

GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

RAJYA SABHA
UNSTARRED QUESTION NO. 3723
TO BE ANSWERED ON 03.04.2025

Glacial lakes and water bodies

3723. SHRI M. SHANMUGAM:

Will the Minister of ENVIRONMENT, FOREST AND CLIMATE CHANGE be pleased to state:

- (a) whether Government is aware that there is rapid expansion in the areas of glacial lakes and other water bodies in the Himalayan region;
- (b) if so, the details thereof and the consequences of environmental impact;
- (c) whether it would also affect downstream communities, infrastructure and bio-diversity; and
- (d) if so, whether any action plan has been drawn to face the consequences, if so, the details thereof?

ANSWER

MINISTER OF STATE IN THE MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE
(SHRI KIRTI VARDHAN SINGH)

(a) to (c) The Government is aware of the rapid expansion of glacial lakes and other water bodies in the Himalayan region. The Central Water Commission (CWC) under Ministry of Jal Shakti (MoJS) is the nodal agency for monitoring of glacial lakes in India. The CWC, using remote sensing techniques, monitors 902 Glacial Lakes and Water Bodies (GL&WBs) of size greater than 10 Ha, included from Glacial Lake Inventory 2011 prepared by the National Remote Sensing Centre (NRSC), in the Himalayan Region of Indian River Basins, for the period June to October every year. Detailed monthly and annual reports of this monitoring along with trend analysis are published by CWC on their website at <https://cwc.gov.in/en/glacial-lakeswater-bodies-himalayan-region>.

The expansion of glaciers has severe environmental consequences, including a heightened risk of Glacial Lake Outburst Floods (GLOFs), which occur when unstable glacial dams fail. The increased water volume may also destabilize mountain slopes, triggering landslides, erosion, and sedimentation, which disrupt river ecosystems and aquatic life.

(d) In response to the escalating threat of Glacial Lake Outburst Floods (GLOFs), the National Disaster Management Authority (NDMA) has initiated comprehensive measures to mitigate disaster risks by collaborating with State/UT governments, scientific institutions, and international agencies. NDMA has released national guidelines on GLOF (2020) to strengthen disaster mitigation activities. Under the National GLOF Risk Mitigation Programme (NGRMP), launched with an approved budget of Rs. 150 crore by the Ministry of Home

Affairs, NDMA prioritizes four high-risk states - Arunachal Pradesh Himachal Pradesh, Uttarakhand, and Sikkim - focusing on risk assessment, monitoring, and capacity building.

Further, a dynamic list of 195 high-risk glacial lakes has been identified, aiding in prioritizing mitigation interventions. Scientific field expeditions were conducted at 37 high-risk glacial lakes in 2024, some involving bathymetric surveys, electrical resistivity tests, and drone-based mapping to assess lake stability and potential threats. Two Early Warning Systems (EWS/AWS) have been installed at South Lhonak Lake and Shako Chu Lake in Sikkim.

Also, to strengthen preparedness, NDMA conducts capacity-building programs, organizes awareness workshops, and fosters community-based risk reduction strategies. The formation of the Technical Advisory Committee (TAC) and the Committee on Disaster Risk Reduction (CoDRR) further enhances institutional coordination and ensures the timely implementation of mitigation measures, safeguarding vulnerable communities and critical infrastructure from GLOF-related hazards.
