

INTISARI

Longsor merupakan salah satu bencana yang paling sering terjadi di Kabupaten Magelang. Mayoritas kejadian longsor di Kabupaten Magelang merupakan longsor yang dipicu oleh hujan. Tujuan dari penelitian ini antara lain: 1) Menyusun peta dan basis data spasial inventaris longsor Kabupaten Magelang; 2) Menganalisis kondisi kerawanan longsor di Kabupaten Magelang berdasarkan tipologi jenis longsor; dan 3) Menganalisis implementasi atau peran peta kerawanan berdasarkan tipologi dalam menentukan langkah mitigasi bencana longsor di Kabupaten Magelang. Peta inventaris longsor disusun dari hasil digitasi poligon inventaris longsor menggunakan *Google Earth Image* dan survei lapangan. Kondisi kerawanan longsor berdasarkan tipologi disusun berdasarkan pemodelan kerawanan longsor dengan Regresi Logistik. Sementara itu, implementasi peran peta kerawanan longsor diketahui dari hasil wawancara pihak BPBD Kabupaten Magelang. Hasil inventarisasi longsor menghasilkan sebanyak 715 data titik longsor yang terdiri atas 631 longsor translasional, 71 longsor rotasional, dan 13 titik longsor jatuhan. Pemodelan kerawanan longsor dilakukan menggunakan data longsor secara keseluruhan dan berdasarkan tipologi longsor serta sebelas faktor pengontrol longsor yang terdiri dari elevasi, kemiringan lereng, penggunaan lahan, geologi, jarak sungai, jarak jalan, TWI, SPI, *plan curvature*, *profile curvature*, dan arah hadap lereng. Hasil pemodelan menunjukkan bahwa faktor pengontrol longsor yang memiliki pengaruh cukup besar untuk tipe rotasi dan translasi adalah jarak terhadap jalan, *profile curvature*, *plan curvature*, dan kemiringan lereng. Sementara itu, longsor tipe jatuhan memiliki faktor pengontrol yang kuat pada *plan curvature*, *profile curvature*, dan kemiringan lereng. Secara keseluruhan, faktor penggunaan lahan, jarak terhadap jalan, dan kemiringan lereng merupakan faktor dominan dalam mempengaruhi kejadian longsor. Hasil uji akurasi dengan nilai AUC (*Area Under Curve*) pada pemodelan kerawanan longsor menggunakan data longsor dengan tipologi rotasi, translasional, jatuhan dan keseluruhan data secara berurutan memiliki nilai 0.84, 0.69, 0.44, dan 0.71. Nilai uji akurasi tersebut dipengaruhi oleh jumlah data titik longsor. Peta kerawanan longsor berdasarkan pemisahan tipologi dalam implementasinya saat ini belum dilibatkan dalam pertimbangan pengambilan keputusan mitigasi longsor di Kabupaten Magelang. Akan tetapi, hasil pemetaan kerawanan longsor dapat menunjukkan rekomendasi lokasi mitigasi yang perlu dilakukan, baik mitigasi struktural berupa pemasangan EWS (*Early Warning System*) dan penanaman rumput vetiver, maupun mitigasi non struktural berupa pembentukan DESTANA (Desa Tangguh Bencana) dan kegiatan sosialisasi lainnya.

Kata kunci: longsor, inventarisasi, pemodelan, kerawanan, regresi logistik, mitigasi.

ABSTRACT

Landslide is one of the most frequent disasters in Magelang Regency. The landslides in Magelang regency were mostly triggered by rainfall. The objectives of this study are: 1) to create a landslide inventory map as landslide inventory database in Magelang Regency; 2) to analyze landslide susceptibility in Magelang Regency based on its typology; and 3) to analyze the implementation of landslide susceptibility map based on typology in determining landslide disaster mitigation procedure in Magelang Regency. The landslide inventory map represented by landslide polygon was compiled based on Google Earth Image interpretation and field surveys. Landslide susceptibility modeling with Logistic Regression was simulated based on all landslide data and based on different landslide typology. Meanwhile, the implementation of landslide susceptibility map based on its typology is known from the results of interviews with the BPBD of Magelang Regency. Landslide inventory resulted 715 landslide data consisting of 631 translational landslides, 71 rotational landslides, and 13 falling landslides. Landslide susceptibility based on its typology was compiled based on landslide susceptibility modelling using Logistic Regression. Landslide susceptibility modeling was carried out using eleven landslide control factors consisting of elevation, slope, landuse, geology, distance to river, distance to road, TWI, SPI, plan curvature, curvature profile, and aspect. The rotational and translational landslide were mostly influenced by distance to the road, profile curvature, plan curvature, and slope. Meanwhile, fall landslide has a strong controlling factor on the plan curvature, profile curvature, and slope. Overall, land use factors, distance to the land, and slope were the dominant factors in influencing the occurrence of landslides. The accuracies of landslide susceptibility model based on rotational, translational, fall typology and all landslide were 0.84, 0.69, 0.44, and 0.71 respectively. The accuracy was influenced by the number of landslide data. The landslide susceptibility map based on its typology is currently not considered in the landslide mitigation strategies in Magelang Regency. However, the landslide susceptibility maps based on the landslide typology can be used to determine the appropriateness of particular mitigation strategies such as installing EWS (Early Warning System) , planting vetiver grass, DESTANA (Desa Tangguh Bencana) formation and other socialization activities in an area.

Keywords: landslide, inventory, susceptibility, modeling, logistic regression, mitigation.