

INTISARI

Identifikasi Bidang Gelincir Menggunakan Metode Vertical Electrical Sounding Di Saluran Irigasi Km 15,9 Kalibawang, Kulon Progo

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Pegunungan Kulon Progo merupakan daerah yang sering mengalami tanah longsor. Tanah longsor tersebut telah menyebabkan banyak kerugian bagi penduduk yang bermukim disana. Salah satu daerah yang rawan berada di Km 15,9 Saluran Irigasi Kalibawang, Kulon Progo, Yogyakarta. Ditemukan banyak retakan sistematis dan amblesan pada bangunan SDN Mejing yang berlokasi di daerah ini. Jenis pergerakan tanah pada lokasi ini berupa rayapan tanah (*creep*). Aktivitas rayapan tanah di daerah ini dikontrol oleh faktor hidrologi, morfologi, litologi serta struktur geologi. Dalam penelitian ini dilakukan identifikasi mengenai posisi dan bentuk bidang gelincir dengan menggunakan metode geolistrik *Vertical Electrical Sounding* (VES).

Tujuan penelitian ini yaitu mengetahui daerah yang berpotensi mengalami longsor dan memetakannya dengan melakukan analisis terhadap bidang gelincir. Data yang digunakan yaitu data hasil pengukuran VES. Data tersebut kemudian diolah agar diperoleh model kedalaman bidang gelincir. Model kedalaman ini selanjutnya dikorelasikan dengan menggunakan software Surfer untuk mendapatkan model 3D geologi di daerah penelitian.

Hasil penelitian ini berupa model 3D geologi yang menunjukkan perlapisan litologi bawah permukaan yang dibuat berdasarkan beda nilai resistivitasnya. Model ini juga dapat menunjukkan batas perlapisana antara endapan lepas dengan batuan dasar yang lebih dikenal sebagai bidang gelincir. Daerah rawan longsor dapat diketahui melalui analisis terhadap kemiringan bidang gelincir ini. Pada daerah ini, area yang cukup rawan longsor berada di sisi utara area penelitian dengan kemiringan bidang gelincir $\pm 28^{\circ}$ kearah timur laut. Arah pergerakan longsor di area ini berarah timur laut mengikuti arah kemiringan bidang gelincir dan kemiringan lerengnya.

Kata kunci: resistivitas, *Vertical Electrical Sounding*, longsor, rayapan tanah, bidang gelincir, batuan dasar (*bedrock*).

ABSTRACT

Identification Of Slip Surface Using Vertical Electrical Sounding Method In Km 15.9 Of Kalibawang Irrigation Channel, Kulon Progo

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The Kulon Progo mountains was frequently occurred landslides. These natural disasters had caused much financial loss to local residents. One of the areas that are prone to these natural disaster was located at Kalibawang's Irrigation Channels kilometers 15,9, Kulon Progo, Yogyakarta. There were many cracks and sinks on the building area of SDN Mejing which was located in this area. Type of ground movement at this location was land-creep. Land-creep activity in this area were controlled by the hydrological factors, morphology, geological structure, and lithology. Research was conducted by the identification of the position and shape of the slide field by using the geoelectric method of Vertical Electrical Sounding (VES).

The purpose of the research was to identificate the areas with landslides potential and map the potential landslide area by conducting analysis of slip surface. The data used in the analysis was measurement results of VES. The data then processed to retrieve the model of depth of slip surface. The depth model then got correlated using Surfer software to obtain 3D models of geology in the research area.

The results of this research in the form of a 3D geological model that shows subsurface lithology layer based on difference of resistivity value. This model could also show the limits of layer between the loose sediment with bedrock known as the slip surface. Landslide-prone areas can be revealed through analysis of slip surface's slope. In this area, the area that quite prone to landslide was located in the north side of research area with the slope of the slide field $\pm 28^{\circ}$ towards the Northeast. The direction of movement of the landslide in this area towards Northeast direction follows the direction of the slope of slip surface and the slope of the area.

Keywords: resistivity, Vertical Electrical Sounding, landslide, land-creep, slip surface, bedrock.