GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
RAJYA SABHA
STARRED QUESTION No. ***18**
TO BE ANSWERED ON MONDAY, AUGUST 05, 2013

SURVEY OF CLIMATE CHANGE IN UTTARAKHAND

***18. SHRI. D. P. TRIPATHI:**

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

(a) whether the Ministry has conducted any survey of climate change and its fallout in Uttarakhand (Kedarnath); and
(b) if so, the details thereof and if not, the reasons therefor?

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

(a) to (b): A Statement is laid on the Table of the House.

STATEMENT LAID ON THE TABLE OF THE RAJYA SABHA IN REPLY (a) to (b) TO STARRED QUESTION NO. *18 REGARDING "SURVEY OF CLIMATE CHANGE IN UTTARAKHAND" TO BE ANSWERED ON MONDAY, AUGUST 05, 2013

(a) No Sir. However, the Government of Uttarakhand had prepared a comprehensive Uttarakhand Action Plan for Climate Change (UAPCC) in 2012 to address the possible adverse impacts of climate change. Results of the modeling studies carried out by the Indian Institute of Tropical Meteorology (IITM), Pune of the Earth System Science Organization (ESSO) of this Ministry was part of the UAPCC and also the report released by the Ministry of Environment & Forests in 2010 entitled "Climate Change and India: A 4X4 Assessment - A Sectoral and Regional Analysis for 2030s" which has assessed impacts of climate change on four sectors namely Agriculture, Natural Ecosystems and Biodiversity, Water resources and Health on four regions namely, Himalayan, Western Ghat, North-eastern and Coastal regions.

(b) Key findings relating to Himalayan region as delineated in UAPCC are as follows:

- The mean annual temperature is projected to increase from 0.9 ± 0.6^{o}C to 2.6 ± 0.7^{o}C in the 2030s.
- The annual rainfall in the Himalayan region is likely to vary between 1268±225.2 and 1604±175.2 mm in 2030s i.e. likely to increase by 5% to 13% with respect to 1970s.
- Livestock productivity is projected to rise in many parts of Himalayan region during March–September with a maximum rise during April–July in 2030s with respect to 1970s.
- The Net Primary Productivity (NPP) is projected to increase in the region by about 57% on an average by the 2030s.
- Projections of malaria transmission windows for the 2030s, based on temperature, reveal introduction of new foci in Jammu and Kashmir and an increase in opening of more transmission months in districts of the Himalayan region and north-eastern states.
- The water yield in this region is likely to increase by 5%–20% in most of the areas, with some areas of Jammu and Kashmir and Uttarakhand showing an increase of up to 50% with respect to the 1970s.
- The frequency of rainy days is set to decrease in most parts of the country, except in the Himalayas, the Northwestern region and the Southern plateau. The intensity of the rainy days increases are likely by 2-12% in the Himalayan region, Northeastern region, Western and Northwestern regions and the Southern Eastern coastal regions.
- Projected changes in temperature extremes indicate that the daily extremes in surface air temperature may intensify in the 2030's. The spatial pattern of the change in the lowest daily minimum and highest maximum temperature suggests a warming of 1 to 4^{o}C towards 2030's.

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