## An Experiment Study on Hydraulic Characteristics in the Dam Break due to Overtopping Flow

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Due to recent climate change, flood damages have been increased. The risk of failure in many hydraulic structures increased because of these extreme floods which exceed design floods. Especially, Floods caused by the dam breaks will cause great damage to people and properties. Therefore it is necessary to prevent these disasters by investigating of dam failure mechanisms.

The collapse of the dam was caused by several reasons. The significant portion of the cause of dam collapse was seepage and overtopping. In this study, the hydraulics characteristics in the dam break due to overtopping flow through laboratory experiments. An experiment study was performed in a flume of 15 m length, 5 m in width and 1.5 m in depth to investigate the alternation of collapsing width, period and aspect due to various inflow discharge and soil properties. The dam break model has a height of 1 m, has a base width of 4.3 m and is built on the middle of the flume 2 m in width. Generally, the major factors influencing the dam break phenomenon are compactness, soil properties and initial overtopping discharge. A series of experiments was performed by changing major factors.

Overtopping velocities on the crest of dam are an important parameter to analysis the instantaneous flow intensity to influence dam failures. However it is difficult to measure overtopping velocities because water levels change in times of dam break. So floating velocity meter was installed to measured overtopping velocities in variable water level. The collapsing process is recorded by a digital camcorder for a detailed analysis. The results of this experiment indicate that dam collapse period was shortened and a collapse width was broadened as initial overtopping discharge increase. Discharge hydrograph measured at the downstream of the dam to analyze hydraulic characteristics at the downstream in initial and after collapse.

In near future, more laboratory experiments will be conducted to provide better understanding hydraulic characteristics and verify numerical models from this study.



Figure 1. Experimental model set up

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