

Failure of landslide dam in centrifuge model test

*王 功輝¹

*Gonghui Wang¹

1. 京都大学防災研究所

1. Disaster Prevention Research Institute, Kyoto University

A series of centrifuge tests was performed to examine the failure mechanisms of landslide dams due to the increase of water level in the barrier lake. A model was designed to enable the control of flux to the barrier lake. In this model, soil samples taken from different landslide areas with different lithological backgrounds were used to construct the dam, which was sized 10 cm in height and 3 cm in crest width and had slopes in both the upper and down streams being 30 degrees. After consolidated under 50g, water was infilled to the upper stream of the dam to trigger failure within the dam. The test results showed that the dam could suffer from seepage-induced retrogressive sliding or overtopping-induced quick breaching. Detailed examination on the variation of pore-water pressure within the dam and the flux to the barrier lake revealed that the failure processes of the dam were mainly controlled by the permeability of the dam materials and also by the flux of inflow. Based on the monitored data, the critical hydraulic gradients for the occurrence of internal erosion and seepage-induced failure of landslide dams were also analyzed.

キーワード：天然ダム、決壊機構、遠心実験

Keywords: landslide dam, failure mechanism, centrifuge test