Establishment of community based early warning system through Weather Monitoring Posts (WMPs) a community based snow avalanche risk reduction initiative

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Abstract

Gilgit-Baltistan and Chitral are prone to multi natural hazards such as debris flows, landslide, flash floods, heavy soil erosion and snow avalanches, and man-made disasters such as acts of terrorism and sectarian violence in the area. In the recent past the areas suffers from excessive natural and human-induced hazards that negatively affect the lives and livelihoods of its inhabitants. Deforestation, deteriorating and ill-planned and poorly designed infrastructure, weak or non-existent early warning and forecasting systems and poor community mobilization for disaster risk reduction and mitigation contribute to more risks and vulnerabilities of communities, thus increasing need to prepare for, cope with and recover from disasters.

Among disasters, snow avalanches have remained one of the devastating disasters in Pakistan. As per the National Disaster Management Authority report the northern parts of Pakistan including Gilgit-Baltistan and Chitral, are prone to avalanches and other disasters. As per the data available with FOCUS Pakistan about 220 individuals have lost their lives in more than 12 events of snow avalanches since 2007 in Gilgit-Baltistan and Chitral. At the same time as per the HVRA data over 13,000 households are at risk of multiple hazards (excluding earthquake) in the hazard prone villages of Gilgit-Baltistan and Chitral. This includes over 1,000 households being at the risk of snow avalanches. The HVRA data also reveals that there are over 83 villages with no communication option and 112 villages with only one communication option.

Improved communication and early warningincludes installation of rain gauge, anemometer, thermometer, compass, and snow board, probe stick etc. satellite phones for communication purpose, which is backed by the traditional way of message by introducing "community messengers" at village levels. In addition, in the avalanche prone villages, weather monitoring posts were installed in 17 vulnerable locations for snow avalanche in 7 remote valleys covering 56 villages of Gilgit-Baltistan and 19 WMPs installed in Chitral region covering almost 103 villages in 8 remote valleys. Community selected members were trained on the data collection using the instruments and sharing the data with the regional offices on daily basis.

Snow avalanche forecast tool was developed including the major perimeters like temperature, precipitation (snow & rain), and wind speed/direction .This tool provided with the essential parameters that drive snow avalanches enabled us analyse data and execute early warnings if threshold met. We successfully predicted 5 massive events and alerted community in the area saving precious lives in GB For example a snow avalanche event occurred in Shimshal valley after the early warning issued and people were evacuated to safer areas and saved them from potential disaster. However in Chitral despite alter a snow avalanche occurred outside living zone of Susoom village in which 9 people trapped & died, including 8 were students & 1 traveller.