

**GOVERNMENT OF INDIA  
MINISTRY OF EARTH SCIENCES  
LOK SABHA  
UNSTARRED QUESTION NO. 660  
TO BE ANSWERED ON WEDNESDAY, 1<sup>ST</sup> DECEMBER, 2021**

**RAINFALL VARIANCE**

660. SHRI PARTHIBANS.R.:  
SHRI VIJAYAKUMAR (ALIAS) VIJAY VASANTH:

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) the actual rainfall recorded between June and October, 2021 in each State/Union Territory;
- (b) the details of intensity of rainfall recorded in different States during the above period;
- (c) whether the Government has identified the areas which had variance in rainfall;
- (d) if so, the details thereof, State-wise and the reasons for such variance; and
- (e) the steps taken/proposed to be taken for effective use of this rainfall for productive purposes?

**ANSWER**

THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR  
MINISTRY OF SCIENCE AND TECHNOLOGY  
AND EARTH SCIENCES  
(DR. JITENDRA SINGH)

- (a)-(b) Details of the actual rainfall and the intensity of rainfall are given in Annexure-I.
- (c)-(d) Yes Sir. India Meteorological Department (IMD) has carried out an analysis of observed monsoon rainfall variability and changes of 29 States & Union Territory at State and District levels based on the IMD's observational data of recent 30 years (1989- 2018) during the Southwest monsoon season from June to September (JJAS) and issued a report on 30 March 2020. The reports on observed rainfall variability and its trend for each State and Union Territory are available in IMD website (<https://mausam.imd.gov.in/>) under "PUBLICATIONS" as well as in IMD Pune website;

**<http://www.imdpune.gov.in/hydrology/rainfall%20variability%20page/rainfall%20trend.html>**

The **highlights of the report** are given below;

- Five states viz., Uttar Pradesh, Bihar, West Bengal, Meghalaya and Nagaland have shown significant decreasing trends in southwest monsoon rainfall during the recent 30 years period (1989-2018).
- The annual rainfall over these five states along with the states of Arunachal Pradesh and Himachal Pradesh also show significant decreasing trends.
- Other states do not show any significant changes in southwest monsoon rainfall during the same period.

- Considering district-wise rainfall, there are many districts in the country, which show significant changes in southwest monsoon and annual rainfall during the recent 30 years period (1989-2018). With regard to the frequency of heavy rainfall days, significant increasing trend is observed over Saurashtra & Kutch, Southeastern parts of Rajasthan, Northern parts of Tamil Nadu, Northern parts of Andhra Pradesh and adjoining areas of Southwest Odisha, many parts of Chhattisgarh, Southwest Madhya Pradesh, West Bengal, Manipur & Mizoram, Konkan & Goa and Uttarakhand.
- (e) The rainfall variance information is used for the R&D activities within the ministry and also shared with other stakeholders for its effective use and planning.

S.	NO.	STATES	PERIOD: 01.06.2021 TO 31.10.2021			
			ACTUAL	NORMAL	DEP. %	
					CATEGORY	
1		A & N ISLAND (UT)	2438.1	1936.2	26%	E
2		ARUNACHAL PRADESH	1423.4	1911.5	-26%	D
3		ASSAM	1271.8	1614.3	-21%	D
4		MEGHALAYA	2460.9	3124.3	-21%	D
5		NAGALAND	919.6	1261.8	-27%	D
6		MANIPUR	635.1	1567.7	-59%	D
7		MIZORAM	1393.7	1858.8	-25%	D
8		TRIPURA	1349.6	1628.6	-17%	N
9		SIKKIM	2097.0	1773.6	18%	N
10		WEST BENGAL	1817.9	1537.3	18%	N
11		ODISHA	1126.4	1255.5	-10%	N
12		JHARKHAND	1160.4	1129.4	3%	N
13		BIHAR	1234.5	1078.8	14%	N
14		UTTAR PRADESH	838.3	821.2	2%	N
15		UTTARAKHAND	1356.1	1212.2	12%	N
16		HARYANA	601.1	448.4	34%	E
17		CHANDIGARH (UT)	641.2	868.7	-26%	D
18		DELHI	801.9	597.5	34%	E
19		PUNJAB	473.0	476.2	-1%	N
20		HIMACHAL PRADESH	748.2	791.0	-5%	N
21		JAMMU & KASHMIR(UT)	502.3	601.7	-17%	N
22		LADAKH(UT)	26.1	41.2	-37%	D
23		RAJASTHAN	506.3	425.0	19%	N
24		MADHYA PRADESH	997.9	972.3	3%	N
25		GUJARAT	718.8	709.1	1%	N
26		DADRA & NAGAR HAVELI (UT)	2785.1	2202.1	26%	E
27		DAMAN & DIU (UT)	1886.1	1645.0	15%	N
28		GOA	3396.1	3131.0	8%	N
29		MAHARASHTRA	1281.7	1075.3	19%	N
30		CHHATTISGARH	1147.2	1201.5	-5%	N
31		ANDHRA PRADESH	732.2	680.3	8%	N
32		TELANGANA	1103.3	844.3	31%	E
33		TAMILNADU	621.4	513.2	21%	E
34		PUDUCHERRY (UT)	816.3	687.6	19%	N
35		KARNATAKA	1054.7	971.8	9%	N
36		KERALA	2309.0	2352.7	-2%	N
37		LAKSHADWEEP (UT)	950.9	1155.4	-18%	N
		COUNTRY AS A WHOLE	975.7	956.6	2%	

<b>CATEGORYWISE DISTRIBUTION OF NO. OF STATES</b>	
<b>CATEGORY</b>	<b>PERIOD: 01.06.2021 TO 31.10.2021</b>
	<b>NO. OF STATES/UTs</b>
<b>LARGE EXCESS</b>	<b>0</b>
<b>EXCESS</b>	<b>6</b>
<b>NORMAL</b>	<b>23</b>
<b>DEFICIENT</b>	<b>8</b>
<b>LARGE DEFICIENT</b>	<b>0</b>
<b>NO RAIN</b>	<b>0</b>
<b>NO DATA</b>	<b>0</b>

<b>CATEGORY</b>	
<b>LE</b>	<b>(LARGE EXCESS) (60% or more above LPA)</b>
<b>E</b>	<b>(EXCESS) (20% to 59% above LPA)</b>
<b>N</b>	<b>(NORMAL) (19% above or below LPA)</b>
<b>D</b>	<b>(DEFICIENT) (20% to 59% below LPA)</b>
<b>LD</b>	<b>(LARGE DEFICIENT) (60% to 99% below LPA)</b>
<b>NR</b>	<b>(NO RAIN) (-100%)</b>
<b>LPA</b>	<b>Long Period Average</b>

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