

GEOLOGI DAN STUDI KAWASAN RAWAN BENCANA LONGSOR BERBASIS SISTEM INFORMASI GEOGRAFIS KECAMATAN KAJORAN, KABUPATEN MAGELANG, PROVINSI JAWA TENGAH

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ABSTRAK

Lokasi penelitian secara administratif berada di Kecamatan Kajoran, Kabupaten Magelang, Provinsi Jawa Tengah. Luas kavling penelitian yaitu 5x5 km (25km²) dan secara geografis terletak pada koordinat X max 400300 Y max 9168908 dan koordinat X min 395300 Y min 9163908 (UTM 49S). Berdasarkan data BNPB Kabupaten Magelang Tahun 2021, tercatat hujan deras diiringi dengan tanah longsor terjadi 15 kali di Kecamatan Kajoran. Dari adanya data kejadian longsor tersebut, pemetaan bahaya tanah longsor diperlukan.

Daerah penelitian memiliki 2 pola pengaliran yaitu Subdendritik dan Trellis. Bentuk lahan yang dijumpai yaitu Tubuh Sungai (F1), Dataran Alluvial (F2), Perbukitan Denudasional (D1) dan Bukit Sisa (D2). Stratigrafi daerah penelitian dibagi menjadi 5 satuan dari tua ke muda, yaitu Satuan Breksi Piroklastik Kaligesing (Oligosen Akhir-Miosen Awal), Satuan Lapili Kaligesing (Oligosen Akhir-Miosen Awal), Satuan Tuff Sumbing Tua (Pleistosen), Satuan Tuff-Lapili Sumbing Muda (Pleistosen) dan Satuan Endapan Alluvial (Holosen).

Dari hasil perhitungan indeks bencana, didapatkan nilai terendah 0,36986 dan nilai tertinggi 0,74096. Nilai tersebut kemudian dibagi menjadi 4 interval indeks ancaman bencana longsor, yaitu tingkat sangat rendah (0,36986-0,46263), tingkat rendah (0,46264-0,55541), tingkat sedang (0,55542-0,64819) dan tingkat tinggi (0,64820-0,74096).

Daerah penelitian dengan tingkat bahaya sangat rendah berada di Desa Krasak dan sekitarnya, tingkat bahaya rendah berada di Desa Wuwuhrejo, Kajoran, Bumiayu dan Madugondo, tingkat bahaya sedang berada di Desa Wonogiri dan Margoyoso, dan daerah dengan tingkat bahaya tinggi di Desa Sidomukti, Bambusari, Kuwaderan, Ngargosari, Ngasinan, Sambak, Kaliabu dan Wuwuhrejo.

Kata Kunci : Tanah Longsor, SIG, Skoring, Pembobotan, Analytical Hierarchy Process

ABSTRACT

The study area is administratively located in District Kajoran, Magelang Regency, Province of Central Java within the area of 5x5 km (25km²). The geographic location of this area is located on coordinate X max 400300 Y max 9168908 and X min 395300 Y min 9163908 (UTM 49S).

Based on the determination of flow patterns and river classifications refers to van Zuidam (1983), the study area has 2 characteristic of drainage flows, those are Subdendritic (SDN) and Trellis (TRL) patterns. This area geomorphologically consists rivers (F1), alluvial plateau (F2), dissected denudational hills (D1) and isolated hillock (D2). District Kajoran mainly composed by Tertiary rocks which are part of Kulon Progro Hills Stratigraphy, as known as Old Andesite Formation (OAF) and also composed by Sumbing Formation. The oldest rock units to the youngest age that forms this study area are Piroclastic Breccia of Kaligesing (Late Oligocene – Early Miocene), Lapili of Kaligesing (Late Oligocene – Early Miocene), Tuff of Old Sumbing (Pleistocene), Tuff-Lapili of Sumbing (Pleistocene), and Alluvium Deposits (Holocene).

The result of disaster risk index calculation shows the lowest score at 0,36986 and the highest is 0,74096. Afterward, the index will be divided into 4 range of disaster risks, those are very low (0,36986-0,46263), low (0,46264-0,55541), medium (0,55542-0,64819) and high (0,64820-0,74096). The area that is considered as in a very low risk area is located in Krasak Village, area with low risk are located in Wuwuhrejo, Kajoran, Bumiayu and Madugondo Villages, area with medium risk are located in Wonogiri and Margoyoso Villages, and area with high risk are located in Sidomukti, Bambusari, Kuwaderan, Ngargosari, Ngasinan, Sambak, Kaliabu and Wuwuhrejo Villages.

Keyword : Mass Movement, GIS, Scoring, Weighting, Analytical Hierarchy Process