

Mahad Baawain · B.S. Choudri
Mushtaque Ahmed · Anton Purnama
Editors

Recent Progress in Desalination, Environmental and Marine Outfall Systems

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Preface

This special issue of edited book series of Springer Proceedings in Environmental Science contains 22 selected papers presented at the International Conference on “Desalination, Environment and Marine Outfall Systems” held during April 13–16, 2014 at Sultan Qaboos University, Muscat, Sultanate of Oman. The conference was organized by the Center for Environmental Studies and Research (CESAR) of Sultan Qaboos University (SQU) in association with the International Water Association (IWA) and International Association for Hydro-Environment Engineering and Research (IAHR) and supported by the Research Council (TRC) of Oman. The conference, focused on desalination industry, was held under the patronage of the Undersecretary of the Ministry of Environment and Climate Affairs, Sultanate of Oman.

The conference included presentations about desalination; brine and industrial discharges; resource recovery and carbon emission from desalination plants; nano-technology and desalination; environmental costs of desalination; desalination and renewable energy source; harmful algal bloom and threat to seawater desalination plants; advances in desalination technology to mitigate environmental impacts; environmental impact assessment for desalination plants; intake and outfall systems for cooling water and wastewater treatment plants; and experimental and computational techniques. Speakers from Europe, the USA, Australia, South Asia, Middle East including Gulf Cooperation Countries (GCC) presented papers about their work related to desalination industry and relevant issues. Overall, the conference saw participation of over 150 people from 20 countries, in eleven technical sessions, with 58 papers presented. Many of the presentations were focused on the studies conducted in the Middle East including Sultanate of Oman and United Arab Emirates.

This book highlights current scientific information on advanced technologies and management practices associated with the desalination industry in the Middle East and elsewhere around the world. The book opens with an introductory chapter, which briefly gives an overview of the desalination technology, and describes the

current state of development in the field. Further, the book focuses on recent developments in desalination technologies, which are specifically aimed at reducing energy consumption and cost, and minimizing environmental impact. We hope that the book will be of benefit to all associated with the desalination industry.

Muscat, Sultanate of Oman

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B.S. Choudri
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We are grateful to the authors of the book chapters for sharing their expertise and providing scientific information on advanced technologies and management practices associated with the desalination industry in the Middle East and elsewhere around the world.

The financial support provided by the Sultan Qaboos University and the Research Council, Oman (Conference Grant) to organize the International Conference on Desalination, Environment and Marine Outfall Systems and publish this book in a successful manner is greatly acknowledged. We are also thankful to the Deputy Vice-Chancellor, Post-graduate studies, Deanship (Research) and other staff members of Sultan Qaboos University for extending their full support and encouragement in successfully publishing this book.

Thanks to the Staff of Springer Publications for their patience and assistance at various stages of this book publication and thanks to Mr. Ali Sherazee of English Language Center at Sultan Qaboos University for English language editing of the chapters. The Center for Environmental Studies and Research (CESAR) staff at Sultan Qaboos University deserves special thanks for their untiring efforts in organizing this significant event.

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Part I
Desalination Systems