

2. Hindu Kush Himalayan Region – Geography

The Hindu Kush Himalayan (HKH) region is currently facing an unprecedented environmental crisis. The ICIMOD report, "HKH Glacier Outlook 2026," provides a comprehensive analysis of 50 years of monitoring, revealing that the "Water Tower of Asia" is under severe threat from accelerated warming.

Core Definitions & Background

To understand the report's gravity, it is essential to define the key geographical and scientific concepts involved–

The "Third Pole"– A term used for the HKH region because it contains the largest reserves of freshwater in the form of ice outside the North and South Poles.

Water Tower of Asia– This region acts as a natural reservoir, feeding 12 major river systems that sustain nearly 2 billion people (approx. one-third of the global population).

Elevation-Dependent Warming (EDW)– A climatic phenomenon where high-altitude regions (like mountain peaks) experience a faster rate of temperature increase compared to the surrounding lowlands.

Glacial Lake Outburst Flood (GLOF)– A catastrophic failure of a natural dam containing a glacial lake, leading to sudden, massive downstream flooding.

ICIMOD– The International Centre for Integrated Mountain Development is a regional intergovernmental organization focused on the HKH region's sustainable development.

The Hindu Kush Himalayan (HKH) Region– A Profile

The HKH region is not just a mountain range but a global ecological anchor.

Geographic Extent– Stretches over 3,500 kilometres across eight countries– Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan.

Biodiversity Hub–

1. Contains 4 of the world's 36 global biodiversity hotspots.
2. Hosts two of the "Global 200" ecoregions.
3. Includes 575 Protected Areas and 335 Important Bird Areas.

Socio-Economic Importance– Over 85% of mountain communities depend directly on this ecosystem for food, water, and cultural identity.

Analysis of Major River Basins & Glacier Loss

The report highlights a disparity in how different basins are reacting to climate change.

River Basin	Share of Glaciers (%)	Glacier Area Loss (1990–2020)	Characteristics
Indus Basin	41% (Count) / 44% (Area)	6% Loss	Holds the largest total glacierized area in the HKH.
Ganga Basin	13%	21% Loss	Experienced the steepest reduction despite hosting large glaciers.
Brahmaputra	20%	16% Loss	High vulnerability to rapid melting and flash floods.

Key Findings of the 2026 Report

1. Massive Mapping Effort

ICIMOD mapped 63,761 glaciers covering approximately 55,782 square kilometres. These serve as the primary source for 10 to 12 major Asian river systems.

2. Accelerated Melting Rates

1. The rate of melting has doubled since the year 2000.
2. The last decade (2010–2020) recorded the most frequent "extreme melt years" in history.
3. Small Glaciers at Risk– Glaciers smaller than 0.5 square kilometres (which make up 75% of the total number) are shrinking the fastest, leading to immediate localized water shortages.

3. The Threat of Elevation-Dependent Warming (EDW)

1. Approximately 78% of the glacier area is situated between 4,500 and 6,000 meters.
2. This specific altitude range is highly exposed to EDW, meaning the very core of the "Water Tower" is warming faster than the rest of the planet.

4. Escalating Disaster Risks

The report links glacier retreat to a rise in catastrophic events. Recent examples in India include-

1. 2021 Chamoli Disaster- A massive rock and ice avalanche.
2. 2023 South Lhonak Lake Flood- A devastating GLOF in Sikkim.
3. 2024 Dharali Disaster- Highlighting the continued vulnerability of Himalayan settlements.

The "Water Tower" Drainage Systems

The HKH glaciers feed three primary directions of water flow-

1. Westward- Indus, Amu Darya, and Syr Darya (flowing toward the Arabian Sea and the Aral Sea).
2. Southward- Ganga and Brahmaputra (flowing toward the Bay of Bengal).
3. East/Southeast- Yellow River, Yangtze, Mekong, Chindwin, Salween, and Irrawaddy.
4. Interior- The Tarim river flowing toward the Taklamakan desert.

The Indian Himalayan Region (IHR)

In India, the HKH impact is felt across 11 mountain states and the Darjeeling district of West Bengal.

1. States involved- Assam, Uttarakhand, Himachal Pradesh, Manipur, Jammu & Kashmir, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, and Arunachal Pradesh.
2. Monitoring History- Systematic monitoring began in June 1974 at Gara Glacier (Himachal Pradesh).
Currently, Chhota Shigri Glacier holds the longest record of mass balance in the Western Himalayas.

Strategic Implications

The report warns that without immediate climate action; the region faces long-term water insecurity. The loss of these glaciers doesn't just mean "less water"—it means a transition from stable, perennial river flows to a dangerous cycle of "too much water" (floods) followed by "too little water" (droughts).

Source- <https://www.downtoearth.org.in/water/himalaya-ice-loss-in-the-last-50-years-equivalent-to-a-six-storied-building-says-icimod>