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N. Ravindranath and J. Sathaye, *Climate Change and Developing Countries*. Kluwer, Dordrecht, 2002, 286 pp., ISBN 1-4020-0104-5

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Increasingly, developing countries become the subject of climate policy monographs as negotiations on the second commitment period of the Kyoto Protocol are going to start in the next years. While Gupta (1997) focused on negotiation tactics, Michaelowa and Dutschke (2000) on participation in market mechanisms, and Biagini (2000) on mitigation policies, the two renowned Indian authors Ravindranath and Sathaye want to address all issues that relate to developing countries and climate change and quantify them as much as possible. This challenging endeavour makes the book hard to swallow and leads often to a discussion of sources that stem from strongly differing dates and, thus, should only be compared with caution. Nevertheless, the book is a trove of information and a very good introduction to the topic for those that do not want to read all three volumes of the IPCC Third Assessment Report (TAR). However, for those who have read the TAR, large parts of the book will become tedious. Due to the encyclopaedic nature of the book, there is not much forward-looking discussion of the challenges of developing country integration into climate policy that would have made it more 'spicy'.

After a short introduction, emission scenarios for developing countries are developed, mainly referring to the IPCC Special Report on Emission Scenarios. Then the issue of building reliable greenhouse gas inventories is discussed and enriched with case studies from Argentina, Indonesia, and Zimbabwe, ironically all countries that are currently suffering major political crises. The third chapter returns to scenarios, but goes into more detail by decomposing emissions into effects due to population changes, energy intensity, and carbon intensity of energy production. This is done for regions and several large countries. A chapter on impacts and adaptation follows that is mainly repeating results of the TAR. In the chapter on mitigation, forestry sinks take a prominent role, which may be due to

Ravindranath's specialization in this field. Also, agriculture is discussed in detail, while industry is fully neglected. Generally, this chapter tends to focus on bottom-up studies with low or often negative cost estimates, painting an overly optimistic picture. A relatively superficial chapter on mitigation policies is followed by a very interesting evaluation of GEF activities in the field of climate change. This is the most lively and well-supported part of the whole book. It shows that only 50 per cent of the funds pledged are really disbursed and that the lion's share of funding goes to large countries that also receive a lot of foreign direct investment. The project cycle is cumbersome and takes many years; until 1999 only 11 per cent of approved projects in energy efficiency and renewable energy were fully operational. Despite these lengthy procedures, there is no in-depth check of the technical aspects of the project. A nice case study analyses the snail-like pace of a GEF project in India to promote biomass energy in rural areas that took almost a decade. One major hurdle is the calculation of incremental costs, which in principle demands that the full baseline project and even the positive externalities have to be financed by the host country, making the projects not attractive. The authors recommend to reduce multiple reviews, to loosen the incremental cost requirements, and to ensure that project proponents and implementers are identical. The subsequent discussion of the CDM is detailed but suffers from the fact that part of it is still pre-COP 7 and has not been updated. Chapter 8 addresses equity issues and participation of developing countries, but does not take into account many of the more recent suggestions for the second commitment period. It also avoids the discussion whether some of the more affluent Non-Annex B countries, such as the rich countries of the Gulf Cooperation Council or Newly Industrialised Countries of East Asia, should take up targets. It is interesting that per capita allocation is seen as a compromise between liability for cumulative emissions and grandfathering. Chapter 9 summarizes the other chapters.

Overall, the book is a good starting point for those who want to get a broad introduction into how developing countries relate to climate policy. Those who prefer a forward-looking and creative debate of future integration of developing countries should read Philibert and Pershing (2002) and Baumert *et al. (2002).*

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Krystyna M. Urbana, Nigel Webb, and Peter Edwards (eds), *Restoration Ecology and Sustainable Development*. Cambridge University Press, £55.00 (US$74.95), ISBN 0 521 582160 5(HB)

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A title containing the words 'restoration', 'ecology', 'sustainable' and 'development' is somewhat dazzling. These words have been used so many different times in different contexts it brings to mind the oft-heard senior common comment 'ah well, there is a big literature on that topic'. Restoration and sustainability are particularly tricky. If an ecosystem is perturbed, to what state is it being restored? As time is currently irreversible, so too is it logically impossible to restore a system to its pre-perturbation condition. Ecosystems do not follow a series of deterministic replacements that can be foretold from physical parameters: rather they jump from one state to another. Once burnt down, an ancient, complex, species-rich rainforest on old soils will not just grow again, no matter what the physical conditions. With sustainability, the question is who is the ecosystem being restored for? Sustainability is like the saint in George Orwell's reflections on Gandhi: 'Saints should always be judged guilty until they have been proved innocent.' If we are restoring for future generations, then our actions today are being determined by non-existent people of unknown requirements. Or perhaps not. Perhaps future generations have overcome the irreversibility of time problem and are quietly manipulating policy to their own ends. In which case they definitely do not like rainforests. What people prefer is important for deciding the ecology that is to be sustainably restored for development. For example, in England, the current generation rather like the fire-maintained, degraded, overgrazed, species-poor upland ericaceous swards on highly leached, exposed, podzolized soils (aka heather moorlands) that replaced upland temperate rainforests following the activities of previous generations.

Present-day public preferences determine that ecosystems disrupted by human activities such as mining, pollution, industry, field sports, farming, or road building should be restored. With an estimated 43 per cent of the Earth's terrestrial surface with a reduced capacity to supply benefits to humanity, there is good reason. A Society for Ecological Restoration has been formed in the USA, and a journal is specifically devoted to the subject. This book is an outcome of the first international conference on restoration ecology held in Zurich in March 1996 under the patronage of the European Ecological Federation. It is a coherent set of 17 well-edited chapters from 20 contributors from Europe, the USA,

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and Australia. The chapters are arranged in four sections: introduction, the ecological basis of restoration, implementation and assessment of restoration schemes, ecological restoration, economics and sustainability. A wide range of topics are covered, with case studies from North America, Australia, Iceland, and areas in Europe. For example, Jeanne Chambers discusses the restoration of alpine ecosystems in the western United States; Sigurdur Magnússon looks at the problem of eroded areas in Iceland; and Jonathan Majer reviews the role of invertebrates in achieving long-term self-sustaining restoration in Australia. The extensive literature cited draws on world-wide examples, and reflects the broad range of subject matter tackled by the book, which make it suitable for professionals in the field and provides a wealth of material for both undergraduate and postgraduate teaching. A particularly useful feature of the book is the mix of specialist chapters, such as those dealing with soil micro-organisms by Kurt Haselwandter and plant-animal mutualisms by Steven Handel, with overview chapters dealing with concepts and wider contexts. Given the problems of definition alluded to above, these overview chapters are particularly useful. Anthony Bradshaw reviews the meaning of restoration, contrasting it with reclamation and rehabilitation; and Thomas Parker and Steward Pickett look at the implications to restoration of modern ecological theory that accepts the dynamic nature of ecosystems. The final section of the book contains two chapters that tackle ecological restoration, economics, and sustainability. The chapter by Peter Edwards and Cyrus Abivardi on ecological engineering and sustainable development raises a fascinating point: very often the financial cost of restoration exceeds the market value of the restored land. The authors also draw attention to the fact that ecologists and economists inhabit separate worlds in that there are many hundreds of papers on the technical ecological aspects of restoration, but few comparing costs and benefits. This is remarkable, given the high financial costs of some restoration projects. For example, the recovery of contaminated wetlands in California exceeded $500,000 per hectare. Costs of the environmental assessment fees alone in the USA can exceed $90,000 per hectare. Even in the UK, where environmental regulatory authorities reach agreements with large industrial interests through memoranda of understanding rather than the public processes of law, restoration costs can be as high as $135,200 per hectare. These are perhaps extreme examples, but with rehabilitation costs commonly around $20,000 per hectare and the price of agricultural land $2000–5000 per hectare, there is clearly something very interesting going on.

Given that the despoiled landscape of yester-year is today's national heritage, this book demonstrates that there has been a marked shift in society's attitudes to the rehabilitation of environmental degradation. I do not think we are restoring ecosystems for sustainable development. I think that we are restoring them for ourselves in the name of future generations. There are two intellectual forces at work here. The high science of restoration ecology, and the technology that enables such rapid change in ecosystems. In the concluding chapter, the editors reconcile these two forces: 'Bulldozers, herbicides, pesticides, chainsaws, and high explosives are, for many conservation-minded ecologists, the instruments of the Devil. . . . This

is an attitude which, while perhaps understandable, is none the less a barrier to progress. No tool in itself is bad or good: what matters is how it is used.' Beating swords into plowshares perhaps, or alternatively are we setting the price of restoration so high that when the costs can be directly passed on to the agents of causation, plundering of the riches of natural capital will stop.

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M. Shirley (ed.), *Thirsting for Efficiency: The Economics and Politics of Urban Water System Reform*. Elsevier Press, Oxford, 2000, xxi +376 pp., US $100, ISBN 0080440770

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The objective of Shirley's (President of the Ronald Coase Institute and Research Manager, Competition Policy Regulation, World Bank) volume is to explain the results of water system reforms in the capital cities of several countries of Africa and Latin America with different levels of economic development and different types of political regimes. Explicitly adopting a New Institutional Economics approach, the authors evaluate the degree of success of planned or conducted reforms of the water supply systems in these cities. It is particularly relevant that a clear attempt was made to standardize the criteria on which this evaluation was based. This development of a set of common measures with which to compare the effects of reforms (or absences thereof) in such varied settings is another of the central contributions of the book. These measures attempt to condense the effects of reform on the welfare of the different parties involved, different types of consumers, government, investors, and employees of the water utility, and on productivity, environmental effects, and redistribution effects.

The book starts with two introductory chapters. The first one, by Shirley and Ménard, provides a synthesis of the cases studies that will make up the core of the volume. It contains a description of the common approach used in the analysis presented in the subsequent chapters. The reader should carefully cover this part before reading the case studies. It successfully presents the style of analysis used throughout the book.

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This is followed by Roger Noll's contribution, which also aims at providing a 'common analytic framework for the case studies in this book and for evaluating other urban water systems in the developing world' (p. 43). The chapter includes a brief review of the economic features of water supply systems that make them more susceptible to problems of inefficiency. Water supply and water demand, the rationale for regulation, and the main issues related to regulatory design are covered. Some readers might feel that the objective of providing a common analytical framework for the case studies following is not fully met by this chapter. However, this does not subtract from the valuable summary information it provides on the general issues surrounding the political economy of water systems. Furthermore, the task of introducing the methodology is well accomplished by Shirley and Ménard's first introductory chapter.

The six following chapters deal with the case studies of Buenos Aires (Alcázar *et al*.), Lima (Alcázar *et al*.), Mexico City (Haggarty *et al*.), Santiago de Chile (Shirley *et al*.), Abidjan (Ménard and Clarke), and Conakry (Ménard and Clarke). This is, as acknowledged by the editor, a small sample of cases. However, it, crucially, includes cities from two continents, with very different sizes, different stages of economic development, and different types of political regimes. It is also important to note that the sample covers the dominant contractual forms, that is management contracts, leases, concessions, and sales.

The case studies analyze the actual circumstances prompting or delaying or surrounding the reform in terms of the existence of stable and reliable institutions, with the ability to prevent arbitrary government actions, the capability to sufficiently overcome informational constraints when regulating the private operator, the ability to provide the private operators with the appropriate and sufficiently strong incentives, and the ability to enforce contractual arrangements. The book, in describing the institutional factors leading to or preventing successful reforms considers regulatory institutions, legal and judicial institutions, political institutions, and also international constraints, which might partially substitute for weaker internal institutions.

The degree of success of reform is studied in terms of economic welfare by estimating the quantitative effects of the reform or absence thereof on consumers, utility staff, government, and buyers. Impacts on efficiency are analyzed using measures as staff per connection, revenues to cost ratios. Investment (measured, for comparability, per cubic meter of water produced) is also used as an indicator of the success of the reform. The analysis also accounts for effects in terms of social welfare, since the economic welfare measures (such as consumer surplus) fail to consider the fact that some citizens were not connected to water supply or sewage collection. The redistribution effects of reform are also estimated, if mostly in a qualitative manner, due to the lack of appropriate data.

The final chapter, by Crocker and Masten, consists of a historical analysis of the political economy of the regulation of water systems in the United States. It includes a brief overview of the regulation-versus-franchise contracting debate, before proposing two different explanations for the fact that most waterworks systems in the United States have been publicly

owned, in contrast to the case of most other public utilities. The first explanation is based on the idea that public ownership should be expected in the case of public utilities with less complicated operations and requiring less technical expertise. The second explanation is based on the differences between water utilities and other public utilities in terms of appropriation and adaptation issues related to cost structure, resale potential, public health externalities, disruptiveness of water and sewer systems, and the role of firefighting (p. 332). Crocker and Masten study the plausiibilty of these assumptions in the case of the United States in the nineteenth-century, before drawing lessons for developing countries. These are critical of the ability of privatizing reforms to deliver improved levels of performance in the case of the water sector, given its low administrative requirements and large contracting hazards.

A statistical appendix concludes the volume. This contains a comprehensive series of tables which standardize the quantitative information used in the different empirical exercises and the results of the different quantitative analyses conducted within each case study.

Some readers might be disappointed with the lack of quantitative data in some of the case studies or the quality of some of the sources of data. Sometimes, the analysis is based on estimations, unpublished studies, diffcult to access technical reports, or just the results of field interviews or personal communications. For example, in one of the cases, the analysis is based on an arbitrary guess of values of price-elasticity of demand based on studies conducted in other countries, making the interpretation of the sensitivity analysis crucial. In another study, the demand functions are fed with values obtained in an unpublished study. This is, however, not surprising, given the type of industry under scrutiny and the geographic areas covered. Furthermore, the focus of the volume is less on the technical analysis or quantitative estimation of costs functions, demand functions and the like, as it is on the socio-political and institutional conditions. The emphasis is explicitly placed on the New Institutional Economics approach, and those expecting rigorous neoclassical economics or complex econometric exercises might be somewhat disappointed. The book does not contain rigorous analyses in terms of industrial organization or any advanced theoretical developments in mainstream regulatory economics either.

Similarly, some may find that the objective of providing an homogeneous type of analysis for all case studies is met more successfully when it comes to the description of the socio-political circumstances affecting the reforms than when it comes to the more quantitative analysis itself. This comes as no surprise, as mentioned above, because of the nature of the approach and because of the type of industry analyzed. It is in this sense important to recognize the effort, which can be perceived throughout the volume, to present the secondary data in a standardized manner. The data are reported in a series of homogenized, very clear, tables and graphs, which make it easier to compare the different case studies and the conclusions reached.

I think the volume presents a clear, thorough, and valuable contribution to the literature on water supply systems. Both academic analysts and

government practitioners are bound to benefit from its reading. It provides the reader with a pragmatic viewpoint from which to consider the possibility of reforms in the water sector or to explain why these often fail to take place or take place only after years of mismanagement of resources. I find it somewhat doubtful that the lessons derived from the case studies analyzed will be as useful to the study of other utilities as the editor claims, but it certainly represents a useful tool for those considering the evaluation of past or potential water reforms outside the academic textbook setting. And it is in the real world, with its complex and changing mixture of institutional, political, and economic aspects – and not in textbooks – where the water reforms that matter actually take place.

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