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Structural control of Landslides in South Western Himalaya: Study from Chamba-Bharmour Section, Himachal Pradesh, India

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Abstract

Landslides are the most common hazards which modify the surface morphology of the orogenic belts. Structural conditions and nature of slope forming material play a vital role in the development of surface morphology. The paper highlights the influence of structure on slope morphology and consequent instability pattern in Chamba-Bharmour section in South Western, Himachal Himalaya. Rocks of lesser Himalayan sequences, Bhalai Formation, Kalhel Limestone, Manjir formation and veneer of Quaternary valley fill deposits occur in the area. The area is punctuated by many landslides of various dimensions affecting all the lithological units present; however, study is based on three major landslides occurring along the Chamba Thrust (CT) zone. Structural data shows that thrusts environment has manifested in crushing and shearing of rocks, which play an important role in landslide proneness along with the rainfall intensity. Evidences of active tectonics such as triangular facets (flatirons), tilting river terraces and active landslides zones have been noticed in the study area. Limited data on temporal details of landslide morphology (perimeter and area) from remote sensing and topographical sheets indicate that perimeters and area of active scars of landslides in the area are gradually expanding, probably associated with tectonic movements in proximal areas of thrusts.

Keywords

Landslide, Tectonics, South-Western Himachal Himalaya, Slide morphology