

## **Moisture Implication on Landslide Occurrences of Lateritic Soil Slopes in Ranau, Sabah, Malaysia**

### **ABSTRACT**

Study of engineering properties is vital in order to understand the relationship between the landslide occurrences with the soil moisture. A total of three soil samples were collected from Ranau lateritic soil for the engineering properties analysis. The result of analysis shows that the soil moisture content was in the range of 16.99% to 27.65%. The plasticity chart plot of soil found that the soil samples were classified as high plasticity to very high plasticity. The unconfined compression strength indicated that all samples are classified as very soft soils with value range from 3.20 - 3.86 kPa. Decrement of moisture percentage indicated that higher strength with increment soil strength from 3.24 kPa - 16.86 kPa. Increasing soil moisture resulted in the lower of soil strength with around 1.08 kPa for sample S1. Sample S2 and S3 were in slurry condition therefore not able to be measured for the soil strength. The increasing of soil moisture could decrease the soil strength and can cause the occurrence of landslide. This is due to water accumulation between the soil particle in the saturated condition and high adsorption of water by the secondary minerals. The result of XRD and SEM showed the kaolinite and iron oxide minerals such as ferrihydrate, antigorite, goethite, hematite, magnetite and maghemite appear as secondary minerals.