

SARI

Geologi Dan Analisis Kerentanan Gerakan Tanah

Menggunakan Metode *Weight of Evidence* (Woe) Daerah Kalikesur Dan Sekitarnya,
Kecamatan Kedungbanteng, Kabupaten Banyumas, Jawa Tengah

Berdasarkan dari data Pusat Vulkanologi dan Mitigasi Bencana Geologi (PVMBG), sepanjang tahun 2019 bencana alam gerakan tanah di Indonesia tercatat sebanyak 1.065 kejadian. Beberapa faktor yang menyebabkan terjadi gerakan tanah yakni topografi, iklim, litologi, aktivitas tektonik, dan pemanfaatan tata guna lahan yang buruk. Minimnya pengetahuan masyarakat tentang zonasi kerentanan gerakan tanah berdampak minimnya kewaspadaan akan tanggap bencana, sehingga perlu adanya analisis zonasi kerentanan gerakan tanah. Dalam melakukan zonasi permasalahan geografis dapat menggunakan Sistem Informasi Geografis (SIG) yang mempunyai keunggulan mudah dilakukan secara berulang, kontinu, cepat, dan akurat. Penelitian berada di daerah Desa Kalikesur dan sekitarnya, sebuah daerah di Kecamatan Kedungbanteng Kabupaten Banyumas yang rawan gerakan tanah karena topografi daerahnya relatif tinggi, litologi tersusun dari produk vulkanik yang belum mengalami kompaksi intens. Penelitian ini bertujuan untuk mengetahui zonasi kerentanan gerakan tanah daerah penelitian menggunakan metode pengamatan langsung dan analisis spasial statistik. Pengamatan langsung berupa pemetaan geologi serta mencari titik kejadian gerakan tanah, sedangkan analisis spasial statistik berupa pembobotan enam parameter yang mempengaruhi gerakan tanah menggunakan metode statistik *bivariate* yakni *Weight of Evidence* (WoE) dan melakukan validasi untuk mengetahui nilai *Area Under Curve* (AUC). Terdapat 61 kejadian gerakan tanah kemudian membagi menjadi dua kelompok data, 70% berguna sebagai *set data* analisis untuk penyusunan model dan 30% berguna sebagai *set data* validasi untuk pengujian model. Urutan satuan geologi dari tertua yakni, Satuan Intrusi Andesit, Satuan Breksi Vulkanik, Satuan Lava Andesit, dan Satuan Tuf. Urutan parameter yang mempunyai pengaruh tinggi terhadap gerakan tanah yakni tata guna lahan, struktur, arah lereng, jarak dari sungai, kemiringan lereng, dan litologi. Hasil validasi dan pengujian model mempunyai *success rate* dengan nilai AUC 0,800 dan *prediction rate* dengan nilai AUC 0,613 menandakan model kerentanan gerakan tanah adalah baik/cukup dan dapat diterima. Persebaran zonasi gerakan tanah terbagi menjadi 4 yakni, potensi sangat rendah sebesar 9,28% pada bagian utara daerah penelitian, potensi rendah menempati menyebar pada daerah penelitian sebesar 15,67%, potensi sedang merupakan zona yang paling luas areanya sebesar 38,48% daerah penelitian dengan letak dominan berada di arah utara, dan terakhir potensi tinggi mempunyai luasan area 36,57% daerah penelitian, dominan berada diarah barat laut.

Kata kunci: Gerakan Tanah , Kedungbanteng, *Weight of Evidence*, Zonasi kerentanan.

ABSTRACT

Geology And Landslide Susceptibility Analysis

Using The Weight Of Evidence (Woe) Method In Kalikesur And Surrounding,
Kedungbanteng Subdistrict, Banyumas District, Central Java

Based on the data of the volcanology and geological Disaster Mitigation (PVMBG), the year 2019 natural disasters of landslides in Indonesia were recorded as many as 1,065 events. Some factors that cause ground motion include topography, climate, lithology, tectonic activity, and the utilization of poor land use. The lack of public knowledge of the zoning vulnerability of landslide had a lack of alertness for disaster response, which required the analysis of landslide vulnerability zoning. In the zoning geographical problems can use geographic information systems (GIS) which have an advantage to be done repeatedly, continuously, quickly and accurately. Research is located in the area of the village of Kalikesur and surrounding areas, a district in the district Kedungbanteng Banyumas district that is prone to the movement of the land because of its relatively high topographical area, litology is composed of volcanic products that have not experienced any intense compresses The study aims to find out the vulnerability zoning susceptibility of ground area studies using direct observation methods and statistical spatial analysis. Direct observation of geological mapping as well as finding the incidence point of landslide, while spatial analysis of statistics in the form of weighted six parameters affecting the movement of soil using bivariate statistical method of Weight of Evidence (WoE) and performing validation to know the value of Area Under Curve (AUC). There were 61 landslide events then split into two data groups, 70% useful as an analysis data set for model drafting and 30% useful as a validation data set for model testing. The oldest sequence of geological units is the Andesite intrusion Unit, volcanic breccia Unit, andesite Lava unit, and Tuf unit. The order of the parameters that have a high influence on landslide is land use, structure, direction of slope, distance from the river, slope slopes, and lithology. The results of the validation and testing of the model has a success rate with AUC value 0.800 and prediction rate with AUC 0.613 value indicating the vulnerability of soil movement is good/adequate and acceptable. The spread of landslide zoning is 4, namely, the potency is very low by 9.28% in the northern part of the research area, the low potential occupies a research area of 15.67%, the medium potential is the most widespread zone area of 38.48% of the research area with the dominant position in the north, and the last high potential is having a space of 36.57% The research area, dominant in the northwest.

Keywords: Landslide Suceptibility, Kedungbanteng, Zoning Vulnerability, Weight of Evidence.