

# Preface

Earth is a bounty for the sustenance of life and the very existence of human beings depend on natural resources and congenial environment on the planet. Water, biomass and renewable and non-renewable energy are the most fundamental resources for any civilization and demand for these resources is ever increasing at an alarming rate and is moving towards unsustainable levels. Degradation and erosion of natural resources, that are used to produce food and other valued goods and services essential for our survival and prosperity, are also the root causes of the agrarian crisis in the world. Diminishing water resources and their unequal distribution in the changing scenarios will increase competition for water which may turn potentially to violent events/wars in future. The water shortage that may be caused by a changing climate regime results in negative impacts on environmental, socio-cultural, political and economic spheres of the societies. No present or intended use of natural resources should condemn our children to endless toil or deprivation.

The natural resource management incorporates the understanding of the scientific and technical aspects of these resources distribution and ecological systems which help in supporting the healthy survival of life on the planet 'Earth'. The rising demand of water with increasing population density along with energy and biological resource management in the changing climatic scenario become prime concern for any country's economic growth and healthy environment for humans, fauna and flora to survive and flourish. The majority of the population are looking forward for energy efficient system to enhance the judicious conservation of water and bio-resources of our environment but the human pressure and their anthropogenic activities are slowly but steadily deteriorating these resource management capacities. In spite of the rapid development in technology the situation to conserve these resources are not improving; rather it is declining. It also involves the management of whole environment including social aspects and impact of climate change which are closely interrelated to the resource depletion and thus urges the need for an effective management plan. These aspects were kept in mind while bringing out this volume.

The book contains papers of multi-disciplinary views, discussing the management of water, energy and bio-resources for better management of such resources in the changing climate scenarios. It is thus aimed to interest all those who are keen to know about the management of natural resources and hence contribute to a better understanding of the Earth's resources. The papers are contributed by distinguished scientists and academicians from various important universities and institutions from all over the world including India who are contemporary workers in this field.

This edited book is the outcome of the International Humboldt Kolleg held from 8-9 February, 2013 at the Jawaharlal Nehru University (JNU), New Delhi, India. It contains twenty eight chapters which are grouped under three sections viz., (a) Water Resources Management, (b) Energy and Bio-resources Management and (c) Climate and Natural Resources Management. The volume presents recent case studies and examples from various parts of the world in the context of climate change scenarios and their management. Each chapter demonstrates the need for managing the demanding resources due to change in climate, land use, industrialization and the need by each country to take initiatives and commit themselves to manage these resources in a sustainable way.

We would like to thank all the contributors for expressing their individual views and also acknowledge our colleagues for their untiring efforts to review the manuscripts. One of the editors (N.J. Raju) would particularly like to thank his collaborators and research scholars for supporting his research activities over two decades which helped him in the process of bringing out this contribution. The generous support extended by the Alexander von Humboldt Foundation, Germany and the added support of other agencies in organizing the International Humboldt Kolleg (IHK2013) at JNU is gratefully acknowledged. We hope this book will be very useful for managers, environmentalists, hydrologists, water resource and energy managers, and for governmental and other regulatory bodies dealing with water, energy and bio-resources. Finally, we thank the publishers for taking efforts in bringing out this volume.

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