

# Preface

This book was originally written as a textbook for a course of coastal engineering given at the Asian Institute of Technology in Bangkok in 1991, where I described important concepts in Coastal Engineering and their applications to coastal processes. A part of the book describes basic concepts of coastal engineering that deal mainly with wave-induced physical problems. The other part consists of my scientific research results for the past these 30 years. For the case of sediment transport study, the book covers not only coastal zone but also sediment production in river basin and river sediment transport in order to understand the mechanism of coastal erosion. From the contents of this book it is also possible to understand the different situation of various countries regarding this problem.

Since I have spent most of my working years in Asia, my research interests are strongly influenced by Asian coastal problems, particularly coastal erosion processes and natural disasters. The book clarifies the macroscopic relationship between the industrialization process of developing countries and coastal erosion or deposition process based on the examples of Japan and other Asian countries. The book also gives microscopic detailed understanding of the dynamic process of sediment production and transport from river basin to coast.

The book also provides a way of understanding and develops effective countermeasures to coastal disasters such as tsunami, storm surge and high wave attack. The descriptions are based on my own observations and measurements of disasters caused by for example, the Indian Ocean Tsunami in 2004, Storm Surge of Hurricane Katrina in 2005 and Central Java Tsunami of Indonesia in 2006.

Selected research results of my former students are introduced in the book. Most of them graduated from Yokohama National University with their doctoral degrees in the field of Coastal Engineering and are now working in their home countries. They are; Dr. Nguyen Ngoc An, Dr. Nguyen The Duy and Dr. Nguyen Danh Thao at HoChiMinh City University of Technology, Dr. Winyu Rattanapitikon at Thammasat University, Prof. Li Shaowu at Tianjin University, Dr. Mohsen Soltanpour at K.N. Toorsi University of Technology, Dr. Ioan Nistor at University of Ottawa, Dr. Nimal Wijayaratna at Ruhuna University, Dr. Kweon Hyuck Min at Kyonju University, Dr. Jayaratne Ravindra at University of Liverpool, Ir. Masimin at Syah Kuala University, Dr. Michael Kabling at Taylor Eng. Inc., Dr. Wudhipong Kittitanasuan at Wishakorn Consultants, Dr. Le Trung Tuan at Vietnamese Institute of Water Resources, Dr. Le Van Cong at Vietnamese Academy of Science and Technology, Dr. Hiroyuki Katayama and Dr. Manabu Shimaya at Penta Ocean Research Institute, Dr. Hiroshi Takagi at Yokohama National University, Dr. Takayuki Suzuki at Port and Airport Research Institute, Dr. Joel Nobert at University of Dar Es Salaam, Dr. Miguel Esteban at United Nations University, Dr. Hendra Achiari at Bandung Institute of Technology and Dr. Thamnoon Rasmeeemasuang at Burapha University. Dr. Jun Sasaki, my colleague, also supported field surveys of coastal disasters in these five years. In the editing process of the book, I acknowledge the assistance of Ms. Akiko Nakao, Dr. Miguel Esteban, Dr. Nguyen Danh Thao and Ms. Yuko Tachibana.

Finally, I would like to extend my sincere gratitude to Dr. Makoto Shibayama, Professor of Development Psychology at Kamakura Women's University, my wife, for her valuable comments in writing this manuscript.

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Tomoya Shibayama

## Preface of Old Edition

This book is originally designed for the lecture series on “Basic Coastal Engineering” which will be held in Indonesia on August 1991. The participants of the lecture will be university instructors who are teaching coastal engineering courses in undergraduate and graduate levels of Indonesian universities. In preparing this manuscript, I have set the aim to write a more general and basic textbook on coastal engineering. Since I have spent most of my working years in Asia, my research interests are strongly influenced by Asian coastal problems, particularly on coastal erosion and deposition processes.

The contents of this book deal mainly on wave-induced physical problems in coastal zone and coastal processes which are designed to give basic theoretical and practical materials to undergraduate and graduate students whose major field is coastal engineering. Part I is basic coastal engineering for undergraduate and graduate students while Part II is a collection and a reprint of my recent research papers. Part II is designed for graduate students pursuing advanced study in coastal engineering. In order to complete the course on basic coastal engineering (Part I), a student is required to spend thirty hours in class and additional thirty hours in homework.

Portions of Part I are based on the lectures of Prof. K. Horikawa and Prof. A. Watanabe of the University of Tokyo and Prof. O. S. Madsen of Massachusetts Institute of Technology (MIT) who were the author’s instructors during his graduate studies. They taught me the fundamental principles of coastal engineering. I would like to thank Professor Fumio Nishino who gave me a chance to work at the Asian Institute of Technology in 1990-1991 and 1983; and for giving me the

opportunity to deliver lecture series in Indonesia in August 1991. Concerning Part II, I would like to thank my colleagues, especially Dr. Shinji Sato and Dr. Akio Okayasu who worked with me for the past ten years. I also wish to acknowledge Ms. Isolde Colinares Macatol, AIT, for her assistance in editing this book. Finally, I would like to extend my sincere gratitude to Makoto Shibayama, my wife, for her unflinching support and inspiration that has helped me greatly in studying and writing this manuscript.

Asian Institute of Technology, Bangkok  
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