

4th International Congress on Earth and Geological Sciences

July 21-22, 2025 | Paris, France



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Multi-Hazard Risk Assessment for Effective Disaster Risk Reduction: A Block Level Study of Kargil District, Ladakh

The increasing frequency and cascading impacts of multi-hazards pose significant challenges to disaster risk reduction (DRR) worldwide. These consequences often overwhelm the local capacities and amplify the risk considerably. While risk assessments are crucial for formulating sustainable strategies, many studies in multi-hazard-prone regions remain confined to single-hazard analyses, leading to inadequate risk mitigation measures. This study addresses this gap by conducting a comprehensive block-level multi-hazard risk assessment using an indicator-based approach in Kargil District, Ladakh (UT), a region highly susceptible to avalanches, earthquakes, landslides, flash floods, cold waves, and conflict-related hazards. Data collection was carried out using questionnaire and personal interviews. Data was analyzed using Average Weighted (AW) and Analytical Hierarchy Process (AHP) methods. The findings reveal spatial variability in risk scenarios across the blocks categorized into high, medium and low risk. It has been found that the high risk blocks are located in remote areas of the study region. The high risk scenarios in the blocks of Zanskar, Drass, and Taisuru is due to remoteness, environmental fragility, harsh climate conditions, socio-economic challenges, and prevalence of multiple hazard interactions. The study also highlights the limitations of single-hazard assessments and advocates for integrated multi-hazard approaches that incorporate physical, socio-economic, and environmental vulnerability aspects. By developing vulnerability indices and generating risk maps, this research offers actionable insights for policymakers and local planners to strengthen disaster resilience and implement sustainable development strategies in remote mountainous regions. The outcomes advocate for holistic DRR planning to enhance adaptive capacities and mitigate compounding disaster risks.

Keywords: writing, template, sixth, edition, self-discipline, good

Biography

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