

Glacier Slowdown in Zaskar Region of Ladakh

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Why in News?

A recent study has found that glaciers in the **Zaskar region of Ladakh** are slowing down and becoming thinner. Researchers studied 12 glaciers between **1992 and 2023** and found that their average flow speed declined by about **2.43 metres per year per decade**.

Key Findings

- The average glacier flow speed fell by around **16%** during 1992–2023.
- Glacier surface thinning increased from about **0.22 metres per year in 2000-05** to **0.57 metres per year in 2015-20**.
- Warmer temperatures are causing greater ice loss and thinning.
- As glaciers become thinner, the force that moves ice downhill also decreases, leading to slower glacier movement.

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Why are Zaskar Glaciers Important?

Zaskar is a **high-altitude, cold and dry region** where rainfall is limited. Snow and glaciers are therefore important sources of water. Glacier melt provides water to rivers, farms, ecosystems and local communities during the warmer months.

Some important glaciers in the region include **Drang Drung, Machoi and Parkachik**. The meltwater from the Zaskar glacier system contributes to the river network connected with the **Indus Basin**.

Impact on Water Security

The slowdown and thinning of Zaskar glaciers can affect the long-term availability of meltwater, creating risks for communities, agriculture and ecosystems in the water-scarce Ladakh region.

- **Reduced water availability:** Less glacier ice may mean lower meltwater supply in the future.
- **Agriculture:** Irrigation-dependent farming may face water shortages.
- **Drinking water:** Local communities may experience greater water stress.
- **Ecosystems:** Changes in river flow can affect mountain biodiversity.
- **Downstream regions:** Reduced glacier melt may impact water availability in the wider Indus Basin.

Way Forward

There is a need for **regular monitoring of Himalayan glaciers** through satellite observations and ground-based studies. Better glacier and river-flow data can help predict future water availability and climate-related risks. At the broader level, reducing greenhouse gas emissions and implementing climate adaptation measures are essential to protect the Himalayan cryosphere.

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