

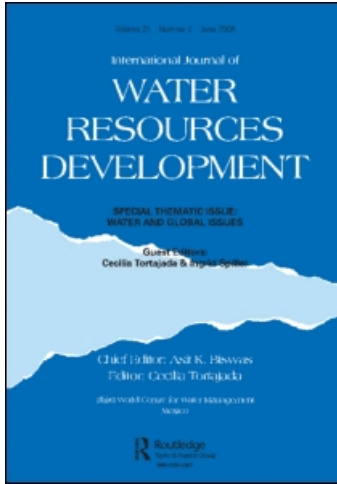
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Safe water in the 1990s

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at Mar del Plata, Argentina, in March 1977. During this conference all the countries of the world agreed on an Action Plan. While significant progress has been made since that time to implement the Mar del Plata Action Plan, much remains to be done.

In 1989, FAO took the lead to develop an international action programme on water and sustainable agricultural development for the 1990s on behalf of the entire UN system. In his Foreword, Yehia Abdel Mageed, Secretary-General of the United Nations Water Conference, points out that the Action Programme 'specifically aims to rekindle the spirit of Mar del Plata by encouraging a new spirit and commitment for its implementation during the 1990s'.

The Action Programme points out that by the mid-1980s, 36% of total crop production came from less than 15% of the available land that was irrigated. On a global basis, the average annual rate of expansion of irrigated land was about 1% during the early 1960s and reached a maximum of 2.3% from 1972 to 1975. Since then, the annual rate of expansion has started to decline. It is now less than 1%.

The main objective of the proposed 10-year Programme is to ensure sustainable agricultural development through optimum use of water and associated natural resources. The Programme iden-

tifies six priority areas where urgent action is necessary. These are:

- (1) efficient water use at farm level;
- (2) waterlogging, salinity and drainage;
- (3) water-quality management;
- (4) small-scale water programmes;
- (5) scarce water resources management; and
- (6) supporting actions.

It is refreshing to note that the Programme specifically targets both rainfed and irrigated agriculture. Normally, in most such documents, rainfed agriculture is neglected, even though it contributes to a higher level of food production than irrigated agriculture, where yields are substantially higher.

Supporting actions are common and complimentary measures which need to be taken in order to implement activities effectively in the priority areas include development of adequate databases; adaptive research; institutional strengthening; training; better socio-economic analysis; environmental protection and conservation; and technology transfer and infrastructure. The document clearly outlines the rationale for choosing the six priority action areas. In each of these areas, a series of specific actions is clearly stipulated. Thus, in contrast to most action plans prepared by various international organizations, which generally list all possible actions necessary in

every country, this Action Programme takes a rational approach by selecting priority areas where urgent measures need to be taken.

The Action Programme is unquestionably an excellent beginning. However, in the final analysis, the success of any such programme can best be judged by the actions actually generated. This requires two factors: convincing bilateral and multilateral donors to provide additional funds, and encouraging developing countries to develop viable projects in the priority action areas. Based on three decades of personal experience, the first is more difficult than the second. Thus, the United Nations system in general and FAO in particular should give high priority to translating the proposed programme into actual projects. If this could be accomplished, it would indeed be a major achievement.

This document is technically sound, very well written, easy to read and tastefully presented. Unquestionably it is the best document the reviewer has seen in recent years that has come out of FAO's Water Management Division, and any individual with an interest in water and sustainable agricultural development should read it.

*Asit K. Biswas,
President, IWRA,
Oxford, UK*

Conference reports

Safe water in the 1990s

International Conference on 'Water and Wastewater - 90' *Barcelona, Spain, 24-27 April 1990.*

This conference was organized by the publishers of *Water and Wastewater International*, and hosted and sponsored by Generalitat de Catalunya, Centra de Relacions Autonomiques and Institut Catala del sol. It was also endorsed by 12 international associations dealing with water resources and irrigation, one of which was the International Water Resources Association.

The conference had twin objectives: (i)

to act as a gathering of top experts in the field of water and wastewater to discuss the serious water-related problems that must be confronted in the 1990s and their potential solutions, through panel discussions and technical presentations; and (ii) to provide a meeting point for water and wastewater professionals such as manufacturers, planners and users through an outdoor exhibition. Around 200 delegates attended from 30 different coun-

tries. Among them, a reasonable number were from developing countries, notably from the Indian subcontinent.

The conference was ceremonially opened by the Spanish Minister of Public Works. Dr Martin Beyer of UNDP gave the keynote address on 'Safe water supply and sanitation for the world in the 1990s', in which he summarized the successes and failures of the water decade programme.

Originally planned to spread over four working days and four parallel sessions, 34 technical sessions with 160 technical paper presentations were to deal with subjects such as groundwater exploration, water pollution, water and wastewater treatment technologies, water resources planning, training, water supply, irrigation, wastewater reuse, etc. Unfortunately, due to the absence of a

few speakers, some of the technical sessions were amalgamated. Nevertheless, there was no doubt about the quality of the technical papers presented at this conference and the technical papers in the groundwater section in particular attracted a large audience and led to extensive discussion. All technical sessions were held in English and Spanish with simultaneous translation. The majority of the technical papers were focused on the presentation of new techniques and innovative solutions to water-related problems.

In addition to the technical sessions a

plenary session was held each afternoon, dealing with the following topics: (1) The 1990s – Priorities and issues; (2) International aid: can development monies be better spent?; (3) Groundwater v surface water; (4) Water quality and wastewater/sewage management. These plenary sessions, with the assistance of the panellists who were internationally-renowned experts, helped to elicit various views and recommendations.

The trade exhibition which was part of this seminar was of a high standard. The international exhibitors came from as far afield as South Africa and Australia.

There were numerous groundwater-exploration-oriented products. New technologies in this field, such as deep-well rehabilitation, driggs, micro-irrigation, etc were the masterpieces of the exhibition, which also provided an opportunity to conference delegates and participants for 'hands-on' access to equipment set up for working demonstrations.

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Towards a rational future for groundwater

International Conference on Groundwater Resources Management, Bangkok, Thailand, 5–7 November 1990

An International Conference on Groundwater Resources Management was held at the Asian Institute of Technology (AIT), Bangkok, Thailand, 5–7 November 1990. The conference was organized by the Division of Water Resources Engineering, AIT, Department of Mineral Resources of the Royal Thai Government, and the International Water Resources Association. It was supported by the United Nations Environment Programme and the Canadian International Development Agency. The five main objectives of the conference were to:

- (1) bring together a diverse group of practitioners and researchers in the field of groundwater assessment and management;
- (2) provide information about worldwide experience in the application of modern tools of mathematical modelling and systems analysis to groundwater management and related environmental problems;
- (3) identify some directions for future development based on the results of past experience;
- (4) identify priorities, needs and techniques in groundwater-management education; and

- (5) stimulate technology transfer, education and application of modern management tools to a wider horizon.

The conference was opened by Prof Helmut Eggers, Vice-President of Academic Affairs, AIT, who noted the importance of groundwater as a subject of research and training at AIT over some three decades. In his opening address, Mr Visith Noiphan, Director-General, Department of Mineral Resources of the Royal Thai Government, underlined the importance of the role of groundwater in continuing the sustainable development of Thailand.

In his keynote address, Dr Anat Arbhahirama, Chairman of the Petroleum Authority of Thailand and one of Thailand's most eminent water experts, outlined the major problems facing Thailand and other developing countries in the area of rational groundwater management. Groundwater is currently being exploited at a higher rate than its replenishment in many parts of the world, which is contributing to the lowering of the water table. This, in turn, is contributing to many economic and environmental problems. A good example is Bangkok, where extensive ground-

water pumping has contributed to serious land-subsidence problems. The resulting socio-economic cost has been enormous. Another major problem has been groundwater contamination. Dr Anat pointed out that a major problem facing rational groundwater management is the lack of adequate and reliable data. Even where data are available, concerned ministries have been unwilling to share data amongst themselves. This situation must change if groundwater is to be managed properly.

In delivering the IWRA Distinguished Lecture for 1990, Prof Asit K. Biswas, President, International Water Resources Association, Oxford, reviewed the opportunities and constraints facing the world in the area of sustainable groundwater management in the 21st century. He pointed out the three leading problems in the area of groundwater management which the world is going to face in the coming decades. First is the serious problem of groundwater depletion due to increasing water demands for agricultural, domestic and industrial purposes. In addition to land subsidence and other environmental problems, continual lowering of groundwater tables is changing the economics of many projects. Second is the reverse problem: increase in groundwater levels. This is serious in many parts of the world due to irrigation development, where appropriate drainage is not provided, and is also developing in some parts of England, where legislation has succeeded in controlling groundwater abstraction. The water tables are gradually rising to pre-industrial revolution levels. The rising groundwater table is endangering struc-

tures in cities like Birmingham, Liverpool and London. In Birmingham alone, the water table increased by nearly one metre annually during the 1967–85 period. The third serious problem is increasing groundwater contamination, which is restricting potential uses of groundwater. For example, in Nebraska, 38 cities have now prohibited the use of tapwater for drinking for infants less than six months old, due to the high concentration of nitrates in groundwater. Infants must now be given bottled water. Dr Biswas then outlined the important issues needed for rational groundwater management.

The conference programme included 51 papers by authors from 22 countries. These were organized under 9 technical

sessions. In addition to these papers special lectures were organized, which were given by R.N. Yong (Canada) on 'Sources and Characteristics of Contaminants Polluting Groundwater', K.K. Watson (Australia) on 'Some Recent Studies of Transport Processes in the Unsaturated Zone', Glenn E. Stout (USA) on 'Water Policy Issues on Groundwater Protection and Management in mid-West USA', and Vachi Ramnarong (Thailand) on 'Groundwater Development in the Bangkok Area'.

The overall quality of the papers presented was uniformly high. One good point was that all the papers presented were published in full before the conference so that all participants had an opportunity to review them. This resulting

531-page document contains a wealth of data and information on groundwater quantity and quality management from all parts of the world. Copies of the proceedings may be obtained from Prof A. Das Gupta, Division of Water Resources Engineering, Asian Institute of Technology, GPO Box 2754, Bangkok 10501, Thailand.

The conference was very well organized, and this was much appreciated by all the participants, numbering some 120 from 22 countries, who attended the meeting.

Asit K. Biswas,
President, IWRA,
Oxford, UK

Calendar

This calendar of events is based on information provided by the respective organizers and from secondary sources. THE INTERNATIONAL JOURNAL OF WATER RESOURCES DEVELOPMENT welcomes information on meetings suitable for listing in this section. Copy deadlines are three months ahead of cover dates.

March 1991, Taipei, Taiwan
International Conference on COMPUTER APPLICATIONS IN WATER RESOURCES. Details from IWRA, University of Illinois, 205 N. Matthews Avenue, Urbana, IL 61801, USA. Tel: (217) 333-0536; Telex: 5101011969 U1 TELCOM URUD; Fax: (217) 333-8046.

3–8 March 1991, Los Angeles, CA, USA
Symposium on OFF FLAVORS IN THE AQUATIC ENVIRONMENT. Contact M.J. McGuire, Metropolitan Water District of Southern California, 700 North Morena Avenue, La Verne, CA 91750, USA.

17–22 March 1991, Perth, Australia
14th Federal Convention of the Australian Water and Wastewater Association. Contact AWWA 14th Convention – Perth 1991, PO Box 1201, West Perth, WA 6005, Australia.

19–21 March 1991, Monaco
10th Ozone World Congress. Contact Prof. M. Dore, Laboratoire de Chimie de l'Eau, 40 Av du Recteur Pineau, 86022 Poitiers Cedex, France.

3–5 April 1991, Lisbon, Portugal
MARINE DISPOSAL SYSTEMS. Contact Prof. R. Neves, Instituto Superior Tecnico, Av Rovisco Pais, 1096 Lisboa Codex, Portugal.

8–12 April 1991, Hamburg, FR Germany
STORM 91: International Workshop on Storm Surges, River Flow and Combined Effects, convened by the National Committee of the Federal Republic of Germany for the International Hydrological Programme of UNESCO and the Operational Hydrology Programme of WMO, and the National Committee of the Netherlands for the International Hydrological Programme of UNESCO; organized jointly with UNESCO in co-operation with WMO, IAHS, and IAHR. Contact the Secretariat of the Workshop, STORM 91, IHP-OHP Secretariat, c/o Bundesanstalt für Gewässerkunde, PO Box 309, D-5400 Koblenz, FR Germany.

15–19 April 1991, Lisbon, Portugal
Conference on ENVIRONMENTAL POLLUTION. Contact ICEP Conference Office, ICTR Secretariat, 11–12 Pall Mall, London SW1Y 5LU, UK.

15–20 April 1991, Malta
Conference on DESALINATION AND WATER REUSE. Contact Conference Section, Institution of Chemical Engineers, 165–171 Railway Terrace, Rugby CV21 3HQ, UK.

21–27 April 1991, Cairo, Egypt
International Symposium on Geophysical Hazards in Developing Countries and Their Environmental Impacts (Hazards 91). Further information from Dr T.S. Murty, Institute of Ocean Sciences, PO Box 6000, Sidney, BC, Canada V81 4B2.

30 April–2 May 1991, Birmingham, UK
IWEM 91 Conference: WATER AND THE ENVIRONMENT. Contact Mrs L. Gittins, IWEM, 15 St John Street, London WC1N 2EB, UK.

13–17 May 1991, Kurashiki, Japan
Fifth International Symposium on TOXICITY ASSESSMENT. Contact M. Yagi and I. Aoyama, Kurashiki Symposium Committee, Research Institute for Bioresources, Okayama University, 2–20–1, Chu-O, Kurashiki, Japan. Fax: 0864–21–0699. For abstract information contact D. Liu and B.J. Dutka, National Water Research Institute, Burlington, Ontario, Canada L7R 4A6. Fax: 416-336-4989.

13–18 May 1991, Rabat, Morocco
7th IWRA World Congress on WATER RESOURCES. Contact 7th IWRA World Congress on Water Resources, Secretariat, Administration de l'Hydraulique, Direction de la Recherche et de la Planification de l'Eau, rue Hassan Bencheikroun, Agdal-Rabat, Morocco.

21–24 May 1991, Budapest, Hungary
MEASUREMENT OF WATER QUALITY. Contact Dr P. Princz, VITUKI, PO Box 27, H-1453 Budapest, Hungary.