P R E F A C E

Water is considered as one of the most important natural resources of the earth. The study of various hydrologic components of water viz., the input elements, output elements, transfer elements and storage elements is felt increasingly of importance in the field of efficient water resource management. These components of hydrology are intimately connected with the meteorological aspects including temperature, evapo-transpiration, rainfall etc. In recent years, the concept of water balance, which considers the various hydrometeorological aspects, has gained considerable importance towards understanding and evaluating the total water resource over space and time of a particular area. Thus this concept is of great significance to the Hydrologists, Meteorologists, Geographers, Geomorphologists, Economists and Regional Planners in assessing, suggesting and formulating plans and programmes for rational conservation of water and better water resource management.

The present work entitled 'water balance and agricultural landuse planning for the Damodar Basin' attempts to establish the relationship between hydrological and meteorological parameters and their impact on the agricultural landuse character of the basin. It has been felt that for suggesting an optimal landuse planning of the basin, the study of water balance is necessary. In fact water balancing for the Damodar basin is yet to be done and needs to be assessed and evaluated.
The first chapter of the dissertation deals with the concept of water balance and its method of computation. The second chapter gives a broad account of the physical and cultural ecology of the basin. The Third chapter investigates into the inter-relationship between the various parameters of water balance and the last chapter provides some findings and recommendation as regards an efficient water resource management and optimal agricultural landuse planning for the Damodar basin with particular reference to its upper catchment.

The present work is based on collection of basic data from field investigation over a period of two years and existing data from various experimental stations under the Soil Conservation Department of the Damodar Valley Corporation at Deobanda, Panagarh, Maithon, Panchet and Dhanbad.

In the preparation of this work, the author received help, and would like to express his gratitude to office of the India Meteorological Department (Eastern zone) at Alipore, office of the D.V.C. at Calcutta and Damodar Valley Soil Conservation Department at Hazaribagh, Bihar, as well as the various experimental stations under the Damodar Valley Corporation.

The author is very much guided & helped to develop the basic concept by the ideas of the experts and specialists in this field who presented their papers in the proceedings of the Reading Symposium held in Moscow, July, 1971, on 'World Water Balance'.

The detailed investigation in the field would not have been feasible without the considerable financial support of the University Grants Commission, New Delhi in the form of a research project on water resource management of the Damodar Basin.

The author is greatly indebted to Shri B.K. Mukherjee, Jt. Director of the Damodar Valley Soil Conservation Department, Hazaribagh, Shri S.P. Dasgupta, Director of National Atlas and Thematic Mapping Organisation, Shri S.K. Ghose, Ex-Director, office of the Alipur Regional Meteorological Department, now Lecturer in Calcutta University, who spent their valuable time in providing guidance and suggestion for the preparation of the present work.

The author is also grateful to Shri Apurba Kumar Bhattacharyya for the final drawing of the maps, diagrams and models.  

Last, but not the least, is the invaluable scientific and overall guidance, training and inspiration from the author's Guide Prof. Dr. N.R. Kar without whose assistance, the author would not be able to prepare this research work.

Ashis Kumar Sen.

Dated: 12.4.80

Dept. of Geography,
Presidency College,
Calcutta.

( Ashis Kumar Sen )
Lecturer in Geography,
Presidency College,
Calcutta.