

Preface

A landslide is the movement of a mass of rock, earth, or debris along a slope under the influence of gravity. Landslides are triggered by rainfall, earthquakes, volcanic eruptions, slope erosion by rivers, and human activities like slope cutting and excavation.

Several landslides include slope failures developing within, and at the margins of already existing landslides. Therefore, if landslide topography can be identified on any slopes, the potential of developing new landslides can be defined with any degree. In order to research and produce an inventory of existing landslides or landslide prone areas, topographic maps, stereo-paired aerial photographs, and satellite images such as Google Earth, can be used. During our research, we refer to the models of landslide type mentioned below. Landslides are usually classified as deep-seated landslides or shallow landslides (slope failures). Information to assess the hazards and risks on slopes is considered based on the above data.

Deep-seated landslides are usually composed of a main scarp and body or debris, while shallow landslides are composed of a scar part, a flow part, and a deposition part. In particular, deep-seated landslides have the potential to alter topography. Therefore, it is important to recognize the modification of topography in order to predict new landslides. In order to find landslide prone areas, GIS is particularly for landslide hazard mapping. These works generate a landslide inventory, and then mapping and analysing them using GIS technology process further by GIS software and related technology.

This book consists of 13 chapters dealing mostly with landslide mapping, analyses and case studies using GIS and related technology. Finally, we are grateful to all of the authors for submitting their work to this book. We also would like to show our appreciation to Ms. Taeko Sato and Mr. Thirumani Parimelazhagan, Springer for editing this book.

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