

GOVERNMENT OF INDIA  
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

**RAJYA SABHA**  
**UNSTARRED QUESTION NO. 2289**  
TO BE ANSWERED ON 09.08.2021

**Climate change and natural disasters**

2289. SHRI BINOY VISWAM:

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

- (a) whether the Ministry has taken cognizance of the adverse impact of climate change and whether it is cause of recurring natural disasters;
- (b) whether the Ministry has conducted any study on the impact of climate change in India and its consequences, if so, details thereof;
- (c) the total number of natural disasters such as cyclones, typhoons, earthquakes, floods, etc that have occurred since 2017, year-wise;
- (d) steps taken to ensure sustainable development both in public and private sector;
- (e) India's contribution to greenhouse gas emissions globally; and
- (f) the target set for the same under Intended Nationally Determined Contributions?

**ANSWER**

**MINISTER OF STATE IN THE MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE**  
**(SHRI ASHWINI KUMAR CHOUBEY)**

(a) Yes Sir. Observations indicate that incidences of extreme weather conditions have increased across the globe including India in the recent decades. However, there is no established study for India providing a quantified contribution of climate change triggering natural disasters. While many studies monitor disasters such as drought, floods and breaking of glaciers, the science of attribution of these changes particularly to climate change is far more complex and currently an evolving subject.

(b) A scientific study to assess the impact of climate change has been conducted and a report titled "Climate Change and India: A 4X4 Assessment - A Sectoral and Regional Analysis for 2030s" was published by the Ministry of Environment, Forest and Climate Change. The study assessed impacts of climate change on four key sectors of Indian economy, namely, agriculture, water, forests and human health in four climate sensitive regions of India - the Himalayan region, the Western Ghats, the Coastal region and the North-Eastern region. Further, as part of the Second National Communication (SNC) submitted to the United Nations Framework Convention on Climate Change (UNFCCC) in 2012, MoEF&CC conducted studies on impact of climate change in India which are summarized in the 'Vulnerability Assessment and Adaptation' chapters. The climate change scenarios were analysed using high-resolution regional climate model. Simulations for 2020s, 2050s and 2080s indicate an all-round warming for Indian subcontinent. Impact of climate change and climate variability on the water resources are likely to affect irrigated agriculture, installed power capacity, environmental flows in the dry season and wet season.

(c) The total number of natural disasters such as cyclones and Floods that have occurred since 2017 are as follows:

Type of Natural Disaster	2017	2018	2019	2020	2021
Cyclones	3	7	8	5	2
Floods	8	5	4	7	NA*

(\*)Not Available

The details of earthquakes occurred within the country including Bay of Bengal; Andaman Sea reported in years 2018, 2019, 2020 and till 29<sup>th</sup> July, 2021 of current year are as follows:

Magnitude Range (M)	2018	2019	2020	2021
3.0 - 3.9	109	147	246	129
4.0 - 4.9	64	143	100	42
5.0 - 5.9	11	25	10	4
6.0 - 6.9	2	0	0	1

(d) Government is implementing the National Action Plan on Climate Change (NAPCC) which provides the overarching framework for climate actions, through eight national missions in specific areas of solar energy, enhanced energy efficiency, water, agriculture, Himalayan eco-system, sustainable habitat, green India and strategic knowledge on climate change. Under the NAPCC's overarching framework, thirty-three (33) States /UTs have prepared State Action Plans on Climate Change (SAPCC). Further, to support adaptation measures in States / UTs in areas that are particularly vulnerable to the adverse impacts of climate change, Government is implementing the National Adaptation Fund for Climate Change (NAFCC). Government has also set up the National Clean Development Mechanism (CDM) Authority to support emission reduction projects with participation of Public and Private Sector promoting sustainable development in the country. In addition, Government has set up an Apex Committee for Implementation of Paris Agreement (AIPA) to coordinate and oversee the implementation of the Paris Agreement.

(e) As per India's third Biennial Update Report (BUR) submitted to the UNFCCC, India's net Greenhouse Gas (GHG) emissions in 2016, including Land Use, Land Use Change and Forestry were 2,531.07 million tonnes CO<sub>2</sub> equivalent. India's per capita GHG emissions in 2016 was only 1.96 tonnes of CO<sub>2</sub>e which is less than one third of the world's average per capita GHG emissions.

(f) Under the Paris Agreement, India submitted its Nationally Determined Contribution (NDC) to address the concerns of climate change in the context of sustainable development and efforts to eradicate poverty. India's NDC comprise eight goals for 2021-2030, including (i) to reduce the emissions intensity of its GDP by 33 to 35 per cent by 2030 from 2005 level (ii) to achieve about 40 per cent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030 with help of the transfer of technology and low-cost international finance; and (iii) to create an additional carbon sink of 2.5 to 3 billion tonne of CO<sub>2</sub> equivalent through additional forest and tree cover by 2030.

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