GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

LOK SABHA
UNSTARRED QUESTION NO. 994
TO BE ANSWERED ON 08.02.2019

Deaths due to Extreme Weather Events

994. SHRI SANTOKH SINGH CHAUDHARY:

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

(a) whether it is a fact that India accounts for second highest number of deaths in the world due to extreme weather events;
(b) the number of extreme weather events like floods, excessive rain, cyclones in India during last three years, State/ UT-wise and year-wise;
(c) the number of people who died in these extreme weather events during last three years, State/UT and year-wise;
(d) whether the Government has commissioned any study on the effects of climate change on people of India, if so, the details thereof and if not, the reasons therefor; and
(e) the measures taken by the Government to reduce the effect of extreme weather events and climate change on the people?

ANSWER

MINISTER OF STATE IN THE MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE
(DR. MAHESH SHARMA)

(a) The Global Climate Risk Index 2019, published by Germanwatch in December 2018, puts India at fourteenth rank in terms of Climate Risk Index for 2017, twenty ninth rank in terms of fatalities per lakh of inhabitants, and second rank in terms of fatalities in 2017. The ranking is based on information collated by MunichRe, a re-insurance company on weather related events only and it is not based on any government reports.

(b) & (c) The details of some of the major weather extremesin India in the recent years, as reported under second Biennial Update Report (2018), is at Annexure-I. As per the information received from National Disaster Management Authority (NDMA), no centralized data on deaths due to extreme weather conditions in the states/ union territories is maintained. Each state has its own State Disaster Management Authority to deal with such events.

(d) The Ministry of Environment, Forest and Climate Change (MoEFCC) has carried out a study titled “Climate Change and India: A 4X4 Assessment - A Sectoral and Regional Analysis for 2030s”. The study projects impacts of climate change in 2030 on four key sectors of Indian economy, namely, agriculture, water, forests and human health in four

regions of India, viz. the Himalayan region, the Western Ghats, the Coastal region and the North-Eastern Region.

(e) The NDMA has issued several disaster specific guidelines for managing extreme weather-related disasters such as cyclones, floods and heat wave. Further, India Meteorological Department (IMD) has modernized its observation system by installing a network of doppler weather radars, automatic weather stations, automatic rain gauge stations, etc. for monitoring abnormal weather patterns. IMD has also upgraded its forecasting skills so that advance warning can be provided to concerned agencies to tackle the adverse impacts of extreme weather events.

The Government is implementing National Action Plan on Climate Change (NAPCC) which comprises of missions in specific areas of solar energy, energy efficiency, water, agriculture, Himalayan eco-system, sustainable habitat, green India and strategic knowledge on climate change. Most of these Missions, inter-alia, focus on climate change adaptation. Thirty two States/Union Territories have prepared their State Action Plan on Climate Change (SAPCC) in lines with NAPCC taking into account State's specific issues relating to climate change. These SAPCCs inter-alia outline sector specific and cross sectoral priority actions including adaptation. The Government is also implementing the scheme, "National Adaptation Fund for Climate Change" to support adaptation measures of States/UTs in areas that are particularly vulnerable to the adverse impacts of climate Change.

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Annexure-I

Some of the Major Weather Extreme Events in India (2014-2017)

Temperatures			
Year	**Month**	**Event**	**Details**
2014	Jan-Dec	Severe cold wave/cold wave	Cold wave/fog related incidents in northern parts of the country.
	May-Jun	Heat wave	Intense heat wave events which prevailed over northeastern, central and peninsular parts of the country.
2015	May-Jun	Severe heat wave	Severe heat wave incidences over the south peninsula and eastern parts of the country including the States of Andhra Pradesh, Telangana and Odisha.
2016	Mar-May	Severe heat wave	Intense heat wave conditions which prevailed over northeaster, Central and peninsular parts of the country.
2017	Mar-Jun	Severe heat wave	Severe heat wave conditions which prevailed mainly over peninsular parts of the country including Andhra Pradesh and Telangana.
Precipitation			
2014	Mar	Hailstorm	Unprecedented widespread hailstorm in Maharashtra and parts of central India in the first week of March severely affected crops, livestock, animals and birds.
	Sep	Heavy rainfall resulting in floods	Heavy floods in the State of Jammu and Kashmir; Several thousand villages across the state were hit.
2015	Apr-Aug	Nor' wester, Lightening and Heavy rainfall resulting in floods	A severe Nor' wester ravaged 12 districts of Bihar during April. Gujarat State suffered with flood and heavy rains in June. Flood-related incidence also occurred in West Bengal from June to August.
	Nov-Dec	Heavy rainfall	Very heavy rainfall during northeast monsoon season in Tamil Nadu and Andhra Pradesh.
2016	Jul-Sep	Heavy rainfall resulting floods	Heavy rains and floods in State of Maharashtra caused the 'Mahad bridge collapse' incident in August. Flood-related incidences also occurred in 'State of Bihar from 25the July to 3rd September. Cloudburst and landslides also occurred in Uttarakhand in July.

2017	May-Oct	Lightning and Heavy rainfall resulting floods	Lightning and rainfall events caused loss of life in various parts of Odisha from May to October; in Bihar from May to July, and; in Maharashtra in June and October.
	Jul-Sep		Flood and heavy rains caused loss of life in Gujarat. Flood-related incidence, a massive landslide caused deaths at Kotrupi, Himachal Pradesh on 13th August. Floods in Ghaghara, Gomati and Rapti rivers also claimed lives during 4th to 10th September.
Cyclones			
2014	Jun	Cyclonic Storm Nanauk over the Arabian Sea	The storm caused heavy rainfall over Lakshadweep, Kerala and coastal Karnataka.
	Oct	Very Severe Cyclonic Strom, Hudhud, over the Bay of Bengal	Caused human and animal death in north Andhra Pradesh. It caused very heavy rainfall over north Andhra Pradesh and south Odisha and strong gale winds leading to large-scale structural damage over north Andhra Pradesh and adjoining districts of south Odisha.
	Oct	Very severe Cyclonic Storm, Nilofar, over the Arabian sea	Under the influence of system. Konkan and Goa region experienced widespread rain with heavy rainfall at isolated places.
2015	Jun	Cyclonic Storm, Ashobaa, over the Arabian Sea	No adverse weather was reported due to this system.
	Jul	Cyclonic Storm, Komen, over the Bay of Bengal	Loss of life due to cyclonic storm, Komen' in West Bengal and Odisha. Landslides also claimed lives in Manipur.
	Oct	Extremely severe cyclonic storm, Chapala over the Arabian Sea	No adverse weather over west coast of India was reported due to this system.
	Nov	Extremely severe, cyclonic storm, Megh, over the Arabian Sea	No adverse weather over west coast of India was reported due to this system.
2016	May	Cyclonic Storm, Roanu over the Bay of Bengal	It caused adverse weather like heavy rain and strong wind all along east coast of Sri Lanka and India (including Tamil Nadu, Andhra Pradesh, Karnataka, Rayalseema, Odisha, Gangetic West Bengal, Assam, Meghalaya, Nagaland, Manipur, Tripura)
	Oct	Cyclonic storm Kyant over the Bay of	The system caused rainfall at isolated places over Tamil Nadu, Puducherry and coastal Andhra

		Bengal	Pradesh.
	Nov	Cyclonic storm Nada over the Bay of Bengal	The system caused heavy rainfall at isolated places over Tamil Nadu and Puducherry.
	Dec	Very Severe Cyclonic storm, Vardah over the Bay of Bengal	'Vardah' caused heavy to very heavy rainfall over Andaman & Nicobar Islands. It also caused extremely heavy rainfall over Chennai, Thiruvallur, Kanchipuram districts of Tamil Nadu. It caused human and animal death in Tamil Nadu.
2017	Apr	Cyclonic storm Maarutha over the Bay of Bengal	The system caused heavy rainfall over Andaman & Nicobar Islands.
	May	Severe cyclonic storm 'Mora' over the Bay of Bengal	'Mora' developed in the onset phase of southwest monsoon. The system caused heavy rainfall at isolated places over Arunachal Pradesh, Manipur, Nagaland, Mizoram and Tripura and a few Places over Assam and Meghalaya.
	Nov	Very Severe Cyclonic Storm "Ockhi" over the Bay of Bengal	It was a rare cyclone with rapid intensification after the genesis stage. It caused isolated heavy rainfall over south Tamil Nadu and over south Kerala. It caused heavy to very heavy rainfall over Lakshadweep and heavy rainfall over north coastal Maharashtra and adjoining south coastal Gujarat.

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