Analytical Modelling on Stability Analysis of Earth Slope Failure South Wollo Ethiopia

Vijaykumar Nagappa[1], Belete Mulugeta Begna[2], Abduselam Assen Kegnu[3]

[1]Lecturer Civil Engineering Department, Wollo University, Kombolcha Institute of Technology, Ethiopia PO BOX 208
[2]Lecturer Civil Engineering Department, Wollo University, Kombolcha Institute of Technology, Ethiopia PO BOX 208
[3]Lecturer Construction Technology & Management Department, Wollo University, Kombolcha Institute of Technology, Ethiopia PO BOX 208,
vijaykumarnagnaik@gmail.com

ABSTRACT

Landslides or moving of soil mass or rock masses are very common natural disasters all over the world, dealing with landslides is very challenging nowadays, it damages the structures such as highways, railways, buildings, etc. The country Ethiopia covers almost all the cities with slope area and mountainous, it is very common in Ethiopia the landslides and slope failures causing huge loss of life as well as government and public properties. The main objective of this research is to obtain the factor of safety and to provide remedial measures such as the construction of a retaining structure along the roadside to mitigate the further failure of slope and to facilitate the safety for the transport, public life, and property damage. The geotechnical engineering techniques are quite common to reduce the risk of landslides and the slope soil mass movement, the application of geotechnical engineering software such as slope/w analyses-GeoStudio to analyze the slope stability is quite easy and fast nowadays. This failure of soil slope or landslides occurred due to heavy rain and very less factor of safety provided before along the Kombolcha to Dessie main highway, due to this reason the road has been damaged and the discontinuity to public transport. By carrying detailed investigation, it is recommended to provide a cantilever retaining structure.

Key words: *Soil, Slope, Stability, Factor of safety, Landslides*