The large-scale landslide risk classification in catchment scale

Che-Hsin Liu, Tingyeh Wu, Lien-Kuang Chen, and Sheng-Chi Lin

Slopeland Disaster Reduction division, National Science and Technology Center for Disaster Reduction,Taiwan, R.O.C
(a120160@ncdr.nat.gov.tw)

The landslide disasters caused heavy casualties during Typhoon Morakot, 2009. This disaster is defined as largescale
landslide due to the casualty numbers. This event also reflects the survey on large-scale landslide potential
is so far insufficient and significant. The large-scale landslide potential analysis provides information about where
should be focused on even though it is very difficult to distinguish. Accordingly, the authors intend to investigate
the methods used by different countries, such as Hong Kong, Italy, Japan and Switzerland to clarify the assessment
methodology. The objects include the place with susceptibility of rock slide and dip slope and the major landslide
areas defined from historical records. Three different levels of scales are confirmed necessarily from country to
slopeland, which are basin, catchment, and slope scales. Totally ten spots were classified with high large-scale
landslide potential in the basin scale. The authors therefore focused on the catchment scale and employ risk matrix
to classify the potential in this paper. The protected objects and large-scale landslide susceptibility ratio are two
main indexes to classify the large-scale landslide risk. The protected objects are the constructions and transportation
facilities. The large-scale landslide susceptibility ratio is based on the data of major landslide area and dip
slope and rock slide areas. Totally 1,040 catchments are concerned and are classified into three levels, which are
high, medium, and low levels. The proportions of high, medium, and low levels are 11%, 51%, and 38%, individually.
This result represents the catchments with high proportion of protected objects or large-scale landslide
susceptibility. The conclusion is made and it be the base material for the slopeland authorities when considering
slopeland management and the further investigation.