

Tree Induce Suction for Slope Sustainability

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ABSTRACT

Many slope areas in Malaysia whether it is man made or natural slope are particularly vulnerable to soil erosion and shallow failures due to the increasing of soil moisture and porewater pressure. This study will determined the active root zone of the tree near the toe of the slope which suctions have been generated within this section. Hence, the effect it only focusing on hydrological aspect with soil moisture pattern near vicinity of the tree. The mechanical aspect of tree root such as tensile strength and bonding between root and soil which can led to increasing soil strength are assumed negligible in this study. From preliminary result of field monitoring show significant increase of total suction at near vicinity of tree which can lead to stability analysis on slope. The comparison of FOS will be presented between at the toe of slope with and without the tree. Furthermore, for slope studies area the reresult indicates that tree induced suction can be related to cause the factor of safety against slope failure improve up to 33.07%.

Keywords: Soil suction, tree water-uptake, unsaturated soils, active root zone