

The Possibility Hazards Mapping of Future Lahar on Merapi Volcano

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Post Merapi volcano eruption 2010 were issued 130 million m³ of material pyroclastic flow destroyed 9 hamlet in Sleman district, the secondary affect was lahar occurred, threatened lives, destroy settlements and infrastructure damage. In the rainy season period November 2010 - July 2011 was 88 times lahar occurred, 13 of them destroyed the settlements, damaging farmland and infrastructure. Residents of 18 villages have to evacuate, 381 household must live in shelter, 742 houses damage, 2500 hectares of farmland and 200 hectares of rice fields buried in material of lahar, 13 schools, 22 bridges and 77 Sabo Dam badly damaged (BNPB, 2011). Base on survey, potentially of lahar is still high. That material deposit is about 100 million m³ in 2010-2011 and in the last 2012 it left about 77 million m³ and spreading out 12 rivers of Merapi volcano. The most of potential lahar material in Gendol river in Sleman district, but the most of lahar event occurred in Putih river and Pabelan river in Magelang District. Based on lahar event on 2010-2011, Geological Agency have done mitigation effort to reduce the risk impact of future lahar both casualties and property loss. One of effort is lahar modeling which supported by the software LAHARZ and Lidar DEM data with accuracy about 30 cm and also the volume of lahar deposit that obtained from survey. These parameters used as a basis to create potential of lahar hazard and inundation zones. Based on the result of model lahar in Putih river - Blongkeng river have the most overbank areas (12,121,754 km²) than 12 other rivers. The number of potentially area affected by lahar model have 8 villages consist of 42 hamlets, while the potentially area affected by lahar model around Gendol river have (7,121,638 km²) threat of 6 villages 12 hamlets. Actually in the lahar events in 2010 - 2011, Putih river have 19 times event and threated 8 villages consist of 42 hamlets, while the lahar event around Gendol river occurred 7 times and threated 5 villages consists of 19 hamlets. The result of lahar model showed that range of distance the lahar flow modeling in Putih river about 19.2 km and Gendol river about 22,3 km. While the number of overbank areas in Putih river 16 location more than Gendol river which have 12 location.