



## Conference Reports

### **Roundtable Consultation on Irrigation**

*Rabat, Morocco, 26–28 October 1998*

The International Commission on Irrigation and Drainage (ICID) and its National Committee for Morocco (ANAFID) organized a Roundtable Consultation on Irrigation at Hotel Meridien Tour Hassan, Rabat, Morocco, 26–28 October 1998. The main objective of the Roundtable was to start a process of consultation and objective review of the role of irrigation in improving the standard of living of a large number of people, especially in the developing countries in the 21st century.

The two main organizers of the Roundtable, Dr Aly Shady, President of ICID, and Dr Mohamed Ait Kadi, President of ANAFID, assembled a distinguished group of international experts from all over the world to review in depth the present and future global economic, social and environmental trends, and their influence on irrigated agriculture policies and actions in the next century. Most of the major irrigation and water-related international institutions were represented at this meeting.

The global irrigation community has become increasingly concerned in recent years about the steadily declining trend in the availability of international investment funds for developing new irrigation projects. Furthermore, as world food demands continue to increase due to increasing population and affluence, more and more food will have to be produced to meet the escalating demand. This in turn will require more irrigated area than is available at present. The Roundtable identified and analysed the current and foreseeable irrigation-related trends. Discussions focused around four main topics: inter-sectoral and regional competition for water, technology and project management, social and environmental issues, and effects of globalization on irrigation development and management.

It was generally felt that the economic value of water should not be restricted only to the concept of water pricing. It should be viewed from a broader perspective, which should consider its value and relevance from an overall economic, social and environmental viewpoint. A good example of this approach is the long-term process of investment in water development in the southern part of Turkey (Southeast Anatolia or GAP Project), whose main objective is to improve the lifestyle of approximately 10% of the population of the country who live in that region. The project considers not only the traditional engineering aspects but also social, economic and environmental dimensions of this macro development. Owing to this holistic and integrated approach to regional development, one of whose main components is irrigation, the lifestyle of the population living in the region is improving steadily. This is an excellent example of how properly planned irrigation development can contribute to poverty alleviation on a significant scale.

Technological advances have been significant in all areas in recent years, and irrigation is no exception. In the case of irrigation, biotechnology could contribute to higher yields of crops per unit area with lower water requirements. For example, new varieties of rice are now being planted in Egypt that have a 90-day growing period, compared with 120 days earlier. Genetic improvements are also likely to contribute to significant reduction in losses during harvest and post-harvest periods. Together, these technological developments should result in more food production per unit area with less water.

It was noted that irrigation may not always be economically viable because of low rates of return, especially in poor communities. This needs to be analysed carefully since the option of not supporting small, poor communities could have negative cumulative impacts at the regional and national levels, especially in terms of their sociopolitical stability.

The new social and environmental requirements for radical changes in water and land management practices were also discussed. In spite of the unquestionable social and economic benefits which could accrue from properly planned and managed irrigation projects, poorly planned and managed projects have sometimes resulted in reduced economic benefits at significant social and environmental cost. This has turned many environmental and citizens' groups against irrigated agriculture. The media often question the benefits of large-scale irrigation development projects in many parts of the world.

It was agreed that not all the reviews and actions of the environmental groups are erroneous. There are real and powerful reasons to improve the management and the efficiency of irrigation schemes, irrespective of the pressures from the environmental lobby. Changes in land uses as a result of irrigation have sometimes resulted in extensive salinization, deforestation, soil erosion and waterlogging. Rapid expansion of irrigated areas without changes in the present management practices could contribute to more environmental degradation, and also have negative impacts on the sustainability of the projects themselves, unless appropriate counter-measures are taken.

Important current global trends include the involvement of the private sector in managing and developing irrigation projects, decentralization of often heavily centralized irrigation institutions, stakeholders participation and water pricing. However, it was noted that there is no magic formula for planning and implementing all irrigation projects. While decentralization would certainly strengthen institutions at local, regional and national levels and would promote the participation of the different stakeholders in countries having strong centralized institutions, it could prove to be disastrous, at least in the near to medium term, and lead to further weaknesses in countries with no strong local institutions, and/or requisite qualified staff and investment funds. Development of appropriate institutions at the local and regional levels, and capacity building at all levels are essential preconditions for any successful decentralization.

The importance of properly focused research and better dissemination of currently available information were strongly supported. For example, there is still the general but erroneous belief that there is one-to-one relationship between irrigation and spread of diseases such as schistosomiasis and malaria. Current research in many parts of the world indicates that the issues are significantly more complex than is generally believed at present. Equally, irrigation can significantly improve the overall health of the population of an area through higher food production, crop diversification and employment

generation. These aspects have not received adequate attention thus far. A detailed and objective analysis of the impacts of irrigation on human health has yet to be undertaken.

The participants felt that objective analyses of irrigation projects in terms of benefits and costs (economic, social and environmental) need to be carried out before many of the above issues can be satisfactorily resolved.

There is no doubt that global food requirements will increase steadily in the coming decades. It is thus essential to realize that the world needs more irrigated areas than it has at present if these future food demands are to be met. However, at the same time, increased emphasis needs to be placed to ensure that all irrigation projects are delivering the expected benefits. It will not be an easy task to meet all these requirements simultaneously, but it is an important challenge which the irrigation professionals must overcome successfully during the early part of the 21st century.

The Roundtable also discussed the processes necessary to develop a sectoral vision of water, life and environment in the 21st century for the World Water Council, and also processes and content of the 'food and water window' for funding under the GWP.

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### **Workshop on Water Resources Management in the Islamic World**

*Amman, Jordan, 1–3 December 1998*

The International Development Research Centre (IDRC), in collaboration with the International Water Resources Association (IWRA) and the Inter-Islamic Network on Water Resources Development and Management (INWRDAM), organized a Workshop on Water Resources Management in the Islamic World, in Amman, Jordan, 1–3 December 1998. The main objective of the Workshop was to analyze the overall philosophy and practices of Islamic water resources management and how they are influenced by Islamic principles.

Unlike many other meetings, this workshop was well-planned from the beginning. In order to select knowledgeable experts both in water resources and Islamic issues, the sponsors established a clear and transparent process to select the best participants for the meeting. Abstracts were requested, and independent referees selected the best papers, without any reference to the positions or reputations of the authors. Only about 25 per cent of the abstracts received were finally selected. This process created a unique opportunity to bring together the best professionals in the area. Only 20 experts from 11 countries were present at the meeting. Not surprisingly, the quality of the papers and discussions made it a most enlightening meeting.

The workshop focused on many critical issues, among which were water demand management, through economic and non-economic instruments, water as a social good, integrated water management, water conservation and re-use, legislation and institutional aspects, and specific case studies from several

Moslem countries. Even though the topics analysed represented very much the present world-wide concern in terms of water management, the level and quality of the discussions generated during the workshop were significantly higher than most meetings. The workshop had no hidden agenda, and the discussions were frank, clear and cordial, even when there were disagreements between the participants. The current global trends affecting water management were analysed both from the theoretical and the practical viewpoints, with the clear understanding that the value of any concept depends on its social-cultural context and on its use and implementation. Some of the present trends that were extensively scrutinized were the actual implementation aspects of water markets and integrated water management.

In Islam, the primary source of the revealed law and knowledge is the *Holy Quran*, the source book of all Islamic values. While the *Holy Quran* does contain prescriptions about matters that would rank as legal in the strict sense of the term, they are often based on broad moral directives. The general framework and guiding principles in Islam are clearly defined, but the specific details and applications may vary in response to changing needs. It was noted that Islam is very flexible and can accommodate all concerns regarding natural resources management, including water. In fact, the Islamic principles for water management are completely compatible with the Dublin and other accepted principles. Furthermore, Islam considers the protection of biological biodiversity, as well as water quantity and quality.

Moslem countries are increasingly focusing on demand management practices for water conservation. For example, in 1978, the Council of leading Moslem scholars of Saudi Arabia issued a special *Fatwa* (legal ruling on an issue of religious importance) to regulate the re-use of treated effluents for different purposes. Wastewater re-use was made permissible for all purposes, including religious rituals, provided the wastewater was treated to the required level of purity for its intended use and did not result in any adverse public health effect.

The workshop noted that countries like Saudi Arabia, the largest producer of desalinated water in the world, has implemented new water pricing and management policies. At the agricultural level, the government has reduced the subsidy to cultivate wheat significantly, which will result in the reduction of approximately 7.4 bcm of water per year. Wastewater re-use has been encouraged at the industrial level and at the household level the price of water has been increased, although it still represents a fraction of the real cost for its production and distribution. In several Moslem countries treated wastewater is considered to be a main resource.

Islam views water both as a social and an economic good, and water equity as a combination of water quantity and quality. According to Islamic principles, water is a public property. Access to water should be free, and all persons have rights to water resources. The legal system of rights in Islam recognizes market institutions for water transactions, and trade in water is allowable as for any other good. The participants agreed that water cannot be charged for in its natural state since it is a gift from Allah, but the services for collecting, treating, storing and distributing water can be priced, as is being done in many Moslem countries.

Human beings have priority in terms of water use, but this does not necessarily mean that water has to be a free commodity for everybody. Following extensive discussion it was agreed that policies on water demand

management should include pricing, allocations could be established for various sectors, and the government should subsidize only poor people. Those who can pay for water should pay for its treatment and distribution.

It was agreed that general instruments of water resources management should be developed based on local economic, environmental, social and cultural conditions, and local practices should not try to mimic foreign ones.

Human resources development and training was recognized as an important component for efficient water resources management. It was noted that there is a lack of qualified and experienced manpower, and appropriate education and training practices should be planned according to the specific needs of the countries and for different economic and social sectors.

The importance of public awareness in water-related issues is now well-accepted, but so far no effective long-term information and awareness-related processes have been developed. For the Moslem countries, it was noted that Islam plays an essential role in public awareness which could be used as a tool to promote water conservation and management. Unfortunately, most information campaigns have been short-term, and focused on specific geographical areas. They have generally failed in making permanent changes in both water use practices and behaviour of the population. Even though people have become better informed this has not necessarily resulted in lasting change in attitudes or practices.

In some Moslem countries interesting programmes have now been developed to increase public awareness in terms of conservation of water. Water experts are assisting *Imaams* (those leading congregations in prayers) to prepare their sermons for the Friday prayers on the importance of water conservation. Publications on water and health education through religion have been published by WHO for several Moslem countries.

Water conservation practices require long-term strategies, which should include not only public awareness campaigns but also appropriate economic instruments. It was agreed that awareness campaigns with reasonable tariffs would be a good policy to ensure water conservation. Policy makers should design water management strategies that are compatible with Islamic principles and concurrently efficient in terms of water use and management. It was agreed that sustainable water management in Moslem countries is more likely to be achieved if the management instruments also incorporate alternative incentives such as religion and spiritual-based rewards. Culturally-sensitive demand management strategies require a special effort to develop a link between Islam and water conservation practice. Instruments developed for water management need to meet the needs of the real world, instead of the real world fitting into these instruments. Finally, it was unanimously agreed that the religious precepts of Islam do not represent an obstacle for efficient management of water resources: on the contrary proper use of Islamic principles could significantly enhance water management practices in the countries concerned.

Overall, it was a most remarkable and successful workshop, to which this reviewer was invited as an independent observer. It was the first workshop on the subject that has ever been organized, and it is one of the very few meetings this reviewer has ever attended which added numerous new insights and knowledge to this important, complex and sensitive area. The United Nations University Press will publish the papers and discussions shortly as a book, with Naser Faruqui, Asit K. Biswas and Murad Bino as Editors. Water professionals

in both Moslem and non-Moslem countries owe a great debt to IDRC, IWRA and INWRDAM for organizing such an excellent and productive meeting.

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