Analysis of geometries of landslide dams in Taiwan

Yu-Shu Kuo*, Kun-Ting Chen*, Heng-Chih Wu*, Chjeng-Lun Shieh*
*Department of Hydraulic and Ocean Engineering, National Cheng Kung University, Tainan, Taiwan

ABSTRACT

Landslide dams are the one of most serious natural hazards in Taiwan. The failure of landslide dams may lead to a massive dam-break flood downstream. Landslide dams triggered by earthquake and rainfall resulted in different types of geometries and failure mechanisms. Geometries of landslide dams are the most important information involves in the dam stability. However, the geometries of natural dams cannot be obtained immediately through field instigations due to the remote location of landslide dams. Based on the data collected through field investigations in Taiwan, a prediction model is presented in this study to estimate the geometries of natural dams. The effects of triggered factors of landslide dams as earthquake and rainfall are considered in the model and the shape of natural dams can be presented as triangle or trapezoid. The results obtained from the proposed model shows good agreement with the landslide dam of Long-Chung River in Taiwan. Using the proposed model in this study, the geometries of landslide dam can be determined and be considered as the basic information in the preliminary stability analysis of natural dams.

KEY WORDS: Landslide dam, Natural Dam, Landslide Lake, Geometries