Global Water Resource Issues


Throughout the world, water resources are increasingly over-exploited and mismanaged. Rapidly growing populations, combined with rising standards of living, mean implacably greater consumption of fresh water. Awareness of the potentially critical imbalance between the demand for water and its supply is universal. However, the expression of this awareness tends to be more forceful in developed rather than in developing nations, even though the problems are more serious in the latter. A developing nation is likely to accord economic development higher priority than environmental and natural resource management. Actual short-term gains tend to prevail over potential long-term pains.

In recognition of growing problems of global water resources, the International Conference on Water and Environment (ICWE) was held in Dublin, Ireland, January 1992. ICWE was the most ambitiously comprehensive conference on water held in 15 years. There were more than 500 participants representing 114 nations, 28 UN agencies, and 58 organizations. ICWE had four main purposes:

1. To assess global freshwater resources in terms of existing and future demands, and to identify priorities
2. To formulate strategies for international and national coordination
3. To develop and present strategies that are environmentally sustainable
4. To promote strategies and action by enhancing awareness of economic opportunities and environmental risks in water resource development

A great deal of work was fostered by ICWE. This book is one of the products of the conference. It is based on the working group discussions, reports, and background documents, with the broad purpose of advancing understanding of the agenda emerging from the conference. Accordingly, the book represents important themes developed by the conference.

A key theme is the need to develop and manage water resources in a national and integrated manner. Fragmentation and ad hoc administrative measures tend to be inefficient and wasteful. Four principles need to be applied to achieve integration.

1. Freshwater is a finite, vulnerable resource, essential to sustain life, development, and the environment.
2. Water development and management should be based on a participatory approach, involving users, planners, and policy-makers at all levels.
3. Women play a central part in the provision, management, and safe guarding of water.
4. Water has an economic value in all its competing uses and should be recognized as an economic good.

The institutional arrangements by which integration may be promoted echo those now fashionable in Europe and the United States. Responsibilities and initiatives should be delegated to the lowest levels capable of accepting them. Privatization is suggested as a desirable instrument. Public participation is essential to successful water resource strategies.

Management depends on managers. Therefore, training and education are required to create adequate human resources for the tasks of water resources management. Two fundamental needs are to adequately assess water resources and to protect them.

The book also reviews the sustainable use of water in urban and rural development, including sustainable food production. An overwhelmingly vital issue is that of sanitation and wholesome water supplies. Residents in developing countries are denied the latter to an astonishing extent. For example: "An estimated 80% of all diseases and over one third of deaths in developing countries are related to the consumption of contaminated water, and on average as much as one tenth of each person's productive time is sacrificed to water related diseases." (p. 127) In the light of such horrific statistics, the need to build management capacities is paramount. This capacity building is needed at all levels of society, and one may add, in all countries of the world.

It is regarding the latter point the book raises misgivings. For example, in discussing the need for water resources protection and conservation, it is asserted: "An ecosystem approach is necessary to provide water of adequate quantity and quality to all users and to protect ecosystem integrity in the long term." One may inquire which nation anywhere has fully achieved this aim? Similarly it is stated that groundwater protection should be attained by preventing contamination through managing land uses, avoiding "development that leads to the degradation of groundwater quality or the depletion of groundwater supplies." Again adequate success can hardly be claimed in this purpose in any developed nation. This poses the hard question: How are developing nations with their economic constraints and hopes to succeed where developed nations generally do not?

The book is clearly written. It sets out water resource issues vital to the future of humans on earth. These issues must be addressed and adequately met if we are to have a future. The book therefore serves a valuable purpose. The translation of that purpose into successful action worldwide will take many more conferences and books. – KEITH S. PORTER, New York State Water Resources Institute, Ithaca, NY 14853 (ksp2@cornell.edu).

Radiation and Public Perception: Benefits and Risks (Advances in Chemistry Series 243)


This book is not quite what the title might lead one to think. Far more than a discussion of public perception of radiation risk, it explains the origins of the current quantitative estimates of the risks from radiation in a readily understandable way. Some of the chapters are particularly good expositions. The chapters in the book are based on material presented at a symposium sponsored by the American Chemical Society in 1992 and organized by Young and Yalow, who have jointly edited the book.

The public perception section of the book is relatively small, with contributions from Yalow herself and W.R. Hendee. The former emphasizes the absence of observations of significant deleterious effects from low doses of radiation and suggests that the public have been led, by various influential committees, to believe that radiation is more dangerous that it really is. The latter summarizes the factors affecting public perceptions of risk as developed over the last decade by Covello, Slovac, and colleagues. Hendee correctly points to the influence of the entertainment media in presenting nuclear energy and radia-