PENENTUAN ZONASI DETAIL BAHAYA LONGSOR MENGGUNAKAN DATA UAV DI SUB DAS BOMPON KABUPATEN MAGELANG PROVINSI JAWA TENGAH

Intisari

oleh:

Rini Meiarti
Jurusan Ilmu Lingkungan
Minat Geo-informasi untuk Manajemen Bencana

Sub DAS Bompon memiliki luas 296,9 ha. Sub DAS Bompon merupakan daerah rawan longsor dan mengalami perulangan kejadian longsor tiap tahun. Berdasarkan hal tersebut, diperlukan penentuan zonasi detail bahaya longsor. Data spasial yang digunakan ialah data UAV. Penentuan zonasi detail bahaya longsor sebagai produk geoinformatik yang dapat digunakan sebagai landasan teoritik mitigasi bahaya longsor.

Metode penelitian berupa survei lapangan (deskriptif-kualitatif). Teknik pengambilan sampel dilakukan secara sensus pada tiap aktivitas longsor. Teknik pengolahan dan analisis data diantaranya: (1) interpretasi visual data UAV diperoleh peta distribusi aktivitas longsor; (2) penghitungan volume longsor tiap aktivitas longsor menggunakan data titik medan dari UAV; (3) penghitungan matematis frekuensi longsor berdasarkan hasil partisipatori; (4) perolehan data primer sifat geoteknik tanah (batas cair dan indeks kembang kerut) pada tiap aktivitas longsor; (5) pembuatan nomogram bahaya longsor secara kualitatif.

Aktivitas longsor yang memiliki bahaya longsor tinggi di sub DAS Bompon ialah longsor berstatus aktif, *suspended*, reaktivasi, dan dorman. Longsor aktif memiliki batas cair 79,61%. Longsor aktif memiliki volume longsor 1,4 x 10^5 m^3. Itu berarti bahwa 1/6 lereng dalam satu bukit telah menghasilkan material longsor sebesar 1,4 x 10^5 m^3, Longsor aktif mengalami perulangan 1 hingga 2 kejadian tiap tahunnya. Zona bahaya longsor seluas 169,7 ha sedangkan zona aman longsor seluas 126,5 ha. Mitigasi bahaya longsor aktif ialah perlunya mitigasi non struktural berbasis partisipatori.

Kata kunci: longsor, data UAV, aktivitas, bahaya, mitigasi

DETERMINING OF DETAIL LANDSLIDE HAZARD ZONATION USING UAV DATA IN BOMPON CATCHMENT MAGELANG REGENCY CENTRAL JAVA PROVINCE

Abstract

by:

Rini Meiarti
Department of Environmental Science
Study Program of Geo-Information for Spatial Planning and Risk Management

Bompon catchment has an area of 296,9 ha. Bompon catchment is susceptible of landslides and landslides occurred each year. Based on this, it is necessary for mapping of detail landslide hazard zonation. Detail landslide hazard zonation as a geoinformatic product that could be used as theoretical base of landslide hazard mitigation.

The research method is descriptive-qualitative. The sampling technique was conducted census in each landslides activity. Processing techniques and data analysis are: (1) visual interpretation UAV orthophoto mosaic to obtain distribution maps of landslides activities; (2) calculation of volume in each landslides activities using point ground of orthophoto UAV; (3) calculation of landslide frequency based on participatory; (4) acquisition of primary data geotechnical properties of soil (liquid limit and COLE index) in each landslides activities; (5) visualization of nomogram based on landslide hazard. Fifth results of data processing and analysis have functions to determine several conclusions. There is a descriptive qualitative review of landslide hazard mitigation.

The results show that landslides activities that have a high landslide hazard in Bompon catchment are active status, suspended, reactivation, and dormant. Active landslide has liquid limit 79,61%. Volume of active landslide is 1,4 x 105 m^3. It means that 1/6 of the slopes in the hills has produced landslide material of 1.4 x 105 m^3, frequency active landslide occuring 1 to 2 events each year. Hazard zone has 169,7 ha meanwhile safe zone has 126,5 ha. Active landslide hazard mitigation was the need for non-structural mitigation based participatory.

Keywords: landslides, UAV, activities, hazard, mitigation