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## KEY=GLOBAL - TOWNSEND SHELDON

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### LANDSLIDES: GLOBAL RISK PREPAREDNESS

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*Springer Science & Business Media* This book presents the global landslide risk preparedness implemented through the International Programme on Landslides (IPL). IPL was initiated by the International Consortium on Landslides (ICL) in 2002, and developed to a joint international programme by the IPL Global Promotion Committee (UNESCO, WMO, FAO, UNISDR, UNU, ICSU and WFEO as well as ICL) through the 2006 Tokyo Action Plan. The materials consists of four parts: Outline of the International Programme on Landslides & IPL Global Promotion Committee; Achievements of major IPL projects in research and capacity building; World Centres of Excellence on Landslide Risk Reduction (WCoEs) and Landslide School Network; Key documents of IPL and ICL including Tokyo Action Plan, Application of ICL, IPL Projects, WCoEs and Landslide School Network

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### LANDSLIDE HAZARDS, RISKS, AND DISASTERS

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*Elsevier* Landslide Hazards, Risks and Disasters 2nd edition makes a broad but detailed examination of major aspects of mass movements and their consequences, and provides knowledge to form the basis for more complete and accurate monitoring, prediction, preparedness and reduction of the impacts of landslides on society. The frequency and intensity of landslide hazards and disasters has consistently increased over the past century, and this trend will continue as society increasingly utilises steep landscapes. Landslides and related phenomena can be triggered by other hazard and disaster processes - such as earthquakes, tsunamis, volcanic eruptions and wildfires - and they can also cause other hazards and disasters, making them a complex multi-disciplinary challenge. This new edition of Landslide Hazards, Risks and Disasters is updated and includes new chapters, covering additional topics including rockfalls, landslide interactions and impacts and geomorphic perspectives. Knowledge, understanding and the ability to model landslide processes are becoming increasingly important challenges for society extends its occupation of increasingly hilly and mountainous terrain, making this book a key resource for educators, researchers and disaster managers in geophysics, geology and environmental science. Provides an interdisciplinary perspective on the geological, seismological, physical, environmental and social impacts of landslides Presents the latest research on causality, impacts and landslide preparedness and mitigation. Includes numerous tables, maps, diagrams, illustrations, photographs and video captures of hazardous processes Discusses steps for planning for and responding to landslide hazards, risks and disasters

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### ADVANCING CULTURE OF LIVING WITH LANDSLIDES

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#### VOLUME 1 ISDR-ICL SENDAI PARTNERSHIPS 2015-2025

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*Springer* This book is open access under a CC BY 4.0 license. This volume contains peer-reviewed papers from the Fourth World Landslide Forum organized by the International Consortium on Landslides (ICL), the Global Promotion Committee of the International Programme on Landslides (IPL), University of Ljubljana (UL) and Geological Survey of Slovenia in Ljubljana, Slovenia from May 29 to June 2, 2017. The complete collection of papers from the Forum is published in five full-color volumes. This first volume contains the following: • Three forum lectures • Background and Content of the Sendai Partnerships 2015-2025 • Contribution from the signatory organizations of the Sendai Partnerships • Landslide Dynamics: ISDR-ICL Landslide Interactive Teaching Tools (LIT T) • Progress of the World Report on Landslides (WRL) • International Programme on Landslides (IPL): Objects, History and List of WCoE/IPL projects • UNESCO-KU-ICL UNITWIN Network supporting IPL • Landslides: Journal of International Consortium on Landslides • International Programme on Landslides (IPL): WCoEs and IPL Projects • Landslides and Society Prof. Kyoji Sassa is the Founding President of the International Consortium on Landslides (ICL). He is Executive Director of ICL and the Editor-in-Chief of International Journal Landslides since its foundation in 2004. Prof. Matjaž Mikoš is the Forum Chair of the Fourth World Landslide Forum. He is the Vice President of International Consortium on Landslides and President of the Slovenian National Platform for Disaster Risk Reduction. Prof. Yueping Yin is the President of the International Consortium on Landslides and the Chairman of the Committee of Geo-Hazards Prevention of China, and the Chief Geologist of Geo-Hazard Emergency Technology, Ministry of Land and Resources, P.R. China. IPL (International Programme on Landslides) is a programme of the ICL. The programme is managed by the IPL Global Promotion Committee including ICL and ICL supporting organizations, UNESCO, WMO, FAO, UNISDR, UNU, ICSU, WFEO, IUGS and IUGG. The IPL contributes to the United Nations International Strategy for Disaster Reduction and the ISDR-ICL Sendai Partnerships 2015-2025.

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## LANDSLIDES - DISASTER RISK REDUCTION

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*Springer Science & Business Media* This book documents the First World Landslide Forum, which was jointly organized by the International Consortium on Landslides (ICL), eight UN organizations (UNESCO, WMO, FAO, UN/ISDR, UNU, UNEP, World Bank, UNDP) and four NGOs (International Council for Science, World Federation of Engineering Organizations, Kyoto Univ. and Japan Landslide Society) in Tokyo in 2008. The material consists of four parts: The Open Forum "Progress of IPL Activities; Four Thematic Lectures in the Plenary Symposium "Global Landslide Risk Reduction"; Six Keynote Lectures in the Plenary session; and the aims and overviews of eighteen parallel sessions (dealing with various aspects necessary for landslide disaster risk reduction such as: observations from space; climate change and slope instability; landslides threatening heritage sites; the economic and social impact of landslides; monitoring, prediction and early warning; and risk-management strategies in urban area, etc.) Thus it enables the reader to benefit from a wide range of research intended to reduce risk due to landslide disasters as presented in the first global multi-disciplinary meeting.

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## SLOPE SAFETY PREPAREDNESS FOR IMPACT OF CLIMATE CHANGE

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*CRC Press* Many countries are increasingly threatened by major landslide disasters and fatalities due to extreme weather events which have major implications for public safety and the sustainability of infrastructure and the built environment. A further increase in such a trend could come from climate change. This book helps to fill in the gap due to the fact that landslide hazards are commonly not covered under the policy debate on climate change. The book highlights the importance of raising awareness to the challenges of landslide hazards due to climate impact. It provides a holistic frame for understanding the key issues and new tools that could be used to assess and manage the landslide risks. The book gathers contributions from 21 countries and regions in the form of national reports or summaries with respect to four key aspects: a) the methods used for evaluating changing weather and changing landslide patterns; b) the changing weather patterns; c) the changing landslide patterns and hazard scenarios; d) the applications to risk management and the formulation of adaptation measures. Recommendations are made for enhanced preparedness and resilience. Improved crisis management and areas for future work are suggested.

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## LANDSLIDE SCIENCE AND PRACTICE

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### VOLUME 7: SOCIAL AND ECONOMIC IMPACT AND POLICIES

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*Springer Science & Business Media* This book contains peer-reviewed papers from the Second World Landslide Forum, organised by the International Consortium on Landslides (ICL), that took place in September 2011. The entire material from the conference has been split into seven volumes, this one is the seventh: 1. Landslide Inventory and Susceptibility and Hazard Zoning, 2. Early Warning, Instrumentation and Monitoring, 3. Spatial Analysis and Modelling, 4. Global Environmental Change, 5. Complex Environment, 6. Risk Assessment, Management and Mitigation, 7. Social and Economic Impact and Policies.

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## COMMUNITY-BASED LANDSLIDE RISK REDUCTION

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### MANAGING DISASTERS IN SMALL STEPS

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*World Bank Publications* The handbook details the MoSSaIC (Management of Slope Stability in Communities) methodology, which aims to create behavioral change in vulnerable communities in developing countries. Focusing on maximizing within-country capacity to deliver landslide mitigation measures on the ground, it provides an end-to-end blueprint for the mitigation process.

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## LANDSLIDE SCIENCE FOR A SAFER GEOENVIRONMENT

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### VOL.1: THE INTERNATIONAL PROGRAMME ON LANDSLIDES (IPL)

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*Springer* This volume contains peer-reviewed papers from the Third World Landslide Forum organized by the International Consortium on Landslides (ICL) in June 2014. The complete collection of papers from the Forum is published in three full-color volumes and one mono-color volume.

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## PROGRESS IN LANDSLIDE SCIENCE

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*Springer Science & Business Media* This book presents current progress in landslide science and consists of four parts: progress in landslide science, landslide dynamics, landslide monitoring, and landslide risk assessment. It provides useful information to those working on landslide risk-mitigation planning. It can be also used as an introductory textbook for college students who wish to learn fundamental scientific achievements in the field of landslide disaster reduction.

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## UNDERSTANDING AND REDUCING LANDSLIDE DISASTER RISK

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### VOLUME 2 FROM MAPPING TO HAZARD AND RISK ZONATION

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*Springer Nature* This book is a part of ICL new book series "ICL Contribution to Landslide Disaster Risk Reduction" founded in 2019. Peer-reviewed papers submitted to the Fifth World Landslide Forum were published in six volumes of this book series. This book contains the followings: • Keynotes • Landslide detection, recognition and mapping •

Landslide susceptibility assessment and modelling • Landslide size statistics and temporal modelling • Data and information for landslide disaster mitigation • Vulnerability to landslides of people, communities and the built environment Dr. Fausto Guzzetti is General Director of Office III - Technical and Scientific Activities for Risk Forecasting and Prevention, Department of Civil Protection, Italian Presidency of the Council of Ministers, on leave from the Italian National Research Council. Prof. Snježana Mihalić Arbanas is a Full Professor of the Faculty of Mining, Geology and Petroleum Engineering of the University of Zagreb, Croatia. She is the Chair of ICL Network Committee. Paola Reichenbach is a Senior Researcher of the Research Institute for Geo-Hydrological Protection, an institute of the Italian National Research Council (IRPI-CNR), Perugia, Italy. Prof. Kyoji Sassa is the Founding President and the Secretary-General of the International Consortium on Landslides (ICL). He has been the Editor-in-Chief of International Journal Landslides since its foundation in 2004. Prof. Peter Bobrowsky is the President of the International Consortium on Landslides. He is a Senior Scientist of Geological Survey of Canada, Ottawa, Canada. Prof. Kaoru Takara is the Executive Director of the International Consortium on Landslides. He is a Professor and Dean of Graduate School of Advanced Integrated Studies (GSAIS) in Human Survivability (Shishu-Kan), Kyoto University.

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## **UNDERSTANDING AND REDUCING LANDSLIDE DISASTER RISK**

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### **VOLUME 1 SENDAI LANDSLIDE PARTNERSHIPS AND KYOTO LANDSLIDE COMMITMENT**

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*Springer Nature* This book is a part of ICL new book series “ICL Contribution to Landslide Disaster Risk Reduction” founded in 2019. Peer-reviewed papers submitted to the Fifth World Landslide Forum were published in six volumes of this book series. This book contains the followings: • Four Forum lectures and one award paper • Sendai Landslide Partnerships, Kyoto Landslide Commitment, and International Programme on Landslides. • Landslide-induced tsunamis • Landslides at UNESCO designates sites and contribution from WMO, FAO, and IRDR • Education and Capacity Development for Risk Management and Risk Governance Prof. Kyoji Sassa is the Founding President and the Secretary-General of International Consortium on Landslides (ICL). He has been the Editor-in-Chief of International Journal Landslides since its foundation in 2004. Prof. Matjaž Mikoš is the Vice President of International Consortium on Landslides and Vice President of Slovenian Academy of Engineering. He is a Professor and Dean of Faculty of Civil and Geodetic Engineering, University of Ljubljana, Slovenia. Dr. Shinji Sassa is Head of Soil Dynamics Group and Research Director of International Research Center for Coastal Disasters, Port and Airport Research Institute, National Institute of Maritime, Port and Aviation Technology, Japan. Prof. Peter Bobrowsky is the President of International Consortium on Landslides. He is a Senior Scientist of Geological Survey of Canada, Ottawa, Canada. Prof. Kaoru Takara is the Executive Director of International Consortium on Landslides. He is a Professor and Dean of Graduate School of Advanced Integrated Studies (GSAIS) in Human Survivability (Shishu-Kan), Kyoto University. Dr. Khang Dang is the Secretary General of the Fifth World Landslide Forum. He also serves as the Research Promotion Officer of ICL and a Lecturer at the University of Science, Vietnam National University, Hanoi.

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## **ADVANCING CULTURE OF LIVING WITH LANDSLIDES**

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### **VOLUME 5 LANDSLIDES IN DIFFERENT ENVIRONMENTS**

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*Springer* This volume contains peer-reviewed papers from the Fourth World Landslide Forum organized by the International Consortium on Landslides (ICL), the Global Promotion Committee of the International Programme on Landslides (IPL), University of Ljubljana (UL) and Geological Survey of Slovenia in Ljubljana, Slovenia from May 29 to June 2, 2017. The complete collection of papers from the Forum is published in five full-color volumes. This fifth volume contains the following: • Landslide Interactions with the Built Environment • Landslides in Natural Environment • Landslides and Water • Landslides as Environmental Change Proxies: Looking at the Past • Student Papers Prof. Matjaž Mikoš is the Forum Chair of the Fourth World Landslide Forum. He is the Vice President of International Consortium on Landslides and President of the Slovenian National Platform for Disaster Risk Reduction. Assoc. Prof. Vít Vilímek is the editor of Volume 5. He is member of the Evaluation committee of International Consortium on Landslides and head of the Czech Geomorphological Association. Prof. Yueping Yin is the President of the International Consortium on Landslides and the Chairman of the Committee of Geo-Hazards Prevention of China, and the Chief Geologist of Geo-Hazard Emergency Technology, Ministry of Land and Resources, P.R. China. Prof. Kyoji Sassa is the Founding President of the International Consortium on Landslides (ICL). He is Executive Director of ICL and the Editor-in-Chief of International Journal “Landslides” since its foundation in 2004. IPL (International Programme on Landslides) is a programme of the ICL. The programme is managed by the IPL Global Promotion Committee including ICL and ICL supporting organizations, UNESCO, WMO, FAO, UNISDR, UNU, ICSU, WFEO, IUGS and IUGG. The IPL contributes to the United Nations International Strategy for Disaster Reduction and the ISDR-ICL Sendai Partnerships 2015-2025.

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## **RISK AND UNCERTAINTY ASSESSMENT FOR NATURAL HAZARDS**

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*Cambridge University Press* Assessment of risk and uncertainty is crucial for natural hazard risk management, facilitating risk communication and informing strategies to successfully mitigate our society's vulnerability to natural disasters. Written by some of the world's leading experts, this book provides a state-of-the-art overview of risk and uncertainty assessment in natural hazards. It presents the core statistical concepts using clearly defined terminology applicable across all types of natural hazards and addresses the full range of sources of uncertainty, the role of expert judgement and the practice of uncertainty elicitation. The core of the book provides detailed coverage of all the main hazard types and concluding chapters address the wider societal context of risk management. This is an invaluable compendium for academic researchers and professionals working in the fields of natural hazards science, risk assessment and



management and environmental science and will be of interest to anyone involved in natural hazards policy.

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## **LANDSLIDE SCIENCE AND PRACTICE**

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### **VOLUME 6: RISK ASSESSMENT, MANAGEMENT AND MITIGATION**

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*Springer Science & Business Media* This book contains peer-reviewed papers from the Second World Landslide Forum, organised by the International Consortium on Landslides (ICL), that took place in September 2011. The entire material from the conference has been split into seven volumes, this one is the sixth: 1. Landslide Inventory and Susceptibility and Hazard Zoning, 2. Early Warning, Instrumentation and Monitoring, 3. Spatial Analysis and Modelling, 4. Global Environmental Change, 5. Complex Environment, 6. Risk Assessment, Management and Mitigation, 7. Social and Economic Impact and Policies.

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## **ENVIRONMENTAL REMOTE SENSING AND SYSTEMS ANALYSIS**

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*CRC Press* Using a systems analysis approach and extensive case studies, Environmental Remote Sensing and Systems Analysis shows how remote sensing can be used to support environmental decision making. It presents a multidisciplinary framework and the latest remote sensing tools to understand environmental impacts, management complexity, and policy implications.

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## **LANDSLIDES IN SENSITIVE CLAYS**

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### **FROM RESEARCH TO IMPLEMENTATION**

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*Springer* This book gathers the most recent scientific research on the geological, geotechnical and geophysical aspects of slope failure in sensitive clays. Gathering contributions by international experts, it focuses on understanding the complete and practical spectrum of challenges presented by landslides in such complex materials. Based on sound and validated research results, the book also presents several recommendations that could be implemented in the guidelines or code-of-practice. These recommendations cover topics including the characterization and behavior of sensitive clays; the pre-failure, failure and post-failure stages of sensitive clays; mapping and identification methods; climate change; hazard assessment; and risk management. Sensitive clays are known for their potential for causing large landslides, which pose a serious risk to human lives, infrastructure, and surrounding ecosystems within their reach. This has been demonstrated by the recent catastrophic landslides in e.g. Sørum (2016), Skjeggestad (2015), Statland (2014), Byneset (2012), St-Jude (2010), Lyngen (2010) and Kattmarka (2009). The 2015 collapse of the Skjeggestad Bridge in Norway - which was due to a landslide in sensitive clay - alone costs millions of dollars in repairs. Recently, efforts are being made to increase society's ability to cope with such landslide hazards. Geoscientists are now expected to provide input to the agencies responsible for landslide-risk preparedness. In other words, geoscientists' role is not only to act as technologists to establish new theories, but also to go the extra mile to implement them in practice, so as to find meaningful solutions to geotechnical problems.

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## **UNDERSTANDING AND REDUCING LANDSLIDE DISASTER RISK**

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### **VOLUME 5 CATASTROPHIC LANDSLIDES AND FRONTIERS OF LANDSLIDE SCIENCE**

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*Springer Nature* This book is a part of ICL new book series "ICL Contribution to Landslide Disaster Risk Reduction" founded in 2019. Peer-reviewed papers submitted to the Fifth World Landslide Forum were published in six volumes of this book series. This book contains the followings: Part I with topics is mainly about landslides and earthquakes; landslide dams and outburst floods; catastrophic large-scale landslides in mountainous regions. Part II with topics is mainly about impact of climate change; loess landslides; mapping, monitoring and modeling of landslides; stabilization and mitigation; application of new technology in landslide studies. Prof. Vít Vilímek is the vice-president of the International Consortium on Landslides (ICL) and a member of the evaluation committee, Editor-in-Chief of the university journal AUC Geographica and Associate Editor-in-Chief of the international journal Geoenvironmental Disasters. He is a Professor of Physical Geography at Charles University, Prague, Czech Republic. Prof. Fawu Wang is the President of the International Consortium on Geo-disaster Reduction (ICGdR) and the Editor-in-Chief of the international journal Geoenvironmental Disasters. He is a Professor at the School of Civil Engineering, Tongji University, China. Dr. Alexander Strom is a chief expert at the Geodynamics Research Center LLC, Moscow, Russia. He is also an Adjunct Professor at Chang'an University, Xi'an, China, Visiting Professor at SKLGP, Chengdu, China, and an alternative representative of the JSC "Hydroproject Institute" in ICL. Prof. Kyoji Sassa is the Founding President and the Secretary-General of the International Consortium on Landslides (ICL). He has been the Editor-in-Chief of International Journal Landslides since its foundation in 2004. Prof. Peter Bobrowsky is the President of the International Consortium on Landslides. He is a Senior Scientist of Geological Survey of Canada, Ottawa, Canada. Prof. Kaoru Takara is the Executive Director of the International Consortium on Landslides. He is a Professor and Dean of Graduate School of Advanced Integrated Studies (GSAIS) in Human Survivability (Shishu-Kan), Kyoto University.

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## **UNDERSTANDING AND REDUCING LANDSLIDE DISASTER RISK**

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### **VOLUME 6 SPECIFIC TOPICS IN LANDSLIDE SCIENCE AND APPLICATIONS**

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*Springer Nature* This book is a part of ICL new book series "ICL Contribution to Landslide Disaster Risk Reduction" founded in 2019. Peer-reviewed papers submitted to the Fifth World Landslide Forum were published in six volumes of

this book series. This book contains the following parts: • Impact of Large Ground Deformations near Seismic Faults on Critically Important Civil Infrastructures • Recent Progress in the Landslide Initiating Science • Earth Observation and Machine Learning in Landslide Science • General Landslide Studies Professor Željko Arbanas is the Vice President of International Consortium on Landslides. He is a Professor of Faculty of Civil Engineering, University of Rijeka, Croatia. He is the Assistant Editor-in-Chief of International Journal Landslides. Professor Peter Bobrowsky is the President of International Consortium on Landslides. He is a Senior Scientist of Geological Survey of Canada, Ottawa, Canada. Professor Kazuo Konagai is Professor Emeritus at the University of Tokyo and Principal Researcher at the ICL Headquarters. He serves as the Secretary-General of the Fifth World Landslide Forum. Professor Kyoji Sassa is the Founding President and the Secretary-General of the International Consortium on Landslides (ICL). He has been the Editor-in-Chief of International Journal Landslides since its foundation in 2004. Professor Kaoru Takara is the Executive Director of International Consortium on Landslides. He is a Professor and Dean of Graduate School of Advanced Integrated Studies (GSAIS) in Human Survivability (Shishu-Kan), Kyoto University.

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## **UNDERSTANDING AND REDUCING LANDSLIDE DISASTER RISK**

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### **VOLUME 4 TESTING, MODELING AND RISK ASSESSMENT**

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*Springer Nature* This book is a part of ICL new book series “ICL Contribution to Landslide Disaster Risk Reduction” founded in 2019. Peer-reviewed papers submitted to the Fifth World Landslide Forum were published in six volumes of this book series. This book contains the followings: • Five keynote lectures • Recent development in physical modeling of landslides • Recent development in numerical modeling of landslides • Recent development in soil and rock testing techniques, application and analysis methods • Recent advancements in the methods of slope stability and deformation analyses • Recent development in disaster risk assessment Prof. Binod Tiwari is a Vice President of the International Consortium on Landslides (ICL). He is the Associate Vice President for research and sponsored project and Professor of civil and environmental engineering at the California State University, Fullerton, California, USA. Prof. Kyoji Sassa is the Founding President and the Secretary-General of the International Consortium on Landslides (ICL). He has been the Editor-in-Chief of International Journal Landslides since its foundation in 2004. Prof. Peter Bobrowsky is the President of the International Consortium on Landslides. He is a Senior Scientist of Geological Survey of Canada, Ottawa, Canada. Prof. Kaoru Takara is the Executive Director of the International Consortium on Landslides. He is a Professor and Dean of Graduate School of Advanced Integrated Studies (GSAIS) in Human Survivability (Shishu-Kan), Kyoto University.

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## **UNDERSTANDING AND REDUCING LANDSLIDE DISASTER RISK**

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### **VOLUME 3 MONITORING AND EARLY WARNING**

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*Springer Nature* This book is a part of ICL new book series “ICL Contribution to Landslide Disaster Risk Reduction” founded in 2019. Peer-reviewed papers submitted to the Fifth World Landslide Forum were published in six volumes of this book series. This book contains the followings: • One theme lecture and one keynote lecture • Monitoring and remote sensing for landslide risk mitigation, including one keynote lecture • Landslide early warning systems, forecasting models and time prediction of landslides Prof. Nicola Casagli is a Vice President and President-elect of the International Consortium on Landslides (ICL) for 2021-2023. He is Professor of engineering geology at the Department of Earth Sciences, University of Florence, and President of the National Institute of Oceanography and Applied Geophysics - OGS, Trieste, Italy. Dr. Veronica Tofani is an Associate Professor at the Department of Earth Sciences, University of Florence, and Program Coordinator of the UNESCO Chair on Prevention and Sustainable Management of Geo-hydrological hazards, University of Florence. Prof. Kyoji Sassa is the Founding President and the Secretary-General of the International Consortium on Landslides (ICL). He has been the Editor-in-Chief of International Journal Landslides since its foundation in 2004. Prof. Peter Bobrowsky is the President of the International Consortium on Landslides. He is a Senior Scientist of Geological Survey of Canada, Ottawa, Canada. Prof. Kaoru Takara is the Executive Director of the International Consortium on Landslides. He is a Professor and Dean of Graduate School of Advanced Integrated Studies (GSAIS) in Human Survivability (Shishu-Kan), Kyoto University.

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## **THE HINDU KUSH HIMALAYA ASSESSMENT**

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### **MOUNTAINS, CLIMATE CHANGE, SUSTAINABILITY AND PEOPLE**

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*Springer* This open access volume is the first comprehensive assessment of the Hindu Kush Himalaya (HKH) region. It comprises important scientific research on the social, economic, and environmental pillars of sustainable mountain development and will serve as a basis for evidence-based decision-making to safeguard the environment and advance people's well-being. The compiled content is based on the collective knowledge of over 300 leading researchers, experts and policymakers, brought together by the Hindu Kush Himalayan Monitoring and Assessment Programme (HIMAP) under the coordination of the International Centre for Integrated Mountain Development (ICIMOD). This assessment was conducted between 2013 and 2017 as the first of a series of monitoring and assessment reports, under the guidance of the HIMAP Steering Committee: Eklabya Sharma (ICIMOD), Atiq Raman (Bangladesh), Yuba Raj Khatiwada (Nepal), Linxiu Zhang (China), Surendra Pratap Singh (India), Tandong Yao (China) and David Molden (ICIMOD and Chair of the HIMAP SC). This First HKH Assessment Report consists of 16 chapters, which comprehensively assess the current state of knowledge of the HKH region, increase the understanding of various drivers of change and their impacts, address critical data gaps and develop a set of evidence-based and actionable policy solutions and

recommendations. These are linked to nine mountain priorities for the mountains and people of the HKH consistent with the Sustainable Development Goals. This book is a must-read for policy makers, academics and students interested in this important region and an essentially important resource for contributors to global assessments such as the IPCC reports.

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## **LANDSLIDE DYNAMICS: ISDR-ICL LANDSLIDE INTERACTIVE TEACHING TOOLS**

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### **VOLUME 1: FUNDAMENTALS, MAPPING AND MONITORING**

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*Springer* This interactive book presents comprehensive information on the fundamentals of landslide types and dynamics, while also providing a set of PPT, PDF, and text tools for education and capacity development. As the core activity of the Sendai Partnerships, the International Consortium of Landslides has created this two-volume work, which will be regularly updated and improved over the coming years, based on responses from users and lessons learned during its application.

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## **LANDSLIDES**

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### **RISK ANALYSIS AND SUSTAINABLE DISASTER MANAGEMENT**

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*Springer Science & Business Media* Based on contributions to the first General Assembly of the International Consortium on Landslides, this reference and status report emphasizes the mechanisms of different types of landslides, landslide risk analysis, and sustainable disaster management. It comprises the achievements of the ICL over the past three years, since the Kyoto assembly. It consists of three parts: research results of the International Programme on Landslides (IPL); contributions on landslide risk analysis; and articles on sustainable disaster management. In addition, the history of the ICL activities (under the support of UNESCO, WMO, FAO, UN/ISDR, and UNU) is recounted to create a comprehensive overview of international activity on landslides. The contributions reflect a wide range of topics and concerns, ranging from field studies, identification of objects of cultural heritage at landslide risk, as well as landslide countermeasures.

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### **LANDSLIDE HAZARDS, RISKS, AND DISASTERS**

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*Academic Press* Landslides are the most costly geo-hazard in the world, and they're often the cause or the result of other hazards and disasters such as tsunamis, earthquakes, wildfires, and volcanic eruptions. *Landslide Hazards, Risks, and Disasters* makes a close and detailed examination of major mass movements and provides measures for more thorough and accurate monitoring, prediction, preparedness, and prevention. It takes a geoscientific approach to the topic while also discussing the impacts human-induced causes such as deforestation, blasting, and building construction—underscoring the multi-disciplinary nature of the topic. Contains contributions from expert geologists, seismologists, geophysicists, and environmental scientists selected by a world-renowned editorial board Presents the latest research on causality, economic impacts, fatality rates, and landslide and problem soil preparedness and mitigation Numerous tables, maps, diagrams, illustrations, photographs, and video captures of hazardous processes Discusses steps for prevention and treatment of problem soils, the most expensive geo-hazard in the world

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### **EMERGING VOICES IN NATURAL HAZARDS RESEARCH**

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*Butterworth-Heinemann* *Emerging Voices in Natural Hazards Research* provides a synthesis of the most pressing issues in natural hazards research. The book begins with an overview of emerging research on natural hazards, such as hurricanes, earthquakes, floods, wildfires, sea-level rise, global warming, climate change and tornadoes, among other topics. Remaining sections cover socially vulnerable populations and the cycles of emergency management. This book will serve as a consolidated resource for academics, students and researchers who are eager to learn about the most pressing issues in today's natural hazard research. Provides a platform for readers to keep up-to-date with the interdisciplinary research that new professionals are producing Covers the multidisciplinary perspectives of the hazards and disasters field Includes international perspectives from new professionals around the world, including developing countries

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## **GEOTECHNICAL RISK AND SAFETY**

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### **PROCEEDINGS OF THE 2ND INTERNATIONAL SYMPOSIUM ON GEOTECHNICAL SAFETY AND RISK (IS-GIFU 2009) 11-12 JUNE, 2009, GIFU, JAPAN - IS-GIFU2009**

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*CRC Press* Communication of risks within a transparent and accountable framework is essential in view of increasing mobility and the complexity of the modern society and the field of geotechnical engineering does not form an exception. As a result, modern risk assessment and management are required in all aspects of geotechnical issues, such as planning, desi

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### **5TH WORLD CONGRESS ON DISASTER MANAGEMENT: VOLUME I**

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*Taylor & Francis* *World Congress on Disaster Management (WCDM)* brings researchers, policy makers and practitioners from around the world in the same platform to discuss various challenging issues of disaster risk management, enhance understanding of risks and advance actions for reducing risks and building resilience to disasters. The fifth WCDM deliberates on three critical issues that pose the most serious challenges as well as hold the best possible

promise of building resilience to disasters. These are Technology, Finance, and Capacity. WCDM has emerged as the largest global conference on disaster management outside the UN system. The fifth WCDM was attended by more than 2500 scientists, professionals, policy makers and practitioners all around the world despite the prevalence of pandemic.

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## LANDSLIDE RISK MANAGEMENT

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*CRC Press* **Landslide Risk Management** comprises the proceedings of the International Conference on Landslide Risk Management, held in Vancouver, Canada, from May 31 to June 3, 2005. The first part of the book contains state-of-the-art and invited lectures, prepared by teams of authors selected for their experience in specific topics assigned to them by the JTC-1 Committee. The second part is a selection of papers submitted to the conference, most of which serve as case-history illustrations of projects on landslide risk management. This reference work presents the current status of landslide risk management as viewed by experts from around the world.

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## IMPACT OF CLIMATE CHANGE, LAND USE AND LAND COVER, AND SOCIO-ECONOMIC DYNAMICS ON LANDSLIDES

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*Springer Nature* This book discusses the impact of climate change, land use and land cover, and socio-economic dynamics on landslides in Asian countries. Scholars recently have brought about a shift in their focus regarding triggering factors for landslides, from rainfall or earthquake to claiming rapid urbanization, extreme population pressure, improper land use planning, illegal hill cutting for settlements and indiscriminate deforestation. This suggests that the occurrence or probabilities of landslides are shaped by both climate-related and non-climate-related anthropogenic factors. Among these issues, land use and land cover change or improper land use planning is one of the key factors. Further climate change shapes the rainfall pattern and intensity in different parts of the world, and consequently rainfall-triggered landslides have increased. These changes cause socio-economic changes. Conversely, socio-economic and lifestyle changes enhance inappropriate land use and climate change. All these changes in land use, climate and socio-economic aspects are dynamics in nature and shape landslide risks in Asian countries, where they are given serious attention by governments, disaster management professionals, researchers and academicians. This book comprises 21 chapters divided into three major sections highlighting the effect of climate change on landslide incidence with the influence on vegetation and socio-economic aspects. The sections address how climate change and extreme events have triggered landslides. The advances in geospatial techniques with the focus on land use and land cover change along with the effect on socio-economic aspects are also explored.

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## AT RISK

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### NATURAL HAZARDS, PEOPLE'S VULNERABILITY AND DISASTERS

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*Routledge* The term 'natural disaster' is often used to refer to natural events such as earthquakes, hurricanes or floods. However, the phrase 'natural disaster' suggests an uncritical acceptance of a deeply engrained ideological and cultural myth. *At Risk* questions this myth and argues that extreme natural events are not disasters until a vulnerable group of people is exposed. The updated new edition confronts a further ten years of ever more expensive and deadly disasters and discusses disaster not as an aberration, but as a signal failure of mainstream 'development'. Two analytical models are provided as tools for understanding vulnerability. One links remote and distant 'root causes' to 'unsafe conditions' in a 'progression of vulnerability'. The other uses the concepts of 'access' and 'livelihood' to understand why some households are more vulnerable than others. Examining key natural events and incorporating strategies to create a safer world, this revised edition is an important resource for those involved in the fields of environment and development studies.

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## EARTHQUAKE-INDUCED LANDSLIDES

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### PROCEEDINGS OF THE INTERNATIONAL SYMPOSIUM ON EARTHQUAKE-INDUCED LANDSLIDES, KIRYU, JAPAN, 2012

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*Springer Science & Business Media* Seismicity is a major trigger for landslides with often devastating effects. The Japan Landslide Society (JLS) therefore organized a meeting fully dedicated to the research area of earthquake induced landslides. The symposium covers all aspects of earthquake-induced landslides including the phenomena occurred in manmade embankments as well as in natural slopes in mountainous areas. In this comprehensive volume on landslide science the JLS presents the Proceedings of this First International Symposium on Earthquake-Induced Landslides, held in November 2012 in Kiryu, Japan.

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## CLIMATE CHANGE, DISASTER RISK, AND THE URBAN POOR

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### CITIES BUILDING RESILIENCE FOR A CHANGING WORLD

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*World Bank Publications* The urban poor living in slums are at particularly high risk from the impacts of climate change and natural hazards. This study analyzes key issues affecting their vulnerability, with evidence from a number of cities in the developing world.



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## **DISASTER RISK ASSESSMENT FOR PROJECT PREPARATION**

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### **A PRACTICAL GUIDE**

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*Asian Development Bank* Disasters pose a significant threat to the sustainability of development investments. From 2007 to 2016, disasters triggered by natural hazards caused average daily physical losses of \$133 million in the developing member countries of the Asian Development Bank alone. This practical guide provides technical advice on disaster risk assessment to facilitate the consideration of disaster risks in the design of development projects, seeking to ensure that disaster risks are properly identified and measures taken to reduce them where necessary. Disaster risk assessments can also help steer development investments to increase the disaster resilience of exposed and vulnerable communities more broadly.

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### **LANDSLIDES AND CLIMATE CHANGE: CHALLENGES AND SOLUTIONS**

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#### **PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON LANDSLIDES AND CLIMATE CHANGE, VENTNOR, ISLE OF WIGHT, UK, 21-24 MAY 2007**

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*CRC Press* Understanding the relationship between landslides and climate change is crucially important in planning a proactive approach to hazard and risk management. Advances in geohazard modelling and prediction enable us to be better prepared for the impacts of climate change, but there is still a need for effective risk management and informed planning policy to improve the safety and sustainability of communities at risk. The increasing frequency of extreme weather events has highlighted our vulnerability to the impact of climate change, and has resulted in enormous human and economic loss. This book presents the Proceedings of the International Conference on 'Landslides and Climate Change - Challenges and Solutions', which was held in Ventnor, Isle of Wight, UK in May 2007. The volume considers the practical experiences of hazard management, risk governance and response to climate change, and will be of interest to engineers, planners, practitioners, regional and local authorities, academics and politicians.

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### **ADVANCING CULTURE OF LIVING WITH LANDSLIDES**

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#### **VOLUME 2 ADVANCES IN LANDSLIDE SCIENCE**

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*Springer* This volume contains peer-reviewed papers from the Fourth World Landslide Forum organized by the International Consortium on Landslides (ICL), the Global Promotion Committee of the International Programme on Landslides (IPL), University of Ljubljana (UL) and Geological Survey of Slovenia in Ljubljana, Slovenia from May 29 to June 2,. The complete collection of papers from the Forum is published in five full-color volumes. This second volume contains the following: • Two keynote lectures • Landslide Field Recognition and Identification: Remote Sensing Techniques, Field Techniques • Landslide Investigation: Field Investigations, Laboratory Testing • Landslide Modeling: Landslide Mechanics, Simulation Models • Landslide Hazard Risk Assessment and Prediction: Landslide Inventories and Susceptibility, Hazard Mapping Methods, Damage Potential Prof. Matjaž Mikoš is the Forum Chair of the Fourth World Landslide Forum. He is the Vice President of International Consortium on Landslides and President of the Slovenian National Platform for Disaster Risk Reduction. Prof. Binod Tiwari is the Coordinator of the Volume 2 of the Fourth World Landslide Forum. He is a Board member of the International Consortium on Landslides and an Executive Editor of the International Journal "Landslides". He is the Chair-Elect of the Engineering Division of the US Council of Undergraduate Research, Award Committee Chair of the American Society of Civil Engineering, Geo-Institute's Committee on Embankments, Slopes, and Dams Committee. Prof. Yueping Yin is the President of the International Consortium on Landslides and the Chairman of the Committee of Geo-Hazards Prevention of China, and the Chief Geologist of Geo-Hazard Emergency Technology, Ministry of Land and Resources, P.R. China. Prof. Kyoji Sassa is the Founding President of the International Consortium on Landslides (ICL). He is Executive Director of ICL and the Editor-in-Chief of International Journal "Landslides" since its foundation in 2004. IPL (International Programme on Landslides) is a programme of the ICL. The programme is managed by the IPL Global Promotion Committee including ICL and ICL supporting organizations, UNESCO, WMO, FAO, UNISDR, UNU, ICSU, WFEO, IUGS and IUGG. The IPL contributes to the United Nations International Strategy for Disaster Reduction and the ISDR-ICL Sendai Partnerships 2015-2025.

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### **MANAGING THE RISKS OF EXTREME EVENTS AND DISASTERS TO ADVANCE CLIMATE CHANGE ADAPTATION**

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#### **SPECIAL REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE**

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*Cambridge University Press* This Intergovernmental Panel on Climate Change Special Report (IPCC-SREX) explores the challenge of understanding and managing the risks of climate extremes to advance climate change adaptation. Extreme weather and climate events, interacting with exposed and vulnerable human and natural systems, can lead to disasters. Changes in the frequency and severity of the physical events affect disaster risk, but so do the spatially diverse and temporally dynamic patterns of exposure and vulnerability. Some types of extreme weather and climate events have increased in frequency or magnitude, but populations and assets at risk have also increased, with consequences for disaster risk. Opportunities for managing risks of weather- and climate-related disasters exist or can be developed at any scale, local to international. Prepared following strict IPCC procedures, SREX is an invaluable assessment for anyone interested in climate extremes, environmental disasters and adaptation to climate change, including policymakers, the private sector and academic researchers.



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## **GLOBAL GEODETIC OBSERVING SYSTEM**

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### **MEETING THE REQUIREMENTS OF A GLOBAL SOCIETY ON A CHANGING PLANET IN 2020**

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*Springer Science & Business Media* The Global Geodetic Observing System (GGOS) has been established by the International Association of Geodesy (IAG) in order to integrate the three fundamental areas of geodesy, so as to monitor geodetic parameters and their temporal variations, in a global reference frame with a target relative accuracy of 10 or better. These areas, often called 'pillars', deal with the determination and evolution of (a) the Earth's geometry (topography, bathymetry, ice surface, sea level), (b) the Earth's rotation and orientation (polar motion, rotation rate, nutation, etc. ), and (c) the Earth's gravity field (gravity, geoid). Therefore, Earth Observation on a global scale is at the heart of GGOS's activities, which contributes to Global Change research through the monitoring, as well as the modeling, of dynamic Earth processes such as, for example, mass and angular momentum exchanges, mass transport and ocean circulation, and changes in sea, land and ice surfaces. To achieve such an ambitious goal, GGOS relies on an integrated network of current and future terrestrial, airborne and satellite systems and technologies. These include: various positioning, navigation, remote sensing and dedicated gravity and altimetry satellite missions; global ground networks of VLBI, SLR, DORIS, GNSS and absolute and relative gravity stations; and airborne gravity, mapping and remote sensing systems.

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## **THRIVING ON OUR CHANGING PLANET**

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### **A DECADAL STRATEGY FOR EARTH OBSERVATION FROM SPACE**

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*National Academies Press* We live on a dynamic Earth shaped by both natural processes and the impacts of humans on their environment. It is in our collective interest to observe and understand our planet, and to predict future behavior to the extent possible, in order to effectively manage resources, successfully respond to threats from natural and human-induced environmental change, and capitalize on the opportunities that such knowledge can bring. By continuously monitoring and exploring Earth, developing a deep understanding of its evolving behavior, and characterizing the processes that shape and reshape the environment in which we live, we not only advance knowledge and basic discovery about our planet, but we further develop the foundation upon which benefits to society are built. Thriving on Our Changing Planet presents prioritized science, applications, and observations, along with related strategic and programmatic guidance, to support the U.S. civil space Earth observation program over the coming decade.

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## **INDEX BASED INSURANCE FOR LANDSLIDE RISKS IN NEPAL**

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### **A TECHNICAL FEASIBILITY ASSESSMENT**

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Landslide is one of the major hazards in Nepal resulting annual loss of more than 50 million Nepalese Rupees. Almost all of the landslide are caused by rainfall and occur during the monsoon season. Landslides, like other weather induced disasters, need significant resources to mitigate the risks as well as to recover the damages. One of the key issues faced by the Nepalese local agencies in disaster risk management planning process is the financing the risk reduction, preparedness and response activities, as these agencies have very limited fund under their disposal. Tapping the private sector resources has been on the book however, very little or none has been realized. In this context this paper analyses feasibility of an index based insurance product to finance landslide risks reduction activities in the hilly regions of Nepal. This study finds that considering the rainfall threshold developed for early warning system as a trigger point, it is possible to develop an index-based insurance product, which will provide indemnities based on the rainfall data from a nearby weather station. For financing options, this paper suggests to a pool fund managed by the network of villages with reinsurance options through national or international reinsurance companies.

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## **NATURAL DISASTER HOTSPOTS**

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### **A GLOBAL RISK ANALYSIS**

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*World Bank Publications*