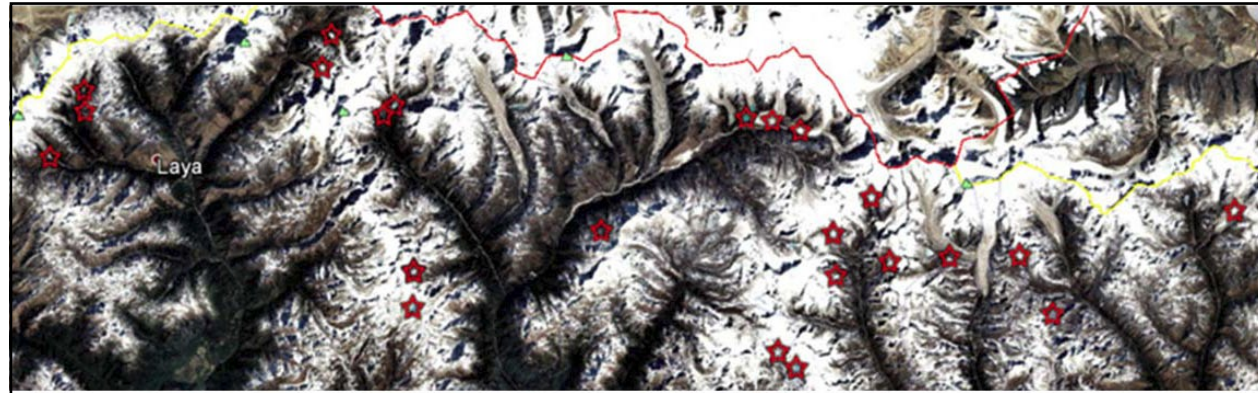


## Inventory of Glaciers, Glacial Lakes and Glacial Lake Outburst Floods

Priority for Actions 1 and 4 - Hazard characterization and early recognition



**Application field:** Visual observation and mapping of glacial lakes and associated glaciers along with physical features in the vicinity using Landsat data series provides vital information to identify critical glacial lakes with potential for outburst in future. This allows early identification of potential hazard and make timely investment on risk management interventions including outburst mitigation options.

**Methodology available / workflow:** Evolution of glacial lake is studied using time series Landsat data which in conjunction with other factors like size of mother glacier and proximity to, type of glacial lake, moraine condition, and physical condition of lake surrounding, the criticality of the glacial lake is assessed. Criteria for identifying critical glacial lake is presented in Ives et al., 2010.

Ives, JD; Shrestha, RB; Mool, PK (2010) Formation of glacial lakes in the Hindu Kush-Himalayas and GLOF risk assessment. Kathmandu: ICIMOD.

The reference is available at: <https://www.unisdr.org/we/inform/publications/14048>

**Key results:** There are over 200 critical glacial lakes in the Hindu Kush Himalayan region some of which are monitored regularly using remote sensing and occasionally in the field.

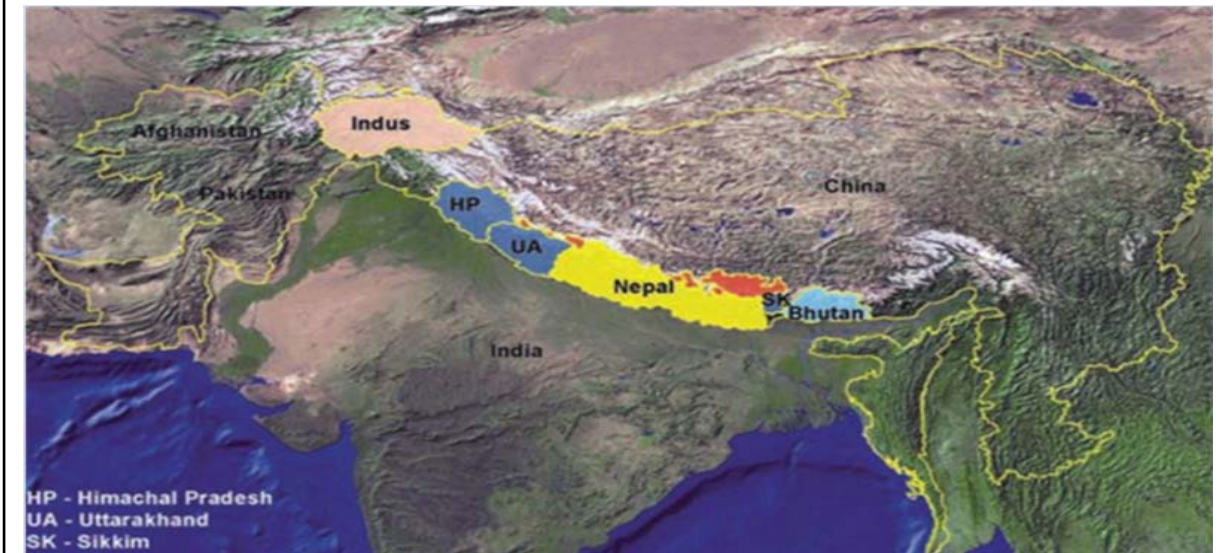
**Innovative impact:** The approach provides a simple methodology using freely available data to identify looming hazard up in the difficult and inaccessible terrain.

GP-STAR Factsheet

## Inventory of Glaciers, Glacial Lakes and Glacial Lake Outburst Floods

Application status: Recommended Practice, pre-operational

### Hindu Kush Himalaya region



The identification of critical glacial lakes is based on remote sensing method in which several criteria related to glacial lakes, glaciers and physical condition of surrounding area is considered to assess potential for future outburst and possible glacial lake outburst flood (GLOF).

Mool, P.K.; Bajracharya, S.R.; Joshi, S.P. (2001) Inventory of Glaciers, Glacial Lakes, and Glacial Lake Outburst Flood Monitoring and Early Warning Systems in the Hindu Kush Himalayan Region – Nepal. Kathmandu: ICIMOD

Mool, P.K.; Bajracharya, S.R.; Joshi, S.P. (2001) Inventory of Glaciers, Glacial Lakes, and Glacial Lake Outburst Flood Monitoring and Early Warning Systems in the Hindu Kush Himalayan Region – Bhutan. Kathmandu: ICIMOD

<http://geoapps.icimod.org/glacierlakes/index.html>

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