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India

Post: New Delhi

Erratic Southwest Monsoon Subsides as Output Concerns Rise

Report Categories:
Agriculture in the Economy
Agriculture in the News
Climate Change/Global Warming/Food Security
Grain and Feed
Oilseeds and Products
Cotton and Products
Sugar

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Report Highlights:
According to the Indian Meteorological Department (IMD), the cumulative rainfall for the Southwest Monsoon 2018 (June to September) was nine percent lower than the fifty-year average, and four percent lower than last year's monsoon. The first GOI advance sowing estimates for 2018 indicate lower production for major Kharif crops, as lack of moisture availability will likely influence optimal crop yields.

General Information:

Southwest Monsoon and Kharif Planting and Production Review

According to the Indian Meteorological Department (IMD), the 2018 Southwest Monsoon season is over with 9 percent deficit rains across the country. As per the IMD definition, when the realized rainfall departure on an All India scale is within 10 percent above/below the normal rainfall, the monsoon is categorized as normal, so the 2018 monsoon is a normal monsoon.

The 2018 monsoon season was highlighted by erratic rains and long dry spells, which effectively reduced the Government of India, published 2018-19 first advance estimates of production, published on September 26, 2018. The production estimates of pulses, and coarse cereals are lower than last year because of lower planted acreage estimates. Rice and oilseeds production estimates are higher than last year, as most of the growing regions received normal rains.

During the 2018 monsoon, out of the 659 districts that reported rainfall data, 38 percent received deficient to largely deficient rainfall, 46 percent received normal rainfall, and 16 percent received excess to largely excess rainfall. The cumulative rainfall in North West India, Central India and South Peninsula during the monsoon period has been normal. Accordingly, most of the major crop producing states have witnessed normal rainfall. However, very dry conditions have persisted in various northeastern states (Manipur, Meghalaya, Arunachal Pradesh), as well as Saurashtra and Kutch regions in Gujarat, Northern Karnataka, and Southwest Andhra Pradesh (Rayalaseema).

According to IMD data, the state of Maharashtra had eight percent deficit rains during the monsoon, which is considered as normal rainfall. However, the data reported by the State government of Maharashtra indicates the state rainfall to be 23 percent deficit. The State government of Maharashtra is assessing the situation in Marathwada (Central Maharashtra) where the rainfall has been 22 percent deficit, mostly during the month of September. During monsoon, the state average for the number of rainy days was the lowest during September at eight days. The Government has not declared a drought in the state yet, but may consider it after collection of ground truth data.

Northeast Monsoon (October-December) Rainfall Outlook

On September 29, 2018, IMD published the outlook for the 2018 Northeast Monsoon Season. As weather conditions for the complete withdrawal of the Southwest Monsoon become favorable, the onset of Northeast Monsoon is likely to begin. According to IMD, the Southern India Peninsula, consisting of five agro climatic areas (Tamil Nadu, Coastal Andhra Pradesh, Rayalaseema, Kerala and south interior Karnataka), which receives about 30 percent of its annual rainfall during the Northeast Monsoon, October through December. Tamil Nadu in particular receives about 48 percent of its annual rainfall during this season.

The IMD forecast for the 2018 Northeast Monsoon (October-December) over the Southern Peninsula is that it will be receive normal (between 89 -111 percent of the long-period average) rainfall. The long period average (LPA), or average for the period of 1951 to 2000, for rainfall over the area is 332.1 millimeters. The 2018 Northeast monsoon seasonal rainfall over Tamil Nadu is most likely to be above normal (greater than 112 percent of LPA). The LPA of the Northeast monsoon seasonal rainfall over Tamil Nadu for the base period, 1951-2000, is 438.2 mm.

IMD forecasts heavy to very heavy rains for the days between October 25 to 31, in the states of Tamil Nadu, Karnataka and Kerala. October rains provide moisture which supports the Rabi (winter) crop planting.

Table 1. India: Regional Rainfall Distribution from June 1- September 30, 2018

Regions	2018 Actual (mm)	2017 Actual (mm)	2016 Actual (mm)	Normal (mm)*	2018 Percentage Departure from Normal
Northwest India	603.2	552.9	584.2	615.0	-2%
Central India	911.3	918.8	1034.1	975.5	-7%
Southern Peninsula	704.4	717.6	661.5	716.1	-2%
East and Northeast India	1087.5	1386.4	1281.5	1438.3	-24%
All India	**804.0**	**841.3**	**862.0**	**887.5**	**-9%**

* Normal rainfall is the fifty year average of rainfall from 1951-2000

Source: Indian Meteorological Department

Table 2. India: Southwest Monsoon Monthly Rainfall

Month	2018 Actual (mm)	Normal (mm)**	2018 Percentage Departure from Normal
June	**155.3**	**163.6**	**-5%**
July	**272.4**	**289.2**	**-6%**
August	**241.4**	**261.3**	**-8%**
September	**132.4**	**173.4**	**-24%**
All India	**804.0**	**887.5**	**-9%**

Source: Indian Meteorological Department

** Normal rainfall is the fifty year average of rainfall from 1951-2000

Table 3. Maharashtra division-wise monsoon (June-September) rainfall

Division	2018 Actual (mm)	Normal (mm)**	2018 Percentage Departure from Normal
Konkan	**2852.3**	**2961.0**	-4%
Nasik	**454.2**	**710.8**	-36%
Pune	**699.8**	**871.5**	-20%
Aurangabad	**488.5**	**721.2**	-32%
Amravati	**632.8**	**791.8**	-20%
Nagpur	**948.1**	**1161.7**	-18%
State	**868.9**	**1131.3**	**-23%**

Source: Department of Agriculture, Government of Maharashtra

Table 4. Maharashtra division-wise number of rainy days

Division	June	July	August	September
Konkan	27	30	31	15
Nasik	13	20	11	6
Pune	21	26	27	7
Aurangabad	16	13	9	1
Amravati	18	20	11	2
Nagpur	15	20	18	8

State Average	**25**	**26**	**23**	**8**

Source: Department of Agriculture, Government of Maharashtra

Table 5. India. Storage Status at 91 Major Reservoirs in Billion Cubic Meters (BCM)

Region	Volume on October 5, 2018 (in BCM)	Total Capacity (in BCM)	Percentage of Capacity on October 5, 2018	Percentage of Capacity on October 5, 2017	10-Year Average Capacity Level on October 5
Northern Region	16.53	18.01	92%	82%	82%
Eastern Region	15.85	18.83	84%	77%	76%
Western Region	17.47	31.26	56%	72%	68%
Central Region	33.75	42.30	80%	65%	74%
Southern Region	37.32	51.59	72%	55%	68%
All India	**120.92**	**161.99**	**75%**	**66%**	**72%**

Source: Ministry of Water Resources River Development and Ganga Rejuvenation

Table 6. India. First Advance Estimates of Kharif 2018 Sown Area (in million hectares)

Crop	1st Advance Estimates 2018	4th Advance Estimates 2017	Normal Area for Kharif Season*	Y-o-Y Change	Change from Normal
Rice	38.419	39.352	39.539	-2%	-3%
Pulses	13.552	14.083	11.193	-4%	21%
Coarse Cereals	17.535	18.629	18.855	-6%	-7%
Oilseeds	17.592	17.319	18.747	2%	-6%
Sugarcane	5.159	4.732	4.884	9%	6%
Jute and Mesta	0.743	0.735	0.811	1%	-8%
Cotton	12.238	12.429	11.975	-2%	2%
Total	**105.238**	**107.279**	**106.004**	**-2%**	**-1%**

Source: Ministry of Agriculture and Farmers Welfare, Government of India

** Normal Area is the five year average of the area from 2012-2016

India Meteorological Department
Hydromet Division, New Delhi

SUBDIVISION-WISE RAINFALL DISTRIBUTION

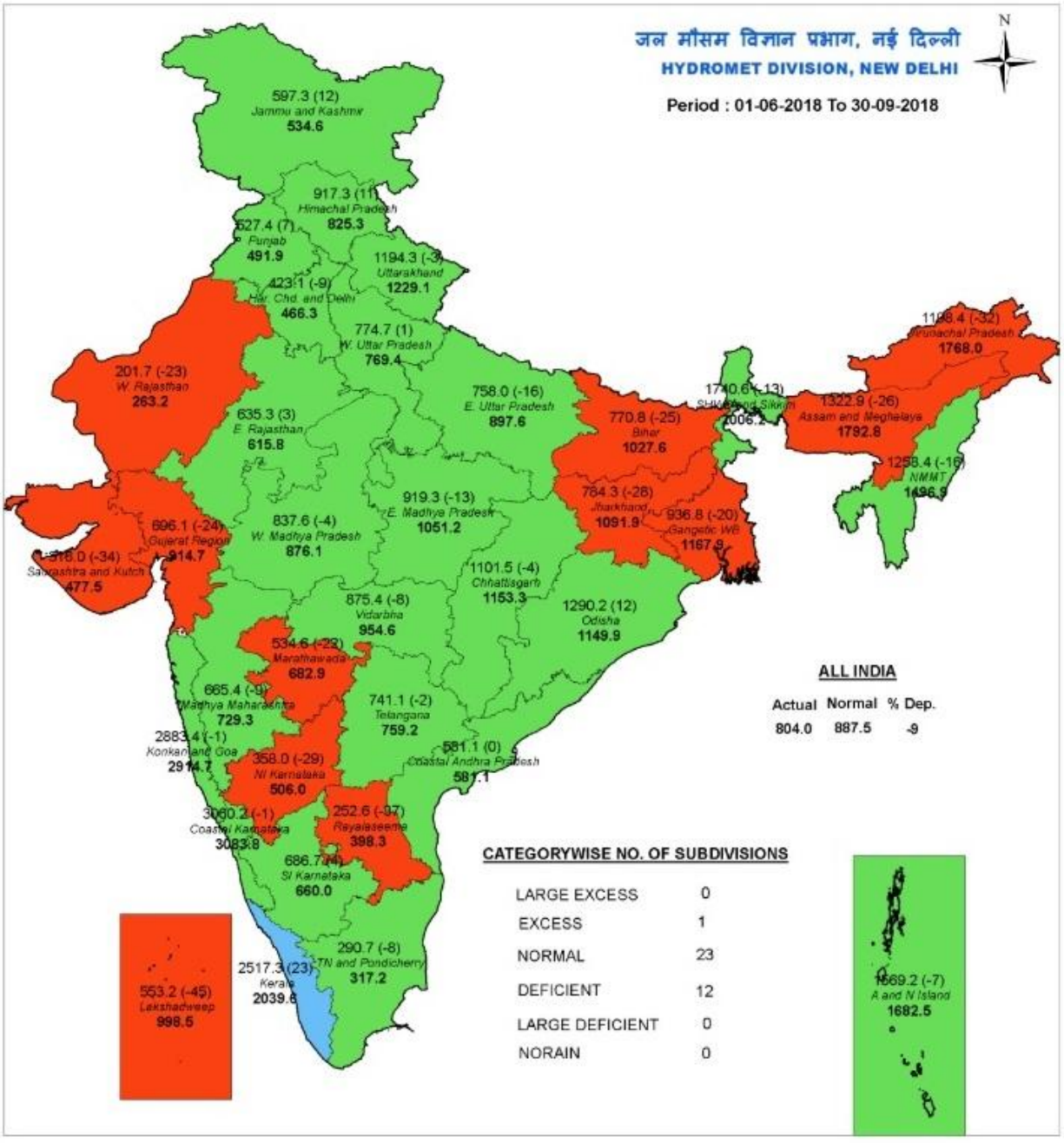
		Day:30-09-2018				Period:01-06-2018 To 30-09-2018			
S NO	MET. SUBDIVISION/UT/STATE/DISTRICT	ACTUAL (mm)	NORMAL (mm)	%DEP.	CAT.	ACTUAL (mm)	NORMAL (mm)	% DEP.	CAT.
	REGION : EAST AND NORTH EAST INDIA	2.5	7.0	-65%		1087.5	1438.3	-24%	
1	ARUNACHAL PRADESH	1.9	8.4	-77%	LD	1198.4	1768.0	-32%	D
2	ASSAM & MEGHALAYA	9.6	6.6	45%	E	1322.9	1792.8	-26%	D
3	N M M T	0.1	8.3	-99%	LD	1258.4	1496.9	-16%	N
4	SHWB & SIKKIM	4.4	9.3	-53%	D	1740.6	2006.2	-13%	N
5	GANGETIC WEST BENGAL	0.5	9.6	-95%	LD	936.8	1167.9	-20%	D
6	JHARKHAND	0.0	5.2	-100%	NR	784.3	1091.9	-28%	D
7	BIHAR	0.0	4.1	-100%	NR	770.8	1027.6	-25%	D
	REGION : NORTH WEST INDIA	0.1	1.4	-91%		603.2	615.0	-2%	
1	EAST UTTAR PRADESH	0.0	2.9	-100%	NR	758.0	897.6	-16%	N
2	WEST UTTAR PRADESH	0.0	1.7	-100%	NR	774.7	769.4	1%	N
3	UTTARAKHAND	0.2	2.3	-93%	LD	1194.3	1229.1	-3%	N
4	HAR. CHD & DELHI	0.0	0.9	-100%	NR	423.1	466.3	-9%	N
5	PUNJAB	0.0	1.6	-100%	NR	527.4	491.9	7%	N
6	HIMACHAL PRADESH	0.4	1.8	-75%	LD	917.3	825.3	11%	N
7	JAMMU & KASHMIR	0.2	1.1	-83%	LD	597.3	534.6	12%	N
8	WEST RAJASTHAN	0.3	0.3	-11%	N	201.7	263.2	-23%	D
9	EAST RAJASTHAN	0.0	1.0	-100%	NR	635.3	615.8	3%	N
	REGION : CENTRAL INDIA	0.4	3.5	-89%		911.3	975.5	-7%	
1	ODISHA	0.9	5.4	-83%	LD	1290.2	1149.9	12%	N
2	WEST MADHYA PRADESH	0.0	2.5	-100%	NR	837.6	876.1	-4%	N
3	EAST MADHYA PRADESH	0.0	1.9	-100%	NR	919.3	1051.2	-13%	N
4	GUJARAT REGION	0.0	3.3	-100%	NR	696.1	914.7	-24%	D
5	SAURASHTRA & KUTCH	0.0	1.3	-100%	NR	316.0	477.5	-34%	D
6	KONKAN & GOA	4.6	9.5	-52%	D	2883.4	2914.7	-1%	N
7	MADHYA MAHARASHTRA	0.5	5.4	-91%	LD	665.4	729.3	-9%	N
8	MARATHWADA	1.2	4.0	-69%	LD	534.6	682.9	-22%	D
9	VIDARBHA	0.0	2.6	-100%	NR	875.4	954.6	-8%	N
10	CHHATTISGARH	0.1	3.3	-98%	LD	1101.5	1153.3	-4%	N
	REGION : SOUTH PENINSULA	2.5	6.1	-58%		704.4	716.1	-2%	
1	A & N ISLAND	0.0	13.7	-100%	NR	1569.2	1682.5	-7%	N
2	COASTAL ANDHRA PRADESH	0.6	6.2	-91%	LD	581.1	581.1	0%	N
3	TELANGANA	0.9	4.5	-81%	LD	741.1	759.2	-2%	N
4	RAYALASEEMA	0.0	6.3	-99%	LD	252.6	398.3	-37%	D
5	TAMILNADU & PONDICHERY	5.0	4.5	10%	N	290.7	317.2	-8%	N
6	COASTAL KARNATAKA	4.1	11.2	-63%	LD	3060.2	3083.8	-1%	N
7	N. I. KARNATAKA	1.8	6.3	-71%	LD	358.0	506.0	-29%	D
8	S. I. KARNATAKA	3.4	6.3	-46%	D	686.7	660.0	4%	N
9	KERALA	7.8	9.8	-20%	D	2517.3	2039.6	23%	E
10	LAKSHADWEEP	1.8	5.3	-65%	LD	553.2	998.5	-45%	D
	COUNTRY :	1.1	3.9	-73%		804.0	887.5	-9%	

CATEGORYWISE NO.OF SUBDIVISIONS AND % AREA(SUBDIVISIONAL)OF THE COUNTRY

CATEGORY	Day:30-09-2018		Period:01-06-2018 To 30-09-2018	
	NO.OF SUBDIVISIONS	SUBDIVISIONAL %AREA OF COUNTRY	NO.OF SUBDIVISIONS	SUBDIVISIONAL %AREA OF COUNTRY
Large Excess	0	0%	0	0%
Excess	1	3%	1	1%
Normal	2	10%	23	68%
Deficient	4	6%	12	31%
Large Deficient	16	42%	0	0%
NoRain	13	39%	0	0%

भारत मौसम विज्ञान विभाग
INDIA METEOROLOGICAL DEPARTMENT

SUBDIVISION RAINFALL MAP



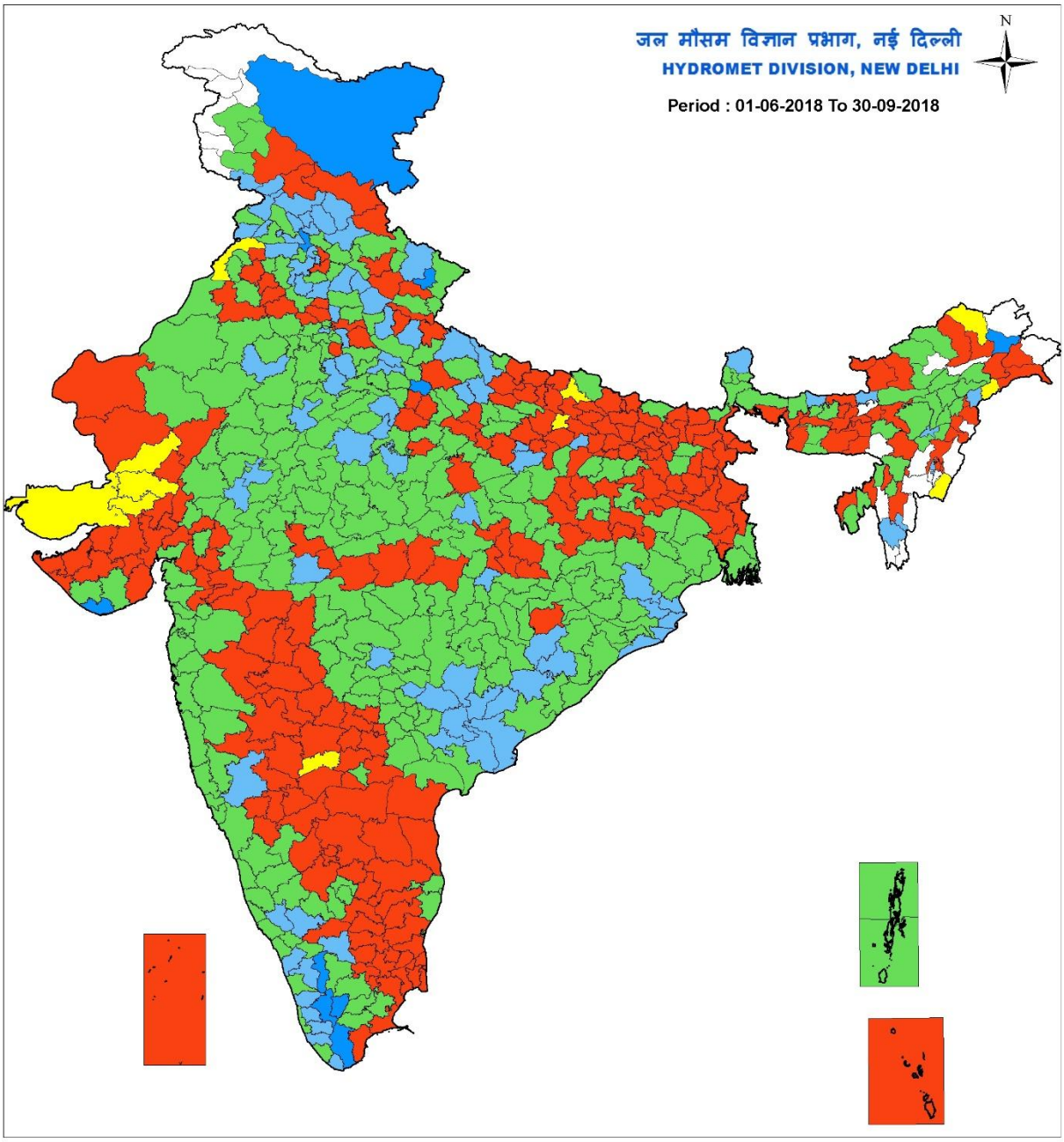
Legend

Large Excess [60% or more] | Excess [20% to 59%] | Normal [-19% to 19%] | Deficient [-59% to -20%] | Large Deficient [-99% to -60%] | No Rain [-100%] | NO DATA

NOTES :
a) RainFall figures are based on operation data.
b) Small figures indicate actual rainfal (mm), while bold figures indicate Normal rainfall (mm).
c) Percentage Departures of rainfall are shown in brackets.

भारत मौसम विज्ञान विभाग
INDIA METEOROLOGICAL DEPARTMENT

DISTRICT RAINFALL MAP



Legend

Large Excess [60% or more] | Excess [20% to 59%] | Normal [-19% to 19%] | Deficient [-59% to -20%] | Large Deficient [-99% to -60%] | No Rain [-100%] | NO DATA

NOTES :
a) RainFall figures are based on operation data.

PROGRESS OF MONSOON 2018 WEEK BY WEEK

S.NO	MET.SUBDIVISION	WEEK ENDINGS																		
		6-Jun	13-Jun	20-Jun	27-Jun	4-Jul	11-Jul	18-Jul	25-Jul	1-Aug	8-Aug	15-Aug	22-Aug	29-Aug	5-Sep	12-Sep	19-Sep	26-Sep	30-Sep
1	A & N ISLANDS																		
2	ARUNACHAL PRADESH																		
3	ASSAM & MEGHALAYA																		
4	NAG.,MANI.,MIZO.& TRIPURA																		
5	S.H.W.B. & SIKKIM																		
6	GANGATIC W.B.																		
7	ODISHA																		
8	JHARKHAND																		
9	BIHAR																		
10	EAST U.P.																		
11	WEST U.P.																		
12	UTTARAKHAND																		
13	HAR., CHANDI.& DELHI																		
14	PUNJAB																		
15	HIMACHAL PRADESH																		
16	JAMMU & KASHMIR																		
17	WEST RAJASTHAN																		
18	EAST RAJASTHAN																		
19	WEST M.P.																		
20	EAST M.P.																		
21	GUJARAT REGION																		
22	SAURASHTRA & KUTCH																		
23	KONKAN & GOA																		
24	MADHYA M'RASHTRA																		
25	MARATHAWADA																		
26	VIDARBHA																		
27	CHATTISGARH																		
28	COASTAL A.P.																		
29	TELANGANA																		
30	RAYALASEEMA																		
31	TAMIL NADU																		
32	COASTAL KARNATAKA																		
33	N.I.KARNATAKA																		
34	S.I.KARNATAKA																		
35	KERALA																		
36	LAKSHADWEEP																		

LEGEND:

- LARGE EXCESS +60%OR MORE
- EXCESS +20% TO +59%
- NORMAL +19% TO -19%
- DEFICIENT -20%TO-59%
- LARGE DEFICIENT -60% OR LESS
- NO RAIN

(वास्तविक समय के आंकड़ों पर आधारित)

RAINFALL STATISTICS - MONSOON 2018

JUNE - 2018	1 Jun	TO	30 Jun
REGION	ACTUAL	NORMAL	% DEP
COUNTRY AS A WHOLE	155.3	163.6	-5.0
NORTHWEST INDIA	80.1	69.1	15.9
EAST & NORTHEAST INDIA	255.9	349.9	-26.9
CENTRAL INDIA	159.8	164.3	-2.7
SOUTH PENINSULA	183.8	158.9	15.7

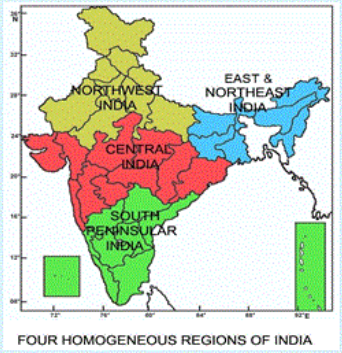
JULY - 2018	1-Jul	TO	31-Jul
REGION	ACTUAL	NORMAL	% DEP
COUNTRY AS A WHOLE	272.4	289.2	-5.8
NORTHWEST INDIA	203.0	218.2	-7.0
EAST & NORTHEAST INDIA	328.0	436.7	-24.9
CENTRAL INDIA	352.4	324.8	8.5
SOUTH PENINSULA	199.1	219.9	-9.5

AUGUST-2018	1-Aug	TO	31-Aug
REGION	ACTUAL	NORMAL	% DEP
COUNTRY AS A WHOLE	241.4	261.3	-7.6
NORTHWEST INDIA	197.7	215.6	-8.3
EAST & NORTHEAST INDIA	279.2	355.1	-21.4
CENTRAL INDIA	273.8	305.0	-10.2
SOUTH PENINSULA	223.7	180.7	23.8

SEPTEMBER - 2018	1-Sep	TO	30-Sep
REGION	ACTUAL	NORMAL	% DEP
COUNTRY AS A WHOLE	132.4	173.4	-23.6
NORTHWEST INDIA	120.7	112.1	7.7
EAST & NORTHEAST INDIA	212.5	296.6	-28.4
CENTRAL INDIA	125.3	181.4	-30.9
SOUTH PENINSULA	97.8	156.6	-37.5

CUMULATIVE SEASONAL RAINFALL	1-Jun	TO	30-Sep
REGION	ACTUAL	NORMAL	% DEP
COUNTRY AS A WHOLE	804.0	887.5	-9.4
NORTHWEST INDIA	603.2	615.0	-1.9
EAST & NORTHEAST INDIA	1087.5	1438.3	-24.4
CENTRAL INDIA	911.3	975.5	-6.6
SOUTH PENINSULA	704.4	716.1	-1.6

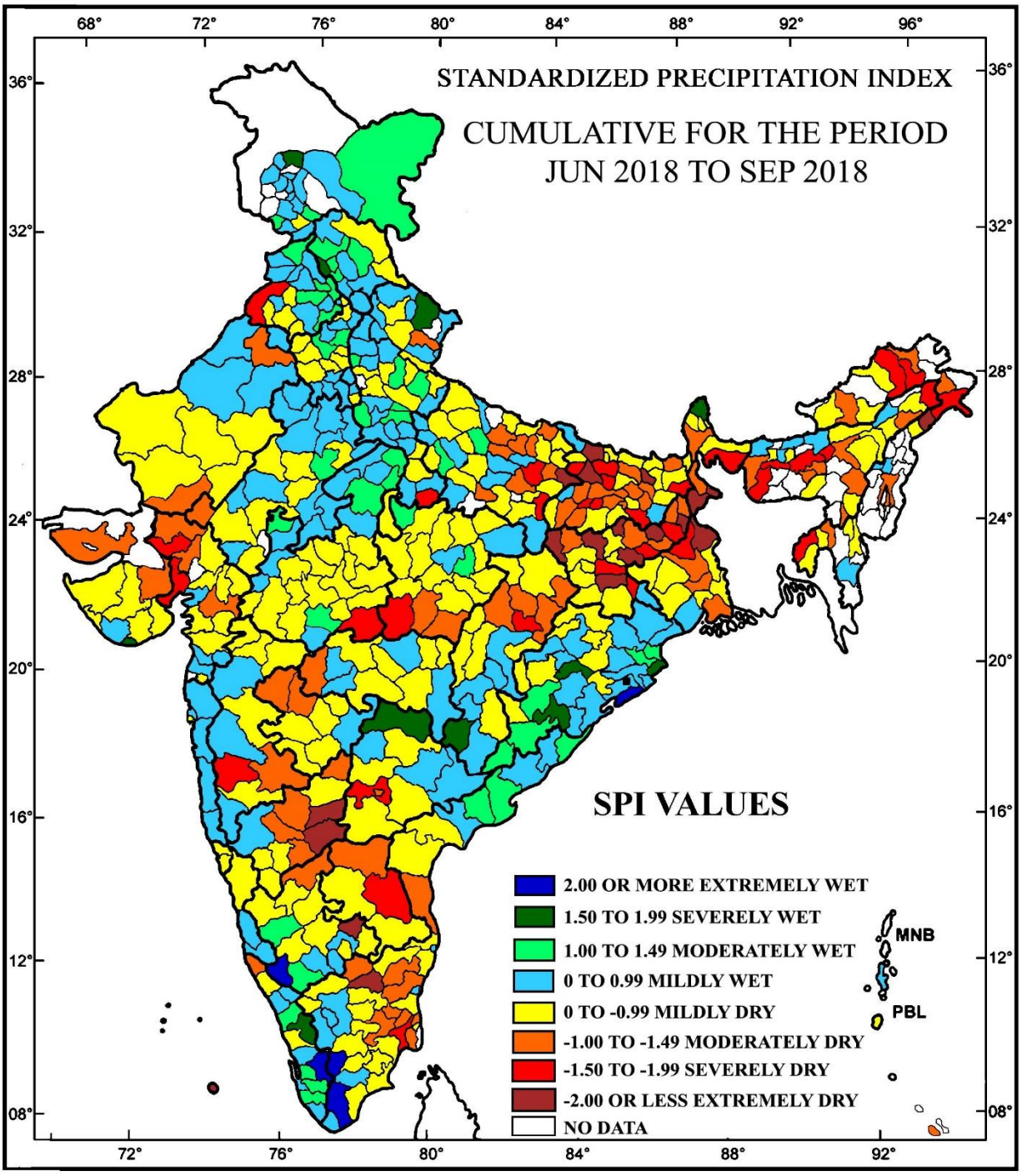
(Based on real time data)



FOUR HOMOGENEOUS REGIONS OF INDIA

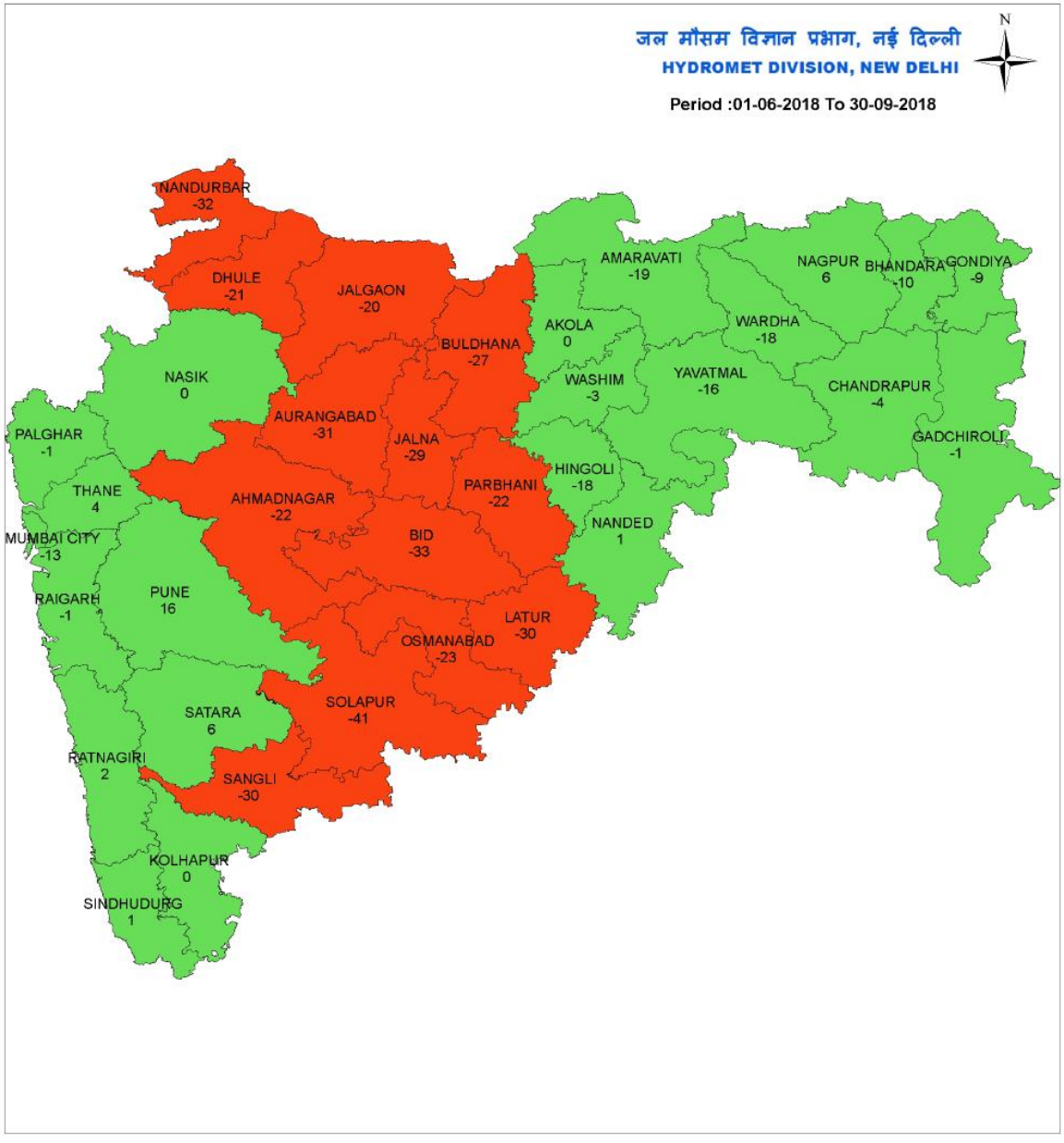
Table 1: Progress of Rainfall in Different Meteorological Sub-divisions of India as on 30-Sep-2018 (Relative departure from normal in %)													
Sl. No.	Sub Division	01 Jun-29 Jun	01 Jun-31 Jul	01 Jun-31 Aug	01 Jun-15 Sep	01 Jun-25 Sep	01 Jun-26 Sep	01 Jun-27 Sep	01 Jun-28 Sep	01 Jun-30 Sep	01-Jun to 30-Sep 2018 (mm)		
											Actual	Normal	Def/ Surp
1	ARUNACHAL PRADESH	-36	-37	-35	-30	-31	-31	-32	-32	-32	1198.4	1768	-569.6
2	ASSAM & MEGHALAYA	-28	-33	-30	-26	-27	-26	-26	-26	-26	1322.9	1792.8	-469.9
3	N M M T	-9	-23	-17	-20	-22	-22	-23	-23	-16	1258.4	1496.9	-238.5
4	SHWB & SIKKIM	-21	-20	-19	-10	-12	-12	-12	-13	-13	1740.6	2006.2	-265.6
5	GANGETIC WEST BENGAL	-12	-10	-15	-18	-17	-18	-18	-19	-20	936.8	1167.9	-231.1
6	JHARKHAND	-32	-24	-24	-23	-26	-26	-27	-28	-28	784.3	1091.9	-307.6
7	BIHAR	-35	-23	-18	-19	-23	-23	-24	-24	-25	770.8	1027.6	-256.8
8	EAST UTTAR PRADESH	-58	-19	-8	-11	-14	-14	-15	-15	-16	758	897.6	-139.6
9	WEST UTTAR PRADESH	-43	8	-1	0	2	2	2	1	1	774.7	769.4	5.3
10	UTTARAKHAND	0	-8	-3	-5	-2	-2	-2	-2	-3	1194.3	1229.1	-34.8
11	HAR. CHD & DELHI	43	1	-24	-21	-8	-8	-9	-9	-9	423.1	466.3	-43.2
12	PUNJAB	101	4	-14	-14	10	8	8	7	7	527.4	491.9	35.5
13	HIMACHAL PRADESH	30	-11	-4	-4	12	12	11	11	11	917.3	825.3	92.0
14	JAMMU & KASHMIR	50	-1	8	5	12	12	11	11	12	597.3	534.6	62.7
15	WEST RAJASTHAN	48	7	-18	-24	-23	-23	-23	-23	-23	201.7	263.2	-61.5
16	EAST RAJASTHAN	62	17	-5	-1	4	4	4	3	3	635.3	615.8	19.5
17	ODISHA	-26	7	10	10	14	14	13	13	12	1290.2	1149.9	140.3
18	WEST MADHYA PRADESH	25	11	-4	-6	-3	-3	-4	-4	-4	837.6	876.1	-38.5
19	EAST MADHYA PRADESH	-12	-2	-10	-9	-11	-12	-12	-12	-13	919.3	1051.2	-131.9
20	GUJARAT REGION	-33	-1	-14	-23	-22	-23	-23	-23	-24	696.1	914.7	-218.6
21	SAURASHTRA & KUTCH	-92	-17	-25	-31	-33	-33	-33	-33	-34	316	477.5	-161.5
22	KONKAN & GOA	46	23	8	2	0	-1	-1	-1	-1	2883.4	2914.7	-31.3
23	MADHYA MAHARASHTRA	11	11	6	-3	-7	-8	-8	-8	-9	665.4	729.3	-63.9
24	MARATHWADA	36	-9	-3	-15	-19	-20	-20	-21	-22	534.6	682.9	-148.3
25	VIDARBHA	18	11	1	-8	-7	-7	-7	-8	-8	875.4	954.6	-79.2
26	CHHATTISGARH	-10	-4	2	-3	-3	-3	-4	-4	-4	1101.5	1153.3	-51.8
27	A & N ISLAND	18	-10	-6	-9	-3	-4	-5	-6	-7	1569.2	1682.5	-113.3
28	COASTAL ANDHRA PRADESH	8	6	15	4	3	2	3	2	0	581.1	581.1	0.0
29	TELANGANA	29	-3	10	-1	0	-1	-1	-2	-2	741.1	759.2	-18.1
30	RAYALASEEMA	-5	-40	-43	-45	-37	-36	-35	-35	-37	252.6	398.3	-145.7
31	TAMILNADU & PONDICHERY	8	-2	-8	-12	-12	-12	-12	-10	-8	290.7	317.2	-26.5
32	COASTAL KARNATAKA	23	1	7	2	0	-1	0	-1	-1	3060.2	3083.8	-23.6
33	N. I. KARNATAKA	7	-18	-20	-29	-32	-30	-29	-29	-29	358	506	-148.0
34	S. I. KARNATAKA	38	6	11	6	0	1	2	3	4	686.7	660	26.7
35	KERALA	20	17	35	28	24	24	23	23	23	2517.3	2039.6	477.7
36	LAKSHADWEEP	-45	-43	-43	-47	-48	-48	-46	-46	-45	553.2	998.5	-445.3

MINISTRY OF EARTH SCIENCES
INDIA METEOROLOGICAL DEPARTMENT
HYDROMET SECTION, PUNE



भारत मौसम विज्ञान विभाग
INDIA METEOROLOGICAL DEPARTMENT

DISTRICT RAINFALL DEPARTURE MAP - MAHARASHTRA



Legend

Large Excess [60% or more] | Excess [20% to 59%] | Normal [-19% to 19%] | Deficient [-59% to -20%] | Large Deficient [-99% to -60%] | No Rain [-100%] | NO DATA