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A study on the effect of a broken large sabo dam on the sediment transportation in channel – an example of Baling-sabo-dam

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To retard the sediment transportation and its effect on the reservoir, large sabo dams are built in the main channel of the reservoir watershed in Taiwan. Therefore, these large sabo dams affect upstream, downstream, and the reservoir significantly if the dam breaks. There was about 450 mm of rain fell in the reservoir watershed during typhoon Wipha that struck Taiwan on 17-19, September, 2007. This heavy rainfall caused the Baling-sabo-dam broken about 60 m of the upper Dahan Creek in the Shimen Reservoir watershed. The dam, built in 1977, is 38 m in height, 80 m in width, and is designed to reserve sediment materials about 10 million m3. The upper river bed was diminished maximum to 20 m in a month; the deposited and affected areas are unable to estimate and still required to be observed.

The main purpose of this paper is to analyze the topographic characteristic of the channel after the dam broke according to the topographic and surveyed data before and after the dam broke. The longitudinal profile and the cross section data show the effects to the channel after the dam break and the channel is able to classify in several sections. A simple comparison of the sediment discharge estimated from the hydrologic data with the topographic survey data is also analyzed.

Keywords:dam break, sabo dam, sediment discharge