

Slope Stability Assessment of Himalayan Slope under Static and Seismic Conditions

Authors : P. Singh, S. Mittal

Abstract : Stability of slope in Chamoli Distt. near River Alaknanda in Uttarakhand is essential to safeguard the infrastructure of the slope where a dam is proposed to be built near this slope. Every year the areas near the slope have been facing severe landslides (small or big) due to intensive precipitation inflicting substantial damages as per Geological Survey of India records. The stability analysis of the slope under static and pseudo static conditions are presented in this study by using FEM software PHASE2. As per the earthquake zonation map of India, the slope is found in zone V, and hence, pseudo static stability of slope has been performed considering pseudo static analysis. For analysing the slope Mohr-Coulomb shear strength criteria is adopted for soil material and self-drilling anchors are modelled as bolts with parameters like modulus of elasticity, diameter of anchors and peak pull-out resistance of the anchors with the soil present there. The slope is found to be unstable under pseudo static conditions with computed factor of safety= 0.93. Stability is provided to the slope by using Self Drilling Anchors (SDA) which gives factor of safety= 1.15 under pseudo static condition.

Keywords : FEM, pseudo static, self-drilling anchors, slope stability

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