

Preface

Due to climate change, it has become common knowledge that fluctuations of annual precipitation and precipitation intensity have been larger especially since the 1970s. The 4th Synthesis Report by the Intergovernmental Panel on Climate Change (IPCC) says that global warming is unequivocal and that enduring snow cover and glaciers have been receding, thus torrential rain and serious drought occur more frequently. These phenomena associated with increasing water demand due to an increase in population and rise in living standards and increasing degradation of aquatic environment will give human beings urgent tasks toward maintaining a future sustainable society.

Integrated River Basin Management (IRBM) was advocated at least four decades ago. Although we understand the concept of IRBM, research work has been done only on water resources allocation and pollution control of receiving water bodies. IRBM has to include policies, social systems as well as cultural background, such that reduction in water resources allocation to the agricultural sector needs social countermeasures for excess workforce and import of food.

This book contains in part, research results on the five-year project on “Efficient and sustainable water use in the Yellow River, China”. The important topics on water and sediments in the Yellow River are presented in six major sections: Profile of the Yellow River Basin, Water Resources and Use, Water Quality and River Ecology, Sediment Yield and Transport in the Middle Yellow River Basin, Modeling and Simulation on Water in the Yellow River, and Projection of Water Supply and Demand with Economy and Food Supply in the Yellow River Basin. All chapters are written by leading experts in our project team, in which the total researchers number 102. Chapter 2 provides the background information necessary to understand the characteristics of the Yellow River. Chapter 3 provides background information on water-use in the river. Direct observation results on water quality in tributaries near Xi’an are presented in Chap. 4. Chapter 5 explains that sediment yield and transport is of importance in the Yellow River where 1.6 billion tons of sediments are annually transported in the Bohai Sea. Chapter 6 provides a hydrological model with high precision and some simulation results.

The last chapter, Chap. 7, provides some estimation results on water-use based on several economic scenarios.

We hope that you will find this book to be full of the latest information obtained by researchers on the Yellow River and that you will be able to grasp the environmental problems on water which China is facing.

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