Recent study about Himalayan Glaciers

Prelims: *Current events of national and international importance | Geography | Disaster Management*

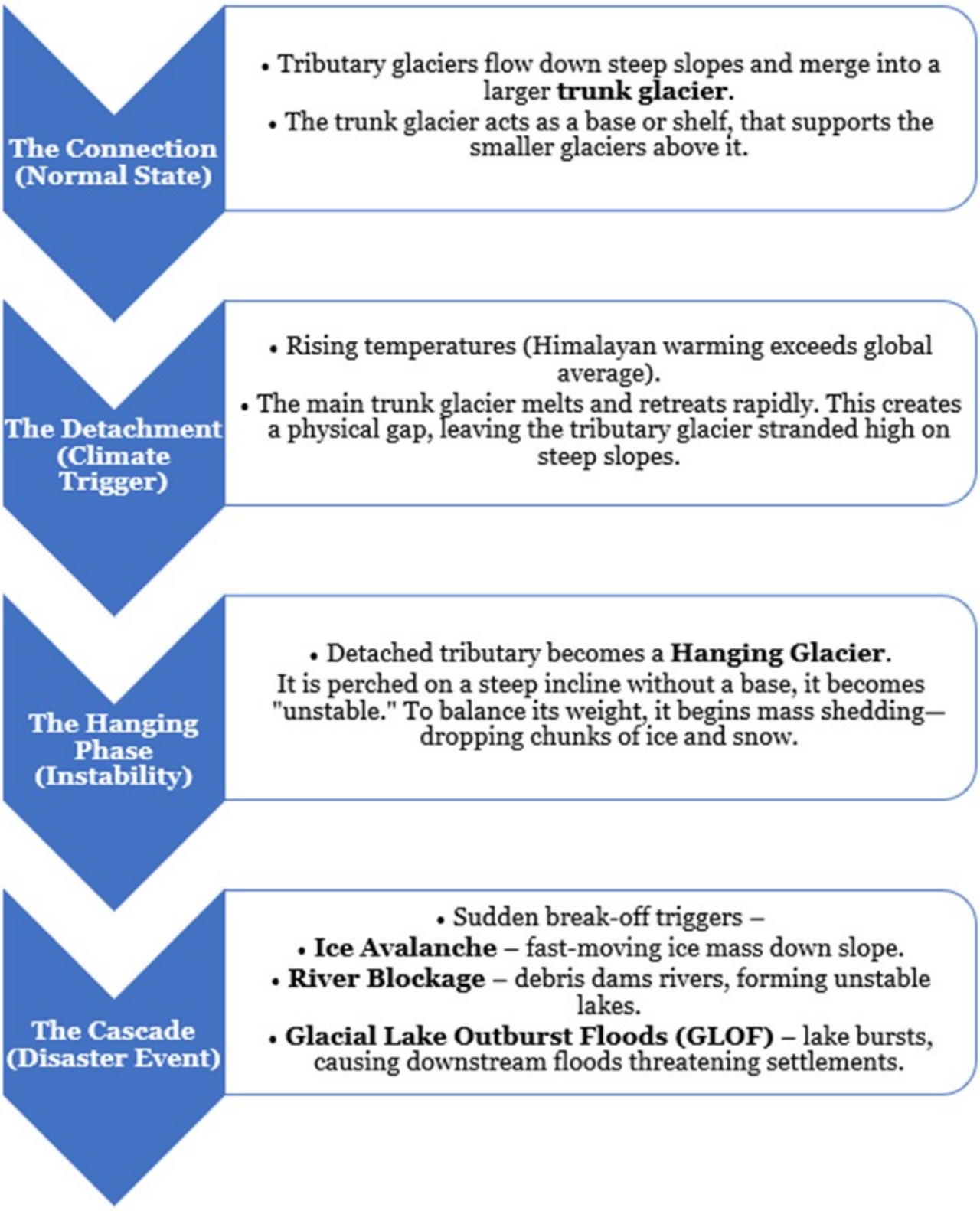
Why in News?

*A recent study has identified **219 unstable hanging glaciers** in the Alaknanda basin of Uttarakhand, warning of avalanche and downstream disaster risks.*

The Alaknanda Basin

- **Location** – Primary headstream of the Ganga in Uttarakhand.
- **Elevation Range** – 400 m to 7,800 m.
- **Key Settlements at Risk** – Mana (last Indian village), Badrinath, Hanuman Chatti.
- **Critical Infrastructure** – National Highway 7 (NH7), hydropower projects, pilgrimage routes.
- **Concentration** – 30% of hanging mass volume in Upper Alaknanda basin.
- **Seismicity –** The Alaknanda basin is characterized by high seismic activity, which acts as a secondary trigger for glacial instability.
- **Exposure Growth –** Built-up area expanded from 8,000 sq. m (2000) to projected 150,000 sq. m (2030); population from <400 to >8,500.

The Four-Step Life Cycle



The 2021 Chamoli disaster showed glacier collapses evolving into debris flows.

- **Key Analysis**
  - **Monitoring Gap** – Unlike the Alps (radar, time-lapse cameras,

early-warning systems), the Himalayas lack systematic monitoring.
- **Climate Trends** – Himalayan warming in the past two decades has exceeded the global average, accelerating glacier retreat.
- **Suggested Measures** – Targeted monitoring of high-risk glaciers, prioritizing resources for the most perilous zones.

Reference

[The Hindu | Hanging Glaciers]

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