

INTISARI

Kejadian gerakan massa tanah di Indonesia meningkat seiring dengan datangnya musim hujan. Banyaknya kejadian bencana tersebut dapat menyebabkan korban jiwa dan kerugian. Sebagai tindakan awal mitigasi bencana perlu dilakukan pemetaan kerawanan gerakan tanah dan mengetahui penyebab dominannya. Penelitian ini bertujuan untuk menentukan tingkat kerawanan gerakan tanah di Kecamatan Rembang dan mengkaji mekanisme gerakan tanah di lereng Sungai Bodas, Desa Sumampir. Tingkat kerawanan gerakan tanah dipetakan menggunakan pendekatan *Analytic Hierachy Process* (AHP) dengan parameter kelerengan, litologi, kelurusan, sungai, dan kegunaan lahan serta dengan investigasi lapangan tentang jenis gerakan tanah. Selanjutnya pada area yang memiliki tingkat kerawanan tinggi (Desa Sumampir) dipilih untuk dilakukan analisis lanjutan mengenai mekanisme gerakan tanah yang terjadi. Faktor dominan penyebab gerakan tanah di Desa Sumampir diperhitungkan berdasarkan kondisi geologi dan bentang alam, faktor kondisi tanah, pengaruh perubahan muka air tanah pada kedalaman 1 sd 4 meter di bawah permukaan tanah, dan pengaruh pembasahan hujan selama tujuh hari. Pemodelan dilakukan menggunakan metode *limit equilibrium* dengan bantuan perangkat Geostudio 2012, menghitung keadaan stabilitas lereng yang ditentukan dengan nilai faktor aman. Peta kerawanan gerakan tanah menghasikan persentase wilayah dengan kerawanan tinggi sebesar 12,04%, kerawanan menengah 41,80%, kerawanan rendah 42,78%, dan sangat rendah 3,39%. Hasil analisis longsor menunjukkan bahwa gerakan tanah di lereng S. Bodas termasuk dalam longsoran rotasional, bidang longsor lengkung, jenis tanah penyusun lereng tidak kohesif, terlapukkan sempurna, dan memiliki plastisitas tinggi. Kondisi muka air tanah berada pada kedalaman empat meter di bawah permukaan tanah. Secara kualitatif keadaan longsor di Desa Sumampir teramati berada pada kelok Sungai Bodas sehingga erosi tebing dapat mempengaruhi terjadinya longsoran. Stabilitas lereng akan terganggu pada perubahan muka air tanah diatas dua meter dari permukaan tanah dengan nilai faktor aman $<1,07$. Pengaruh pembasahan hujan selama tujuh hari menyebabkan menurunnya stabilitas lereng, nilai faktor aman menunjukkan keadaan lereng tidak stabil yaitu sebesar 1,188.

Kata kunci: AHP, longsor, *limit equilibrium*, mitigasi.

ABSTRACT

The occurrence of land mass movements in Indonesia increases with the arrival of the rainy season. Many of these disasters can cause casualties and losses. As an initial measure, disaster mapping needs to be done to map the vulnerability of land movements and find out the dominant causes. This study aims to determine the level of soil movement vulnerability in Rembang District and examine the mechanism of soil movement on the slopes of the Bodas River, Sumampir Village. The level of soil movement vulnerability is mapped using the Analytic Hierachy Process (AHP) suppressor with slope, lithology, alignment, river, and land use parameters as well as with field investigations on the type of soil movement. Furthermore, in areas that have a high level of vulnerability (Sumampir Village), a further analysis on the mechanism of soil movement that was chosen was selected. The dominant factors causing soil movements in Sumampir Village are calculated based on geological and landscape conditions, soil condition factors, the effect of changes in groundwater level at depths of 1 to 4 meters below the surface of the land, and the effect of rain wetting for seven days. Modeling is done using the limit equilibrium method with the help of the Geostudio 2012 device, calculating the stability of the slope stability determined by the safety factor value. Map of soil movement vulnerability yields percentage of areas with high vulnerability at 12.04%, medium hazard at 41.80%, low hazard at 42.78%, and very low at 3.39%. The results of the landslide analysis showed that the movement of the soil on the slopes of the Bodas River was included in rotational landslides, curved landslide fields, the type of soil that made up the slope was not cohesive, perfectly weathered, and had high plasticity. Groundwater conditions are at a depth of four meters below the surface of the land. Qualitatively, landslides in Sumampir Village were observed to be in the curve of Bodas River so that the erosion of the cliffs could affect the occurrence of landslides. Slope stability will be disturbed by changes in ground water level above two meters from the ground surface with a safety factor value <1.07 . The effect of rain wetting for seven days causes a decrease in slope stability, the value of the safety factor indicates an unstable slope that is 1,188.

Keywords: AHP, landslide, *limit equilibrium*, mitigation.