Preface

The exchange of ideas among scientists and practitioners from different countries is a long-standing tradition, and constitutes what is considered to be a major part of mankind's common heritage. This linkage among scientists and practitioners can do a great deal to influence the orientation of research and management activities. The problems of the warm humid regions of the world have benefitted and will continue to benefit, from the presentations and discussions such as are provided in these Proceedings.

Why the importance of the warm humid regions of the world? For one thing, they are regions of intense population. It has been forecast that, by the year 2000, at least one-third of the world's population will inhabit these regions. Depending upon the definition of "warm humid region" (and that is enough to start heated discussions) the share of the population may even reach 50%.

Because of this geographical population shift, which will require a concomitant need to sustain the economies and the environments of the developing countries which primarily constitute these regions, it is urgent that water resource managers have the hydrological understanding and the appropriate methods to cope with the impacts of the water-related activities that will accompany the inevitable socio-economic and technical changes in these warm humid regions. Certainly one of the potential, if controversial, problems which cannot be overlooked is the susceptibility of the world's climate to improper forest management in the humid tropics.

While forests are very often crucial elements in the protection of watersheds from erosion, preserving water quality, and in climate control, the growing population in the tropical areas is forcing continued destruction of these very forests for agricultural expansion, growing world timber trade and in domestic fuel-wood demand. Forest clearance has already attained devastating proportions. In order to contain forest removal, some humid tropical countries have prioritized goals towards agroforestry through rehabilitating seriously degraded, deforested drainage basins and by expanding fuel-wood and industrial forestry from plantations of selected tree species. The impact on the water balance and water quality by implementing such forest management practices must be addressed.

In spite of a great deal of work to reverse the situation, most urban centres in the developing world lack the facilities that are adequate for the proper collection and disposal of domestic and industrial wastes. The result typically is that the urban runoff is highly polluted with pathogenic and organic substances that can have serious consequences for the receiving water bodies (surface and ground) and ultimately to the people who depend on them. The planning of urban drainage systems (as an example) must not only look at the linkages to other urban planning efforts, but it should also be integrated with the planning of other aspects of urban water resources, such as water supply, wastewater treatment and the use of the receiving waters. Understanding the linkages between all of these aspects is important.

There is a general conclusion that there is much to be done about the situation of the water management of small islands – and that it needs to be done soon. One of the major requirements is training and education for personnel at all levels in the island water sectors. The experts need to have a fundamental grasp of the basic principles of surface and groundwater hydrology, and also of the processes of exploration and exploitation specific to the small island settings. This knowledge should be incorporated into proper planning and management of the island water resources.

Given the rapid population growth in the warm humid regions of the world (particularly the humid tropics), the possibilities for adequate water resources

management are quite grim unless a major effort is made to assist the countries involved in their efforts to develop national capabilities to address the problems. The challenging tasks that these water managers are presently facing requires that the problems be approached on a scientific basis if they are to be solved rationally.

While there is little doubt that it is the arid zones that receive the majority of the headlines in newspapers and magazines, the realization of the tremendous importance of the humid regions of the world is gaining acceptance. But it has been a slow process. It was, perhaps, the 1983 IAHS Symposium on the Hydrology of Humid Tropical Regions, held in Hamburg, Germany, that focussed the efforts of the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the World Meteorological Organization (WMO). Within UNESCO's International Hydrological Programme (IHP) several projects had been established. These led in 1989 to an International Colloquium on the Development of Hydrologic and Water Management Strategies in the Humid Tropics – the results of which were to establish formally a Humid Tropics Programme within the IHP. In addition to a series of scientific and "popularized" documents and books on various aspects of the hydrology and water management of warm humid regions, the Symposium of which these Proceedings are but one aspect has been a natural follow-up of the 1989 Colloquium.

This Symposium, just as the 1989 Colloquium, was carefully structured to lead to specific directions. Without failing to consider the value of the interaction among scientists and practitioners and of the presentation of the results of new studies, it has also been felt to be especially important that the "state of the knowledge" be presented. Perhaps we too often anxiously pursue new ways of doing things without fully appreciating the value of "understanding what we already know." It was decided, then, that five particularly qualified experts and practitioners would be invited to present extended papers. The subjects selected were: (1) Hydrology and man's impact; (2) The special problems of tropical islands; (3) Urban water problems in the tropics; (4) Groundwater in the tropics; and (5) Global weather problems. Finally, we have formalized the process of deciding where scientists and practitioners should be headed by inviting experts to lead a Round-Table discussion and to encourage the Symposium's participants to contribute to these discussions in addition to what they may have done during the presentation of the various papers. The results of the Round-Table will be published separately, following the Symposium. It is hoped that these Proceedings and the Round-Table report will be a contribution to the continuing work that needs to be done.

The Proceedings of a Symposium such as this one can give the appearance of something that is simple and straightforward to produce. As Editor-in-Chief I can assure you that is far from the case. A great number of people are required to do a whole lot of work to end up with this "simple" product. Of course, I must thank the authors first. I must also express appreciation to my Co-Conveners, Professors K. R. Rushton (UK) and Y. Takahashi (Japan). It has been a pleasure working with them all. But I would like to emphasize the wonderful cooperation with IAHS Press, and particularly Ms Penny Kisby, Editor, and Sandra Smith who worked so hard to make the authors' and my scribbling turn into a polished book. And, of course, as always, deadlines slip, and the IAHS Press group was willing to put in that extra bit of effort to meet the publication deadlines. Without their kinds of inputs much of science would never reach those who need to know.

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