinction of the northern cod. The final section deals with designing new approaches to management. The opening chapter emphasises the worldwide crisis in resource management and brings together two resource management approaches: adaptive management in a world of uncertainty and surprise, and placing social aspects of management in the context of cultural capital and property rights systems. The subsequent case-study chapters look at new ways of approaching integrated management of forests in British Columbia and management of the chaotic fluctuations in fishery stocks. The final chapter summarises the book as a

whole and concludes that local level institutions respond to environmental feedbacks faster than centralized agencies. Agencies remote from the effects of management have led to the reductionist excesses that have characterized much of recent natural resource management.

This is an excellent and fascinating book that lights a way forward to the resolution of many conflicts in resource management. The range of case studies will make it of interest to managers in many fields and hopefully promote a better understanding of social–ecological linkages so that these can be more adequately represented in academic discussions and practical management.