

KAJIAN PENGELOLAAN SEDIMEN SUNGAI GENDOL PASCA ERUPSI MERAPI 2010

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ABSTRACT

Mount Merapi erupted again on the 25th, 26th and October 29th, 2010 and the largest eruption on the dawn of 5 November 2010. This eruption released material which was estimated at 40 million m³, in various forms, come to Gendol River. In Gendol River has built facilities sabo dam building as many as 22 dams until 2011, with a total storage capacity of 1.2 million m³. Of the gap between the supply of sediment and the ability of sabo dam construction, it is necessary to study the sediment management taking into account the existence of sabo dam.

Eruption affects a wide cross-section and increase the slope of the dynamic, so the sediment load in the sabo dam construction to increase, which exceeded the plan capacity of the sabo dams, both volume capacity due to pyroclastic flows suspended (VH1), Volume Control (Vc), Dead Storage Volume (Vds) and Volume which held at the bottom of the River (Vh2). The next impact is that runoff flowing entirely rainfall only, influenced by the volume of sediment transported triggers that go into upstream sabo dam construction (Vs). The cumulative value of Vs obtained along the river Gendol each return period, amounting 283,604.38 m³ (1y), 586,524.27 m³ (2y), 706,522.93 m³ (5thn), 776,826.32 m³ (10y), 857,879.77 m³ (25y), 913,663.71 m³ (50y) and 966,151.88 m³ (100y).

One of the non-structural efforts that have been done by the government in managing with floods of lava is the normalization. Definition of normalization in this paper is an attempt to capture sediments with the aim of restoring the function of sabo dam building, in the hold, accommodate and control sediment, no come to outward river and influence to disaster. The review was based on sediment balance formula Shimoda (1995) by using a variable normalization function sabo dam building and return period of rainfall. Normalization scheme consists of five scenarios, namely Natural / Without normalization, normalization on VH1, the Vc Normalization, Normalization at Vds, and Normalization on Vh2. While the plan uses a variation of return period, there are 1, 2, 5, 10, 25, 50 and 100 yr.

The review concluded that the normalization can be chosen as the technical structural engineering for sediment management. Furthermore, the re-normalization can be indicated from the intensity of rainfall and the amount of rain that occurred, with due regard to the circumstances that occurred in the field, related to rainfall, mining activities and conditions of sabo dam.

Keywords:

sediment management, sabo dam function, the normalization scheme