

Book reviews

WATER RESOURCES MANAGEMENT: IN SEARCH OF AN ENVIRONMENTAL ETHIC

by David Lewis Feldman

*John Hopkins University Press,
Baltimore, 1991, 247 pp, £27.50.*

The author claims that this book is aimed at an audience of social scientists, environmentalists and environmental professionals eager for a vision of how to better manage the ethical issues prompted by environmental dilemmas. He hopes to bridge the void between the policy makers concerned with managing environment-related issues and political theorists who are aware of the value dilemmas posed by natural resources issues (such as water resources in this case).

The book has nine chapters. The first chapter deals with values, political theory and environmental policies. Chapter 2 deals with the elements necessary for making national decisions in water policy and expands the contractual, teleological theory of the environment. Chapter 3 examines the absence of a justifiable policy framework both in American water law and in the approaches to planning by water officials. Chapter 4 uses a case study to demonstrate the competing policies in water resources development. Chapters 5, 6 and 7 examine the implications of gratuitous policy making in water resources management from the standpoint of standard reform, conservation and benefit-cost analysis. Chapter 8 focuses on the dominance of elitism in policy making, as exemplified by the historical experience of the corps of engineers in the USA. Finally, Chapter 9 introduces a framework for integrating the natural characteristics of water with the political constraints dictated by human use.

The book is primarily focused on American water policies. It argues the need for reform for development of water policies and their implementation, eventually requiring political change. The benefit-cost analysis and, more importantly, the Environmental Impact Statement (EIS) approach proposed in the book (Chapter 7) are sound but the importance of dealing with environmental issues at all stages of the project (project planning, implementation, construction, completion

and post-evaluation) are not adequately emphasized. Although the proposal for the use of EIS as a planning instrument is well presented, so are the argument on benefit-cost considerations and the imperatives of risk, health and welfare. Arguing the importance of internalizing the environmental externalities (costs and benefits) the book could have (in Chapter 7) discussed some of the latest concepts such as 'natural resources accounting'. On the whole, this book is a useful addition on American policies and a few chapters could also be useful for readers in other countries.

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PUTTING PEOPLE FIRST: SOCIOLOGICAL VARIABLES IN RURAL DEVELOPMENT

edited by Michael M. Cernea (second
edition, revised and expanded)

*Oxford University Press (for the World
Bank), New York & London, 1991.*

This impressive volume (first published in 1985, now in a revised second edition) is based on the belief that 'people are . . . the starting point, the center, and the end goal of each development intervention' (p xiv). The editor, Michael Cernea, is in an excellent position to present this claim, as he has an acknowledged position both in the development community (as Senior Sociologist at the World Bank) and also among anthropologists and sociologists, who have honoured his scholarly contributions. He has assembled a distinguished group of social scientists, who have had in-depth experience in at least one sector of development, and who convincingly present case studies and generalizations showing the need to involve local people in development projects.

Unlike some edited collections, this one is well organized and presented: the editor provides both a solid and thoughtful introduction to the volume, as well as individual introductions to the nine parts, each of which deals with one aspect of development - irrigation, settlement, livestock, fisheries, forestry, rural roads, evaluation, participation and data collection. Irrigation, which is the first, is the longest and the section likely to be of most interest to readers of this journal. It

includes three contributions, by Walter Coward, Benjamin Bagadion and Frances Korten, and David Freeman and Max Powdermilk. Taken together, the three chapters provide useful guidelines for anyone concerned with any irrigation project. Coward points out that there are always institutional and social arrangements which organize fundamental tasks such as distributing water among users or maintaining the canals. Careful field studies are needed to understand exactly what these local institutions do, and to find out how they can best be incorporated into the proposed intervention. Case studies show what has happened when local people are ignored, and, equally important, what can happen when they are brought into the project. It is important to allow for trial and error, for what another development critic, Bruce Johnson, called 'error-embracing adaptiveness'. Of course, this is not always easy for planners and administrators, but it does yield results. Bagadion and Korten give a detailed cost/benefit analysis, showing that 'substantial benefits were reaped from the small investment in institutional activities' (p 98) and that the benefits clearly outweighed the costs. In order to maximize the benefits, projects should eventually be handed over to the local people, who would be responsible not only for maintenance, but also for conflict management, water allocation and rehabilitation. It is necessary not only to involve people, but to do this at an early stage of the project, and to allow for systematic development of local capacities. Many examples are given from the Philippines, where there has been much progress in encouraging local water-user associations, but the conclusions obviously have a much more general relevance.

I select a few examples from the other contributors, choosing those that have a wide applicability. Thayer Scudder (Settlement) outlines his dynamic model of settlement stages: planning, transition, economic and social development, and handing over to the settlers (p 159). This model, which has been used, tested and refined by many, and has stood up well, illustrates two points - first, the need for such theoretical models in the study of development and, second, the ultimate stage of giving authority to the settlers: empowerment.

Forestry is treated here by Scott Guggenheim and John Spears, and by

Michael Cernea. Among their conclusions are that 'tropical deforestation, rural poverty and agricultural development are inextricably linked' (p 305). Too often, poor people are depicted as the causes of such environmental disasters as deforestation, rather than as the victims, which they frequently are. Once again we hear that 'participation is not an absolute guarantor of project success, but its absence is a surefire prescription for project failure' (p 335). And Cernea concludes his chapter with a blunt assertion that forestry is not simply the business of professional foresters, and that 'social forestry is wide open to multiple approaches, open to the creation of diverse patterns of social organisation' (p 387). This relates to the point made by Robert Chambers in his chapter on participatory methods of data collection, when he states that 'we, the professionals, are much of the problem, and they, the poor, are much of the solution'. What many of the writers are saying is that we need to break away from outworn and unproductive paradigms, and to consider innovative approaches to development.

Finally, Norman Uphoff considers three objectives of participatory development, efficiency, equity and empowerment, analysing the problems particularly associated with the threatening word 'empowerment', and showing how this has been achieved even in unlikely settings.

I react to this book with both delight and dismay, delight because it is such a good collection, and so many worthwhile ideas are cogently proposed and well presented; my dismay arises from the fact that, after 40 years of development projects, such a volume should still be necessary: is it not all too obvious? Alas, no, and this book should be required reading by all with any interest in development. It is needed not only at universities, but also in agencies; the World Bank and some bilateral organizations, such as US AID, ODA and SIDA have all encouraged social analysis of projects, with mixed results, as there is still a strong technological lobby, which sees people as constraints rather than as potential resources. One of the main virtues of this book is that Cernea and his contributors are all hard-headed, not overstating the case for local knowledge, and not underestimating the problems of encouraging popular participation. They recognize that many anthropologists also need re-education, and they do not roman-

tize local knowledge, but they do emphasize that without putting people first, we will continue to have a very flawed record of development.

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CLIMATIC CHANGES AND US WATER RESOURCES

by Paul E. Waggoner
John Wiley & Sons, New York, 1990,
496 pp.

This book is a report of the AAAS Panel on Climatic Variability, Climate Change and the Planning and Management of US Water Resources.

The book is one of a series on 'the climate and biosphere' which focuses on the interaction between atmospheric processes and the biosphere. It encompasses different methodologies and disciplines. This book had its origin in the belief that a major impact of the 'greenhouse effect' in the USA would be on water supply and demand. Its coverage is extensive, spanning the environmental, economic and societal ramifications of a water supply crisis.

The impact of global warming in general is largely unknown. Its effect on the US water supply in particular is analysed and discussed in this book.

The book was written to alert scientists, political bodies and private enterprises to the likely outcomes of rising temperatures, increasing evapotranspiration, accelerated melting of snowpacks, new seasonal cycles and other results of the greenhouse effect. It consists of four sections subdivided into 19 chapters, preceded by a short summary and recommendations. Each section includes papers on several topics, each paper written by one or more authors.

Section I, entitled 'The Setting', describes the issues, future water use in the present climate, prospects for climate change and decision making under certainty. Section II, 'From Climate to Water Resources', covers climate forecasting, what statistics can tell us, from climate and CO₂ enrichment to evapotranspiration, from climate to flow, from flow to storage and vulnerability of water systems. Section III on 'Impacts and Responses' includes topics of floods and droughts, irrigation, water quality, recreation and

wildlife, urban water, water, electricity and institutional innovation, reallocation by markets and prices, and the political agenda. Finally, Section IV, 'Climate Changes and US Water Resources', is an overall summary of the contents of the book. It concludes that one of the major impacts of the greenhouse effect will be on the supply of and demand for water. This finding is based on the fact that the climatic warming likely to follow the continuing atmospheric build-up of carbon dioxide and other greenhouse gases would seriously affect water resources planning and management.

Although climate change seems an irresistible force that even a nation cannot forestall, the book suggests that a nation, and even a locality or person, can do something about water resources. Thus, action can follow recommendations which have been divided into three groups. The first is for scientists, the second for public bodies and the third for private persons and enterprises.

Recommendations for scientists: scientists investigating climate changes should make a special effort to improve predictions on the scale of time and space most relevant to the management of water resources. Moreover, organizations of professional water-resources managers should meet formally and regularly with scientists to share hydrological knowledge and to manage water resources reliably and efficiently.

Recommendations for public bodies: this draws the guidelines for decisions and stresses that governments at all levels should reevaluate legal, technical and economic procedures for managing water resources in the light of the climate changes that are highly likely. In addition, they should encourage flexible institutions, including markets that can allocate water for its most beneficial use as the climate changes. Thus, governments needing knowledge of future climate and water resources and other public entities should encourage interdisciplinary research.

Recommendations for private persons and enterprises: during planning, managers should be alert for economic measures to increase flexibility and accommodate climate variability. Opportunities are also pointed out for water use by industrial and agricultural innovators, to be alert for profitability of water-conserving technologies increased by climate change.

This book contributes to the present discussion on climatic changes and the scientific advances needed from scientists, explaining clearly in conservative and

comprehensible terms, and conveying the major complexities and uncertainties. It is a good reference volume for anyone dealing with climate and water resources.

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Conference reports

Water resources in the next century

Report on the Stockholm Water Symposium, Stockholm, 12–15 August 1991

This symposium aimed at increased water awareness by addressing the strenuous measures needed all over the world to alter the tendencies to large-scale water quality deterioration and shortage of water, which have drastically affected living conditions.

The first issue addressed was water as a major constraint to development:

- In order to get access to food, fodder, fibre, fuelwood and timber, society has to develop strategies which allow successful balancing of the interactions society–soil–water–vegetation–other species, so that biodiversity of natural ecosystems, potability of groundwater, edibility of fish and fertility of land are protected.
- The limited rainfall and high evaporative demand of the atmosphere typical of the arid/semi-arid tropics and subtropics are acting as limiting constraints on development. Since population growth is rapidly depleting the remaining room for manoeuvre between water supply and demand, rational management of scarce water resources is supremely important.
- Rapid population growth raises the parallel issues of how to supply the new inhabitants with both water and crops that need water to grow. Water scarcity in many Third World countries makes it extremely urgent to stop population growth. It also forces us to start thinking in new terms: rather than transporting water from remote areas, food grown in those areas could be transported.

The second issue addressed was large-scale water quality degradation.

- The basic cause of the large-scale eutrophication now degrading fresh and coastal waters all over the world is population growth and the resulting

increase in food demand, which together lead to increased human waste and increased use of fertilizers.

- Metals are rapidly spreading also in the Third World environment as a result of modernization and industrialization. Acidification remains a major problem, leaching metals from soils, rocks and sediments in softwater areas of the world. Increases in mercury in fish illustrate the kind of problems produced.
- Persistent organic chemicals are carried around the globe by air and water. Once in the ocean, they are caught by sea currents, toxifying marine and coastal ecosystems, and locally threatening traditional fishing and seafood harvesting.
- Thus, two phenomena are at the core of the ongoing large-scale degradation of both freshwater bodies and coastal waters: on the one hand, industrial production and waste disposal, spreading persistent chemicals to air, land and water bodies; on the other the galloping population growth with growing food demands, which both contribute nutrients to water bodies and coastal waters. The evident way out of the world-wide water quality degradation is by stopping population growth and by closing the cycles, so that neither nutrients, nor persistent chemicals, nor industrial waste can escape to the environment, where they will be caught and carried by the water cycle, in the end producing severe biological damage.

The third issue addressed was watershed management, technical development and prosperity:

- Municipal waste water has to be treated so that it can be reused and nutrients

returned to the land, where they are needed for food production. Wastewater recycling, accompanied by health guidelines, is a technique already practised in several water-scarce countries.

- In a longer time perspective, the idea that it is possible to get rid of pollution is fundamentally wrong, since water – a unique solvent which is chemically active – is continuously on the move through all landscapes inhabited by people. Thus, pollution abatement at the source has to replace conventional end-of-pipe treatment technology.
- The production of drinking water from deteriorating freshwater cannot safely be left to sophisticated technology but has to rely on techniques imitating natural biochemical processes.
- The large-scale land degradation in Third World countries involves a severe threat to improved life quality in poverty-stricken countries with rapid population growth. The problem is closely linked to the management of water. Land and water have to be managed together locally on a watershed basis. Especially in water-scarce areas, it is fundamental that water be seen as an economic good, rather than as a freely available resource.
- There is today a call for a new statesmanship based on an acceptable understanding of Earth system realities. Solutions have to be found for the abatement at the source of all non-degradable substances by mitigating the barriers produced by current distortions of world markets by subsidies. Solutions also have to be found to socio-economic development under water scarcity without degradation of land fertility and water quality. The broad and well-integrated environmental education for which there is an obvious need has to include an adequate understanding of the functions of the water cycle. Every person, young or old, has to understand that life on Planet Earth takes place at the mercy of the water cycle.

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