

**GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
LOK SABHA
UNSTARRED QUESTION NO. 696
TO BE ANSWERED ON WEDNESDAY, 7TH FEBRUARY, 2024**

FLOODS DUE TO BURSTING OF GLACIER LAKES

696. SHRI SRIDHAR KOTAGIRI:
DR. SANJAY JAISWAL:

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) whether the Government has developed any early warning system for the possibility of floods due to bursting of glacier lakes in the country;
- (b) if so, the details thereof;
- (c) if not, the reasons therefor;
- (d) whether the Government has conducted a comprehensive risk assessment, mapped vulnerable areas and developed infrastructure to address the risks posed by Himalayan glaciers;
- (e) if so, the details thereof; and
- (f) if not, the reasons therefor?

ANSWER

**THE MINISTER OF EARTH SCIENCES
(SHRI KIREN RIJJU)**

- (a) to (c) The National Disaster Management Authority (NDMA) in collaboration with the Swiss Development Corporation (SDC), Embassy of Switzerland in India issued the guidelines for management of Glacial Lake Outburst Floods (GLOFs) in 2020 including detail about all the aspects of installation of an Early Warning System. Two solar-powered, twin-camera, Automated Weather Stations (AWS) were installed by members of two NDMA-led multi-agency expeditions to two high-risk glacial lakes, South Lhonak and Shako Cho in Sikkim on September 16, 2023. In addition, potential locations to install an array of sensors for an end-to-end Early Warning System (EWS) were identified during the expedition.
- (d) to (f) National Remote Sensing Centre (NRSC), Hyderabad carried out inventory of glacial lakes and water bodies of size greater than 50ha using satellite data during 2012 to 2016. Subsequently Central Water Commission (CWC) has been carrying out the monitoring of Glacial lakes (>50ha) using satellite data. Further, NRSC has taken up GLOF risk assessment of glacial lakes in the Himalayan Region of Indian River Basins. As part of this activity, 28043 glacial lakes of size greater than 0.25ha have been mapped for entire catchment areas of Indian Himalayan rivers using high resolution satellite data from Resourcesat-2 (RS-2) Linear Imaging Self Scanning Sensor-IV (LISS-IV). Basin-wise glacial atlases of Indus, Ganga, Brahmaputra River basins and Indian Himalayan River Basins were prepared and published.

The Ministry of Earth Science through its autonomous institute, the National Centre of Polar and Ocean Research (NCPOR), has been monitoring and carrying out scientific research on two pro-glacial lakes in the Chandra Basin, since 2013.
