

**PENILAIAN POTENSI RUNTUHAN TANAH KLEI SENSITIF PADA
LOKASI LONGSORLAHAN DI DAS BOMPON, KABUPATEN
MAGELANG**

Oleh

Dita Wulandari

14/365733/GE/07832

Koresponden email dita.wulandari180996@gmail.com

Intisari

Penilaian potensi runtuhan tanah klei sensitif dilakukan pada tiga longsorlahan di DAS Bompon, Kabupaten Magelang. Terdapat tiga tujuan dalam penelitian, yaitu menjelaskan kondisi morfologi dan karakteristik fisik tanah klei sensitif pada tiga longsorlahan, menilai potensi runtuhan tanah, dan menjelaskan peran klei sensitif terhadap potensi runtuhan tanah. Potensi runtuhan tanah dinilai dengan menggunakan dua pendekatan, yaitu melalui indeks runtuhan (I_c) hasil Uji Konsolidasi Satu Dimensi dan melalui pendekatan faktor geoteknik. Peran sensitivitas klei terhadap potensi runtuhan tanah dianalisis secara deskriptif kuantitatif dan statistik inferensial sederhana. Analisis deskriptif kuantitatif dilakukan dengan melihat grafik persebaran perbandingan nilai dua variabel. Analisis statistik dilakukan dengan menilai hubungan antar parameter menggunakan korelasi Product Moment dengan signifikansi t 5%.

Hasil penelitian menyebutkan bahwa tanah pada tiga longsorlahan merupakan tanah klei sensitif, kecuali lapisan III.B.2 pada longsorlahan III karena memiliki nilai indeks likuiditas 0,48 (kurang dari 0,5 – 4). Porositas memiliki nilai hubungan kuat terhadap sensitivitas klei. Besar dan arah hubungan antara porositas dengan sensitivitas klei sama dengan nilai dan arah hubungan porositas terhadap indeks runtuhan tanah, yaitu bersifat kuat dan berbanding lurus. Potensi runtuhan tanah pada tiga longsorlahan adalah dominan sedang. Hanya terdapat tiga lapisan berpotensi runtuhan tinggi. Berdasarkan hasil uji korelasi antara sensitivitas klei dan indeks runtuhan diperoleh angka $r = 0,467$; $t_{hitung} = 2,42$; $t_{tabel} = 2,08$. Nilai $r = 0,467$ memberikan arti bahwa tingkat hubungan sensitivitas klei dengan indeks runtuhan adalah sedang dan berbanding lurus. Tanah klei sensitif belum tentu memiliki potensi runtuhan tinggi, tetapi tanah klei yang memiliki potensi runtuhan tinggi cenderung memiliki nilai sensitivitas klei tinggi.

Kata Kunci: *klei sensitif, potensi runtuhan, longsorlahan, konsolidasi.*

COLLAPSE POTENTIAL ASSESMENT OF CLAY SENSITIVE SOIL ON LANDSLIDES LOCATION IN BOMPON WATERSHED, MAGELANG REGENCY

By

Dita Wulandari

14/365733/GE/07832

Email correspondence dita.wulandari180996@gmail.com

Abstract

The assessment of the collapse potential of sensitive clay soils was carried out on three landslides in the Bompon watershed, Magelang Regency. The objectives of this research are: 1) to introduce landslide morphology and the physical characteristics of the soils on three landslides, 2) assessing the potential of soil debris, and 3) to explain the role of clay sensitive to the collapse potential soil. The collapse potential soil is assessed using two approaches, the first with a collapse index (I_c) resulting from a One Dimension Consolidation Test and a geotechnical factor approach. The role of clay sensitive to the collapse potential soil was analysed by quantitative description and simple statistic inferential. Quantitative analysis is done by looking at the distribution chart the comparison of two variabel values. Statistic analysis is done by assessing the parameters relationship using Product Moment Correlation with a t 5% significancy.

The result of the study stated that the soil in three landslides was sensitive clay, except III.B.2 layer in landslide III because it had a liquidity index value of 0,48 ($LI < 0,5 - 4$). Soil porosity has a high correlation value with clay sensitivities. The magnitude and direction of correlation between prosody and clay sensitivity are the same value and direction of the correlation porosity with collapse index (I_c). They have strong magnitude and propotional direction. Value of the collapse potential soils in riset location is dominant medium value. There are only three layer with highly potential collapse. The result of the correlation test between clay sensitivity and collapse potential index is $r = 0,467$; $t_{count} = 2,42$; $t_{table} = 2,08$. R value meaning that the level of correlation between clay sensitivity and collapse potential index is moderate and directly proportional. Clay sensitive soil does not necessarily have a high value of collapse potential, but clay soils with high collapse potential tend to have high clay sensitivity values.

Keyword: sensitive clay, collapse potential, landslide, consolidation