

**GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
LOK SABHA
STARRED QUESTION No. *577
TO BE ANSWERED ON WEDNESDAY, MAY 06, 2015**

IMPACT OF RISING TEMPERATURE

***577. SHRI RAJESH VERMA:
SHRIMATI JAYSHREEBEN PATEL:**

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) whether the temperature of the planet earth is rising significantly over the years;**
- (b) if so, the details thereof and the reasons therefor;**
- (c) whether this department has conducted any study to gauge the adverse impact of rising temperature on environment, agriculture sector, human being and marine life/ecology etc.;**
- (d) if so, the details and the outcome thereof; and**
- (e) the steps taken/being taken by the Government to mitigate the adverse impact of global warming on India?**

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

(a) to (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. *577 REGARDING "IMPACT OF RISING TEMPERATURE" TO
BE ANSWERED ON WEDNESDAY, MAY 06, 2015**

(a-b) Yes Madam.

The global mean temperature is found to have increased by 0.52°C since 1901. Daily mean temperature over the country is found to be increasing more or less at the same rate as the global mean temperature.

Global warming has been largely attributed to the increase in concentration of green house gases (GHGs) mainly from anthropogenic activities.

(c-d) Yes Madam.

Studies under the aegis of India's Second National Communication (NATCOM) submitted to the United Nations Framework Convention on Climate Change (UNFCCC) in May, 2012 and scientific study titled "Climate Change and India: 4X4 Assessment - A Sectoral and Regional Analysis for 2030s" in 2010, have assessed the implications and impacts under a projected Climate Change scenario, based on which adverse effects on agricultural, water, forests, health, sea level rise, extreme events and infrastructure have been assessed.

Summary of the observed long term changes so far is as follows.

- (i) Mean annual surface air temperatures show a significant warming of about 0.5 degree C/100 years during the last century.**
- (ii) No significant long-term trends are reported in the frequencies of large-scale droughts or floods in the summer monsoon season.**
- (iii) The total frequency of cyclonic storms that form over the Bay of Bengal has remained almost constant.**
- (iv) Analysis of past tide gauge records for the Indian coastline regions gives an estimate of sea level rise of 1.30 mm/year.**
- (v) There is evidence that glaciers in Himalayas are receding, however it is unclear as to how much of this recession is attributable to climate change, as glacial retreat is also due to natural long-term inter-glacial cycles.**

(e) The Government has undertaken the following steps in the area of Climate Change:

- i) Launched a high-priority Programme to address the Science issues of Global and Regional Climate Change (GRCC) with a well-equipped state-of-the-art Center for Climate Change Research (CCCR) at Indian Institute of Tropical Meteorology (IITM), Pune for inter-disciplinary research and training in the area of science of climate change.**

- (ii) Development of Earth System Model (ESM-Version 1.0) is complete by building additional marine biogeochemistry module to the coupled ocean-atmospheric model for generating projections of global climate.**

Currently, CCCR is leading “Co-ordinated Regional Downscaling Experiment (CORDEX)” for the South Asian region under the aegis of the World Climate Research Program (WCRP) of the World Meteorological Organisation (WMO). The CORDEX program provides an important framework for a co-ordinated set of downscaled regional climate simulations for both the historical past and future decades. Training workshops are conducted for end-users, stakeholders in the South Asian region. As a part of this effort, projections up to 2100 were made available from September, 2014 to user community at 50km grid for examination and analysis of the projected temperature and rainfall changes under Representative Concentration Pathway (RCP 4.5) scenario as defined by the Intergovernmental Panel on Climate Change (IPCC) for their Fifth Assessment Report (AR 5).

- iii) The government has initiated the National Action Plan on Climate Change (NAPCC) for addressing long term and integrated strategies for achieving key goals of sustainable development in the context of climate change, so as to reduce its adverse impact. NAPCC outlines eight missions in specific areas of Solar Energy, Enhanced Energy Efficiency, Sustainable Habitat, Water, Sustaining the Himalayan Ecosystem, Green India, Sustainable Agriculture and Strategic knowledge for Climate Change.**
