Macro and micro scale study of artificially structured soil: A slope stabilisation perspective

Mountainous land is widely distributed throughout the world and the soils in such area are subjected to many construction projects. The long term durability and fitness of the projects depend upon the soundness of the engineering behaviour of the soil. Due to the inferior geotechnical properties, sometimes mountainous soil poses serious threats on the projects during and/or after the construction. To improve their properties, lime can be utilised as it is cost-effective and easily available additive.



The addition of lime is well known and it is a widely used technique for stabilisation of various type of soils for road construction, embankments, foundation slabs and piles. However, yet to this day, little information is available on the geotechnical, mineralogical, morphological, molecular and micro-fabric characteristic of mountainous soil treated with lime for different time intervals. Therefore, with this backdrop, the main objective of our present work is to evaluate the mechanical, mineralogical and microstructural performance of mountainous soil treated with lime at different curing times. The degree of improvement in geotechnical properties achieved with the soil treatment employed for the numerical modeling of the hill side road embankment.

Prof. T. N. Singh, Department of Earth Sciences, thsingh@iitb.ac.in