



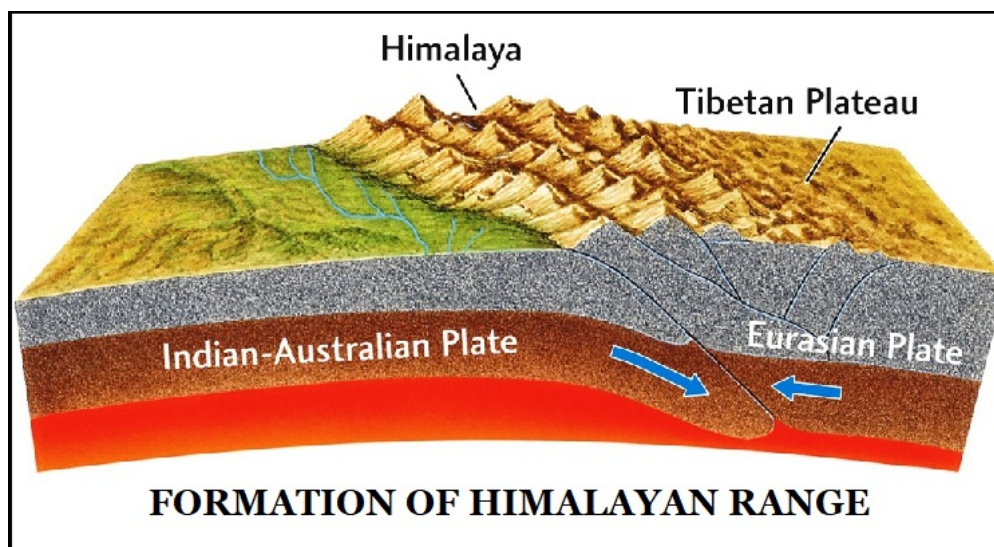
Fragility of the Himalayan Mountains

Why in news?

With the sinking of Joshimath town, there is a considerable amount of research on the vulnerabilities of Himalayan geology brought to the fore.

How vulnerable is the Himalayan range?

- The Himalaya is a fragile mountain range that is still rising as the Indian plate continues to push into the Asian plate.
- The mountains are mainly the shale upwelling of the sea, which makes them quite unstable.
- In fact, they are largely held together by the forests that they support.



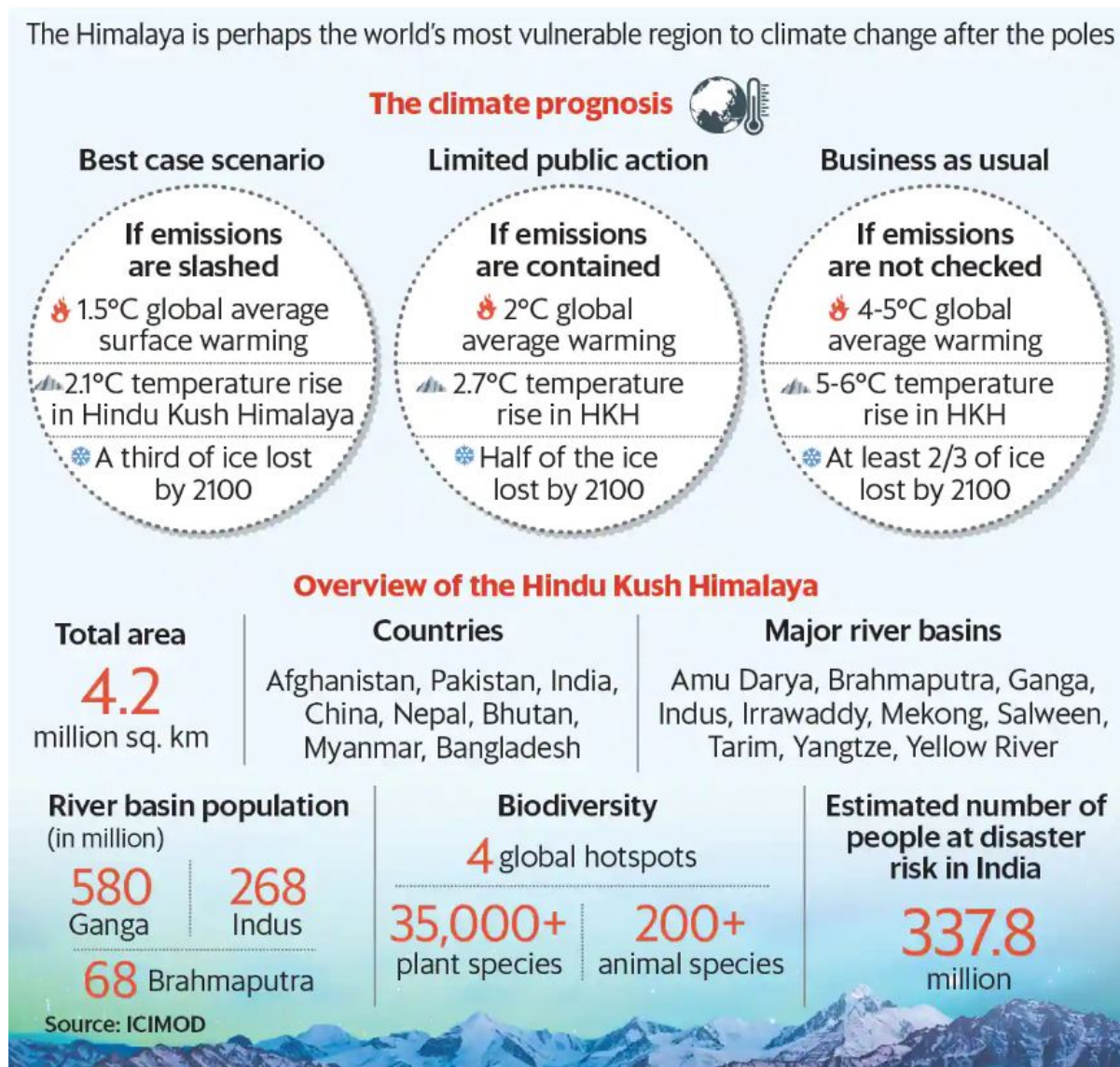
What is the case of Joshimath crisis?

- **Geography** - At over 6,000 feet, Joshimath sits on the side of an unstable ridge created largely from glacial moraine rock and shale in a rift valley.
- It is also a seismic zone.
- The ground beneath is a heterogeneous mass with pockets of variegated rock and open spaces occupied by water and mud from old glacial deposits.
- It also holds some important aquifers.
- **Issues** - Joshimath is no place for a tourist town that supports more than 2 million pilgrims a year or a four-lane highway.
- The government has sanctioned a hydropower project in the Dhauliganga-Alaknanda

basin which upon tunneling punctured an aquifer in 2009 and contributed to the Joshimath slide.

- Uttarakhand state has more than 40,000 km of roads and counting today for tourists to visit the **Char Dham sites** (Yamunotri, Gangotri, Badrinath and Kedarnath).
- India also appears to be competing with China to build high-altitude railways.
- The mountains in Tibet on the Chinese side are made of firm rock whereas most of the Himalayan mountains are made of the unstable shale.

To know more about the Joshimath Crisis, click [here](#)



What are the concerns?

- **Extreme weather events** - With the consequent loss of forest cover and extreme weather events (**the 2013 Kedarnath flood**), catastrophes have occurred at a steady beat in all of Uttarakhand.
- **Soil and water degradation** - The local soil and water have been degraded.
- **Decline in natural springs** - The number of natural mineral water springs is declining.
- **Increasing landslides** - The number of landslides is also shooting up.

What lies ahead?

- If India needs any strategic border roads, they must run along rocky terrain to be stable.
- Those roads that exist on shale or other loose-soil hills must be urgently forested to stabilise the steep hillside as well as hold water and restore springs.
- There must be a complete ban on any hydroelectric power projects in the Himalaya, especially on the source-rivers of the Ganga (Bhagirathi and Alaknanda).
- Indian Himalaya has to be declared as an “**inviolable protected zone**” and a “**planet reserve**” similar to the declaration of Amazon basin as a “**strictly protected zone**”.

Reference

1. [The Hindu | A Himalayan blunder](#)



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