A Framework for Action on Water and Sanitation

WEHAB Working Group
August 2002

Printed on Recycled Paper

Contents

Preface and Acknowledgments

The WEHAB initiative was proposed by UN Secretary-General Kofi Annan as a contribution to the preparations for the World Summit on Sustainable Development (WSSD). It seeks to provide focus and impetus to action in the five key thematic areas of water, energy, health, agriculture and biodiversity that are integral to a coherent international approach to the implementation of sustainable development and that are among the issues contained in the Summit's Draft Plan of Implementation.

The five thematic papers are based on initial consultations with concerned agencies of the UN System and are not intended to be consensus documents reflecting the totality of UN System activities in these areas. They do, however, try to provide a broad view of existing normative and programmatic frameworks in each area, to highlight interlinkages among the sectors, to identify key gaps and challenges and to highlight areas where further action is needed.

The WEHAB initiative also responds to resolution 55/199 of the UN General Assembly that mandated the WSSD preparatory process and decided that the Summit should focus on areas where further efforts are needed to implement *Agenda 21* and that action-oriented decisions in those areas should address new challenges and opportunities. In that regard, the initiative takes fully into account the text of the Draft Plan of Implementation agreed at the fourth meeting of the Preparatory Committee for the WSSD in Bali, as well as existing agreed multilateral frameworks. It includes proposals for a number of targeted actions in each of the sectoral areas that are anchored in various intergovernmentally agreed multilateral frameworks on the basis of an incremental approach to meeting broad targets.

The UN General Assembly, in resolution 56/226 on the World Summit on Sustainable Development, also encouraged new initiatives that would contribute to the full implementation of *Agenda 21* and other outcomes of UNCED by strengthening commitments at all levels, including by reinvigorating global commitment and partnerships, both among governments as well as between governments and major groups. Partnerships have thus emerged as an important aspect of the further implementation of *Agenda 21*. While partnerships may involve several actors and be of a broad nature, the WEHAB initiative, drawing as it does on intergovernmental frameworks, could provide a structure for partnerships in these five areas and in this regard could potentially serve as a framework for benchmarking action and monitoring progress in the follow-up to the WSSD.

Due to constraints of time, the initial approach taken in the preparation of the WEHAB initiative was, of necessity, somewhat selective and is not meant imply any priorities at this stage. If member states believe that a co-ordinated approach to implementation in these areas is required, however, the WEHAB initiative potentially provides a framework for the development of a coherent and co-ordinated follow-up by the UN system based on the intergovernmentally agreed outcome of WSSD. As such, it should be seen as the beginning of a process of follow-up by the UN System.

More than 100 people contributed to the production of these booklets. The list is too long to name everyone here. The names that follow are of individuals who spent a great deal of their time in drafting, providing texts, reading material and giving overall advice. This project would have never been possible without the exemplary joint team work. This is, in fact, an example of the outstanding capacities of the UN System and the World Bank and their capacity to produce team work in record time with very good quality.

Composition of the Working Group:

Leader: Luis Gomez-Echeverri (UNDP)

Water Volume Lead Authors and Co-ordinators:
Manuel Dengo (UNDESA)
Alvaro Umana (UNDP)

Energy Volume Lead Authors and Co-ordinators:
Jarayo Gururaja (UNDESA)
Susan McDade (UNDP)
Irene Freudenschuss-Reichl (UNIDO)

Health Volume Lead Authors and Co-ordinators:
Yasmin von Schirnding (WHO)
Vanessa Tobin (UNICEF)

Agriculture Volume Lead Authors and Co-ordinators:
Volume compiled by Luis Gomez-Echeverri with inputs from FAO, World Bank and CGIAR

Biodiversity Volume Lead Authors and Co-ordinators:
Peter Schei (recruited by UNEP as High-Level Advisor)
Charles McNeill (UNDP)

The Core Team consisted of the above plus several others from various agencies: Adnan Amin (UNEP), Yves Bergevin (UNICEF), Fernando Casado (UNIDO), Muhammad

Aslam Chaudry (UNDESA), Anilla Cherian (consultant), Boyd Haight (FAO), Nicholas Hughes (FAO), Maaike Jansen (UNEP), Kristen Lewis (consultant), Kui-Nang Mak (UNDESA), Nwanze Okidegbe (World Bank), Terri Raney (FAO) and Francisco Reifschneider (CGIAR).

Other staff members of the many agencies listed on the inside back cover provided a number of useful inputs and contributions. Many of them, as in UNEP, FAO and WHO, spent a great deal of time reviewing and providing texts. They are too many to list but we appreciate their timely and valuable inputs. We would like particularly to thank UNEP, UNDP, the World Bank's Environmentally and Socially Sustainable Development Network, UNDESA, UNIDO and WHO for the valuable and substantive support and for placing a large number of the core staff and resources at our disposal.

The project benefited greatly from the contributions of High-Level Advisors who took time to read various drafts and provide useful comments: Margaret Catley-Carlson, Hartwig de Haen, Gourisankar Ghosh, Thomas Johansson, Sir Richard Jolly, Stephen Karekezi, Roberto Lenton, Pedro Sanchez and M.S. Swaminathan. The project also benefited from the work of the Millennium Project and its director, Professor Jeffrey Sachs, Director of the Earth Institute of Columbia University.

The water team drew on advice and suggestions from colleagues around the world, including the following reviewers: Ingvar Andersson (UNDP), Arthur Askew (WMO), Jamie Bartram (WHO), Paola Bettelli (Consultant, DESA), Gunilla Bjorklund (Consultant, UNDP), Robert Bos (WHO), Ralph Daley (UNU), Rainer Enderlein (ECE), Eirah Gorre-Dale (WSSCC), Steven Lintner (World Bank), David Osborn (UNEP), Christel Rose (ISDR), Claude Sauveplane (DESA), Vanessa Tobin (UNICEF), Häkan Tropp (UNDP), Veerle Vanderweerd (UNEP), and Kenji Yoshinaga (FAO).

We would also like to thank the team that produced the booklets, especially Jane Coppock of the Yale School of Forestry & Environmental Studies, who managed the production; Dottie Scott, page layout; and Yale Reprographics and Imaging Services (RIS), which did the design and printing. They put in a great deal of effort to make this project happen. We thank them.

Very special thanks to Linda Starke, editor of all the volumes. Her outstanding contribution and deep knowledge about the issues discussed here made this project possible.

Our thanks also to Mr. Mark Malloch Brown, Administrator of UNDP, Dr. Klaus Toepfer, Executive Director of UNEP, and Mr. Ian Johnson, Vice-President, World Bank, for the support they have provided for this project.

Last but not least, this project would never have seen the light of day without the unstinting efforts of Luis Gomez-Echeverri of UNDP, who came to New York to lead the WEHAB Working Group and to manage the project that produced these contributions to WSSD in a very short period of time.

Nitin Desai
Secretary-General
World Summit on Sustainable Development

Water and Sanitation: Key Issues and Challenges

Water is essential for life. It is the key resource for people's good health, for irrigating crops, for providing hydropower, for protecting ecosystems. Despite the broad recognition of the central role of water in sustainable development, including in efforts to eradicate poverty, addressing the water needs of the poor through concerted global action has not been given enough priority. While progress has been made over the decade since the Rio Earth Summit, on average it has been slower than anticipated.

Water resources in many countries remain fragile, more due to poor demand-and-supply management than to actual water scarcity. Measures promoting sustainable use of water are far from satisfactory. About 1.2 billion people still have no access to safe drinking water, and 2.4 billion do not have adequate sanitation services. Some 2 million children die every year from water-related diseases. In the poorest countries, one in five children dies before the age of five mainly from water-related infectious diseases arising from insufficient water availability, in both quantity and quality. Thus provision of safe drinking water and sanitation services to more than 1 billion people over the next decade remains one of the most critical challenges humanity is facing today.

In addition to freshwater systems, estuarine, near-shore and oceanic systems provide renewable food supplies, tourism opportunities, transportation highways, biotechnology supermarkets and many more benefits that are frequently overlooked or abused in many parts of the world. Waterways direct pollutants and solid waste to the coastal zone, where they accumulate along the coastal fringe, the home of nearly half of the world's population and a concentration of the most productive, biologically diverse ecosystems. Municipal wastewater emissions are one of the most significant threats to sustainable coastal development world-wide. Their effects are usually localized, but they are a major source of coastal and marine contamination in all regions and therefore a global issue.

Pollution of water resources is on the increase in many places, and water distribution and use efficiencies are low both in irrigation and in urban water supply networks. Water tables are dropping, many rivers no longer reach the sea, freshwater aquatic species are in peril and deltas and wetlands are disappearing. Water is more and more a resource in dispute, and conflicts over its use and distribution are common. By 2025, urban populations in developing countries will have doubled over today's figures, to 4 billion. Unfortunately, sanitation and water programmes globally are not geared to keep pace with these shifting and growing populations and are saddled with a traditional top-down approach with almost no participation of those needing services. In addition, not only are systems poorly designed and underfinanced, but regulatory and management aspects remain extremely weak. There is little match between resources available and the choice and design of systems.

Access to water is already a major limiting factor in the socio-economic development of many countries. There is growing concern regarding the increasing stress on water resources caused by population growth, unsustainable consumption patterns and uncontrolled uses. High distribution losses put further stress on available supplies. Data on water use world-wide provide a stark example of the wide gulf between the rich and the poor worlds: people in developing countries use about 20 litres of water a day, and even less in some places, while those in the industrial world use 400–500 litres.

The ever-increasing competition for water affects the poor most, especially women and girls who have to walk farther in search of water to meet minimal household needs. (See Box 1.) Scarcity at local levels causes conflict within households, among communities and between water-scarce countries.

- Four out of every 10 people currently live in river basins experiencing water scarcity. By 2025, at least 3.5 billion people, nearly 50 per cent of the world, will face water scarcity.
- Some 6,000 children die every day from diseases associated with lack of access to safe drinking water, inadequate sanitation and poor hygiene.
- At any one time, half of the world's hospital beds are occupied by patients suffering from water-borne diseases.
- In China, India and Indonesia, twice as many people are dying from diarrhoeal diseases as from HIV/AIDS.
- Overpumping of groundwater by the world's farmers exceeds natural recharge rates by at least 160 billon cubic metres a year.
- Nearly 30 per cent of the world's major watersheds have lost more than three-quarters of their original forest cover.
- Water losses in irrigated agriculture amount to 25–40 per cent of water used in agriculture.

There is competition between uses for agriculture, power, industry, environment and human development needs, leading to political and civil tension. The situation is dramatically worsened by society's inability to manage water resources in a co-ordinated and participatory manner or to provide efficient and equitable delivery of water services.

Box 1: The Heavy Workload of Collecting and Carrying Water

In Africa, women and girls spend as much as three hours a day fetching water, an energy expenditure greater than one-third of their daily food intake. This pattern is replicated in schools: when water is needed, it is girls who are sent to fetch it, taking additional time away from their studies and play time. Household chores—such as fetching water—keep many girls out of school, and the energy they use carrying out these chores seriously affects their performance at school. And when family members become sick, often due to water-related diseases, girls are more likely to be kept home to care for them. Providing water closer to homes thus significantly increases the time that mothers have available to care for their children and that girls have to attend school.

In countries seriously affected by drought, land degradation, desertification or floods—all of which are on the increase due to climate change and variability and also human activities—the poor are the most vulnerable and frequently the first victims, since they rely essentially on land and water resources to sustain their livelihoods. The productivity of water in agriculture remains low, hampering efforts at income generation, economic growth and sustainable development. The presence of toxic elements in water—fluoride in India and China, for example, and arsenic in groundwater in Bangladesh—has led to serious public health risks. Groundwater sources were originally chosen by governments and development agencies since they were much less susceptible than surface water sources to the microbial contamination that causes most water-borne diseases. Although this is still true, more work is needed to understand the factors that lead to chemical water contamination and to ensure that water quality in all countries is monitored properly.

Over the last two decades, the number and scale of water-related disasters has increased greatly because of climate change and variability as well as increasing demand due to indiscriminate growth without proper supply management. Projected climate changes during this century will exacerbate the North-South divide by worsening poverty in developing countries. Among the changes these nations will need to adapt to are an increase in the frequency and intensity of severe weather causing droughts, floods, higher temperatures and rising sea levels. These will greatly increase the vulnerability of the poorest to natural disasters, imperil food and water scarcity, adversely affect human health, speed ecosystem destruction and jeopardize livelihoods.

As the efforts gear up to meet these challenges, policymakers face a dilemma that affects many efforts to achieve sustainable development: how can we best achieve both equitable access and adequate supplies while at the same time protecting and preserving supplies and environmental quality?

Several international conferences have discussed and agreed on steps towards this end, from Mar del Plata in 1977 to Dublin in 1992, leading to the adoption of Chapters 18 and 37 of *Agenda 21*. Water for sustainable development was discussed at the intergovernmental level in the sixth session of the Commission for Sustainable Development in 1998 and at other key subsequent events (see Box 2), where broad consensus was reached on the main issues as well as on possible courses of action. The United Nations Millennium Declaration and the preparatory process leading up to the World Summit on Sustainable Development have confirmed the key role of water in sustainable development, recognizing that water issues need to be dealt with and resolved at the local level.

Box 2: Vision 21 on Water and Sanitation

A clean and healthy world: A world in which every person has safe and adequate water and sanitation and lives in a hygienic environment.

This Vision 21 statement was adopted by major water and sanitation agencies at the Second World Water Forum in 2000 in the Netherlands. The four key components of the Vision 21 programme for action are:

- building on people's energy and creativity;
- acknowledging hygiene, water and sanitation as a human right;
- committed and compassionate leadership and good governance; and
- synergy among partners.

Policymakers and experts at these meetings identified several key issues and challenges, with increasing focus on water supply and sanitation as well as the need for improved frameworks for integrated water resources management (IWRM) and water governance at all levels. They proposed many actions to meet the challenges—stressing the importance of taking concerted actions to use water as an entry point to achieve the goal of sustainable development.

The issues identified in *Agenda 21* remain as valid as they were in 1992, but over time some new perspectives have emerged and new issues have surfaced on the international water agenda. Following a discussion of water management, all the issues are regrouped and outlined in this chapter within the context of five key areas where concrete results can and must be obtained, as described by Secretary-General Kofi Annan: water and sanitation, energy, health, agriculture and biodiversity (WEHAB). (See Figure.) The understanding of water's role is important within the context of WEHAB. One role as a natural resource is to stimulate sustainable economic and social development by having improved management and governance structures in place within the water sector. The second role is that of being a catalyst for sustainable development—helping other WEHAB areas to achieve their respective goals and targets.

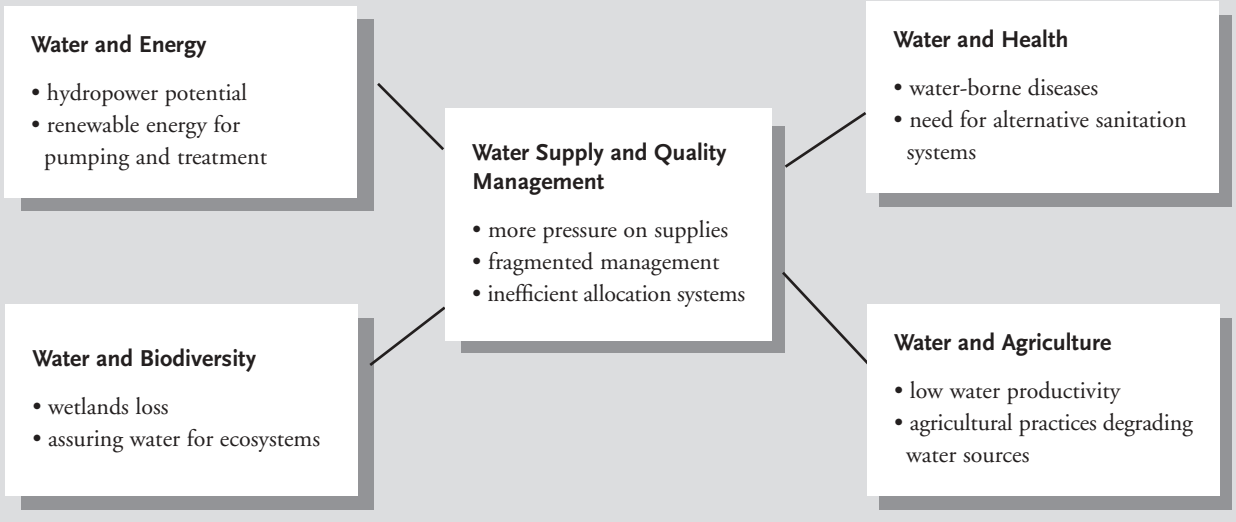
It is important to note that these issues could also be viewed from two different perspectives: one dealing with the management of water-related services and the other dealing with the management of the resource base. Not only are there cause-and-effect relationships among the issues falling in the domain of different WEHAB areas, but interdependencies exist among the issues within each area as well. The intent of this chapter is not to elaborate on these issues or to discuss their cause-and-effect relationships, since a wealth of information already exists in many reports. Instead, the objective is to identify specific issues that are most relevant to the achievement of society's goals—issues where indicative goals and targets could be set for measuring the progress.

Water Resources Management and Sanitation Issues

A classical IWRM framework contains a national water policy, strategies and legislation; an information system; allocation scenarios and action plans, either at the national or basin level; co-ordination, financing and monitoring mechanisms to implement the plans; governance mechanisms to ensure transparency and accountability; and a unique organization responsible for the whole thing. Without such a framework, disputes over limited and vulnerable water resources will continue to develop between rural, industrial and urban users.

The principles underlying IWRM have not yet fully found their way into the socio-economic development policies and legislation of many countries. Nor have people been brought to the centre of the decision-making process through decentralized planning and management of water resources at the basin level. Efficient water resources planning, development and management in many countries are also seriously constrained by a lack of data from monitoring networks and other information concerning water resources knowledge and availability, water demands, water use patterns and other socio-economic variables. Fragmented institutional structures, a lack of regulatory mechanisms and of market-based incentives such as those included in public-private partnerships and technical and socio-economic constraints as well as inefficient public awareness and demand management practices are all contributing to the unsustainable exploitation and use of water resources.

Figure: Examples of the Critical Role of Water in WEHAB Priority Areas



Allocation mechanisms should balance competing demands both within and between different water-using sectors as well as countries and should incorporate the social, economic and environmental values of water. There is no magic formula because of the wide variability of country-specific conditions. Currently, water remains highly undervalued. The problem of cross-subsidization across sectors and different user groups makes it even more important to allocate water optimally based on its value for different uses. In addition, progress in the implementation of agreements on international waters has been slow. Multilateral and bilateral negotiations on the management of shared rivers or international aquifers often tend to be complex and constrained by the lack of comparable data on each side of the border.

Diarrhoeal diseases, a result of lack of adequate water and sanitation services, in the past 10 years have killed more children than all people lost to armed conflict since World War II.

Delivery of services by existing water supply systems is increasingly deteriorating. Many towns and cities in developing countries have unreliable piped water systems with supply interruptions and high leakage rates and unaccounted-for connections. The systems suffer due to deferred repairs and maintenance, so that, for example, as many as 30 per cent of the hand pumps in rural areas may not function. In light of this, rehabilitation and well-chosen technologies for household or community-based water and sanitation services can save alot of expenses and water while reducing operation and maintenance costs. In this regard, community participation in planning, development and management of water supply schemes is of paramount importance.

The principles of integrated coastal zone management should be included within IWRM to promote a more holistic approach to water management. In particular, there is a clear need to protect coastal and marine environments by promoting concrete action at local and national levels to address the deposition of sewage into waterways.

Financial resources remain the most limiting constraint. Water and sanitation infrastructure projects are usually capital-intensive. For many developing countries, the flow of financial assistance from rich countries and multilateral institutions has been much lower than warranted by the magnitude of the crisis. The debt situation continues to discourage investments in infrastructure. At the same time, domestic resource mobilization efforts (such as efficient tariff systems, recovery of bills and taxes and a systematic reduction of subsidies) have not been sufficiently promoted. Neither have countries seriously pursued the use of debt-swap mechanisms that would have generated local currency to finance local costs. Lack of political will to invest in improving the services, and to extend those services to poor communities, also inhibited the flow of concessional resources. And too little has gone into developing appropriate frameworks that could contribute by sustaining the impacts of investment in infrastructure development.

The private sector has made only selective investments in water supply systems. Its participation in undertaking large-scale investments has been slow because water projects take a long time to yield benefits, too few consumers are willing or able to pay for services in many developing countries and the overall policy environment has not been conducive to investment. There is no clear consensus or model on how to transform the provision of water and sanitation services into an industry by assigning a role to the private sector. Thus the process of providing water and sanitation services is an area where flexibility is important and where well-designed partnerships among stakeholders, with a special focus on meaningful interaction with local communities, can bring the necessary solutions.

Although the demand for capacity building was a theme found in many water-related development projects over the last decade, progress is long and tedious. Limited capacities in terms of institutions, trained personnel, equipment and other relevant resources are still preventing countries from achieving their water management goals.

Water and Energy

For many poor countries, hydropower—a renewable source of energy—could make a significantly larger contribution to economic growth. Several factors limit the exploitation of its potential, however. It requires large capital investments and is constrained by environmental and social concerns and costs—although good practices have emerged over the years that to a large extent can mitigate these effects. Another important obstacle is that much of the potential for hydropower generation exists on international rivers, which requires lengthy negotiations to arrive at bilateral or multilateral agreements on water sharing.

The promotion of combined management of water and renewable energy resources and services can play an important role in achieving sustainable development. The complementary relationship between these resources deserves more attention, especially for small to medium-sized towns and settlements surrounding urban areas. Using

renewable energy for pumping and treating water can greatly reduce operation and maintenance or network extension costs, and thus improve the sustainability of the systems. Surplus energy can be used for other applications, such as desalination of brackish waters by low-cost reverse osmosis, small-scale irrigation or electricity for health centres.

Water and Health

Poor water quality continues to pose a major threat to human health. Although faecal contamination in water is still the pollutant that most seriously affects the health of children, the increasing seriousness of other contaminants has become evident in recent years. Arsenic, fluoride and nitrates top the list of emerging threats to the quality of water for domestic consumption. Diarrhoea, cholera, typhoid and schistosomiasis are the leading water-borne diseases. Some 200 million people world-wide have schistosomiasis, of whom 20 million suffer severe consequences. Diarrhoeal diseases, a result of lack of adequate water and sanitation services (see Box 3), in the past 10 years have killed more children than all people lost to armed conflict since World War II. Water quality is deteriorating in many places, and some cities in the developing world treat only about 10 per cent of their sewage. As a result, developing countries are facing enormous health crises.

Box 3: The Health Benefits of Water and Sanitation

Studies show that improvements to sanitation and hygiene have the following impact:

- Improved sanitation can reduce episodes of diarrhoea by up to 40 per cent, deaths by up to 60 per cent and child stunting by up to 50 per cent.
- The simple act of washing hands at critical times (after using the toilet, after handling infant faeces and before handling or eating food) can reduce diarrhoeal episodes by up to 33 per cent.
- Food hygiene can reduce diarrhoeal episodes by up to 70 per cent.
- Convenient access to safe water alone can reduce episodes of diarrhoea by up to 15 per cent.

When these components are fully integrated and strategically programmed with other key sectors such as health and education, the overall benefits and impact can be significant.

There is a common misunderstanding that providing clean water to households will resolve all so-called water-related health concerns. But people's health will not improve simply because toilets are built unless this is accompanied by improvements in hygiene behaviour. Although the International Drinking Water Supply & Sanitation Decade of the 1980s spurred improvements in access to safe water for over 3.4 billion people in developing countries, these efforts have not been matched in sanitation and hygiene. Almost 2.4 billion people are still without appropriate sanitation facilities. Sanitation and hygiene programmes should focus on influencing key changes in behaviour through improved hygiene practices.

While liquid waste sewage systems have been widely successful in controlling the transmission of excreta-related diseases in the cities of industrial countries, they also created severe damage to ecosystems and water resources where wastewater was inadequately treated. Pathogenic organisms, for example, in domestic wastewater-contaminated marine and estuarine waters cause massive transmissions of infectious diseases to bathers and consumers of raw and undercooked shellfish—with the global economic impact recently estimated at US$10 billion a year. Since proper treatment considerably increases the cost and energy requirements of the entire system without being essential for the day-to-day life of the user, it is often omitted—especially when financial resources are scarce. Research and development needs to focus on alternative, affordable, non-polluting sanitation systems.

Hygiene improvement results from the sustained practice of safe hygiene behaviours, improved awareness and skills for maintenance of household water security and support for healthier environments in which people live. This can only be achieved through a combination of convenient access to sanitary toilet facilities and to sufficient quantities of safe water for drinking and for personal and domestic hygiene. Hygiene improvement is a critical factor in combating the diarrhoeal diseases and intestinal-worm infestations that cause sickness and death among children.

Water and Agriculture

Countries consider food self-sufficiency essential for a growing population in spite of increasing water overexploitation and land degradation. Agriculture is thus the major user of water in many countries. There are serious concerns about the performance of irrigated agriculture: water use productivity remains low, the environment suffers and issues of poverty are not addressed adequately. In rural areas, one dimension of poverty is that poor people have little access to land and water resources. Although resources are limited, water losses in irrigation systems are enormously high due to lack of know-how, poor water management practices, the failure to apply the user-pays principle and the continuously deteriorating state of infrastructure. In many areas, heavy sediment loads have reduced considerably the storage and carrying capacity of existing reservoirs and waterways.

Inappropriate use of fertilizers and pesticides and animal pollution (nitrates) often results in severe pollution of surface and groundwater. Drainage problems in many parts of the

world have led to waterlogging and salinization of cropland, which reduces productivity and yields. A considerable amount of once-fruitful land has already gone out of production. In many areas, groundwater levels are rising and water quality is being seriously affected due to irrigation without drainage, over-irrigation and low-delivery efficiency of the irrigation and drainage system. And in some coastal areas, saltwater has intruded up to 15 kilometres inland due to indiscriminate water withdrawals. The amount of land taken out of production each year is not known but is probably substantial. With some 10–15 per cent of all irrigated land suffering some degree of waterlogging and salinization, these two problems alone represent a significant threat to the world's food productive capacity. If these trends remain unchecked, the situation could become irreversible.

Constraints imposed by low water availability have given rise to many innovations for improving water productivity. This entails promoting practices that achieve more output per unit of water used by agriculture. In other words, with more crop from each drop, fewer drops are needed. Countries with poor research and extension systems have not been able to benefit from such innovations. Also, the lack of an appropriate incentive structure to use water more efficiently inhibited the adoption of innovative solutions. At the same time, many countries with the necessary capacities and means have not been aggressive enough in promoting these technologies.

Water and Biodiversity

The capacity of freshwater ecosystems to support biodiversity is highly degraded at the global level, with many freshwater species facing rapid population declines or extinction. Half the world's wetlands have been lost in the past century. The continued neglect of the minimum water requirements for maintaining healthy aquatic ecosystems in terms of both quantity and quality has devastating consequences on natural capital, aquatic biodiversity and human health. Pollution impacts on coastal areas have been far-reaching, triggering algal blooms, damaging reefs, destroying habits and hurting fisheries. Insufficient progress has occurred on this front since Rio. The situation is gradually worsening because of growing conflicts between biodiversity conservation and increasing demands for land and water for other purposes. Aquatic ecosystems, both freshwater and marine, are sensitive to water quality problems stemming from extensive human activities, including industrial effluents, agricultural chemicals and human wastes. The poor enforcement of legislation meant to support ecosystems as well as insufficient knowledge and understanding of them are contributing to the loss of biodiversity. Conventional approaches to managing coastal and marine resources have proved inadequate.

Water and the Millennium Development Goals

In view of the central role of water in poverty eradication and securing a basis for sustainable development, progress on WEHAB issues will have an important impact on the achievement of several UN Millennium Development Goals (MDGs, see inside front cover) and targets. To follow up on implementation of MDGs, a new project has been launched and a task force established. Most directly, issues related to financing, capacity building and forging partnerships will be instrumental in meeting the target of halving, by 2015, the proportion of people without sustainable access to safe drinking water. Recent multistakeholder dialogues have emphasized the need to establish such time-bound physical goals and targets with respect to sanitation as well.

Addressing the connections between water and health will make a significant contribution to achieving two other targets: halting by 2015 and beginning to reverse the incidence of malaria and other major diseases, and achieving a significant improvement in the lives of at least 100 million slum dwellers by 2020. Finally, achieving these targets will have an impact on the much broader poverty-related aims of halving by 2015 the share of the world living on less than US$1 a day as well as the share suffering from hunger.

Addressing the Challenges in Water and Sanitation

Implementation of the various recommendations on water supply and sanitation that have come out of international conferences and meetings over the last 20 years has been extremely slow. The fact remains that the state of the world's waters is still fragile, and that their sustainable use and management have been far from satisfactory. Overall progress has been uneven. Industrial countries, in particular, have not gone far enough in helping the developing world to come out of the poverty trap.

Despite the slow progress, over the past 10 years some 900 million people have gained access to water supplies and 985 million to sanitation. The world is feeding many more people today than it was 10 years ago. In many countries, the role of governments has started to shift from service provider to provider of an enabling environment for integrated water resources management (IWRM) and co-ordinator of the much-needed investments in the water sector. Local communities today are much more aware of the roles they can play in decentralized water resources management. There is more recognition on the part of both public and private sectors of the need to form new kinds of partnerships to meet the complex challenges. There has been some progress in improving the institutional and technical capacities related to different aspects of water resources planning and management. While many lessons have been learned, however, policy responses and the required capacities are lagging behind the shifting patterns of demand for water resources and services. (See Box 4.)

The situation is no better when it comes to sanitation. Children and women are at particular risk in projected global trends in water, environment and sanitation. Recent and projected demographic shifts, as well as the growing complexity of emergencies and poor choices by decision-makers regarding policies, resource allocations, technology mix and people's involvement in solving problems that affect them have combined to further marginalize the poor. Preventative measures such as hand washing at critical times, improved sanitation and food hygiene have not been given the priority needed to prevent diarrhoeal diseases. And billions of hours could be saved each year if sanitation facilities and safe water services were brought closer to homes and communities. Inadequate access to safe water and adequate sanitation is first and foremost a problem of poverty. Poor people will need not only to understand the links between health and hygiene but, more important, to have the economic and social power to effectively demand and take action for affordable water and sanitation services.

The Three Challenges of Sustainable Development

The many initiatives that arose from previous water-related international conferences and meetings were consolidated and given new momentum at the UN Millennium Summit in September 2000. The world leaders at that meeting adopted a set of Millennium Development Goals (MDGs, see inside front cover) to overcome some basic human deprivations around the world. Water assumed a central role in the

Box 4: Water and Sanitation—Regional Snapshots

- *Asia: Lowest in Sanitation Coverage*
  Estimates for Asia in 2000 show that sanitation coverage is by far the lowest of any world region, with 54 per cent still lacking sanitary facilities. Easy access to a safe water supply is the second lowest, after Africa, with 20 per cent yet to be served. Disparities in sanitation coverage vary even more: 69 per cent of the rural population lacks sanitation coverage compared with 26 per cent in urban areas. The same is true for safe water coverage: 27 per cent of the rural population without safe access compared with 7 per cent in urban areas.
- *Africa: Lowest in Water Supply Coverage*
  Africa, home to about 13 per cent of the world, remains the greatest challenge in accelerating water and sanitation services coverage. In 2000, approximately 36 per cent of the population did not have easy access to a safe water supply and about 40 per cent did not have access to sanitary facilities. The figures for different areas show greater disparities: 50 per cent of those in rural areas have no easy access to safe water compared with 14 per cent in urban areas. As much as 52 per cent of the rural population lacks sanitation, compared with 20 per cent in urban areas. And these gaps are widening.
- *Latin America & the Caribbean: Greatest Disparity between Urban and Rural*
  This region has relatively high service levels, and coverage efforts are slowly closing the gap between the haves and have-nots. The remaining overall coverage gap for safe water supply is estimated at 14 per cent and for sanitation at 23 per cent. But striking disparities surface in different areas. While urban sanitation coverage is estimated to be around 86 per cent, rural sanitation coverage is about 49 per cent. Urban water supply coverage is estimated at 94 per cent, while the figure in rural areas is 66 per cent.

drafting of the MDGs because of its role in generating economic growth and reducing poverty, achieving food security, improving environmental health conditions and protecting ecosystems. Since sustainable development and achievements of MDGs are mutually reinforcing, it is important to consider the world's water-related challenges as entrenched in the MDGs within the context of the three pillars of sustainable development: economic, social and environmental.

Water interacts with almost all other sectors of the economy, and could potentially become a binding constraint on economic expansion and growth. This is especially true because the amount of available water resources remains fixed, but water demands will continue to grow in the years ahead due to population growth, increased food demand and expansion and modernization of the industrial sector. Thus the economic challenge is to maximize social and economic benefits from available water resources while ensuring that basic human needs are met and the environment is protected. In terms of the issues discussed in the first chapter, this means implementing IWRM principles as well as mechanisms leading to the efficient allocation and use of water resources, improving the performance of existing water supply systems, making existing systems and future investments sustainable, using debt-swap instruments and exploiting the maximum economic potential from available water resources.

Water is also a key element for the improvement of health conditions, human welfare and productivity and people's general standard of living. The social challenge is embedded in one of the targets established for the MDGs: to halve, by 2015, the proportion of people without access to safe drinking water. (The Bonn Ministerial Meeting argued to include the goal of sanitation in the list of MDGs as well.)

Perhaps more than any other sector, sustainable water use and, in this context, water supply and sanitation hit on all the main themes of the development agenda: poverty alleviation, environmental sustainability, private sector–led growth, participatory development and good governance. This is an enormous challenge. Accelerating the rate of access coverage is imperative to avoid the 3 million deaths a year attributable to water-related diseases. Averting a water-related health crisis calls for enforcing concrete actions to improve the quality of water, expanding the coverage of safe drinking water supplies and removing barriers to better sanitation and hygiene. For the rural population in developing countries, meeting these basic needs has to be matched by sustainable use of water and land to maintain local food security and break out of poverty. Reducing the vulnerability of poor people (especially women and children) to hardships and water-borne diseases in conflict areas where water supply systems have been destroyed is another important dimension of the social challenge. Reducing the impacts of water-related disasters (floods and drought) is essential to bring poor people out of the poverty trap.

The environmental challenge is also daunting. Water tables are falling on almost every continent. Excessive use of water in agriculture is believed to have caused a multitude of connected problems. Water pollution originating from the unregulated discharge of agricultural, industrial and domestic sewage is on the rise. The continued neglect of water resources requirements for ecosystems in terms of both quantity and quality is having devastating consequences for natural capital, aquatic biodiversity and human health. The environmental challenge calls for the sustainable use of the resource, protecting the resource base both in terms of quantity and quality to ensure that present and future generations are able to sustain their lives on the planet. Within the context of the issues discussed in the last chapter, this challenge calls for implementing immediate measures to contain the damage already done and to mitigate future harm. The most immediate needs involve pushing for improved water management at all levels, intensifying efforts to implement the principles of IWRM, improving irrigation water use efficiency (the concept of more crop per drop) and enforcing strict measures for improving water quality and protecting ecosystems.

These three main challenges branch off to several secondary but specific challenges, providing additional insights about the extent and nature of water-related problems within the context of sustainable development. For example, balancing the population and water resources equation is an important water management challenge. Towards this goal, water management capacities in developing countries need to be improved, together with mechanisms for wise water governance. It is believed that the current world water crisis is more a crisis of governance than of scarcity. Managing water wisely calls for close monitoring of service providers, as well as transparency and accountability of the process. Separate mechanisms are required for those that set standards and goals and those that deliver services.

Social mobilization of the poor and capacity building of decentralized community-based structures are important means to achieve the goals of poverty alleviation. Similarly, raising the social and economic status of the poor is an extremely important challenge. This will enable people to pay for water services, thus contributing towards resource mobilization and sustainability of investments made in the water infrastructure. The progress on management of international waters has been slow and tedious, jeopardizing the livelihoods of the majority of populations in poor countries.

Increasing water productivity in agriculture will be critical to achieve food security goals, but it should not threaten the availability of water for other purposes. The challenge in this

context will be to introduce and enforce a system of incentives that is self-governing and that encourages efficient water use. Possible examples of incentives include subsidizing the adoption of improved irrigation technologies, coping with agricultural commodity price decline and fluctuation, removing continuing domestic trade barriers, removing excessive agricultural taxation, ensuring rural investment and improving transportation and marketing infrastructures. At the same time, increasing competition for limited water supplies calls for devising and enforcing allocation mechanisms based on the composite value of water. This will allow agriculture to release water for other productive purposes.

Mobilizing additional resources remains an important challenge, though minor adjustments in resource allocation patterns (transferring resources earmarked for urban systems to rural schemes) can have a significant impact in terms of extending the coverage. Establishment of an enabling environment that facilitates formation of public-private partnerships will contribute to meeting most of the challenges. In this regard, concerted efforts will be required from all types of stakeholders in delivering what they do the best, while maintaining the important role of government in providing policy advice and legislative support, as well as in co-ordinating sectoral assistance. The private sector has played an important role in the provision of basic water services in urban areas, but its performance has fallen far short of expectations. This must change. Achievement of water and sanitation-related goals will be very much determined by the extent of involvement of the private sector in terms of its management experience and capacity to bring financial resources to the table. Experience has shown, however, that the private sector's role is most effective when it is combined with a strong government role in ensuring equity.

Box 5: South Africa's Success Story

In 1994, when the new democratic government came to power in South Africa, some 14 million people lacked access to safe water. By 2001, the backlog had been reduced by 7 million. Full coverage of safe water should be achieved within seven years. Affordable access to basic supplies is ensured by a subsidy to local government, giving effect to the declaration of South Africa's 1996 Constitution that access to sufficient water is a human right.

Sanitation was something else. Although a policy was drafted, action lagged badly. A cholera outbreak in 2000 served as a wake-up call. Some 49,000 VIP latrines serving some 400,000 people were constructed and the ambitious target of eliminating the entire sanitation backlog by 2010 was adopted. A multisectoral approach co-ordinates efforts in health, education, housing, public works, local government and environmental affairs, backed up by a major increase in public expenditure. The women's movement, NGOs, local businesses and other parts of the private sector have been mobilized.

Hygiene awareness and changes in public attitudes are now recognized as essential elements in preventing the spread of water-borne diseases. A WASH campaign has been launched, promoting hand washing and promising to save thousands of lives. The vision is now of an Africa-wide effort, spreading this experience through the New Partnership for Africa's Development and regional bodies.

Translating Challenges into Actions

The challenges just described are complex but by no means insurmountable. (See Box 5.) In responding to them, a concrete plan of action—a vision, targets, implementation strategy, monitoring mechanisms and so on—needs to be prepared at the country level. Guiding principles for the plan of action were outlined in Chapter 18 of *Agenda 21* and revisited in the sixth meeting of the Commission on Sustainable Development and in many other international fora; lately the Millennium Summit reinvigorated these principles into quantifiable goals and targets. In reality, however, many developing countries do not have plans as how to transform the wish list of principles and guidelines into concrete actions. There are others who do have plans but not the means of implementation. This requires strong political commitment and support as much as an enabling environment and financial resources. Managing water wisely is a challenge to be dealt with at the local level in countries, while at the international level support must be given to implementing a more focused agenda.

Neither the challenges just described nor the nine key areas of action listed here are new. The intent, however, is to respond to the issues identified in the first chapter within the context of WEHAB and sustainable development. These areas of action are expected to have significant wider economic, social and environmental ramifications that would not happen by themselves:

- providing safe drinking water supplies;
- expanding sanitation services;
- preparing and implementing water management action plans;
- improving water productivity in agriculture;
- safeguarding human health;
- strengthening disaster preparedness planning processes;
- mobilizing financial resources;

- strengthening institutional and technical capacities; and
- protecting aquatic ecosystems, including estuarine and marine systems.

These areas of action place water at the centre of the WEHAB framework, both as a resource and as a service provider. Making progress in these areas will help not only in achieving the water-related MDGs, but also in meeting the overarching MDG of poverty reduction, improving health conditions, exploiting hydropower potential, securing increased food production, protecting ecosystems, conserving biodiversity, and reversing unsustainable patterns of water use. In other words, addressing water-related challenges serves as a stimulus to the success of more specific actions pertaining to any WEHAB area—and making progress on WEHAB is key to the realization of MDGs.

Most water-related problems—whether they relate to provision of services or environmental consequences resulting from poor water quality or they deal with the sustainability of systems—are usually local in nature. Possible solutions also rest in the local domain, which is why community management has become the leading approach for managing water systems. This very special characteristic of water makes it distinctly different from other WEHAB areas.

Estimating Funding Requirements

Financing the MDGs is probably one of the most important challenges that the international community will have to face over the next 15 years. It is unclear at the moment how much it will all cost. In the case of water, wide-ranging estimates have emerged. (See Table 1.) The Water Supply and Sanitation Collaborative Council and the Global Water Partnership (GWP) have estimated that meeting the MDG on water coverage would require between US$14 billion and US$30 billion a year on top of the roughly US$30 billion already being spent. The Vision 21 estimates reflect the investments to bridge the gaps—this does not take into account the investments required for rich urban areas.

Table 1: Yearly Funding Requirements for Water Supply and Sanitation

Source	Current Funding	Projected Funding
European Commission	EUR 224.3 million	NA
World Bank	US$60 billion	US$75 billion
WaterAid	US$27–30 billion	US$25 billion
PricewaterhouseCoopers Report (2000)	US$80 billion	US$180 billion
Vision 21	US$10–25 billion	US$19–34 billion
GWP	US$14 billion	US$30 billion
IUCN (JPoA)*	US$10 billion	US$20 billion

*Johannesburg Plan of Action

One thing is clear: funding estimates for water supply and sanitation vary widely because of differences in methodology and assumptions used in arriving at these estimates. Estimates for sanitation, for example, range from US$20 per person to US$500 per person. Further work is required to have a more accurate and better understanding of the global financial requirements to meet the water-related MDGs.

Total funding requirements for the whole water sector are estimated by three sources as ranging from approximately US$111 billion to US$180 billion a year. (See Table 2.) The sources cited here compiled their figures based on the information documented in various reports. It is worth mentioning that these cost estimates do not represent additional official development assistance requirements but total costs, including contributions from developing countries, which in most cases represent the dominant share. The African Ministerial Conference on Water recently announced that Africa requires US$10 billion a year to meet urgent water needs, and an overall investment of US$20 billion a year for the development of water infrastructure in order to meet the MDGs by 2015. The global figures show the magnitude of the challenge, although there is no consensus on exact requirements. In this regard, the most important step at this point would be to develop such estimates at the country level using a standard methodology with underlying assumptions adjusted to local conditions. Such an exercise will help countries draw up strategies for resource mobilization.

Table 2: Future Funding Requirements by Different Water-Using Sectors (billion dollars per year)

Component	Pricewaterhouse Coopers Report (2000)	Vision 21	IUCN JPoA* (2002)
Water and Sanitation	30	75	20
Municipal Waste	70	—	
Industrial Effluent	30	—	
Agriculture/Food Security	40	30	40
Irrigation and Drainage	—	—	
Protection/IWRM	10	—	1
Hydropower	—	—	
Environment, Energy and Industry	—	75	25
Water Borne Diseases	—	—	25
Total	180	180	111

*Johannesburg Plan of Action

Water and Sanitation: Frameworks for Action

Growing awareness of the crucial role that water plays in achieving the objectives of sustainable development has prompted wide-ranging discussions at the national and international level on how best to promote new concrete actions and partnerships on water for sustainable development. Chapter 18 and other related elements of *Agenda 21* duly recognized the pervasive role of water in providing a sound basis for sustainable development. In this context, water and sanitation are critical factors influencing the global community's responses to and action on several of the targets set by the Millennium Development Goals (MDGs), including most obviously the one aimed at halving, by 2015, the proportion of people without sustainable access to safe drinking water, but also those aimed at poverty reduction, integrating the principles of sustainable development into national policies and programmes and eliminating gender disparities in education.

The World Summit on Sustainable Development (WSSD) is a unique opportunity for the international community to provide inputs on specific initiatives, including institutionalized approaches that would allow the recommendations of international meetings on water and sanitation to be translated into practice. During the preparatory process leading up to WSSD, a number of stakeholders expressed interest in a range of broad areas that could be expanded further through appropriate initiatives. Such initiatives are expected to identify partners and to specify clear targets, timetables and co-ordination and implementation mechanisms, as well as arrangements for monitoring progress, for systematic and predictable funding and for the technology transfer and capacity building required to launch these initiatives. This chapter is intended to facilitate that process by providing a framework for action that includes, but is not limited to, the role of partnerships on water and sanitation for sustainable development.

The WSSD provides a forum for and a call for action addressed to the international community, governments, NGOs, the private sector and local communities to continue to pursue sustainable development objectives. It is a call to recognize that sustainable development is the only long-term option to lead the world's poor out of the poverty trap, and that it is possible with the resources available at hand. And it is a call to find new solutions to old problems. A road-map for sustainable development within the context of water is provided below. The road-map sets sustainable development goals or areas for action, indicative targets related to each area of action, and examples of specific activities that can be implemented under each area of action. Areas of action and targets proposed herein are meant to be indicative, and can be further refined based on the multistakeholder discussions and outcomes of WSSD.

Frameworks for Action

Water for sustainable development was discussed at the intergovernmental level at the sixth session of the Commission for Sustainable Development (CSD-6) in 1998 and broad consensus was reached on key water issues. Governments agreed that "in order to make water systems more supportive of sustainable development objectives", contributions from all stakeholders—as well as increased investments—would be needed. They also agreed that "to implement the goal accepted by the international community to halve the proportion of people living on less than US$1 per day by 2015, access to safe drinking water supplies and sanitation services as well as to reverse the unsustainable water use trends are critical prerequisites." Following the recommendation of CSD-6, the dialogue on issues relating to water for sustainable development continued within the WSSD process. The last meeting on this was held in Bonn in 2001, where improved water management and governance and access to water and sanitation, among other topics, emerged again as key priorities. Similarly, CSD-7 called for an integrated approach to address coastal and ocean-related issues, with due attention to their inter-relationships with integrated water resources management.

The global community is confronting a number of challenges with regard to development and management of water resources within the framework of sustainable development. In order to meet these challenges, considerable attention and political will need to be focused on removing existing policy, fiscal, technical and institutional constraints and impediments. The availability of appropriate modern technologies to bring water closer to unserved communities at affordable prices, the use of water conservation and efficiency measures, institutionalization of the role of water markets for rural-urban transfers, closer co-operation between freshwater resources and coastal zone managers and the introduction of regulatory and sector reforms can all serve as important indicators that water needs will be met in a more cost-effective and environmentally beneficial manner.

Within the context of water for sustainable development, many recommendations came out of various fora, where time and again the need for stronger advocacy efforts and for

policy, regulatory and legislative reforms in the water sector was emphasized. Other key recommendations included making markets work better at all levels while protecting the most vulnerable strata of the population, attracting required financial investments, supporting technological innovation, undertaking research and development, and building human and institutional capacity in developing countries and small island developing states.

What is urgently needed are adequate delivery mechanisms and a renewed commitment that could lead to an improved implementation of strategies on water for sustainable development at the national, regional and global levels. Towards this end, this chapter identifies major priority areas where immediate actions are needed. Indicative targets for each action area are defined in relation to the MDG timeline, and key activities are proposed to meet these targets. These action areas, indicative targets and proposed activities are drawn from international agreements and recommendations related to water, but are regrouped here to reflect the most immediate priorities within the context of WEHAB and MDG frameworks. The intent is to enable a wide range of stakeholders to make tangible contributions to the achievement of the objectives of sustainable development in the field of water and sanitation.

Action Area 1: Halve by 2015 the proportion of people without sustainable access to safe drinking water. (Drawn from MDG 7)

Indicative Targets/Milestones

Launch a programme of actions (2005–15), with financial and technical assistance, to achieve the MDG to halve the proportion of people without sustainable access to safe water. (Drawn from agreed text in Draft Plan of Implementation)

This translates into reaching 210 million people in 2005, 486 million people in 2010 and 880 million people in 2015.

Implement a number of awareness-raising national programmes on WASH designed with partner governments and other stakeholders. They must be coupled with corresponding implementation measures.

Examples of Activities

- Mobilize international and domestic resources at all levels, transfer technologies and support capacity building for water infrastructure and services development, ensuring that such infrastructure and services meet the needs of the poor and are gender-sensitive.
- Focus attention and resources on the reduction of waterborne diseases that are related to the lack of access to safe water.
- Undertake country-level assessments to develop strategies and action plans aimed at reaching the targets.
- Invest in improving the efficiency of existing systems through rehabilitation and improved operations and maintenance (O&M).
- Create conducive conditions for the establishment and growth of private-service providers for rehabilitation and O&M of water systems at local and national levels.
- Promote political will at the country level to deliver basic services like water supply and sanitation to the poor.
- Promote site-specific technology transfer to support the use of new, innovative distribution systems and treatment facilities.
- Promote and strengthen innovative forms of service delivery compatible with local situations, focusing as much as possible on community-based organizations.
- Rely on the use of traditional systems such as rainwater harvesting where appropriate.
- Form new types of partnerships to overcome resource constraints.

Action Area 2: Halve the proportion of people without sustainable access to improved sanitation.

Indicative Targets/Milestones

Launch a programme of actions, with financial and technical assistance, to halve the proportion of people without sustainable access to improved sanitation services by 2015, with a focus on the role of hygiene awareness for healthy communities. (Currently over 2.4 billion people have no access to affordable improved sanitation.)

Reduce the mortality rate among children.

Examples of Activities

- Promote political will at all levels to ensure that integrated approaches to sanitation services are mainstreamed into relevant sector policies and programmes.
- Mobilize resources at all levels for sanitation infrastructure and services development.
- Undertake appropriate local, sub-national and national level assessments to carry out diagnostic analysis and develop strategies and action plans aimed at reaching sanitation targets.
- Encourage the development and implementation of affordable and appropriate sanitation projects in rural and low-income urban areas where needs are greatest.

- Develop effective water usage, sanitation and hygiene practices through advocacy, training and capacity development in partnership with other stakeholders (including media, NGOs and the private sector).
- Protect aquatic ecosystems by introducing technologies for affordable sanitation and industrial and domestic wastewater treatment.

Action Area 3: Develop integrated water resources management (IWRM) frameworks, including integrated coastal area and river basin management (ICARM), and prepare and implement water management action plans at the country level. (Linkage with MDG 7 and Draft Plan of Implementation, para. 25)

Indicative Targets/Milestones

Developing countries prepare policies and regulatory frameworks for development and management of water resources, with due consideration to public health and environmental protection needs in coastal and marine environments.

All water-stressed countries prepare water management action plans by 2005, with identification of means to meet the water deficit.

Complete water valuation studies in all countries by 2005.

Develop national/regional strategies and programmes for IWRM and ICARM and implement them by 2005.

For selected river basins, the water resources management action plans recognize and address the coastal requirements.

Examples of Activities

- Assist countries in the preparation of water policies, strategies and regulations through participatory mechanisms, with clear assessment of resource requirements.
- Strengthen IWRM and ICARM planning and implementation capacities at the basin, coastal zone and country levels.
- Develop national information management and monitoring programmes.
- Evaluate alternative options to bridge water supply and demand gap through optimal allocation of resources, including conjunctive use and considering both non-conventional and traditional approaches.
- Promote and strengthen decentralized and participatory water management policies and strategies.
- Enhance capacities in planning, implementation and O&M of water and sanitation schemes.
- Develop and implement training programmes consistent with national water development and management functions.
- Focus research and information management on problem solving.
- Share knowledge and innovative technologies.
- Build partnerships with international, regional and national knowledge-based forums and institutions.
- Assess and identify trans-boundary issues that require co-operation, and develop strategies to address these issues.
- Establish national and regional consultative groups to advance discussions on trans-boundary issues.
- Develop programmes to support the co-operation between river basin and coastal zone managers.

Action Area 4: Accelerate water productivity gains in irrigated agricultural systems to contribute to food security, relieve environmental pressures and provide scope for water transfers to other important productive uses.

Indicative Targets/Milestones

Improve water productivity in the agricultural sector in terms of increased agricultural production, with visible impact on poverty reduction and food security.

Improve water use efficiency in the agriculture sector by 5 per cent by 2010 and 10 per cent by 2015.

Examples of Activities

- Promote irrigation strategies as part of agriculture policy by shifting progressively towards demand-led approaches.
- Promote the adoption of user-responsive irrigation systems through modernization and management transfer.
- Implement on-farm irrigation management measures.
- Define strategies and means to reduce water losses in the irrigated agriculture sector.
- Promote soil moisture conservation in both rain-fed and irrigated agriculture.
- Implement strategies and means to reduce water losses in the irrigated agriculture and to monitor water uses.
- Strengthen land and water management research and extension systems.
- Encourage the adoption of traditional water harvesting systems in rain-fed areas.

- Put in place agro-meteorological networks and practices for improvement of irrigation efficiency management.

Action Area 5: Safeguard human health, including reduction in the mortality rate (associated with lack of access to safe drinking water, inadequate sanitation and poor hygiene), by improving the quality of drinking water.

Indicative Targets/Milestones

Bring about behavioural changes in water, in sanitation and hygiene and in water quality management and sanitation practices. Important milestones are 35 per cent reduction in the incidence of water-borne diseases by 2010, and 70 per cent reduction by 2015.

Reduce the mortality rate among children under five by two-thirds through improved access to safe drinking water, adequate and affordable sanitation and improved hygiene practices by 2015.

Examples of Activities

- Implement water quality monitoring programmes.
- Assign the role of water-related public awareness to the agency responsible for IWRM at the country level.
- Institute gender-sensitive systems and policies.
- Raise awareness and understanding of the linkages between water, sanitation and hygiene and poverty alleviation and sustainable development.
- Develop in partnership with all relevant actors community-level advocacy and training programmes that contribute to improved household hygiene practices for the poor.
- Identify best practices and lesson learned based on existing projects and programmes related to provision of safe water and sanitation services focused on children.
- Create multistakeholder partnerships opportunities and alliances at all levels that directly focus on the reduction of child mortality through diseases associated with unsafe water, inadequate sanitation and poor hygiene.
- Develop national, regional and global programmes related to the provision of safe water and improved sanitation services for urban slums in general and on the needs of children in particular.
- Identify water pollution prevention strategies adapted to local needs to reduce health hazards related to maternal and child mortality.

Action Area 6: Strengthen disaster preparedness planning processes at the country level to protect the poor from the impact of water-related disasters (floods and droughts), particularly in low-lying countries and small island developing states.

Indicative Targets/Milestones

Develop programmes for mitigating the effects of extreme water-related events in 2005–15 with a focus on significantly reducing risks and vulnerability of the poorest to natural hazards.

Establish early warning systems and develop interfacing with regional-level networks in countries more prone to water related risks.

Examples of Activities

- Integrate multi-hazards approach to address vulnerability, risk assessment and disaster management related to water and sanitation services.
- Strengthen early warning systems and encourage the use of traditional and indigenous knowledge in risk management and coping with disasters.
- Develop programmes for mitigating the effects of extreme water-related disasters.
- Strengthen partnerships and cooperation for water-related disaster reduction and risk management.
- Strengthen institutional and human capacities to manage water-related disasters and reduce related risks.

Action Area 7: Mobilize financial resources to meet the investment needs in the water sector.

Indicative Targets/Milestones

Develop water sector investment plans, launch policies for internal mobilization of resources, identify the sources to meet the resource gap, develop mechanisms to tap these resources and secure water and sanitation sector co-ordination.

(For example, approximately US$60 billion per year is required to meet just the MDG on water supply and sanitation.)

Examples of Activities

- Ensure significant increase in all types of funding from all types of sources.
- Develop new modalities and mechanisms for fund raising.

- Promote the use of debt-swap mechanisms that would generate increased local currency.
- Introduce tariff policies that will promote cost recovery, economic efficiency and social equity.
- Strengthen public funding capabilities.
- Improve efficiency of existing and future systems to sustain operations and investment.

Action Area 8: Strengthen institutional and technical capacities of developing countries in the implementation of IWRM, ICARM and water governance at the country level, including those dealing with the O&M of water schemes.

Indicative Targets/Milestones

Put in place adequate water governance systems by 2010 to support the achievement of water-related MDGs.

Assure an increasing role for private providers in the delivery of water services in terms of providing technology, management and finance as partners to governments and local communities.

Secure resources and technologies to implement the action plans.

Gradually reduce external technical assistance (in measurable terms) as compared with the base-line case scenario.

Examples of Activities

- Create solid and effective institutions and legal frameworks at the national and local levels that are accountable to end-users.
- Initiate local and national water governance programmes based on a dialogue on effective water governance.
- Establish mechanisms for accountability and transparency at all levels: Government, service providers and local communities.
- Make water policies and water management systems gender-sensitive, adequately reflecting the division of labour.
- Develop and implement training programmes based on formal education and training, skills development, vocational training and on-the-job training consistent with national water development and management functions.
- Focus education and training on water wisdom, while directing research and information management on problem solving.
- Share knowledge and innovative technologies.
- Build partnerships with international, regional and national knowledge-based forums and institutions.

Action Area 9: Protect the quality of surface and groundwater as well as of the aquatic ecosystems and coastal zones.

Indicative Targets/Milestones

Achieve 30 per cent reduction by 2010 in countries with severe water qauality problems and 60 per cent reduction by 2015 in site- and resource-specific substances affecting water quality.

Formulate integrated risk management plans and institutuional arrangements in countries sharing a common river basin and large marine ecosystems by 2010, including wetland and watershed restoration.

In 40 coastal states, prepare by 2006 national programmes of action to protect their coastal and marine environments from pollution.

Develop wastewater emission targets by 2006.

Examples of Activities

- Establish and implement legal frameworks for allocating adequate amount of water to ecosystems.
- Develop and implement water quality monitoring programmes, including those required for estuarine and marine information management.
- Identify polluters and enforce regulatory and economic measures to reverse the pollution trends.
- Assess functions and values of ecosystems in terms of their social, economic and environmental benefits and costs.
- Advance the implementation of the Global Programme of Action for the protection of the marine environment from land-based activities.
- Develop wastewater infrastructure and services to minimize the pollution impacts on public health, as well as on coastal and marine ecosystems.
- Promote innovative and cost-effective technologies for wastewater reduction, treatment, reuse, recycling and disposal.

Building and Implementing Partnerships

The international community has a vital role to play in helping developing countries achieve water and sanitation-related objectives for sustainable development. Clearly, various co-operative actions are needed on the part of governments, businesses, civil society, international organizations and other relevant stakeholders to address the challenges. Forging partnerships among all stakeholders therefore constitutes a key component of this action agenda. This section provides a brief summary of some of the critical elements required for building and implementing partnerships in water and sanitation.[1]

The CSD, based on the preparatory process leading up to the WSSD, has envisaged that forming and promoting new and innovative partnerships will be critical to meet the challenges articulated in this paper. These partnership initiatives are foreseen to be basically of a voluntary nature—agreed on through mutual consultations among the stakeholders. The main focus of these initiatives will be to supplement and complement the WSSD-negotiated outcome and the ongoing work by governments and other stakeholders in the implementation of *Agenda 21*. As such, the partnership initiatives will give rise to a series of commitments and action-oriented coalitions focused on deliverables and would contribute to translating the political commitments into action. In response to a wish for additional guidance on the elaboration of partnerships expressed during the informal meetings on partnerships in PrepCom 3, an addendum to the Chairman's explanatory note, entitled "Further Guidance for Partnerships/Initiatives", has also been provided.[2]

With reference to water for sustainable development, one important lesson learned over the last decade is that forming public-private partnerships helps in the development of new water infrastructure and in overcoming financial constraints. Over the last decade, a number of partnerships in the domain of water have emerged, such as those between Governments and the Water Supply and Sanitation Collaborative Council, the Global Water Partnership, the Water and Sanitation Program, the Water Utility Partnership in Africa, and the New Partnership for Africa's Development. Although each of these partnerships has evolved around specific objectives, most of them could be viewed as umbrella organizations and initiatives.

The critical issue is how to translate the idea of partnership building from global or regional-level discussions and advocacy campaigns into local actions. Most water and sanitation issues are localized in nature, and thus the solutions will also have to be local. Towards this aim, new and innovative partnerships will have to be formed that may involve a wide range of stakeholders and may have many different kinds of ways for partners to participate. A framework is proposed here to facilitate this process without which individual partnership initiatives devised by a wide range of actors may result in duplication of efforts and restrictions on resource inputs by stakeholders.

Consultative process. All partnerships begin with a dialogue. This can be initiated by a lead partner or partners, by a global consensus or by some other catalyst. The role of a champion or lead partner in moving the partnership forward in the early stages is critical. A broad consultative process for partnerships may also be necessary to assist in sharing experiences and learning at all levels (local, national, regional and global), as individual initiatives will not be isolated but can be informed by and grow from broader processes and initiatives.

Definition of objectives. The next step is scoping and definition of objectives, targets, activities and implementation and co-ordination arrangements associated with the partnership. This requires consultation among different actors in order to harmonize the views and needs of all stakeholders—donors, participating institutions, technical groups and recipients. Underlying principles around which partnership objectives could be defined are: ensuring mutuality of interests, promoting a shared sense of purpose, and engendering respect for all stakeholders.

Mobilization of resources. This stage in the process is crucial to the overall success of the partnership, as it results in the provision of actual (financial, institutional and human) resource inputs. This stage often needs to be initiated in conjunction with the task definition work done by stakeholders.[3]

Implementation of partnership. All partnerships are dynamic processes or works in progress, and the stage at which the partnership is actually launched or implemented provides all stakeholders with an opportunity to see partnership activities and organizations in operation. Partners can also use this as an opportunity to examine whether additional skills and resources are needed to strengthen the partnership.

Tracking progress and results. At this stage, the partnership initiative is already under way and all stakeholders can now review and evaluate existing operations and experiences. The tracking of short-, medium- and long-term results is crucial in the evolution and growth of a partnership and should allow for modifications and further refining of tasks and activities based on results/targets achieved.

Scaling-up of partnership initiatives. Once a partnership initiative has been established, appropriate steps are needed to scale up and link with other activities in contiguous areas. Going to scale requires the adoption of partnership strategies and linkage mechanisms that can meet challenges involved in achieving agreed objectives.

All initiators of partnerships were invited to complete and submit an Information Sheet related to a specific initiative to the WSSD Secretariat.[4] The Secretariat has posted on its Web site all partnership proposals received. Detailed information on these may be obtained from the official Web site of the Summit. A number of proposals for partnerships have been developed, and many more are still in the process of being developed.

Endnotes

1 A listing of some selected partnerships is available in Annex K of the World Bank document (2001) "Making Sustainable Commitments: An Environment Strategy for the World Bank," at http://gefweb.org/Documents/Council_Documents/GEF_C17/C.17.Inf15.Annexes.pdf.

2 The document entitled "Further Guidance" is a two-page addendum available at http://www.johannesburgsummit.org/html/documents/prepcom3docs/summary_partnerships_annex_050402.doc.

3 Different financing mechanisms, such as those related to regional development banks, the World Bank and the Global Environmental Facility, are potential sources of finance. In addition, an active role for commercial banks and investment companies is envisaged.

4 The Information Sheet is available at http://www.johannesburgsummit.org/html/sustainable_dev/partnerships2_form.doc.

Major Agreements on Water and Sanitation and Their Objectives

This chapter provides the reader with a 30-year overview of the major conferences and international agreements that provide the broad background for today's water resources policies and decision-making. Over the last decade, numerous international conferences have discussed and agreed on steps required to speed up the implementation of *Agenda 21*. Water for sustainable development was discussed at the intergovernmental level in the sixth session of the Commission for Sustainable Development (CSD-6) in 1998, and broad consensus was reached on key water issues. Recent international water meetings (the Second World Water Forum in the Hague in 2000 and the International Conference on Freshwater in Bonn in 2001) served as important fora for multistakeholder dialogues and generated new recommendations on how to address increasing water challenges. The United Nations Millennium Declaration and the preparatory process leading up to the World Summit on Sustainable Development (WSSD) further affirmed the role of water as a key to sustainable development and the urgency of immediate action.

These international meetings have identified several key water issues and challenges, with increasing focus on provision of water supply and sanitation as well as the need for improved governance and integrated water resources management. They proposed many actions to meet the challenges, stressing the importance of taking concerted action to use water as an entry point to achieve the goal of sustainable development. Water is a critical factor influencing the global community's responses and action to accomplish the Millennium Development Goals, including those aimed at reducing poverty, integrating the principles of sustainable development into national policies and programmes, improving access to water, improving the lives of poor people and reducing child mortality by 2015.

Many of these reports are consensus documents; others are global and regional, with recommendations or provisions relevant to the water agenda. This list attempts to provide the reader with a quick orientation and easy-to-use Web references for further investigation on what has already been agreed to by the international community.

Although there is no global, comprehensive intergovernmental structure for water, there is a very dynamic process of advancing international understanding and co-operation on water for sustainable development. These efforts are led by different governments, by the private sector and members of the civil society, by the work of various UN system entities and by other important regional and intergovernmental bodies, as well as by several organized groups like the Water Supply and Sanitation Collaborative Council, the Global Water Partnership, the Gender and Water Alliance and the World Water Council, among others.

Progress on water for sustainable development requires by its very nature a multistakeholder approach. The essential contributions of the private sector to the international water agenda, which are not reflected in the list below, deserve special emphasis in this context.

Conference/Agreement: **Helsinki Rules on the Uses of the Waters of International Rivers, Finland**

Date: August 1966

Main Focus: Establish rules to ensure an effective system for the prevention, reduction, elimination and control of harm to waters and other features of the aquatic environment.

Outcome: Report of the Committee on the uses of the waters of international rivers. Became a Convention in March 1992, "Convention on the Protection and Use of Transboundary Watercourses and International Lakes".

http://www.internationalwaterlaw.org/IntlDocs/Helsinki_Rules.htm

Conference/Agreement: **The Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention), Ramsar, Iran**

Date: February 1971

Main Focus: Promote national action and international co-operation to protect and restore wetland environments.

Outcome: Ramsar List of Wetlands of International Importance. The Convention was adopted in 1971 in Ramsar and came into force in 1975.

http://sedac.ciesin.org/entri/register/reg-056.rrr.html http://ramsar.org/

Conference/Agreement: **United Nations Conference on the Human Environment and Development, Stockholm, Sweden**

Date: June 1972

Main Focus: Achieve concrete and valid solutions to the problems of the human environment and ensure that all people have the right to have access to drinking water.

Outcome: Declaration of the UN Conference on the Human Environment

http://www.unep.org/Documents/Default.asp?DocumentID=97

Conference/Agreement: **United Nations Water Conference, Mar del Plata, Argentina**

Date: April 1977

Main Focus: Development of national water resource assessments, and national policies and plans to give priority to supplying safe drinking water and sanitation services to all people.

Outcome: Mar del Plata Action Plan (MPAP)

http://www.undp.org/seed/water/strategy/4.htm#42

Conference/Agreement: **General Assembly, UN, New York**

Date: November 1980

Main Focus: Achieving universal access to water supply and sanitation.

Outcome: Declaration of International Drinking Water and Sanitation Decade (IDWSSD)

http://www.un.org/documents/ga/res/35/a35r18e.pdf

Conference/Agreement: **Seoul Conference on International Groundwaters, Republic of Korea**

Date: 1986

Main Focus: Create rules to prevent or abate the pollution of international groundwaters.

Report with the Seoul rules on International Groundwaters

http://www.internationalwaterlaw.org/IntlDocs/Seoul_Rules.htm

Conference/Agreement: **Intergovernmental Panel on Climate Change**

Date: 1988

Main Focus: Assess the scientific, technical and socio-economic information relevant for the understanding of the risk of human-induced climate change, based mainly on peer-reviewed and published scientific/technical literature.

Outcome: Intergovernmental Negotiating Committee for a UN Framework Convention on Climate Change by the UN General Assembly

http://www.ipcc.ch/

Conference/Agreement: **Basel Conference on the Conveyance of Hazardous Waste across Frontiers, Basel, Switzerland**

Date: March 1989

Main Focus: Management of the release of hazardous waste (not including radioactive waste and waste from ship operations) into water bodies. Considerable attention to means involving land use and disposal practices for permissible inter-State movements.

Outcome: Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal

http://www.basel.int/

Conference/Agreement: **Global Consultation on Safe Water and Sanitation for the 1990s, New Delhi, India**

Date: September 1990

Main Focus: Create concerted action to enable people to obtain two of the most basic human needs: safe drinking water and environmental sanitation.

Outcome: New Delhi Statement

http://www.wsscc.org/resources/briefings/ndelhi.html

Conference/Agreement: **World Summit for Children, UN, New York**

Date: September 1990

Main Focus: To undertake a joint commitment and to make an urgent universal appeal to give every child a better future. The Summit acknowledged that a major factor affecting the health of children is the availability of clean water and sanitation. Progress in child health is unlikely to be sustained if one-third of the developing world's children remain without access to clean drinking water and half of them are without adequate sanitary facilities.

Outcome: Declaration on the Survival, Protection and Development of Children Plan of Action for Implementing the World Declaration on the Survival, Protection and Development of Children in the 1990s

http://www.unicef.org/wsc/

Conference/Agreement: **Environmental Impact Assessment in a Transboundary Context, Espoo, Finland**

Date: February 1991

Main Focus: "Enhance international cooperation in assessing environmental impact in particular in a transboundary context" (preamble). The parties of the Convention are bound to take effective measures to prevent, reduce and control transboundary environmental impact from the activities listed in its Appendix I.

Outcome: Convention on Environmental Impact Assessment. Legal and administrative measures to implement the provisions of the convention regarding environmental assessment prior to implementing listed activities. The Convention entered into force on 10 September 1997.

http://sedac.ciesin.org/pidb/texts/environmental.impact.assessment.1991.html

Conference/Agreement: **UNDP Symposium for Water Resources Capacity-Building in the Next Century, Delft, The Netherlands**

Date: June 1991

Main Focus: Bring attention to building institutional capacity and making it more demand-responsive. Emphasis was put on satisfying the increasing water needs of the urban population and the increasing need for irrigated agriculture. The consequences of urban and industrial pollution were also discussed.

Outcome: Delft Declaration: A Strategy for Water Resources Capacity-Building in the Next Century

Conference/Agreement: **International Conference on Water and the Environment, Dublin, Ireland**

Date: January 1992

Main Focus: Preparatory conference for the United Nations Conference on Environment and Development.

Outcome: Dublin Statement on Water and Sustainable Development; Dublin Principles

http://www.water-2001.de/conferences/default4.asp

Conference/Agreement: **Convention on the Protection and Use of Transboundary Watercourses and International Lakes, supplemented by its 1999 Protocol on Water and Health**

Date: March 1992

Main Focus: To promote in the ECE region at all appropriate levels, nationally as well as in transboundary and international contexts, the protection of human health and well-being, both individual and collective, within a framework of sustainable development, through improving water management, including the protection of water ecosystems, and through preventing, controlling and reducing water-related disease.

Outcome: A legally binding instrument on civil liability for transboundary damage caused by hazardous activities. A joint ad hoc group of experts on water and industrial accidents was established.

http://sedac.ciesin.org/entri/register/reg-167.rrr.html

Conference/Agreement: **United Nations Framework Convention on Climate Change (UNFCCC) (Kyoto Protocol)**

Date: May 1992

Main Focus: The ultimate objective of this Convention is to achieve the stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. It also aims to co-operate in preparing for adaptation to the impacts of climate change and to develop and elaborate appropriate and integrated plans for coastal zone management, for water resources and agriculture, and for the protection and rehabilitation of areas, particularly in Africa, affected by drought and desertification, as well as floods.

Outcome: The Convention was adopted in May 1992 in New York and opened for signature in June 1992 at UNCED in Rio de Janeiro. It entered into force on 21 March 1994. The Kyoto Protocol was adopted in December 1997. It has not entered into force.

http://unfccc.int/resource/conv/index.html

Conference/Agreement: **Convention on Biological Diversity (CBD) (Cartagena Biosafety Protocol)**

Date: May 1992

Main Focus: The objectives of this Convention are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the use of genetic resources, including by appropriate access to genetic resources.

Outcome: The Convention was adopted in May 1992 in New York and opened for signature in June 1992 at UNCED in Rio de Janeiro. It entered into force on 29 December 1993. The Cartagena Protocol on Biosafety was adopted in January 2000 and was opened for signature in May 2001. It has not entered into force.

http://www.biodiv.org/convention/articles.asp?lg=0&a=cbd-01

Conference/Agreement: **Forest Principles**

Date: June 1992

Main Focus: Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests.

Outcome: The Forest Principles were adopted in June 1992 at UNCED in Rio.

Conference/Agreement: **United Nations Conference on Environment and Development (UNCED), Rio de Janeiro, Brazil**

Date: June 1992

Main Focus: Establish a new and equitable global partnership through the creation of new levels of co-operation among States, key sectors of societies and people. With regards to water, attention was given to integrated water resources development and management, protection of water resources, water and sanitation, water and sustainable urban and rural development, and impacts of climate change on water resources.

Outcome: Rio Declaration on Environment and Development; *Agenda 21* – Chapter 18: Protection of the quality and supply of freshwater resources: application of integrated approaches to the development, management and use of water resources. UNFCCC and CBD were opened for signature; adoption of the Forest Principles.

http://www.un.org/esa/sustdev/agenda21text.htm

Conference/Agreement: **47th Session of the UN General Assembly, UN, New York**

Date: December 1992

Main Focus: In its Resolution A/RES/47/193, the General Assembly, considering that the promotion of water conservation and sustainable management requires public attention, declared 22 March of each year World Day for Water.

Outcome: Celebration of 22 March of each year as World Day for Water.

Conference/Agreement: **Inter-ministerial Conference on Drinking Water Supply and Environmental Sanitation, Noordwijk, The Netherlands**

Date: March 1994

Main Focus: Raise awareness about the crises of inadequate drinking water supplies, water contamination and degradation of aquatic ecosystems at the highest political levels. To assign high priority to programmes designed to provide basic sanitation and excretal disposal systems to urban and rural areas.

Outcome: Served as an input to the 2nd session of the CSD that took note, with appreciation, of the outcome of the Conference.

Conference/Agreement: **Global Conference on the Sustainable Development of Small Island Developing States, Bridgetown, Barbados**

Date: April 1994

Main Focus: The Conference sought to translate *Agenda 21* into specific policies, actions and measures to be taken to enable small island developing states (SIDS) to achieve sustainable development. It acknowledged that there is an urgent need in SIDS to address the constraints to sustainable development including, among other items, limited fresh water.

Outcome: Barbados Declaration
Barbados Programme of Action (BPoA)

Conference/Agreement: **World Conference on Disaster Reduction, Yokohama, Japan (Midterm Review of the International Decade on Natural Disaster Reduction-IDNDR)**

Date: May 1994

Main Focus: Enabling all societies to become resilient to the effects of natural hazards and related technological and environmental disasters, in order to reduce human, economic and social losses. Linking efforts of disaster reduction more closely with *Agenda 21* implementation.

Outcome: Yokohama International Disaster Reduction Strategy and Plan of Action

http://www.unisdr.org/unisdr/yokostrategy.htm

Conference/Agreement: **United Nations Convention to Combat Desertification (CCD)**

Date: June 1994

Main Focus: The Convention recognizes the physical, biological and socio-economic aspects of desertification; the importance of redirecting technology transfer so that it is demand-driven; and the involvement of local populations. The core of the CCD is the development of national and subregional/regional action programmes by national governments in cooperation with donors, local populations and NGOs.

Outcome: The Convention to Combat Desertification was adopted on 17 June 1994 and was opened for signature in October 1994 in Paris. It entered into force on 26 December 1996.

http://www.unccd.int/main.php

Conference/Agreement: **World Summit for Social Development, Copenhagen, Denmark**

Date: March 1995

Main Focus: Make the conquest of poverty, full employment and the fostering of social integration overriding objectives of development. Absolute poverty is a condition characterized by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information. Eradication of poverty depends on providing, on a sustainable basis, access to safe drinking water in sufficient quantities and proper sanitation for all.

Outcome: Copenhagen Declaration on the Social Development. Copenhagen Programme of Action

http://www.un.org/esa/socdev/wssd/agreements

Conference/Agreement: **Establishment of the Intergovernmental Panel on Forests, UN, New York**

Date: April 1995

Main Focus: The objectives of the Panel included implementation of UNCED forest-related decisions; international co-operation in financial assistance and technology transfer; scientific research, forest assessment and the development of criteria and indicators for sustainable forest management.

Outcome: The Panel was established during CSD-3 for two years (1995-1997). It was replaced by the Intergovernmental Forum on Forests.

http://www.un.org/esa/sustdev/forestsmandate.htm

Conference/Agreement: **UN Fourth World Conference on Women, Beijing, China**

Date: September 1995

Main Focus: Achieving greater equality and opportunity for women. Reducing the persistent and increasing burden of poverty on women and gender inequalities in the management of natural resources and in the safeguarding of the environment. Ensuring the availability of and universal access to safe drinking water and sanitation.

Outcome: Beijing Declaration and Platform for Action

http://www.undp.org/fwcw/daw1.htm

Conference/Agreement: **Integovernmental Conference to Adopt the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, Washington D.C.**

Date: November 1995

Main Focus: The Global Programme of Action aims at preventing the degradation of the marine environment by assisting states in taking actions that will lead to the prevention, reduction, control or elimination of the degradation of the marine environment, as well as its recovery from the impacts of land-based activities.

Outcome: The Washington Declaration and the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities

http://www.gpa.unep.org/documents/default.htm

Conference/Agreement: **UN Conference on Human Settlements (Habitat II), Istanbul, Turkey**

Date: June 1996

Main Focus: Adequate shelter for all and sustainable human settlements development in an urbanizing world. Focus on the provision of adequate quantities of safe water and effective management of waste.

Outcome: The Habitat Agenda

http://www.unchs.org/unchs/english/hagenda/index.htm

Conference/Agreement: **World Food Summit, FAO, Rome**

Date: November 1996

Main Focus: Access to safe and nutritious food. Restoration of water and watersheds to combat drought and desertification.

Outcome: Rome Declaration and Plan of Action on World Food Security

http://www.fao.org/docrep/003/w3613e/w3613e00.htm

Conference/Agreement: **First World Water Forum, Marrakesh, Morocco**

Date: March 1997

Main Focus: Develop strategies for practical action towards the sustainable use and management of water resources.

Outcome: Marrakesh Declaration

http://www.cmo.nl/pe/pe7/pe-772.html

Conference/Agreement: **UN Convention on the Law of the Non-navigational Uses of International Watercourses, New York**

Date: May 1997

Main Focus: Guiding States in negotiating agreements on specific watercourses.

Outcome: Has not entered into force. Adopted by the UN General Assembly in resolution 51/229 of 21 May 1997.

http://untreaty.un.org.

Conference/Agreement: **Special Session of the UN General Assembly to Review and Appraise the Implementation of Agenda 21, UN, New York**

Date: June 1997

Main Focus: Review and appraise *Agenda 21* implementation. The General Assembly, among other things, indicated that the highest priority should be given to the serious freshwater problems facing many regions, and it recognized water as a social and economic good with the vital role in the satisfaction of basic human needs, food security, poverty alleviation and the protection of ecosystems.

Outcome: Recommendations for action in the follow-up to the implementation of *Agenda 21*, including in the area of fresh water.

http://www.iisd.ca/vol05/0583001e.html

Conference/Agreement: **Ad hoc open ended Intergovernmental Forum on Forests (IFF), UN, New York**

Date: July 1997

Main Focus: The purposes of the Forum included: promoting and facilitating the implementation of the proposals for action of the reporting on progress in the management, conservation and sustainable development of all types of forest; other pending matters; consideration of international arrangements and mechanisms to promote management and conservation.

Outcome: The IFF met from 1997 to 2000. It was replaced by the United Nations Forum on Forests (UNFF).

http://www.un.org/esa/sustdev/forestsmandate.htm

Conference/Agreement: **International Law Commission Resolution on Confined Transboundary Groundwater, UN, Geneva**

Date: July 1997

Main Focus: Regulation of transboundary groundwater.

Outcome: The resolution recommends States to consider entering into agreements with other State or States in which the confined transboundary groundwater is located and to consider applying certain dispute resolution provisions.

http://www.internationalwaterlaw.org/IntlDocs/ILC_GW_Resolution.htm.
http://www.un.org/law/ilc/index.htm

Conference/Agreement: **Expert Group Meeting on Strategic Approaches to Freshwater Management, Harare, Zimbabwe**

Date: January 1998

Main Focus: The meeting recognized that water is fundamental to sustainable development and a basic component of national and regional ecosystems. It also indicated that there is a need to recognize water as a social and economic good with a vital role in the satisfaction of basic human needs, food security, poverty alleviation and the protection of ecosystems.

Outcome: The meeting made a number of key recommendations for an integrated approach to freshwater resources management. These served as inputs to CSD-6, which addressed fresh water.

http://www.un.org/esa/sustdev/water.htm

Conference/Agreement: **International Conference on Water and Sustainable Development, Paris, France**

Date: March 1998

Main Focus: Improve knowledge of water resources and uses for sustainable management, and promote human resources development and institutional capacity building, defining strategies for sustainable water management.

Outcome: Paris Declaration

http://www.iisd.ca/sd/frh2o.html

Conference/Agreement: **1st Petersburg Round Table – International Dialogue Forum, Petersberg/Bonn, Germany**

Date: March 1998

Main Focus: Global Water Politics: Cooperation for Transboundary Water Management. Review of mechanisms and instruments to support the use of water as a catalyst for regional cooperation.

Outcome: Petersberg Declaration

http://www.dse.de/ef/petersb.htm

Conference/Agreement: **6th Session of the United Nations Commission on Sustainable Development, UN, New York**

Date: April 1998

Main Focus: Sustainable water management and water conservation.

Outcome: Recommendations for adoption by the ECOSOC on sustainable water management and water conservation.

http://www.un.org/esa/sustdev/CSD_6th.htm

Conference/Agreement: **World Conference on Disaster Reduction, UN, Geneva (marks the end of the International Decade on Natural Disaster Reduction 1990–99)**

Date: July 1999

Main Focus: The meeting recognized that the world is increasingly being threatened by large-scale disasters triggered by hazards, which will have long-term negative social, economic and environmental consequences on societies. It urged action to guarantee a safer world for future generations. In this regard, the Geneva Mandate contains provisions aimed at reducing the vulnerability of societies to both natural and technological hazards through proactive rather than reactive approaches.

Outcome: Declaration of Intent, Geneva Mandate

http://www.unisdr.org/unisdr/intention.htm

Conference/Agreement: **22nd Special Session of the UN General Assembly for the Review and Appraisal of the Implementation of the Programme Action for the Sustainable Development of SIDS, UN, New York**

Date: September 1999

Main Focus: Follow-up to the implementation of the Barbados Programme of Action for the Sustainable Development of Small Island Developing States.

Outcome: Declaration and Initiatives for Implementation of the Programme of Action for the Sustainable Development of SIDS.

http://www.sidsnet.org

Conference/Agreement: **Transboundary Water Management, Berlin, Germany**

Date: September 1998

Main Focus: Manage the availability, access to and use of water.

Outcome: Berlin Recommendations

http://www.thewaterpage.com/berlinrecom.htm

Conference/Agreement: **Second World Water Forum & Ministerial Conference, The Hague, The Netherlands**

Date: March 2000

Main Focus: World Water Vision: Making Water Everybody's Business

http://www.worldwatercouncil.org/Vision/cce1f838f03d073dc125688c0063870f.htm

Ministerial Conference on Water Security in the 21st Century
http://www.worldwaterforum.net/index2.html

Outcome: An interactive event aimed at exchanging information and ideas. The Forum was a platform where participants could influence other processes through which ideas are translated into policies and decisions.

Conference/Agreement: **8th Session of the United Nations Commission on Sustainable Development, UN, New York**

Date: April 2000

Main Focus: Concentrates on agriculture, forest, trade and land developments since 1997.

Outcome: Identification of 12 priorities for action, which include desertification and drought, emergency preparedness and water resources.

http://www.un.org/esa/sustdev/csd8/csd8_2000.htm

Conference/Agreement: **Groundwater 2000 – International Conference on Groundwater Research, Copenhagen, Denmark**

Date: June 2000

Main Focus: Forum for presentation of the most recent advances in groundwater research.

Outcome: Create an interdisciplinary forum for presentation and exchange of the most recent advances in groundwater research with a maintained focus on selected key issues.

http://www.isva.dtu.dk/grc/gw2000/

Conference/Agreement: **UN General Assembly's Millennium Summit, UN, New York**

Date: September 2000

Main Focus: Identifies pressing challenges faced by the world's peoples. One of the goals is to reduce by half the proportion of people without sustainable access to safe drinking water.

Outcome: The UN Millennium Declaration was adopted by UN General Assembly Resolution A/RES/55/2.

http://www.un.org/millennium/sg/report/

Conference/Agreement: **United Nations Forum on Forests (UNFF)**

Date: October 2000

Main Focus: The main objective of the international arrangement on forests is to promote the management, conservation and sustainable development of all types of forests and to strengthen long-term political commitment to this end.

Outcome: On 18 October 2000, ECOSOC adopted resolution E/2000/35, outlining an international arrangement on forests and establishing the UNFF as a subsidiary body of ECOSOC.

http://www.un.org/esa/sustdev/forestsmandate.htm
http://www.iisd.ca/linkages/vol13/enb1383e.html

Conference/Agreement: **55th Session of the UN General Assembly, UN, New York**

Date: December 2000

Main Focus: In its Resolution 55/196 of 20 December 2000, the UN General Assembly proclaimed 2003 as the International Year of Freshwater and encouraged all member states and all other actors to take advantage of the year to increase awareness of the importance of fresh water.

Outcome: Proclamation of 2003 as the International Year of Freshwater.

http://www.un.org/esa/sustdev/water.htm

Conference/Agreement: **Stockholm Convention on Persistent Organic Pollutants (POPs)**

Date: May 2001

Main Focus: The Stockholm Convention sets out control measures covering the production, import, export, disposal and use of an initial list of 12 POPs. POPs are chemical substances that persist, bioaccumulate and pose a risk of causing adverse effects to human health and the environment.

Outcome: The Convention was adopted in May 2001. It has not entered into force.
http://www.chem.unep.ch/sc/

Conference/Agreement: **11th Annual Stockholm Water Symposium, Sweden**

Date: August 2001

Main Focus: Examined water-related problems due to population growth, urbanization and industrialization. The aim of the 2001 Symposium was to promote an integration of water professionals in strategic decision-making in political and business communities, thereby actively placing water as central to the sustainability debate.

Outcome: The symposium has been meeting annually since 1990. It will meet again from 11–17 August, 2002.

http://www.siwi.org/sws/sws.html

Conference/Agreement: **First Intergovernmental Review of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, Montreal, Canada**

Date: November 2001

Main Focus: Review the implementation of the Global Programme of Action with a view to setting out a programme of work to strengthen institutional links between freshwater management and oceans management, and to address priority pollutant source categories, namely sewage, the physical alteration and destruction of habitat, and nutrients.

Outcome: The Montreal Declaration on the Protection of the Marine Environment from Land-based Activities

http://www.gpa.unep.org/

Conference/Agreement: **International Conference on Freshwater, Bonn, Germany**

Date: December 2001

Main Focus: Develop specific recommendations for action concerning sustainable use of our limited freshwater reserves and support preparations for the World Summit on Sustainable Development in Johannesburg in 2002 and the Third World Water Forum in Kyoto in 2003.

Outcome: Ministerial Declaration, The Bonn Keys, and Bonn Recommendations for Action.

http://www.water-2001.de/

UN System Capacities in Water and Sanitation

Water has many homes in the UN system. This chapter provides an overview of the wide involvement of different entities of the UN system in water-related and sanitation issues leading towards achieving sustainable development. Perspectives and approaches vary according to the mission and mandates that the governing bodies provide to the different UN entities.

The United Nations system brings to the table a broad, comprehensive view of all aspects of today's water agenda by means of its wide variety of mandates, disciplines and expertise. There is a comparative advantage that can be gained from the different perspectives and approaches of the UN agencies. By bringing together all the different pieces of the puzzle, the UN family can provide a country-driven multidisciplinary response to the critical challenges for managing water wisely that is more than the sum of the parts.

The UN system has established several mechanisms for coordination of its activities in water. The Intersecretariat Group for Water Resources was established in 1977 following the UN Water Conference at Mar del Plata in Argentina. It was a forum for defining areas where interagency collaboration would be important, such as in the implementation of the International Drinking Water Supply and Sanitation Decade (1981–1990) and, later, in the organization of the International Conference on Water and the Environment in Dublin, which was part of the preparatory process of the UN Conference on Environment and Development. After the Rio Summit, the Group was integrated into the structure of the former Administrative Committee on Coordination as the ACC Subcommittee on Water Resources, with the specific mandate of being task manager for the implementation of Chapter 18 of *Agenda 21*.

Recently, the Subcommittee has been charged with an important series of mandates both from the General Assembly and the Commission on Sustainable Development. As response to CSD-6, the Subcommittee started a long-term project called the World Water Assessment Programme whose main product will be the *World Water Development Report*, which will be issued on a periodic basis. Following the recent restructuring of the ACC and the creation of the CEB, it has been decided that decisions will be taken after WSSD regarding the inter-agency mechanism in fresh water.

This is an indicative list of the UN entities most active in the field of water, their main focus areas and some of their key initiatives. Its purpose is to give World Summit participants an overview of the work of the UN family as a whole as well as an indication of the breadth and depth of the organization's programme in this area. It is not a comprehensive or authoritative listing of all UN System activities in water. The information was gathered primarily from the Web sites of the organizations featured. Any omissions or errors were inadvertent and are sincerely regretted.

Food and Agriculture Organization (FAO)

http://www.fao.org/

FAO was founded in 1945 with a mandate to "raise levels of nutrition and standards of living, to improve agriculture productivity and the condition of rural populations". FAO is active in land and water development, animal and plant production for agriculture, forestry, fisheries, nutrition, food standards and commodities, economic and social policy, investment and trade. Its main functions include development assistance; information and support services; advice to governments; and providing a neutral forum for international co-operation. FAO has a well-developed structure of co-operation with UN organizations and agencies as well as with NGOs.

The three basic concerns shaping the water programme of the Water Resources Development and Management Service (http://www.fao.org/ag/agl/aglw.htm) within FAO are:

- to produce more with less water;
- to protect water quality and the environment, including human health; and
- to close the food consumption and production gap, particularly in Africa.

The organization has a focus on "more crop for the drop"—irrigation methods for higher water productivity—and related technology transfer. Activities to protect and improve water and soil quality are also undertaken, linked both to control of salinity and to agricultural water pollution.

Specific water activities include:

- water resources inventories and evaluation, where data and information on water and food are collected, analysed and disseminated through a statistical database (Aquastat);
- development of a global GIS-based water information system helping in the assessment of current and future water use by large river basins—an assessment of irrigation potential has been made for Africa;
- a programme for water policy formulation and river basin planning, focused on technology and training;

- improved water use technologies and management tools and methods for establishing accountability and incentives at the farm and the scheme level;
- a programme on water development and irrigation expansion; and
- water quality control, conservation and environmental effects projects, including methods for rapid assessment of salinity on a regional scale and guidelines for control of agricultural water pollution.

United Nations Department of Economic and Social Affairs (UN/DESA)

http://www.un.org/esa/sustdev/water.htm

Within the UN Secretariat, freshwater issues are mainly the responsibility of the Commission for Sustainable Development (CSD), within the framework of the follow-up of *Agenda 21*, and thus fall within the purview of UN/DESA. DESA promotes integrated approaches to natural resource management to support the implementation of *Agenda 21*. This relates particularly to the provisions of Chapter 18 dealing with fresh water. Through its Water Management Branch, DESA provides project execution and policy advisory services at national and regional levels in integrated water resource management. With over 30 years experience, UNDESA has gained a solid reputation for its technical assistance and co-operation throughout the developing world.

The Department assists developing countries in enhancing their institutional and technical capacities in implementing the principles of integrated water resource management, particularly those related to the operational aspects. Technical assistance is especially focused to progressively promote the evolution of regulatory and institutional frameworks with their strong interfacing with the macro-economic and spatial planning initiatives. At the country level, its technical co-operation and advisory services programmes are built around the three pillars of sustainable development: economic, social and environmental. While providing policy advice to the member states, DESA stresses the importance of water as a key resource to achieve the overall goals of sustainable development. Towards this end, UNDESA supports initiatives that lead to sound understanding of socio-economic and hydro-environmental systems as well as inter-relationships among these systems. It is this understanding that the Department promotes and supports when requested to provide assistance on water resources issues in developing countries. All efforts are made to integrate the outcomes of normative processes, ranging from the intergovernmental dialogues to the field-level technical co-operation activities.

UN/DESA:

- serves as secretariat for CSD, where freshwater issues are sometimes dealt with in conjunction with other issues, such as international conflicts or economic deliberations;
- serves as secretariat for the ACC Subcommittee on Water Resources;
- houses the UN Secretariat's main freshwater expertise;
- manages a large programme of technical co-operation in integrated water resources management and groundwater development, including management of international waters;
- helps governments and local entities design development strategies and build national capacities in fresh water resources planning and management;
- conducts needs assessments and develops water resources management programmes;
- assists countries in meeting the monitoring and reporting requirements of international agreements through guidelines, workshops, training, networking, South-South exchanges and the provision of technical expertise;
- plays a key role in promoting inter-agency co-operation around water issues; and
- launches advocacy campaigns for partnership-building.

United Nations Development Programme (UNDP)

http://www.undp.org/seed/water/

UNDP is the UN's global development network, advocating for change and connecting countries to knowledge, experience and resources to help people build a better life. UNDP is present in 166 countries, working with them on their own solutions to global and national development challenges. Poverty eradication through sustainable human development is its key focus, and water plays a pivotal role in meeting this challenge.

Water crises can be directly linked to issues of governance—the exercise of political, economic, administrative and social authority that influences the development and management of water resources. Thus UNDP focuses on achieving effective governance of freshwater resources and the aquatic environment and targets actions to address human health, food security, the decline of the environment and social, economic and political stability.

UNDP's Water Strategy addresses the following main service lines:

- integrating water management in national development frameworks through Integrated Water Resources Management;

- local governance of water resources and service delivery, especially for ecological sanitation;
- capacity building for managing transboundary waters;
- adaptation to climate variability and change;
- gender mainstreaming in water governance; and
- capacity building for integrated management of water resources and service delivery through Cap-Net (http://www.cap-net.org).

UNDP's Public-Private Partnership for the Urban Environment (PPPUE) increases the access of urban poor to basic services, including water supply and sanitation, by promoting collaboration between the private and public sectors. Through innovative partnerships, PPPUE helps to address urgent urban environmental needs and to create healthy and sustainable living conditions for urban dwellers in the developing world. The emphasis of the programme is to support local governments and private actors in building their own skills and capacities for crafting innovative and sustainable partnerships. (See http://www.undp.org/ppp.)

UNDP has been extensively involved in the establishment of a number of important global networks and programmes for the water sector, among them:

- Water and Sanitation Program (http://www.wsp.org)
- Water Supply and Sanitation Collaborative Council (http://wwwwsscc.org)
- Global Water Partnership (http://www.gwpforum.org)
- International Council on Local Environmental Initiatives (http://www.iclei.org)
- International Programme for Technology and Research in Irrigation and Drainage (http://www.iptrid.org)
- International Strategy on Disaster Reduction (http://www.unisdr.org)

United Nations Environment Programme (UNEP)

http://www.unep.org/themes/freshwater

UNEP provides guidance via its Water Policy and Strategy on water policy and management within the framework of integrated water resource management (IWRM) for achieving the environmentally sustainable use of fresh water. This guidance ranges from advice on specific issues to the design of complete programmes. UNEP provides practical guidance and mechanisms for:

- environmentally sustainable water management on a river basin basis;
- designing water policy and management for sustainable development, including poverty reduction; and
- environmental impacts of water use decision-making.

Key water-related activities include:

- UNEP Net, a global portal to authoritative environmental information based on regions and themes, including freshwater (http://freshwater.unep.net/).
- The Global International Waters Assessment (http://www.GIWA.net), a Global Environment Facility (GEF)-supported UNEP programme that produces a comprehensive global assessment of the ecological status of and the causes of environmental problems in 66 water areas in the world, both freshwater and oceans.
- The Global Environmental Monitoring System's freshwater quality programme, GEMS/WATER (http://www.cciw.ca/gems), a multi-faceted water science programme on freshwater quality issues. Major activities include monitoring, assessment and capacity building. Implementation involves several UN agencies active in the water sector as well as a number of organizations around the world.
- The Dams and Development Project (http://www.unep-dams.org) promotes dialogue on improving decision-making, planning and management of dams and their alternatives based on the World Commission on Dams core values and strategic priorities.
- The International Environmental Technology Centre promotes the application of environmentally sound technologies to address urban environmental problems (sewage, air pollution, solid waste and noise) and the management of freshwater resources in developing and transition countries (http://www.unep.or.jp).
- Surficial Aquifers and Urban Pollution in Africa is a joint UNEP/UNESCO/Habitat/ECA programme to create a network on urban groundwater vulnerability in Africa (http://www.unep.org/water/groundwater/africa/English/index2.asp).
- Within the framework of the GEF, UNEP catalyses the development of scientific and technical analysis and advances environmental management in GEF-financed activities, including the focal area of the protection of international waters. UNEP provides guidance on relating the GEF-financed activities to global, regional and national environmental assessments, policy frameworks and plans (http://www.unep.org/dgef).
- The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (http://www.gpa.unep.org) (GPA) calls for integrated coastal area management harmonized with river basin management and land use plans. The UNEP/GPA Secretariat facilitates co-operation among river basin authorities, port authorities and coastal zone managers to incorporate coastal management considerations into relevant legislation and regulations pertaining to watershed management, in particular transboundary watersheds.

- UNEP Vital Water Graphics provides an overview, through a set of graphics, maps and other illustrations, of the state of the world's fresh and marine waters. It also illustrates the causes, effects, trends and threats facing our water sources, with examples of areas of major concern and future scenarios for the use and management of fresh, coastal and marine waters (http://www.grida.no/adm/dev/vital_water_graphics/).

UNESCO

http://www.unesco.org

UNESCO aims "to contribute to peace and security in the world by promoting collaboration among nations through education, science, culture and communication." It supports prospective studies; the advancement, transfer and sharing of knowledge; standard-setting action; expertise; and exchange of specialized information.

Key water programmes include:

- International Hydrological Programme (http://www.unesco.org/water/ihp.html). Its aim is to improve the scientific and technological basis for the development of methods for the rational management of water resources. A focus of the programme is the new Centre for Water in Arid Zones of Latin America and the Caribbean.
- The International Groundwater Resources Assessment Centre operates under the auspices of UNESCO jointly with WMO.
- The World Water Assessment Programme (http://www.unesco.org/water/wwap) is a collective, UN system-wide continuing assessment process based in the needs voiced as result of the Second World Water Forum. Within the programme, a *World Water Development Report* is to be produced (http://www.unesco.org/water/wwap/wwdr/index. shtml).

Regional co-operation is an important aspect of its global programme, and UNESCO headquarters and its Regional Offices work closely with 161 National Committees and Focal Points in implementing its activities. There is significant collaboration within the UN family (WMO, FAO and UNEP) and with programmes outside, such as International Council for Scientific Unions and the International Science Council.

UN-HABITAT (formerly UNCHS)

http://www.unhabitat.org/

UN-Habitat was established in 1978 and is the lead agency for human settlements. It works to reduce poverty and promote sustainable development within the context of a rapidly urbanizing world. The work programme includes shelter and social services; urban management; environment and infrastructure; and assessment, information and monitoring. Sanitation and access to adequate water (for suburban agriculture and for municipal drinking water) are important focus areas.

Among the organization's key water initiatives are the following:

- The Urban Management Programme, active in 120 cities in 57 developing countries, is a long-term technical co-operation programme to strengthen the contribution that cities and towns make towards human development, including economic growth, social development, reduction of poverty and improvement of environmental quality. Partners include the World Bank, UNDP and others (http://www.unhabitat.org/programmes/ump/).
- Managing Water for Africa addresses different aspects of water for Africa's largest cities in collaboration with UNEP. It is directed towards promoting a demand-side perspective of water management and water pollution control methods, gender mainstreaming and improvement of water access for urban poor and peri-urban areas. A new regional programme, Water for Asian Cities, will promote pro-poor investments in water and sanitation to support Millennium Development Goals; it was launched in May 2002 (http://www.un-urbanwater.net/).

UNICEF

http://www.unicef.org/programme/wes/

The overall objective of the UNICEF Water, Environment and Sanitation (WES) programme is to contribute to child survival, protection and development by supporting efforts to achieve universal access to safe water supply and environmental sanitation services as a basic right and by promoting the behavioural changes essential to realize the full benefits from such services—in short, to improve the hygiene conditions in children's and families' environments.

UNICEF presently supports WES projects in nearly 80 countries with 200 professional staff, both international and national. UNICEF support for water supply and sanitation started in the late 1960s as a response to drought emergencies. Since then, UNICEF has supported government programmes for the provision of a minimum level of water supply and sanitation for those most in need. This, at the early stage, involved primarily the drilling and installation of boreholes with handpumps in rural areas. In the late 1960s and 1970s, UNICEF and donor assistance diversified into larger-scale national water programmes, including the provision of drilling rigs and equipment, gravity-fed systems, protected springs and wells and the upgrading of traditional water sources in rural areas.

Increasing awareness of the need for sanitation, hygiene education, improved community participation and national

capacity building, as well as greater emphasis on the central role of women, became important features of programmes during the 1980s. In addition, improving cost-effectiveness to increase access to affordable services was a growing concern. Efforts in research, development, field testing and technology transfers led to substantial reductions in per capita cost.

Throughout the 1990s, UNICEF-supported WES programmes have placed new emphases on use, operation and maintenance and sustainability of services, not merely on coverage. Increased attention was paid to the health impact on populations, to geographic areas with a high prevalence of water and sanitation-related disease and to environmentally vulnerable areas, including the poor in peri-urban areas and slums.

United Nations Industrial Development Organization (UNIDO)

http://www.unido.org/

UNIDO, established in 1966, aims to "improve the living conditions of people and promote global prosperity through offering tailor-made solutions for the sustainable industrial development of developing countries and countries in transition." UNIDO addresses three key concerns: competitive economy, sound environment and productive employment at policy, institutional and enterprise levels.

Water-related projects within the UNIDO mandate are projects directed towards a sound water environment, including those on cleaner production or controlling water pollution from industries. One example is a project on Water Pollution Control and Biodiversity Conservation in the Gulf of Guinea. Collaborators in that project were FAO, UNEP, UNESCO, the International Maritime Organization, the US National Oceanic and Atmospheric Administation and IUCN. The project was also partly supported through the GEF.

UNIFEM

http://www.unifem.org/

UNIFEM promotes gender equality and women's social, economic and political empowerment. It works to ensure the participation of women in all levels of development planning and practice and acts as a catalyst within the UN system, supporting efforts that link the needs and concerns of women to critical issues on the national, regional and global agendas, such as water. UNIFEM's work focuses on strengthening women's economic capacity as entrepreneurs and producers, increasing women's participation in the decision-making processes that shape their lives and promoting women's human rights.

International Network on Water, Environment and Health of United Nations University (UNU/INWEH)

http://www.inweh.unu.edu/unuinweh/default.htm

UNU/INWEH is a research and capacity-development centre of UNU contributing to the resolution of global water problems, particularly in the developing world. INWEH was established in late 1996, with financial support from the Government of Canada, and is headquartered at McMaster University, in Hamilton, Canada. INWEH advocates the need for integrated capacity development as an essential prerequisite for integrated water resource management. It establishes training centres and undertakes collaborative, demand-driven projects on river basins, urban water systems and marine coastal waters in support of IWRM in Africa, the Middle East and Latin America.

Projects to date have included the development of a Lake Malawi watershed decision-support model; establishment of a water quality monitoring programme for Lake Victoria; groundwater pollution assessments in Jordan and Gaza Strip; a nitrate pollution (blue-baby syndrome) study in Syria; design and implementation of a sustainable wastewater biosolids programme in northern Mexico; development of a global IWRM curriculum for the UN Water Virtual Learning Center; and co-design of the UN *World Water Development Report*.

UNU/INWEH is currently working with the Government of Malawi, the World Bank and the GEF to create and operate the UNU African Center for Aquatic Research and Development (UNU/ACARE) at Senga Bay, Malawi.

World Bank

http://www.worldbank.org/

The World Bank is today the largest funder of environmental projects to address pollution and environmental degradation. It is co-operating with several UN agencies as well as NGOs in many programmes and projects in the environment. The co-operation with UNDP and UNEP within the GEF is one example.

The World Bank water programmes and its water unit reflect the Bank's long-term Water Resources Management Policy, focusing on "freshwater, coastal and marine resource management, integrating an ecological dimension into water resources management from the upper watershed to the coastal zone." Water resources management projects include investments for urban, rural, industrial and agricultural water supply; sewerage treatment; flood control; irrigation and drainage; hydropower; and navigation projects. Activities in catchment areas can include forestry, mining and construction, and industrial discharge and agriculture runoff.

The projects fall into 10 main areas:

Coastal and Marine Management focuses on resources and human activity within the land-water interface along coastal regions of the world. A portfolio analysis indicates rapidly growing Bank investments in areas within 60 kilometres of the coastal zone, and many projects that currently benefit from an integrated coastal management approach (US$330 million of dedicated coastal management activities).

Dams and Reservoirs. The Bank supports investments in dams when they emerge as the priority alternative from strategic planning processes for decisions concerning water and energy.

Groundwater. The World Bank is a partner in The Groundwater Management Advisory Team, whose objectives include supporting and strengthening the groundwater components of World Bank projects.

Irrigation and Drainage. The Bank continues its support to client countries to promote sector sustainability and competitiveness through investments and policy reforms.

River Basin Management. The Bank has promoted, contributed to and facilitated river basin management approaches.

Transboundary Water Management. The World Bank has worked successfully to foster riparian co-operation and agreements through, for example, the Nile Basin Initiative and other interventions.

Water and Environment encompasses aquatic biodiversity, environmental flow requirements, water pollution control, water weeds and hyacinth control and wetlands management. In each of these, the World Bank is actively identifying good practices with a view towards improving the project portfolio.

Water Economics and Institutions deals with the economic aspects of water, including the economic analysis of water resources and water supply and sanitation projects, and looks at recent advances in water economics methodology, tools and applications. The Water Economics group in the World Bank encourages work partnerships and knowledge sharing on issues of interest.

Water Supply and Sanitation. The World Bank Group strives to help its member countries to ensure that everyone has access to efficient, responsive, sustainable water and sanitation services.

Watershed Management is an accepted component of natural resources management and is incorporated in many different kinds of Bank projects, ranging from sector-specific projects (forestry, irrigation, agriculture and so on) to integrated area development.

The Water and Sanitation Program (http://www.wsp.org) is a successful example of co-operation between two complementary organizations—the World Bank and UNDP. The Program was launched in 1978 and has been supported by a wide range of bilateral donors and includes WHO, UNICEF, and bilateral programmes in its partnership.

World Health Organization (WHO)

http://www.who.org

The objective of WHO is the "attainment by all peoples of the highest possible level of health." Activities include assisting governments in strengthening health services and promoting the improvement of nutrition, housing, sanitation, recreation, economic or working conditions and other aspects of environmental hygiene.

WHO is mandated to maintain health as a central focus of water and sanitation development, which is reflected in its water programme (http://www.who.int/peh). In water, WHO's objectives are to:

- emphasize the provision of health-related guidance in support of sustainable development in member states,
- target its water and sanitation activities on specific health objectives,
- be a strong advocate of health objectives in water supply and sanitation development and
- become the health partner of other major water and sanitation organizations.

WHO works with other UN organizations such as UNDP, UNICEF, the World Bank and UNEP. The Joint Water Supply and Sanitation Monitoring Programme supports individual countries in strengthening their water supply and sanitation monitoring capability; it is a joint WHO/UNICEF programme. A collaborator is the Water Supply and Sanitation Collaborative Council (http://www.wsscc.org).

World Meteorological Organization (WMO)

http://www.wmo.ch/index-en.html

WMO was established as a specialized agency in 1951; its purposes are to facilitate international co-operation in the establishment of networks of stations for making meteorological, hydrological and other observations, and to promote the rapid exchange of meteorological information, the standardization of meteorological observations and the uniform publication of observations and statistics. It also furthers the application of observations of meteorology to navigation,

shipping, water problems, agriculture and other human activities; promotes operational hydrology; and encourages research and training in meteorology.

WMO's Hydrology and Water Resources Programme concentrates on promoting world-wide co-operation in the evaluation of water resources and the development of hydrological networks and services, including data collection and processing, hydrological forecasting and warnings and the supply of meteorological and hydrological data for design purposes. The three components of the programme are the Operational Hydrology Programme-Basic Systems, the Operational Hydrology Programme-Applications and Environment, and the Programme on Water-related Issues.

WMO's Education and Training as well as its Technical Cooperation programme include hydrological components, and bridge the gap between the national services of developing and industrial countries.

WMO supports capacity building at the regional level through activities like the World Hydrological Cycle Observing System, WHYCOS, a system for acquiring hydrological and related data on a regional basis and making them available to decision-makers, engineers and resources managers. Systems have been implemented in the Mediterranean, MED-HYCOS (http://www.hycos.orstom.fr/mh), and in Southern Africa, SADC-HYCOS (http://www.sadchyco.pwv.gov.za/sadc), through co-operation between countries concerned and with the support of the World Bank, the European Commission and others. In the scientific component of the programmes, WMO is closely co-operating with UNESCO.

The Global Runoff Data Centre (http://www.bafg.de/grdc.htm) is a world-wide hydrological runoff network linked to WMO. The Global Precipitation Climatology Centre (http://www.dwd.de/research/gpcc) and the International Groundwater Resources Assessment Centre also operate under the auspices of WMO, the latter jointly with UNESCO.

Regional Commissions

The Regional Commissions support a wide range of WEHAB activities: technical co-operation, policy advice, research, analysis, data/statistics, exchange of best practices, meetings, regional integration and co-ordination, publications, networking and training. See links below for specific areas of intervention.

Economic Commission for Africa (ECA)
Fostering Sustainable Development
http://www.uneca.org/programmes_home.htm

Economic Commission for Europe (ECE)
Environment and Human Settlements
http://www.unece.org/env/welcome.html
Transport, Environment, and Health
http://www.unece.org/poja/

Economic Commission for Latin America and the Caribbean (ECLAC)
Environment and Human Settlements
http://www.eclac.org/dmaah/
Natural Resources
http://www.eclac.org/drni/

Economic and Social Commission for Asia and the Pacific (ESCAP)
Environment and Natural Resources
http://www.unescap.org/enrd/
Population, Rural and Urban Development
http://www.unescap.org/pop/division.htm

Economic and Social Commission for Western Asia (ESCWA)
Agriculture http://www.escwa.org.lb/divisions/sectoral/agriculture.html
Environment Coordination
http://www.escwa.org.lb/divisions/environment/ecu.html
Natural Resources
http://www.escwa.org.lb/divisions/environment/nrs.html