



## Assessing the impacts of large dams

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As President of the International Water Resources Association, I welcome once more the opportunity to interact with the readers of the *World Atlas on Hydropower & Dams*.

The IWRA is one of the longest established professional associations in the area of water. It is the only water association that has consistently taken a multidisciplinary, multi-sectoral, multi-stakeholders approach to water management, from its very inception. The IWRA has always been aware of the importance of promoting knowledge generation, dissemination and application in the field of water resources management and has thus played an important role as a platform where ideas, concepts, innovative approaches, successes, failures and constraints on water management from different parts of the world can be presented, analysed, questioned, and, it is hoped, learnt from.

In the field of development paradigms, we have long recognized that there are clear gaps between current understanding and that which is necessary to address evolving economic, social and environmental planning and management issues, as well as associated institutional, legal, regulatory and participatory considerations. Sustainable development, integrated water resources management and now, governance, or 'good governance', are paradigms which have permeated the development discourse, without necessarily having had a visible impact on development practices of natural resources management, including water resources.

Regarding development goals, economic, social and environmental policies and programmes should be consistent for at least two reasons. First, because poverty is both a cause and an effect of environmental

degradation, and because societies living in poverty will not have the means or incentives to make the environment an important consideration. Second, because even in a scenario of robust economic growth, increased income and improved environmental quality are not always related, since more affluent countries and wealthier citizens may not necessarily be concerned about protecting the environment. In any case, there are no universal blueprints for a transition to a sustainable society, so new and innovative policies are needed to reduce environmental degradation and persistent poverty all over the developing world. For example, the current global financial crisis differs from other crises of the past mainly because it originated in the financial systems of developed countries and has impacted very severely in most, if not all, middle and low-income countries, threatening years of progress in poverty alleviation. Another area that has suffered because of the present global financial crisis has been the development of water infrastructure, in spite of its importance in both developed and developing countries to provide populations with better services at all levels on a long-term basis.

In terms of water infrastructure, hydropower development is not a major option in most developed countries, because most of the economic sites have already been developed or are in the process of being developed. In developing countries, strong opposition from social and environmental activists has hindered hydropower development, despite their overall benefits to the society as a whole.

The global energy demands will

continue to increase in the future, and with them the search for cost-effective alternatives to meet them. The importance of hydropower for electricity generation should not be underestimated, since it is a renewable source of energy and, as such, an alternative for a cleaner environment.

The International Energy Agency has estimated that while the global demand for energy will be met by a variety of energy mixes, fossil fuels will continue to provide almost 80 per cent of global energy requirements up to 2030, with oil and gas representing almost 60 per cent. Renewable energy still contributes only a limited percentage of total energy use.

The European Union Climate Change Committee (CCC) is aiming to harmonize the approval process for large hydro projects among Member States, and will regulate their sustainability to ensure that environmental issues are considered appropriately. The objective is to avoid differences in transaction costs, and to achieve clarity and legal certainty in the carbon trading market, so that projects from any Member State may receive equal treatment. While this is a welcome step towards making carbon credits available from large hydro projects, it may not be binding, since each EU Member State may have discretionary power when assessing the admissibility of project-based credits.

For years there has been considerable controversy concerning the extent of social impacts of large hydro projects, both positive and negative. Because of the importance of large hydro projects to achieve development goals, and the lack of reliable information on their actual positive and negative impacts, the

Third World Centre of Water Management, the IWRA and the International Hydropower Association embarked on a project to assess the actual impacts of several large dams from all over the world, based on observed facts and authoritative and objective analyses. This study includes analyses of greenhouse gas emissions from reservoirs, and direct and indirect economic and social impacts of large dams, including resettlement practices. In terms of case studies, the impacts of the following large dams have been assessed: Aswan High dam, Egypt; Sobradinho dam, Brazil; Shahid Rajee (Tajan) dam, Iran; the Bhakra Nangal project and Koyna, Sardar Sarovar (Narmada) and Kangsabati dams in India; Ataturk, Altinkaya, Gezende and Hasan Ugurlu dams in Turkey; King River Power Development in Australia; and the two large dams which provide water to Beijing. In addition, experiences from direct and indirect benefits and costs from dams in Switzerland and overall resettlement practices in

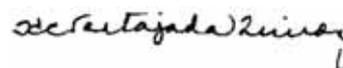
Argentina, China and India have been studied.

These authoritative assessments clearly indicate the benefits of large dams to meet the water, energy and food needs of an increasing population as well as their potential to improve the life style of all the population, both urban and rural, if they are properly planned, constructed and managed. A publication with the results of this study will be available at the end of 2009 [Tortajada *et al*, 2009<sup>1</sup>].

This book will be an important contribution to the literature on the benefits and costs of large dams since most of the views of both proponents and opponents of dams have seldom been based on observed facts and objective analyses. We expect that this book will add to a constructive dialogue on development of large water infrastructure, which is greatly needed all over the developing world. We have the necessary knowledge on how large dams should be planned, constructed and managed properly:

now this knowledge must be put into practice.

A wealth of knowledge and successful experience is available today to improve water planning, management and development. IWRA is aware that cases of good practice need to be identified, gathered and objectively analysed, and then be widely disseminated, so that the rest of the world can learn from them. We have made a good start with the analyses of the benefits and costs of large dams. However, there are many more areas of the water sector where such definitive studies are needed to enhance our knowledge base. From IWRA, we expect to continue contributing to the generation, synthesis and dissemination of knowledge in the field of water resources.



1. Tortajada, C., Altibilek, H.D., and Biswas, A.K., "Assessing impacts of Large Dams", Springer Verlag, Berlin, Germany; 2009.

