INTISARI

IDENTIFIKASI POTENSI TANAH LONGSOR DENGAN INTEGRASI METODE SEISMIK REFRAKSI DAN UNMANNED AERIAL VEHICLE (UAV) FOTOGRAMETRI DI DESA BANJARSARI, KECAMATAN SAMIGALUH, KABUPATEN KULONPROGO, DAERAH ISTIMEWA YOGYAKARTA

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Desa Banjarsari merupakan desa yang terletak pada Kecamatan Samigaluh, Kabupaten Kulon Progo, Provinsi Daerah Istimewa Yogyakarta yang memiliki riwayat kejadian bencana longsor yang cukup tinggi. Secara geologi, Desa Banjarsari terletak pada Formasi Kebobutak dan didominasi oleh jenis tanah latosol yang mengakibatkan tingginya potensi terjadi bencana tanah longsor. Kejadian tanah longsor terjadi di Desa Banjarsari sebanyak 73 kejadian sehingga hal ini mengakibatkan perlunya dilakukan studi terkait potensi bencana tanah longsor di desa Banjarsari.

Penelitian ini dilakukan dengan data foto udara yang diambil menggunakan *UAV* dan data metode seismik refraksi dengan gelombang primer dan sekunder. Data foto udara digunakan untuk menghasilkan informasi othomosaic, dan kemiringan lereng sedangkan data seismik refraksi untuk menentukan ketebalan lapisan lapuk, struktur bawah permukaan dan kohesi berdasarkan nilai rasio poisson dan nilai V_{s30}.

Berdasarkan hasil penelitian menunjukan bahwa area didominasi kemiringan curam dan metode seismik refraksi menunjukan ketebalan lapisan lapuk sedalam ±4.1 meter yang memiliki kohesi rendah berdasarkan nilai rasio poisson dengan jenis bidang gelincir serta jenis longsoran adalah gerakan luncuran rotasional pada bagian barat laut lintasan seiring penambahan ketebalan lapisan lapuk yang didukung dengan nilai $V_{s_{30}}$ yang rendah.

Kata Kunci: Foto Udara, Tanah Longsor, Seismik Refraksi**,** Lapisan Lapuk, Rasio Poisson

ABSTRACT

IDENTIFICATION OF LANDSLIDE POTENTIALS WITH THE INTEGRATION OF SEISMIC REFRACTION METHODS AND UNMANNED AERIAL VEHICLE (UAV) PHOTOGRAMETRIES IN BANJARSARI VILLAGE, SAMIGALUH DISTRICT, KULONPROGO DISTRICT, SPECIAL REGION OF YOGYAKARTA

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Banjarsari is a village located in Samigaluh District, Kulon Progo Regency, Special Region of Yogyakarta which has a history of quite high landslide events. Geologically, Banjarsari Village is located in the Kebobutak Formation and is dominated by latosol soil types which results in a high potential for landslides. Landslide incidents occurred in Banjarsari Village with 73 incidents, and this is the highest number of incidents in Kulon Progo Regency, so this resulted in the need for a study related to the potential for landslides in Banjarsari Village.

This research was conducted using aerial photo data taken using UAV and seismic refraction method data with primary and secondary waves. Aerial photo data is used to produce orthomosaic information, and slope gradient while seismic refraction data is used to classify slopes and determine weathered layer thickness, subsurface structure and cohesion based on Poisson's ratio and $V_{s_{30}}$ value.

Based on the results the study area is dominated by steep slopes and the seismic refraction method shows the thickness of the weathered layer as deep as ±4.1 meters which has low cohesion based on the Poisson ratio value with the type of slip plane and the type of landslide is a rotational sliding movement on the northwest part of the line along with the increasing of weathered layer thickness which is supported by the value low value of $V_{s_{30}}$.

Keyword: Aerial Photograph, Landslide, Seismic Refraction, Weathered Layer, Poisson's ratio.