



The Impulsive Force of Debris Flow on a Curved-Slit Dam

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Although sabo dams are efficient methods used in river and basin management, traditional sabo dams have a great impact on ecology and landscape. Moreover, such dams are hit and often damaged by great impulsive force when they block the flow of debris. Therefore, the forms of sabo dam deserve thorough investigation. In this study, a new form of slit dam was designed by changing the upstream-dam-surface geometric shape to reduce the impulsive force of the debris flow, with both enhanced stability and reduced need for concrete being the anticipated outcomes. In this study, the flume and laboratory facilities simulated the impulsive force of the debris flow to the slit dams. Various geometric forms, including vertical-, slant- and curved-slit dams, were used to determine the impulsive force. The results from experimental data clearly show that curved-slit dams were hit by less force than other dams under the same debris flow. In these, the impulsive force was balanced by the friction force of the sabo dam and the opposite force of the load cell behind the dam as it was hit by the debris flow.