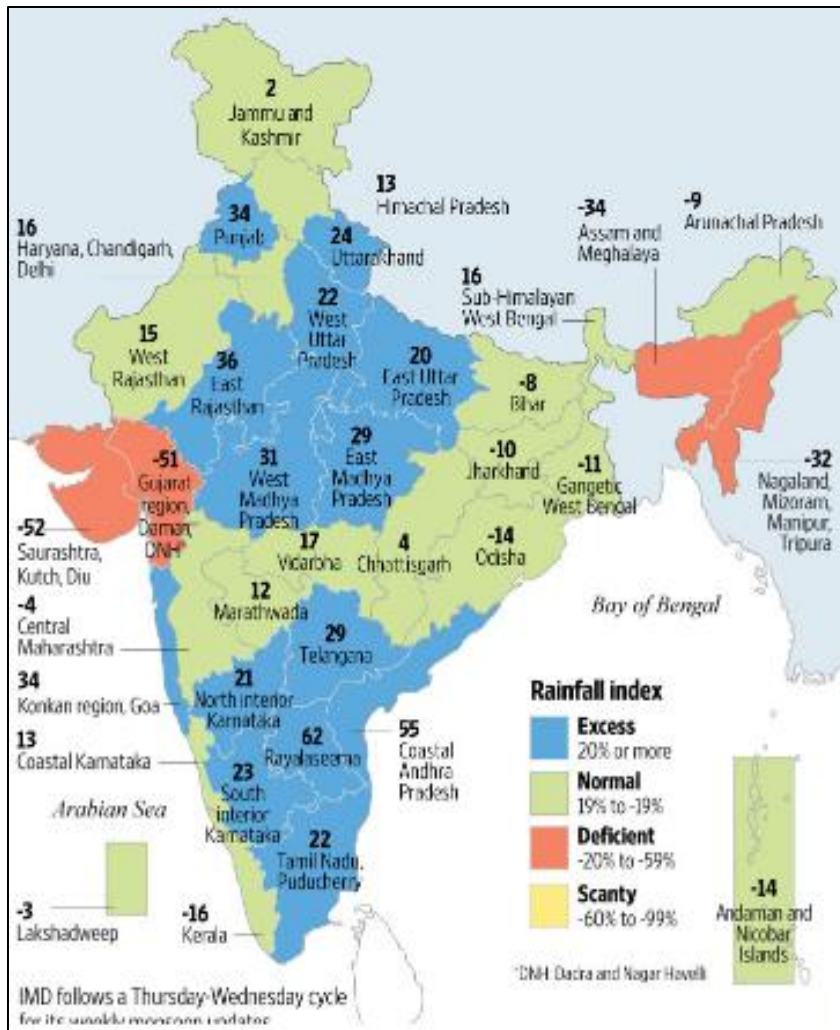


## Indian Monsoon Dynamics

### Recent Weather Development

- India received 35% surplus rainfall in the week ended 6 July with all regions recording above-normal rainfall apart from the Southern Peninsula, an update from the India Meteorological Department on Thursday showed. This week northwest, central and east-northeastern regions of the country have received 57%, 56% and 15% excess rainfall, respectively. This has also resulted in floods in Uttarakhand, Assam and Madhya Pradesh.
- Rain/snow occurred at a few places over Uttarakhand. Rain occurred at most places over Chhattisgarh; at many places over Madhya Pradesh, Odisha, Konkan & Goa, Madhya Maharashtra, Coastal Karnataka and Andaman & Nicobar Islands; at a few places over Kerala and at isolated places over East Uttar Pradesh, Bihar, West Bengal & Sikkim, Assam & Meghalaya, Vidarbha, Marathwada, Telangana, Coastal Andhra Pradesh, Rayalaseema, North Interior Karnataka and Lakshadweep.
- Minimum temperature were above normal (1.6°C to 3.0°C) at most places over Uttarakhand; at many places over Rajasthan; at a few places over West Bengal & Sikkim, Telangana, Tamil Nadu, Arunachal Pradesh and Nagaland, Manipur, Mizoram & Tripura and at isolated places over Jammu & Kashmir, Himachal Pradesh, Punjab, Haryana, Chandigarh & Delhi, Gujarat, Vidarbha, Coastal Andhra Pradesh, Odisha and Assam & Meghalaya. They were appreciably below normal (3.1°C to 5.0°C) at isolated places over Madhya Pradesh; below normal (1.6°C to 3.0°C) at isolated places over Punjab, East Uttar Pradesh, Gangetic West Bengal and rest Madhya Pradesh and near normal over rest of the country.
- Maximum temperatures were above normal (1.6°C to 3.0°C) at many places over northeastern states; at a few places over Himachal Pradesh, Jharkhand and Coastal Karnataka and at isolated places over Jammu & Kashmir, Gujarat region, Gangetic West Bengal, coastal Odisha, Coastal Andhra Pradesh, Kerala and Tamil Nadu. They were markedly below normal (5.0°C or less) at many places over East Madhya Pradesh and at a few places over West Madhya Pradesh; appreciably below normal (3.1°C to 5.0°C) at many places over Marathwada and at



isolated places over Vidarbha; below normal (1.6°C to 3.0° C) at most places over Chhattisgarh; at many places over south Madhya Maharashtra and at isolated places interior Odisha and Telangana and near normal over the rest of the country. The highest maximum temperature of 42.1°C recorded at Churu (Rajasthan) in the country.

Region	Actual	Normal	% Departure from Long Period Average
East & Northeast India	370.0	453.2	-18%
Northwest India	121.4	105.1	16%
Central India	245.0	233.0	5%
South Peninsula	240.1	208.8	15%
<b>All India</b>	<b>226.0</b>	<b>224.1</b>	<b>1%</b>

Source: IMD

- The well-marked low pressure area over northeast Madhya Pradesh & neighbourhood and associated upper air cyclonic circulation extending upto 7.6 km above mean sea level persists. The trough at mean sea level from northwest Rajasthan to east-central Bay of Bengal across Haryana, south Uttar Pradesh, center of well-marked low pressure area, Jharkhand and Gangetic West Bengal persists. The offshore trough at mean sea level from south Maharashtra coast to Kerala coasts now runs from Karnataka coast to Kerala coast. The western disturbance as an upper air cyclonic circulation over north Pakistan & neighbourhood now lies over Jammu & Kashmir & neighbourhood between 2.1 km & 3.6 km above mean sea level.

- 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. Central Water Commission monitors 91 major reservoirs in the country which

Period	Current Year's Storage as % of FRL*	Current Year's storage as % of last year	Current year as a % of 10 years average level
Current Week	15	48	70
Last Week	15	54	75

The percentage to live capacity at FRL was 32% on 30/06/2015, 24% on 30/06/2014, 27% on 30/06/2013 and 16% on 30/06/2012.  
 \* Live storage as % to Full Reservoir Level (FRL) of 157.80 Billion Cub. Mts.(BCM)  
 Source: CWC

have total live capacity of 157.80 BCM at Full Reservoir Level (FRL). Current live storage in these reservoirs as on 30th June, 2016 was 23.94 BCM as against 50.05 BCM on 30.06.2015 (last year) and 34.11 BCM of Normal storage (average storage of the last 10 years). Current year's storage is 48% of the last year's storage and 70% of the normal storage. There were 35 reservoirs having storage more than 80%, 12 reservoirs having storage between 50% to 80% of Normal Storage, 18 reservoir having storage between 30% to 50%, 26 reservoir having storage upto 30% of Normal Storage and 07 reservoir having no live storage.

- As per latest information available on sowing of crops, around 20% of the normal area under Kharif crops has been sown upto 01.07.2016. Total area sown under Kharif crops in the country as on 01.07.2016 has been reported to be 215.87 lakh hectares as compared to 279.27 lakh hectares in the corresponding period of last year. This year's area coverage so far is lower by 63.4 lakh ha than the last year. As compared to normal area as on date, total area coverage this year is higher by 3.5 lakh ha under Tur, 1.1 lakh ha under Urad and lower by 11.8 lakh ha under Rice, 1.8 lakh ha. under Jowar, 2.9 lakh ha under Bajra, 2.6 lakh ha under Groundnut, 3.1 lakh ha under Soyabean, and 17.7 lakh ha under Cotton. **The details are given in the following page.**

**Pest & Disease Update**

- Incidence of white fly on cotton crop has been reported in low to moderate intensity in few villages of Khian Sarwar & Abohar blocks of Fazilka district of Punjab.
- Incidence of Cutworm on Maize crop has been reported in moderate to moderate to severe intensity in Doda & Kishtwar districts of Jammu & Kashmir.
- Incidence of Giant African snail on rice, papaya, coffee, banana, Rubber Seedlings, vegetables and tuber crops has been reported in trace to low intensity in Thiruvananthapuram, Kollam & Pathanamthitta districts of Kerala, affected area 1920 Hectare.

## Kharif Crop Sowing Updates

## All India Crop Situation - Kharif (2016-17) as on 01.07.2016

(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	59.61	47.77	12.2	47.62	-11.8	0.2
Jowar	25.33	4.85	3.09	12.2	4.50	-1.8	-1.4
Bajra	81.63	11.24	8.39	10.3	6.60	-2.9	1.8
Maize	73.50	24.52	23.75	32.3	29.77	-0.8	-6.0
Total Coarse Cereals	199.70	43.42	37.15	18.6	43.72	-6.3	-6.6
Total Cereals	592.37	103.03	84.92	14.3	91.34	-18.1	-6.4
Tur	40.05	5.77	9.29	23.2	9.37	3.5	-0.1
Urad	24.39	3.16	4.22	17.3	4.13	1.1	0.1
Moong	23.59	4.86	4.46	18.9	6.31	-0.4	-1.9
Kulthi	2.51	0.03	0.03	1.2	0.11	0.0	-0.1
Others	17.06	3.14	1.84	10.8	2.33	-1.3	-0.5
Total Pulses	107.59	16.97	19.85	18.5	22.25	2.9	-2.4
Total Foodgrains	699.96	120.00	104.77	15.0	113.59	-15.2	-8.8
Groundnut	43.77	10.76	8.16	18.6	15.18	-2.6	-7.0
Soyabean	106.36	21.93	18.86	17.7	36.89	-3.1	-18.0
Sunflower	2.61	0.40	0.55	21.1	0.35	0.2	0.2
Sesamum	18.23	1.11	0.89	4.9	1.34	-0.2	-0.5
Nigerseed	3.15	0.03	0.02	0.6	0.06	0.0	0.0
Castorseed	11.48	0.50	0.23	2.0	0.42	-0.3	-0.2
Total Oilseeds	185.59	34.73	28.71	15.46	54.24	-6.0	-25.5
Cotton	120.34	48.33	30.59	25.4	60.16	-17.7	-29.6
Sugarcane	49.96	45.07	44.38	88.8	43.68	-0.7	0.7
Jute & Mesta	8.57	7.94	7.43	86.7	7.60	-0.5	-0.2
All- Crops	1064.42	256.07	215.87	20.3	279.27	-40.2	-63.4

Source: Ministry of Agriculture, Govt. of India



## State wise Development in Rainfall Activity

S NO	MET. SUBDIVISION/UT/STATE/DISTRICT	Day:07-07-2016				Period:01-06-2016 To 07-07-2016			
		ACTUAL (mm)	NORMAL (mm)	%DEP.	CAT.	ACTUAL (mm)	NORMAL (mm)	% DEP.	CAT.
<b>REGION : EAST AND NORTH EAST INDIA</b>									
1	ARUNACHAL PRADESH	5.0	15.8	-68%	S	569.2	634.1	-10%	N
2	ASSAM	14.7	14.6	1%	N	418.1	544.3	-23%	D
3	MEGHALAYA	15.3	41.2	-63%	S	459.1	1025.7	-55%	D
4	NAGALAND	7.6	22.7	-66%	S	288.1	444.4	-35%	D
5	MANIPUR	9.7	10.9	-11%	N	141.3	500.9	-72%	S
6	MIZORAM	1.8	10.8	-83%	S	557.3	535.5	4%	N
7	TRIPURA	5.9	14.0	-58%	D	333.8	557.7	-40%	D
8	SIKKIM	4.8	12.8	-63%	S	608.0	614.7	-1%	N
9	WEST BENGAL	4.9	13.1	-62%	S	398.3	400.7	-1%	N
10	JHARKHAND	7.4	9.3	-21%	D	239.8	267.5	-10%	N
11	BIHAR	8.9	10.1	-12%	N	219.0	240.1	-9%	N
<b>REGION : NORTH WEST INDIA</b>									
1	UTTAR PRADESH	6.5	8.0	-19%	N	168.7	140.9	20%	E
2	UTTARAKHAND	2.9	13.8	-79%	S	290.5	245.8	18%	N
3	HARYANA	0.0	3.3	-99%	S	76.7	68.8	12%	N
4	CHANDIGARH (UT)	0.0	8.6	-100%	NR	147.5	173.4	-15%	N
5	DELHI (UT)	0.0	5.5	-100%	NR	86.0	90.0	-4%	N
6	PUNJAB	1.5	4.4	-66%	S	99.0	77.0	29%	E
7	HIMACHAL PRADESH	0.1	7.6	-99%	S	152.8	142.8	7%	N
8	JAMMU & KASHMIR	0.5	3.3	-84%	S	92.5	93.0	-1%	N
9	RAJASTHAN	1.2	4.1	-72%	S	86.5	70.8	22%	E
<b>REGION : CENTRAL INDIA</b>									
1	ODISHA	2.1	9.7	-78%	S	237.8	283.2	-16%	N
2	MADHYA PRADESH	41.7	10.5	297%	E	261.2	180.7	45%	E
3	GUJARAT	0.3	8.3	-96%	S	73.4	159.9	-54%	D
4	DADAR & NAGAR HAVELI (UT)	5.9	30.9	-81%	S	453.8	574.5	-21%	D
5	DAMAN & DIU (UT)	1.3	22.5	-94%	S	426.0	458.1	-7%	N
6	GOA	12.2	28.7	-58%	D	1509.5	1148.1	31%	E
7	MAHARASHTRA	2.8	10.3	-73%	S	315.5	279.1	13%	N
8	CHHATTISGARH	9.1	11.7	-23%	D	269.9	264.1	2%	N
<b>REGION : SOUTH PENINSULA</b>									
1	ANDAMAN & NICOBAR (UT)	40.8	14.0	190%	E	484.0	526.7	-8%	N
2	ANDHRA PRADESH	3.2	5.0	-35%	D	178.7	116.6	53%	E
3	TELANGANA	4.5	6.0	-25%	D	234.2	184.1	27%	E
4	TAMIL NADU	1.9	3.1	-37%	D	70.9	59.3	20%	E
5	PONDICHERRY (UT)	0.9	2.1	-56%	D	46.9	58.2	-19%	N
6	KARNATAKA	9.4	8.8	7%	N	306.4	260.1	18%	N
7	KERALA	19.2	26.4	-27%	D	704.2	845.1	-17%	N
8	LAKSHADWEEP (UT)	13.7	11.9	15%	N	386.8	397.4	-3%	N
<b>COUNTRY :</b>		<b>7.8</b>	<b>8.8</b>	<b>-11%</b>		<b>226.0</b>	<b>224.1</b>	<b>1%</b>	

Source: IMD, Govt. of India

For the country as a whole, cumulative rainfall during this year's from 1st June 2016 to 7<sup>th</sup> July 2016 has been surplus by 1 % (Below Normal). The details are given in the table above.

**Major Updates & Forecast for the Coming Week and Ahead**

- The monsoon, which covered nearly the entire country this week, is expected to bring heavy rainfall in central India in the coming week. "Rainfall is spatially well distributed now with good rainfall across India. With a depression centered near Madhya Pradesh, regions such as Madhya Maharashtra and East Madhya Pradesh which suffered last year will receive good rainfall henceforth.
- The weather system over central India that has been responsible for some good Monsoon rains over the region has now weakened into low pressure. It is now seen over East Madhya Pradesh, and adjoining areas of Chhattisgarh and Uttar Pradesh.
- Down south, the off-shore trough continues to be marked from Coastal Gujarat up to Kerala. However, it is active only over Coastal Karnataka and Kerala.
- Moving up in North, the cyclonic circulation continues to prevail over Central Pakistan and trough is running from this system across Punjab, Haryana, Delhi, Uttar Pradesh, and further up to Bay of Bengal.

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