



Balancing priorities

Context:

- **Landslide in Idukki** district of Kerala has claimed 22 lives thus far and rendered several families homeless.

Landslides in Kerala:

- Landslips or landslides have been a recurrent phenomenon in the **Western Ghat state of Kerala**.
- Data from the **Geological Survey of India** shows that Kerala has experienced 67 major landslide events and several minor ones from 1961-2013.
- In 2019, Wayanad district witnessed multiple landslides that claimed several lives and destroyed multiple hamlets.
- **The National Landslide Susceptibility Mapping (NLSM) programme** of the Geological Survey of India notes that nearly 13 of the State's 14 districts are prone to landslides.
- As part of a National Landslide Susceptibility Mapping (NLSM) programme, the Geological Survey of India mapped States facing high landslide risk to assess the vulnerability of the districts to landslides. This included states in the Western Ghats, the north-eastern States, Jammu and Kashmir and Uttarakhand.
- The objective of the NLSM maps is to help State and district authorities incorporate the risk of landslides into zoning laws.
- The **high population density of Kerala** (over 800 per square kilometre) makes the state more hazard-prone to landslides as compared to other states.

What are causative factors?

- **Heavy rainfall in Kerala:** Kerala has been receiving heavy monsoon rainfall. Most districts have received three or four times more rain than what is normal.
- Lying in the Western Ghats, Kerala receives high monsoonal rainfall.

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- **Topography:** Given the **hilly topography of the state**, Kerala is prone to landslides.
- **Climate change:** Climate change has brought out a **new climate normal**. Frequent high-intensity bursts of rain will co-exist along with long dry spells. This would only increase the threat of natural calamities like landslides.
- **Developmental activities: Extensive deforestation** for developmental work has led to an increased possibility of soil erosion.
- Given the hilly topography of Kerala, human activities like **quarrying and the unscientific cutting of slopes for road construction** have only increased the risk of soil erosion.

Way forward:

- The strategy to counter the risk posed by landslides must be based on the four pillars of disaster management: **Mitigation, Preparedness, Response and Recovery**.
- **Mitigation:** Methods of preventing landslides: modifying slope geometry, using chemical agents to reinforce slope material, installing structures such as **piles and retaining walls**, and rerouting surface and underwater drainage, **restriction of certain types of land use** where slopes are vulnerable.
- Methods of reducing the impact of landslides: Restriction of population from landslide-prone areas.
- **Preparedness:** Important preparatory strategies could involve **monitoring and landslide prediction**. The National Landslide Susceptibility Mapping (NLSM) programme of the Geological Survey of India could help assess the vulnerability of the districts and this could allow the concerned states to plan accordingly.
- Installing **early warning systems** based on the monitoring of ground conditions like slope displacement, strain in soil and rocks, groundwater levels can help warn the residents and authorities of the risks.

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- **Landslide Education, Awareness and Capacity Building** among the residents and the local administration must be an important preparation strategy.
- The **district and state disaster management apparatus** should be ready for intervention at a short notice.
- **Response:** Ensuring **medical service** to the injured people.
- Providing **emergency shelters** for those who lost their homes.
- Opening up of access road in case of blocks. This could ensure an uninterrupted flow of resources to the affected region.
- **Recovery:** Given the overwhelming evidence available indicating the effect of developmental activities in the increased incidence of landslides, there is the need to **ensure strict enforcement of environmental regulations and zoning laws**. If necessary such laws must be made more stringent.

There is a need for new models of development. **Development goals must be pursued without breaching environment regulations.**