MODELING OF EARTH DAMS FAILURE

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Abstract

The safety of hydrotechnical structures is a very important element that must enter the concerns of designers and society in general, given the fact that these are important works , with large investments. In the case of their distruction due to accidents, other activities from the area, the settlements and human lives may be strongly affected. These accidents are called hydrological hazards. Breaking dams accidents do not occur suddenly but almost always there are signs of danger that would allow preliminary measures to limit or even avoid disasters. One of these measures may be modeling the failure of a dam. In order to model the behavior of a structure made of local materials discharghed by water over the crest or affected by water evacuation due to a breach in its body, it will be used Mike 11 mathematical model (hydrodynamic module). Its calibration is performed with the hydrological module Mike by DHI-NAM.
In the case of a breach development at the crest level, after recording the discharghe of the dam, the dam behavior must be addressed by specifying the breach slope at the initial moment and at the final one. The breach evolution in time is calculated from the moment it begins to develop. The description of the breach development can be made using Engelund-Hansen equations, which analyze sediment transport driven from the dam through the breach. The development of the breach can be specified as evolving over time or can be calculated based on sediment transport capacity in the gap formed.

Key words: dam, soil, modelling, discharge, breach, flood