Ecological Disasters in Sikkim

Why in News?

Recently, the state of Sikkim in Northeast India was hit by a major landslide caused by heavy rainfall, wreaking havoc among the population.

Why Sikkim is prone to ecological disasters?

- **Incessant rainfall** – It records one of the highest annual rainfalls in the country.
- **Landslides** – With a steep altitude variation over a span of longer areas, it has always remained vulnerable to landslides.
- It ranges from from 231 meters above sea level in the south to 8,500 meters in the northwest, over a span of just 114 kilometers.
    - There has been a noticeable increase in the frequency of landslides since 1995, with another significant increase starting in 2007.
- **Earthquake** – It lies in the *high seismic zones IV and V* in earthquake prone Himalayas.
    - In 2011, the region experienced one of the most fatal earthquakes in its history.
- **GLOF** – A Glacial Lake Outburst Flood in 2023 affected about 88,400 people.

> ***A Glacial Lake Outburst Flood (GLOF)*** *are sudden and often catastrophic events that occur when water contained within or underneath a glacier or a moraine-dammed glacial lake is released rapidly.*

- **Higher population pressure** – From just one urban town in 1981, the number of towns increased to eight by 2001.
- The population living in urban areas rose from 2% percent in 1951 to 11% in 2011.
    - The introduction of the *North East Industrial and Investment Promotion Policy* in 2007 saw a push for rapid urbanization and industrialization.
- **Rampant construction of dams** – Large-scale developmental activity in Sikkim began with the West Bengal government's damming of the Teesta River in 1975.
    - As of 2019, there were *more than 40 hydropower projects* in different stages of development in Sikkim.
- **Security-Development projects** – A significant construction activity has been undertaken to build a *railway line connecting Sevoke in West Bengal to Rangpo in Sikkim*, with the ultimate aim of extending it to the Nathu La Pass bordering China.
- The railway line construction, meanwhile, involved blasting 14 tunnels in an already precarious landscape.

Sikkim

• It is a *landlocked Indian state* nestled in the Himalayas.
• It is one of the 8 north-eastern states in India.
• **Borders** – It borders *Nepal* to the west, *Tibet* to the north and east, and *Bhutan* to the southeast.
• The *state of West Bengal* borders Sikkim to its south.
• **Size** – It is the *second-smallest state* after Goa in total area.
• **Population** – With just slightly over 600,000 permanent residents, Sikkim is the *least populous state* in India.
• **Physiography** – The entire state is *mountainous*, with altitudes ranging from 300 to 8,586 meters from sea level, therefore despite its small area, it is geographically diverse.
• *Kanchenjunga*, the world's third-highest peak, is located on Sikkim's border with Nepal.
• About a third of the land is heavily forested.
• Sikkim's hot springs are known for medicinal and therapeutic values.
• **Climate** – The climate ranges from subtropical to high alpine and a rich diversity in flora and fauna thrives in the state.
• **River Teesta** – It is described as the "lifeline of Sikkim", flows through the state from north to south.
• **Geo-strategic importance** – Sharing international borders with three countries it lies in a geopolitically strategic location.
• Historical clashes between India and China at the Sikkim frontiers, including the *1967 war, the 2017 Doklam standoff, and the 2021 border skirmish,* underscore the strategic importance of the region.



What are the impacts of disasters in Sikkim?

- **Destruction of ecosystem** – Disasters destroys the natural landscape of Sikkim and alters it making it non-conducive for living both for humans and wildlife.
- **Damage to property** – It causes severe damage to roads, bridges, and homes.
- The 2023 GLOF occurred in South Lhonak Lake in northern Sikkim, rupturing one of the region's highest dams on the Teesta River, the Chungthang or Teesta III dam.
- **Loss of life** – 2023 GLOF have engulfed everything in its downstream areas including the life of 23 Indian Army soldiers.
- **Affect tourism** – About 1,500 tourists, including international visitors, were stranded in northern Sikkim and later rescued.
- **Disconnect the state** – Roads connecting Sikkim and north Bengal to the plains of India were cut off for a long time.

What lies ahead?

- **Strengthening the regulation** – Regulating, monitoring and planning of land use, land-use change and forestry in the Himalaya is needed.
- **Granting rights** – The local communities be given constitutional, land and forest governance rights.
- **Efficient implementation** - Constitutional provisions and laws that support decentralised governance and decision-making should be efficiently implemented.
- **Following best practices** – Encourage transparency, knowledge sharing and exchange so that indigenous knowledge and local communities can also be part of governance.
- **Building resilient societies** – Making the locals as equitable and sustainable can ensure the proper implementation of SC/ST Sub plans in mountain states
- **Better disaster management** – Have a strong disaster response system ready, including time-bound and full union government support whenever extreme events occur.

Reference

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