

**GOVERNMENT OF INDIA  
EARTH SCIENCES  
LOK SABHA**

UNSTARRED QUESTION NO:1289  
ANSWERED ON:12.12.2013  
GLOBAL WARMING  
Agarwal Shri Jai Prakash

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

- (a) the details of those areas of the country which run the risk of facing global warming; and
- (b) the measures taken or proposed to be taken by the Government in this regard?

**Answer**

MINISTER FOR MINISTRY OF SCIENCE AND TECHNOLOGY AND MINISTRY OF EARTH SCIENCES (SHRI S. JAIPAL REDDY)

(a) Spatial pattern of trend in mean annual temperature anomalies, for the period 1902-2012, suggests significant positive (increasing) trend (0.50C in general with few pockets of 1.00C) over most parts of the country except some parts of Rajasthan, Gujarat and Bihar, where significant negative (decreasing) trend was observed. No significant long-term trends are reported in the frequencies of large-scale droughts or floods in the summer monsoon season.

(b) 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.

Development of Earth System Model (ESM) has been taken up by building additional marine biogeochemistry module to the coupled ocean-atmospheric model and numerical experimentation is carried out for ESM utilization for generating projections of global climate. Regional scale climate downscaling is carried out using variable grid (zoom) general circulation model, WRF and REGCM models.

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.

ii) Under the National Action Plan on Climate Change, it is proposed to establish a permanent institutional mechanism that will play a development and coordination role.

iii) The National Action Plan on Climate Change (NAPCC) was released by the Prime Minister on 30th June 2008.

iv) The National Action plan 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. Eight National Missions form the core of the National Action Plan, representing multipronged, long term and integrated strategies for achieving key goals in the context of climate change.