

**GOVERNMENT OF INDIA  
MINISTRY OF EARTH SCIENCES  
LOK SABHA  
STARRED QUESTION No \*235  
TO BE ANSWERED ON WEDNESDAY, AUGUST, 05, 2015**

**HEAT WAVES**

**\*235. SHRI JOSE K. MANI:**

**Will the Minister of EARTH SCIENCES be pleased to State:**

- (a) Whether the Government has taken note of global rise in temperature and especially in Indian continent and if so, the details thereof;**
- (b) Whether a large number of deaths due to intensive heat waves were reported in various parts of the country and if so, the details thereof, State-wise;**
- (c) Whether the Government has conducted or propose to conduct a detailed scientific study on the 'heat wave' phenomenon in various parts of the country and if so, the details thereof including Kerala;**
- (d) Whether the Government has also assessed the impact of intensive heat waves on human beings, flora and fauna of the country and if so, the details thereof ; and**
- (e) The remedial measures taken/ proposed to be taken by the Government to address the issue?**

**ANSWER  
MINISTER FOR MINISTRY OF SCIENCE AND TECHNOLOGY AND  
MINISTRY OF EARTH SCIENCES  
(DR. HARSH VARDHAN)**

**(a)-(e) A statement is laid on the Table of the House.**

**STATEMENT LAID ON THE TABLE OF THE LOK SABHA IN REPLY (a) to (e) TO STARRED QUESTION NO. \*235 REGARDING "HEAT WAVES" TO BE ANSWERED ON WEDNESDAY, AUGUST 05, 2015**

- (a) Yes Madam. Latest IPCC report (2014) highlights that mean surface temperature of the globe has risen by  $0.85^{\circ} \pm 0.18^{\circ}$  C. In line of rising temperature across the globe, all India mean temperature has risen nearly around  $0.6^{\circ}$  C over the last 110 years.
- (b) Yes Madam. Every year India experiences severe heat waves in summer, but in the year 2015, casualties were abnormally high. Most of the deaths were concentrated in Andhra Pradesh, Telangana, [Odisha](#), [Punjab](#), [Uttar Pradesh](#), and [Bihar](#). Details of the Heat Wave/Sun Stroke related deaths are given below:

State	Number of deaths
Andhra Pradesh	1,369
Telangana	541
Odisha	67
Uttar Pradesh	22
West Bengal	13
Gujarat	10
Madhya Pradesh	10
Delhi	5

- (c) Using daily maximum temperature data of 103 stations uniformly distributed over the country for the period 1961-2010 from Indian main land during the hot weather season (March to July) for the last 50 years (1961-2010), various statistical aspects of heat waves (HWs) and severe heat waves (SHWs) such as long term climatology, decadal variation, and long term trends were examined. It was observed that many areas of the country (north, northwest, central and northeast Peninsula) have experienced HW days of  $\geq 8$  HW days on an average per season. The SHW were mainly experienced over north, northwest and central parts of the country. Compared to previous four decades, there was noticeable increase in the HW/SHW days over the country during the recent decade 2001-2010, which is also the warmest decade for the country as well as for the globe. Although, no HW/SHW phenomena was found to be prevalent over the 3-stations – Kochi, Thiruvananthapuram and Alappuzah of Kerala, significant long term increasing trends in maximum temperature anomaly was noticed.
- (d) Limited studies suggest that heat wave conditions lead to exhaustion and is considered by experts to be the forerunner of heat stroke with the difference being that the neurologic function remains intact. Heat exhaustion is marked by excessive dehydration and electrolyte (sodium and potassium salts depletion / imbalance). Symptoms may include [diarrhea](#), [headache](#), [nausea](#) and [vomiting](#), [dizziness](#) etc. Definitive therapy includes removing patients from the heat and replenishing their fluids. There is an urgent need to quantify much of the subjective and intuitive information that has been published on climate/mortality relationships. Heat wave conditions forces wild life fauna, particularly mammals, birds and reptiles, to shift from their habitats to places in the vicinity of water bodies unable to bear the scorching heat.
- (e) Upon prediction of the heat wave conditions by the ESSO-IMD, various state Governments have a system of giving wide publicity of Dos and Don'ts through advertisements in TV channels, News Papers and opening drinking water camps at identified places in rural and urban areas to mitigate the impact of heat waves. The schedule of National Rural Employment Guarantee Scheme workers is adjusted to avoid exposure to extreme hot weather duration periods. Advisories include precautionary measures to avoid heat stroke include – drinking plenty of water; avoiding going out in open heat during 10AM-4PM; wearing light colored clothes; covering head/using umbrella while going out; monitoring symptoms of heat stroke etc.