

## Book Review

### **Water Management in 2020 and Beyond**

Asit K. Biswas, Cecilia Tortajada & Rafael Izquierdo (Eds)

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A forward-looking book on water is the need of the hour for more than one reason. First and foremost, generation after generation grew up with little thought about considering water as a scarce resource—any scarcity being a temporary phenomenon and punishment meted out by Mother Nature. Second, historically, planning for economic and social development, while taking explicit notice of the growing demand for water for agriculture, industry, energy, services and households, did not really project the centrality of water to development. Third, one never wastes medicine or food; but most people do not routinely think of conserving water. Finally, increasing amounts of wastewater and the problems associated with its disposal pose a formidable challenge to professionals and policy makers in the water sector.

Therefore, it is laudable that the International Centre of Water and Environment of the Government of Aragon, in association with a number of other agencies,<sup>1</sup> has taken the initiative to bring together, in late 2006, experts on water issues, population, development, economics, agriculture, energy, health and technology, for a workshop on the theme of Water Management Beyond 2020. The 13 papers deliberated at the workshop are presented in the volume under review.

The first substantive paper entitled ‘Changing Global Water Management Landscape’ by Biswas & Tortajada provides the framework for the rest of the book. At the cost of oversimplification, it could be said that the central theme of the chapter was woven around the important and critical, and recent and current global developments. Industrial water use has been growing, growing energy consumption places rising demands on water, accelerating urbanization places extra demands on water, demographic changes such as ageing have implications for water delivery, and technological changes have impact on water use in agriculture, which accounts for a dominant 70% share. Water planning and management have become increasingly complex and will be more so in coming decades; yet, the challenges come from non-water sectors, where water professionals may not be able to influence policy and programmes. Overall policy directions must depend, therefore, on an explicit understanding of the linkages between water and food, water and energy and water and environment. The clarion call is for planning for uncertainties and unexpected developments.

Effects of urbanization and ageing on water resources over the coming four decades are the theme of the paper by Olli Varis. Credit goes to the author for emphasizing,

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in regard to urbanization, not only the needs and challenges of providing water to the mega cities (which usually have the loudest voice demanding attention), but also the small and medium-sized towns that tend to be ignored. On ageing and water, here is a succinct statement that says it all:

Water challenges will be related to aging principally through economic development and ability to be able to provide and maintain largely degraded water infrastructures, particularly in the field of water supply, sewerage systems and wastewater treatment as well as irrigation in some areas. (p. 49)

and also:

... most of the impacts of aging propagate through the production and consumption systems of industrial and agricultural products and only to a smaller extent through direct consumption of water. (p. 50)

An added attraction of the paper is the brief discourse on principal regions and key countries that need special attention.

Malin Falkenmark of the Stockholm Water Institute writes about 'Water and the Next Generation: Towards a More Consistent Approach'. The context is set out elegantly as follows.

Water ... is a highly complex substance with many different functions: health, income generation, energy production, biomass production, habitat and carrier functions ... This complexity makes water management intricate. (p. 65).

Then follows a highly informative discourse on three sets of problems relating to water: quantity limitations, quality degradation and problems emanating from landscape manipulations. The paper ends with an emphasis on the criticality of *actions* in the areas of resource adaptation, pollution abatement and governance.

Governance is an empty box unless backed by legal and regulatory frameworks and institutions. These and related issues are addressed in the paper by C. Bruch on 'Adaptive Water Management: Strengthening Laws and Institutions to Cope with Uncertainty'. After a good coverage of the principles and practices of adaptive management, the author aptly cautions at the end:

Laws, institutions ... will never be fully effective unless they account for the dynamic, complex and non-linear character of water management. With climate change projected to become more pronounced, the need for adaptive water management will only continue to grow. (p. 107)

Continuing the management theme, Kazuo Takahashi writes on the search for a comprehensive approach to sustainable management of water resources. Two important observations set the tone for the paper:

Water resource use has exploded in the past century and half, and there is no end in sight in this trend ... Despite all of these assaults on water, its protection has been weakening progressively. (p. 115)

Brief discussions are then provided on a wide variety of key issues such as water in environment, oxygen and forests and elements of comprehensive and democratic management of water resources. A significant point the author makes in conclusion is noteworthy: "... this short chapter suggests that the attempt at a broad-based approach should be conceptualized as a social movement" (p. 124).

In his essay on Science, Ideology and Sustainable Development, Peter Söderbaum, a distinguished economist from Sweden, mulls over the failures of neoclassical economics to ensure sustainable development, which is re-defined to include, for example, extending the developmental horizons in ethical terms and respecting democracy as central to dialogue and policy making.

So many things have to be done and done quickly in the water sector; it is a great challenge for the professionals involved in the water sector. Gaps in management and leadership need to be addressed by capacity building, via human resource development. Furthermore, capacity development must include proper organizational and system development. These are the aspects discussed in the paper by Hans Pfeifer.

So far this review touched upon the seven thematic papers, which are not about any particular region or country per se and are applicable widely. The next five papers are different, two each covering the continents of Europe and Africa, and the nation/city states of Netherlands and Singapore, and one covering the sub-national region of Aragon.

José Albiac and Juan Ramón Murua discuss the future possibilities with regard to the European Water Framework Directive, approved in 2000 and aimed at protecting water resources, and potentially solving the water scarcity and water quality problems in Europe by 2021.

How will climate change affect the Netherlands? What are the consequences in various sectors such as water, agriculture, energy, transport, housing and health? What should be done? These and related issues are addressed in the paper by Michiel van Drunen, Aalt Leusink & Ralph Lasage, concisely and aptly titled 'Towards a Climate-Proof Netherlands'.

Jeanette Rascher, Peter Ashton & Anthony Turton have done a great service to humanity by alerting one and all on the 'Strategic Role of Water in Alleviating the Human Tragedy Associated with HIV/AIDS in Africa'. To place the issue in perspective, the authors first discuss the sectoral and household level impacts of the pandemic. They then go on to discuss the role of water, with the introductory comment: "Although water is not a cure for HIV/AIDS, it is the most powerful healing substance known to man which can contribute to slowing down the progress of the disease..." (p. 207).

José Francisco and Aranda-Martin write about the irrigation and water policies in Aragon, an 'autonomous community' in Spain. A brief historical sketch on irrigation developments and the current situation in Spain, the situation in Aragon, and the way forward are the key contents of the paper.

'Singapore Water: Yesterday, Today and Tomorrow' by T. C. Khoo, CEO of the Public Utilities Board of Singapore, is a must-read for professionals in charge of the water sector in any metropolitan area who wish to mimic the achievements of the city-state. The highly readable paper articulates three challenges for the future: increasing long-term water supply, optimizing the used water management system, and environmental sustainability. The following from the last section 'The Road Ahead' is notable and worth emphasizing:

Even with the most comprehensive plans and visions of a sustainable future, nothing can be accomplished without strong political will, good governance, effective implementation and a motivated workforce. (p. 249)

'The Pace of Change in Seawater Desalination by Reverse Osmosis' is the final paper in the volume. Authored by Ian Lomax of Dow Water Solutions, Germany, the paper has some good news for the developing countries considering desalination as an option: "If the past 20 years is any guide, then we should expect that the relative cost of water production will continue to fall" (p. 258).

Orchestration of the challenges ahead, and the issues that need to be addressed, ably carried out by the editors and the contributors to the volume under review is the first step. More needs to be done. For example, governments have to set the priority needed to solve the water vows of the present and the future at national and sub-national levels, and act now to move forward; and global and regional institutions need to examine if water sector problems need supra-national bodies to tackle effectively and judiciously.

### Note

1. Notable among them are the Water Institute of Aragon, Third World Centre for Water Management of Mexico, International Water Resources Association, and the Sasakawa Peace Foundation of the US

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