ABSTRACT

On November 3rd, 2014, a boulder generated from the west slope of Ratu Boko Sites destroyed a house located on the hillside of the slope. Even this area is vulnerable to the slope failure hazard, 4 cottages are planned to construct within this area. Therefore, the potential hazard should be mapped to restrict the new development for housing and other infrastructures.

The first step was determining the hazard area. Based on the Guideline for Development of Warning and Evacuation System Against Sediment Disasters in Developing Countries proposed by Ministry of Land, Infrastructure and Transport, Japan, hazard area are classified into two categories regarding their vulnerability—yellow zone and red zone. After classifying the area, this information are plotted to the Digital Elevation Model to create the slope failure potential hazard map. Once the designed potential hazard map is valid, the cottages located near the edge of slope should be evaluated whether the soil and rock layer could support the structures.

The result showed that the research area consist of yellow zone and red zone. Cottage 1, a residential house, and Cottage 4 are lying on the yellow zone. Fortunately, there was no infrastructure constructed within the red zone. Although some infrastructures are lying on the yellow zone, the bearing capacity of foundation located near the edge of the slope is satisfied which means that the soil and rock layer beneath the structure can reasonably support the cottage's structure.

Keywords: Slope failure, hazard map, bearing capacity