

Book Reviews

Water Resources Management: A World Bank Policy Paper *Washington, DC, The World Bank, 1993, \$6.95*

A 1988 World Bank review of its more than 200 water projects for 1974–88 gave satisfactory ratings to 88% of Bank investments in water supply and sanitation, and to 80% of investment in irrigation projects. In contrast, satisfactory ratings dropped to 44% of investments in irrigation projects for 1989–90 before rising to 71% in 1991. Satisfactory ratings for water supply and sanitation likewise dropped, to 56% for 1990–91. While some of these drops in ratings may have been the result of more complete expectations in recent years, the Bank was nevertheless motivated to re-evaluate its entire focus in its involvement in water resources projects. The results of this re-evaluation, representing a dramatic shift in thinking about water resources development, are contained in a modest volume of less than 80 pages (plus appendices) called simply, *Water Resources Management: A World Bank Policy Paper*. While the volume itself may be modest in appearance, the contents, if followed, will alter extensively the intricate relationship between people and their water resources throughout the world.

Water Resources Management begins with an honest account of problems that the Bank's Operations Evaluations Department has reported in recent assessments (e.g. World Bank, annual; World Bank, 1992):

... the investments supported by the Bank in the areas have often encountered implementation, operational, and social problems. Underlying these problems is a vicious cycle of poor-quality and unreliable services that result in consumers' unwillingness to pay which, in turn, generates inadequate operating funds and a further deterioration in services. Moreover, the Bank and governments have not taken sufficient account of environmental concerns in the management of water resources. (p. 9)

Chapter 2 identifies specific problems with current water management practices, including the market's inability to deal with hydrologic variability, and the tendency to monopolies and market failure; fragmented management and overextended government agencies within countries; and neglect of water quality, health and the environment. Trends in water supply and demand, and the problems particular to international water resources are also described briefly.

Chapter 3 is the heart of the study, describing the Bank's interest in helping countries incorporate both more careful economic management and a stronger environmental ethos into a new 'comprehensive framework' for water resources management. The framework, an elaborate cohesion of the various aspects of water resources necessary for truly integrated water management, is

detailed and designed for countries to incorporate and tailor to their own needs. Well beyond international agencies' historic role in 'building and leaving', the Bank's comprehensive framework is described as, "a facilitation of the relationships between the ecosystem and socioeconomic activities in river basins".

The shift from project-focused development, such as emphasizing a particular dam or irrigation system, to a more holistic approach incorporating the specific needs of a particular watershed, its inhabitants and its ecosystem, is laid out in detail. Any analysis, it is argued, "should take account of social, environmental, and economic objectives; evaluate the status of water resources within each basin; and assess the level and composition of projected demand". Such an assessment would then result in a 'national strategy for water resources management'. In an effort to ensure the long-range viability of the development plans, steps would be encouraged both to decentralize water management, allowing local ownership (in the political and emotional, rather than legal, sense) and greater responsiveness to local needs, and to encourage supporting legal and regulatory frameworks. The anticipated results of following the framework are described:

... water resource management that follows the principles of comprehensive analysis, opportunity cost pricing, decentralization, stakeholder participation, and environmental protection outlined will yield more coherent policies and investments across sectors, promote conservation, and improve the efficiency of water allocation.

Chapter 4 describes how the Bank sees its role in encouraging this shift to more comprehensive water management. The chapter points out the Bank's extensive experience with water resource projects, and describes possible areas of involvement, including encouraging the comprehensive framework within Bank member countries; promoting institutional and regulatory systems which would support the framework; encouraging opportunity cost pricing and other incentives; promoting efforts in support of health and environmental protection; and facilitating cooperative management of international water resources. Finally, steps are described for procedures, staffing and training which the Bank can undertake, including helping with coordination between water management organizations, and collaborating with other international organizations, particularly the UN Development Program, to help facilitate capacity building.

The volume is a valuable account of the extensive lessons learned over the years by arguably the premier agency in international water resources development. As mentioned, if the steps described in *Water Resources Management* were followed, the result would be a profound and elaborate shift in the relationship between people and their increasingly scarce water resources. The work's principal argument is invaluable to any agency concerned with international development: rather than focusing on individual projects, development should begin with capacity-building, which in turn can lead to a comprehensive framework for assessment and, only then, to efficient resource management. The framework for assessment itself can serve as a vital tool for managers of water basins of all scales.

Along with the analytical framework, the volume offers some ancillary benefits to the reader. In boxes presented throughout, for example, lessons

and case studies, both positive and negative, are presented from the Bank's experiences in water management. Intriguing examples include instances of willingness to pay for high-quality and reliable water resources, even amid abject poverty (Box 3-2: Can the poor pay for irrigated water?), the critical and often overlooked role women play in managing domestic water use (Box 3-5: Participation of women in water supply and sanitation projects), and a list of some innovative features of recent Bank-sponsored activities (Box 4-2: Innovative features of recent Bank-sponsored water resource activities).

An added benefit to the reader incorporated in the volume is 50 pages of relevant appendices. Included are economic topics, such as water-related market failures, and privatization and user participation; along with presentations of the Bank's experiences, including one appendix on 'lessons learned' and another on the Bank's experience with investments in water resources. Probably most useful to the researcher involved in international water management issues is Appendix D, a summary of the Bank's operational directives related to water resources.

Any weaknesses in the work are not to be found in the theoretical framework which is presented, but rather in the overwhelming difficulties which will no doubt be encountered when attempting to put the framework into practice. For example, there are no relative weights given to each of the myriad, and occasionally contradictory, parameters which make up the comprehensive framework. When economy and ecology clash, as they so often do, which shall take precedence? Likewise, can encouraging decentralization and privatization of water management be reconciled efficiently with the preference for a whole watershed approach? In addition, it may be frustrating to the more ecologically orientated reader that environmental protection is often advocated primarily for a clean supply of drinking water, rather than in the Leopoldian sense of a 'land ethic' (Leopold, 1949).

One other drawback is the book's uncomfortably brief treatment of the complexities inherent in managing the world's more than 200 transnational waterways. While "encouraging cooperative management" is listed as a role the Bank ought to play, little detail is provided for this vital issue. Under the increasingly acerbic topic of transnational groundwater, for example, only one paragraph is offered, which includes such innocuous strategies as monitoring ongoing work of the International Law Commission and promoting sustainable groundwater use, "where appropriate".

The final difficulty with the work is the potentially untenable role the Bank describes for itself mired in the partisan intricacies of internal politics. In its future attempts to encourage more realistic water pricing and decentralized water management, the Bank may be taking on the most entrenched political interests within member countries. This, in turn, may lead not only to rejection of the Bank as explicitly partisan, but may also generate resistance to the framework as a whole. This would be a shame.

These minor drawbacks should not deter the reader in any way from finding great value in the text. As a cutting-edge approach to integrated water management, *Water Resources Management* is extremely beneficial. That it proclaims to be the heart of a new direction in water management for so pre-eminent a development body as the World Bank is no less than heartening.

References

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Water of the Middle East—From Euphrates–Tigris to Nile

Asit K. Biswas (Ed.)

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This book is a valuable addition to the growing literature on the waters of the Middle East. An IWRA committee entitled 'International Waters' convened a Middle East Water Forum from 7–9 February 1993 in Cairo. The pre-selected participants, numbering 27, were well-known experts in the relevant fields: engineering, economics, geography and political science. Background papers, specifically commissioned, plus an opening address by Dr M.K. Tolba, former Executive Director of the United Nations Environment Program, provided the basis of the book.

Contrasting views of the Middle Eastern countries are well presented but the reader is left somewhat perplexed. Profound understanding of the underlying complexities is displayed and some of the actions that must follow are described. But, given the political difficulties, how sure can we be that these actions *will* actually follow?

There are references to various United Nations bodies (UNEP, UNDP, FAO, UNESCO) and to international financing agencies, especially the World Bank, and an intimation that these groups must work in a coordinated way to help solve the Middle East water crisis. Histories are given for two major cases of water-conflict resolution: the Indus River, involving India and Pakistan, and the Colorado River, which involved the United States and Mexico, and several US states. In the former case, resolution came through a treaty, which, however, took a decade of negotiation under the auspices of the World Bank whose president at the time took a personal interest.

Complex and important as it was, the water situation of the Indus was, relatively speaking, less complex and crucial than that of the Middle East! In the latter case, not two but eight important countries are directly involved and all have high rates of population growth: Turkey, Iraq, Syria, Lebanon, Israel, Jordan, Egypt and Sudan. Two adjoining ones—also populous and important—are indirectly involved: Saudi Arabia and Ethiopia. The region is of primary concern to the United States and other western nations owing to its oil riches and the fact that two of these countries—Egypt and Israel—have been, since the Second World War, major allies and recipients of US aid money.

The contributors clearly recognize the complexities and the massive external assistance that will be needed for studies, negotiations and financing. Some

of the contributors—particularly John Kolars and Aaron Wolf, professors, respectively, of Near Eastern studies and geography—point to the need for holistic approaches wherein more than water is taken into account. They mention in particular oil!

Oil can be traded for water. Water is becoming extremely scarce in the Middle East but, to the extent that it is available, it is renewable. Oil, now plentiful in the Middle East (Iraq, Iran, Saudi Arabia, Kuwait and the Emirates), is not renewable and—nobody knows for sure—may be gone in 50 years or less. Macro-economic planning, as advocated by Kolars, would presumably deal with mutually beneficial arrangements involving oil–water (or water–oil) trades. Interesting corollary issues would be (a) whether expensive distillation of sea-water for agricultural use, as now practised by Saudi Arabia, could gradually be eliminated and (b) whether Sudan, with underutilized land and water, could supply low-cost food to the nearby water-short countries.

On the question of massive external support, the contributors cite the UN agencies already mentioned and, more particularly, the World Bank. Biswas decries the current soft approach of the international organizations including the World Bank and says this attitude has to change. It may, in fact, already be changing. The Bank is now giving much attention to Middle East water issues and may soon be issuing an important technical report on the topic. The Bank has also recently decided to be more open in revealing the content of some of its internal documents.

These moves may not, however, silence some critics who believe the Bank should be more activist. For example, the Bank, under its rules, will not finance any water-resource development project affecting more than one country in the absence of firm agreements (treaties?) among the countries involved. But it will not actively *promote* such treaties. The India–Pakistan Indus treaty, which was promoted by the Bank, was an exception.

The massive external support would have to cover four main components: technology, institutions and their management, negotiations among the riparian nations and finance. All of these would have to proceed concurrently. Regarding technology, two of the contributors mention at length lack of hydrologic data and—of equal or perhaps greater importance—lack of data on land capability, especially in Syria and Iraq. As Kolars states, Syria's soils in the Euphrates basin are notoriously gypsiferous and saline—a factor apparently given little consideration in the so-called Master Plan for the Southeastern Anatolia Development Project (Turkish acronym GAP).

With respect to Iraq, the contributors noted the lack of reliable data not only regarding hydrology but also land capability. In the early 1950s, as described by Kolars, Iraq had a Development Board which carried out intensive planning with the help of foreign firms. As an employee of one of these firms, this reviewer led in the preparation in 1952 of a comprehensive planning report *Development of the Tigris and Euphrates River Systems*. Semi-detailed field studies were carried out on the basis of which it was estimated that the area of good arable land in the Tigris–Euphrates valley was 5.5 million ha of which 3.25 million ha were irrigated on a partial basis. It was the intention of the Development Board to settle a large proportion, from among the bulk of the population that then owned no land, on the remaining unirrigated 2.25 million ha. The land classification studies indicated that 6% of this land was Class 1 (choice) and 68% Class 2 (good, but including some heavy clay or gravelly areas, and having

medium salinity). A key recommendation of the report was that agricultural practices need much improvement to increase prevailing low crop yields.

According to a reference available to the reviewer (Whittleton, C., 'Oil and the Iraqi Economy' Chapt. 3 in CARDI, *Sadam's Iraq: Revolution or Reaction?* London: Zed, 1989, pp. 54–72), there was progress in the carrying out of agrarian reform in the years 1958–1977. However, in terms of agricultural production, the expected benefits of the reform failed to materialize, especially with respect to the two main crops, wheat and barley. Poor administration, neglect of cooperatives and failure to control salinity combined to produce erratic crop yields and spread discouragement among the peasant population. A result was large-scale migration by peasants to the urban areas. To compensate for the loss of rural manpower, foreign—mainly Egyptian—agricultural labor was imported, variously estimated at the time from $\frac{3}{4}$ to $1\frac{1}{2}$ million.

The Development Board's planning was disrupted by the 1958 revolution. From 1970 to 1984 a comprehensive master plan was developed with the help of the Soviet Union but it was not available to Kolars. In 1979 Saddam Hussein abolished the Ministry of Agrarian Reform; he also merged the Ministries of Agriculture and Irrigation while reducing the staff by 30%. The Iran–Iraq and Gulf Wars diverted attention from agriculture and hydraulic development.

With respect to Syria and Iraq, the contributors conclude that water-resource planning must include basic reviews of land classifications, drainage needs and agricultural practices, the latter to include land-tenure policies and control of salinity.

Jordan, critically short of water, would like to construct a major dam on the Yarmouk, a principal tributary of the Jordan River. However, understandings must first be reached with Israel and Syria, which plans upstream use for irrigation and in whose territory one abutment of the dam would be located. As Wolf describes, the World Bank would agree to finance the dam but only if all of the riparians were to agree to 'the technical details'.

Another possible supplementary source is the Litani River in Lebanon, some of whose water is now wasted to the sea according to a chapter by two Japanese experts. What the benefit to Lebanon might be seems, however, problematical.

The same chapter describes the long-discussed Mediterranean–Dead Sea hydroelectric project, a possible source of low-cost energy for Israel and Jordan, and three interstate pipelines: the Gaza/Negev Trans-pipeline taking water from the Nile delta, the Peace Pipeline which would convey surplus water from the Seyhan River in south-eastern Turkey, and the Euphrates–North Jordan Transmission. The first of these pipeline projects seems a non-starter given Egypt's rapidly growing population and need for water. The latter two, according to the contributors, have been set aside for political reasons.

All future water-resource planning must of course seek ways to conserve, as brought out strongly by Dr Tolba in his introduction. Israel, Jordan and now Egypt have made important progress in this direction. Achieving higher irrigation efficiency is a matter being tackled by several national and international agencies.

Institutional difficulties interfere with achievement of high irrigation efficiency. In northern Sudan, the vast Gezira development (900 000 ha)—mentioned by the contributor from that country and with which this reviewer is well

acquainted—illustrates some of these difficulties. Gezira suffers from serious maintenance problems and poor water distribution. Current remedial efforts enjoy important financial assistance from the International Development Association (the soft-loan subsidiary of the World Bank) but with limited success. One source of these difficulties has been ambiguity concerning jurisdictions as between the two leading agencies concerned: the Ministry of Irrigation and the Sudan Gezira Board.

The underutilization of land and water by Sudan, previously mentioned, is partly the result of a monoculture based on cotton, also groundnuts (peanuts). Shifting to higher value crops seems clearly to be indicated but commercial and marketing knowhow and drive appear to be lacking.

Reaching long-term or even medium-term solutions for Middle East water will be arduous, costly and time-consuming. Wolf, in his conclusion, signals that negotiations, to the extent possible, should be based on two underlying principles: equity and control—equity in the allocation of water, and control of sources by users. He feels that if these two contentious issues are faced early on, valuable breathing space can be gained.

In any case, it seems clear to this reviewer that a massive external intervention is urgent and with little delay. The UN, backed up by other leading agencies, notably the World Bank, would be the logical body to undertake the task which, clearly monumental, would have to be based on a preliminary examination outlining a strategy and designating priorities. The UN has tackled complex water-resource planning in the past, the leading example being that of the Mekong River basin. That effort was flawed according to Syed S. Kirmani, a well-known Pakistani water-resource professional and a former World Bank Director, as described in the December 1990 issue of *Water International*. Kirmani pointed out that the UN's objective for developing the Mekong was not shared by the riparian countries, that the role of these countries was only nominal and that they were sceptical as to whether the grand scheme and gigantic projects contemplated would ever be financed and implemented.

Furthermore, as in the case of peacekeeping tasks that the UN has been and is embarked upon, the UN will need strong support from leading countries, especially the United States and the other industrialized countries, and such support will not be forthcoming unless the political leaders of these countries commit themselves. We, the water-resource professionals, should try to inform and educate the general public (and ultimately the political leaders) that resolving the Middle East water crisis is imperative not only for the countries concerned but also as a matter of self-interest.

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