DAM BREACH FLOOD ROUTING FOR A ROCK-FILL DAM ON GODAVARI RIVER

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Abstract: Drastic changes in geographical surface characteristics and meteorological characteristics lead to flash flood, whose magnitude if exceeds the capacity of spillways causes overtopping of embankment dams, resulting in the dam failure. When a dam fails, a large quantity of storage water is released to downstream, producing a flood wave which is capable of creating disastrous damage to the downstream people and property. Predetermination of flood wave characteristics along the downstream river reach is very much essential in mitigating such disasters. The Prediction of characteristics of dam-breach flood wave formation and the downstream propagation for all the existing and the future major dams located in the earthquake prone areas and regions of heavy rainfall is very much essential. Accordingly the down-stream developments can be controlled, the possible extent of inundation of downstream zone can be predicted and the emergency action plan can be formulated to mitigate the disaster. The present study aims to predict the characteristics of the flood wave like peak flood stage, peak flood discharge and their times of occurrence at different locations downstream in the river due to dam-breach, for a hypothetical dam-breach pattern for a rock-fill dam on the Godavari River. The effect of variation of duration of breach of dam on the outflow hydrographs is also studied. The National Weather Service Dam Break Flood Forecasting (DAMBRK) model has been used for the study and the results are discussed in terms of outflow hydrographs.

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