

ASSESSMENT OF TOURISM IMPACT ON LAND USE LAND COVER AND NATURAL SLOPE IN MANALI REGION: A GEOSPATIAL APPROACH

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Abstract:

Land use land cover (LULC) plays a vital role in the regional socio-economic evolution and environmental changes. The objective of the present study was to assess the tourism impact on LULC and natural slope in Manali-Palchan region, Himachal Pradesh through geospatial technologies. Landsat (TM) and IRS P6 (LISS III and LISS IV) satellite images were used to study the LULC changes in between Manali and Palchan. To classify the images for LULC, supervised classification was executed through Maximum Likelihood Classifier algorithm. GIS based overlay analysis was performed to derive the changes in built-up classes according to the slope variations. Slope map was prepared from Aster digital elevation model (DEM) and reclassified in to nearly gentle slope, gentle slope, moderate slope, extreme slope and steep slope classes. This map was overlaid on built-up using Spatial Analysis tool in Arc GIS 10.1. The remote sensing and GIS based analysis was validated by ground truthing using GPS. The remote sensing analysis estimates LULC classes of built-up, forest (evergreen), scrub forest, barren (exposed rock), vegetation/plantation and water body in the study region. The statistical analysis indicates that built-up has been sprawling from gentle slope to steep slope in the study area showing an impact of enhanced tourist activities in the Manali region.