AVALANCHE HARVESTING

An Indigenous Solution for Water Conservation

With climate change and rising temperatures, the accumulated snow on high ridges and mountains rolls downhill, carrying with it huge bulks of debris without any water- commonly known as Avalanche.

Avalanches are a frequent occurrence in the high mountains of the Karakoram, Himalayas and the Hindukush ranges of Gilgit Baltistan, wherein massive volumes of snow slide down in early spring.

The melted water from ice bodies eventually dissipates as it seeps into the ground, evaporates, or flows into the rivers. The impact of the avalanches is similar to that of Glacial Lake Outburst Floods (GLOFs). Valleys like Arindu in Gilgit Baltistan, located close to the glaciers, are at high risk of being hit by these snow giants. Communities have to migrate to safer locations for months to protect themselves from this impact.

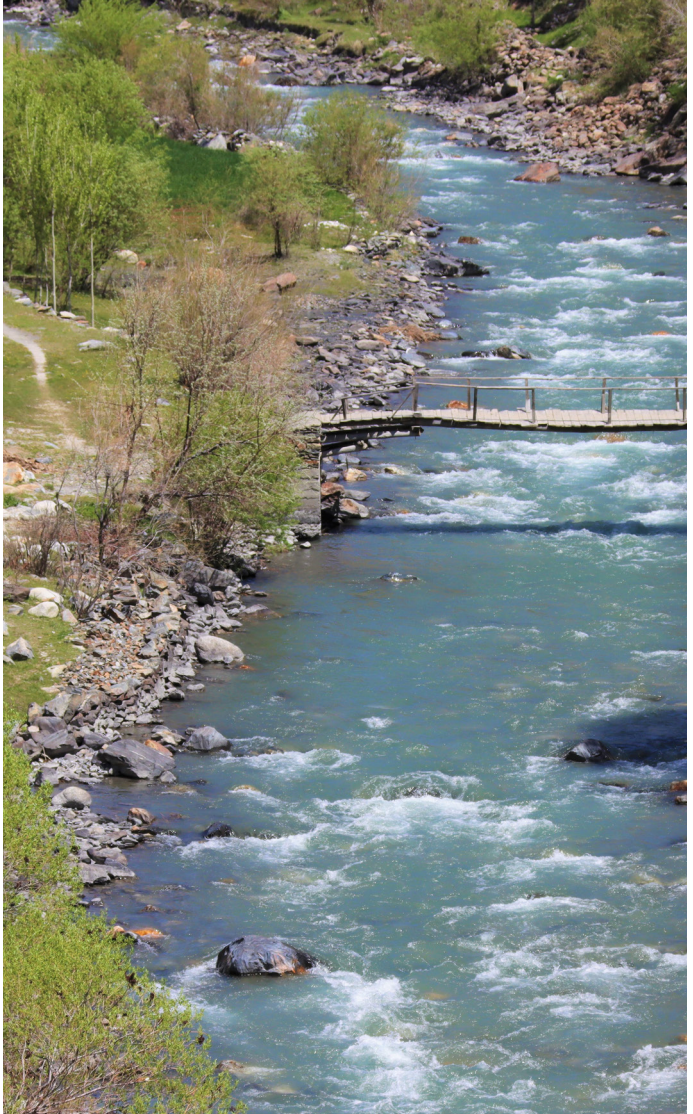
As a long-term sustainable solution to meet water needs, the locals of the Gilgit Baltistan have adopted indigenous practices, one example being Avalanche Harvesting. This practice is an excellent demonstration of nature-based solution for water conservation and to reduce the impacts of climate change like water scarcity.

The avalanche harvesting site is at an altitude of around 3000 meters where the avalanche takes its course, which is typically a narrow gorge with hard rocks surrounding it.

This simple technique entails trapping of the receding snow on upper parts of the mountains by installating wide mesh like structures, made of gabion high tensile cables (strong steel wires) held with 2 pegs inserted into rock holes on each side of the gorge. Usually three to four layers of cable nets are set to grab the avalanche debris as it falls.

The upper most layer of cable net is widely spaced around eight by ten feet, and has meshes which are comparatively thinner than the lower layers. Both layers are at least forty to seventy feet apart, allowing sufficient area for the ice to be accumulated.

The number of layers, height, and mesh size is adjusted based on the site requiremnts and the expected bulk of ice-mass, pressure, and storage area. These avalanche trapping nets are risk free as their parts will not add to debris even if the structure is damaged.



Avalanche Harvesting creates a water source for spring irrigation and enhances the growth of vegetation, while reducing the risk of damages caused by avalanches to pastures, fields, and neighboring villages.

Pakistan is experiencing unprecedented and dreadful impacts of Climate Change, resulting in heat waves, droughts, GLOFs, floods and avalanches. Such simple indigenous techniques of Avalanche Harvesting not only reduce disaster risks but also become a part of integrated water resource management and water conservation, thereby helping communities in the long run.

GLOF-II is an adaptation and mitigation project, helping communities in preserving indigenous practices, such as Avalanche Harvesting, Glacial Grafting and Ice Stupas for water conservation in vulnerable valleys of northern Pakistan.

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Scaling-up of Glacial Lake Outburst Flood Risk Reduction in Northern Pakistan **(GLOF-II PROJECT)**

A Project by

Ministry of Climate Change and
UNDP Pakistan
with support from Green Climate Fund

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