

GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

LOK SABHA
STARRED QUESTION NO. 166
TO BE ANSWERED ON 12.02.2021

Adverse Effects of Climate Change

*166. SHRI THOMAS CHAZHIKADAN:

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

- (a) whether the Government has taken note of the climate change across the country during the last three decades;
- (b) if so, the details thereof;
- (c) the geographical areas that have witnessed the most significant climatic change, with special reference to the Himalayas indicating the impact of such a change on the environment in the country; and
- (d) whether the Government has conducted any study to examine the trend of declining rainfall in certain areas of the country like Cherrapunji and if so, the details thereof?

ANSWER

MINISTER FOR ENVIRONMENT, FOREST AND CLIMATE CHANGE
(SHRI PRAKASH JAVADEKAR)

(a) to (d): A Statement is laid on the Table of the House.

Statement referred to in reply to part (a) to (d) of Lok Sabha Starred Question No. 166 due for the reply on 12.02.2021 by SHRI THOMAS CHAZHIKADAN regarding Adverse Effects of Climate Change.

(a) & (b): The Government is seized of the matter and has been assessing the impact of climate change over the years through various Ministries and Agencies. As per the report by the World Meteorological Organization (WMO), the average global temperature for 2015-2019 is currently estimated to be 1.1 degree Celsius above pre-industrial (1850-1900). According to the India Meteorological Department (IMD), all India mean temperature has risen by nearly 0.7 degree C for the period 1901 to 2017. On an average, at present, the sea level along the Indian coast is estimated to be rising at about 1.7 mm/year.

India is a Party to the United Nations Framework Convention on Climate Change (UNFCCC), its Kyoto Protocol (KP), and the Paris Agreement (PA). Independent studies rate India's efforts highly and compliant with the requirements under PA. The Government of India stands committed to combating climate change through its several programmes and schemes.

(c): While many studies monitor current changes in the environment, the science of attribution of these changes particularly to global warming is far more complex and is currently an evolving subject. Such changes as are observed may arise from a number of causes, including the inherent variability in climatic systems that are common in the biosphere and geosphere. Most studies so far have relied on mathematical modelling of climate change impacts but these are yet to be empirically verified.

According to the information provided by Gobind Ballabh Pant National Institute of Himalayan Environment, some of the impacts of climate change observed in the Indian Himalayan Region are as follows: (i) upward movement of treeline of woody species at a slow rate having likely impact on alpine pastures over the time span of several decades, (ii) upward movement of herbaceous plants over the time scale of a century which has already been observed and documented in states such as Sikkim, (iii) gradual shifting of production zone of horticulture species like apple orchards in Himachal Pradesh, and (iv) melting or retreat of certain glaciers, though there are also stable or even advancing glaciers in the Himalaya, thereby emphasizing the complex geographical and cyclical nature of the glacial dynamics.

Although there is inter-annual variability, the total precipitation during the Indian summer monsoon has remained largely stable over the period 1901-2019 and has shown a weak decreasing trend during the recent few decades. Further, the following are findings of the IMD on the changes of rainfall and its intensities during the last three decades:

- Five states viz., Uttar Pradesh, Bihar, West Bengal, Meghalaya, and Nagaland have shown significant decreasing trends in southwest monsoon rainfall during the recent 30 years period (1989-2018).
- The annual rainfall over these five states along with the states of Arunachal Pradesh and Himachal Pradesh also show significant decreasing trends.

- Other states do not show any significant changes in southwest monsoon rainfall during the same period.
- Considering district-wise rainfall, there are many districts in the country, which show significant changes in southwest monsoon and annual rainfall during the recent 30 years period (1989-2018).
- With regard to the frequency of heavy rainfall days, a significant increasing trend is observed over Saurashtra & Kachchh, Southeastern parts of Rajasthan, Northern parts of Tamil Nadu, Northern parts of Andhra Pradesh and adjoining areas of Southwest Odisha, many parts of Chhattisgarh, Southwest Madhya Pradesh, West Bengal, Manipur & Mizoram, Konkan & Goa, and Uttarakhand.

(d): Yes, Sir. The IMD has carried out a detailed investigation of rainfall patterns of Cherrapunji and Mawsynram region of India which reveals that annual and seasonal rainfall of Cherrapunji shows no significant trend. However, on a monthly scale, March and July rainfall has shown a significant increasing trend.
