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Appendix

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**Terms of reference**

**Chairman and members**

**Vision management**

**Partner organisations**

**Meetings and consultations**

**Background documents**

# terms of ref

## Terms of reference for the World Water Commission

The First World Water Forum in Marrakech in March 1997 mandated the World Water Council to develop a *World Water Vision*. The Marrakech declaration identified the process to develop the *Vision* as “building on past international efforts and relying on the collective wisdom and resources of the global community. The process leading to the *Vision* will include research, consultations, workshops, print and electronic publications, and many other means for absorbing, synthesising, and disseminating knowledge. At the conclusion of this process, fully aware of the pitfalls along the way, the *Vision* will offer relevant policy and region- and country-specific conclusions and recommendations for action to be taken by the world’s leaders to meet the needs of future generations”.

Several steps and actions have already been taken to initiate the process and to meet this challenge in cooperation with several organisations worldwide. The International Conference on Water and Sustainable Development held in Paris in March 1998 was one such activity towards developing the *Vision* and fulfilling the mandate given to the World Water Council in Marrakech. At this meeting the Council presented two documents:

- The background document “Water in the 21<sup>st</sup> Century”
- The “Proposed Framework for the *Long-term Vision for Water, Life and the Environment*”.

The Final Declaration of this ministerial conference encouraged the World Water Council to proceed with its work. The current *Vision* exercise is based on the Framework document.

At a brainstorming meeting held in Washington, D.C., in July 1998, the idea of forming a World Commission on Water for the 21<sup>st</sup> Century was born, and the Commission was formed under the Chairmanship of Dr. Ismail Serageldin, Chairman of the Global Water Partnership, Governor of the World Water Council, and Vice President of the World Bank. The Commission is being co-sponsored by the World Health Organization, United Nations Educational, Scientific, and Cultural Organization, United Nations Department for Social and Economic Affairs, United Nations Development Programme, Food and Agriculture Organization, United Nations Environment Programme, United Nations University,

World Meteorological Organization, and World Bank. The creation of the Commission was announced in Stockholm on August 11, 1998.

## Goals and objectives

The goals of the *Commission* are to make recommendations on how to:

- Ensure food security through aquaculture, and rainfed and irrigated agriculture;
- Provide adequate water supply and sanitation services;
- Develop water resources for economic uses, including industrial water uses, energy production, navigation, and tourism and recreation; and
- Preserve essential environmental functions with increased emphasis on sustaining our ecosystems.

The Commission is to guide and report on the findings of the *Vision* exercise, whose objectives are to:

- Develop knowledge on what is happening in the world of water regionally and globally, and on trends and developments outside the world of water which may affect future water use;
- Based on this knowledge, produce a consensus on a *Vision* for the year 2025 that is shared by water sector specialists and decisionmakers in the government, the private sector, and civil society;
- Raise awareness of water issues among the general population and decisionmakers in order to foster the political will and leadership necessary to achieve the *Vision*; and
- Utilise the knowledge and support generated to influence the investment strategies of countries and funding agencies.

## Process

The *Vision* exercise will be conducted over a period of a year and a half—roughly from September 1998 to March 2000. The Commission will establish Thematic Panels to focus expert attention on trends outside the water sector and a Scenario

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Development Panel to assist the consultative process. Day-to-day activities will be managed by a Vision Management Unit operating from UNESCO in Paris and World Water Council offices in Montreal. A *first round of Consultation* will sensitise and draw upon the knowledge of water sector organisations. *Subsector Visions* will be developed through cooperation with established organisations. *Regional Visions* will be developed for areas where water issues are, or are expected to become, particularly pressing. The results of these discussions will be synthesised into a draft Vision. A *second round of Consultation* will then be held, including discussions at the 1999 Stockholm Symposium, before the Vision is finalised and presented at the *Second World Water Forum and Ministerial Conference* scheduled for World Water Day 2000, March 17–22, in The Hague. This event is a unique opportunity to convert public awareness on water into political commitment.

The Commission will carry out its work with total independence, guided by these Terms of Reference. It will be supported by the Vision Unit, who will coordinate the exercise on a day-to-day basis under the guidance of the Chairman of the Commission, who will have the close collaboration and support of the Vision Management Committee established by the World Water Council.

## Meetings

The Commission will conduct most of its work by correspondence and through the participation of individual members in *Vision* activities. For example, they will receive for comment various draft documents, including the work plan of the exercise and draft terms of reference for key elements thereof. The full Commission will meet on two occasions prior to issuing its report. The first meeting will be in Cairo on March 23,

1999. The second will be in Stockholm on August 9–10, 1999. The third meeting will be when the Report is released to the world at the Second World Water Forum in The Hague, March 22, 2000.

At the first full meeting (in Cairo) the Commission will review progress made by the Vision exercise up to then, and plans for its continuation. Commission members will provide their advice on the work plan. They will also comment on the outline of the subject areas to be covered by the report of the Commission. At the meeting in Stockholm the Commission will discuss a report on the findings of the first round of sector and regional consultations as summarised and integrated by the Vision Unit. Members will also discuss and give direction on the content of the Commission's report. The Commission will finalise its report mainly through correspondence.

## Leading an international reflection

The process to be followed by the Vision exercise is one that will bring together networks of existing institutions. To the extent possible it will begin a participatory process open to all professionals and all water users, in particular women, people living in poverty, and disadvantaged groups. Special efforts will be made to reach out to women and youth. The whole Vision exercise will be a start of a process in which people talk to each other who have not always done so in the past. It will encourage water professionals and others to think about possibilities they have not always considered in the past. It will lead to scenarios and a Vision of the future for the management of water that will lead to policies and investments that avoid pitfalls and take advantage of opportunities. Members of the Commission will play key roles as visionaries and spokespersons throughout this international consultation.

# Chairman and

## Chairman of the World Water Commission

Ismail Serageldin, Vice President, World Bank, and Chairman, Consultative Group for International Agricultural Research and Global Water Partnership

## Honorary members

HRH The Prince of the Netherlands  
 Norman Borlaug, Nobel Laureate, United States  
 Hon. Ingvar Carlsson, Former Prime Minister of Sweden  
 Jean Dausset, Nobel Laureate, France  
 Hon. Mikhail Gorbachev, Former President of the Former USSR  
 Henry Kendall, Nobel Laureate, United States [deceased]  
 Hon. Sir Ketumile Masire, Former President of Botswana  
 Hon. Fidel Ramos, Former President of the Philippines

## Members

The countries listed reflect the nationality of the commissioners, not the location of their organisation.

Shahrizaila bin Abdullah, Malaysia (Hon. President, International Commission on Irrigation and Drainage)  
 Anil Agarwal, India (Director, Centre for Science and the Environment)  
 Abdel Latif Al-Hamad, Kuwait (Chairman of the Board, Arab Fund for Economic and Social Development)  
 Kader Asmal, South Africa (Professor and Chairman of the World Commission on Dams; Minister of Education of South Africa)  
 Asit Biswas, India (President, Third World Center for Water Management)  
 Margaret Catley-Carlson, Canada (International Consultant; Former President, Canadian International Development Agency and Population Council)  
 Gordon Conway, United Kingdom (President, Rockefeller Foundation)  
 Mohamed T. El-Ashry, Egypt (Chairman and Chief Executive Officer, Global Environment Facility)  
 Howard Hjort, United States (Former Deputy Director-General, Food and Agriculture Organization)  
 Enriqu  Iglesias, United States (President, Inter-American Development Bank)

Yolanda Kakabadse, Ecuador (President, World Conservation Union)  
 Speciosa Wandira Kazibwe, Uganda (Vice President, Uganda)  
 Jessica Mathews, United States (President, Carnegie Endowment for International Peace)  
 Robert S. McNamara, United States (Co-Chair, Global Coalition for Africa)  
 J rome Monod, France (Chairman of the Supervisory Board, Suez Lyonnaise des Eaux)  
 Peter Rogers, United Kingdom (Division of Engineering and Applied Sciences, Harvard University)  
 Maurice Strong, Canada (Chairman, Earth Council)  
 Kazuo Takahashi, Japan (Director, International Development Research Institute)  
 Wilfried Thalwitz, Germany (Former Senior Vice President, World Bank)  
 Jos  Israel Vargas, Brazil (Former Minister for Science and Technology, and President, Third World Academy of Sciences, Brazil)

## Senior advisors

The Commission established a panel of Senior Advisors in March 1999. The panel's mission was to:

- Review documents being provided to the Commission.
- Identify areas they believe the Commission should consider priorities.

The panel members, all authorities on water resource management, are listed below.

Mohamed Ait-Kadi, President, General Council of Agricultural Development, Morocco  
 Arthur Askew, Director, Hydrology and Water Resources Department, World Meteorological Organization  
 John Briscoe, Senior Water Advisor, World Bank  
 Roger de Loose, General Coordinator, Poverty and Hunger Alleviation Task Force, Rotary International  
 Bert Diphooorn, Senior Water Advisor, Ministry of Foreign Affairs, The Netherlands  
 Farouk El-Baz, Director, Center for Remote Sensing, Boston University

# nd members

Walter Falcon, Director, Institute for International Studies,  
Stanford University

Malin Falkenmark, Senior Scientist, Stockholm International  
Water Institute

Gourisankar Ghosh, Chief, Water, Environment and  
Sanitation Department, United Nations Children's Fund

Henry J. Hatch, Chief Executive Officer, American Society of  
Civil Engineers

Richard Helmer, Director, Division of Operational Support in  
Environmental Health, World Health Organization

Torkil Jönch-Clausen, Chairman, Technical Advisory  
Committee, Global Water Partnership

Guy Le Moigne, Former Executive Director, World Water  
Council

Roberto Lenton, Director, Sustainable Energy and  
Development Division, United Nations Development  
Programme

Richard Meganck, Director, Unit of Sustainable Development  
and Environment, Organization of American States

Sandra Postel, Director, Global Water Policy Project

Aly Shady, Senior Policy Advisor, Canadian International  
Development Agency

Motoyuki Suzuki, Vice Rector, United Nations University

Andras Szöllosi-Nagy, Director, Division of Water Sciences,  
United Nations Educational, Scientific, and Cultural  
Organization

Pierre-Frederic Tenière-Buchot, Senior Water Policy Advisor,  
United Nations Environment Programme

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## Vision Management Committee

Aly Shady (chair), Vice President, World Water Council, Egypt  
 Mohamed Ait-Kadi, Governor, World Water Council, Morocco  
 Jamil Al Alawi, Executive Director, World Water Council, Bahrain  
 William J. Cosgrove, Director, Vision Management Unit, ex officio, Canada  
 Rene Coulomb, Vice President, World Water Council, France  
 Bert Diphorn, Ministry of Foreign Affairs, The Netherlands  
 Torkil Jönch-Clausen, Global Water Partnership, observer, Denmark.  
 Raymond Lafitte, Governor, World Water Council, France  
 John Pigram, Governor, World Water Council, Australia  
 Andras Szollosi-Nagy, Governor, World Water Council, Hungary

## Vision Management Unit and Commission Secretariat

The implementation of Vision activities started with the establishment of the Vision Management Unit at the United Nations Educational, Scientific, and Cultural Organization in July 1998.

Director: William J. Cosgrove, Canada

Deputy Director: Frank R. Rijsberman, The Netherlands

Anne Baer, External Relations Consultant, France (September–December 1998)  
 Bozena Blix, Project Officer, Croatia  
 Malia Bouayad-Agha, Gender Coordinator, Algeria  
 Bongiwe Cele, Network Officer, South Africa  
 Subhrendu Gangopadhyay, Associate Expert, India  
 Constance Hunt, Senior Water Resources Professional, United States (April–September 1999)  
 Ariana Morris, Administrative Assistant, United Kingdom  
 Toshio Okazumi, River Basin Expert, Japan (October 1999–April 2000)  
 Ruud van der Helm, Network Officer, The Netherlands (April–December 1999)

## Scenario Development Panel

Chairman: Ismail Serageldin, Egypt (Chairman, World Water Commission)

Co-Chairman: Frank R. Rijsberman, The Netherlands (World Water Vision Unit, Paris)

Secretary: Gilberto Gallopin, Argentina (Stockholm Environment Institute, Sweden)

## Members

Jacob Adesida, Nigeria (United Nations Development Programme, Abidjan)  
 Joe Alcamo, United States (University of Kassel, Germany)  
 Nadezhda Gaponenko, Russia (Russian Academy of Sciences)  
 Peter Gleick, United States (Pacific Development Institute)  
 Stela Goldenstein, Brazil (Former Environment Secretary, São Paulo State)  
 Allen Hammond, United States (World Resources Institute)  
 Mark Rosegrant, United States (International Food Policy Research Institute)  
 David Seckler, United States (Director, International Water Management Institute, Sri Lanka)  
 Jill Slinger, South Africa (Council for Scientific and Industrial Research)  
 Sree Sreenath, India (Case Western Reserve University, United States)  
 Igor Shiklomanov, Russia (State Hydrology Institute)  
 Ken Strzepek, United States (University of Colorado)  
 Isabel Valencia, Venezuela  
 Rusong Wang, China (Chinese Academy of Sciences)



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## **Energy Panel**

Chairman: Jamil Al-Alawi, Bahrain (Executive Director, World Water Council)

Boris Berkovsky, Russia (Head, Energy Division, United Nations Educational, Scientific, and Cultural Organization)

Ramesh Bhatia, India (Resources and Environment Group)

Michael Jefferson, United Kingdom (Director, Studies and Policy Development, World Energy Council)

Michael Klein, United Kingdom (Chief Economist, Shell International Limited)

Thierry Vandal, Canada (Vice President, Strategic Planning, Hydro-Quebec)

## **Information and Communication Technology Panel**

Chairman: Iqbal Z. Quadir, Bangladesh (Director, GrameenPhone)

Michael B. Abbot, United Kingdom (International Institute for Infrastructural, Hydraulic, and Environmental Engineering–Delft)

Gunter Dueck, Germany (Distinguished Engineer, IBM)

Farouk El-Baz, Egypt (Director, Center for Remote Sensing, United States)

Hyunh Ngoc Phien, Vietnam (Computer Science and Information Management Program, School of Advanced Technology, Asian Institute of Technology)

Kuniyoshi Takeuchi, Japan (Department of Civil and Environmental Engineering, Yamanashi University)

## **Biotechnology Panel**

Chairman: M.S. Swaminathan, India (M.S. Swaminathan Research Foundation)

Co-chairman: Ismail Seragaldin, Egypt (Vice President, World Bank, and Chairman, Consultative Group for International Agricultural Research)

Lisa Alvarez Cohen, United States (Associate Professor, Civil and Environmental Engineering, University of California at Berkeley)

Usha Barwale, India (Life Sciences Research Centre)

P.C. Kesavan, India (Homi-Bhabha Chair, M.S. Swaminathan Research Foundation)

Sudha Nair, India (Principal Scientist, M.S. Swaminathan Research Foundation)

Ajay K. Parida, India (Principal Scientist, M.S. Swaminathan Research Foundation)

C.S. Prakash, India (Centre for Plant Biotech Research)

Hanspeter Schelling, Switzerland (Novartis International AG)

Dillip Shah, India (Research and Development Director for India)

## **Institutions, Society, and the Economy Panel**

Chairwoman: Margaret Catley-Carlson, Canada (International Consultant; Former President, Canadian International Development Agency and Population Council)

Nat Amartiefo, Ghana (Former Mayor, Accra, Ghana)

Jerry Delli Priscoll, United States (Institute of Water Resources, U.S. Corps of Engineers)

Chuck Howe, United States (Professor of Economics, University of Colorado)

Pierre-Marc Johnson, Canada (Environmental Lawyer, Former Prime Minister of Québec, member of Club of Lisbon)

Hideaki Oda, Japan (Former Director-General of River Bureau, Ministry of Construction)

Lilian Saade, Mexico (International Institute for Infrastructural, Hydraulic, and Environmental Engineering)

R. M. Saleth, India (Associate Professor, Institute of Economic Growth)

S.K. Sharma, India (Senior Advisor, Development Alternatives)

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## Gender Advisory Committee

Malia Bouayad-Agha, Algeria (Gender Coordinator, World Water Vision Unit)

Mahnaz Afkhami, Iran (President, Women's Learning Partnership for Rights, Development, and Peace)

Ingvar Andersson, Sweden (Senior Freshwater Advisor, Water Programme, Sustainable Energy and Environment Division, United Nations Development Programme)

Kusum Athukorala, Sri Lanka (Global Water Partnership)

Joke Blom, The Netherlands (Director, International Information Centre and Archives for the Women's Movement)

Aggrey Chemonges, Kenya (Regional Consultant for Africa, United Nations Development Fund for Women)

Rekha Dayal, India (Director, Mallika Consultants)

Fatoumata Diallo, Burkina Faso (Green Cross International)

Christina Espinosa, Peru (Global Facilitator, World Conservation Union)

Jennifer Francis, Malaysia (Programme Officer, IRC International Water and Sanitation Centre)

Teckie Ghebre-Medhin, Eritrea (Economic Empowerment Senior Advisor, United Nations Development Fund for Women)

Nighisty Ghezae, Sweden (Global Water Partnership)

Bruce Gross, United States (Consultant, Water and Sanitation Programme, World Bank)

Danielle Hirsch, The Netherlands (Assistant Programme Specialist, Forest and Water, Both ENDS)

Maliha Hussein, Pakistan (South Asia Technical Advisory Committee of the Global Water Partnership National Coordinator)

Margaret Jenkins, Canada (Assistant Programme Specialist, Economic Empowerment Programme, United Nations Development Fund for Women)

Annelie Joki-Hubach, The Netherlands (Consultant, IRC International Water and Sanitation Center)

Gerd Johnsson, Sweden (Councillor, Ministry for Foreign Affairs—Sweden)

Tabeth Matiza-Chiuta, Zimbabwe (World Conservation Union)

Ruth Meinzen-Dick, United States (Senior Research Fellow, International Food Policy Research Institute)

Lailun Nahar Ekram, Bangladesh (Global Water Partnership)

Breda Pavlic, Slovenia (Director, UNESCO Unit for the Status of Women and Gender Equality)

Lin Pugh, Australia (Manager, Knowledge Sharing Program, International Information Centre and Archives for the Women's Movement)

Amreeta Regmi, Nepal (Regional Consultant for South Asia, United Nations Development Fund for Women)

Gabriella Richardson, Sweden (Social Policy and Gender Officer, World Conservation Union)

Lydia Ruprecht, Canada (Assistant Programme Specialist, UNESCO Unit for the Status of Women and Gender Equality)

Cecilia Tortajada, Mexico (Vice President, Third World Centre for Water Management)

Ruud van der Helm, The Netherlands (Youth Coordinator, World Water Vision Unit)

Meike van Ginneken, The Netherlands (Global Water Partnership)

Barbara van Koppen, The Netherlands (Coordinator, Gender and Water Program, International Water Management Institute)

Frank van Steenberg, The Netherlands (Global Water Partnership, Framework for Action Unit)

Christine van Wijk, The Netherlands (Senior Programme Officer, IRC International Water and Sanitation Centre)

Wendy Wakeman, United States (Community Development Specialist, World Bank)

Paul Wolvekamp, The Netherlands (Coordinator, Forest and Water, Both ENDS)

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## **Background papers and modelling**

Nancy Contreras, Research Associate, Third World Centre for Water Management, Mexico

Gordon Conway, President, Rockefeller Foundation, United States

Peter Gleick, President, Pacific Development Institute, United States

Kenneth Strzepek, Professor, University of Colorado/Stockholm Environmental Institute, United States

Center for Environmental Systems Research, University of Kassel, Germany

International Food Policy Research Institute, United States

International Water Management Institute, Sri Lanka

State Hydrological Institute, Russia

Stockholm Environmental Institute, Sweden

# partner orga

## Sectors

### Water for People (Vision 21)

Water Supply and Sanitation Collaborative Council, Switzerland

### Water for Food

CEMAGREF, France

DVWK, Germany

Food and Agriculture Organization/International Programme for Technology and Research in Irrigation and Drainage, Italy

HR Wallingford, United Kingdom

International Commission on Irrigation and Drainage, India

International Food Policy Research Institute, United States

International Institute for Land Reclamation and Improvement, The Netherlands

International Water Management Institute, Sri Lanka

McGill University, Brace Centre for Water Resources Management, Canada

Wageningen Agricultural University, The Netherlands

World Bank, United States

### Water and Nature

World Conservation Union, Montreal Office, Canada

### Water in Rivers

Center for Research on River Basin Administration, Analysis and Management, Delft University of Technology, The Netherlands

International Association for Hydraulic Research, The Netherlands

International Network of River Basin Organizations, France

Japanese Ministry of Construction, Japan

### Water and Sovereignty

Green Cross International, Switzerland

### Interbasin Water Transfer

United Nations Educational, Scientific, and Cultural Organization—International Hydrological Programme, France

### Water for Tourism and Recreation

John Pigram, Center for Water Policy Research, University of New England, Australia

## Water, Education, and Training

United Nations Educational, Scientific, and Cultural Organization—International Hydrological Programme, France

## Regions

### Africa Coordination

African Development Bank, Côte d'Ivoire

### Southern Africa

Global Water Partnership—Southern Africa Technical Advisory Committee, Zimbabwe

### West Africa

Global Water Partnership—West Africa Technical Advisory Committee, Burkina Faso

### Nile Basin

Ministry of Public Works and Water Resources, Egypt

Nile Basin Initiative, Uganda

### Arab countries

Economic and Social Commission for Africa, Ethiopia

United Nations Educational, Scientific, and Cultural Organization, Regional Office for Science and Technology for the Arab States, Egypt

United Nations Environment Programme, Kenya

World Water Council, France

### Mediterranean

Global Water Partnership—Mediterranean Technical Advisory Committee, France

Plan Bleu (Blue Plan), France

### Rhine Basin

Ministry of Transport, Public Works and Water Resources Management, The Netherlands

### Central and Eastern Europe

Global Water Partnership—Central and Eastern Europe Technical Advisory Committee, Hungary

### Russia

Russian Academy of Sciences, Russia

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## **Aral Sea Basin**

United Nations Educational, Scientific, and Cultural Organization–International Hydrological Programme, France

## **South Asia**

Global Water Partnership–South Asia Technical Advisory Committee, India

## **Southeast Asia**

Global Water Partnership–Southeast Asia Technical Advisory Committee, The Philippines

## **China**

Chinese Academy of Sciences, China

## **Australia and New Zealand**

Center for Water Policy Research, University of New England, Australia

## **Americas Coordination**

Global Water Partnership–South America Technical Advisory Committee, Chile  
Organization of American States, United States

## **South America**

Global Water Partnership–South America Technical Advisory Committee, Chile

## **Central America and the Caribbean**

Cathalac, Water Center for the Humid Tropics of Latin America and the Caribbean, Panama

## **North America**

McGill University, Brace Centre for Water Resources Management, Canada  
National Commission for Water, Mexico  
The Nature Conservancy, United States  
Organization of American States, United States  
Water Environment Federation, United States

## **Gender**

Both ENDS (Environment and Development Service for NGOs), The Netherlands  
International Information Centre and Archives for the Women Movement, The Netherlands  
International Water Management Institute, Sri Lanka  
IRC International Water and Sanitation Centre, The Netherlands  
United Nations Development Fund for Women, United States

## **Youth**

Globetree Foundation, Sweden  
The Hague International Model United Nations, The Netherlands  
Junior Chamber International, United States

# meetings an

## August 1998

Announcement of the Formation of the World Commission on Water for the 21<sup>st</sup> Century  
Stockholm, Sweden  
August 11

## September 1998

First Scenario Development Panel Meeting  
Washington, D.C.  
September 24–25

## October 1998

Water for Food Preparatory Meeting  
Rabat, Morocco  
October 27–28

## November 1998

Global Water Partnership–Technical Advisory Committee Meeting  
Warsaw, Poland  
November 8–9

Scenario Development Panel Meeting  
Washington, D.C.  
November 9–10

Water and Nature Preparatory Meeting  
Dakar, Senegal  
November 9–13

Water for People Preparatory Meeting  
Abidjan, Côte d'Ivoire  
November 16–20

Thematic Panel on Energy  
Paris, France  
November 20

## January 1999

Donor Meeting  
Paris, France  
January 26

Scoping Meeting for Southern Africa  
Harare, Zimbabwe  
January 28–29

Scoping Meeting for West Africa  
Ouagadougou, Burkina Faso  
January 28–29

## February 1999

Thematic Panel on Biotechnology  
Chennai, India  
February 4–5

Thematic Panel on Information and Communication Technology  
Paris, France  
February 5

Scoping Meeting for South Asia  
New Delhi, India  
February 13–14

Thematic Panel on Institutions, Society, and the Economy  
Paris, France  
February 18–19

## March 1999

Scoping Meeting for South America  
Cali, Colombia  
March 2–3

Nile 2000  
Cairo, Egypt  
March 15–18

Global Water Partnership–Technical Advisory Committee Meeting in Cairo  
Cairo, Egypt  
March 19

Board Meeting of the World Water Council  
Cairo, Egypt  
March 20–21

Extended Vision Team Meeting with Senior Advisors on World Water Day  
Cairo, Egypt  
March 22

First Meeting of the World Commission on Water for the 21<sup>st</sup> Century  
Cairo, Egypt  
March 23

Discussion of Social Charter for Water  
Paris, France  
March 25

Vision Workshop at the Third Dialogue on Water Management  
Panama, Panama  
March 25–26

#### **April 1999**

Vision Workshop on Water and Nature—Freshwater Ecosystem Management and Social Security  
Harare, Zimbabwe  
April 13–15

China Regional Scoping Meeting  
Shanghai, China  
April 15–16

Vision Consultation at the European Geophysical Society Meeting  
The Hague, the Netherlands  
April 19–23

Meeting of the Knowledge Synthesis Group for Water Supply and Sanitation (Vision 21)  
Wageningen, the Netherlands  
April 20–22

Technical Consultation for Aral Sea Basin Regional Vision  
Tashkent, Uzbekistan  
April 26

International Workshop on Interbasin Water Transfer  
Paris, France  
April 26–27

Global Water Partnership–South Asia Technical Advisory Committee: Mapping through NGO-GO Interaction Meeting for India  
Ahmedabad, India  
April 26–27

Water for Food: International Commission on Irrigation and Drainage–Coordinated Meeting on East Asia  
Shanghai, China  
April 26–28

Presentation of the Vision Project at Scientific Committee on Water Research Meeting of the International Council for Science  
Paris, France  
April 27

#### **May 1999**

Global Water Partnership–Technical Advisory Committee Meeting in Budapest  
Budapest, Hungary  
May 3–7

Preparation of the First Draft of Water for People Sectoral Consultation (Vision 21)  
London, England  
May 4–7 (with an extension to May 15 for the completion group)

Sub-Regional Expert Consultation on Water for Food: Food and Agriculture Organization–Coordinated Meeting on West Africa  
Accra, Ghana  
May 6–7

Global Water Partnership–South Asia Technical Advisory Committee: Sri Lankan Country Vision Meeting  
Colombo, Sri Lanka  
May 6–7

Presentation of Vision Project and Discussion of Vision for Arab Countries at Water for Sustainable Growth Conference  
Amman, Jordan  
May 8–11

# consultation

Water for Food and Rural Development Sectoral Consultation for Europe  
Bratislava, Slovak Republic  
May 10–11

Regional Scoping Meeting for Global Water Partnership–Southeast Asia Technical Advisory Committee  
Manila, the Philippines  
May 13–14

Global Water Partnership–South Asia Technical Advisory Committee: India Country Vision Meeting  
New Delhi, India  
May 16–17

Water for Food and Rural Development Consultation for East Asia  
Kuala Lumpur, Malaysia  
May 17–19

Presentation of the Vision Project and Discussion of the Lake Biwa Regional Vision at the Eighth International Conference on the Conservation and Management of Lakes  
Copenhagen, Denmark  
May 17–21

Global Water Partnership–South Asia Technical Advisory Committee: Bangladesh Country Vision Meeting  
Dhaka, Bangladesh  
May 20–21

Global Water Partnership–South Asia Technical Advisory Committee: Pakistan Country Vision Meeting  
Lahore, Pakistan  
May 24–25

Presentation of the Vision Project at the Africa Water Resources Policy Conference  
Nairobi, Kenya  
May 24–27

Sub-Regional Expert Consultation on Water for Food: Food and Agriculture Organization–Coordinated Meeting on East and Southern Africa  
Harare, Zimbabwe  
May 26–27

Water for Food: CEMAGREF/HR Wallingford–Coordinated Meeting for Middle East and North Africa  
Bari, Italy  
May 27–29

Global Water Partnership–South Asia Technical Advisory Committee: Mapping Meeting for Nepal  
Kathmandu, Nepal  
May 28

Global Water Partnership–South Asia Technical Advisory Committee: Nepal Country Vision Meeting  
Kathmandu, Nepal  
May 29–30

Vision Report Drafting Team Meeting  
Paris, France  
May 31–June 4

## June 1999

Water for Food and Rural Development Sectoral Consultation for South Asia  
New Delhi, India  
June 1–3

Discussion of the Vision Project at The Learning Society and the Water-Environment International Symposium  
Paris, France  
June 2–4

Presentation of the Vision Project at Water 99: Third Annual International Water Conference  
Dundee, United Kingdom  
June 6–10

Vision Workshop on Water and Nature: Freshwater Ecosystem Management and Economic Security  
Bangkok, Thailand  
June 9–11

Presentation and Discussion of Global Water Partnership–Mediterranean Technical Advisory Committee Regional Vision at Technical Advisory Committee Meeting in Budapest  
Budapest, Hungary  
June 9–10



Women and Water: Sisterhood Is Global Institute Networking and Brainstorming Meeting on Women's Participation in the Vision Process  
Washington, D.C.  
June 10–12

National Visions for Central and Eastern Europe Presented at Technical Advisory Committee Meeting in Budapest  
Budapest, Hungary  
June 11–12

Scenario Drafting Team Meeting  
Paris, France  
June 14–18

Discussion of Vision Project and the Water for Food Sectoral Vision for the Americas at Ministerial Meeting  
Montevideo, Uruguay  
June 15–18

Presentation of the Vision Project and Discussion of Freshwater Issues at the United Nations Environment and Development (UNED-UK)–sponsored Building Partnerships for Sustainable Development Conference  
London, United Kingdom  
June 16

Vision Workshop on Water and Nature: Freshwater Ecosystem Management and Environmental Security  
San Jose, Costa Rica  
June 20–22

National Consultation Meeting on Water Sector Mapping and Vision  
Kuala Lumpur, Malaysia  
June 28

Scenario Development Panel Meeting  
Paris, France  
June 28–29

South Asia Regional Conference on South Asia Vision  
Colombo, Sri Lanka  
June 28–29

Canada Vision Consultation  
Montreal, Canada  
June 28–29

Second Reference Group Meeting for Global Water Partnership–Southern Africa Technical Advisory Committee  
Pretoria, South Africa  
June 30

Mapping Meeting for Global Water Partnership–South Asia Technical Advisory Committee  
Colombo, Sri Lanka  
June 30

Water for Food Consultations for the Americas  
Montreal, Canada  
June 30–July 2

### **July 1999**

Consultation on a Regional Water Vision for the Danube Basin  
Hungary, Budapest  
July 1

First Regional Stakeholder Meeting for Global Water Partnership–Southern Africa Technical Advisory Committee  
Pretoria, South Africa  
July 1–2

Global Water Partnership–Mediterranean Technical Advisory Committee Vision Presentation for the Mediterranean Commission for Sustainable Development  
Rome, Italy  
July 1–3

Presentation of the Vision Project at the African International Environmental Protection Symposium (AIPES 99)  
Pietermaritzburg, South Africa  
July 4

Discussion of Global Water Partnership–Mediterranean Technical Advisory Committee Regional Scenarios at the Committee's General Assembly Meeting  
Valette, Malta  
July 5–7

# meetings an

Vision Report Drafting Team Meeting  
Paris, France  
July 5–9

Vision for Rainwater Catchment Systems in the 21<sup>st</sup> Century at the Second Brazilian Rainwater Catchment Symposium  
Petrolina, Brazil  
July 6–9

Presentation of the Vision Project and Australia's Draft Vision at Water 99 Joint Congress: 25<sup>th</sup> Hydrology and Water Resources Symposium  
Brisbane, Australia  
July 7

Preliminary Meeting for Water in Rivers Sectoral Vision  
Tokyo, Japan  
July 7–8

Meeting for Global Water Partnership–West Africa Technical Advisory Committee  
Ouadagoudou, Burkina Faso  
July 17–18

## August 1999

Water for Food and Rural Development Sectoral Consultation for Central Asian Republics  
Tashkent, Uzbekistan  
August 3–6

Arab Countries Vision Consultation  
Marseilles, France  
August 4–5

Global Water Partnership–Technical Advisory Committee Meeting in Stockholm  
Stockholm, Sweden  
August 7–8

Second Meeting of the World Commission on Water for the 21<sup>st</sup> Century  
Stockholm, Sweden  
August 9

Workshop on Vision-in-Progress during Stockholm Water Symposium  
Stockholm, Sweden  
August 10

Zimbabwe National Consultation for Global Water Partnership–Southern Africa Technical Advisory Committee  
Harare, Zimbabwe  
August 24

Latin America Regional Consultation for Vision 21 (Water for People)  
Quito, Ecuador  
August 25–27

Lesotho National Consultation for Global Water Partnership–Southern Africa Technical Advisory Committee  
Meserv, Lesotho  
August 31

## September 1999

Namibia National Consultation for Global Water Partnership–Southern Africa Technical Advisory Committee  
Windhoek, Namibia  
September 2

Malawi National Consultation for Global Water Partnership–Southern Africa Technical Advisory Committee  
Lilongwe, Malawi  
September 8

Central and Eastern European Regional Vision Consultation  
Vilnius, Lithuania  
September 10–11

Presentation of the Water for Food Vision at the 17<sup>th</sup> International Commission on Irrigation and Drainage Conference on Water for Agriculture in the Next Millennium  
Granada, Spain  
September 11–19

Africa Regional Water for People Sectoral Consultation (Vision 21)  
Dakar, Senegal  
September 13–17

Presentation of the Vision Project at the 11<sup>th</sup> Asia Pacific and 2<sup>nd</sup> Commonwealth Congress of Environmental Journalists  
Dhaka, Bangladesh  
September 13–17

Botswana National Consultation for Global Water Partnership–Southern Africa Technical Advisory Committee  
Gaberone, Botswana  
September 14

Brainstorming Meeting for a French Vision  
Paris, France  
September 15

South Africa National Consultation for Global Water Partnership–Southern Africa Technical Advisory Committee  
Pretoria, South Africa  
September 16

Ministerial Conference Preparatory Meeting  
The Hague, The Netherlands  
September 20–21

From Vision to Action: India Regional Vision and Framework for Action Workshop  
New Delhi, India  
September 20–21

Swaziland National Consultation for Global Water Partnership–Southern Africa Technical Advisory Committee  
Lobamba, Swaziland  
September 21

Presentation of the Vision Project at the Integrated Drought Management: Lessons for Sub-Saharan Africa Conference  
Pretoria, South Africa  
September 22

Mozambique National Consultation for Global Water Partnership–Southern Africa Technical Advisory Committee  
Maputo, Mozambique  
September 23

Asia Regional Consultation for Vision 21 (Water for People)  
Bangkok, Thailand  
September 24–25

Small Island Countries Regional Consultation for Vision 21 (Water for People)  
Trinidad  
September 29–30

Tanzania National Consultation for Global Water Partnership–Southern Africa Technical Advisory Committee  
Tanzania  
September 30

### **October 1999**

World Water Vision Modellers Meeting  
Colombo, Sri Lanka  
October 1–2

Vision Explorer Presentation at the Water Information Summit  
Fort Lauderdale, Florida  
October 3–6

Zambia National Consultation for Global Water Partnership–Southern Africa Technical Advisory Committee  
Lunenburg, Zambia  
October 6

First Sri Lanka Framework for Action Consultation  
Colombo, Sri Lanka  
October 8

Angola National Consultation for Global Water Partnership–Southern Africa Technical Advisory Committee  
Luanda, Angola  
October 13

Estonia National Consultation for Global Water Partnership–Central and Eastern Europe Technical Advisory Committee  
Tallin, Estonia  
October 15

Lithuania National Consultation for Global Water Partnership–Central and Eastern Europe Technical Advisory Committee  
Vilnius, Lithuania  
October 15

# consultation

Pakistan Framework for Action Consultation  
Islamabad, Pakistan  
October 17

Presentation of First Draft of Mediterranean Vision, Mapping, and Action Strategies at the Euro-Mediterranean Water Conference  
Turin, Italy  
October 18–19

Writing Meeting for Southern Africa Regional Vision  
Harare, Zimbabwe  
October 18–22

Report on Status of the Vision Project at the Foundation for Water Research's Conference on Working Together to Meet the World's Water Needs  
Birmingham, United Kingdom  
October 19

Meeting of National Groups for Aral Sea Vision  
Tashkent, Uzbekistan  
October 22

Bulgaria National Consultation for Global Water Partnership–Central and Eastern Europe Technical Advisory Committee  
Sofia, Bulgaria  
October 25–26

Water and Nature Vision Drafting Meeting  
Gland, Switzerland  
October 26

Presentation of First Draft of Mediterranean Vision, Mapping, and Action Strategies at Meeting of Barcelona Convention Signatories  
Barcelona, Spain  
October 27–30

Central and Eastern European Regional Vision Consultation  
Ljubljana, Slovenia  
October 30

## November 1999

Water in Rivers Sectoral Consultation  
Tokyo, Japan  
November 1–3

Second Regional Stakeholder Meeting for Global Water Partnership–Southern Africa Technical Advisory Committee  
Gaborone, Botswana  
November 8–9

United States Water Vision Consultation  
Arlington, Virginia  
November 9–10

Third Reference Group Meeting for Global Water Partnership–Southern Africa Technical Advisory Committee  
Gaborone, Botswana  
November 10

Scenario Development Panel Meeting  
Paris, France  
November 11–12

Bangladesh National Vision Consultation on the Framework for Action, Youth, and Gender  
Dhaka, Bangladesh  
November 13–15

North America Consultation  
Miami, Florida  
November 15–16

Global Consultation for Vision 21 (Water for People)  
Gujarat, India  
November 15–16

Presentation of the Vision Project at Investing in the Future of the Global Water Industry Conference  
London, United Kingdom  
November 18–19

NGO Consultation on India Water Vision  
November 27–29  
Mumbai, India  
Senior Advisors Meeting  
The Hague, the Netherlands  
November 28

Commission Meeting  
The Hague, The Netherlands  
November 28–30

### **December 1999**

World Water Forum Presentation Coordinating Meeting  
The Hague, The Netherlands  
December 1

South America Regional Technical Advisory Committee Meeting  
Lima, Peru  
December 6–8

Presentation of the Vision Project at the Modeling the Dynamics of Natural, Agricultural, Hydrological, Tourism, and Socio-Economic Systems Conference (MODSIM 99)  
Hamilton, New Zealand  
December 6–9

South Asia Regional Conference on South Asia Vision and Framework for Action  
Dhaka, Bangladesh  
December 6–9

India Framework for Action Consultation  
Chennai, India  
December 13–14

PODIUM Review Workshop  
New Delhi, India  
December 14–15

National Consultation Meeting on Vision  
Kuala Lumpur, Malaysia  
December 18

Drafting Team Meeting for the Western Africa Regional Vision  
Accra, Ghana  
December 18–20

Framework for Action and Technical Advisory Committee Meeting  
London, United Kingdom  
December 20

### **January 2000**

Social Charter for Water Advisory Group Meeting  
Paris, France  
January 14

Southeast Asia Technical Advisory Committee Meeting  
Manila, The Philippines  
January 19–21

Global Water Partnership–Technical Advisory Committee Meeting  
Manila, The Philippines  
January 20

International Preparatory Committee Meeting for Ministerial Conference  
Amsterdam, The Netherlands  
January 30–February 1

### **February 2000**

Global Water Partnership, Financial Support Group  
Amsterdam, The Netherlands  
February 2

Forum International Steering Committee  
Cairo, Egypt  
February 4

Africa-wide Stakeholder Consultation  
Abidjan, Côte d'Ivoire, or Addis Ababa, Ethiopia  
February 8–9

National Consultation Meeting on Vision to Action  
Kuala Lumpur, Malaysia  
February 18

### **March 2000**

Second World Water Forum  
The Hague, The Netherlands  
March 17–22

# background

All background documents are available on the CD-ROM that accompanies this book.

### Secretariat documents

*Thematic Panel Reports*, World Water Vision Unit, November 1998–March 1999.

*World Water Scenarios: Analysis*, Frank R. Rijsberman, ed., Forthcoming publication from Earthscan, London.

*Mainstreaming Gender in Water Resources Management: Why and How: Background Paper for the World Water Vision Process*, N. Maharaj, ed., October 1999.

### Regional vision documents

#### Africa

*The Africa Water Vision for 2025: Equitable & Sustainable Use of Water for Socioeconomic Development*, African Caucus, December 1999.

#### West Africa

*West Africa Water Vision*, Global Water Partnership–West Africa Technical Advisory Committee, December 1999.

#### Southern Africa

*Southern Africa Vision for Water, Life and the Environment in the 21<sup>st</sup> Century and Strategic Framework for Action Statement*, Global Water Partnership–Southern Africa Technical Advisory Committee, November 1998.

#### Nile Basin

*The Vision for Water in the 21<sup>st</sup> Century for the Countries of the Nile River Basin*, A. Shady, ed., March 1999.

#### Arab countries

*Water Vision for the Arab Countries towards the Year 2025*. K.F. Saad, November 1999.

#### Mediterranean

*Mediterranean Vision on Water, Population and the Environment for the XXI<sup>st</sup> Century*, J. Margat and D. Vallee, October 1999.

#### Rhine Basin

*Visions for the Rhine*, Rhine Basin Vision Project Group, October 1999.

#### Central and Eastern Europe

*A Vision of Water Resources Management in Central and Eastern Europe*, Global Water Partnership–Central and Eastern Europe Technical Advisory Committee, August 1999.

*Water Management Mapping Report for the Danube Sub-region Countries of Eastern and Central Europe: Bulgaria, Czech Republic, Hungary, Romania, Slovakia and Slovenia*, Global Water Partnership–Central and Eastern Europe Technical Advisory Committee, May 1999.

*Water Resources Management Mapping and Vision for the Baltic Sub-region of Eastern and Central Europe: Estonia, Latvia, Lithuania and Poland*, M. Nawalany, June 1999.

#### Russia

*Russian Water Vision: Scenarios of Russian Water Sector Development*, N. Gaponenko, August 1999.

#### Aral Sea Basin

*Water-related Aral Sea Basin Vision for the Year 2025*, United Nations Educational, Scientific, and Cultural Organization–International Hydrological Programme, October 1999.

#### South Asia

*South Asia Regional Water Vision 2025*, Global Water Partnership–South Asia Technical Advisory Committee, July 1999.

#### China

*China Vision*, R. Wang, Z. Ouyang, H. Ren, and Q. Min, November 1999.

#### Australia and New Zealand

*A Vision for Australia's Water Resources 2025*, J. Pigram and B. Hooper, November 1999.

#### Americas

*The Vision on Water, Life and the Environment in the 21<sup>st</sup> Century: The Americas*, Inter-American Water Resources Network, December 1999.

# documents

## **South America**

*South America Regional Vision and Framework for Action*, Global Water Partnership–South America Technical Advisory Committee, August 1999.

## **Central America and Caribbean**

*Vision on Water, Life and the Environment for the 21<sup>st</sup> Century: Regional Visions: Central America and the Caribbean*, Water Center for the Humid Tropics of Latin America and the Caribbean, August 1999.

## **North America**

*Canadian Roundtable on a Vision for Water, Life and the Environment for the 21<sup>st</sup> Century*, C. Madramootoo, June 1999.

*Vision on Water, Life and the Environment for the 21<sup>st</sup> Century: Regional Consultations: North America*, Mexican National Commission for Water, December 1999.

## **Sector vision documents**

### **Water for People**

*Vision 21: Water for People: A Shared Vision for Water Supply, Sanitation and Hygiene and a Framework for Mobilisation of Action*, Water Supply and Sanitation Collaborative Council, December 1999.

*Urban Water and Sanitation Systems*, T. Milburn, November 1999.

### **Water and Nature**

*Freshwater and Related Ecosystems—The Source of Life and the Responsibility of All: A World Water Vision for Sustainable Management of Water Resources in the 21<sup>st</sup> Century*, World Conservation Union, October 1999.

### **Water and Nature Discussion Papers**

*Freshwater Ecosystems, Conflict Management & Economic Security*, T. Swanson and C. Doble, May 1999.

*Freshwater Ecosystems Management & Environmental Security*, M.P. McCartney, M.C. Acreman, and G. Bergkamp, June 1999.

*Freshwater Ecosystems Management & Social Security: A Discussion Paper for IUCN*, J. Soussan, N. Emmel, and C. Howorth, March 1999.

### **Water for Food**

*A Vision of Water for Food and Rural Development*, P. van Hofwegen and M. Svendsen, November 1999.

### **Water in Rivers**

*Report on Sector Consultation “Water in Rivers”*, H. Oda, November 1999.

*Water in Rivers: Flooding*, R. White, September 1999.

*Contribution to the World Water Vision*, International Network of Basin Organizations, November 1999.

*Recommendations and Guidelines on Sustainable River Basin Management: Workshop Report of “International Workshop on River Basin Management”*, Center for Research on River Basin Administration, Analysis and Management, Delft University of Technology, October 1999.

### **Sovereignty**

*National Sovereignty and International Water Courses*, Green Cross International, November 1999.

### **Interbasin Water Transfer**

*Interbasin Water Transfer*, United Nations Educational, Scientific, and Cultural Organization–International Hydrological Programme, April 1999.

### **Water for Tourism and Recreation**

*A Vision for Water and Tourism—2025*, J. Pigram, November 1999.

### **Water, Education, and Training**

*Water, Education and Training*, United Nations Educational, Scientific, and Cultural Organization–International Hydrological Programme, October 1999.

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## Glossary



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**aquifer** a layer of earth or rock containing groundwater.

**blue water** renewable water resources—the portion of rainfall that enters into streams and recharges groundwater.

**consultations** process through which more than 40 groups around the world developed sector and regional visions and commented on the evolving World Water Vision.

**criticality ratio** ratio of water withdrawals to total renewable water resources, preferably on a basin scale.

**current basin use** ratio of consumptive use in a basin to the primary water supply. When this factor is low—say, 30%—water could be saved and put to more productive use. When it is high—say, 70%—increasing water consumption is likely to be difficult and undesirable from a perspective of leaving sufficient water in nature and for the environment.

**dams, large** defined by the International Commission on Large Dams as having a height over 15 metres.

—, **International Commission on** established by the World Conservation Union and the World Bank to carry out a balanced analysis of all the costs and benefits of large dams—and propose criteria to evaluate the social, economic, and environmental desirability of proposed dam projects. Will deliver its report by mid-2000.

**drivers** the key factors, trends, or processes that influence a situation, focal issue, or decision, propel the system forward, and determine a scenario's outcome.

**Falkenmark indicator** renewable water resources per capita per year—usually held to show that water stress begins when the indicator is below 1,700 cubic metres a year and becomes severe when it falls below 1,000 cubic metres a year.

**fossil water** groundwater that has accumulated over a long period—often in previous geological periods—and is not or barely recharged. Not a renewable resource.

**Framework for Action** programme of the Global Water Partnership to develop a framework of actions at the regional level that would achieve the World Water Vision objectives.

**full-cost pricing** users pay the full cost of obtaining, collecting, treating, and distributing water, as well as collecting, treating, and disposing of wastewater.

**gender mainstreaming** incorporation of gender perspectives into water resource management strategies requires attention to the complex relationship between productive and domestic uses of water resources, to the importance of participation in decisionmaking for all (women and men), and to the equitable distribution of benefits from improved infrastructure and management systems for all (SIDA 1997).

**Global Water Partnership** an international network established in 1996, open to all organisations involved in water resource management, created in response to the need to promote integrated water resource management through activities at the field level.

**green water** soil water—the portion of rainfall that is stored in the soil and evaporates from it; used by ecosystems and as source for rainfed agriculture.

**groundwater** water contained in the saturated zone of a layer of earth or rock.

—, **recharge** amount of water—mostly rainfall—that percolates through soil and enters groundwater.

**innovation** change in technology or management that improves the productivity, efficiency, or effectiveness of water use; relates to improvements ranging from improved membrane technology that reduces the cost of desalination to institutional changes that improve farmers' control over water supply and thereby yields.

**integrated water resource management** philosophy that holds that water must be viewed from a holistic perspective, both in its natural state and in balancing competing demands on it—agricultural, industrial, domestic, and environmental. Management of water resources and services needs to reflect the interaction between these different demands, and so must be coordinated within and across sectors. If the many cross-cutting requirements are met, and if there can be horizontal and vertical integration within the management framework for water resources and services, a more equitable, efficient, and sustainable regime will emerge (Global Water Partnership, Framework for Action 1999).

**irrigated area, harvested** cropped area. For example, a 1-hectare plot that has two crops per year counts as 2 hectares.

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—, **net physical area of irrigated agricultural land.**

**irrigation, deficit** aims to increase productivity per unit of water with irrigation strategies that do not fully meet evaporative requirements.

—, **precision** aims to reduce nonbeneficial evaporation through more uniform application; includes drip irrigation, precision sprinklers, and level basins (laser levelling).

—, **supplemental** irrigation supplementing limited rainfed agriculture during critical periods in the growing season.

**model** a schematic description of a system, theory, or phenomenon that accounts for its known or inferred properties and may be used for further study of its characteristics.

—, **IMPACT:** an economic model developed by the International Food Policy Research Institute to analyse the supply of and demand for world food and consequences for world food trade (Rosegrant and Ringler 1999).

—, **PODIUM:** a water policy model developed by the International Water Management Institute to analyse the supply of and demand for water resources, with detailed analysis of the water for food and rural development at the national and global levels (IWMI 2000).

—, **WaterGAP:** a global model combining a hydrology component based on climate factors with a dynamic analysis of uses; relies on a 0.5 by 0.5 degree grid for analysis at the river basin level. Developed by the Centre for Environmental Systems Research at the University of Kassel (Alcamo and others 1999).

**overextraction** groundwater extraction that exceeds recharge and results in dropping groundwater tables.

**potential basin use** ratio of consumptive use in a river basin to the usable water supply. Where this is lower than current basin use there is scope for water resource development from a technical and economic perspective; does not indicate whether such development is socially or environmentally desirable.

**primary water supply** amount of water that can be diverted or pumped with current infrastructure.

**productivity** amount of products or services produced per unit of water consumed. At a fixed demand for products or services, increasing productivity means reducing the demand for water. Increasing productivity can be the result of technological as well as management improvements.

**rainwater harvesting** efforts to increase the amount of rainfall captured and stored for later use. Usually refers to small-scale, household or community-based efforts to increase the amount of rainfall that recharges groundwater or to capture runoff from fields or roofs in small storage structures such as tanks.

**renewable water resources** the portion of rainfall that enters into streams and recharges groundwater.

**sanitation** disposal of household and industrial wastewater, excreta, and so on.

**scarcity, economic** indicates that sufficient water resources are available to meet demand but that water supplies would need to be developed to do so, creating a financial and capacity problem when economic scarcity is high.

—, **physical** indicates that even with the highest feasible efficiency and productivity of water, there are insufficient resources to meet demand.

**scenario** story about the future with a logical plot and narrative governing the manner in which events unfold. A possible course of events leading to a resulting state of the world (or image of the future), not a forecast or projection.

**sovereignty** the right of national governments to manage and use water resources that originate in or pass through their national territory as they see fit. In international basins cooperation over shared management of water resources is of paramount importance. Increased cooperation would lead governments to voluntarily accept limitations on their sovereignty over water.

**storage** to retain flood water for later human use. Includes traditional means such as small tanks and large and small reservoirs, as well as storage in groundwater aquifers.

**surface water** water in streams, rivers, or lakes.

**usable water supply** the amount of renewable resources that can be used if all technically and economically feasible storage and diversion structures are built.

**valuing ecosystem functions** healthy ecosystems, both freshwater and terrestrial, provide many services from fish and wildlife production to flood control to recreation. More research into ecosystem functioning is needed to assess the values of the services provided.

**vision** a desirable future and the way to get there.

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—, **global** global World Water Vision describes a desirable water future for 2025 for all uses and for the world as a whole as well as the key strategic actions required to achieve this future.

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—, **plural** given that different stakeholders from various parts of the world have different backgrounds, experiences, and interests, a single World Water Vision that has the support of everybody is not likely to evolve except at the level of basic principles. There will be plural visions on what constitutes a desirable water future, but what counts is to achieve a widely shared agreement on urgent actions to move in the right direction. This agreement should involve a much larger section of the population than to date.

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—, **regional** vision of a desirable water future for 2025 for all water uses in a specific region—such as South Asia, the Mediterranean, or Southern Africa. More than 15 regional Visions were developed as part of the World Water Vision exercise.

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—, **sector** vision for a desirable water future at a global scale for a specific water subsector. Sector visions were developed through extensive consultations for Water for People (Vision 21), Water and Nature, Water for Food and Rural Development, and Water in Rivers. Special, more limited efforts were undertaken for Water and Tourism, a Social Charter, and Water Sovereignty.

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**virtual water** water used to produce a good or service. For example, 1 kilogram of wheat contains at least 1,000 litres of virtual water.

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**Vision Management Unit** unit of the World Water Council responsible for day-to-day management of the World Water Vision exercise. Housed in the Paris headquarters of the United Nations Educational, Scientific, and Cultural Organization.

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**water consumed** water delivered to a use that is evaporated or incorporated into products and organisms, such that it becomes unavailable to other users.

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**water crisis** the current widespread and chronic lack of access to safe and affordable drinking water and sanitation, the high incidence of water-related diseases, the destruction of wetlands, and the degradation of water quality in rivers and lakes.

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**watershed** an area from which rainfall flows off through one particular watercourse. A large watershed is often composed of subwatersheds because each tributary of a main river has its own watershed.

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**water stress** an indicator of insufficient water of satisfactory quality and quantity to meet human and environmental needs.

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**water subsidies** government funds that cover part of the cost, directly or indirectly, of making water services available to users and disposing of wastewater.

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**water use** the renewable resources withdrawn from surface and groundwater for human use. Part of this is returned after use and subsequently reused or left in nature.

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**water withdrawn** water diverted from streams or rivers and pumped from groundwater aquifers for human use.

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**wetland** a natural area covered at least part of the time or seasonally with water, such as a marsh, a floodplain, mudflats, or a delta.

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**World Water Commission** established by the World Water Council to guide the World Water Vision exercise.

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**World Water Council** established in 1996 as a neutral, non-profit, nonpolitical, and independent forum to advocate, assist, and advise on global water issues—a global water policy think tank.

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**World Water Vision exercise** the process developed for the World Water Vision with the participation of more than 15,000 people in an 18-month period.

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