UIBN-Group 5.
Hazards and risks:

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ICIMOD & Karakoram International university
• Identification of hotspots, risk mapping, land use
• Early warning system and monitoring systems combining scientific and community knowledge
• Structural measures to control erosion and sedimentation
## Types of Hazards UIB

<table>
<thead>
<tr>
<th>Geological Hazards</th>
<th>Hybrid</th>
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<tbody>
<tr>
<td>• Earthquakes</td>
<td>• Landslides</td>
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<tr>
<td>• Slope instability</td>
<td>• Landslide Dam Outburst Floods (LDOFs)</td>
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<td>• River Bank erosion</td>
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<td>Hydro Meteorological Hazards</td>
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<td>• Snow storms</td>
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<td>• Flash and River Floods</td>
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<td>• Debris and Mud Flow</td>
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<td>• Avalanches</td>
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<td>• GLOFS</td>
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<td>• Droughts</td>
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<td>• Glacial retreat/advance</td>
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Stake Holders

Research Groups

Landslides & Debris Flows

- Foreign Research Groups (Ken Hewitt-Canada; Jack Shroder-Lewis Owen-USA)
- Geological Survey of Pakistan (on their own but also with the German Geological Survey).
- EvK2CNR with/without collaboration with KIU.
- Universities in Pakistan (NCEG-Peshawar; KIU; COMSAT)
- FOCUS Humanitarian Assistance Pakistan

Floods/GLOF

- Met Office, WAPDA

Disaster Management

- GB Government- disaster management aspects
- FOCUS, AKRSP and other NGOs- Awareness, Community Preparedness
- Local Village Organizations-Preparedness and other disaster management aspects.
- KIU-Volunteers Program in rescue and relief.
Current Projects

• **KIU-NCEG** landslide hazard assessment for Bagrot and Nagar valleys

• **UNDP-Ministry of Climate Change**: Reducing Risks and Vulnerabilities from Glacial Lake Outburst Floods in Northern Areas (Bagrot-GB; Bindo Gol-Chitral) May 2011-2015 (2 AWS)

• **EvK2CNR** landslide susceptibility mapping in Bagrot and Shigar valleys.
Geological Survey, Pakistan

• Study Of Hazardous Areas of Hunza-Nagar District Gilgit Baltistan
• Causative Mechanisms of Terrain Movement In Hunza Valley Gilgit Baltistan
• Geological upheavels In Kharmong Valley District Skardu, Gilgit-Baltistan
• Post disaster threats In Attabad and adjacent areas, Hunza Valley, Gilgit-Baltistan
• Geotechnical Causes For Failure Of Karli Dam, Hattian-Bala, Muzaffarabad, Azad Jammu And Kashmir
National Centre of Excellence in Geology, Peshawar

- Landslide susceptibility modeling using geospatial technology, a case study from Hunza-Nagar, Gilgit Baltistan
NCEG-Peshawar & FOCUS
Humanitarian Assistance

- GPS, GPR, Total Station, Geotechnical studies
1. Herath Landslide, Chitral
2. Mayun landslide, Hunza
• Focus and ICIMOD has initiated a community based hazard monitoring of Gulkhin glacier, Hunza.
Framework

- Macro-level hazard assessment using satellite images and GIS technologies.
- Ground verification for identification of hot spots.
- Multihazard approach.
- Linking hazard, vulnerabilities and calculating risk.
- Providing a scientific base for disaster management.
TARGETS

- Systematic mapping of catchments/basins and derivation of morphometric data (GIS/RS)
- Aspect ratio maps delineating areas prone to slope instability and hence landslides, avalanches (GIS/RS)
- Assessment of tributary streams for flood vs debris floods and debris flow hazard potential.
- Inventories for existing glacial lakes, landslide dams, landslides, debris flows, floods, avalanches and collection of historical data
- Flood Hazard Zoning and mitigation measures.
- Landslide susceptibility mapping.
- Multi-scale, multi-hazard risk mapping for the UIB.
Role of UIB Network

- Guidelines how to materialize networking between all stake holders and achieving clearly laid out objective.
- Capacity building in hazard assessment & DRR.
- Incentives through research grants encouraging cross-institution collaboration.
- Translation of science into action involving local governance and communities.