

**GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
LOK SABHA
UNSTARRED QUESTION NO. 1567
TO BE ANSWERED ON WEDNESDAY, 31ST JULY, 2024**

RESEARCH ON LANDSLIDES AND SOIL EROSIONS

1567. Shri Kamakhya Prasad Tasa:

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) whether it is a fact that every year landslides and soil erosions are increasing in the north-eastern region;
- (b) if so, the details thereof and the action taken by the Government in this regard;
- (c) whether the Government has conducted any study to identify natural and traditional methods for reducing landslides and soil erosion in hilly areas particularly in the north-eastern region;
- (d) if so, the details thereof and if not, the reasons therefor; and
- (e) the details of the funds allocated for research and development on addressing landslides and soil erosion?

**ANSWER
MINISTER OF STATE (INDEPENDENT CHARGE) FOR
MINISTRY OF SCIENCE AND TECHNOLOGY
AND EARTH SCIENCES
(DR. JITENDRA SINGH)**

- (a) The Geological Survey of India (GSI) is mandated to conduct landslide studies in the landslide prone areas across 19 States/Union territories of the country. However, wherever soil erosion is found to be the cause of the landslide suitable measures as per site requirements are also suggested.

GSI has collected data of 592 nos. of landslides that occurred since April 2017 to July 2024 in different States of North-eastern region (NER), which have impacted lives and/or infrastructure. Analysis of these data show a mixed trend with periodic ups and downs in number of occurrences of landslides. To infer conclusively about the exact nature of trend of landslide incidents, long-range (at least of 20-years) landslide occurrence data with exact date of occurrence is required.

The year-wise distribution of such 592 new landslides are given in the table below, which shows that in 2019-20, there is less reported landslides. This clearly indicates that occurrence of landslides in the NER is having a mixed trend as per the following data:

Year	Post disaster landslide studies completed
2017-18	28
2018-19	49
2019-20	45
2020-21	65
2021-22	78
2022-23	102
2023-24	29
2024-25	196
Total	592

(b) The steps taken by GSI in the field of landslide management includes data on landslide susceptibility at different scales for regional to site-specific land planning and spreading awareness among communities through Landslide Awareness/Contact programmes and is briefly outlined below:

- i. In landslide studies, major activities of GSI are Pre-disaster studies (multi-scale landslide susceptibility mapping & conducting landslide awareness programme); Post-disaster studies (landslide inventory mapping and site specific detailed geological mapping, slope stability analysis and landslide monitoring), and Regional landslide forecasting
- ii. GSI launched the National Landslide Susceptibility Mapping (NLSM) Programme since 2014-15 for generating the baseline data on 1: 50,000 scale and completed the landslide susceptibility mapping of 4.3 lakh sq.km of the landslide prone areas in India. The landslide Susceptibility Map classified landslide prone hilly terrains of the country into High, Moderate and Low zones based on proneness to land sliding. Under this programme, GSI also mapped 1.85 lakh sq km area in Sikkim, Meghalaya, Assam, Manipur, Nagaland, Mizoram and Tripura with historical 41,063 nos. of landslides polygons using both remote sensing (RS) and field-based source data. The landslide susceptibility maps and the landslide information are uploaded in OCBIS portal (<http://bhukosh.gsi.gov.in/Bhukosh/Public>) for public viewing and downloading.
- iii. For local landslide management, mesoscale (1: 10,000) scale susceptibility mapping of prioritised sectors has been initiated as per the SOP developed by GSI. Work in 39 sectors have already been completed by 2022.
- iv. GSI as part of the LANDSLIP project (www.landslip.org) has developed an experimental regional Landslide Early Warning System (LEWS) based on rainfall thresholds for two pilot study areas viz. Darjeeling district of West Bengal and the Nilgiris district of Tamil Nadu. GSI has also initiated R & D activities for developing regional landslide Forecasting systems (LEWS) in landslide-prone states of NER viz. Sikkim, Assam, Meghalaya, Mizoram, Nagaland where work is under progress.

- (c) & (d) Yes. GSI provides suitable recommendations for landslide risk reduction which also includes both natural and traditional methods as per the site conditions. However, wherever soil erosion is found to be the cause of the landslide, suitable measures as per site requirements are also suggested. GSI provides recommendations on both structural/non-structural and natural methods for reducing landslide hazard in the northeast. The recommendations are based on the knowledge of site condition as landslides are very site-specific disasters.
- (e) The details of fund allocation and expenditure on various Specialized Investigations including landslide studies in GSI for last 3 years and current year is given below;

Budget (in lakhs)	2021-22	2022-23	2023-24	2024-25 (upto June 2024)
Budget Grant	300.00	300.00	330.00	320.00
Expenditure	292.33	291.15	315.76	107.72
