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# Assessment of tourism impact on land use/land cover and natural slope in Manali, India: a geospatial analysis

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## Abstract

Demand for tourism has increased the pressure on hill stations and is becoming a major concern for change in land use/land cover in Manali, India. A geospatial approach has been applied in the present study to assess the impact of tourism on land use/land cover and natural slope. For this, satellite images of 1989, 2000, 2005 and 2012 were used for change detection and ASTER digital elevation model was used for slope analysis. Impact of tourism in the study area was assessed through change in built-up and its sprawl on various slope classes over the years. Built-up increased from 4.7 to 15.7 % during 1989–2012 indicating fast growing development in the area. At the same time, exponential increase in number of tourists from 1.4 to 28 lakhs from 1980 to 2011, respectively, confirms excessive pressure of tourism in the study area. Even, the number of hotels has increased over the years. Built-up is observed in gentle slope to very steep slope and increasing year by year. Since the study area is prone to landslide and an increment in built-up especially in extreme, steep and very steep slope becomes a matter of grave concern. This study suggests immediate attention of city developers and planners to achieve the long-term viability of tourism industry through sustainable developments.



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