

Indian Monsoon Dynamics

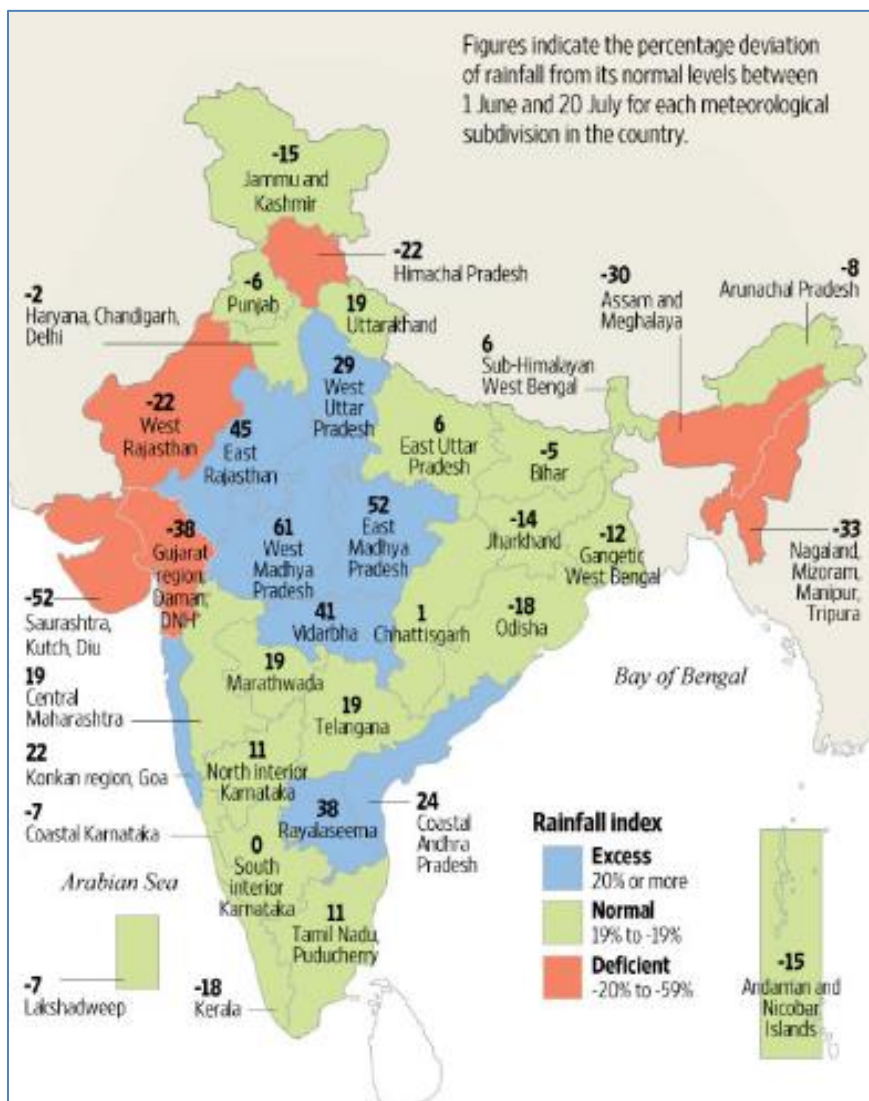
Recent Weather Development

- India has received 1% surplus rainfall since the monsoon season started in June, the India Meteorological Department. While northwest, peninsular and central India have received surplus rainfall so far, east and northeast India is facing a rainfall deficit. Heavy rainfall is expected in east and northeast India over the next few days, which may help cover the deficit.

- Rain occurred at most places over Chhattisgarh, northeastern states, Coastal Karnataka and Konkan & Goa; at many places over Uttarakhand, Sub Himalayan West Bengal & Sikkim, North Interior Karnataka, South Interior Karnataka and Andaman & Nicobar Islands; at a few places over Himachal Pradesh, East Uttar Pradesh, Bihar and Chhattisgarh; at isolated places over Punjab, Gangetic West Bengal, Odisha, East Madhya Pradesh, Marathwada, Vidarbha, Telangana, Coastal Andhra Pradesh, Rayalaseema and Kerala.

- Minimum temperature were above normal (1.6°C to 3.0°C) at most places over Punjab and West Uttar Pradesh; at many places over Haryana, Chandigarh & Delhi and West Bengal & Sikkim; at a few places over Jammu & Kashmir, Himachal Pradesh, Rajasthan, Madhya Pradesh, Vidarbha and Andaman & Nicobar Islands and at isolated places over Uttarakhand, Odisha and Tamil Nadu. They were below normal (- 1.6°C to -3.1°C) at a few places over East Uttar Pradesh and Konkan & Goa and at isolated places over Madhya Maharashtra, North Interior Karnataka and near normal over rest of the country.

- Maximum temperatures were markedly above normal (5.1°C or more) at isolated places over northwest Rajasthan; appreciably above normal (3.1°C to 5.0°C) at most places over rest Rajasthan, Himachal Pradesh, Punjab and Haryana, Chandigarh & Delhi; at many places over Jammu & Kashmir and Madhya Pradesh; at a few



places over East Rajasthan and above normal (1.6°C to 3.0°C) at many places over Madhya Pradesh, Odisha, Kerala and Andaman & Nicobar Islands and at isolated places over Punjab, rest Rajasthan, Madhya Pradesh, Gangetic West Bengal, Jharkhand & Kerala. They were appreciably below normal (-3.1°C to -5.0°C) at a few places over Assam &

Seasonal Rainfall (mm) from 1 June to 21 July, 2016

Region	Actual	Normal	% Departure from Long Period Average
East & Northeast India	532.5	640.6	-17
Northwest India	216.1	203.3	6
Central India	419.2	370.9	13
South Peninsula	306.1	297.3	3
All India	352.6	348.0	1

Source: IMD, Govt. of India

Meghalaya at isolated places over Madhya Maharashtra and Tamil Nadu; below normal .6 °C to -3.0°C) at many places over Konkan & Goa, Coastal Karnataka and Rayalaseema; at few places over North Interior Karnataka and at isolated places over Vidarbha, Telangana & rest Tamil Nadu and near normal over rest of the country.

- The axis of monsoon trough at mean sea level continues to run close to foothills of Himalaya. The eastern end of monsoon trough is likely to shift gradually southwards during next 24 hours. The feeble off-shore trough at mean sea level from south Maharashtra coast to Kerala coast persists. The upper air cyclonic circulation over Bihar and adjoining Sub Himalayan West Bengal extending upto 3.6 km above mean sea level persists. The upper air cyclonic circulation over north coastal Andhra Pradesh and adjoining south Odisha & west central Bay of Bengal extending upto 5.8 km above mean sea level tilting southwards with height persists.
- Despite forecast of a good monsoon, around 50 per cent districts of Punjab, which account for the highest contribution of rice crop, around 30-35 per cent (one-third of the country) to the central pool, and neighbouring Haryana are still dry in the season of the water-guzzling paddy rice growing crop.
- The Central Water Commission monitors the live storage of 91 important/major reservoirs, having capacity at Full Reservoir Level (FRL) of 157.80 billion cubic meters (BCM), which is about 62% of total reservoir capacity in the country. There were 46 reservoirs having storage more than 80%, 18 reservoirs having storage between 50% to 80% of Normal Storage, 15 reservoir having storage between 30% to 50%, 12 reservoir having storage upto 30% of Normal Storage and 05 reservoir having no live storage.
- The All Commodities inflation rate based on Wholesale Price Index (WPI) on a point to point basis for the month of June, 2016, increased to 1.62% from the level of 0.79% in the month of May, 2016. The inflation rate was (-) 2.13% during the corresponding period of last year.
- Incidence of white fly & jassid on cotton crop has been reported in low to Severe intensity in some villages of Fazilka district; Behlewal, Khara, Seda Sing Wala, Kothe Chand Singh, Kothe Narayangarh, Srawan, Lambwali and Kotsukhian villages of Faridkot district of Punjab. The crop stage is vegetative to square formation. Incidence of white fly on cotton crop has also been reported in moderate intensity in Hanumangarh district of Rajasthan. Incidence of white fly, late blight & buck eye rot on tomato crop has been reported in moderate intensity in Almora (Polyhouse) district of Uttrakhand.
- As per latest information available on sowing of Kharif crops, around 53% of the normal area under Kharif crops has been sown upto 15.07.2016. Total area sown under Kharif crops in the country as on 15.07.2016 has been reported to be 559.76 lakh hectares as compared to 548.38 lakh hectares last year. This year's area coverage so far is higher by 11.4 lakh ha than normal as on date. Area coverage under rice is higher by 0.9 lakh ha than the last year. Area coverage under pulses is higher by 20.0 lakh ha than the last year and by 30.5 lakh ha than normal as on date. This is due to higher coverage in Tur, Urad and Moong. Area coverage under Kharif coarse cereals has been higher by 4.5 lakh ha as compared to last year. Area coverage under total Kharif Oilseeds is higher by 3.0 lakh ha than the last year and by 36.1 lakh ha than normal as on date. The details are given in the following page.

Kharif Sowing Progress (up to 15.07.2016)

(In lakh hectares)							
Crop Name	Normal Area for whole Kharif Season	Normal Area as on date	Area sown reported			Absolute Change over (+/-)	
			This Year 2016	% of Normal for whole season	Last Year 2015	Normal as on date	Last Year
Rice	392.67	141.03	123.93	31.6	122.99	-17.1	0.9
Jowar	25.33	12.62	11.84	46.7	11.37	-0.8	0.5
Bajra	81.63	33.72	33.55	41.1	35.34	-0.2	-1.8
Maize	73.50	49.91	57.09	77.7	50.82	7.2	6.3
Total Coarse Cereals	199.70	101.05	105.98	53.1	101.45	4.9	4.5
Total Cereals	592.37	242.08	229.91	38.8	224.44	-12.2	5.5
Tur	40.05	15.81	29.19	72.9	18.62	13.4	10.6
Urad	24.39	9.39	17.16	70.4	11.05	7.8	6.1
Moong	23.59	9.77	18.61	78.9	14.71	8.8	3.9
Kulthi	2.51	0.06	0.09	3.6	0.16	0.0	-0.1
Others	17.06	5.58	6.02	35.3	6.59	0.4	-0.6
Total Pulses	107.59	40.61	71.07	66.1	51.12	30.5	20.0
Total Foodgrains	699.96	282.69	300.98	43.0	275.56	18.3	25.4
Groundnut	43.77	19.49	27.93	63.8	24.33	8.4	3.6
Soyabean	106.36	69.28	95.62	89.9	95.66	26.3	0.0
Sunflower	2.61	0.61	1.04	39.8	0.46	0.4	0.6
Sesamum	18.23	3.69	4.94	27.1	5.76	1.3	-0.8
Nigerseed	3.15	0.12	0.20	6.3	0.19	0.1	0.0
Castorseed	11.48	0.86	0.40	3.5	0.74	-0.5	-0.3
Total Oilseeds	185.59	94.05	130.12	70.10	127.13	36.1	3.0
Cotton	120.34	78.48	75.41	62.7	93.22	-3.1	-17.8
Sugarcane	49.96	46.21	45.78	91.6	44.80	-0.4	1.0
Jute & Mesta	8.57	8.02	7.47	87.1	7.67	-0.6	-0.2
All- Crops	1064.42	509.45	559.76	52.6	548.38	50.3	11.4

Source: Crops & TMOP Divisions, DAC

Note: Area figures are as per eye assessment of State Agriculture Departments.

State wise Development in Rainfall Activity

S NO	MET. SUBDIVISION/UT/STATE/DISTRICT	Day:21-07-2016				Period:01-06-2016 To 21-07-2016			
		ACTUAL (mm)	NORMAL (mm)	%DEP.	CAT.	ACTUAL (mm)	NORMAL (mm)	% DEP.	CAT.
REGION : EAST AND NORTH EAST INDIA									
1	ARUNACHAL PRADESH	18.5	14.5	28%	E	807.6	876.7	-8%	N
2	ASSAM	13.1	13.0	0%	N	577.8	748.8	-23%	D
3	MEGHALAYA	128.4	29.5	335%	E	813.5	1425.6	-43%	D
4	NAGALAND	2.6	14.1	-81%	S	406.8	636.6	-36%	D
5	MANIPUR	2.2	10.1	-78%	S	183.9	680.9	-73%	S
6	MIZORAM	0.9	14.5	-94%	S	687.9	742.4	-7%	N
7	TRIPURA	1.8	13.8	-87%	S	494.0	747.3	-34%	D
8	SIKKIM	19.9	18.2	9%	N	798.0	817.9	-2%	N
9	WEST BENGAL	14.3	15.2	-6%	N	565.9	588.9	-4%	N
10	JHARKHAND	4.5	11.5	-61%	S	360.8	426.2	-15%	N
11	BIHAR	12.6	10.1	25%	E	397.6	408.3	-3%	N
REGION : NORTH WEST INDIA									
1	UTTAR PRADESH	4.0	9.3	-58%	D	315.8	282.4	12%	N
2	UTTARAKHAND	1.5	16.2	-91%	S	512.7	446.9	15%	N
3	HARYANA	0.1	6.0	-98%	S	144.7	152.7	-5%	N
4	CHANDIGARH (UT)	0.0	8.2	-100%	NR	170.4	310.4	-45%	D
5	DELHI (UT)	0.0	6.5	-100%	NR	218.2	203.1	7%	N
6	PUNJAB	0.0	5.6	-100%	NR	153.1	167.6	-9%	N
7	HIMACHAL PRADESH	1.2	10.7	-89%	S	218.5	288.9	-24%	D
8	JAMMU & KASHMIR	0.0	6.1	-100%	NR	149.8	181.3	-17%	N
9	RAJASTHAN	0.1	5.8	-99%	S	169.1	147.0	15%	N
REGION : CENTRAL INDIA									
1	ODISHA	10.7	13.6	-22%	D	362.4	440.1	-18%	N
2	MADHYA PRADESH	1.7	10.6	-84%	S	491.8	323.9	52%	E
3	GUJARAT	1.8	7.9	-77%	S	151.6	278.9	-46%	D
4	DADAR & NAGAR HAVELI (UT)	37.2	30.9	20%	E	1004.2	985.6	2%	N
5	DAMAN & DIU (UT)	8.4	22.1	-62%	S	602.6	769.5	-22%	D
6	GOA	70.3	31.3	125%	E	1906.7	1639.8	16%	N
7	MAHARASHTRA	11.7	10.8	8%	N	543.7	432.2	26%	E
8	CHHATTISGARH	13.8	12.6	10%	N	443.0	437.8	1%	N
REGION : SOUTH PENINSULA									
1	ANDAMAN & NICOBAR (UT)	7.0	14.4	-51%	D	599.1	707.2	-15%	N
2	ANDHRA PRADESH	5.6	4.4	26%	E	214.9	172.1	25%	E
3	TELANGANA	5.1	9.3	-45%	D	325.6	285.8	14%	N
4	TAMIL NADU	2.2	2.4	-7%	N	99.4	89.4	11%	N
5	PONDICHERRY (UT)	2.6	5.0	-48%	D	54.1	86.0	-37%	D
6	KARNATAKA	16.9	9.1	85%	E	388.1	382.8	1%	N
7	KERALA	4.5	22.5	-80%	S	940.0	1163.5	-19%	N
8	LAKSHADWEEP (UT)	0.0	11.0	-100%	NR	481.6	529.6	-9%	N
COUNTRY :		6.6	9.6	-31%		358.5	357.6	0%	

Source: IMD, Govt. of India

For the country as a whole, cumulative rainfall during this year's from 1st June 2016 to 22nd July 2016 has been at par with normal. The details are given in the table above.

Major Updates & Forecast for the Coming Week and Ahead

- Monsoon in India is active and the country, which was reeling under drought recently, is now placed comfortably, even though many states are reeling under floods, while cities are getting water-logged frequently. Like every year, heavy rains have impacted eastern states the most with Assam and West Bengal suffering the most and now even Uttar Pradesh has come under flood watch.
- Floods in Assam are not abating; in fact situation is getting worse for Barpeta and Jorhat districts. Manas, Noakhanda, Mora Chawlkhowa, Beki rivers are in spate in Barpeta and the Brahmaputra at Majuli in Jorhat.
- West Bengal is set to receive massive amounts of rain in the near future even as Jalpaiguri became the wettest place in the state at 67 mm of rains, Darjeeling at 59.8 mm and Cooch Behar 12.8 mm.
- As far as Bihar is concerned, IMD is saying that the monsoon is active over the region and the state will receive more rainfall in the coming days.
- Uttar Pradesh has been receiving plentiful rain and this has led to most rivers being in spate, including Sharda river, Ghaghra river, Ganga and the Yamuna. The Central Water Commission said Sharda and Ghaghra rivers have crossed the danger mark in Pallia and Barabanki. The water level in the Ganga is "very close" to the red mark in Fatehpur and Ballia, while that in the Yamuna is near the danger mark in Mathura. The MeT office has warned of more rains in western part of the state.
- The cyclonic circulation is marked over South Chhattisgarh and adjoining Vidarbha region. The system will continue moving in the northwest direction and by the next 24-48 hours, it will be seen over Central Madhya Pradesh and adjoining Southwest Uttar Pradesh and East Rajasthan.

Disclaimer:

This report has been prepared by National Bulk Handling Corporation (NBHC) for the sole benefit of the addressee. Neither the report nor any part of the report shall be provided to third parties without the written consent of NBHC. Any third party in possession of the report may not rely on its conclusions without the written consent of NBHC.

NBHC has exercised reasonable care and skill in preparation of this advisory report but has not independently verified information provided by various primary & secondary sources. No other warranty, express or implied, is made in relation to this report. Therefore NBHC assumes no liability for any loss resulting from errors, omissions or misrepresentations made by others.

Any recommendations, opinions and findings stated in this report are based on circumstances and facts as they existed at the time of preparation of this report. Any change in circumstances and facts on which this report is based may adversely affect any recommendations, opinions or findings contained in this report.

© National Bulk Handling Corporation (NBHC) 2016