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EARTHQUAKE-INDUCED LANDSLIDES -AN OVERVIEW AND MITIGATION MEASURES OF DISASTERS CAUSED BY THEM-

Summary:

It is well-established understanding that strong earthquakes often cause large numbers of landslides in mountainous areas. Damage caused by earthquake-induced landslides is sometimes larger than damage caused by shaking of earthquake itself. In general, earthquake-induced landslides show quite different characteristics and possess much more complicated causal mechanisms in comparison with landslides triggered by heavy rainfall.During the last decades, a series of strong earthquakesinduced landslides in various regions in the world. A lot of researches on earthquake-induced landslides have been intensively carried out by various institutions. In the first World Landslide Forum, which was held in Tokyo in 2008, a thematic session on "Landslides and Multi-Hazard" including "Earthquake-induced landslides" was organized.Especially in 2012, the Japan Landslide Society published a report "Earthquake-induced Landslides"and further organized an International Symposium on Earthquake-induced Landslides.The study of earthquake-induced landslides should have a major importance for appropriate understanding of the causal mechanisms and the relationship among the landslide type, size, occurrence location and geomorphology.It is urgently needed to develop practical methods for risk evaluation and hazard zoning on the basis of current knowledge with appropriate mitigation strategy. This paper describes the state of the art knowledge in the field of "Earthquake-induced landslides". It includes: i) characteristics; ii) secondary hazards; iii) causal mechanisms; iv) risk assessment and management.

Key words:

Earthquak-induced landslides, Secondary hazards, Causal mechanisms, Undrained dynamic loading, Strain-softening process, Dynamic response analysis, Analytical Hierarchy Process, Risk assessment, Risk management.

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