EVALUASI RISIKO RUNTUHAN BATUAN
DI SEBAGIAN DUSUN GUNUNG KELIR
KECAMATAN GIRIMULYO KABUPATEN KULONPROGO

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ABSTRACT

The 27 May 2006 Yogyakarta earthquake hitting Yogyakarta area turns out to be the background of this research. The earthquake resulted in rock cracking on the top of Mount Sebentar and Mount Bambu Surat of Gunung Kelir sub-village, Jatimulyo village, Girimulyo sub-district and during the development going on they are able to apart from their main rocks. The present research aims to analyze the hazard level of rockfall in some of Gunung Kelir sub-district, residents' susceptibility level and land use with rockfall hazard risk, to evaluate the hazard levels of rockfall in some of Gunung Kelir sub-district and to decide alternative solutions of mitigating the risk of rockfall .

Field direct survey was used in this research, while data analysis was conducting through the use of Geographic Information System (GIS) software. Rockfall risk assessment was used by using the Bakornas' equation, where combination between hazard parameters such as parameters of slopes, of distance sloop feet, of boulder density and the parameter of fall direction with risk elements such as parameters of land use and population density in the area. Results of the combination, then, are related to the capacity aspect that the Gunung Kelir sub-villagers have as divider value. The risk levels of this area are classified into five: extremely high, high, moderate, low and extremely low.

The stereographic analysis found that the direction of rock mass fall on the Mount Bambu Surat and Mount Sebentar were N 103,5° E and N 105° E, respectively. At the research site, it was found that 6,7,15,13,59% of the area were classified as the risk levels of extremely high, high, moderate, low, extremely low, respectively. Results of questionnaires indicated that population capacity to encounter rockfall hazard was extremely high, i.e. 54%. Results of overlay on all risk parameters showed that 7 houses inhabited by 22 persons were classified in extremely high risk, 4 houses inhabited by 4 persons were classified in high risk, 15 houses inhabited by 54 persons were classified in moderate risk, 13 houses inhabited by 51 persons were classified in low risk and no house was classified in extremely low risk toward rockfall hazard. Four efforts can be conducted to mitigate rockfall risks, namely (1) physical engineering such as building safety berms along the predicted direction of rockfall, (2) cultivating plants with hard stems, (3) relocating resident houses of the high and moderate risk sites into safer area (4) developing early warning system at the sites through resident involvement.

Keywords : *Risk, Rockfall, GIS, Rock Ma*ss