

Preface

The exponentially growing demand for water due to population growth, water-intensive diets, and rising of living standards has considerably stressed water resources worldwide. The challenge is greater in arid areas where evaporation significantly exceeds precipitation, and thus natural water resources are depleting. The water budget deficit in arid areas, the high cost of water supply, and the essential need for food and associated energy value among other challenges all need to be scientifically addressed to propose solutions to world current and future water problems. Multidisciplinary and interdisciplinary fundamental and applied scientific research is essential to contribute to solve water problems. Thus, this book “Water Resources in Arid Areas: The Way Forward” addresses diverse water issues in arid regions through gathering selected outstanding contributions presented at the International Water Conference “Water Resources in Arid Areas (IWC 2016),” which was held in Muscat, Oman, in March 2016. This book presents to the reader different examples of applied and fundamental evolving water science that will hopefully enlighten decision-makers, planners, and communities in making sound judgments for better management of water resources.

The book contains 6 main parts with a total of 28 chapters representing the contributions to different water issues in arid regions. The following themes represent the 6 parts and appear in the book in the following sequential order:

- Climate and Water Resources
- Groundwater Resources
- Water Resources Management
- Salinity and Desalination
- Wastewater Treatment and Reuse
- Agriculture and Irrigation Management

A few decades ago, the arid regions (mostly located in developing areas) were entirely relying on external expertise to assess/understand local and regional water resources challenges and to suggest and implement solutions. The region has now developed fair scientific and technological independence evident from the contributions published in this book. The various applications of isotopes, satellites, exploration techniques, advancements in water treatment and desalination, hydrological modeling among others presented in this book demonstrate this development. The arid regions are playing an important part in the equation of global climatic changes, and the effects are also seen in the region similar to polar areas; therefore, arid regions can be an important player in the international global climatic changes policy and mitigation developments. It is our hope that through presenting these examples and case studies that reader will gain a broader understanding of the current research and developments in water resources of arid areas.

Thanks

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