

Very High Vulnerability Zone	<ul style="list-style-type: none"> <li>Highly unstable, relatively young mountainous areas in the Himalayas and Andaman and Nicobar,</li> <li>High rainfall regions with steep slopes in the Western Ghats and Nilgiris, the north-eastern regions,</li> <li>Areas that experience frequent ground-shaking due to earthquakes, etc. and</li> <li>Areas of intense human activities, particularly those related to construction of roads, dams, etc.</li> </ul>
High Vulnerability Zone	<ul style="list-style-type: none"> <li>Very high vulnerability zone are included in this category. <b>(except the plains of Assam)</b></li> <li><b>The only difference between these two is the combination, intensity and frequency of the controlling factors.</b></li> </ul>
Moderate to Low Vulnerability Zone	<ul style="list-style-type: none"> <li>Areas that receive less precipitation such as- <ul style="list-style-type: none"> <li>Trans-Himalayan areas of Ladakh and Spiti (Himachal Pradesh),</li> <li>undulated yet stable relief and low precipitation areas in the Aravali,</li> <li>rain shadow areas in the Western and Eastern Ghats and</li> <li>Deccan plateau</li> </ul> </li> <li>Landslides due to mining and subsidence are most common in states like Jharkhand, Orissa, Chhattisgarh, Madhya Pradesh, Maharashtra, Andhra Pradesh, Karnataka, Tamil Nadu, Goa and Kerala.</li> </ul>
Other Areas	The remaining parts of India, particularly states like Rajasthan, Haryana, Uttar Pradesh, Bihar, West Bengal (except district Darjiling), Assam (except district Karbi Anglong) and Coastal regions of the southern States are safe as far as landslides are concerned.

#### Landslide Hazard Mitigation NDMA guidelines

- Hazard zones have to be identified and specific slides to be stabilized and managed in addition to monitoring and early warning systems to be placed at selected sites.
- It is always advisable to adopt **area-specific measures** to deal with landslides.
- Hazard mapping** should be done to locate areas commonly prone to landslides.
- Restriction on the construction** and other developmental activities such as roads and dams, limiting agriculture to valleys and areas with moderate slopes, and control on the development of large settlements in the high vulnerability zones, should be enforced.
- Large-scale **afforestation programmes** and construction of bunds to reduce the flow of water should be encouraged.
- Terrace farming** should be promoted in the north-eastern hill states replacing Jhumming or shifting cultivation.
- Retaining walls** can be built of mountain slopes to stop land from slipping. Vulnerable slopes and existing hazardous landslides should be treated accordingly.
- Codes for excavation, construction and grading must be prepared.
- Arrangements for landslide insurance and compensation for losses must be put in place.

#### Existing Challenges

- Integrating landslide concerns in the development of disaster management plans at different levels i.e., national, state, district, municipal/panchayat is required.
- Switch-over from piecemeal remediation of landslides to simultaneous and holistic implementation of control measures is the need of the hour.
- Techno-legal regime for introduction of sound slope protection, planned urbanisation, regulated land use and environment friendly land management practices must be done.
- Zero tolerance against deliberate environmental violence and unhealthy construction practices must be enforced. Laws governing new constructions and alteration of existing land use on problematic slopes and in landslide prone areas must be enacted.
- Establishment of a disaster knowledge network and a mechanism for dissemination of information at the national level, mechanism for international linkages, cooperation and joint initiatives must be undertaken.