Landslide Hazard and Risk

Editors

THOMAS GLADE

University of Bonn

MALCOLM ANDERSON

University of Bristol

MICHAEL J. CROZIER

University of Wellington

John Wiley & Sons, Ltd
Contents

List of Contributors viii
Preface xii

1 Landslide Hazard and Risk: Issues, Concepts and Approach 1
Michael J. Crozier and Thomas Glade

PART 1 CONCEPTUAL MODELS IN APPROACHING LANDSLIDE RISK 41
2 The Nature of Landslide Hazard Impact 43
Thomas Glade and Michael J. Crozier

3 A Review of Scale Dependency in Landslide Hazard and Risk Analysis 75
Thomas Glade and Michael J. Crozier

4 Systematic Procedures of Landslide Hazard Mapping for Risk Assessment Using Spatial Prediction Models 139
Chang-Jo F. Chung and Andrea G. Fabbri

5 Vulnerability to Landslides 175
David Alexander

PART 2 EVALUATION OF RISK 199
6 Landslide Risk Perception, Knowledge and Associated Risk Management: Case Studies and General Lessons from Glacier National Park, Montana, USA 201
David R. Butler and Lisa M. DeChano

7 Cultural Consideration in Landslide Risk Perception 219
Garth Harmsworth and Bill Raynor

8 Reply of Insurance Industry to Landslide Risk 251
Hans-Leo Paus
PART 3 MANAGEMENT OF LANDSLIDE RISK

11 Management Frameworks for Landslide Hazard and Risk: Issues and Options
Michael J. Crozier

12 Reducing Landslide Hazards and Risk in the United States: The Role of the US Geological Survey
Gerald F. Wieczorek, Paula L. Gori and Lynn M. Highland

13 Basic Data and Decision Support for Landslide Management: A Conceptual Framework
Walter Pflügner

14 Instability Management from Policy to Practice
Robin McInnes

15 Geomorphological Mapping to Assess Landslide Risk: Concepts, Methods and Applications in the Umbria Region of Central Italy
Paola Reichenbach, Mirco Galli, Mauro Cardinali, Fausto Guzzetti and Francesca Ardizzone

16 Remote Sensing of Landslides
Vern Singhroy

17 The Rise and Fall of a Debris-flow Warning System for the San Francisco Bay Region, California
Raymond C. Wilson

18 Reforestation Schemes to Manage Regional Landslide Risk
Chris Phillips and Michael Marden

19 Geotechnical Structures for Landslide Risk Reduction
Edward Nicholas Bromhead

PART 4 'END-TO-END SOLUTIONS' FOR LANDSLIDE RISK ASSESSMENT

20 Towards the Development of a Landslide Risk Assessment for Rural Roads in Nepal
David N. Petley, Gareth J. Hearn and Andrew Hart
21 Quantitative Landslide Risk Assessment of Cairns, Australia  
Marion Michael-Leiba, Fred Baynes, Greg Scott and Ken Granger  
621

22 The Story of Quantified Risk and its Place in Slope Safety Policy in Hong Kong  
Andrew W. Malone  
643

23 Rockfall Risk Management in High-density Urban Areas.  
The Andorran Experience  
Ramon Copons, Joan Manuel Vilaplana, Jordi Corominas,  
Joan Altimir and Jordi Amigó  
675

24 Landslide Risk Assessment in Italy  
Marino Sorriso-Valvo  
699

25 An Initial Approach to Identifying Slope Stability Controls in Southern Java and to Providing Community-based Landslide Warning Information  
D. Karnawati, I. Ibriam, M.G. Anderson, E.A. Holcombe,  
G.T. Mummery, J.-P. Renaud and Y. Wang  
733

PART 5 SYNOPSIS  
765

26 Landslide Hazard and Risk – Concluding Comment and Perspectives  
Thomas Glade and Michael J. Crozier  
767

Glossary  
775

Thematic Index  
795

Locations/regions  
801