

**GOVERNMENT OF INDIA  
MINISTRY OF EARTH SCIENCES  
LOK SABHA  
UNSTARRED QUESTION NO. 4539  
TO BE ANSWERED ON WEDNESDAY, 30<sup>TH</sup> MARCH, 2022**

**FORECASTING OF AVALANCHES**

4539. SHRI GUMAN SINGH DAMOR:

**Will the Minister of EARTH SCIENCES be pleased to state:**

- (a) whether any scientific study has been conducted to find out the reasons for the occurrence of avalanches and if so, the details thereof;
- (b) the steps taken to forecast and prevent the occurrence of avalanches; and
- (c) the quantum of loss caused by avalanches every year ?

**ANSWER**

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

- (a) Yes, scientific studies have been conducted to understand the reasons for the occurrence of snow avalanches by different organizations with the help of mountain-top observatories. Indian scientists from the [Snow and Avalanche Study Establishment](#) (SASE), currently known as Defence Geoinformatics Research Establishment (DGRE), Chandigarh under Defence Research and Development Organization, Ministry of Defence have found that in the past 25 years, winters in the northwestern Himalayas are getting warmer and wetter (more rainfall) with less snowfall. More rainfall and increasing temperatures lead to a greater frequency of landslides and avalanches.
- (b) Avalanches are natural phenomenon which can not be prevented. National Centre for Medium Range Weather Forecasting (NCMRWF), under the Ministry of Earth Sciences (MoES) provides the high resolution weather forecasts from their global, regional and ensemble prediction systems to DGRE on daily basis. DGRE uses NCMRWF model output to drive their mountain weather model and Avalanche forecast model. In addition, during the winter season, NCMRWF shares the coupled model's snow forecasts with DGRE. The coupled model at NCMRWF is used to issue Extended-Range multi-week snow forecasts every Thursday for next four weeks. . Similarly from NCMRWF coupled model, once a month the seasonal snow forecast for next three months are shared with DGRE. These snow and total precipitation forecasts are very useful for possible Avalanche forecasting at DGRE's end.
- (c) This Ministry does not maintain any centralized data regarding the quantum of loss caused by avalanches every year. However, early warning and forecasts for rainfall and snowfall are being issued by India Meteorological Department (IMD and NCMRWF regularly).

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