



## Mains Marathon

**Day 33:** Describe the various causes and the effects of landslides. Mention the important components of the National Landslide Risk Management Strategy. (150 Words)

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### Approach / Explanation / Answer

- Start with writing about the issues of landslides in India.
- Describe the various causes and the effects of landslides.
- Mention the important components of the National Landslide Risk Management Strategy.
- Conclude suitably.

### Answer

A landslide is defined as the **movement of a mass of rock, debris, or earth down a slope. They are a type of mass wasting, which denotes any downward movement of soil and rock under the direct influence of gravity.**

Slope movement occurs when **forces acting downward (mainly due to gravity) exceed the strength of the earth materials that compose the slope.** Landslides are caused due to **three major factors: geology, morphology, and human activity.**

- **Geology** refers to characteristics of the material. The earth or rock might be weak or fractured, or different layers may have different strengths and stiffness.
- **Morphology** refers to the structure of the land. For example, slopes that lose their vegetation to fire or drought are more vulnerable to landslides.
- **Human activity refers to agriculture and construction** which increases the risk of a landslide.
- Landslides can be initiated in slopes already **on the verge of movement by rainfall, snowmelt, changes in water level, stream erosion, changes in groundwater, earthquakes, volcanic activity, disturbance by human activities, or any combination of these factors.**
- **Earthquake shaking** and other factors can also induce landslides underwater.

**Landslide-Prone Areas of India:** The entire Himalayan tract, hills/mountains in sub-Himalayan terrains of North-east India, Western Ghats, the Nilgiris in Tamil Nadu Konkan areas are landslide-prone.

### Different effects of landslides are as follows:

- Landslides have been verified to result in destruction of property. If the landslide is significant, it

could drain the economy of the region or country. After a landslide, the area affected normally undergoes rehabilitation.

- Infrastructure such as roads, railways, leisure destinations, buildings and communication systems can be decimated by a single landslide.
- Communities living at the foot of hills and mountains are at a greater risk of death by landslides. A substantial landslide carries along huge rocks, heavy debris and heavy soil with it.
- The soil, debris, and rock sliding downhill can find way into rivers and block their natural flow. Many river habitats like fish can die due to interference of natural flow of water.

### National Landslide Risk Management Strategy

The National Landslide Risk Management Strategy is the strategy document which is also fulfilling the fifth target of **Sendai Framework for Disaster Risk Reduction (2015-30)** i.e., Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020. This strategy document **addresses all the components of landslide disaster risk reduction and management such as hazard mapping, monitoring and early warning system, awareness programmes, capacity building and training, regulations and policies, stabilization and mitigation of landslide etc.** This strategy document envisages specific recommendations for the concerned nodal Agency, Ministries / Departments, States and other stakeholders, so as to avert or reduce the impact of future landslide calamities.

### Important components of the National Landslide Risk Management Strategy are as follows

- Generation of User-Friendly Landslide Hazard Maps
- Development of Landslide Monitoring and Early Warning System
- Awareness Programmes
- Capacity Building and Training of Stakeholders
- Preparation of Mountain Zone Regulations & Policies
- Stabilisation and Mitigation of Landslides and Creation of Special Purpose Vehicle (SPV) for Landslide Management.

### Step Taken:

- The Geological Survey of India (GSI) has done a national landslide susceptibility mapping for 85% of the entire 4,20,000 square km landslide-prone area in the country.
- The areas have been divided into different zones according to the propensity of the disaster.
- Improvement in early warning systems, monitoring and susceptibility zoning can reduce the damage caused by landslides.



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