

IMPACT OF TOURISM ON ECOHYDROLOGY IN THE HEADWATER REGION OF BEAS, HIMACHAL HIMALAYA

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The present research is an attempt to understand, investigate, and analyse the major changes in utilisation trends and conservation methods of water resources before and after the boom of tourism and concomitant urbanisation in and around the Manali area. Besides analysing their impact on the mountain geosystem at the micro level, the study also highlights the basic interactions between indigenous and modern techniques within the social and institutional dynamics of ecohydrological sustainability.

Water is an important constituent for the sustenance of life as well as the socioeconomic development of mankind. The present research has been carried out in the Upper Kulu Valley, Himachal Pradesh, where water resources have historically been utilised and managed for domestic as well as agricultural purposes through springs (*Kuhl*), and directly from rivers and streams. Research findings highlight that the process of urbanisation in the Manali region has brought a significant change in the trend of consumption, supply, and management of mountain water resources in the area. Both the positive and negative impacts have been identified in this study. Among the positive indicators, distribution of pipelines, storage tanks, and, at places, sewerage lines are important, while pollution, open garbage dumped into streams, and storage of water through privatisation of sources are important negative impacts of the urbanisation process. The rapid coming up of hotels and guest houses to provide infrastructure for tourism have led to water crises in this region. The springs which were earlier managed and utilised by the community are now being managed by hotel owners, creating water crises for the villagers.

The change in the biophysical system of the valley has a direct bearing on the hydrological set up of the watershed. The two major factors responsible for this are deforestation and change in the land-use pattern along with

cropping intensity. The mass felling of trees during the 1950s and 1960s, and the clearing of large tracts of forests have made the ecosystem more vulnerable by reducing the biodiversity of the region. The decrease in the amount of snowfall and increase in the degree of temperature for the last few decades have reduced the water resources' potentiality. Similarly, the introduction of irrigation due to change in cropping patterns has increased the consumption of water, thereby affecting the hydrological set up of the entire watershed.

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