

# Water policies in the 21<sup>st</sup> century

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## Summary

*Water policy has generally been treated as an important issue. However, rational formulation and implementation of water policies have often been given only lip service. 21<sup>st</sup> century water policies must take into account changes that have occurred in the last decade (e.g. the trend towards decentralization, expanded roles for the private sector and NGOs) as well as the very great changes that are likely to occur. Future water policies will need to address diverse social interests and agendas, rapid changes in technology, globalization, relentless economic competition, lack of political certainty, and steadily increasing human aspirations.*

## Résumé

*Bien que la politique de l'eau soit généralement considérée comme une question importante, la formulation rationnelle des politiques de l'eau et leur mise en œuvre sont souvent restées un vœu pieux. Les politiques de l'eau du XXI<sup>e</sup> siècle doivent prendre en compte les changements intervenus ces dix dernières années (par exemple, la tendance à la décentralisation, les nouveaux rôles dévolus au secteur privé et aux ONG), ainsi que les bouleversements auxquels on peut encore s'attendre. Les politiques de l'eau futures devront tenir compte de divers intérêts et programmes sociaux, de l'évolution rapide des technologies, de la mondialisation, de la compétition impitoyable entre les acteurs économiques, du manque de certitude politique et des aspirations sans cesse croissantes des hommes.*

## Resumen

*En términos generales, siempre se ha dado importancia al tema de la política sobre aguas. Sin embargo, es muy común que la formulación y la ejecución racional de dichas políticas se mantengan en el ámbito de las promesas incumplidas. En el siglo XXI, las políticas sobre aguas deben tomar en cuenta los cambios registrados en los últimos diez años (por ejemplo, la tendencia a la descentralización, la mayor participación del sector privado y de las ONG), además de los grandes cambios que tienen grandes probabilidades de ocurrir. Las nuevas políticas sobre aguas deberán atender los diversos intereses y prioridades sociales, los cambios tecnológicos, la globalización, la competencia económica implacable, la falta de certidumbre política y las crecientes aspiraciones humanas.*

A vast change is taking place in the world's water policy and management landscape, the extent and magnitude of which neither the water nor development professions has ever witnessed. An objective, comprehensive review of the latest and foreseeable trends indicates that the world of water management will change more during the next 20 years than it did in the previous 2000. Many of the important drivers of this change will come from outside the water sector and, unlike recent and past experience, the water profession will have limited or no control over them. Hence, water professionals will have to react to these changes very quickly.

Among the drivers of change are globalization, technological developments, the communications and information revolution, and the changing nature of water problems and their solutions in different parts of the world. Implications of some of these can be foreseen, though they are basically being ignored now. In other cases, such as the communications and information revolution, it is very difficult to know, on the basis of existing knowledge and experience, how some of these developments will affect the water sector. But all

these new and emerging factors will radically alter water use, availability and management practices.

## Water policy formulation

A critical review of water management policies, strategies and plans indicates that these existing approaches are still too traditional, conservative, unisectoral and engineering-oriented; are overly focused on water quantity; are too hierarchical, top-down and politically correct; place too much emphasis on the past; give too little consideration to future trends and emerging developments; and are not yet adequately integrated with energy, health and industrial policies.

Because of several fundamental changes that have already occurred in the water sector and related sectors, and the further changes that can be expected, water policies of the 21<sup>st</sup> century need to be significantly different from those of the 20<sup>th</sup> century. Tomorrow's water problems can no longer be solved with yesterday's knowledge base and the day before yesterday's policies.

Let us consider one issue that has already radically changed the water policy-making landscape within a very short period, only a decade or so. His-

torically, water management has fallen within the purview of the public sector. Ministries, usually at central government level, used to formulate water policies unilaterally in one form or another for a period of five to ten years, without any consultation with the beneficiaries and/or stakeholders, or much discussion with state- or municipal-level institutions. Up until around 1990 the private sector and non-governmental organizations had virtually no discernible role to play in policy formulation (a state of affairs, it should be noted, that prevailed not only for the water sector but also for other developmental sectors).

The central water ministry generally set targets, and then resources were requested from the finance ministry. The water ministry was responsible for achieving the targets it had itself established, using the funds that were released to it by the finance ministry. Again, water users, the private sector and NGOs had no significant role. If a country wished to borrow funds from the World Bank, a regional development bank or bilateral aid agencies to build, operate and/or rehabilitate water systems, it naturally had to comply with the policies and requirements of the lenders/donors concerned. The overall process was thus comparatively simple and straightforward.

In recent years this process has been changing radically. The central institutions have steadily lost power, resources, authority and reputation, for a variety of reasons. The trends towards decentralization have often meant that states or provinces have become increasingly powerful and assertive, even though sometimes central institutions do their best to block the flow of resources and expertise to the subnational levels in a variety of subtle and not-so-subtle ways. And the private sector is increasingly becoming an important player in water-related activities, while national NGOs in many countries have become vocal, active and media-savvy, hence often carving out roles for themselves in water policy formulation and implementation. International NGOs, which had little if any role in the process until 1990 or so, have become another important player, especially for countries seeking foreign capital and expertise through all major external channels of support. In recent years international NGOs have had perceptible effects, for example on the international funding arrangements for the Three Gorges Dam in China, the Sardar Sarovar Dam in India, the Arun III Dam in Nepal and the Ilisu Dam in Turkey.

These developments should be welcomed for a variety of reasons, since they are essential for the strengthening of democratic processes. Water policy formulation during the past decade has

become more consultative, participatory and transparent than at any other time in history. The analyses and processes involved are receiving serious and extensive external scrutiny; as a result, they are becoming more reliable, comprehensive and realistic. These are unquestionably positive developments in terms of the overall welfare of society.

The rapid changes, however, have entailed their share of problems and difficulties as well. The various players in the public and private sectors and NGOs have their own agendas and vested interests. They do they not necessarily have common goals and objectives. Even within public sector institutions (central, state, municipal) there are often differing objectives and approaches. The views of the water and environment ministries may diverge on several issues and projects. When policies on international rivers are to be formulated, the foreign ministry generally comes to the fore even though its officials may have very limited experience and expertise in water matters. And water may not necessarily be the most important issue in their view, despite the fact that the focus of discussion is international water bodies. In several current cases of negotiations on major international rivers, where the author is advising governments, the views and approaches of the foreign ministries are sometimes diametrically opposed to those of the water ministries.

Similarly, private sector entities and NGOs often have different objectives and views. Conflict resolution within a given group – say, public sector institutions or NGOs – is invariably complex and sometimes nearly impossible.

Another issue is public participation. While it is generally agreed that this is both essential and desirable, current techniques and methodologies are simply incapable of ensuring that the public at large participates meaningfully in water policy formulation and implementation. In the vast majority of cases, the general public has hardly any interest in water policies and its members are often conspicuous by their absence from those forums open to them. The individuals or NGOs claiming to speak for the public generally have no real mandate to do so. Thus “public participation” has often been reduced to consultations with the most vocal and articulate individuals and NGOs, with nothing to keep them from attempting to manipulate the process to serve their own interests and beliefs.

There is also a fundamental question that the water development profession has never addressed in any meaningful fashion: which public is to be consulted. For example, does the public mean only the people from the project area concerned, or should it also include people from outside the country and the project area, as often appears to be the case at present?

Take the Sardar Sarovar project in India. The people from the state of Gujarat, where most beneficiaries of the project live, overwhelmingly favour it, as do most local NGOs. Narmada Bachao Andolan, the main opposing NGO, claims to represent the people to be resettled from the Sardar Sarovar project area. But there has

never been even a single representative of these people holding a policy-making position within the NGO during its nearly two decades of existence. One could legitimately ask: how democratic is such a state of affairs? And how appropriate is it for the views of the people living outside the project area – say, in Delhi or Mumbai, or even in Washington, DC, California or Tokyo – to influence developments in a project area whose inhabitants back a given policy?

Answers are urgently needed to these difficult questions. Regrettably, discussions on such issues have hardly even begun within the water profession. (This should not be taken as an endorsement of the Sardar Sarovar Dam; objective analyses of its benefits and costs and nature of the beneficiaries have yet to be carried out.)

More generally, the problem that needs to be addressed is how to formulate future water policies in consultation with multiple stakeholders having multiple interests, conflicting views and differing priorities. Though this is not primarily a technical or economic issue, a definitive answer would help with devising a process for formulating rational water policies in the future. Urgent research needs to be carried out in this overall area, especially by social scientists, so that appropriate water policies can be formulated, implemented and updated in coming years in a timely and cost-effective manner.

Once a policy is formulated and agreed, the next question is how to ensure that all stakeholders play their respective roles so that the policy can be effectively implemented. With the multitude of stakeholders involved, how can their activities be coordinated so as to reach the shared goals of the agreed policy? Who should be entrusted to coordinate the activities, and where will the funds to carry out the activities come from? What type of sanctions can be considered if a given stakeholder does not carry out activities promptly and as agreed? Answers to these questions must also be found in the next few years.

Some policy implications for the future

Many likely developments in the 21<sup>st</sup> century will, as we have noted, make water policies very different from those formulated earlier. Some of these developments can be foreseen in general terms, though their timing and their impact on water management practices are impossible to predict. The following are likely to be among the new developments:

- ◆ The global population will probably stabilize after 2050. This would bring some advantages, as well as certain disadvantages, for the water sector. World population may stabilize at less than current consensus estimates, and the populations of many countries will likely stabilize well before the world population does. There is no precedent in modern history to indicate how global population stabilization might affect the water sector.

- ◆ The water profession is now primarily concerned with urbanization trends and how water and waste water services can be provided to an increasing number of megacities. But, as these

huge cities are politically and financially powerful, they will probably muddle through; the most difficult problem in the future is likely to be with medium-sized cities, those with, say, a population of 500,000 to 1,000,000. These cities may not have the political, economic and institutional power to ensure that their water and waste water management requirements are met.

- ◆ While urbanization in the developing world is very visible, concurrently a ruralization trend can be observed in many countries, from Mexico to Morocco. The number of hamlets of 2500 or fewer people has been increasing exponentially in many developing countries over the past two decades. We do not yet know who the people forming these communities are, where they migrated from, or why they are moving to areas devoid of essential services. All that can be said at present is that this process in the developing world involves almost exclusively the poor and marginalized, who have no political voice or economic power. Thus, not surprisingly, neither water professionals nor policy makers are even aware of the situation, never mind looking for policy measures to deal with the daunting task of providing water and sanitation services to these dispersed hamlets.

- ◆ The current emphasis is on technical and economic issues, but the water problems of the future are likely to have greater social, environmental and political components. These aspects can be somewhat amorphous. They are not easy to deal with because they are often based on perceptions, which may or may not be correct. Technical and economic issues are concerned with facts, which can be analyzed using standard, universally acceptable techniques, leading to results that are likely to be similar irrespective of who carries out the analyses (assuming they are properly done). But consideration of social, environmental and political issues invariably entails value judgments, which differ depending upon the analysts and the stakeholders concerned. Thus an important component of future water policy has to be provision of information to, and communication with, the various stakeholders. As the 21<sup>st</sup> century progresses, information and communication are likely to become more and more critical, whereas in the past they were largely considered only as afterthoughts.

- ◆ The private sector and water pricing are likely to be increasingly important aspects of water policy, probably contributing to significant advances in demand management at municipal level. As a result, within a mere decade or so household and industrial water requirements may be revised downwards significantly.

- ◆ Globalization, the communications and information revolution, and related developments will grow more and more important for water management. They are already collapsing borders and barriers between countries and between development-related sectors and disciplines. For example, the water requirements of the Mexico-United States border region have skyrocketed during the past five years. Under the North American Free Trade Agreement (NAFTA), exports of manufactured products from Mexico to Canada and the

US have rapidly accelerated, with industrialization and job growth that have involved major migrations from different parts of Mexico to the border area. Hence the growth in water requirements in the border region, to meet both household and industrial needs. Water demand in major border cities such as Ciudad Juarez has increased by over 15% per year in the past five years. Water quality has generally deteriorated because waste water treatment has not kept up. Consequently, incidences of waterborne diseases in the border towns are significantly higher than the Mexican national averages.

Globalization will have an increasing impact on water management practices and processes. It needs to be considered explicitly in any new water policy formulation framework. For example, free trade in agricultural products under NAFTA, along with reductions in US agricultural subsidies, would result in major changes in water use and availability in Canada, the US and Mexico. No government or academic institution has even started to explore the likely effects of this. Similarly, as more and more Japanese small farmers abandon rice farming due to economic pressures and progressive opening of the rice market in Japan, paddy farms, which now provide floodwater storage, will disappear. While paddy fields are small individually, collectively they store large amounts of water. Release of this water will necessitate significant, costly adjustments to the sophisticated flood control system of Japan's Kanto Plain. Globalization will affect water management in most countries, for various reasons and in numerous ways, within the next two decades. Yet national governments and international institutions have thus far ignored the issue.

◆ Past water policies have generally assumed, erroneously, that technology would basically remain stationary. Current trends indicate, however, that technological developments will radically change water requirements and management practices. Many of these developments will take place outside the water sector but may have profound impacts on it. Moreover, technology has always had significant impacts on water. For example, in 1961 Asia's average cereal yield was 930 kg/ha. By 1997, with significant improvements in technology and management practices, the harvest had increased so much that, had the same yield ratio continued, nearly 600 million hectares of addi-

tional land of the same quality would have had to be cultivated to produce the same quantity. Farming accounts for over 80% of total water requirements in much of Asia. Without technological advances, Asia's water use patterns would have been very different in the past four decades. It is now clear that advances in areas like biotechnology and desalination will have to have major implications for water policy formulation in the future if realistic policies are to be developed.

◆ Water quality management must become a major component of any new water policy. Water quality problems are now serious in all developing countries. Nearly all surface water bodies in and near urban-industrial centres are already highly contaminated. Recent estimates by the Third World Centre for Water Management ([www.thirdworldcentre.org](http://www.thirdworldcentre.org)) indicate that, contrary to official rhetoric and estimates by international organizations, only about 6% of waste water generated in Latin America is properly treated and disposed of. The situation is unlikely to be much different for Asia and Africa. Furthermore, no reasonable estimates exist as to the investment needed for Latin America to increase waste water treatment to a more acceptable 60-70%. The costs are likely to be astronomical, at a level that most developing countries would find it extremely difficult to meet. In addition, rapid capacity building for proper water quality management is likely to be a Herculean task.

#### Conclusions

The world is changing rapidly. We must undertake objective, reliable analysis of the potential prospects for and constraints on future water systems in the light of this change. Water policies of the future will have to address rapidly diversifying interests and agendas, conflicting views, rapid technological changes, globalization, relentless economic competition, political uncertainties and people's higher aspirations. Theoretical and conceptual approaches, irrespective of how attractive they may be, will not be much use unless they can be made operational. This will not be easy, but it is a task the water profession must face squarely and promptly. The profession has only two choices: to continue as before with a business-as-usual policy that is unlikely to contribute significantly to poverty alleviation and equitable development; or to continue in earnest to develop new policies

that could improve people's quality of life and satisfy their aspirations and expectations.

It is now evident that the major issues facing the world are interrelated. The dynamics of the future of mankind will be determined not by any single individual issue, but by the results of the interactions of a multitude of issues. As the global population continues to grow in the short term, more food, energy and other resources will be required, which in turn means rational water policies will be a must. Practical solutions to the most pressing human problems, including water problems, will entail greater investment, more technology, higher human capacities, and intensified cooperation among countries, sectors and social strata. The relationships involved are often global in character, and hence can best be understood within a global context and resolved within a global framework (though relying on a wide variety of integrated national and regional responses). Water policies must also be formulated within this overall framework.

It will not be easy to formulate the new water policies that could lead to rational water management. There will be successes and failures, and the water profession will have to travel many as yet untrodden paths. We will undoubtedly find some shortcuts but also run into obstacles and bumps – as is to be expected in new, uncharted territory.

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