



KAMARAJ IAS ACADEMY
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Wayanad

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A massive landslide in Kerala triggered by heavy rain over the hilly areas of the Wayanad district lead to swelling of Chaliyar river and has entrenched three villages causing more than 122 deaths and 190 injured and still many stuck inside the debris.

About Wayanad:

Wayanad is the only **plateau** in Kerala, forming a **continuation of the Mysore Plateau, part of the Deccan Plateau.**

The **Kabini River**, a **tributary of the Kaveri River**, originates in Wayanad.

The **Chaliyar River**, the **fourth longest river in Kerala**, also originates on the Wayanad plateau.

Wayanad is home to the **Wayanad Wildlife Sanctuary.**

Susceptibility to Landslides:

The region predominantly has **laterite soil**, which is **highly prone to erosion.**

The steep and undulating terrain of Wayanad makes it naturally susceptible to landslides.

Wayanad receives intense and prolonged monsoon rains that cause water infiltration, leading to soil saturation and increased pore water pressure, which destabilizes slopes.

Large-scale deforestation for agriculture and settlement reduces the binding capacity of the soil and its ability to absorb water, exacerbating the risk of landslides.

What are Landslides?

A landslide is defined as the **movement of a mass of rock, debris, or earth down a slope.**

Landslides are a type of "**mass wasting**," which denotes any down-slope movement of soil and rock under the direct influence of gravity.

Landslides occur **mainly in mountainous terrains** where there are conducive conditions of soil, rock, geology and slope.

Natural Causes that trigger it include **heavy rainfall**, earthquakes, snow melting and undercutting of slopes due to flooding.

Landslides can also be caused by **Anthropogenic Activities** such as excavation, cutting of hills and trees, excessive infrastructure development, and overgrazing by cattle.

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India has the highest mountain chain on earth, the Himalayas, which are formed due to collision of Indian and Eurasian plate, the northward movement of the Indian plate towards China causes continuous stress on the rocks rendering them friable, weak and prone to landslides and earthquakes.

Landslides and avalanches are among **the major hydro-geological hazards** that affect large parts of India besides the Himalayas, the Northeastern hill ranges, the **Western Ghats**, the Nilgiris, the Eastern Ghats and the Vindhyans, in that order, covering about 15 % of the landmass.

India's Landslide Vulnerability:

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.

Out of this,

0.18 million sq. km falls in **North East Himalaya**, including Darjeeling and Sikkim Himalaya;

0.14 million sq. km falls in **North West Himalaya** (Uttarakhand, Himachal Pradesh and Jammu & Kashmir);

0.09 million sq. km in **Western Ghats and Konkan hills** (Tamil Nadu, Kerala, Karnataka, Goa and Maharashtra) and

0.01 million sq. km in **Eastern Ghats** of Araku area in Andhra Pradesh.

Regional Distribution

North-western Himalayas: 66.5% of landslides.

North-eastern Himalayas: 18.8% of landslides.

Western Ghats: 14.7% of landslides.

Rainfall variability is the single biggest cause of landslides, particularly in the Himalayas and the Western Ghats.

Approximately 12.6% of India's geographical land area, excluding snow-covered areas, is **prone to landslides**.

The landslide-prone Himalayan terrain falls in the maximum earthquake-prone zones (Zone-IV and V; BIS 2002) where earthquakes of Modified Mercalli intensity VIII to IX can occur, and thus, are also prone to earthquake-triggered landslides

Key Policy Initiative: National Landslide Susceptibility Map

The National Remote Sensing Centre (NRSC) under ISRO released the Landslide Atlas of India in 2023.

This detailed guide identifies landslide hotspots across the country with a 100 sq. m resolution overview of landslide susceptibility.

The map highlights traditional high-risk areas and uncovers new regions of concern, broadening the scope of landslide monitoring.

Scientists conducted a risk assessment based on 80,000 landslides recorded between 1998 and 2022 across 147 districts in 17 states and two Union Territories, creating a "Landslide Atlas" of the country.

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National disaster response force:

The **Disaster Management Act of 2005 established the National Disaster Response Force (NDRF)**, an Indian specialized force, “for a special response to a threatening disaster scenario or disaster.”

The Apex Body for Disaster Management in India is the National Disaster Management Authority (NDMA).

The Chairman of the NDMA is the **Prime Minister**.

The head of the NDRF is designated as **Director General**.

The Director Generals of NDRF are IPS officers on deputation from Indian police organizations.

Director General is a three-star officer.

NDRF battalions are located at 16 different locations in the country based on the vulnerability profile of the country and to cut down the response time for their deployment at the disaster sites.

National Disaster Response Fund

The National Disaster Response Fund, constituted under Section 46 of the **Disaster Management Act, 2005**, supplements the State Disaster Response Fund (SDRF) of a State, in case of a disaster of severe nature, provided adequate funds are not available in SDRF.

It is placed in the “**Public Account**” of the Government of India under reserve funds not bearing interest.

Expenditures from it are not required to be approved by the Parliament.

State Disaster Response Fund

The State Disaster Response Fund (SDRF), constituted under Section 48 (1) (a) of the Disaster Management Act, 2005, is the primary fund available to State Governments for responses to notified disasters.

The **Central Government contributes 75% of SDRF allocation for general category States/UTs and 90% for special category States/UTs (NE States, Sikkim, Uttarakhand, Himachal Pradesh, Jammu, and Kashmir).**

The annual Central contribution is released **in two equal installments** as per the **recommendation of the Finance Commission**.

SDRF shall be used only for meeting the expenditure for providing immediate relief to the victims.