



## Hydrological parameters Controls Vulnerable Zones in Calicut – Nilambur – Gudalur Ghat section, Gudalur, The Nilgiris, Tamil Nadu.

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**Abstract:** Calicut – Nilambur – Gudalur Ghat sections is one of the most important inter-state networks connection Tamil Nadu (Gudalur) and Kerala (Calicut) borders along the Western Ghats, It is located on Gudalur Taluk, Gudalur district. Calicut is one of the most popular tourist destinations. These Ghat section road slopes are very steep and rocks are fissile in nature. This can generate the problem of major and small landslides in this area. So, it is necessary to evaluate the present structure of hill slopes by carrying out a systematic study. The present paper emphasis a methodology to Landslide Hazard Zonation map using hydrological parameters. The thematic maps such as drainage map, buffer, drainage density, drainage intensity, run-off, rainfall intensity and slope of the study area were prepared on 1:25,000 scales. Relief has been traced from toposheet. Slope and aspect maps were prepared from the contour map. Drainage density drainage buffer and drainage intensity map has been derived from drainage. Thematic maps were digitalized with the help of ARC MAP software. Multicriteria analysis was done using all thematic layers by assigning proper weightages and scores for individual features based on their contribution to landslides. Based on the output, the study area was ranked into 5 different categories of hazard zones such as very low, low, moderate, high and very high. The hazard zonation map shows that 0.50% in very low, 13.30% low, 55.80% in moderate, 29.44% in high and 0.96% very high hazard zone. The landslide hazard zonation map is validated with landslide points which were collected from the field using high performance GPS. According to landslide inventory details 1.64% is located in very high, 29.50% in high, 62.30% in moderate, 4.92% in low and 1.64% in very low hazard zones. The study area was prioritized according to the hazard zones for future sustainable and developmental studies.

**Keywords:** Landslides, Remote sensing and GIS, Hydrological factors, Hazard Zonation.