

Overview: Recording actions, identifying gaps

Among commitments made during the Second World Water Forum in The Hague in 2000, the World Water Council pledged to set up a monitoring system on actions that are bringing its *World Water Vision* to reality. It established the Water Action Unit to spearhead that work. This report highlights the fruits of those efforts. It presents an overview and analysis of actions around the world—projects (planning, preparation, or implementation), applied research and studies, awareness-raising campaigns, and policy, legal, and institutional reforms—that are addressing the urgent priorities identified in the Vision. More than 3,000 actions

have been collected in this effort, documenting numerous water success stories and suggesting many elements of the water future. (An annotated database of these actions is available on the CD-ROM accompanying this report and also at www.worldwatercouncil.org/search_actions.php.) The map in figure O.1 shows the global distribution of actions.

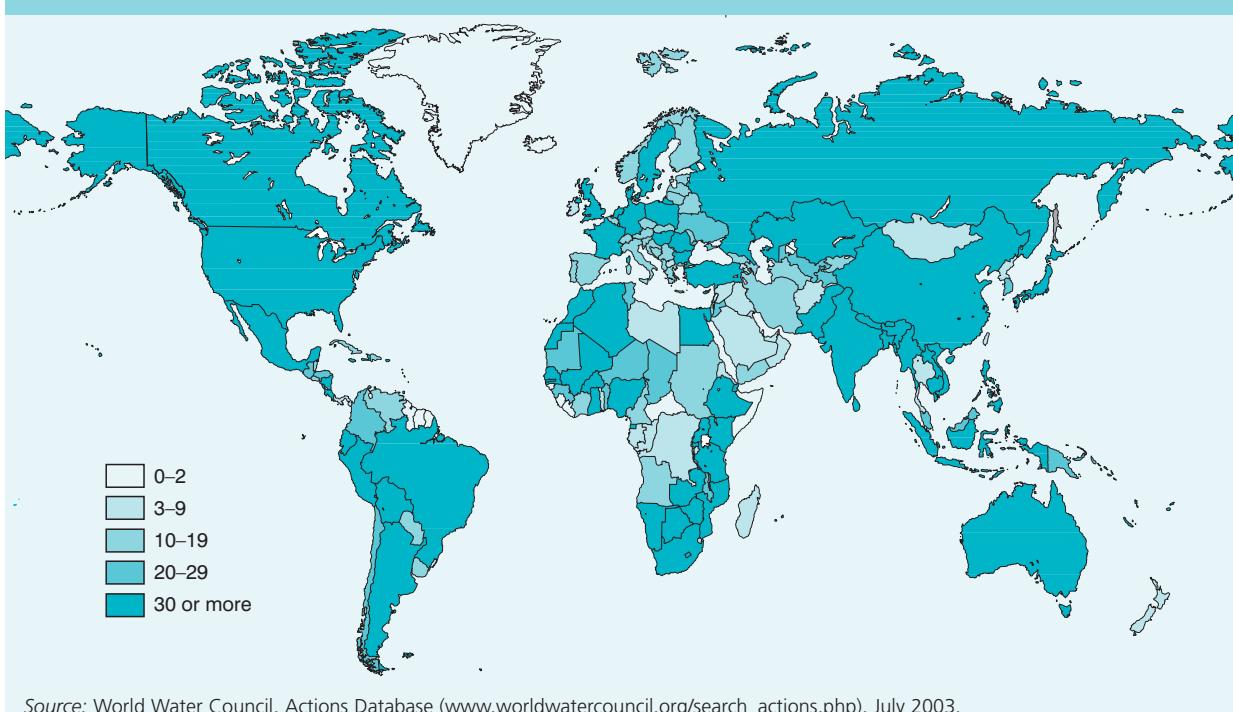
In addition, countries followed the initiative taken by Egypt to prepare their own report of water actions and sent them as a contribution to the Water Action Unit. Such national water actions reports from China, Egypt, France, Germany, Indonesia,

Japan, Mali, and Turkey are included on the companion CD-ROM.

The actions recorded in the Actions Database were active after the forum—even if initiated before—and are innovative in character. They recognize that whether the work is on urban water supply or village irrigation systems, the way to improved livelihoods and water security now and in the future is through better management of water resources.

Activities which—for some countries—are normal and routine, such as maintenance of infrastructure or monitoring of water quality, are thus not included in the database.

Figure O.1 Number of actions collected, excluding global actions



Source: World Water Council, Actions Database (www.worldwatercouncil.org/search_actions.php), July 2003.



There are many challenges to water management. But there are also many solutions

However, it should be emphasized that these activities are also critically important for meeting the challenges of water security.

Characterizing the actions taken in every country by thousands of organizations in the many diverse sectors that comprise the world water community is a difficult undertaking. To help make the task tractable and to give it coherence, the *World Water Vision* and the recommendations that emerged from the second forum were initially taken as points of reference. However, as the inventory made progress, the framework of analysis was renewed to take into account the thinking developed at the International Conference on Freshwater in Bonn in December 2001 and the World Summit on Sustainable Development in Johannesburg in August 2002 and to better highlight the issues still needing attention.

Part 1 of this report, Assessing Challenges, Initiating Change, exposes the urgent overall management needs:

- Recognizing water's many values.
- Managing water more efficiently.
- Strengthening international cooperation.
- Promoting gender equity in water decision-making.
- Addressing the impact of climate variability and change.
- Financing water development.

Part 2, Focusing on Key Areas, Promoting Change, examines the special needs of the water supply and sanitation, energy, health, agriculture, and biodiversity (WEHAB) sectors (box O.1):

- Ensuring sustainable access to water supply and sanitation.
- Managing water and energy to benefit both.
- Improving health outcomes through better water projects and management.
- Increasing agricultural production while protecting the water supply for humans and ecosystems.
- Ensuring water for biodiversity and ecosystems.

How are the identified priorities being addressed in current actions? Which priorities are being addressed most fully, and which need more attention? Each of the following chapters provides answers to these questions for one aspect of freshwater management. They begin by exposing the current situation and the issues, and then elaborate the generally agreed solutions that have been proposed and promoted within the water community. Next they present a picture of what has been happening in the field in recent years—with illustrations from the Action Database (the action ID is quoted to allow for easy reference)—and conclude by analysing the challenges that remain.

World Water Actions suggests priorities for action based on what is already being done and identifies areas where improved approaches may be needed. By inventorying the thousands of actions under way around the world, this report can serve as a guide to individuals and organizations working on common themes, introduce them to each other, and facilitate synergies and partnerships. An earlier version of this report's conclusions on emerging priorities was discussed in a special session of the Third World Water Forum in Kyoto, Shiga, and Osaka in March 2003.

Exploring water actions for 2000–2003 and beyond

There are many challenges to water management. But there are also many solutions, as this report and the thousands of global water actions show. For every water problem it seems that someone somewhere has devised a solution or is developing one. Though not necessarily applicable in other socio-economic and physical environments, these solutions can still reveal many lessons. For that reason—and because of the infinite potential of the human spirit—*World Water Actions* is cautiously optimistic.

This is not to suggest that solving the world's water problems will be easy. Ultimately, the politicians and decision-makers who will have to take risks are

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faced with two choices: action or inaction. With water, the risks of inaction increase every day. Thus politicians who have to risk reform and decision-makers who have to commit resources have little to fear. As this report shows, the odds definitely favour water reform and investment.

Recognizing water's many values

The world today is much more aware of the full range of values water offers to humanity, from livelihoods to recreational, aesthetic, religious, and cultural values. This recognition is clearly reflected in recent international conferences on water and development (the International Conference on Freshwater in Bonn in 2001 and the World Summit on Sustainable Development in Johannesburg in 2002). In Johannesburg, countries identified the importance to sustainable development of five key sectors—water supply and sanitation, energy, health, agriculture, and biodiversity—collectively referred to as WEHAB.

World Water Actions shows that water is central for each of these sectors. In particular, awareness of the value of water for ecosystems has grown tremendously though it is still not universal. The water actions clearly show that even with broad awareness of the many values of water, finding solutions remains very difficult when interests and associated values conflict.

Box O.1 Linking water and WEHAB

Much of the report's focus and structure derives from the five sectors identified at the World Summit on Sustainable Development in Johannesburg in 2002 as essential to alleviating poverty and achieving sustainable development: water supply and sanitation; energy; health; agriculture; and biodiversity—together referred to as WEHAB. Water is essential to all these sectors and central to poverty alleviation and socio-economic development.

The main water challenges facing the WEHAB sectors include:

- *Water supply and sanitation*: the vast numbers of people unserved or underserved by water and sanitation services; the doubts about official data on coverage (which underestimate the problem); the related health and livelihood problems; and the growing problem of water pollution.
- *Energy*: the large share of people unserved by reliable and affordable energy; the impact on livelihoods and development; the unexploited potential of hydropower in developing countries; the environmental problems of fossil fuel energy and hydropower; and the close links between energy and water.
- *Health*: the widespread illness and death resulting from water-related diseases, which affect mainly children under five; the harmful impacts on well-being and livelihoods and the links to poverty; and the neglect of public health services and preventive approaches to water-related diseases.
- *Agriculture*: the unconscionably large number of hungry people and the challenge of feeding growing populations; the central role of water use; and the water pollution resulting from agrochemicals.
- *Biodiversity and ecosystems*: the water stress and biodiversity loss in ecosystems; the impacts of pollution; the challenge of balancing ecosystem and human water needs; and the need for conservation and sustainable use of biodiversity.

Note: For more details on each of these issues, see chapters 7 to 11.

Managing water more efficiently

The water crisis has been called a crisis of management. In most countries reforms to improve management in the water sector are under way, often beginning with

adjustments in the legal, institutional, and regulatory frameworks. The most visible change is towards greater coordination of water concerns across sectors. Other significant changes are greater user participation; a broader range of providers, from private sector

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to community-based organizations to public utilities; and greater interest in river basin management and decentralization.

But much remains to be done, especially in successfully applying the principles of integrated water resources management (box O.2). Implementation and enforcement are key. While nearly everyone applauds the principles, applying them properly requires strong institutions, sufficient know-how and commitment, and adequate financial resources. Among the major challenges facing water management are developing and properly maintaining infrastructure, improving water efficiency, and reducing water pollution. The impact of water on development is enormous, argument enough for governments to make improved water management a top priority.

Strengthening international cooperation

The water actions show a move towards new cooperative arrangements for transboundary water systems, towards more multi-purpose approaches, and towards greater involvement of non-state actors. Ecosystem protection and risk management are replacing purely economic considerations as new drivers for transboundary cooperation. New arrangements are emerging, thanks in large measure to the broker role played by international

organizations. The emphasis is on reducing the risk of conflict and improving the capacity to reach shared solutions. Decentralized cooperation—cooperation between local authorities—is also emerging as a promising solution for managing transboundary water systems. But actions on transboundary water systems are still far from integrated water resources management. And integrated water resources management, which focuses on water even as it considers the land and the people in the catchment, should be viewed as only one element of broader cooperation in regions that are connected by water systems.

Promoting gender equity in water decision-making

Integrating gender concerns in water decision-making is important not only for greater equity but also for greater efficiency. Accelerating poverty alleviation and socio-economic development depends on mobilizing every available skill, thereby increasing natural resilience and empowering people to improve their own lives. The will to change is growing nationally and internationally, and there are some replicable examples of successful measures for promoting gender equity in decision-making. Still needed is a better understanding of what has to be done, what can be done, and how to do it. Practical methods, such as gender budgeting and gender analysis

Box O.2 Integrated water resources management

Integrated water resources management is coordinated, sustainable development and management of water, land, and related resources to maximize equitable economic and social development while protecting ecosystems. Integrated management has to be applied through a complete rethinking of water management institutions—putting people at the centre.

of programmes and projects, need further development.

Addressing the impact of climate variability and change

A range of actions are devoted to water-related disasters such as floods and droughts. Among the outstanding issues needing attention are strengthening the institutional framework for disaster forecasting and management, enhancing people's capabilities for coping with them, and promoting and sharing knowledge among all concerned with water-related risks. Necessary changes are under way but progress is slowed by the lack of capacity, financial resources, and the political or institutional will to push ahead. Greater advances in disaster

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management are required to achieve a safer world in the 21st century. The impact of the increased variability in climate will almost certainly lead to more extreme water-related hazards and consequently to large socio-economic losses which will disproportionately hurt the poor. There is a pressing need to learn how this change in climate will affect people's livelihoods and opportunities and to identify what initiatives are needed at local, regional, and international levels to cope with them.

Financing water development

New commitments for international assistance in the water sector are growing, and some countries are encouraging private investment in the water sector. Many countries and communities around the world have found creative ways to increase tariffs to pay for sustainable operation and maintenance of water services, including guaranteed minimum quantities of free water, water stamps, and a variety of subsidies. Many initiatives are funding operation and rehabilitation improvements or are linking funding with results, dramatically improving the efficiency of investments. National strategies to match funding and costs need to be improved, however, and the financing needs of the water sector have to be better understood. While a range of water actions include financing

components, very few countries have an overall framework linking laws, regulations, institutions, and financing mechanisms. The absence of such an integrated framework indicates that water is not yet of high enough priority for many governments.

Ensuring sustainable access to water and sanitation

Water and sanitation is a basic need, its importance clearly recognized in the Millennium Development Goals. Many international, national, and community organizations are working to meet this need through a variety of projects: utility sector reform; international programmes on water, sanitation, and hygiene; and hand-washing campaigns. Gender dimensions receive considerable attention in these activities. There has also been a noticeable expansion in rainwater harvesting. The World Summit on Sustainable Development recommended new types of partnerships to alleviate poverty. The water sector has many such partnerships at the global, regional, national, and local levels, a considerable number of them facilitated by the Global Water Partnership. Additional networks, such as community groups working with local authorities and professional operators, offer great potential for helping to achieve the Vision goals and should be encouraged.

Managing water and energy to benefit both

The link between water management and energy management is increasingly recognized. Population growth and changing consumption patterns both result in a substantial increase in the demand for water and energy. Some actions aim at energy demand management and improving decision-making on water and energy through multistakeholder processes, demand-management initiatives, and national processes. Where more is needed, actions seek to improve the use of existing infrastructure, reverse the decline in the stock of infrastructure, and design new projects in a way that allows public expression and the selection of optimized solutions for society. Other actions focus on comparing the effects of energy production approaches, assessing environmental impacts, and using cleaner technologies. Energy professionals at all levels (including governments and non-governmental organizations (NGOs)) must give more thought to water, and water professionals must give more thought to energy.

Improving health outcomes through better water projects and management

A small number of water actions explicitly use water management as a tool to address health issues, but a



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much larger number of actions provide indirect health benefits. Some actions provide access to water supply for domestic uses (drinking, washing, cooking) or for food production, thus reducing water-related illnesses and malnutrition. Others deal with pollution and water quality issues. Other health benefits derive from an improved environment. Fundamental components are participation, local management of water resources, awareness raising, and education to improve domestic behaviours linked to water. Because the health benefits of water actions are often indirect, they need to be emphasized in political discussions on water investment and incorporated in the planning and decision-making process.

Increasing agricultural production while protecting the water supply for humans and ecosystems

Several countries, especially in arid areas, are engaged in long-term planning and strategy formulation for sustainable agricultural development. Other actions include demand management, enhanced productivity of water for agriculture, and increased storage, harvesting, and reuse of water. Less conventional approaches include lower cost desalination and the development of more salt-tolerant crop species. Institutional and other reforms are directed at more sustainable water use. Awareness

raising and information systems for water and soil conservation, protection of water resources, better irrigation practices, and adaptation to the effects of climate change are widespread at all levels, community to international. Participatory approaches and attempts to reorient traditional agencies towards greater people and service orientation has made considerable progress, especially in irrigation management. Stakeholders are participating more in decision-making and user group activism is growing, including efforts to remedy the under-representation of women in water resources management. Many actions focus on capacity building initiatives and research and development. Solutions are being developed for sustainable ecosystem use, where food production and ecosystem preservation coexist.

Ensuring water for biodiversity and ecosystems

Many actions are being taken to protect, conserve, and restore water resources, and many local, national, and international participatory ecosystem-based management and pollution control initiatives are underway. Knowledge is increasing on ecosystem water requirements. Actions for wetland restoration, coastal zone management, and river management are significant worldwide. Environmental impact assessments are increasingly required

for infrastructure development proposals. Overall, beneficial reform is under way, motivated by the growing understanding and appreciation of ecosystem benefits and services and the dangers of ecosystem destruction. But more must be done in establishing minimum water flow requirements for ecosystems for conservation and protection, abating water pollution, building a systems approach to water management, and integrating the management of land, water, and ecosystems (including biodiversity). And serious reforms are required to regulate the allocation of water between human needs and ecosystem needs.

Accelerating actions

Solving the world's water problems will not be quick or easy. But as the water actions show, it can be done. And facing those problems is essential because of water's unique nature and irreplaceable role in so many aspects of human life. Water problems—and their solutions—challenge people to work together in new ways and partnerships and to respond to new opportunities for change.

Beneficial reform is under way in all the key areas but more attention is required to the reforms at the local level. The burden on developing countries is immense. Not only are they challenged to reform water while caring for the environment—

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something developed countries did not do—they are asked at the same time to radically reform water services management and expand delivery in a fraction of the time that industrial countries needed. It is a tall order. And analysis of the water actions suggests that the Millennium Development Goals will not be met by 2015 without accelerating the pace of reform, raising the rate of investment, strengthening institutions, and building the necessary capacity in the water sector. The priorities coming out of this analysis, presented by the authors for discussion by the Third World Water Forum participants, are for:

1. Governments and local authorities to acknowledge the importance of water to development and poverty reduction by mainstreaming water in strategies and master plans for all WEHAB sectors.

Governments have an obligation to provide sufficient water to all to meet their basic needs. Furthermore, water is essential to development in many economic sectors and should therefore receive priority in all development agendas. That requires mainstreaming water in all other sector policies, especially recognizing water's contribution in health, food, environment, and energy.

2. Governments and local authorities to increase investments for water development.

Water laws, strategies, and plans have to be translated into budget estimates and financing plans for water in all WEHAB sectors. Greater investments in expansion and improvements of water infrastructure are necessary to meet the Millennium Development Goals. Primary responsibility for such investments rests with national governments. If responsibility is delegated to lower levels, so must the means to invest.

3. International financial institutions and bilateral donors to prioritize support to countries that face their responsibilities towards water, as stated above.

In allocating support, international agencies and multilateral and bilateral donors should give priority to countries that are establishing strategies for integrating and coordinating water issues for all water-related sectors and that are increasing investments based on sound planning.

4. Governments and international financial institutions to adopt measures to attract financing for infrastructure.

Measures to reduce risk and improve cost recovery are necessary to encourage investment. Governments and the international community need seriously to consider the most promising recommendations of the Panel on Financing Water Infrastructure and to implement appropriate measures quickly.

5. International institutions to deepen understanding and expand public awareness of the benefits of water and improved water management.

The benefits of water and good water management should be quantified so that they may be considered in priority setting, planning, development, management, and budgeting for the water sector. International financial institutions, United Nations agencies, international NGOs, and research institutions could develop methodologies for such analysis.

6. Service providers to improve the quality and efficiency of service provision, operation, and maintenance.

Management of water infrastructure should be improved, especially for water for people and agriculture. Safe



Effective implementation requires empowering local authorities and user groups

and continuous water delivery should be ensured through efficient systems operated and maintained to optimize their life and performance.

7. The United Nations, in preparing the declaration for the Decade of Education for Sustainable Development, to take account of the important role of water in sustainable development.

Changing the attitude and behaviour of people towards water means increasing their awareness and knowledge. This insight underlies the statement of the Plan of Implementation of the World Summit on Sustainable Development, “recommend[ing] to the United Nations General Assembly that it consider adopting a Decade of Education for Sustainable Development starting in 2005”. Local language information packages should be developed for primary and secondary school students and extension programmes to promote water values and ethics and to inform people about water’s many vital functions, about the causes and impacts of pollution, and about solutions. Water should have the place it deserves during this Decade of Education.

8. Governments to focus on capacity building activities for the new institutions created by decentralization and their newly assigned roles and tasks.

Effective implementation requires empowering local authorities and user groups. Attention thus has to shift to capacity building of the decentralized agencies in their new institutional context, so that they can work effectively in a participatory, people- and service-oriented approach with user groups, communities, and households. Central agencies also have to be transformed, so that they can take up their new roles and responsibilities.

9. Governments, industry, agriculture, and people in their daily lives to contribute to eradicating existing pollution and ensuring that economic development does not increase pollution.

Economic and domestic activities should be optimized to reduce pollution at source. When waste is unavoidable, the most acceptable way of treating it should be designed in consideration of concerns for human and environmental health. More resources should be invested in wastewater treatment and sanitation, with preference for small-scale and local solutions. This requires technology innovation and transfer

between all countries. Responsibility for pollution should be more clearly defined in national legislations, and more consistently enforced. The polluter-pays principle should be applied.

10. Community organizations, NGOs, private and public sectors, local administrations, and national governments to work in partnership for the best in water management—because water is everybody's business.

Optimum use should be made of the options available. This requires regulation (for both public and private organizations) and operation in an accountable and transparent way under public oversight. Public-private partnerships offer a full range of options—including services provided by community and user organizations—that can be adapted to social, economic, and geographic conditions. Objective benchmarking and performance monitoring systems have to be an integral part of any operation.

11. International institutions to facilitate cooperation in the joint management of transboundary water systems.

Cooperation in transboundary river basins and groundwater systems should be enhanced so as to develop shared basin-wide strategies that

The Third World Water Forum demonstrated clearly the intense interest in water issues worldwide



allocate available water to optimize benefits for all. Involvement of non-state actors should be encouraged. An independent international facility should be established to share experience on transboundary water management and provide countries, on their request, with advice or mediation. The next round of World Trade Organization negotiations should take into account the impact of water resources availability on countries' trading positions.

12. Water managers, in collaboration with climate and water scientists, to develop ways to better adapt to climate variability and to reduce the human suffering caused by floods and droughts.

Through collaboration between water managers and water and climate scientists better tools could be developed for coping with and adapting to the effects of climate variability today, thus creating resilience to adapt to the effects of climate change in the future. Both structural and other kinds of measures are required. Models should be strengthened to permit improved prediction of the effects of climate change on water management at regional and basin levels.

13. International institutions to establish a global monitoring system covering the state of water resources, activities in the water sector, and progress toward the Millennium Development Goals.

The water actions, especially those resulting from commitments made at the world water forums and the Word Summit on Sustainable Development, should be monitored to encourage all stakeholders to initiate and sustain such efforts. Monitoring the condition of global water resources is essential for ensuring that new management practices effectively improve the situation. A global Web-based monitoring network and system of indicators should be developed as a cooperative endeavour by international and independent institutions.

Outcomes of the Third World Water Forum

More than 24,000 people, including some 1,200 journalists, attended the Third World Water Forum in Kyoto, Shiga, and Osaka in March 2003, making it the largest meeting on water ever convened. This enormous gathering demonstrated clearly the intense interest in water issues worldwide and the success of the

World Water Forum series in highlighting water as a major concern of this century. The gathering validated the third forum's three foundation principles: an open forum; a forum created by its participants; and a forum for actions and commitments.

Participants dealt with all aspects of freshwater in a rich and open debate. Prominent among the topics discussed at the forum were:

- Water as a human right.
- Financing water infrastructure.
- Private sector participation.
- Governance.
- Storage.
- Integrated water resources management.
- Groundwater.
- Water and ecosystems.
- Water and climate variability and change.

The forum launched more than 100 new initiatives for improved water management and served as a valuable platform for networking and information exchange. Not all issues received the attention they merited, but the forum raised awareness about many issues and set the path for future work. Progress on these issues will be reported on at the Fourth World Water Forum in 2006.