

RINGKASAN

Bencana gerakan tanah atau umumnya disebut bencana tanah longsor memiliki tingkat kejadian dan ancaman tinggi di Indonesia. Berdasarkan laporan Pusat Pengendalian Operasi (Pusdalop) BPBD Provinsi Bali tahun 2010-2014, persentase kejadian tanah longsor dari kabupaten tiga urutan terbanyak terjadi di Kabupaten Buleleng dengan persentase kejadian sebesar 36,5%. Kabupaten Tabanan dengan persentase kejadian sebesar 18,25%, dan Kabupaten Bangli dengan persentase kejadian sebesar 16,79%, kejadian bencana ini selalu meningkat setiap tahunnya.

Penilaian terhadap ancaman gerakan tanah secara komprehensif dilakukan dalam dua tahap kajian yaitu: aspek tinjauan makro dan aspek tinjauan mikro. Aspek tinjauan makro, kajian dilakukan di Kabupaten Buleleng, Kabupaten Tabanan dan kabupaten Bangli dengan hasil gambar peta ancaman gerakan tanah di Bali, dengan tujuh aspek fisik alami dengan metode pembobotan Permen PU No.22/PRT/M/2007 dan *Analytic Hierarchy Process* (AHP), serta metode deterministik dengan SINMAP2. Hasil kajian menunjukkan bahwa metode AHP dengan pembobotan, 20% untuk kemiringan lereng, 14% untuk kondisi batuan, 14% untuk batuan penyusun lereng, 15% untuk curah hujan, 20% untuk tata air lereng, 10% untuk kegempaan, dan 7% untuk vegetasi, memberikan pengujian paling akurat sebesar 74,29% kejadian longsor.

Aspek tinjauan mikro penelitian dilaksanakan di Kabupaten Buleleng pada Kecamatan Sukasada (Desa Pancasari dan Desa Gitgit) dan Kecamatan Sawan (Desa Lemukih dan Desa Sekumpul). Penelitian dilakukan untuk mengetahui pengaruh infiltrasi air hujan terhadap nilai angka keamanan dan ancaman gerakan tanah. serta batuan penyusun lereng. Nilai angka aman pada intensitas hujan harian 48,2–49,1 mm/hari tertinggi pada durasi hujan 9–13 hari, sebesar 2,65–1,82. Intensitas hujan tertinggi 87,32–92,27 mm/hari pada durasi 6–7 hari angka aman sebesar 2,1–1,39. Intensitas curah hujan harian 155,375–210,114 mm/hari tertinggi pada durasi 6 hari, nilai angka aman sebesar 1,79–1,03. Analisis batuan menunjukkan bahwa stratigrafi pulau Bali terdiri dari endapan Vulkanik Subaerial yang meletus di zaman Kuartar terjadi pelapukan batuan pada kedalaman 2-4 m. Pelapukan batuan vulkanik dangkal berupa breksi vulkanik yang ditutupi lapisan tanah lempung atau lanau dengan campuran organik terdapat pada ketinggian 500-2000 mdpl dengan kemiringan lereng antara 21%-40% memiliki tingkat ancaman tinggi sampai sangat tinggi.

Lapisan tanah yang terbentuk dan menutupi batuan vulkanik seperti halnya daerah rawan longsor di Provinsi Bali, dan penilaian ancaman gerakan tanah dengan metode pembobotan pada empat parameter kajian yaitu; 37% untuk kemiringan lereng, 26% untuk kondisi geologi regional, 27% untuk curah hujan dan 10% untuk infiltrasi. Keakuratan sebesar 90% persentase bobot ini, direkomendasikan dapat diterapkan di seluruh Indonesia, karena sebagian besar kepulauan dilintasi oleh cincin api, sehingga memiliki kemiripan karakteristik batuan penyusun.

Kata Kunci: *pemetaan, pembobotan, AHP, SINMAP, infiltrasi, batuan vulkanik*

ABSTRACT

Soil movement disaster or commonly called landslide disaster has high incidence and hazard in Indonesia, because of its area many mountain areas as fire ring trajectory and tropical climate with storm rainfall. Based on the report of Center for Operation Control (Pusdalop) BPBD Province of Bali in 2010-2014, the percentage of landslide occurrence of the three most-order district occurred in Buleleng District with the incidence percentage of 36.5%. Tabanan Regency with the interest of events of 18.25%, and Bangli District with an incidence percentage of 16.79%, the incidence of this disaster always increases every year.

A comprehensive assessment of the soil movement hazard was undertaken in two stages of review: the macro review aspect and the micro review aspect. Aspect of macro review. The research area was located in the Buleleng district, Tabanan districts and Bangli districts with the result of the map of the hazards of soil movement of the land in Bali, with seven physical aspects of nature with weighted method of PU Regulation No.22/PRT/M/2007 and Analytic Hierarchy Process (AHP), as well as a deterministic method with SINMAP2. The weightings of soil movement trigger parameters in assessments showed that the AHP method were based on natural physical aspects: (1) slope inclination = 20%; (2) rock weathering = 14%; (3) geological structure = 14%; (4) rainfall = 15%; (5) groundwater potential = 20%; (6) seismicity = 10%; (7) vegetation = 7%, providing the most accurate validation of 74.29% of landslide events.

The micro review aspect of the research was located in Buleleng District, Sukasada Sub-District (Pancasari Village and Gitgit Village) and Sawan Sub-District (Lemukih Village and Sekumpul Village). The study to determine the effect of rainfall infiltration on the value of safety factor and the hazard of soil movement. As well as slope constituent rocks. The value of the safety factor at rain intensity 48.2-49.1 mm/day highest rainfall in the duration of rain 9-13 days, the safety factor equal to 2.65-1.82. Highest rainfall 87,32-92,27 mm/day in duration 6-7 day safety factor equal to 2,1 -1,39. Highest rainfall 155,375-210,114 mm/day in duration 6 days, safety factor value equal to 1,79-1,03. Rock analysis shows that Bali island stratigraphy consists of Subaerial volcanic deposits erupting in Quaternary periods of rock deposition at 2-4 m depth. Decomposition of shallow volcanic rocks in the form of volcanic breccias covered by layers of clay or silt with the organic mixture is present at an altitude of 500-2000 mswl with a slope of between 21% -40% having a high to very high hazard level.

Soil layers that form and cover the volcanic rocks as well as landslide-prone areas in Bali Province, and the assessment of soil movement hazard by weighting trigger parameters methods in assessments showed that namely; 37% for slope, 26% for regional geology, 27% for rainfall and 10% for infiltration. The accuracy of 90% of this weight percentage, is recommended to be applicable throughout Indonesia, as rings of fire cross most islands, thus having similar characteristics of constituent rocks.

Keywords: *mapping, weighting, AHP, SINMAP, infiltration, volcanic rocks*