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Tuyet L. Cosslett
Patrick D. Cosslett

Water Resources and Food Security in the Vietnam Mekong Delta

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Preface

This book started as an update and an extension of one of the author's unpublished doctoral thesis on the development of the lower Mekong River basin as a case study of regional cooperation among the four riparian states of Cambodia, Laos, Thailand, and The Republic of Vietnam for economic development of the region. After a year of research on the Internet, we decided to limit and focus the subject on the water resources and food security in the Mekong Delta for three reasons. The first reason is the need for financial resources to travel extensively and research the issues in the four countries. Therefore, we were looking at the Mekong Delta because of its strategic location and economic importance to Vietnam and the region. The Mekong Delta, located where the Mekong River exits into the South China Sea, has developed over the years into one of the most productive regions of Southeast Asia with its water-driven rice and aquaculture economies providing food for more than half of Vietnam's population and rice/fishery exports to over 100 nations around the world.

Secondly, water resources of the Mekong River, one of Asia's most powerful and unexploited river until two decades ago, has become a dominant issue not only in the Mekong Delta but also in other parts of the world because of climate change and man-made activities such as construction of dams and water diversion for industrialization. Within the past few years, heavy floods, severe droughts, sea level rise, construction of dams upstream have been observed that have the potential to pose a grave threat to the Delta's future freshwater supply, its economy, and its livelihoods. The adverse impact of upstream dam construction on the sustainability of the Delta's rice and fishery production is most serious because the Delta's main rice growing season coincides directly with Mekong River water flows out of China. In the new millennium, water resources would determine cooperation or conflict among the countries that depend on the Mekong River for their sustainable social, economic, and political development.

The third reason for choosing this topic is very simple. One of the authors has her ancestral roots in the Mekong Delta and has maintained both a professional and personal interest in the development of the region. She got her undergraduate studies in Paris, France, and her Ph.D. degree from the City University of New York, New York. Her areas of studies and interests are Southeast Asia, regional cooperation, and great power politics. She and her husband (MBA in International Marketing) retired from the U.S. federal government and, after retirement they

worked together on this book which took 3 years of research. We disclose this information to help our readers understand the background and purpose of this book.

This book is written for researchers and all those who are interested in an overview of both the recent political history of the Mekong River as well as the river's vital importance to the livelihoods of people living in the downstream countries. In this regard, the Mekong Delta can be considered as a microcosm of many areas of the world where the threat of future water shortages calls into question their very survival. It also provides policymakers and technocrats with some problems and challenges learned from the Mekong Committee and the Mekong River Commission, two international institutional organizations that were created to foster regional cooperation and promote sustainable water resources development.

The authors wish to acknowledge the invaluable contribution of Russell Ross for his encouragement of the project as well as his ongoing critique to improve the narrative. We also would like to express our gratitude to our relatives and friends for their hospitality and anecdotal information about life in the Mekong Delta. Our special thanks go to Jon Gurstelle and Kevin Halligan of the Springer Publishing Organization for their professional assistance and guidance in helping us complete the monograph successfully. Our final draft also has been helped in no small way by the many authors whom we have contacted and who have referred us to additional articles of interest as well as kindly giving us permission to use data from their own publications. We take full responsibility for any errors in the book.

Vienna, 2013

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Abbreviations

ADB	Asian Development Bank
AIT	Asian Institute of Technology
ASEAN	Association of Southeast Asian Nations
ASPAC	Asian and Pacific Council
AusAID	Australian Agency for International Development
BDP	Basin Development Plan
DANIDA	Danish International Development Assistance
DARD	Division of Agricultural and Rural Development (at the province level)
ECAFE	United Nations Economic Commission for Asia and the Far East
EU	European Union
FAO	Food and Agriculture Organization
FDI	Foreign Direct Investment
GTZ	Gesellschaft für Technische Zusammenarbeit
GSO	General Statistical Office
IBRD	International Bank for Reconstruction and Development
IDA	World Bank's International Development Agency
IMC	Interim Mekong Committee
IPCC	Intergovernmental Panel on Climate Change
IRRI	International Rice Research Institute
IUCN	International Union for Conservation of Nature
IWRM	Integrated Water Resources Management
LMB	Lower Mekong Basin
LMI	Lower Mekong Initiative
MARD	Ministry of Agricultural and Rural Development
MC	Mekong Committee
MD	Mekong Delta
MDEC	Mekong Delta Economic Cooperation
MoNRE	Ministry of Natural Resources and Environment
MRC	Mekong River Commission
NMC	National Mekong Committee
SEA	Southeast Asia
SEATO	Southeast Asia Treaty Organization

TVA	Tennessee Valley Authority
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children’s Fund
UNIDO	United Nations Industrial Development Organization
USAID	U.S. Agency for International Development
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
VASEP	Vietnam Association of Seafood Exporters and Producers
VFA	Vietnam Food Association
VNMC	Vietnam National Mekong Committee
WB	World Bank
WFP	World Food Program
WHO	World Health Organization
WMO	World Meteorological Organization
WWF	World Wildlife Fund

Introduction

Starting in the snowy mountains of Tibet the Mekong River, the 12th longest river in the world, runs to the South China Sea through six countries—China, Burma, Laos, Thailand, Cambodia, and Vietnam. Its total length is about 4,200 km and covers a total drainage area within the six countries of more than 810,000 km². The Mekong River Delta begins in Phnom Penh, Cambodia, where the river splits into two main tributaries, the Mekong and the Bassac. As they enter Vietnam, the Mekong and the Bassac are known as the Tien River and the Hau River respectively.

The subject of this monograph is the Mekong Delta of Vietnam, hereinafter referred to as the Mekong Delta, or simply the Delta. It is located at the southern tip of Vietnam and the Indochina peninsula and is described as a vast triangular plain of about 40,519 km², accounting for 12.4 % of the country's total area of 331,051 km². One side of the triangle forms the border with Cambodia in the north, and the other two sides are surrounded by the South China Sea on the south-east and the Gulf of Thailand on the west, with a coastline of about 600 km.

When considering how the Mekong River, one of Asia's greatest rivers, impacts each riparian country, it is important to note that Vietnam, and particularly the Mekong Delta, occupies a unique position for three main factors. First, the Delta may be viewed as the "poor relation" of the Mekong River in that it is the last area of land through which the river passes before exiting to the sea. As such, the Delta has long been the reluctant recipient of all the agricultural and industrial pollution from the upstream countries but has been able to sustain and expand its economies by judicious adaptation to the river's seasonal water flows and environmental disasters.

Second, the Delta is the most populated area of the Mekong River with a population density of 424 persons per square kilometer. While the Mekong River runs through mostly inhabited mountains from Yunnan province in China and across rural communities along the Thai-Lao border, the Delta is home to over 17 million farmers, fishermen, and residents of Can Tho City and 12 provinces (Long An, Tien Giang, Ben Tre, Tra Vinh, Vinh Long, Dong Thap, An Giang, Kien Giang, Hau Giang, Soc Trang, Bac Lieu, and Ca Mau). Their livelihoods, cultures, and economies have always been closely associated with the Mekong River. The Delta economy was and will continue to be dominated by paddy production and the

fishing industry in the foreseeable future. These two industries give the Delta a vital role in the health of Vietnam's overall economy. Both rice culture and aquaculture are intensive users of freshwater and it is the Delta's heavy reliance on the fresh water flows from the Mekong River that emphasizes the Delta's precarious position from both an economic and geographical viewpoint.

Third, the Mekong Delta, one of Asia's major river deltas, is confronting multiple threats from various sources, inland and at sea. They include climate change with its severe and frequent floods and droughts damaging rice cultivation and aquaculture, sea level rise, and saline intrusion mixed with the river water creating conflict between protection of marine environment and economic development. Another major threat is the planning and construction of mainstream dams, or water diversion, by China (15 hydropower dams) and other riparian countries (11 run-of-river dams and one river diversion) that would effectively reduce the availability and quality of freshwater downstream. These natural disasters and man-made activities have altered people's traditional ways of life, and have the potential to destroy the ecosystem, economy, and business in the Mekong Delta region in the foreseeable future.

The Mekong River has been a main source of conquest, conflict, and cooperation in the Southeast Asian region. Much has been written on the vital and critical importance of the Mekong River fresh water to the sustainable economic development of the Mekong Delta. This monograph selects the Mekong Delta as a case study of regional cooperation for water and food security for not only for Vietnam but also for the world in a new century of global economy. It focuses not only on the Mekong Delta as an integral part of the River but also on Can Tho City and its 12 provinces that produce over 50 % of the country's rice output and 60 % of total fishery output. We take a micro approach and seek to examine how each province is adapting to the twin threats of mainstream dams construction and climate change reducing freshwater flows and increasing saline infusions on its present and future economy. Last but not least, we review the roles of international institutional arrangements, namely the Mekong Committee and the Mekong River Commission, in promoting regional cooperation among the riparian states for political and economic development of the Mekong Delta.

The book is divided into two parts. The first part introduces the reader to an overview of the Mekong Delta as an integral part of the Mekong River and an administrative unit of Vietnam; provides an in-depth analysis of each province's rice culture and aquaculture and the current water supply and demand pattern of use in the Delta; and examines climate change and the rapid expansion of upstream dam construction, two major threats to the Mekong Delta in the new millennium.

Chapter 1 describes the Mekong Delta region, its climate, natural conditions and resources, population and living standard, labor force, and economy. The economic section deals exclusively with rice culture and aquaculture because they are the backbone of the economy and unlike the other industries they largely depend on the Mekong River for survival and growth. The chapter also discusses the problems of rice and seafood exports and Foreign Direct Investments (FDI) in the Mekong Delta.