

## INHERENT VULNERABILITY ASSESSMENT OF RURAL COMMUNITIES IN KIMSAR REGION OF UTTARAKHAND, INDIA

### Abstract

The recent trend of shifting in focus from the hazard centric drivers of vulnerability towards the social and economic drivers of vulnerability has led to a number of conceptual frameworks for vulnerability assessment. Most of these frameworks lack the practical applicability to real world scenarios. This study seeks to address this issue by proposing a vulnerability assessment framework, which is centered on hazard generic, socio-economic drivers of vulnerability. Two conceptual frameworks for computing village level and household level inherent vulnerability for rural communities are proposed and applied to assess the inherent vulnerability of rural communities to environmental hazards in Kimsar region in India. Knowledge of inherent vulnerability will aid decision-makers to formulate policies, which will reduce vulnerability and help in rational distribution of resources among various communities.

For assessing village level inherent vulnerability of the communities in Kimsar region, a conceptual framework was developed and hazard generic socio-economic indicators were identified. The households from the selected villages were surveyed to collect information on the identified indicators. These indicators captured eight sub-components of inherent vulnerability, which includes: lack of access to water, lack of access to shelter, lack of access to information, connectivity, economic capacity, dependence on environmental resources, marginalized communities and gender. An Inherent Vulnerability Score (IVS) was computed, for the selected villages by aggregating the data into a composite score. The results obtained from cluster analysis on the same village-level data were consistent with the IVS. Based on the results of cluster analysis, the villages were classified into three vulnerability groups – high, moderate and low. Access to water, dependence on environmental resources and shelter were found to be the most important determinants of inherent vulnerability in the region.

For assessing household level inherent vulnerability, both numerical indicators and ordinally scaled indicators were used to capture a household's perception of various socio-economic drivers. Data was gathered by conducting household surveys in nine villages of Kimsar region in Uttarakhand, India. The method of Non-Linear Principal Component Analysis was used to obtain an empirical summary of the data set and for computing a household level Inherent Vulnerability Index (IVI). The principal components which explained a major variance in the data set were – *unemployment, good governance, access to food, occupational diversity, economic capacity, education, and access to water*. It was observed that the villages of Dharkot, Kandakhal and BhumiyaKisar have the highest percentage of households, which were relatively less vulnerable to environmental stressors. Higher vulnerability was observed in a majority of households in the villages of Kimsar, Ramjeewala and Malla Banas. A majority of households in Talla Banas, Jogiyana and Kasan were moderately vulnerable.