

Management of Water Drainage Systems



Rose Marie O. Mendoza

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Email: orders@arclereducation.com

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ISBN: 978-1-77361-226-3 (Hardcover)

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Management of Water Drainage Systems

Rapid urbanization and the growing world population significantly deteriorates the drainage system day by day. By the year 2025, an increase of 2.6 billion from the projected world population is expected and more than 65% of it will come from the urban areas. As the population increases, the demand for an efficient drainage system also increases. Therefore, without initiative to solve various issues on water management and drainage systems in most parts of the world, it is expected that more than half of the current world population will have no access to effective and efficient ways of wastewater disposal in the future. In most parts of the world, poor management and maintenance of various drainage systems by the responsible authorities has really affected the efficiency and effectiveness of these systems. Population re-densification in various urban areas and inappropriate use of various components of drainage systems has led to different issues of poor drainage systems such as overflowing manholes and sewers in major cities across the street areas that mainly results in the degradation of the surroundings and eventual destruction of the water flow paths in the cities. The purpose of this book is to offer important insights and provide basic reference about various aspects of drainage systems. This book incorporates all the relevant information that can be used by students and educators (in different fields such as science in civil and construction engineering, environmental planning and management, urban and regional planning, and quantity surveying among other courses), as well as public and private environmental management sector. This book comprises ten chapters. Chapter 1 provides an overview of the present state of management of drainage systems in most parts of the world. One of the key topic that is mainly discussed in this chapter are the various types of water drainage systems (such as surface drainage system, subsurface drainage system, slope drainage system, and gutter drainage system) and how they relate with other elements of drainage systems. Chapter 2 discusses on matter concerning evaluation of inappropriate discharges on drainage systems. An important topic discussed entirely in this chapter is the assessment of stormwater drainage system. Chapter 3 looks at the management of stormwater drainage system and Chapter 4 explores the irrigation and drainage system. Chapter 5 tackles management of highway and pavement drainage systems. In this chapter, the impacts identification of poor highways and pavement drainage system is discussed in detail. Chapter 6 talks about the challenges of poor drainage system in slum residences. There are several steps discussed towards the end of the chapter that touches on approaches in solving drainage system problems of grey water and stormwater in slums areas. Chapter 7 provides an overview management of sewage drainage systems. Other chapters, chapter 8, chapter 9, and chapter 10 explore on the flooding and drainage systems, planning and design of surface drainage system, and the trend of wastewater management and drainage systems in developing countries (Africa), respectively. The collection of efforts that was put in preparation of this book may not serve as a complete picture of the myriad dimensions on management of drainage system, but rather reflects on some of the difficulties and tensions faced by science and technology in accommodating the idea of drainage systems (based on principles, perspectives, and practice), especially while navigating in the various economic, political, social, and environmental demands and concerns for scarce and usually highly variable services.



Dr. Rose obtained her PhD in Chemical Engineering from the University of the Philippines-Diliman in 2013. She is also a Professor in the Graduate School Department under the Master of Engineering Program at Adamson University since 2006, and is a Visiting Research Fellow at the Department of Environmental Engineering and Science, and the Department of Environmental Resource Management in Chia Nan University of Pharmacy and Science, Tainan Taiwan since 2010. She is now taking up her Post Doctorate Degree in Green Power: Hydrogen Generation and Fuel Cell Development at the University of Philippines-Diliman under the Department of Mining, Metallurgy and Materials Engineering and the University of California, Merced, USA under the Department of Mechanical Engineering.

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ISBN 978-1-77361-226-3

