

Preface

Nepal is a neighbouring country of China, located at the south of Himalayas, and characterized by the typical mountainous landscapes. Its land is commonly divided into three ecological belts—mountains, hills, and the terai plain, running east–west and vertically intersected with Nepal’s major, north-to-south-flowing river systems. Each belt has different natural resources, and ecological and sociocultural environments. In past decades, owing to the anthropologic disturbances and climate change, land use/cover such as glaciers has been reported a lot of changes, causing significant impacts on the eco-environment in Nepal. Especially after the 4.25 big earthquake in 2015, the contradiction between human and land is arising extensive concerns among the scientific communities.

China and Nepal have a long history of bilateral exchanges and cooperation. Under the background of the China’s international regional economic cooperation strategy of “the Belt and Road Initiative,” in recent years, the two sides have signed a series of memorandum of understanding or cooperative agreements in the field of science and technology, economy and culture, especially for enhancing the cooperation on environment-related fields in the face of global climate change and sustainable development. The Institute of Mountain Hazards and Environment (IMHE), of Chinese Academy of Sciences (CAS), is a state nonprofit academic institution and the unique institute that especially focuses on mountain science studies including mountain hazards, mountain environment, sustainable mountain development and digital mountain & remote sensing application. As a leading role in this field, IMHE attaches great importance to international cooperation and has signed cooperative agreements with the International Centre for Integrated Mountain Development (ICIMOD) and Tribhuvan University (TU) of Nepal to perform continuous science and technology cooperation. It is also authorized the secretariat office of the China Committee of ICIMOD. Under this framework, joint studies have been conducted in the fields including but not limited to land use/cover change and its environmental effects, transboundary water resources managements and water hazard prevention and control, mountain eco-environmental evolution and livelihood security by scientists from both sides.

In September 2013, CAS launched an International Cooperation Key Project named “Comparison study on typical mountain ecosystems in China and Nepal based on remote sensing technologies”, under the granted number GJHZ201320. The aid project on Science and Technology for developing countries from Ministry of Science and Technology of China also partly sponsored related studies. After more than three years of efforts, the projects have achieved remarkable progresses in key remote sensing technologies in oversea land cover monitoring, land cover mapping, land cover change and its driving forces analysis, and eco-environmental responses analysis in Nepal. Especially in the 2015 Nepal earthquake, the project quickly started an emergency response to investigate earthquake-induced geohazards based on data archives, to efficiently assist and effectively support the Nepal scientific disaster relief teams from CAS and international organizations. Most important of all, a joint cooperative team has been formed during the cooperating. The friendship is being built up for all involved scientists between the two countries, and subsequently, it should lay a solid foundation for future cooperation.

Based on the above achievements, we initiated this book in 2015 to consolidate the authors from TU, ICIMOD, IMHE, and China-Nepal Joint Research Center for Geography, to jointly achieve the successful goal. This book collects recent researches which address four key topics related to LUCC, eco-environmental change, livelihoods and adaptation, geohazards, 4.25 earthquake and its impacts, totally including 20 chapters. Its main purpose is to analyze and identify the land use and land cover change in Nepal at different temporal and spatial scales to enable a deeper understanding about the fact and potential consequences of eco-environmental changes. This book can also be supplied as a very useful literature for related governments or organizations to make decisions for some actions to enhance the sustainable development and eco-environment protection in Nepal.

We would like to express our thanks to all the contributors for their sincere cooperation during this book preparation. Each author has provided his unique contribution to this book. The appendix of this book presents dozens of photographs that are the precious records, showing international activities and field investigations during bilateral and multilateral communications. Meanwhile, this book would not be successfully published without scientific leadership by the International Scientific Committee. We are grateful to the members who offered their valuable time and expertise through reviewing the manuscripts to ensure the high academic standard of this book. We believe that it also introduces a success case of bilateral or multilateral scientific and technological cooperation in the field of land resources and environment for both countries and even the South Asia, and will surely be benefit to “the Belt and Road Initiative.”

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