

Editorial

Information for water management

One of the major tasks in water resources management and planning is the need to maintain a balance between water demands and available water resources. In order to make an informed decision, water managers and planners require knowledge on: availability of water resources in terms of quantity, quality and location; water demands for various purposes by various users; types of solutions and alternatives to meet the demands; and the constraints within which water resources must be managed. Needless to say, water resources management requires a vast variety and quantity as well as quality of information, and such information cannot be supplied without the explicit support of a comprehensive information system.

This issue of the *International Journal of Water Resources Development* contains a special feature on information systems and services. In dedicating part of this issue to the subject of information, the aim is to raise the awareness of the role of information for water management and to stimulate the effective and efficient use of information by decision makers at all levels. The papers included here were presented at the Seventh World Congress on Water Resources, held in Rabat, Morocco, 13–18 May 1991.

The Congress provided an excellent forum for over 600 professionals from 50 countries, representing various disciplines, to discuss issues and questions on water and its role in sustainable development. During this congress, a special session was devoted to Information Systems for Water Management. Participants in the session identified information as one of the major constraints in water resources management and development, and strongly recommended that the International Water Resources Association (IWRA) provide leadership in ensuring availability of quality information services to all water managers and planners, with particular attention to those in developing countries. Subsequently, IWRA set up an *ad hoc* Committee on Information Systems to address this issue (the report of the Session was published in the December 1991 issue of *Water International*).

We are often reminded that we live in a post-industrial or information society where information has been recognized as a vital resource and expansive commodity. Furthermore, information technologies that have revolutionized the way information is collected, stored, processed, retrieved, disseminated and utilized, have necessitated a better understanding of the role of information in all areas of management, including water resources management. The rate of development in the information industry is such that we are having a hard time keeping up with new technologies and the volume of information overwhelms us. Use of modern information technology now allows us immediate access to vast databases of information. And yet, when we have to make a critical decision, we often find ourselves without the specific information we need because the required information is inaccessible, in an unusable form and/or non-existent.

In spite of the ready recognition of the potential role of information as a resource to facilitate development, and of information flows and communications as fundamental requirements for sound management, most developing countries do not have the benefit of effective and efficient information services. Information utilization in the water sector appears to be particularly unsatisfactory. It has been pointed out that the major constraint in water resources planning is either a lack of information or information which, if available, is not usable (Biswas and Kindler, 1989; Wirojanagud and Smith, 1990). Moreover, it has been noted that when compared with other sectors such as agriculture and health, the development of information services and systems in the water sector seems to have been seriously neglected, both by national governments and by donor agencies (Parker, 1990). These concerns were eloquently expressed by the participants at the Seventh World Congress on Water Resources.

One donor organization, although small in scale, that recognizes the important role of information for development is Canada's International Development

Research Centre (IDRC). Consistent with its mission, EMPOWERMENT THROUGH KNOWLEDGE, IDRC has maintained an Information Sciences Division from its beginning in 1970 and has during the past two decades allocated C\$100 million in support of 500 projects in the information field. The Division has four broad objectives: to improve information flows for development research and action; to foster international collaboration in the information sector; to strengthen developing countries' capabilities to manage and exploit information; and to encourage testing and adoption of modern information tools and methods. Within these objectives, IDRC's Information Sciences Division has been able to cooperate with many developing countries in response to their needs. Some examples of the Division's work include supporting sectoral information networks; implementing management information systems for resource allocation; testing of GIS for a variety of applications including water resources management, land use, flood control and river valley development; and creating special information analysis centres on selected subjects.

IDRC is a knowledge organization that is based on a philosophy of an intellectual partnership with its collaborators. IDRC promotes linkages for technology, resource and information sharing between North and South as well as South and South. Sharing and exchange between institutions that work on similar problems is encouraged. IDRC also seeks a multiplier effect in the activities it supports, through a regional or international mandate, by being a model for other information centres, sharing information tools and methods or through participation in cooperative efforts and networks.

Four of the articles in this issue give examples of the activities that have been initiated with the support of IDRC. While dealing with different aspects of information for water management, the common theme is utilization of information for development action and research. The article on CEHANET (Centre for Environmental Health Activities Network) by Dr N. Al-Shorbaji demonstrates the use of a regional network in facilitating information flow and developing national capability. The articles on RAISON by Dr D. A. Swayne *et al.*, and μ RAISON by Dr S. L. Tong show examples of sharing information tools and methods through collaboration between Canada and

Malaysia in adapting a tool originally developed for acid rain monitoring to water quality monitoring. A Canadian–Egyptian collaborative effort in developing an information system for water resources management is illustrated in the article on GIS by Dr M. M. El Kady. The article on reservoir management by Dr S. P. Simonovic explains an application of a knowledge-based system as a decision support and/or knowledge transfer tool; it is ready to be transferred to any organization that can benefit from its utilization.

History shows that the growth of civilizations has depended on the rational use of water. Water and sustainable development cannot be separated. Water is a source of conflict as well as a metaphor for peace (*Water International*, 1990). Water management cuts across political boundaries and disciplinary lines. Unquestionably, water management is a global issue that requires a global effort. The challenge is to bring increased cooperation and collaboration across all political and disciplinary boundaries and to ensure the effective and efficient flow of timely, reliable and relevant information for the management of a scarce and precious resource, water. As noted earlier, the International Water Resources Association (IWRA) has taken an initiative to promote the provision and utilization of information. IWRA invites all water professionals and policy makers around the world to assist in this worthwhile endeavour.

References

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