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**IRRIGATION
AND WATER
ALLOCATION**

Edited by
L. H. ANSTEVY
U. SHAMIR

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Preface

Since mid-century, the irrigated area of the world has almost tripled and irrigation now accounts for about 70% of water withdrawals worldwide. In most nations, agriculture consumes the largest share of the national water budget. It is most appropriate, therefore, that the International Association of Hydrological Sciences and the International Commission on Irrigation and Drainage undertook to co-sponsor a symposium dealing with irrigation scheduling from a water resources viewpoint, with particular attention to irrigation water allocation in times of shortage.

Taking into account consultations with the International Commission on Water Resources Systems and the Canadian Committee on Irrigation and Drainage, the convenors of this symposium on Irrigation and Water Allocation planned the program to embrace the overall theme of irrigation and hydrology and to deal with (a) the various impacts of hydrology on crop planning, irrigation management and scheduling, and (b) the effects of agriculture and irrigation on hydrology. Thus, the main theme is defined by the following topics:

- (1) The interaction of irrigation and hydrological processes, including:
 - the effect of meteorological and hydrological forecasting (long, medium and short range) on irrigation planning and management,
 - groundwater hydrology, including that of the unsaturated zone, and its effect on irrigation,
 - the effects of irrigation on hydrological processes.
- (2) Irrigation and water allocation in relation to:
 - benefit functions for water used in irrigation,
 - forecasting irrigation demands, from short range (hours, days) to long range (years),
 - optimal allocation and sharing with other water users.

On the one hand, one has to understand the hydrological processes of precipitation, runoff, percolation and groundwater, as a basis for planning and managing irrigation. On the other hand, agriculture in general, and irrigation in particular, have effects on hydrology: from local changes in drainage and runoff patterns through effects on river flows because of extractions for irrigation and the return flows, extending to regional and global changes in climate due to cultivation of new areas and the effect of the hydrological cycle.

As frequently found in symposia and conferences, there is only so much the organizers, convenors, program committees and proceedings editors can do to direct the participants to the intended topics. Contributions that do not fall within the prescribed framework are rejected, but there is no way to assure that the planned topics receive adequate coverage. A general overview of the papers by the editors for each theme provides a perspective on the effectiveness with which the subject has been covered by the authors.

vi *Preface*

It is hoped that this IAHS/ICID symposium will foster further joint meetings between the IAHS and those international organizations vitally concerned with the hydrological aspects in the use and management of water resources.

Principal Convenor
R.H. CLARK, P. Eng.
Consultant
Hydrology and Water Resources
(Past President
WMO Commission for Hydrology)
1461 McRobie Avenue
Ottawa, Ontario
Canada K1H 7E2

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