GEOLOGI, ANALISIS KESTABILAN LERENG DAN ZONASI RAWAN LONGSOR KALURAHAN TEGALREJO DAN SEKITARNYA, KAPANEWON GEDANGSARI, KABUPATEN GUNUNGKIDUL, DAERAH ISTIMEWA YOGYAKARTA

SARI

Daerah penelitian berada di Kalurahan Tegalrejo dan sekitarnya, Kapanewon Gedangsari, Kabupaten Gunungkidul, Daerah Istimewa Yogyakarta. Secara geografis daerah penelitian berada pada koordinat 110°36'47.40" BT - 110°39'30.81" BT, 7°50'42.42" LS - 7°47'59.74" LS dan masuk kedalam zona 49 S UTM dengan koordinat 457355 mT – 462355 mT, 9132805 mS – 9137805 mS. Kegiatan penelitian dilakukan untuk mengetahui kondisi geologi yang meliputi aspek geomorfologi, stratigrafi dan struktur geologi yang berkembang di daerah penelitian. Selain itu, untuk mengetahui nilai kestabilan lereng yang kemudian dijadikan dasar penentuan zonasi daerah rawan longsor dengan bantuan beberapa parameter pendukung. Metodologi penelitian yang dilakukan meliputi pengambilan data langsung di lapangan, baik berupa data geologi maupun geologi teknik. Selanjutnya melakukan analisis laboratorium berupa uji paleontologi, petrografi dan uji sifat fisik dan mekanik tanah, dimana hasil pengujian akan digunakan dalam penentuan kondisi geologi, analisis kestabilan lereng dan penentuan zonasi daerah rawan longsor. Pada daerah penelitian berkembang pola pengaliran subdendritik, paralel dan subparalel. Secara geomorfologi, daerah penelitian terbagi menjadi satuan bentuklahan tubuh sungai, dataran aluvial, perbukitan struktural, lereng struktural, gawir sesar dan lembah struktural. Secara stratigrafi, daerah penelitian dari tua ke muda tersusun oleh satuan batupasir Kebo-Butak, satuan batupasir-tufan Semilir, satuan tuf Semilir, satuan breksi-andesit Nglanggeran dan endapan aluvial. Hasil analisis kestabilan lereng menunjukkan bahwa pada lereng 1, 2 dan 3 masuk kedalam kelas labil (nilai FK < 1,07), lereng 4 masuk kedalam kelas stabil (nilai FK > 1,25) dan lereng 5 dan 6 masuk kedalam kelas kritis (nilai FK 1,07-1,25). Zonasi daerah rawan longsor dibuat berdasarkan parameter berupa data curah hujan, jarak terhadap sesar, jenis batuan, kegempaan, kemiringan lereng, tata air lereng, penggunaan lereng dan hasil analisis kestabilan lereng. Diketahi bahwa daerah penelitian terbagi menjadi 3 klasifikasi longsor, yaitu kelas rendah, sedang dan tinggi, dimana yang mendominasi pada daerah penelitian adalah kelas sedang.

Kata kunci: geologi, kestabilan lereng, zonasi rawan longsor

GEOLOGY, SLOPE STABILITY ANALYSIS AND LANDSLIDE-PRONE ZONE IN TEGALREJO VILLAGE AND ITS SURROUNDINGS, GEDANGSARI DISTRICT, GUNUNGKIDUL REGENCY, SPECIAL REGION OF YOGYAKARTA

ABSTRACT

The area used in this research is Tegalrejo Village and its surroundings, Gedangsari District, Gunungkidul Regency, Special Region of Yogyakarta. Geographically the study area is at the coordinates of 110°36'47.40" E - 110°39'30.81" E, 7°50'42.42" S - 7°47'59.74" S and enters the 49 S UTM zone with coordinates 457355 mE – 462355 mE, 9132805 mS – 9137805 mS. The research was conducted to determine the geological conditions including aspects of geomorphology, stratigraphy and geological structures that develop in the research area. In addition, this research was also carried out to determine the value of slope stability which was then used as the basis for determining the zoning of landslide-prone areas with the help of several supporting parameters. The research methodology involved collecting data directly from the field, both in the form of geological data and engineering geology. Laboratory analysis was then carried out in the form of paleontological tests, petrography and tests of physical and mechanical properties of the soil, where the test results were used in determining geological conditions, analysing slope stability and determining the zoning of landslide-prone areas. The research area has subdendritic, parallel and subparaell drainage patterns. Geomorphologically, the study area is divided into river body landforms, alluvial plains, structural hills, structural slopes, fault scarps and structural valleys. While stratigraphically, the research area from oldest to youngest is composed of Kebo-Butak sandstone units, Semilir tuff-sandstone units, Semilir tuff units, Nglanggeran andesite-breccia units and alluvial deposits. The results of the slope stability analysis show that slopes 1, 2 and 3 are in the unstable class (FK value <1.07), slope 4 is in the stable class (FK value > 1.25) and slopes 5 and 6 are in the critical class (FK value 1,07 - 1.25). Landslide-prone areas are zoned based on parameters such as rainfall data, distance to the fault, lithology type, seismicity, slope, slope water system, land use and slope stability analysis results. It is concluded that the research area can be divided into three classifications of landslides, namely low, moderate and high classes, where the dominant area of research is the moderate class.

Keywords: *geology, landslide-prone zoning, slope stability*