GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

LOK SABHA
UNSTARRED QUESTION NO. 1752
TO BE ANSWERED ON 10.03.2025

Impact of Climate Change in Kerala

1752. SHRI HIBI EDEN:

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

(a) whether the Government or any institution working under the aegis of Government carried out impact of climate change, particularly on rainfall patterns in the State of Kerala and its correlated impact on landslides and other natural disasters in the state, if so, the details thereof;
(b) whether the Government has analysed the reasons behind the Wayanad Landslide Disaster and whether heavy rainfall due to climate change was responsible for the same, if so, the details thereof; and
(c) whether any initiatives have been taken by the Government to reduce the impact of climate change in the States such as Kerala, 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) Climate change is a cross-cutting issue spanning various Ministries/ Departments and institutions under them. Studies related to the impacts of climate change are carried out by the Department of Science and Technology (DST), Ministry of Earth Sciences (MoES), Ministry of Environment, Forest and Climate Change (MoEFCC), Indian Space Research Organisation (ISRO), Ministry of Agriculture and Farmers Welfare, and Council of Scientific and Industrial Research.

According to the revised State Action Plan on Climate Change (SAPCC 2.0) of Kerala for the period 2023-2030, Kerala has experienced a moderate warming trend in both summer and winter seasons along with a decrease in annual rainfall. Projections indicate an increase in rainfall during the pre-monsoon, monsoon, and winter seasons. Additionally, extreme weather events, such as heavy rainfall, are expected to become more frequent across all districts.

There are multiple geo-factors for initiation of landslides such as terrain character, slope forming material, geomorphology, land-use/land cover in different terrain. The anthropogenic causes such as unprotected slope cuts, blocking of drainages. has also been reported in many of the landslides.

According to a report submitted by the National Centre for Earth Science Studies (NCESS) and Geological Survey of India (GSI) to the Kerala State Legislative Committee on Environment 2023-2026, a devastating landslide occurred in Vellarimala Village located in the Vythiri Taluk of Wayanad District, Kerala on 30th July 2024. The Vellarimala village spans

around 55 square kilometres and is part of the Chaliyar River watershed. The geomorphology of the area makes it vulnerable to natural hazards, particularly landslides.

The Government has analyzed the causes of the Wayanad landslide disaster. As per available information and field observations documented by the Central team of Post Disaster Needs Assessment (National Disaster Management Authority), seismo-tectonic and anthropogenic causes have been ruled out, and the major triggering factor for this disaster is attributed to heavy rainfall on 29-30 July 2024. As per the 24-hour rainfall data from India Meteorological Department, the area recorded very heavy rain (>115.6 mm) on 30-07-2024. For two weeks prior to the event, the area has been subjected to nearly continuous rainfall, with only short breaks, leading to saturated soils in these areas

Further, GSI has been involved in studying landslides for the entire landslide prone areas in Western Ghat region including the states of Kerala, Tamil Nadu, Karnataka, Goa and Maharashtra using various multi-scale landslide hazard analysis tools starting from 1: 50,000 scale landslide susceptibility mapping to the site specific, slope-scale landslide investigations.

Government has taken number of steps to reduce the vulnerability and mitigate the impacts of the climate change. The Government of India is implementing the National Action Plan on Climate Change (NAPCC), which comprises missions in specific areas. Six out of nine missions under NAPCC focus on adaptation in water, habitat, agriculture, the Himalayan ecosystem, human health, and strategic knowledge of climate change. Further, thirty-four States and Union Territories have prepared their respective State Action Plans on Climate Change (SAPCCs). The SAPCCs are designed to be context specific, and inter-alia, provide adaptation strategies considering each State's different ecological, social, and economic conditions. Under the National Adaptation Fund on Climate Change, 30 projects worth Rs. 847.48 crore have been sanctioned in 27 States/ Union Territories.

National Disaster Management Authority has launched the National Land Records Modernization Programme with an outlay of ₹1000 crore for 15 states, including Kerala (total allocation of 72 Cr). The program aims to implement landslide Risk and Vulnerability Assessment, Landslide Monitoring, Early Warning System, Slope Stabilization, Awareness Generation and capacity-building measures to reduce landslide risks.

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