

Preface

The Yangtze River is the largest river in China, and the Three Gorges section is one of the most beautiful parts of the river. In order to harness the hydropower of the Yangtze River, a dream was envisioned by Mr. Sun Yat-Sen, the first president of China. In 1918, Sun Yat-Sen suggested in his book, *Strategy for State*, “a dam should be set here to let ships go downstream and use the water resource as power”. Through the efforts of the Chinese people the dream came true after 100 years. Begun in 2004, the Three Gorges dam construction was completed in 2006, and the dam operation will become fully functional in 2009, when the reservoir water level will reach the maximum height of 175 m. Before the dam construction, the water level at the Three Gorges dam site was 90 m. An increase of 85 m of slowly rising water in a reservoir with a length of about 660 km from the dam to its terminus at Chongqing City has greatly impacted the environment. The impact on the geo-environment, especially the instability phenomenon and landslides, was given great attention, because landslides not only affect the people living on the bank slopes but also affect navigation and shipping on the river. In addition, the sliding masses moving into the reservoir will have negative effects on the lifetime of the reservoir itself. Because of the importance of this consideration, bank slope stability and landslide problems have been, and will continue to be studied systematically. The studies can be divided into two periods separating in June 2003, when the first reservoir impoundment was conducted for partial operation. To summarize, the studies before the impoundment were concentrated on landslide site identification, and instability evaluation of existing landslides; while in the period after the impoundment, the studies shifted to landslide monitoring and prediction of landslides caused by water-level changes during the reservoir operation. The purposes of the studies for the two periods are the same, which is to acquire sufficient data and information for landslide disaster mitigation.

The idea to edit this book was initiated by the interest of non-Chinese colleagues. Whenever we presented our research in the Three Gorges area, others always wanted to know more. The Three Gorges area is a mysterious and challenging area for them. As a result, this book aims to present the landslide studies in the Three Gorges dam reservoir area for the two periods before and after the impoundment. Chinese experts on landslides learned much about landslides in this area as a result of the great project. It is very important to document these important experiences. A comparison

between the works before the impoundment and after the impoundment is also very interesting because the great change of the water level in the reservoir provides a dynamic challenge for the landslide disaster mitigation. This book will document the dynamics of slope failures and subsequent mitigation, providing a beginning for innovative ways to cope with the complexity of the problems.

In order for this book to present the real level of Chinese experts on landslides in this area, authors from different organizations were invited to contribute chapters. They are from Yangtze River Management Committee, Land and Resource Ministry, Chinese Academy of Sciences, and some major universities. All of these organizations are involved in the landslide studies in the Three Gorges area and have contributed to this book. We hope this book can represent the magnitude of the national-level research on landslides that is occurring in this important area.

In reference to the content, some chapters address regional characters of landslides, and some chapters present case studies. Some methodological studies with application to this area were also included. We believe that the scientific progress obtained from both the geologic and engineering practices are fully presented in this book.

Editing the book in English is a great adventure for our two Chinese editors, as we do not have lengthy experience in English-speaking countries. At this point, we would like to give our sincere appreciation to Ms. Lynn Highland of The United States Geological Survey. She made a trip to the Three Gorges area in 2007, and investigated some typical landslides. She checked all of the chapters, correcting for English usage and grammar. For some chapters, she made suggestions to authors to revise the chapter in order to make them more understandable. It is she who makes the book possible. Without her kind help, we would not be confident of whether our target readers, the people in western countries would fully understand it or not.

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