



Karimabad Valley, District Chitral Post Visit Report

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Team Composition

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1. Brief Profile

Kareemabad Valley is located in the North West of Chitral district. The Valley is situated on an old glacier “Morain”, well-developed by a number of past debris flow events. The Valley has thick vegetation, trees and lush green fields, and is home to about 95 households. The Valley is only accessible by a very narrow road, which remains cutoff during any disastrous event resulting in social and economic disruption of its inhabitants.

The Lower portion of the valley is basically an escarpment due to land creeping/ subsidence which is still active. There are thick vegetation in the lower portion of the valley including willow, polar and fruit bearing plants. Agricultural lands are also present in the Valley. At the lower portion of Valley, “Susoom Nala” runs towards south. Toe cutting is very active in the village which normally triggers landslide events in the Valley. Under the overburden slope there are bed rocks over which unconsolidated soil is moving downward and thus causing landslide and debris flow. There are also Dry nalas in the Valley which runs at the right side of the village.



Figure 1: Karimabad Valley, District Chitral

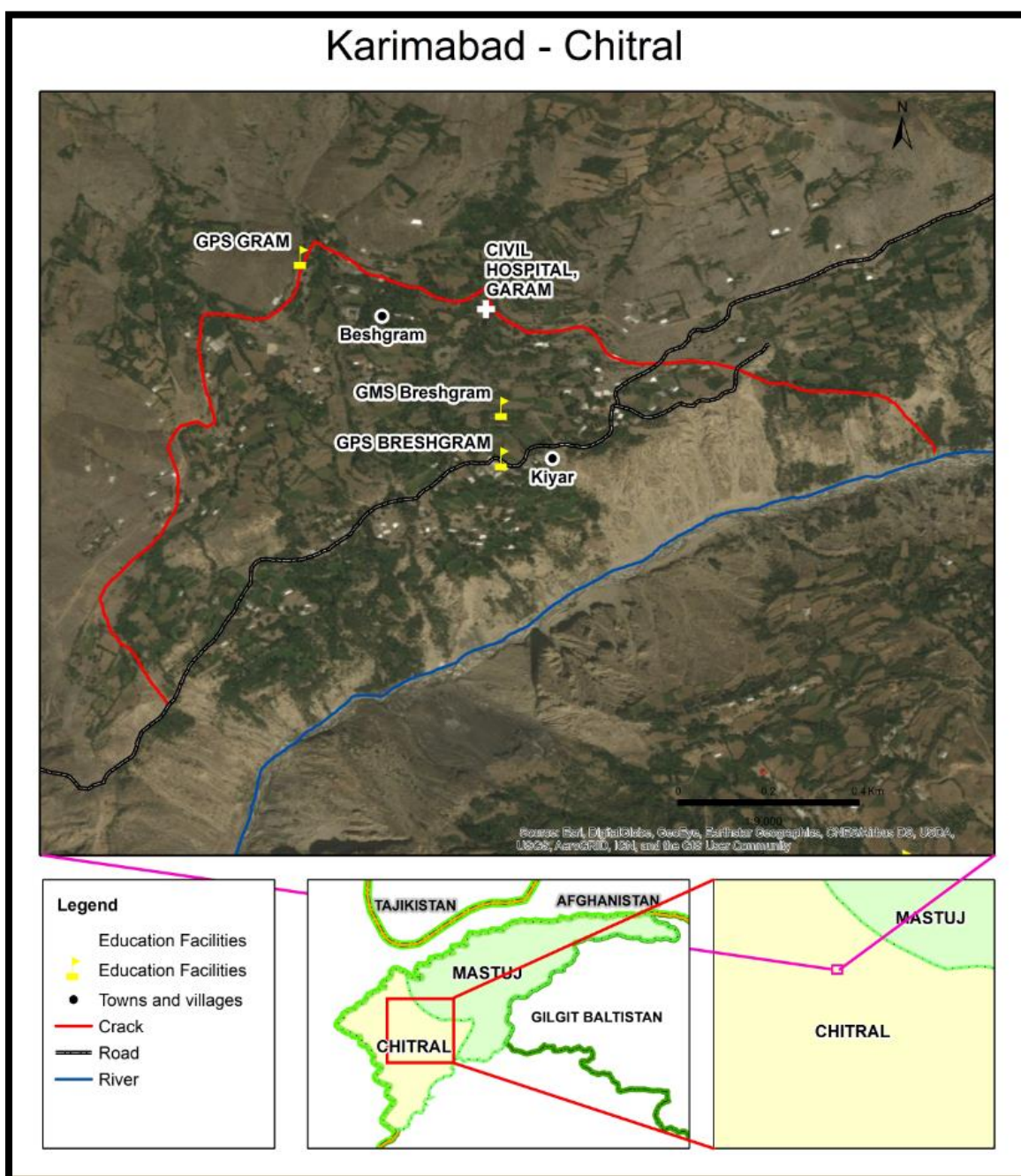


Figure 2: Karimabad Valley Map

2. Impending Hazards in the Valley

During field visit, following common hazards which were observed as the most recurring events in the Valley:-

- a. Land subsidence
- b. Rock fall

c. Landslide & Debris flow

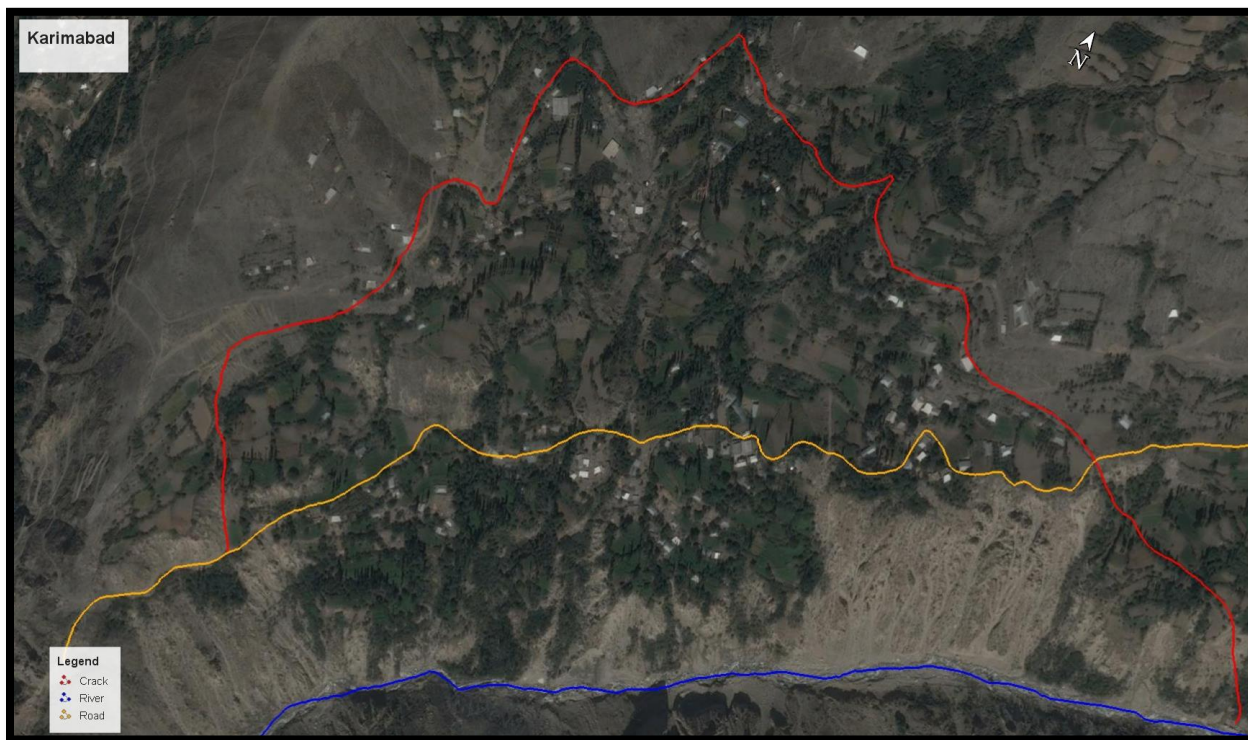


Figure 3: Map identifying Cracks, Rivers and Roads in Karimabad Valley

The whole Valley is under the threat of active land creeping/ subsidence owing to its lithology, which consists of thin layer of unconsolidated debris settled on the slates. This causes over saturation of debris and making land subsidence predominantly active in the valley.

Rock fall is another dominant hazard in the Valley. During Field visit shattered rocks, embedded boulders and exposed boulders were also observed at different locations. The locals informed that the rock fall in this area has caused road damage several times in the past. The team was apprised that during and after rain, rock fall hazards becomes active and cause damage to the forest land having fruit and wooden trees.

Debris flow is another dominant hazard in this Valley. The debris flow from Ghusna gol, ucho gol and ugho gol is a serious issue for this village. The origin of all the three gols is from gram village which enters in the shot causing devastating damages in the Valley.



Figure 4: Boulders representing potential Rock fall



Figure 5: Boulder Rock laying in Karimabad Valley



Figure 6: Landslide Event observed during Field Visit



Figure 7: Visible Cracks observed during Field Visit



Figure 8: Team Observing width of Crack in the Valley

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Figure 9: Debris Flow observed during Field Visit



Figure 10: Deep Cracks touching bedrocks



Figure 11: Cracks observed at different locations in the Valley

3. Factors increasing the Vulnerability of Kareemabad Valley to Multi Hazards

- a. The Valley consists of great numbers of natural springs which trigger mudslide, landslide, debris flow and land subsidence events.
- b. Another triggering factor is the overburden slope with steep angle, deformed bed rock, seepage and overburden geology causing slope instability.
- c. This area has active land slide sites due to continuous mixing of water in the soil which has saturated soil moisture and has decreased its water holding capacity.
- d. The area is composed of sedimentary rock which is very prone to land slide if moisture mixes with it in steep slope.
- e. The gradient of the slope is $>30^\circ$ which as a major triggering force.
- f. There are irrigation channels in upper portion of the valley where seepage is very commonly observed. Besides, there are many fields where irrigation water seeps into the soil and causes mudslide.
- g. The sewerage system of the whole valley is in deplorable state which triggers landslide, mudslide and debris flow in the valley.

4. Findings

- a. Landslides have been seen in many areas, coupled with mudslides and debris flow. These were normally observed in the areas where spring water runs through the valley.
- b. Fresh cracks down to the bedrocks have been appeared in many places.
- c. Many houses have been seen right above the crack.

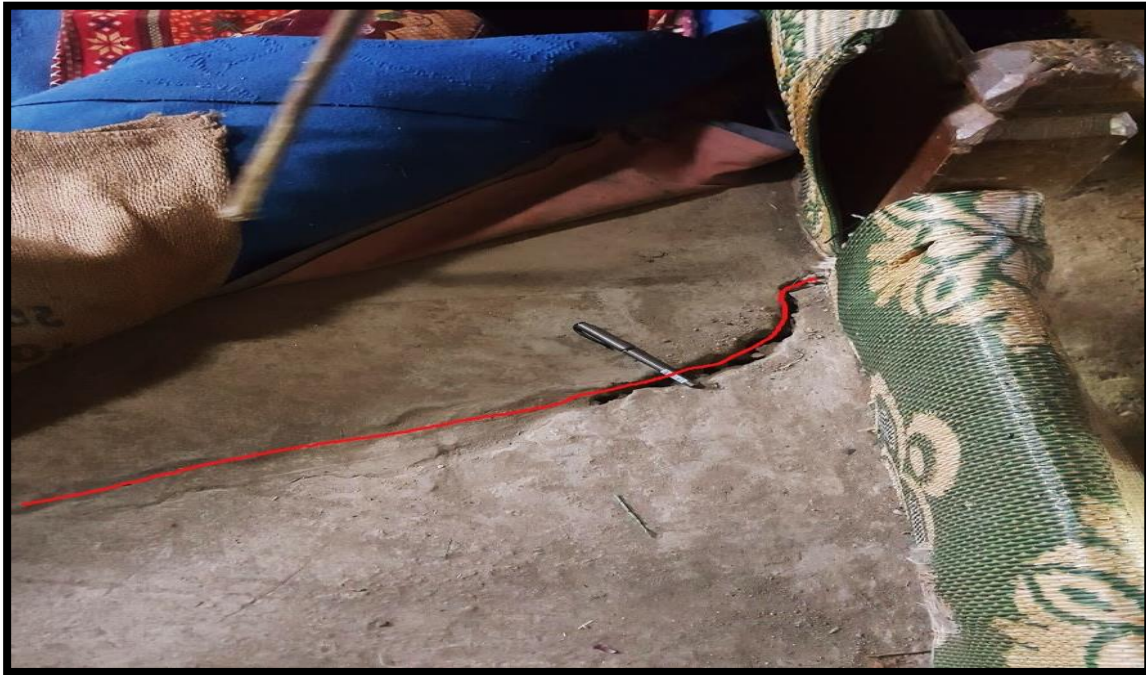


Figure 12: Cracks observed inside Houses



Figure 13: Cracks developed within the Houses

- d. Mud spread has been seen in between the trees. It was also noticed that some cattle sheds were partially damaged due to continuous landslide and debris flow in the valley.



Figure 14: Damaged Cattle Sheds due to continuous landslide events

- e. Village road is in a very deplorable state causing hindrance in the rescue and relief operations during emergency situations.
- f. When torrential rain occurs the water seeps into the cracks and the situation becomes worse.
- g. Trees like poplar, willows and fruit bearing trees play a vital role to control the landslide and mudflow in the valley.

5. Recommendations

- a. Prior to any devastating event, evacuation routes should be well defined and proper drills should be given to inhabitants so that every person in such a situation knows exactly what to do. This requires repeated exercises or drills. Planning and execution of these exercises has to be based on the experience of real scenarios.
- b. Loose boulder should be fragmented through controlled blasting and be made stable via reinforced concrete along the banks.
- c. Local communities be advised to periodically monitor cracks on the mountain and informed local administration in case of widening of existing or formation of new cracks.

- d. In case of widening of existing or formation of new cracks local administration be informed by them.
- e. Future development should be according to the hazard maps
- f. Red zone especially the upstream settled part should be avoided for any construction.
- g. Irrigation channels above the Valley should be cemented to control seepage of the water since it triggers landslide.
- h. Proper sewage system of the tap water and wash room should be adopted to control the seepage of water into the soil.
- i. Spring water should be managed by using PVC pipes.
- j. Water course management may be introduced and advocacy campaigns may be executed to discourage the over watering of agriculture land.
- k. Gabion fences, retaining walls or any other protective structures may be installed at vulnerable locations to stop and catch falling rocks, boulders and debris flow.
- l. More and more water resisting plants should be introduced to control the ground subsidence and bank collapsing.
- m. Ensure restriction of any construction in the agricultural land at the foot hill till the time slope stability is not certified by experts.
- n. Due to high frequency of road accidents, Communication & Works Department may like to formulate and enforce Road Construction Safety by Laws keeping in view the Rock mechanical behavior and slop stability dynamics.
- o. Controlled Irrigation techniques should be advocated in the area and feasibility for construction of concrete water channels may be considered.
- p. Carry out local consultation for community base EWS
- q. Risk sensitization among local communities.
- r. Provision of alternate suitable land and monetary help for relocation of houses located in susceptible areas.
- s. Detailed site survey and assessment may be undertaken to study the technical intricacies of the valley.



Figure 15: PMU, NDMA Team discussing Hazard Map of Karimabad Valley with representative of FOCUS



Figure 16: PMU, NDMA Team with Residents of Karimabad Valley