Darjeeling Landslides

Mains: *GS III – Disaster management*

Why in News?

Recently as many as 14 people have been killed in multiple landslides triggered by heavy rain in the Darjeeling and Kalimpong districts of West Bengal.

What is a Landslide?

- **Landslide** – It is literally land mud, rocks, debris sliding down a slope.
- Landslides occur when the force of gravity becomes stronger than whatever '*glue*' was holding this material together.

> ***The glue*** *can be a combination of various factors, including tree roots holding soil together, the gradient of a slope, the weight and mass of the soil, channels available for water to move through the soil and down the slope, etc.*

- **Contributing factors** – The reason heavy rain often triggers landslides is that water makes the soil heavier and also reduces friction, making it easy for the soil and rocks to slide down a slope.
- In India, especially in the hills, unplanned construction has worsened matters.
- Buildings and roads are often built without accounting for how much load a slope can hold.
- Improper drainage networks leave water with no avenue to flow out safely.
- **Vulnerability of India** – About 0.42 million square km of India's landmass, or about 13% of its area, spread over 15 states and four Union Territories, is prone to landslides, according to the Geological Survey of India (GSI).
- This covers almost all the hilly regions in the country.
- About 0.18 million square km, or 42% of this vulnerable area is in the Northeastern region, where the terrain is mostly hilly.
- **Vulnerability of Darjeeling** – Darjeeling, known for its beauty and salubrious climate, has been a victim of several natural disasters in the past.
- Available records show that massive landslides occurred in 1899, 1934, 1950, 1968, 1975, 1980, 1991 and more recently in 2011 and 2015.
- The year 1968 saw devastating floods, also in October, killing over a thousand people.

What are main reasons for intensification of landslides in Darjeeling?

- **Increasing population** – The population in the hills has increased, mainly because of influx from the plains and neighbouring countries.
- The land-and-property-buying spree recorded metamorphic changes in the last three decades.
- **Climate change impact** – The impact of climate change has been quite distinctly visible in the changing rainfall pattern.
- The rainfall that remained fairly spread over from May and September has now become more intense and incessant, lasting for just a few hours over a few days.
- What is locally known as '*mushaldhare varsha*' (intense rainfall) has replaced the traditional steady and smooth '*sawnaay jhari*' (monsoon shower).
- **Changes in river course** – Rivers and jhoras (streams) have shown unprecedented course changes.
- They are generating new paths for hydrological flows and intrusions into human habitations and livelihoods.
- **Pressure of development** – Heavy, unsuitable and unsustainable development projects, like hydro power, railways, hotels and other installations, have been a massive onslaught on the limited carrying capacity of these hills.
- **Flooding** – The flooding of river beds, streams-*jhora* sidelines and other natural corridors with unplanned and unauthorised settlements have triggered arterial clogging.
- **Lack of dedicated agency** – Besides the relatively weaker institution of the District Collector, there is no professional agency to handle such devastation.
- **Shortage of skill and funds** – The local administrative institutions have neither the knowledge nor skills to handle such disasters, nor the funds, techniques, technology and manpower to effectively deal with these dangerous trends.
- **Lack of solid waste management –** The municipalities in the hills do not even have a simple solid waste management unit.
- This itself has become a major disaster-causing factor.
- **Deficiency in responses** – There is a lack of urgency with Central and state governments in both forewarning the hill communities and also in managing the aftermath of damages.
- **Lack of early warning** – Because an adequate early warning system is yet to be developed.
    - **For example**, cyclone warning generally comes well in advance for evacuation and relief efforts to mobilise.
- Some early warning systems have been developed, on a trial basis at a few locations in Kerala, Sikkim, and Uttarakhand.

What were the warnings provided by institutions and publications?

- **Landslide Atlas of India 2023** – It was published by Indian Space Research Organisation (ISRO).
- It ranked Darjeeling, 35th and as the most exposed area among 147 districts.
- **The State of Environment Report 1991** – It was published by the non-profit Centre for Science and Environment.

- It stated that during 1902-1978, there were nine cloud burst occurrences in the Teesta Valley.
- **Role of NGOs** – Several local NGOs, including Save the Hills led by Col Praful Rao of Kalimpong, have been highlighting these threats on social media and also through substantive debates and awareness campaigns.
- **Sikkim GLOF** – The Glacial Lake Outburst Flood (GLOF) in Sikkim in October 2023, triggered by the Lhonak lake breach, was very emphatically warned about in the Sikkim Human Development Report 2001.
- This GLOF not only claimed many human lives, it swept away the 1200-mw Chungthang Hydro power project.
- It also destroyed several public and military installations, and caused an estimated damage of over Rs 25,000 crore, almost 60% of the GDP of Sikkim of 2022-23.

- **Institutional inefficiency** – The most blatant example of this institutional failure is the state of damage in Darjeeling and Kalimpong that remains unattended after the GLOF.
    - **For instance**, in the Teesta Bazar area, river water continues to crisscross the highways, blocking the flow of people, goods and services almost every week.
- **National security ramifications –** Climate change-triggered impacts have dangerous portents and very deleterious national security ramifications in Darjeeling and surrounding areas.
- **Foreign exchange losses** – Many of Darjeeling's products have played a role in India's globalisation journey such as
    - Its famous tea
    - Cultivation of anti-malarial drugs like quinine
    - Mt Kanchenjunga-led natural beauty and tourism
    - Educational institutions
- All these historically crucial bastions of India's foreign exchange earnings have been doubly affected and eroded by climate change.
- **The long-standing demand** – There has been a long standing demand from people and various organisations to
    - Set up a national institution including on climate change studies and disaster management that would cater to the entire Himalayan regions of India, Bhutan, Nepal, Myanmar and the Tibet region.
    - To convert the historic Forest Rangers College in Kurseong as the first climate change studies and management centre in the Eastern Himalayas.
- The demand remain unaddressed by the Ministry of Environment and Forests in Delhi.

What lies ahead?

- A National Landslide Risk Management Strategy was finalised in 2019 but more work needs to be done.
- Given the Darjeeling district's sensitive geopolitical location at the chicken's neck, its politico-development status has to be now determined exclusively from the national security perspective.
- It has to be a national interest project in India's Act East Policy context.

References

1. The Indian Express| Darjeeling landslides
2. The Indian Express| Disaster in Darjeeling