

## Preface

Over the past decade, the International Commission on Continental Erosion (ICCE) of IAHS has organized a number of successful international symposia focussing on topical themes in the field of erosion and sediment yield. These include the Symposium on Erosion and Sediment Transport Measurement staged in Florence in 1981, the Symposium on Recent Developments in the Explanation and Prediction of Erosion and Sediment Yield held in Exeter in 1982, the Symposium on Dissolved Loads of Rivers and Surface Water Quantity/Quality Relationships which took place in Hamburg in 1983, and the Symposium on Drainage Basin Sediment Delivery held in Albuquerque in 1986. In 1986 the Commission was approached by the Brazilian National Committee for IAHS concerning the possibility of staging a future symposium in Brazil. This possibility was enthusiastically received by both the Commission and IAHS and this International Symposium on Sediment Budgets was planned. In selecting the theme, the organizers have consciously chosen a topic which draws on a wide range of recent research and which represents an important area of current interest. In the past many studies have focussed on the erosion processes operating within a basin or the sediment yield at its outlet. Now there is an increasing awareness of the need to integrate the two and to establish sediment budgets which attempt to quantify the relationships between the various components of the overall drainage basin erosion-transport-deposition system. As yet the study of sediment budgets is in its infancy and more research is required to develop the necessary monitoring and modelling strategies and to improve our understanding of the processes involved. The symposium does not attempt to define these strategies or to provide a definitive statement of the nature of the system, but rather considers a number of themes which are important in moving towards the goal of establishing meaningful sediment budgets. As such, it is hoped that the symposium will make a useful contribution to the progress of research in this field.

This symposium represents the first major conference that has been sponsored by IAHS in Latin America and it is hoped that it will also afford a valuable opportunity to initiate and expand international collaboration with hydrologists in this region and to draw attention to the many serious erosion and sedimentation problems that currently face this continent.

Until a few years ago, little thought had been given in Latin America to sediment problems, unless related to agriculture and soil conservation. For the most part, there was no concern about its impact on hydraulic structures, except in mountain regions or areas with semiarid climates. The risks associated with disturbing the equilibrium of the river systems in which structures were to be built were rarely mentioned in project designs. This is particularly true of Brazil, a country without marked relief and with large areas where, until recently, water resources were exploited by major developments, usually for hydropower, in which the reservoirs rarely faced high sedimentation rates.

Times have changed. The increasing difficulty of finding favourable sites and financial resources have led to a progressive increase in the construction of small and medium-sized projects. New land is continually being brought into cultivation, and greater demands are being made on land which is already in use. Gradually, at least in Brazil, decision making is coming closer to the user and the management of natural resources is focussing on small basins where the municipal authorities, the cooperatives and the producers participate in decision making, and are even encouraged to do so by public powers (e.g. the Microbasin Programme of the Brazilian Ministry of Agriculture). On the other hand, legislation is being enacted to protect the environment and this requires environmental impact studies.

In this new context, which gives priority to small- and medium-scale hydraulic developments and to environmental conservation, sediment engineering is of vital importance both for the design and management of hydraulic structures and for land use management. To handle the problems which have arisen, it has become essential to improve understanding and to evaluate not only sediment production but also, and especially, the way in which it is routed through drainage basins and how this sediment production is influenced by human activity. These local and regional concerns were important in generating the proposal for this symposium. The organizing committee hope that it will provide a valuable form for fruitful discussions on these points of concern and that it will result in a wide appreciation of the problems and necessary improvements in engineering and land management practices.

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