

## عنوان مقاله:

Experimental Study of Breaching of an Earthen Dam using a Fuse Plug Model

## محل انتشار:

ماهنامه بین المللی مهندسی، دوره 30، شماره 4 (سال: 1396)

تعداد صفحات اصل مقاله: 7

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## خلاصه مقاله:

Failure of dams due to overtopping is among the most frequent forms of embankment failures. Owing to massive and wide spread damage to structures and loss of lives associated with a dam failure, the subject has drawn the attention of scientists. The study also becomes essential for damage assessment and for development of early warning system of people downstream of the embankment. The rate of breaching of earthen embankments due to overtopping depends upon the soil and flow characteristics alike. Different input parameters that help in understanding the phenomenon are the temporal variation of initiation of the breach, breach width, breach depth, intensity of discharge and its time-to-peak. Present paper gives the results of laboratory investigation conducted using a wooden fuse plug and five different soils. The hydraulic conditions were kept same for all the experiments. It was observed that cohesiveness and degree of compaction were key factors in the erosion process. While for pure noncohesive soils, surface erosion occurred gradually, but for the cohesive soils, headcut erosion was observed. The behaviour of breach depends upon dimensions of fuse plug, type of fill material, reservoir capacity and inflow. A common equation has been fitted to the series of normalized breach flow hydrographs of different soils. The equation has a coefficient of correlation  $R^2$  equal to 0.8 indicating a good fit. Limited space of storage reservoir on the upstream of the embankment, and width of the flume are the limitations of the study.

## کلمات کلیدی:

Fuse Plug, Breach Flow, Hydrograph, Scaled Parameters

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/630390>

