

# **Mountain Geo-Risk Assessment Model for Community Based Disaster Risk Management in Pamir Region**

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The research titled ‘Mountain Geo-Risk Assessment Model’ is being carried out in three countries of Central Asia namely Afghanistan, Tajikistan and Kyrgyzstan under the project PAMIR (Poverty Alleviation through Mitigation of Integrated high mountain Risk) with the specific objectives of generating and appraising knowledge on the linkages between environment, disaster risk and poverty in selected communities alongside the Pyanj River (Tajikistan/Afghanistan) and Trans Alai valley (Tajikistan, Kyrgyz Republic) to increase resilience of mountainous communities to geo-hazards and to provide a platform for negotiating strategies on integration of environmental sustainability into policies among stakeholders of all levels, creating awareness on causes and effects of un-sustainable environment and disseminating knowledge on efficient interventions.

The problems that the target areas face are scarce renewable land resources, overuse of limited land for agricultural purposes, outdated irrigation systems, reduced soil fertility, food security issues, deep poverty and increased natural hazard threats

In order to develop policy recommendations on effective and multi-dimensional measures, trans-disciplinary research is necessary focusing on linkages between disaster risk, environmental degradation and poverty. Mountain communities of Kyrgyzstan, Tajikistan and Afghanistan should be empowered to reduce the risk from and vulnerability to the natural hazards they face through better and more accurate information.

Our multi-step approach implemented by a team of professionals including two geologists, a civil engineer, a GIS Specialist and a social mobilizer first seeks to identify risks through:

- The application of community-based natural hazard and vulnerability risk assessments (HVRA) which integrated both scientific and indigenous knowledge.
- The second step of this approach generates risk knowledge by taking assessment information, risk analysis, applying GIS-based risk mapping and risk modelling as a means to determine priority villages as well as re-producible and impactful risk reduction interventions.
- Finally, the risk information is disseminated by applying a suite of activities to build capacity, reduce vulnerability and, where possible, even reduce the physical risk of hazards threatening local communities and authorities.

The research study also focuses on remote geo-hazards such as GLOFs, Surging glaciers, composite and landslide lakes etc through remote sensing techniques as well as existing GIS data on remote geo-hazards and helicopter surveys.

The final expected outcomes of the study include

- A comprehensive village database which can be used by a village for disaster preparedness planning, mitigation and response activities
- Generates maps of village infrastructure, hazard impact zone and the threat posed by these hazards (Hazard/Risk Maps)
- Provides a map and statistical base for mitigation activities
- Graphic evacuation routes and safe havens

These will help communities on local level and policy makers on national level to bridge the gap in their response and DRR interventions respectively.

