

MORAWAKKANDA LANDSLIDE – GEOLOGY AND SOIL PROPERTIES

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Morawakkanda is a major landslide (width of 198 m and length of 2085 m) occurred in Matara District on 25th May, 2017 causing nine deaths and eleven people missing. To avoid/minimize such landslide hazards, it is important to identify susceptible locations where sliding is possible and predict the potential of future landslides. Hence studying causative factors, types of landslides, signs of landslides and countermeasures to minimize landslide hazards is discussed in landslide disaster risk reduction process. Since geology is one of the major factors in landslide development, a geological map was prepared to get a better idea of lithology, and geological structures in the area. Disturbed and undisturbed soil samples were analyzed in the laboratory to determine soil properties to evaluate the stability of the slope at the landslide crest. Khondalite, garnetiferous quartzo feldspathic gneiss, charnockitic gneiss and charnockite are main rock types in the area. White soft clay along the rock contacts and water stagnation areas was found as a weathering product of charnockitic gneiss. The landslide developed on escarpment slope and slip surface follows prominent joint planes of the bedrock. Left bank of the landslide is composed with low plasticity sandy silt and right bank is composed with low plasticity gravelly silt. Morawakkanda landslide has been indicated as a deep-seated slide. Soft base material formed by weathering of charnockitic gneiss rocks was the major factor of the initiation of the landslide. It is noted that remaining soil in steep scar of the landslide has a potential of sliding or slope failures due to loss of toe support.

Keywords: Morawakkanda landslide, Causative factors, Geology, Soil properties
