

# **Landslide Vulnerability Assessment along Four Lane Road between Visakhapatnam to Bhimunipatnam, Andhra Pradesh- A Geospatial Technology Approach**

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## **Abstract**

The 23 km long coastal strip between Visakhapatnam city and Bhimunipatnam experiences rapid developmental activities, especially laying of a four lane road, popularly known as the Beach Road, without regard to the structural fabric of the various geological formations. Major rock headlands protruding into the sea have been cut to lay the road, are now become the major potential zones for landslides. A number of foot hill areas have also been severely altered leading to rock creep/soil creep on to the road. Owing to compositional variations, soil creep is also become active at places. The road is also passing through the intensely gullied Quaternary red sand deposits which are known for geological and archeological importance. In this study, Survey of India toposheets, IRS-ID-LISS-III satellite data of 2007, 2008 and SRTM-90 m digital elevation data have been used to map drainage, soil, geology, geomorphology, land use/land cover and slope. The major land use is four lane road expansions besides several constructions on top of the hills altering the existing topography. At places, migration of coastal sands on to the road is causing road accidents. The existing road has two potential threats: on the seaward side there may be a chance of breaching the road by the wave attack and on the landward side manmade landslides/soil creep may takes place on to the road. This study recommended retaining walls, grouting, rock bolting/riveting, geo-netting/iron-netting and turf as remedial measures to overcome.

**KEY WORDS:** Land use/land cover, Landslide, Grouting, Geo-netting,