GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
RAJYA SABHA
STARRED QUESTION No. *88
ANSWERED ON 27/07/2023

INCREASE IN DUST STORM CASES

*88 SMT. SANGEETA YADAV:

Will the Minister of EARTH SCIENCES be pleased to state:

(a) whether it is a fact that number of dust storm cases have risen in the country in the last three years;
(b) if so, the details thereof and reasons therefor;
(c) the reasons behind increased cases of intense heat spikes in northern India;
(d) whether Ministry has set up any special center to study the increased cases of climate change activity; and
(e) if so, the details thereof?

ANSWER
THE MINISTER FOR EARTH SCIENCES
(SHRI KIREN RIJIJU)

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

STATEMENT LAID ON THE TABLE OF THE RAJYA SABHA IN REPLY TO (a) to (e) OF STARRED QUESTION NO. *88 REGARDING "INCREASE IN DUST STORM CASES" TO BE ANSWERED ON JULY 27, 2023

(a) No Sir. Number of dust storm events are observed to be decreasing during the last three years and are summarized in Annexure-I.

(b) Recent studies on the dust storm events highlight the following causative mechanisms for the observed decrease in trend :

- The atmospheric aerosol loading over the Northern Indian subcontinent (especially over the Indo-Gangetic Plains) is decreasing during the pre-monsoon season.
- This decrease is due to change in dust emission over the arid and desert regions over northwestern part of Indian subcontinent including the Thar Desert.
- Potential cause is the change in the regional climate, induced by increasing rainfall over northwestern subcontinent that increases wet scavenging and decreases the erodibility and hence dust emissions. In addition, the weakening pre-monsoon circulation pattern further reduced the emissions and long-range transport.

(c) The annual mean land surface air temperature averaged over India during 2022 was $+0.51^0$C above the long-term average (1981-2010 period). The year 2022 was the fifth warmest year on record since nationwide records commenced in 1901.The five warmest years on record, in descending order were 2016 (+0.71°C), 2009(+0.55°C), 2017 (+0.541°C), 2010 (+0.539°C) and 2022 (+0.51°C). It may be mentioned that 11 out of the 15 warmest years were during the recent fifteen years (2008-2022). The past decade (2012-2021/ 2013-2022) was also thewarmest decade on record with the decadal averaged annual mean temperature anomaly of 0.37°C /0.41°C.

Global warming and anthropogenic climate change can be attributed as the main reasons for heatspikes reported over the Indian region especially over North India.

(d) Yes Sir.

(e) Centre for Climate Change Research (CCCR) was established at Indian Institute of Tropical Meteorology (IITM) Pune in January 2009 to better understand the science of climate change over the tropics and enable improved assessments of the regional climate responses to global climate change.

CCCR has developed an Earth System Model (ESM) to make the regional climate assessments and projections that contributed to the Intergovernmental Panel on Climate Change (IPCC) sixth assessment report (AR6). In addition, the centre conducts research on Paleoclimatology and carry out Greenhouse Gas (GHG) measurements.

CCCR has recently published a Climate Change report entitled "Assessment of Climate Change over the Indian Region" which covers all the aspects of regional climate change including the climatic extremes across India.

Annexure-I

The dust storm events observed during the last three years as reported by IMD

Station name	**2020**	**2021**	**2022**
AHMEDABAD	---	1	---
AMRITSAR	2	8	3
BAHRAICH	1	---	---
BHAGALPUR	---	---	3
FATEHPUR	9	---	---
GAYA	1	1	7
GAZIPUR	9	---	---
GUWAHATI	---	1	---
HAMIRPUR	2	---	---
HARDOI	1	---	---
HISSAR	---	6	5
LUCKNOW	2	4	3
MEDNAPUR	2	---	---
AYANAGAR(NEW DELHI)	---	2	---
NEW DELHI (PALAM)	1	3	---
SAFDARJUNG(NEW DELHI)	3	---	---
PATIALA	---	3	1
PATNA	---	---	2
SHAHJAHANPUR	1	---	---
Total Number of Events	**34**	**29**	**24**

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