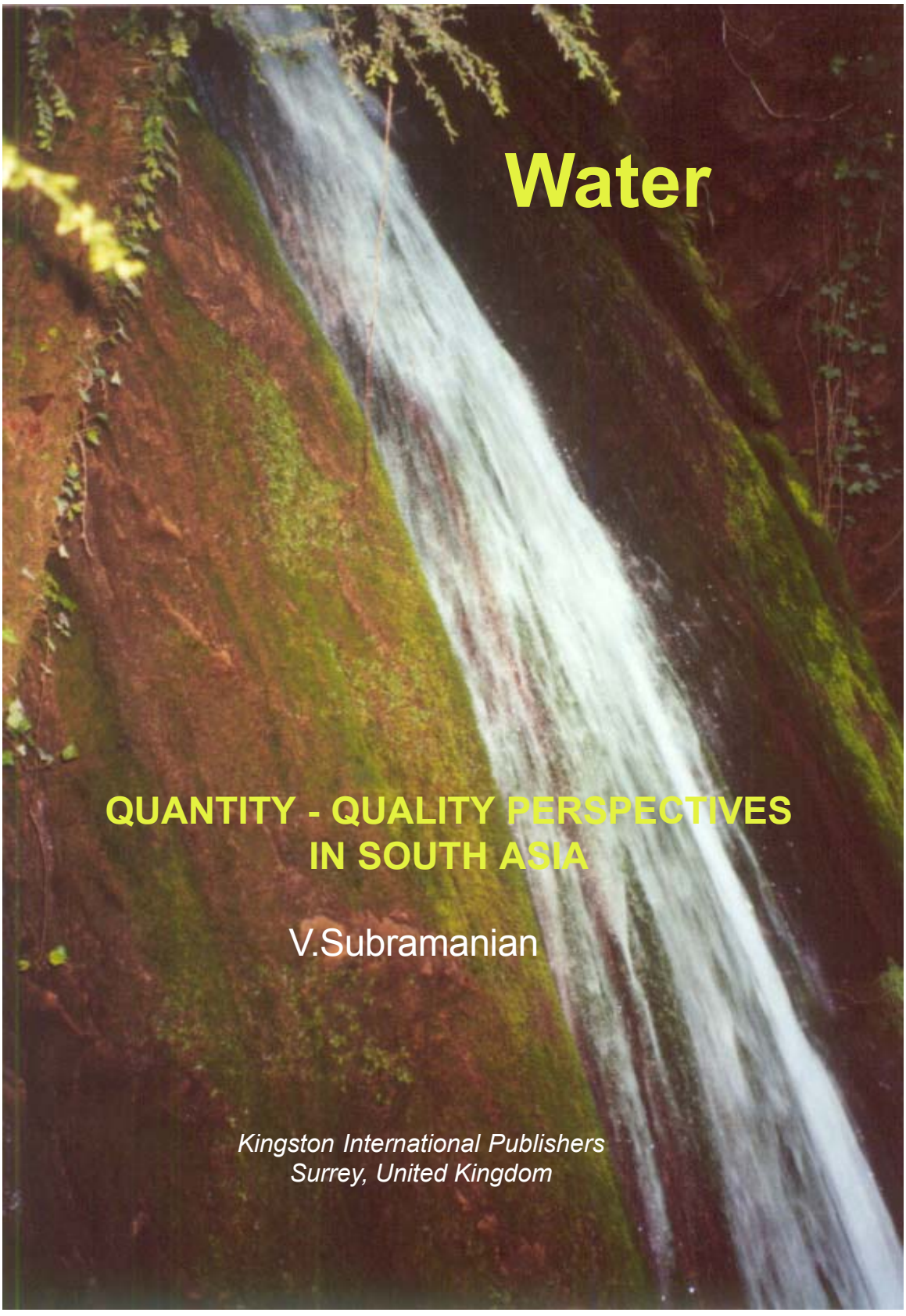

Water

QUANTITY - QUALITY PERSPECTIVES IN SOUTH ASIA

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Preface

This book is an attempt to integrate various aspects of water both with respect to scientific components as well as with regard to policy and management issues. Actual data have been used for South Asia but due to difficulties in the availability of data, some regions are given greater coverage than others in this book. Examples are cited based on observations and generation of laboratory data over more than two decades of work coupled with well documented and publically accessible data base from diverse agencies, both governmental and non-governmental. Technical discussions are kept to a minimum so that the book will be useful even for a general purpose reading. Specialists interested in specific aspects such as the atmospheric, sub-surface or other hydrological or water quality related topics can refer to the large number of literature cited at the end of the book.

Numerous students, ex-students and project staff have helped in the generation or compilation of the data. The funding for various field and laboratory work related to water has come from different agencies at different times. Mention can be made of the Department of Science and Technology and Department of Ocean Development, both of the Government of India and the Volkswagen Foundation, Germany and the publication is partly supported by the Environmental Information System (ENVIS) Project on Biogeochemistry sponsored by the Ministry of Environment and Forests, Government of India. The book is a small contribution to the International Geosphere Biosphere Programme (IGBP) related to water such as LOICZ (Land Ocean interaction in the Coastal Zone) and BAHC (Biospheric Aspects of the Hydrological Cycle).

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List of Chapters

Introduction

How water was formed on earth while practically no other planetary bodies has any trace of water?

Of course, recent space missions suggest to the possibility of finding water on Mars and the Moon. Was water simply produced on earth during the very early stages of earth's history (more than 4.5 billion years ago) by the catalytic interaction of Hydrogen and Oxygen gases or the earth mass came into being with some form of water?

More recently, it is reported that some of the asteroids and meteorites and cosmic particles have water suggesting that it was not necessarily indigenous to earth's environment. While theories on origin of water may continue,its essentiality for all life forms as known on earth cannot be questioned. More than 70% of our body is water and nearly two third of what all living being consume daily is also water. So one can imagine problems of 'living' without or with limited amounts of water. Even when it rains there may not be enough water for actual use due to distribution problems. A case in point is that some areas of even the capital city Delhi has no drinking water for the last four months though the current monsoon is reported to be meteorologically normal. Cases like these highlight the fact that it is not enough to have sufficient rainfall but this has to be backed up with suitable management practices.

Hence, water is the key issue today for humanity. Quantity and quality of water are inter-linked issues. We need sufficient amount of usable water. Chapters is this book address various generalisations related to all aspects of water- source, distribution, availability, withdrawal, dams , reservoirs, water quality, zones of contamination and hotspots. Finally, present policy and management practices are briefly discussed in the light of key environmental laws and their enforcement or the lack of it.



The book deals with all aspects of water in the densely populated region of South Asia. Due to the extensive availability of data, India receives wider coverage than other countries in the region. Questions on monsoon, floods, drought, water quality, dams, hotspots and legal and management issues are discussed with specific examples from the region. Extensive published literatures are used and cited in various chapters. Long term projections with respect to availability and trends in demands are briefly discussed. The author has drawn on his more than two decades of experience in many parts of the region to generate technical discussion on the quantity and quality perspective on water.

The book is expected to be useful for research, reference and general purpose reading by scientists, social scientists, engineers and those in legal and planning profession.

A contribution from the Environmental Information System(ENVIS) Centre on Biogeochemistry, School of Environmental Sciences, Jawaharlal Nehru University, New Delhi-110 067