

COURSE : DISASTER MANAGEMENT (MA/ MSc PART I)

Paper : VII

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Topic : Landslide Prone Areas in India

INTRODUCTION:

Landslides are defined as the mass movement of rock debris or mud down a slope and have come to include a broad range of motions, whereby falling, sliding and flowing under the influence of gravity dislodged earth material. They also occur as secondary effects of heavy rainstorms, earthquakes and volcanic eruptions. Landslides occur as a consequence of changes, either sudden or gradual, in the composition and structure of rocks or vibrations in the earth's surface.

LANDSLIDE PRONE AREAS IN INDIA:

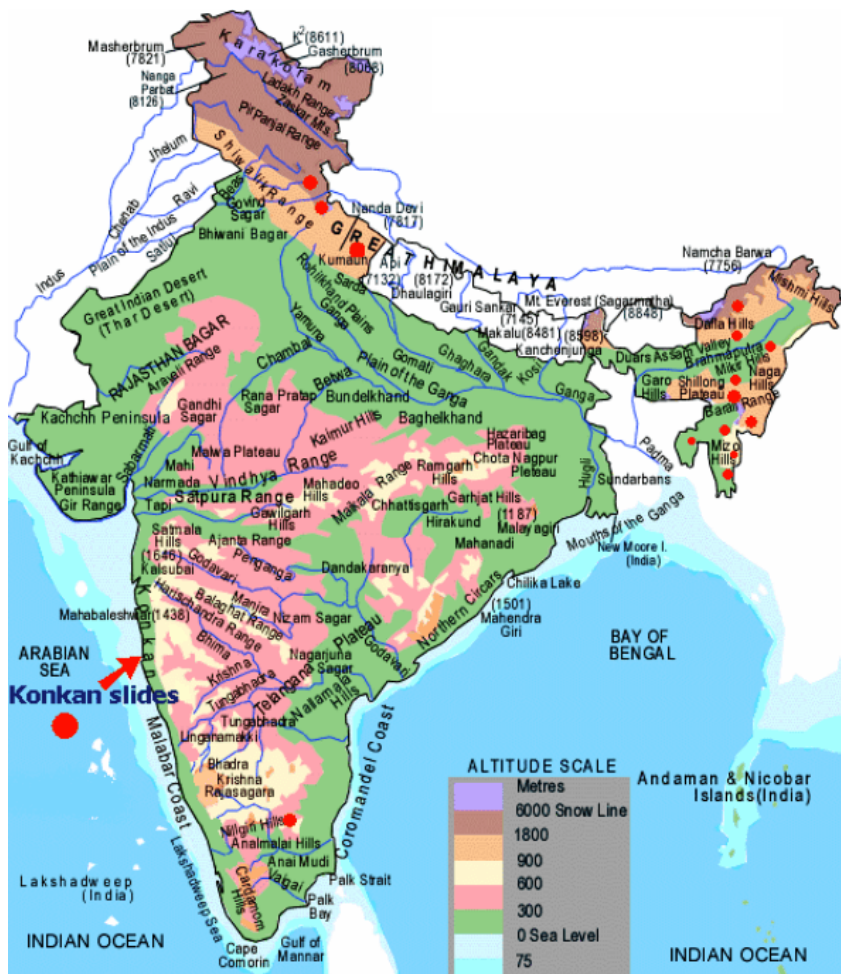
About 12.6 per cent of the total land mass of India falls under the landslide-prone hazardous zone. Out of the total land area prone to landslide, 0.18 million square kilometres fall in the North East Himalayas, including Darjeeling and Sikkim Himalaya. About 0.14 million square kilometres fall in North West Himalayas in states like Uttarakhand, Himachal Pradesh and Jammu and Kashmir.

Another 0.09 million square kilometres in Western Ghats and Konkan hills in states like Tamil Nadu, Kerala, Karnataka, Goa and Maharashtra and 0.01 million square kilometre in Eastern Ghats of Aruku area in Andhra Pradesh are found to be landslide-prone. The landslide-prone Himalayan terrain also belongs to the maximum earthquake-prone zones where earthquakes of Modified Mercalli intensity VIII to IX can occur, and thus, are also prone to earthquake-triggered landslides.

The major areas affected by landslides in India are divided mainly in following regions as landslide-prone areas in India. These are based on landslide hazard zonation:

- The Western Himalayas (in states of Uttar Pradesh, Uttaranchal, Himachal Pradesh and Jammu & Kashmir)
- The Eastern & North-eastern Himalayas (in states of West Bengal, Sikkim and Arunachal Pradesh)
- The Naga-Arakan Mountain belt (in states of Nagaland, Manipur, Mizoram and Tripura)
- The Western Ghats region including Nilgiris (in states of Maharashtra, Goa, Karnataka, Kerala & Tamil Nadu)
- The Plateau margins of the Peninsular India and Meghalaya plateau in North-east India.

In the hilly terrain of India including the Himalayas, landslides have been a major and widely spread natural disasters that often strike life and property and occupy a position of major concern. One of the worst tragedies took place at Malpa Uttarkhand (UP) on 11th and 17th August 1998 when nearly 380 people were killed when massive landslides washed away the entire village. This included 60 pilgrims going to Lake Mansarovar in Tibet. In 2010 Cloudburst led flash mudslides and flash floods killed 196 people, including six foreigners and injured more than 400 and swept away number of houses, sweeping away buildings, bus stand and military installations in trans Himalaya Leh town of Jammu and Kashmir. Giving due consideration to the severity of the problem various land reform measures have been initiated as mitigation measures. Landslides occur in the hilly regions such as the Himalayas, North-East India, the Nilgiris, and Eastern and Western Ghats.



(Map showing major areas of landslides in India)