GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
LOK SABHA
UNSTARRED QUESTION No. 1325
TO BE ANSWERED ON FRIDAY, JUNE 28, 2019

GLOBAL WARMING

1325. SHRI SHIVAKUMAR C. UDASI:
SHRI KANAKMAL KATARA:

Will the Minister of EARTH SCIENCES be pleased to state:

(a) **whether various parts of the country have witnessed extreme conditionsof climate such as tsunami, excessive rains and drought;**
(b) **if so, the details thereof and the reasons therefor along with the areas most affected by climate change;**
(c) **whether the Government is aware that such unusual weather conditions in the country are the consequence of global warming, if so, the details thereof along with the regions most affected by climate change;**
(d) **whether the Government has conducted any scientific study on the impact of global warming/climate changes caused by global warming and its adverse effect, if so details thereof; and**
(e) **the details of international deliberations on this issue, various aspects concerning its prevention and consensus arrived at to address the issue along with the action plan prepared by the Government to resolve the issue of climate change/global warming?**

ANSWER
MINISTER OF STATE IN THE MINISTRY OF HEALTH AND FAMILY WELFARE
(SHRI ASHWINI KUMAR CHOUBEY)

(a) **Yes Sir, various parts of the country have witnessed extreme climate conditions such as heavy rains and drought in the recent decades. However, Tsunami is a coastal hazard which is generally caused due to sub-marine earthquakes and landslides. Indian coast has a threat from Tsunami that can get generated due to the large undersea earthquakes. The earthquakes and tsunamis are not due to climatic variations. However, the coastal inundation by tsunamis can exacerbate the impact on coastal zones due to sea level rise.**

(b) & (c) **As reported by several studies, regions which are more prone to such events in the changing climate are: 1) Central and north India and Western Himalayas (for extreme rainfall) 2) north and northwest India and neighbouring Central India (for moderate droughts). Events like heavy rainfall and drought in different parts of the country may have possible linkages with the concurrent climate change/global warming.**

(d) **Yes, there have been several scientific studies on these weather events and their adverse impacts. Heavy rainfall and temperature extremes like heat waves, shifts in semiarid regions etc. are some of the recent findings which may have possible linkages with climate change and global warming.Observational studies over Indian region have shown a warming trend of 0.6°C on all India average basis, mainly contributed by maximum temperatures. Another important impact of rising temperatures is on heat wave related mortality and morbidity. Each year many people die in India due to heat waves during the pre-monsoon season.The major factors that led to warming during the 20th century were increase in Greenhouse Gases (GHG) and Land Use (LU) Land Cover changes.**

Studies have reported significant rising trends in the frequency and the magnitude of extreme rainfall over different parts of India against a backdrop of global warming. Rise of Sea level and increase in atmospheric temperature are among the various consequences of the global warming. Global warming not only causes melting of ice in the polar region and glaciers, but also leads to internal expansion of the water in the oceans and thus sea level rise. Combined effect of these two is the primary driver for sea level rise around the globe. According to the International Panel on Climate Change (IPCC) fifth assessment report (AR5) global sea level is rising at an average rate of 1.8 mm/yr over the last century. The sea levels are changing at different rates along the Indian coast as per the studies carried out by the Ministry.

Sl. No.	Location	Rate of change of sea level (mm/year)	Duration of data used (years)
1	Chennai	0.33	1916-2005
2	Diamond Harbour	5.16	1948-2005
3	Haldia	2.89	1972-2005
4	Kandla	3.18	1950-2005
5	Kochi	1.30	1939-2005

6	Mumbai	0.74	1878-2005
7	Paradeep	1.03	1966-2005
8	Port Blair	2.20	1916-1964
9	Vizag	0.97	1937-1988
10	Okha	1.50	1964-1991
11	Vizag	0.97	1937-2005

(e) **The Ministry of Environment, Forest and Climate Change (MoEF&CC) is the nodal Ministry for addressing the climate change issues, especially mitigation and adaptation. In order to create and strengthen the scientific and analytical capacity for assessment of climate change in the country, different action plans have been initiated under the Climate Change Action Programme (CCAP) of MoEF&CC. Some of the programs are**

National Action Plan on Climate Change (NAPCC)
State Action Plan on Climate Change (SAPCC)
National Adaptation Fund on Climate Change (NAFCC)
Climate Change Action Programme (CCAP)

India's post-2020 climate goals as per MoEF&CC are:

For post-2020 period, in response to the decisions of the Conference to the Parties, India submitted its Nationally Determined Contribution (NDC) to the UNFCCC on 2nd October, 2015, outlining the climate actions intended to be taken under the Paris agreement.

The eight goals put forth by India in its NDC are:

1. **To put forward and further propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation.**
2. **To adopt a climate friendly and a cleaner path than the one followed hitherto by others at corresponding level of economic development.**
3. **To reduce the emissions intensity of its GDP by 33 to 35 percent by 2030 from 2005.**
4. **To achieve about 40 percent cumulative electric power installed capacity from non-fossil fuel based energy resources by 2030 with the help of transfer of technology and low cost international finance including from Green Climate Fund (GCF).**
5. **To create an additional carbon sink of 2.5 to 3 billion tonnes of CO2 equivalent through additional forest and tree cover by 2030.**

6. **To better adapt to climate change by enhancing investments in development programmes in sectors vulnerable to climate change, particularly agriculture, water resources, Himalayan region, coastal regions, health and disaster management.**
7. **To mobilize domestic and new & additional funds from developed countries to implement the above mitigation and adaptation actions in view of the resource required and the resource gap.**
8. **To build capacities, create domestic framework and international architecture for quick diffusion of cutting edge climate technology in India and for joint collaborative R&D for such future.**

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