

RESEARCH  
REPORT



WATER POLICIES  
IN THE DEVELOPING WORLD

Asit K. Biswas

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**Asit K. Biswas**  
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# **WATER POLICIES IN THE DEVELOPING WORLD\***

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*Asit K. Biswas*

## **ABSTRACT**

Even though water policy has generally been considered to be an important issue, its rational formulation and implementation have basically received lip service in the past. Water policies in the 21<sup>st</sup> century must consider the important changes that have occurred during the past decade, and also the changes that are likely to occur in the coming years. All water policies have risks and uncertainties associated with them. The main changes and constraints are analysed. Water policies cannot be static: they should be considered to be a journey and not a destination. Future policies must address rapidly diversifying social interest and agendas that are likely to be awash in chaos, conflicting views, rapid technological changes, globalization, relentless economic competition, political uncertainties and steadily increasing human aspirations. Theoretical and conceptual approaches, irrespective of their attractiveness, are not enough, unless they can be operationalized. This will not be an easy task, but one that must be undertaken.

## **INTRODUCTION**

It was Benjamin Disraeli who said that the “predominant opinions are generally the opinions of the generation that is vanishing.” In many ways, developments in the water sector are not an exception to what Disraeli had said earlier.

In a multitude of ways, and through a variety of pathways, the world has been changing in recent years at faster and faster rates. As far as one can predict, the rate of change is likely to continue to accelerate still further, probably until some equilibrium is reached at some considerable time-period later. Thereafter, the world will still continue to change, but at some time in the future the rate of change will most probably start to decelerate. The water sector has not been immune to the impacts of these global changes, and will not be so in the future. Accordingly, the water sector managers will have to get used to coping with regular changes in terms of rational and appropriate policies.

Water is present everywhere, and without water, life, as we know it, will simply cease to exist. Water is constantly in motion, passing from one state to another, and from one location to another, which makes its rational planning and management most difficult tasks under the best of circumstances. Water may be everywhere, but its availability has always been limited in terms of quantity and quality. In addition, water problems of the world are neither homogenous, nor consistent. They may vary very significantly from one region to another even within a single country, from one season to another and also from one year to another. Solutions to the water problems depend not only on water availability, but also on many other factors, among which are the processes through

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which water is managed, the competence and capacities of the institutions that manage them, the techno-economic capabilities of these institutions, social and environmental conditions prevalent in the countries concerned, the technology available, national or regional perceptions, educational and developmental levels and the prevailing overall political situations, both nationally and internationally.

Water is a resource that is of direct interest to the entire population, as well as to most ministries or departments at central and state levels, municipalities and private sector and non-governmental organisations (NGOs). Over the past decade, it has become increasingly evident that the water problems of a country can no longer be resolved by the water professionals and/or water ministries alone: the problems have simply become far too complex, interconnected and large to be handled by any one institution, irrespective of the authority and resources given to it, or by one group of professionals, irrespective of their competence and good intentions. During the coming decades, all the current and foreseeable trends indicate that water problems will continue to become increasingly complex, and become more intertwined with other development sectors, such as agriculture, energy, industry, environment and health. The time is fast approaching when water can no longer be viewed in isolation as one single resource, without the explicit and simultaneous consideration of other related development sectors, and vice versa. In fact, one can argue that the time has already come when all major water issues should be analysed, reviewed and resolved within an overall societal and development context, otherwise the main objectives of water management such as poverty alleviation, equitable development and environmental conservation cannot be achieved.

## **WATER POLICY**

While water policy has generally been considered to be an important issue, it is regrettable that rational water policy formulation and implementation have basically received lip service in the recent past. Unless there are significant changes in the foreseeable future, policy issues are likely to continue receiving inadequate attention over the near to medium term. On the basis of an analysis of past and present experiences, it is evident that the water profession has basically failed to formulate, implement and update national or subnational water policies on a regular basis in most countries of the world. A few countries have formulated water policies, but they are for the most part somewhat vague and broad to be of much operational use in terms of efficient management. The impacts of such general water policies to improve water management processes and practices, and to alleviate poverty, have been marginal at best.

Historically, water policies have not always been consistently ignored in the past. For example, the importance of water policy was fully recognized by the United Nations (UN) Water Conference that was held in Mar del Plata, Argentina, 14-25 March 1997. Only two background documents were prepared by the Secretariat for this important conference, which unquestionably has so far been the most important water meeting in

human history. These two documents were on 'Resources and needs: assessment of the world water situation' and 'Water policy' (Biswas, 1978). The fact that only two background documents were prepared, one of which was on water policy, unambiguously indicated the importance the conference secretariat placed on this issue. Regrettably, this foresight and understanding were not duplicated in the later major UN water fora.

The farsighted policy document of Mar del Plata pointed out that the objectives of water policies may vary widely, and, accordingly, each country should formulate its own water policy, based on its own overall national policy, socio-economic and political conditions and future aspirations. The document further pointed out that

...the main objectives should include optimum utilization, conservation and management of available water resources, maximization of the benefits deriving from water conservation and utilization, valuation of water, and the satisfaction of present and future water requirements for all purposes, in the light of water availability, population increases and advances in technology." (Biswas, 1978, p. 80)

The background document also noted that the content of an overall water policy might include, *inter alia*, the following issues:

...the integrated management of land and water; the establishment and fulfilment of priorities in the different fields of utilization (domestic, agricultural, etc.); the adoption of measures to forestall and counteract the harmful effects of water (flooding, drought, soil erosion, spread of disease) and to control the quality of water so as to protect the environment and public health; and the adoption of guidelines concerning the economic and financial implications (prices, costs, reimbursements, subsidies and exemptions), the education of and participation by the public, and international cooperation. Certain countries have also stated that they will take account of the effects which their national water policies might have on other countries". (Biswas, 1978, p. 80)

Mar del Plata Conference unanimously passed the following resolution on water policy, which was subsequently approved by the General Assembly of the UN:

...In a number of countries, there is a need for the formulation of a national water policy within the framework of and consistent with the overall economic and social policies of the country concerned, with a view to helping raise the standard of living of the whole population.

Each country should formulate and keep under review a general statement of policy in relation to the use, management and conservation of water, as a framework for planning and implementing specific programmes and measures for efficient operation of schemes. National development plans and policies should specify the main objectives of water-use policy, which should in turn be translated into guidelines and strategies, subdivided, as far as possible, into programmes for the integrated management of the resource. (Biswas, 1978, p. 165)

In contrast to the Mar del Plata conference, both the International Conference on Environment and Development (popularly known as the Dublin Conference) and the UN Conference on Environmental and Development, held at Rio de Janeiro, ignored the importance, relevance and need for water policies for all practical purposes. Both these conferences were held during the first half of 1992, and they had perceptible impacts on the global water agenda thereafter in positive as well as negative ways. One of the many negative impacts of these two conferences was that the importance and relevance of formulating operational national water policies basically disappeared from the global discussions on water in the subsequent years. Instead, the focus shifted to paradigms such as sustainable development, integrated water resources management, and integrated river basin management. These paradigms, though attractive conceptually, have proved very difficult to implement anywhere in the world. Accordingly, but not surprisingly, the 16 most influential global water experts, who are members of the Club of Tokyo in their personal capacities, identified objective and comprehensive review of the current paradigms prevalent in the water sector to determine if a paradigm shift is needed (Tortajada, 2001). The Dublin and Rio conferences effectively put the water policy considerations on the back burner, where they have basically stayed for nearly the last 10 years.

A retrospective analysis of the global water issues over the past 25 years indicate that the Mar del Plata conference was probably significantly more successful than even its most ardent supporter imagined in 1977. One of its many successes was to correctly identify several critical issues which are essential components for the long-term solution of the water problems facing humanity. Identification of the need for formulating operational national water policy was an important contribution of the Mar del Plata conference, which regrettably was ignored by the Dublin and Rio conferences. Nearly a decade after the later conferences, the importance of having a rational water policy framework is becoming increasingly apparent to most water experts in many countries. A few developing countries, such as Bangladesh, have recently formulated their own national water policies.

## **POLICY FORMULATION**

A critical review of the existing water management policies, strategies or plans indicates that the approaches identified and/or pursued still continue:

- to be too traditional;
- to be too conservative;
- to be too uni-sectoral;
- to be too engineering-oriented;
- to be too focused on water quantity;
- to be too hierarchical and top-down;
- to be too politically-correct;
- to place too much emphasis on past experiences;



- to have too little consideration of future trends and developments;
- to have too inadequate linkages with energy, health and industrial policies.

Water policies of the 21<sup>st</sup> century have to be significantly different from the policies and strategies that were used in the 20<sup>th</sup> century because of several fundamental changes that have already occurred in the water and other, related sectors. More changes are likely in the coming decades. There is no question but that tomorrow's water problems can no longer be solved with yesterday's knowledge base, and the day before yesterday's policies, because of the rapidly evolving conditions.

Let us consider one issue which has already radically changed the water policy-making landscape within a very short period of about only a decade. Historically, water management has been in the purview of the public sector. The governmental ministries (usually at the central level) used to formulate water policies unilaterally in one form or another for a period of 4-6 years, without any consultation with the beneficiaries and/or stakeholders or much discussion with the state- or municipal-level institutions. The private sector and non-governmental institutions had virtually no discernable role to play in the policy formulation process during the pre-1990 period. It should, however, be noted that this state of affairs was prevalent not only for the water sector but also for other developmental sectors as well. Accordingly, the policy-formulation process, irrespective of the sector considered, for each country was somewhat similar.

In the earlier process, the bureaucrats at the central water ministry generally decided on the targets. Appropriate resources were then requested from the finance ministry. The water ministry was then responsible for achieving the targets it had itself established, using the funds that were released to it by the finance ministry. Water users, the private sector and NGOs had no significant role in the process. If the country concerned wished to borrow funds from the World Bank or any of the regional development banks or bilateral aid agencies for the construction, operation or rehabilitation of water projects, they naturally had to comply with the policies and requirements of the donors concerned. The overall process thus was comparatively simple and straightforward.

The process has started to change radically in the recent years. The central institutions have steadily lost power, resources, authority and reputation and reputation for a variety of reasons. The decentralization process has often meant that states or provinces have become increasingly powerful and assertive, even though central institutions have often continued to oppose flow of resources and expertise to the states through a variety of subtle and not so subtle ways. The private sector is increasingly becoming an important player in numerous water-related activities. National NGOs in many countries have become vocal, active and media-savvy, as result of which they have often carved out a role in the policy formulation and implementation processes. International NGOs, which had virtually no role or very limited role during the pre-1990 period, have become another important player, especially when the countries concerned required foreign capital and expertise through any major external support agency.

These developments should be welcomed for a variety of reasons, since they are essential for the strengthening of democratic processes. The policy formulation process during the past decade has become more consultative, participatory and transparent than ever before in human history. The analyses and the processes used are receiving serious and extensive external scrutiny, as a result of which they are becoming more reliable, comprehensive and realistic. These are unquestionably positive developments for the overall welfare of society.

The rapidly changing process, however, has brought its own share of problems and difficulties as well. The different players, public and private sectors and NGOs, have their own hidden agendas and vested interests. The public or private sectors, and the NGOs, do not share common goals and objectives. The public sector institutions (central, state or municipal) often differ in their objectives, views and approaches as well. For example, the views of the ministries of water and environment are often different on many specific issues and projects. When policies on international rivers are to be formulated, the ministry of foreign affairs generally becomes the most important nodal agency, even though they may have very little knowledge experience of, or expertise in water. The foreign ministries may often have objectives based on many factors: water may not always be the most important issue for them to consider, even though the focus of discussion is international water bodies. Thus, for several current negotiations on major international rivers, where this author is advising the governments concerned, the views and approaches of the foreign ministries are some times diametrically opposite to that of the water ministry.

Similarly, the private sector and NGOs often have different objectives and views. Some may support a specific project or policy: equally, others may be vehemently against it. Conflict resolution within one group, say public sector institutions or NGOs, is invariably complex, and some times a near impossible task.

Public participation is another issue. While every one agrees that public participation is both essential and desirable, the problem remains that we simply do not have the techniques and methodologies to ensure that the public at large can participate meaningfully in water policy formulation and implementation processes. In the vast majority of cases, the general public has no, or very little, interest in water policies, and they are often conspicuous by their absence. Those who often claim to speak for the public, either individuals or NGOs, mostly have no mandate to speak on behalf of them. Thus, public participation has often been reduced to consultations with the most vocal and articulate individuals and NGOs, who have sometimes often attempted to manipulate the process to serve their own ends, interests and beliefs.

There is also a fundamental question which the water development profession has never asked, let alone answered. The issue of which public is to be consulted has not been addressed to so far in any meaningful fashion. For example, does the public mean people in the country or project area concerned, or should it also include people from outside the country and the project area, as it often appears to be at present?

This is becoming an increasingly important and relevant question on which some consensus has to be reached as soon as possible. Let us take the case of the Sardar Sarovar project in India. There is no question but that the people from the State of Gujarat, where most of the beneficiaries live, are strongly in favour of the rapid implementation of the project, as are most of the local NGOs. In contrast, the main opposing NGO, Narmada Bachao Andolan (NBA), which basically has been campaigning against the construction of any large dam in India, irrespective of its overall benefits to the society, and which claims to be speaking for the people to be resettled from the Sardar Sarovar project area, have not had even a single person representative from the people it claims to represent in policy-making position during nearly two decades of existence. How democratic or relevant is such a state of affairs? NBA is mostly supported financially by institutions and people from outside the project area, and to a significant extent from outside the country. An important issue thus is to what extent people from outside the project area, or even outside the country, have the right to dictate the developments in a project area, whose inhabitants are in favour of a specific policy. As a corollary, if the predominant view of the people from the project area differs from the opinion of the people from outside, which view should predominate, and thus should be incorporated in the water policy? Urgent answers need to be found for these important but difficult questions. However, discussions on these types of issues have hardly begun within the water profession.

Thus, an overall problem that needs to be solved is how can water policies of the future can be formulated in consultation with multi-stakeholders, having multi-interests, conflicting views, and differing priorities. This is not primarily a technical or economic issue, but a definitive answer would undoubtedly help the technocrats in the future in terms of devising a process that can be used to formulate rational water policies. Urgent research is necessary in this overall area, especially by social science experts, so the appropriate water policies can be formulated, implemented and updated in the coming years in a timely and cost-effective manner.

Once the policy is formulated and agreed to, it would be further be necessary to ensure that all the stakeholders play their respective roles so that implementation of the policy is possible. Considering the multitude of stakeholders involved, how can their activities to reach the shared goals of the agreed policy be co-ordinated? Who could be entrusted to co-ordinate all the activities, and where would the funds for carrying out all these activities come from? What type of sanctions can be considered if any specific stakeholder does not carry out the activities properly and promptly, as had been agreed to earlier? Solutions to all these difficult questions need to be found and agreed upon by the various parties concerned in the coming years.

## **RISKS AND UNCERTANTIES**

Water policies, once formulated, can point towards a desirable direction. Specific sub-policies and/or activities can then be considered which can ensure that the results of all water-related activities point towards the same direction agreed upon. In most instances,

national water policies should be considered to be a journey rather than a final destination to be reached. At any specific point in time, the policy can indicate the general direction to proceed. However, each policy can only be formulated on the basis of certain assumptions in terms of future developments, not only in the water sector but also in other, related sectors. Since the future is always unpredictable, water policies cannot remain the same over a prolonged period of time. Accordingly, the policies have to be updated as and when necessary at periodic intervals, especially when the hypotheses and assumptions on which the policy is based change or proves to be incorrect, and/or new developments take place, or are expected, that were not anticipated earlier during the policy formulation process. As the water policies are updated, the chances are their direction will be changed as well. Thus, water policy should be considered to be a journey, rather than a final destination, since the destination is likely to change over time.

All water policies invariably have many risks and uncertainties associated with them, since we shall never have access to perfect knowledge and data, and because societal views and perceptions change with time. Many of the risks and uncertainties are predictable, but equally there are many which cannot be foreseen. Even when a risk is predictable, it may not be possible to identify the exact extent and magnitude of that risk, and reliable implications of that risk in terms of water management and other associated impacts. There is also a time element in terms of occurrences of impacts, which is invariably linked with any risk. These are even more difficult to predict with any degree of confidence.

There are likely to be many new developments in the 21<sup>st</sup> century, which will make water management practices very different from those throughout human history. Some of these new developments can be foreseen in general terms, but the actual timings as to when these developments may occur, or their impacts on water management practices, are impossible to predict. Among these new developments are likely to be the following:

- The global population is likely to stabilize during the post-2050 period. This stabilization will bring in its wake some advantages as well as certain disadvantages for the water sector, many of which are not clearly understood at present. It is likely that the global population may stabilize at a lower level than the current consensus estimate. The population of many countries will stabilize well before the world population becomes stationary. There is no historical precedent as to how the global population stabilization will impact upon the water sector.
- The water profession is now primarily concerned with the current urbanization trends, and how water and wastewater management facilities can be provided to an increasing number of megacities. The megacities are politically and financially powerful, and thus they are likely to muddle through their water requirements. The most difficult problem is likely to be with medium-sized cities (say with a population of between 1 million and 5 million) in the future, which may not have the political, economic and institutional power to solve their water and wastewater management requirements.

- While the urbanization trend in the developing world is very visible, concurrently a ruralization trend can be observed in many countries, ranging 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. This ruralization process has affected almost exclusively the poor and marginalized people, who have no political voice or economic power. Thus, not surprisingly, neither the water profession nor the policy makers are even aware of this situation, let alone find policy measures to resolve the problems. The provision of water and sanitation services to these dispersed hamlets will be a daunting task. Ruralization aspects should thus be a components of water policy.
- The water problems of the future are likely to have greater social, environmental and political components, as compared with the current emphasis on techno-economic issues. The social, environmental and political issues are often somewhat amorphous, and are not easy to deal with because they are often based on perceptions, which may or may not be correct. In contrast, technical and economic issues are concerned with facts, which can be analysed through universally acceptable techniques. It is much easier to deal with facts and scientific analyses of technical and economic factors, which are standard, and thus the results are likely to be similar, irrespective of who carries out the analyses, as long as they are properly done. In contrast, consideration of social and environmental issues invariably contains a large measures of perceptions and value judgements, which often differ, depending upon the analysts and the stakeholders concerned. Thus, an important component of any future water policy has to be the provision of information to, and communication with, the various stakeholders. As the 21<sup>st</sup> century progresses, information and communication aspects are likely to become increasingly more and more critical. Communication and information aspects of past water policies can mostly be considered to be afterthoughts.
- The private sector and water pricing are likely to be important aspects of water policy of the future. This, in turn, is likely to contribute to significant advances in demand management in the municipal sector. This may mean that within a short period of decade or so, domestic and industrial water requirements may have to be revised downwards significantly because of increasing emphasis on demand management.
- Issues such as globalization and the information and communication revolution will become increasingly important for water management. These new developments are now collapsing borders and barriers, between countries as well as between various development-related sectors and disciplines. For example, the water requirements of the border regions of Mexico and the USA have increased very significantly during the past 5 years due to rapid acceleration in the export of manufacturing products from Mexico to Canada and the USA under the North American Free Trade Agreement. Rapid industrialization and employment generation have contributed to the very considerable migration of people from different parts of Mexico to the border regions. Consequently, the water requirements of the border region due to domestic and industrial needs have escalated very rapidly. For example, the water demand in major border cities such

as Ciudad Juarez has increased by over 15% each year over the past 5 years. Water quality has generally deteriorated because wastewater treatment has not kept pace with water use pattern increases. Consequently, incidences of water-borne diseases in the border towns are significantly higher than the Mexican national averages.

Globalization due to trade in industrial and agricultural products, capital flows and expertise will have increasingly greater impacts on water management practices, and thus needs to be considered very explicitly within any new water policy formulation framework.

- Past water policies have generally assumed that technology would basically remain stationary in the future. This, of course, is likely to be erroneous. All the current trends indicate that technological developments will change water requirements and management practices radically in the future. Many of these changes will come from outside the water sector, but they may have profound impacts on this sector. This development is not new: technology has always had significant impacts on water.

For example, in 1961, Asia's average cereal yield was 930 kg/ha. If the same yield pattern had continued, nearly  $600 \times 10^6$  ha of additional land of the same quality would had to have been cultivated to equal the total 1997 Asian cereal harvest. Significant improvements in technology and management practices made such high production possible. Since agricultural water in many Asian countries makes up over 80% of total water requirements, technological advances have made water use patterns in terms of space and time very different during the last four decades, compared with what might have happened had the technological advances been only incremental. It is now evident that technological advances in areas like biotechnology and desalination will have major implications for the formulation of realistic water policies in the future.

- Water quality management must become a major component of any new water policy. Water quality problems are now serious in all developing countries. For example, nearly all surface water bodies within and near urban-industrial centres are already highly contaminated. Recent estimates made by the Third World Centre for Water Management (Biswas, 1999) indicate that in spite of the official rhetoric and estimates published by various international organizations, only about 6% of wastewater generated in Latin America is properly treated and disposed of. The situation is unlikely to be much different for Asia and Africa. Furthermore, currently no reasonable estimates exist as to the investment requirements for Latin America to increase wastewater treatment from a paltry 6% to a more acceptable 60-70%. These costs are likely to be astronomical, and most developing countries would find it extremely difficult to meet these very high investment requirements. In addition, rapid capacity building for proper water quality management is likely to be a Herculean task under the best of circumstances.

## CONCLUDING REMARKS

The world is changing rapidly. We must analyse, objectively and reliably, the potential prospects and constraints of the future water problems in the light of anticipated changes. Yesterday's crystal balls can no longer shed much light on this coming new age of restless environment, which must address rapidly diversifying interests and agendas that are likely to be awash in chaos, conflicting views, rapid technological changes, globalization, relentless economic competition, political uncertainties and people's higher aspirations. Water policies must address all these and other, related issues in an appropriate manner. Theoretical and conceptual approaches, irrespective of how attractive they may be, will no longer be of much use, unless they can be made operational. This will not be an easy task, but nevertheless it is a task which the water profession must face squarely and promptly. At the dawn of the 21<sup>st</sup> century, the water profession has only two choices: to continue as before with a business-as-usual policy which is unlikely to contribute significantly to poverty alleviation and equitable development; or to continue in earnest to develop new policies which could improve the quality of life of people and satisfy their aspirations and expectations.

It is now evident that all 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. An increasing global population will mean more food, energy and other resources. Augmenting food and energy requirements will require rational water policies. The common requirements in all the available practical responses to the solutions of all these major problems must include greater investments, more technology, higher human capacities and intensified co-operation between countries, sectors and different societal strata. The interrelationships are often global in character, and hence can be best understood within a global context and then resolved within a global framework. While the framework could be global, within this there must be a wide variety of integrated national and regional responses. Water policies must be formulated within this overall interrelated framework.

The process of formulating new water policies which could lead to rational water management will not be easy. Along the way, there will be successes and failures, with emotional peaks and valleys. It would be necessary for the water profession to travel on many trails that are not well-worn. Along these untrodden paths, we shall undoubtedly discover some shortcuts but the profession will also discover numerous obstacles and bumps. This is to be expected, since it comes with the new, uncharted territory.

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