

# Preface

by the Editors

The idea of a novel book on seawater desalination has been for quite a long time in the minds of the Editors, who have been living in the Italian island of Sicily and thus well acquainted with the overwhelming potential offered by the sea and the sun.

It was not until the Summer of 2007 that the Editors came to the final decision to start the preparation of the present book, thanks to the insightful support of Dr. Christoph Baumann, Engineering Editor at Springer Heidelberg.

This book is an attempt to write an original comprehensive yet concise introduction to Seawater Desalination processes, with the specific aim to abridge the gap between conventional technologies and novel sustainable renewable energy processes.

The first section of this book presents, in a technical but reader-friendly way, an overview of currently-used desalination processes, from thermal to membrane processes, highlighting the relevant technical features, and development potential. It also gives a rapid insight into the economic aspects of fresh water production from seawater.

The second section of the book presents novel processes which use Renewable Energies for fresh water production. From the first solar still evaporators, which artificially reproduced the natural cycle of water, technology has progressed to develop complex systems to harness energy from the sun, wind, tides, waves, etc. and then to use this energy to power conventional or novel desalination processes. Most of these processes are still at a preliminary stage of development, but some are already being cited as examples in remote areas, where they are proving to be valuable in solving the problems of water scarcity.

The book actually fills the need for a wide-coverage systematic description of a remarkable range of alternative desalination process and plant configurations, thus helping the reader to understand the key technological advantages and disadvantages and the relevant suitability of a given configuration for the specific site of installation.

Worldwide acknowledged leading experts in the various fields of desalination processes have contributed writing those chapters of the book relevant to their specific field of expertise.

Perhaps the most immediate value of this book resides in providing valuable accessible and up-to-date information for all readers who may be interested in the field of Desalination within the context of present and future sustainability: engineering professionals, academics and scientists, technicians, managers, private and public institutions, students and common citizens.

The Editors wish to express their most heartfelt thanks to the Authors of the chapters for their efforts in contributing to such a challenging task, and to Mya for performing the language revision of the book.

Last but not least the Editors wish to thank Alice, Cristina, Giuseppe, Laura, Pietro and Serena for the invaluable support throughout the time taken for the preparation of the manuscript; without their encouragement and understanding this book would not be completed today.

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