

**GOVERNMENT OF INDIA  
MINISTRY OF HOME AFFAIRS**

**RAJYA SABHA  
UNSTARRED QUESTION NO. 1197**

**TO BE ANSWERED ON THE 27<sup>TH</sup> JULY, 2022/ SRAVANA 5, 1944 (SAKA)**

**DEATHS DUE TO NATURAL CALAMITIES**

**1197. SHRI SANJAY RAUT:**

**Will the Minister of HOME AFFAIRS be pleased to state:**

**(a) whether it is a fact that there has been an increase in number of deaths due to snowfall, lightning and avalanches in the country during the last three years;**

**(b) if so, the details thereof during the last three years;**

**(c) whether Government is working on any technology for accurate avalanche predictions and to safeguard the lives; and**

**(d) if so, the details thereof?**

**ANSWER**

**MINISTER OF STATE IN THE MINISTRY OF HOME AFFAIRS  
(SHRI NITYANAND RAI)**

**(a) to (d): The details of deaths due to Avalanches/Snowfall during the last three years as provided by Defence Research and Development Organisation (DRDO) are as under:**

<b>Year</b>	<b>Deaths due to Avalanches/Snowfall</b>
<b>2019-20</b>	<b>24</b>
<b>2020-21</b>	<b>24</b>
<b>2021-22</b>	<b>12</b>

**The details of deaths due to lightning during the year 2018 to 2020 as provided by National Crime Record Bureau (NCRB) are as under:**

<b>Year</b>	<b>Deaths due to Lightning</b>
<b>2018</b>	<b>2357</b>
<b>2019</b>	<b>2876</b>
<b>2020</b>	<b>2862</b>

**National Disaster Management Authority (NDMA) has released guidelines on Management of Landslides & Snow Avalanches (2009), which has measures to reduce the impact of snow avalanches and early warning.**

**Defence Geoinformatics Research Establishment (DGRE) has developed following technologies for accurate avalanche predictions to safeguard lives in snow bound regions of Himalaya.**

- (i) AI/ML (Artificial intelligence/ Machine Learning) based avalanche forecast.**
- (ii) Increased Avalanche Warning System (AWS) network and surface observatories for snow bound areas.**
- (iii) Avalanche Engineering Control structures.**
- (iv) Technology for Artificial Triggering of avalanches.**
- (v) Avalanche early warning radars.**
- (vi) Avalanche rescue radars.**
- (vii) Common Alert Protocol (CAP) compliant online APP for avalanche warning dissemination.**

**DGRE 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. Regular operational avalanche warning is issued by DGRE to the Army and civilian population in the snow bound regions of north-west Himalayas.**

\*\*\*\*\*