GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
RAJYA SABHA
UNSTARRED QUESTION No. 21
TO BE ANSWERED ON THRUSDAY, FEBRUARY 02, 2017

STUDY CONDUCTED ON LANDSLIDES AND AVALANCHES

21. SHRI SANJAY SETH:

Will the Minister of EARTH SCIENCES be pleased to state:

(a) whether Government has conducted or proposes to conduct any study on natural disasters like landslides and avalanches occurring almost every year in some parts of India and if so, the details thereof; and
(b) whether there is any system to identify such places for precautionary measures and if so, the details thereof?

ANSWER
MINISTER OF STATE FOR MINISTRY OF SCIENCE AND TECHNOLOGY AND MINISTRY OF EARTH SCIENCES
(SHRI Y. S. CHOWDARY)

(a) Geological Survey of India (GSI), the nodal department of Government of India for landslide studies has been carrying out landslide related studies in the following domains.

i. **Landslide Susceptibility Zonation on macro scale (1:50,000).**
ii. **Landslide Susceptibility Zonation on meso scale (1:10,000).**
iii. **Site Specific landslide studies for suggesting remedial measures.**
iv. **Post-disaster Landslide inventory Mapping and Preliminary Investigations.**
v. **Coordination, Cooperation and Capacity Building.**
vi. **Other research based investigations and international collaboration.**

Monitoring of snow accumulation and avalanche early warning is carried out by the Snow and Avalanche Study Establishment (SASE), Chandigarh of the Defence Research & Development Organization (DRDO) for the vulnerable upper reaches of Himalayas in the states of Jammu & Kashmir and Himachal Pradesh. Regular operational avalanche warnings are issued to the Army and civilian population in hitherto snow bound regions of north-west Himalayas.

SASE is also the nodal agency for studying and developing avalanche mitigation technologies. The methodologies include aerial reconnaissance/ground surveys, which are further used as an input to prepare avalanche hazard maps.

(b) About 15% area of India is landslide prone and all such zones are mapped. The landslide prone stretches may tentatively be identified through Landslide Hazard Zonation (LHZ) studies and slope stability studies. As on today, no warning system exists for occurrence of landslides. However, landslide prone vulnerable zones are mapped so as to alert respective local governments to put such areas under watch in association with heavy rainfall warnings as and when issued for such zones.

The precautionary measures include the passive control of avalanche viz. to ensure safe mobility, training to the troops (approximately 5000 in number every year) and active control of avalanches by building control structures as a permanent solution.

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