

Foreword

In recent years, all countries have found efficient water management to be a difficult and complex task even under the best of circumstances. However, for a country such as South Africa, the overall complexity of ensuring efficient water management is of a different order of magnitude because of its rich, convoluted and turbulent history. This history has ensured that the country has faced in the recent past, and will continue to face in the foreseeable future, some unique opportunities, and at the same time some serious constraints, in terms of managing its overall water problematique, which other countries, both developed and developing, mostly never had to confront earlier. The papers of this Special Issue highlight many of the opportunities and constraints that the country is facing at present, which much of the world is generally not aware of. The extent to which South Africa can ensure its water security in the coming years will depend on a variety of factors, some national and thus more controllable and manageable, and others international, on which the country will have only limited control or say. This will make efficient water management an increasingly complex and difficult task in the future.

In terms of the overall water-development problematique, South Africa is not dissimilar to many other major developing countries such as Brazil, China, India or Mexico. Economic developments have mostly taken place in the drier areas of these countries. This has meant that there is considerable mismatch between areas where water is available and where much of the economic and population growths have taken place. Unfortunately, historically, in all these countries, economic and population growths have occurred in areas of water scarcity.

In the case of South Africa, as noted in this Special Issue, Gauteng province alone accounts for nearly a quarter of the country's population, and approximately 10% of the economic output of the entire African continent. In contrast, Gauteng, has very limited water availability, and depends on inter-basin transfers for nearly all of its water requirements. This mismatch between water availability and expansion of more populated economic centres has meant that:

- water has to be transferred over long distances, through inter-basin water transfer projects to sustain the population and the economy of the region at high costs, which have been getting progressively higher because cheaper and more economic projects have already been developed as a result of which future projects are more technologically complex and thus economically less attractive;
- annual costs for operating and managing inter-basin diversions are increasing very rapidly, as global energy prices have escalated very significantly in recent years (the water sector is a prodigious user of energy);

- finding economically efficient, socially acceptable and environmentally friendly ways of disposing municipal and industrial wastewaters has become a major challenge, especially as considerable quantities of new sources of water are being introduced artificially to the regions to meet their burgeoning requirements without much consideration of how wastewater generated can be properly disposed of, without incurring unacceptable health and environmental costs; and
- adequate managerial, technical and administrative capacities essential for managing such man-made, expensive and complex water systems for such a large region are not available at present because of inappropriate policies practised during the past, especially during the apartheid years.

While the overall water problematique of South Africa may be somewhat similar to many other developing countries, the country now faces certain advantages as well as disadvantages because of its economic, intellectual and political isolation during the long apartheid years. A major disadvantage stemmed from the fact that its political isolation ensured that the country's water community was unable to interact extensively with its counterparts from other countries in various intergovernmental fora. Accordingly, it was often unaware of which solutions worked for specific water-related problems, where and why, and also, equally, what did not work, where and why. South Africa thus has been at a serious disadvantage, compared to other developing countries, in terms of knowledge, technology and experience transfer, especially on a South-South basis, not only in the area of water but also in other resource management sectors as well.

Because of this constraint, South Africa often had to develop its own water planning and management practices and processes. However, in retrospect, this was not always necessarily a negative development. It missed, luckily in my view, several popular 'bandwagons' which had not done much to improve water management in other developing countries. In a positive sense, many approaches it developed during these isolation years were case-specific and thus more appropriate in terms of implementation for very specific South African conditions, compared to what may have occurred if it had followed popular international bandwagons.

However, during recent years, the country seems to be making up for some of the missing bandwagons, which are unlikely to contribute to the water security of the region on a long-term basis. For example, in March 2008, I participated in a seminar on integrated water resources management (IWRM) in Cape Town, sponsored by the Water Research Commission (WRC) of South Africa. Sadly, encouraged by several international organizations, all but a few handful (less than 1%) of its 400 participants had decided a priori that the country's water problems can be exclusively solved by the magic wand of IWRM, irrespective of any understanding of what is meant by IWRM, what issues should be integrated and by whom, how can IWRM be measured, or whether IWRM has been successfully implemented for macro- or meso-scale projects in any other country of the world. There was simply no discussion, even less understanding, of the fundamental fact that, under the South African conditions, water development is only a means to an end, the end being poverty alleviation, equitable growth and environmental conservation. Techniques such as IWRM can at best be considered to be only one of several other second, or even third-order, means which may contribute to the ends.

Focusing exclusively on second- or third-order means will *never* successfully solve the water problems of South Africa, or of any other country. The discussions need to be focused

first on the accepted societal ends, and only later on the means. Once the ends have been agreed to, it will be necessary to decide which means can be best used to reach the ends in a timely and cost-effective manner for specific locations. Deciding *a priori* on the means such as IWRM as the ideal approach, irrespective of the ends desired, or consideration of specific problems, is analogous to putting the proverbial cart before the horse. As Martin Luther King aptly noted, means used predetermine the end.

It was rather depressing to see that many South African water professionals have decided to join the IWRM bandwagon as the Holy Grail of water management, even though the record of implementation of this 'means' anywhere in the world has been exceedingly and consistently poor. This depression was further intensified by the statement of the official UNDP representative, Joachim Harlin, who claimed that IWRM is analogous to democracy: no body can define what democracy is, but it still is the best form of government. IWRM is similar: "we may not know what it may exactly mean but it is the best form of water management since there is no other alternative". If this really is the view of UNDP and WRC, it only bodes ill for the world in general and South Africa in particular. One can only hope that statements and discussions at this meeting were aberrations, and not representative of the mainstream South African thinking, or that of UNDP.

However, it was very heartening to hear the following week in Pretoria, at another national meeting that was sponsored by the South African Department of Water Affairs and Forestry, that the main policy of the South African Government is to use water as an engine for economic development and equitable growth. Water Minister Lindiwe Hendricks argued forcefully and correctly that water should be used to improve the quality of life of the people, and to promote economic growth that is equitable and lift people out of their existing poverty traps. Whatever way these goals can be best achieved through solving specific water problems in different parts of South Africa should be followed. There should be no one dogmatic approach. One could not agree more with the philosophy outlined by Minister Hendricks. This has to be the overall philosophy for water management for South Africa, or for any other developing country for that matter.

Over a period of four decades, one lesson I have learnt time and time again as a policy advisor to 18 governments in four continents is that there are no universal solutions. What works in one country may not work in another. Superficially, the problems may appear to be similar but their contexts are often different, as are their boundary conditions in climatic, social, economic, institutional, legal and political terms. What may work in Scandinavian countries may not work in South Africa, and vice versa. In addition, in a vast and complex country such as South Africa, there simply is no single solution that is equally applicable over the country as a whole. What may work in one part of South Africa at one time may not work in another part of the country at another time. The widely practised international approach of 'solution-in-search-of-a-problem' seldom solves a problem on a long-term basis. In other words, some international institutions may claim, erroneously in my view, that they have a generic solution (like IWRM), and it can be applied successfully to any water problem, anywhere in the world, and at any period of time. Such solution-in-search-of-a-problem approach has not worked in the past and will *not* work in the future. We must remember that one size does not fit all, and, in a complex, ever-changing world, if we are to ensure water security, we must consider co-existence of paradigms to very specifically suit differing and changing boundary conditions.

During my numerous visits to South Africa in recent years, I have been impressed by the vibrancy of its developments and thinking of its many leading intellectuals, both in the water and other related fields. I have admired the clear thinking and intellectual leadership shown by institutions like the Council for Scientific and Industrial Research (CSIR), and several recent Water Ministers of the country with whom I have interacted extensively.

During one of these visits to South Africa, the idea of developing a Special Issue reflecting on the water management issues of the country came up. We think the world has much to learn from the South African experience. CSIR readily and willingly accepted our challenge to develop this issue, with Marian J. Patrick, Jeannette Rascher and Anthony Turton as guest co-editors. We believe this Special Issue will give the readers an objective perspective on the current status of water management in South Africa and the challenges it is likely to face in the coming years. It was a pleasure for our Centre and the International Water Resources Association to work closely with CSIR to develop this Special Issue.

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