

GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
RAJYA SABHA
UNSTARRED QUESTION No. - 25
ANSWERED ON 20/07/2023

EXTREME AND HEAVY RAIN EVENTS

25. SMT. SANGEETA YADAV:

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) the number of extreme and heavy rain events during the last five years in the country, year-wise;
- (b) the number of States receiving over fifty percent surplus rains during the monsoon season in the last three years, year-wise;
- (c) whether it is a fact that cases of untimely rains have also increased in the last five years, if so, the details thereof;
- (d) in view of the above, whether Indian Meteorological Department will consider revising definitions of 'heavy' and 'excessive' rains; and
- (e) if so, whether any proposal is under consideration of the Ministry?

ANSWER

THE MINISTER OF EARTH SCIENCES
(SH. KIREN RIJJU)

- (a) The number of heavy rainfall (More than 64.4 and less than or equal to 115.5 mm), very heavy rainfall (more than 115.5 and less than or equal to 204.4 mm) and Extremely heavy rainfall (more than 204.4 mm) events reported during southwest monsoon season during the recent five years (2018 to 2022) are given in **Annexure I**.
- (b) The state wise observed rainfall during Monsoon season (June to September) for the last 3 recent years is given in **Annexure-II**. From the table, it is found that, there are two states, viz. Gujarat and Sikkim which received rainfall of fifty percent or more surplus during the monsoon season in the year 2020 whereas Ladakh received 64% more than seasonal rainfall in the year 2022.
- (c) Heavy, Very heavy and Extremely heavy rainfall events during the months other than monsoon season for the last five years are given in **Annexure-III**. It can be noticed that in the recent years, number of heavy rainfall events have increased especially in the month of October, mainly due to delayed withdrawal of southwest monsoon.
- (d) - (e) The rainfall category in practice in IMD is given below:

TERMINOLOGY	RAINFALL RANGE IN MM
Very Light Rainfall	Trace - 2.4
Light Rainfall	2.5 - 15.5
Moderate Rainfall	15.6 - 64.4
Heavy Rainfall	64.5 - 115.5
Very Heavy Rainfall	115.6 - 204.4
Extremely Heavy Rainfall	≥ 204.5

There is no such plan to revise the rainfall category at present.

Annexure-I

Year	2018			2019			2020			2021			2022		
Month	H R F	VH RF	EH RF	H R F	VH RF	EH RF	H R F	VH RF	EH RF	H R F	VH RF	EH RF	HR F	VH RF	EHR F
JUN	11 83	355	58	67 2	191	44	12 31	259	29	12 75	277	35	939	237	80
JUL	21 30	636	10 6	24 11	670	14 5	18 90	417	75	21 96	628	12 0	284 3	829	131
AUG	16 69	448	85	23 99	919	26 0	28 93	927	15 2	11 76	257	26	215 4	577	63
SEP	85 1	203	39	20 19	507	53	13 44	287	57	16 47	463	95	131 5	231	22
Monsoon Season	58 33	164 2	28 8	75 01	228 7	50 2	73 58	189 0	31 3	62 94	162 5	27 6	725 1	187 4	296
HRF: Heavy rainfall, VHRF: Very Heavy rainfall, EHRF: Extremely Heavy rainfall															

Annexure-II

Year	2020			2021			2022		
	Act ual	Nor mal	% Departu re	Act ual	Nor mal	% Departu re	Act ual	Nor mal	% Departu re
ANDHRA PRADESH	738. 2	514. 4	44	613. 5	514. 4	19	575. 6	521. 6	10
ARUNACHAL PRADESH	197 2	172 6.6	14	129 4	172 6.6	-25	143 0.3	167 5.1	-15
ASSAM	165 4.6	148 6.2	11	115 0	148 6.2	-23	134 0.5	147 9.1	-9
BIHAR	127 2.4	101 7.2	25	104 4.3	101 7.2	3	683. 7	992. 2	-31
CHANDIGARH	791. 1	846. 5	-7	600. 2	846. 5	-29	902. 5	844. 9	7
CHHATISGARH	123 4.3	114 2.1	8	110 7.7	114 2.1	-3	127 6.3	113 2.2	13
DADRA & NAGAR HAVELI (UT)	237 9.6	216 1.9	10	267 4.2	216 1.9	24	314 8.0	220 6.5	43
DELHI	467. 7	585. 8	-20	745. 2	585. 8	27	451. 4	544. 3	-17
GOA	415 8.6	297 4.7	40	312 5.1	297 4.7	5	276 8.9	300 7.7	-8
GUJARAT	109 1.7	692. 4	58	694. 6	692. 4	0	905. 9	711. 9	27
HARYANA	376. 1	438. 6	-14	571. 3	438. 6	30	464. 7	426	9
HIMACHAL PRADESH	567	763. 5	-26	690. 9	763. 5	-10	706. 9	734. 4	-4
JAMMU & KASHMIR(UT)	422. 4	566	-25	401. 6	566	-29	580. 5	549. 1	6
JHARKHAND	898. 3	105 4.7	-15	104 1.5	105 4.7	-1	817. 6	102 2.9	-20
KARNATAKA	106 3.9	840. 7	27	865. 4	840. 7	3	107 5.2	831. 8	29
KERALA	222 7.6	204 9.3	9	171 9.1	204 9.3	-16	173 6.6	201 8.6	-14
LADAKH(UT)	12.6	37.7	-67	21.9	37.7	-42	37.6	22.3	69
LAKSHADWEEP	134 5.4	101 3.1	33	790. 9	101 3.1	-22	139 1.2	102 6.6	36
MADHYA PRADESH	991. 7	940. 6	5	942. 7	940. 6	0	116 9.5	949. 5	23

MAHARASHTRA	1166.1	1004.2	16	1194.3	1004.2	19	1219.8	994.5	23
MANIPUR	748.5	1404.9	-47	560.9	1404.9	-60	544.7	1038.8	-48
MEGHALAYA	3995.5	2855.8	40	2257.6	2855.8	-21	2477.2	2695.3	-8
MIZORAM	1112.8	1655.9	-33	1271.3	1655.9	-23	1264.1	1626.1	-22
NAGALAND	850.4	1143.4	-26	841.1	1143.4	-26	899.1	1038.8	-13
ODISHA	1140.9	1155.3	-1	1045.1	1155.3	-10	1196.6	1150.2	4
PUDUCHERRY	442.1	425.6	4	435.8	425.6	2	367.3	418	-12
PUNJAB	387.5	467.3	-17	436.8	467.3	-7	414.0	439.8	-6
RAJASTHAN	450.2	415	8	485.3	415	17	596.0	435.6	37
SIKKIM	2416.3	1606.8	50	1798	1606.8	12	1995.0	1672.9	19
TAMILNADU	425.8	336	27	393.4	336	17	476.8	328.4	45
TELANGANA	1095.8	751.9	46	1044.2	751.9	39	1072.7	734.8	46
TRIPURA	1301.9	1457.8	-11	1246.1	1457.8	-15	1058.2	1391.1	-24
UTTAR PRADESH	649.7	790.2	-18	749.2	790.2	-5	533.4	746.2	-29
UTTARAKHAND	943.1	1176.9	-20	1156.1	1176.9	-2	1128.0	1162.7	-3
WEST BENGAL	1487	1405	6	1612.9	1405	15	1123.6	1344.2	-16

Annexure-III

Year	MONTH	Number of Heavy Rainfall events	Number of Very Heavy Rainfall events	Number of Extremely Heavy Rainfall events	
2017	JAN	59	6	1	
	FEB	7	6	1	
	MAR	58	16	3	
	APR	110	29	5	
	MAY	195	12	2	
	OCT	607	129	10	
	NOV	128	23	1	
	DEC	134	47	3	
	2018	JAN	4	0	0
		FEB	12	0	0
		MAR	30	5	0
		APR	52	1	0
MAY		268	50	12	
OCT		342	93	17	
NOV		134	36	4	
DEC		105	7	0	
2019	JAN	29	1	0	
	FEB	75	8	0	
	MAR	5	2	0	
	APR	41	10	0	
	MAY	183	56	8	
	OCT	898	169	16	
	NOV	112	22	0	
	DEC	125	21	1	
2020	JAN	28	0	0	
	FEB	17	0	0	
	MAR	42	5	0	
	APR	102	13	0	
	MAY	232	49	21	
	OCT	594	141	10	
	NOV	232	90	8	
	DEC	111	40	7	
2021	JAN	118	25	4	
	FEB	17	2	0	
	MAR	12	1	0	
	APR	47	3	0	
	MAY	709	195	40	
	OCT	788	160	36	
	NOV	662	168	11	
	DEC	122	22	0	

2022	JAN	89	9	1
	FEB	17	0	0
	MAR	14	4	2
	APR	131	30	8
	MAY	505	91	23
	OCT	786	133	13
	NOV	162	27	3
	DEC	104	31	3
