

SARI

Desa Sidosari dan sekitarnya, Kecamatan Salaman, Kabupaten Magelang memiliki tataguna lahan yang sebagian besar (86,7%) merupakan sawah/tegalan dan sebagian kecil (13,3%) merupakan daerah pemukiman sehingga masih memiliki potensi untuk dikembangkan. Kondisi saat ini, terjadi retakan-retakan akibat *soil creep* pada bangunan di salah satu dusun di Desa Sidosari yang padat akan pemukiman. Agar kondisi serupa tidak dialami oleh daerah lain di wilayah Desa Sidosari, maka perlu dilakukan penyelidikan geologi teknik dan pemetaan kerentanan longsor. Penelitian ini bertujuan untuk menghasilkan peta geologi teknik komprehensif dan peta kerentanan longsor. Peta geologi teknik komprehensif dibuat dengan metode pemetaan lapangan dan analisis sifat keteknikan batuan dan tanah di laboratorium. Peta kerentanan longsor dibuat dengan menggunakan metode statistik multivarian (*Analytical Hierarchy Process*).

Berdasarkan hasil pemetaan dan analisis, daerah penelitian memiliki geomorfologi berupa dataran dan perbukitan. Kemiringan lereng di daerah penelitian dapat dibagi menjadi enam kelas, yaitu kemiringan datar ($0^{\circ} - 3^{\circ}$), sangat landai ($3^{\circ} - 6^{\circ}$), landai ($6^{\circ} - 9^{\circ}$), sedang ($9^{\circ} - 17^{\circ}$), curam ($17^{\circ} - 35^{\circ}$), dan terjal ($>35^{\circ}$). Geologi teknik dasar daerah penelitian dapat dibagi menjadi lima satuan, yaitu satuan breksi andesit, satuan *vitric tuff 1*, satuan breksi *tuff*, satuan *vitric tuff 2*, dan satuan pasir-bongkah. Daerah penelitian memiliki dua jenis kondisi hidrogeologi lereng yaitu lereng basah dan lereng lembab. Secara umum daerah penelitian memiliki potensi longsor.

Berdasarkan hasil pengamatan lapangan dan analisis AHP, didapatkan 4 peta parameter dengan bobot nilai secara urut dari terbesar hingga terkecil yaitu peta geologi teknik dasar (52,58%), peta kemiringan lereng (30,10%), peta tataguna lahan (11,02%), dan peta hidrogeologi lereng (6,30%) dengan faktor pengontrol dominan adalah geologi teknik. Dari hasil analisis AHP, daerah penelitian dapat dibagi menjadi 3 tingkat kerentanan, yaitu kerentanan tinggi dengan luas 55,5% dari keseluruhan daerah penelitian, kerentanan sedang dengan luas 38,3% dari keseluruhan daerah penelitian, dan kerentanan rendah dengan luas 6,2% dari keseluruhan daerah penelitian.

Kata kunci : Geologi teknik komprehensif, kerentanan longsor, *Analytical Hierarchy Process*.

ABSTRACT

Sidosari and its surrounding, Salaman, Magelang, has 2 land use that majorly consists of agriculture fields (86.7%) and a small proportion of residential area (13.3%) which has the potential to be developed. Currently, multiple cracks were found due to soil creep that occurred on a building in one of the villages in Sidosari, which is dense with residents. In order to prevent similar conditions in other parts of Sidosari, it is necessary to conduct an engineering geological research and landslide susceptibility mapping. This research was conducted to produce a comprehensive engineering geological map and landslide susceptibility map. Comprehensive engineering geological map was produced based on field mapping data and engineering properties analysis of rock and soil material in the laboratory. Landslide susceptibility was produced by using statistical multivariate method (Analytical Hierarchy Process).

Based on the results of mapping and analysis, the geomorphology of the research area consists of plains and hills. The slope in the research area can be divided into six classes, i.e. flat (0° - 30°), gently sloping (30° - 60°), moderately sloping (60° - 90°), medium (90° - 170°), steep (170° - 350°), and very steep ($> 350^{\circ}$). Basic engineering geology of the research area can be divided into five units, i.e. andesite breccia, vitric tuff 1, tuff breccia, vitric tuff 2, and sand-boulder. The research area has two types of hydrogeological conditions which are wet and moist. In general, research area has a landslide potential.

Based on the field observations and AHP analysis, there are four parameter maps with numerous values in order from the highest to lowest which are; basic engineering geological map (52.58%), slope map (30.10%), land use map (11.02%), and the hydrogeological map of slopes (6.30%), with acknowledging basic engineering geology as the main controlling factor. Based on the results of AHP analysis, the research area can be divided into three levels of landslide susceptibility, i.e. high susceptibility has 55.5% coverage of the overall research area, medium susceptibility has 38.3% coverage of the overall research area, and low susceptibility has 6.2% coverage of the overall research area

Keywords: *Comprehensive engineering geology, landslide susceptibility, Analytical Hierarchy Process.*