GOVERNMENT OF INDIA
CENTRAL WATER COMMISSION
FLOOD FORECAST MONITORING DIRECTORATE

A damaged railway line near Chainpur Station in the flood-hit East Champaran district, Bhar
August 2017(PTI Photo)

FLOOD FORECASTING AND WARNING NETWORK PERFORMANCE APPRAISAL REPORT 2017

NEW DELHI – 110066 **December 2018**

Member (RM)
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PREFACE

Central Water Commission had started Flood Forecasting & Warning service in India in November 1958 by setting one forecasting station at Old Delhi Bridge, for the national capital, on the river Yamuna. Today, its network of Flood Forecasting and Warning Stations gradually extended covering almost all the major inter-state flood prone river basins throughout the country.

Under the XII Plan Scheme "Flood Forecasting" the flood forecasting services of CWC were to be expanded to 100 new stations taking the total to 275 flood forecast stations. As the SFC memo for the scheme was approved in December 2015, upto 2017, the flood forecasting services were expanded to 51 out of the 100 identified sites. With this expansion, the flood forecasting network of CWC comprised of 226 Flood Forecasting Stations including 60 inflow forecast in 19 major river basins. It covered 20 states besides NCT Delhi and UT of Daman & Diu. The flood forecasting activities of the Commission are being performed every year from May to December through its 26 field divisions which issue flood forecasts and warnings to the civil authorities of the states as well as to other organizations of the central & state governments, as and when the river water level touches or is expected to cross the warning level at the flood forecasting stations. Inflow Forecasts are issued for 60 reservoir/dam/barrages. The forecasts are formulated whenever the inflow into the dam exceeds the threshold value fixed by the respective project authorities for reservoir regulation as well as flood moderation.

During the year 2017, 8 Flood Forecast stations flowed in Unprecedented flood situation during the period from 12th to 23rd August 2017. High Floods were witnessed in 22 Flood Forecasting Stations. Moderate flood situation was witnessed in 45 Flood Forecasting Stations and 27 Flood forecast stations witnessed Low Flood Situation. Out of the 60 reservoirs in the network, inflow forecasts were issued at 40 reservoirs. The highlight of this year flood was the Unprecedented Floods in Gandak, Kosi, Mahananda in Bihar, Rapti in Uttar Pradesh, Raidak-I and Mundeshwari in West Bengal.

During the year 2017, 6297 forecasts were issued out of which 5901 forecasts (93.71%) were found to be within the limits of accuracy. The number of level forecasts issued during the year 2017 were 5085 out of which 4975 (97.84%) was within the limit of accuracy of ± 0.15 m. The number of inflow forecasts issued was 1212 out of which 926 (76.40%) were within limits of accuracy of ±20%. During the unprecedented floods, CWC issued 7 flood advisories for taking up relief and rescue operations in advance at flood affected areas which were well appreciated by the beneficiaries at both National and State Levels.

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Rainfall Runoff advisories based on the satellite estimates of rainfall using satellite and AWS of IMD/CWC taken from IMD AWS/ARG website as well as the rainfall forecast products of Weather Research and Forecast (WRF) model at a resolution of 0.25x0.25 grid was developed using Mike-11, a one-dimensional flood forecast model. These models were run on automatic mode by fetching the data through file transfer protocol (ftp) from the respective websites and scheduling the operations of Mike-11 model to run every hour. The model was operationalised during 2017 flood season and was put in Uniform resource Locator (URL) http:120.57.32.251. CWC wishes to place its acknowledgements for the services provided by IMD through its Hydromet & Numerical Weather Prediction units in the Headquarters as well as various FMOs.

The level of performance achieved, has been possible as a result of the dedicated team work of the officers and staff manning the various activities of hydrometeorological observations & flood forecasting and monitoring the flood forecasting activities of the field offices.

Flood Forecast Monitoring (FFM) Directorate plays an important role in compiling the information received from various field offices at Headquarters and issues daily bulletins which are sent to all stakeholders. I wish to place on record my deep appreciations of the efforts put in by the officers and staff of FFM, FCA-1 and FCA-2 Directorates in carrying out the work with utmost devotion & dedication in bringing out this report. The staff of this Directorate, along with other supporting staff from other Directorates/Wings during flood duties in the flood season of 2017 also deserves all appreciation in keeping the control room fully functional on all the week days, including holidays, Saturdays & Sundays. The control room was kept operational round the clock throughout the flood season.

It is hoped that the momentum gained in expanding the flood forecasting network, improving performance modernization as well as dissemination techniques will be further accelerated to achieve greater effectiveness of each and every forecast with the help of mathematical modelling supported by real-time data from telemetry.

Suggestions/comments of the Users of this report with a view to further enhance its usefulness are welcomed and will be incorporated in the next edition.

New Delhi
December, 2018

(Y K Sharma)
Member (RM)

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Cover Photo: Courtesy: PTI Photos

EXECUTIVE SUMMARY

0.1 METEOROLOGICAL SITUATION

During 2017, the south west monsoon performance was as given below:

- The rainfall over the country as a whole during the monsoon season (June – September) was 95% of its long period average (LPA).
- Seasonal rainfall over Northwest India, Central India, south Peninsula and Northeast (NE) India were recorded at 90%, 94%, 100% and 96% of respective LPAs.
- Out of the total 36 meteorological subdivisions, 25 subdivisions constituting 65% of the total area of the country received normal seasonal rainfall, 5 subdivisions received excess rainfall (18% of the total area), and 6 subdivisions (17% of the total area) received deficient seasonal rainfall.
- Monthly rainfall over the country realized as a whole was 104% of LPA in June, 102% of LPA in July, 87% of LPA in August, and 88% of LPA in September.
- Southwest monsoon reached parts of southeast Bay of Bengal, south Andaman Sea and Nicobar Islands on 14th May (6 days ahead of its normal date). It advanced over Kerala on 30th May (2 days ahead of the normal schedule) and covered the entire country by 19th July (4 days later than the normal date).
- Monsoon withdrawal was delayed and commenced from parts of northwest India on 27th September (with a delay of nearly 3 weeks). It withdrew from some more parts of northwest India on 30th September. As on 11th October, the monsoon has withdrawn from most parts of northwest India except east Uttar Pradesh.
- During the season, 14 low pressure systems (1 Deep Depression, 2 Depressions, 6 well marked low pressure areas & 5 low pressure areas) formed against an average of 6 Depressions & 8 low pressure areas.
- The forecast for monsoon onset over Kerala for this year was very accurate, as both the forecasted and realized date of onset of monsoon over Kerala was 30th May.
- The forecasts for the seasonal rainfall over country as whole and the four broad geographical regions and the forecast for July rainfall over the country as whole were within the forecast range. However, the forecasts for the rainfall during the second half of the monsoon season and the August rainfall were found to be overestimated to the observed rainfall.

0.2 FLOOD SITUATION

During the year 2017, 8 Flood Forecast stations namely **Harinkhola** in Hoogly district of West Bengal flowed in Unprecedented flood situation on 28th July 2017 and **Tufanganj** in Coochbehar district of West Bengal, **Dumariaghat** in East Champaran district, **Basua** in Sapual district, **Dhengraghat** in Purnia district and **Jhawa** in Katihar district of Bihar, **Balrampur** in Balrampur district and **Bansi** in Siddarthnagar district of Uttar Pradesh flowed in Unprecedented flood situation during the period from 12th to 23rd August 2017. High Floods were witnessed in 22 Flood Forecasting Stations namely, River Brahmaputra at **Dibrugarh**, **Neamatighat, Tezpur, Goalpara** and **Dhubri,** river Jia-Bharali at **N T Road Crossing**, river Katakhal at **Matizuri**, river Kushiyara at **Karimganj**, river Beki at **Road Bridge**, river Sankosh at **Golokganj**, river Dikhow at **Shivasagar**, river Gaurang at **Kokrajhar** in Assam. River Ghagra at **Gangpur Siswan** in Bihar, **Elgin Bridge and Ayodhya** in Uttar Pradesh, river Rapti at **Gorakhpur Birdghat**, river Ganga at **Kachlabridge** in Uttar Pradesh, river Bagmati at **Benibad** and river Kosi at **Baltara** in Bihar, river Teesta at Mekhliganj and river Torsa at Ghugumari in West Bengal. Moderate flood situation was witnessed in 45 Flood Forecasting Stations and 27 Flood forecast stations witnessed Low Flood Situation. No floods were witnessed in 84 flood forecasting stations. Out of the 60 reservoirs in the network, inflow forecasts were issued at 40 reservoirs and in 20 reservoirs the inflows did not exceed the criteria for issuing inflow forecasts.The highlight of this year flood was the Unprecedented Floods in Gandak, Kosi, Mahananda in Bihar, Rapti in Uttar Pradesh, Raidak-I and Mundeshwari in West Bengal.

0.3 FLOOD FORECASTING PERFORMANCE

During the year 2017, 6297 forecasts were issued out of which 5901forecasts (93.71%) were found to be within the limits of accuracy. The number of level forecasts issued during the year 2017 were 5085 out of which 4975 (97.84%) was within the limit of accuracy of ± 0.15 m. The number of inflow forecasts issued was 1212 out of which 926 (76.40%) were within limits of accuracy of ±20%.During the unprecedented floods, CWC issued 7 flood advisories for taking up relief and rescue operations in advance at flood affected areas which were well appreciated by the beneficiaries at both National and State Levels.

SALIENT FEATURES OF FLOOD FORECASTING SYSTEM

The "Salient Features" of Flood Forecasting and Warning Network of the Central Water Commission are given in the table shown below.

1.	Establishment of 'First Scientific Flood Forecasting Unit" (F.F.U.) at Delhi in India	November, 1958
2.	Date of issue of first scientific flood forecast	25th July, 1959
3.	Name of first forecasting site and river	Delhi Railway Bridge (old) on the River Yamuna
4.	Year of commencement of flood forecasting system on the inter-state rivers i.e. first national level expansion	1969
5.	No. of Chief Engineer's offices including one CE (Flood Management) at CWC' headquarters, Monitoring – Central, Nagpur and Cauvery and Southern Rivers Organisation, Coimbatore being organisations supporting the Flood Forecasting Activities	12
6.	No. of Superintending Engineer's offices including one Flood Forecast Monitoring Directorate at CWC headquarter	15
7.	No. of present Flood Forecasting Divisions	26
8.	No. of Control Room/Sub-Divisions engaged in flood forecasting work	78
9.	No. of states including union -territories covered under F.F. Programme	22
10.	No. of forecasting sites	226
11.	No. of gauge and gauge & discharge sites	1224
12.	No. of wireless stations (including Control Rooms)	544
13.	No. of Telemetry Stations installed/under installation during IX,X XI and XII Plans	510/284
14.	Maximum no. of forecasts issued in any one year Second Highest no. of forecasts issued	8566 (in 1990) 8223 (in 2007)
15.	No. of forecasts issued in flood season 2010	7519
16.	No. of forecasts issued in flood season 2011	5991
17.	No. of forecasts issued in flood season 2012	5031
18.	No. of forecasts issued in flood season 2013	7060
19.	No. of forecasts issued in flood season 2014	4772
20.	No. of forecasts issued in flood season 2015	4072
21	No. of forecasts issued in flood season 2016	6239
22	No. of forecasts issued in flood season 2017	6297

CHAPTER-1

NATIONAL FLOOD FORECASTING NETWORK

1.1 FLOOD FORECASTING SERVICES

Flood causes considerable damage to human lives and property almost every year. About one third of total flood prone area (40 mHa assessed by the Rashtriya Barh Ayog) of the country has been provided with reasonable protection against flood of a low magnitude due to technological and economical constraints but there is no protection from floods of higher magnitude. Since adoption of National Flood Policy by Government of India in 1954, it was realized that a total protection against flood by structural means alone is not possible and that optimum solution would consist of a mixture of structural and non-structural measures. Therefore, stress has been laid on non-structural measures like flood forecasting and warning, which is most important among such means to minimize the damage potential from floods. Accurate and timely flood forecasts and advance warning have, therefore, to be aimed for providing valuable time to the people and to civil authorities in taking preventive measures like evacuation, relief and rehabilitation measures, preparedness for flood fighting by engineering authorities etc. and thus mitigating such loses from floods.

1.2 FLOOD FORECASTING NETWORK IN THE COUNTRY

Flood Forecasting has been recognized as the most important, reliable and cost effective non-structural measures for flood mitigation. Recognizing the great importance of this measure, flood forecasting of river Yamuna at Delhi was suggested by Reddy Committee set up by Prime Minister, Govt. of India to manage flooding of Delhi. Accordingly in the year 1958, CWC commenced the flood forecasting service in a small way by establishing flood forecasting unit for issuing water level forecasts of the Yamuna for the National Capital, Delhi. On the recommendation of various committees/panels, a "Flood Forecast & Warning Organisation" was set up in CWC in 1969 to establish forecasting sites on inter-state rivers at various flood prone places in the country. 41 forecasting sites were added in 1969, making total number of forecasting sites to 43. Extension of the service followed from time to time. The year-wise positions of the number of flood forecasting sites till the flood season 2017 in the network of Central Water Commission are shown in the **Table 1.1**:

Table-1.1: Yearwise positions of number of forecasting sites in CWC

Year	Cumulative No. of Flood Forecasting Sites	Year	Cumulative No. of Flood Forecasting Sites
1958	01	2002	161
1965	02	2003	166
1969	43	2004	172
1977	77	2005	173
1980	84	2006	175
1985	145	2015	176
1987	147	2016	199
1990	157	2017	226
2001	159		

The "National Flood Forecasting and Warning Network" of Central Water Commission, which comprised of 226 flood forecasting sites including 60 inflow forecasting sites in flood season 2017 is shown in **Map-1.** The number of flood forecasting sites on each of the major inter-state river systems is in the **Table 1.2**.

Table 1.2: Number of flood forecasting sites in inter-state river systems

Sr. No	**Major Interstate River Systems**	**FF stations as on Date**		
		Level	**Inflow**	**Total**
1	Indus and its tributaries	3	0	**3**
2	Ganga & its tributaries	83	14	**97**
3	Brahmaputra & its tributaries	33	0	**33**
4	Barak System	6	0	**6**
5	Subarnarekha (i/c Burhabalang)	3	1	**4**
6	Brahmani &Baitarni	3	1	**4**
7	East Flowing(Mahanadi to Pennar)	4	2	**6**
8	Narmada	4	0	**4**
9	Tapi	1	2	**3**
10	Mahi	1	4	**5**
11	Sabarmati	1	1	**2**
12	Mahanadi	3	1	**4**
13	Godavari	14	7	**21**
14	Krishna	4	10	**14**
15	West Flowing Rivers(Kutch &Saurashtra)	0	1	**1**
16	West Flowing Rivers(Tapi to Tadri)	2	1	**3**
17	Cauvery and its tributaries	0	8	**8**
18	Pennar	1	1	**2**
19	East Flowing Rivers(Pennar to Kanyakumari)	0	6	**6**
	TOTAL	**166**	**60**	**226**

The above flood forecasting network covers the following 20 states, one Union Territory and NCT of Delhi as shown in the **Table 1.3**

Table 1.3 Statewise Flood Forecasting Network in CWC

Sr. No.	Name of State/UT	Number of flood forecasting Stations		
		Level	Inflow	Total
1	Andhra Pradesh	7	7	**14**
2	Arunachal Pradesh	2	0	**2**
3	Assam	29	0	**29**
4	Bihar	34	0	**34**
5	Chhattisgarh	1	0	**1**
6	Gujarat	6	6	**12**
7	Haryana	0	1	**1**
8	Jammu & Kashmir	3	0	**3**
9	Jharkhand	2	5	**7**
10	Karnataka	1	9	**10**
11	Madhya Pradesh	2	2	**4**
12	Maharashtra	7	3	**10**
13	Odisha	11	2	**13**
14	Rajasthan	0	3	**3**
15	Tamil Nadu	0	10	**10**
16	Telangana	4	6	**10**
17	Tripura	2	0	**2**
18	Uttar Pradesh	38	2	**40**
19	Uttarakhand	3	1	**4**
20	West Bengal	11	3	**14**
21	Dadra & Nagar Haveli	1	0	**1**
22	NCT of Delhi	2	0	**2**
	Total	**166**	**60**	**226**

Central Water Commission through its twenty seven flood forecasting divisions issued forecasts to the various user agencies, which includes various civil / engineering agencies of the States/ Central Governments such as Irrigation/ Revenue/ Railways/ public undertakings and Dam/ Barrage Authorities/ District Magistrates/ Sub Divisional Officers besides the Defence Authorities involved in the flood loss mitigation work. During the flood season, the Hon'ble Minister of Water Resources, Government of India, the Chairman and the Member (River Management) of Central Water Commission were also being apprised of the latest flood situations in the above river basins in the country.

1.3 CLASSIFICATIONS OF VARIOUS FLOOD SITUATIONS

The Central Water Commission has categorized various flood situations, for monitoring the floods in the country though its flood forecasting network, into

thefollowing four different categories, depending upon the severity of floods i.e. based on floods magnitudes.

1.3a Level Forecast

(i) LOW FLOOD

The river is said to be in **"LOW FLOOD"** situation at any flood forecasting sites when the water level of the river touches or crosses the warning level, but remains below the danger level of the forecasting site.

(ii) MODERATE FLOOD

If the water level of the river touches or crosses its danger level, but remains 0.50 m below the Highest Flood Level of the site (commonly known as "HFL") then the flood situation is called the **"MODERATE FLOOD"** situation.

(iii) HIGH FLOOD

If the water level of the river at the forecasting site is below the Highest Flood Level of the forecasting site but still within 0.50m of the HFL then the flood situation is called **"HIGH FLOOD"** situation. In **"High Flood Situations"** a special **"Orange Bulletin"** is being issued by the Central Water Commission to the users agencies which contains the "special flood message" related to the high flood.

(iv) UNPRECEDENTED FLOOD

The flood situation is said to be **"UNPRECEDENTED"** when the water level of the river touches or crosses the "**HIGHEST FLOOD LEVEL**" recorded at any forecasting site so far. In **"Unprecedented Flood Situations"** a special **"Red Bulletin"** is being issued by the Central Water Commission to the users agencies which contains the "special flood message" related to the unprecedented flood.

1.4 STANDARD OPERATING PROCEDURE (SOP) FOR FLOOD FORECASTING & WARNING

The basic activity of data collection, its transmission and dissemination of flood forecasts to the local administration is carried out by the field divisions of CWC. The modelling centres and Divisional Flood Control Rooms (DFCR) are located in the premises of the field divisions. The field divisions perform these activities as per existing Manual on Flood Forecasting which contains the following critical activities as the general SOPs

1. Nomination of Nodal Officers of CWC for interaction with the Nodal Officers of concerned State Governments before monsoon every year.
2. Gearing up of flood forecasting network before monsoon every year.
3. Operation of Divisional Flood Control Room during monsoon every year
4. Operation of Central Flood Control Room (CFCR) during monsoon every year.

5. Issue of flood forecasts to designated officers of concerned State and transmission thereof through FAX/Telephone/E-mail/ through Special Messengers during monsoon every year.
6. Sending flood alerts through SMS on Mobile Phones to the concerned officers of State/ Central Government during high (12 hourly updates) and unprecedented (3 hourly updates) flood situations and uploading of Flood Forecasts and hourly water level data in CWC's Flood Forecasting Website as per Standard Operating procedure (SOP) for issuing alerts and electronic messaging in the event of disaster situations issued by National Disaster Management Division, Ministry of Home Affairs, vide letter No: 31-32/2003-NDM-III / II dated 10th April 2006, made effective from 24th April 2010.

For the purpose of dissemination of alerts to PMO/ Cabinet Secretariat, a uniform system has been devised by categorizing each type of alert in stages- Yellow, Orange and Red.

Categories of alerts for flood in respect of level forecasts is as indicated below.

Category	Description	Stage
IV	Low Flood (Water level between Warning level and Danger level)	Yellow
III	Moderate Flood (Water level below 0.50m less than HFL and above Danger Level)	Yellow
II	High Flood (Water Level less than Highest Flood Level but still within 0.50 m of the HFL)	Orange
I	Unprecedented Flood (Water Level equal and above Highest Flood Level-HFL)	Red

1.5 INFLOW FORECASTS

Inflow Forecasts are issued for 40 dams/reservoirs/barrages in various river basins in the country. The project authorities have identified the threshold inflow limits for issue of forecast considering various factors such as safety of the dam, status of reservoir, downstream channel/ canal requirements. The inflow in volume during the given duration indirectly indicates the possibility of accommodating the given volume or otherwise in the reservoir. The outflow pattern is decided keeping in view of the safety measures at the reservoir and the likely impact of the outflow from the reservoir to cause damages/ difficulties in the downstream areas giving due attention to the Emergency Action Plan (EAP) of the project. There is need for EAP for all reservoirs covering normal operational releases and high releases during floods.

1.6 EXPANSION OF THE NETWORK OF FLOOD FORECASTING SITES

The operation and maintenance of existing flood forecasting network is carried out as per budget allotment each year under 'Non-Plan' head and is thus

subject to such restrictions and cuts applied to items under `Non-Plan'. The allocation during the year 2016-17 was Rs. 100.20 Crore including Rs.1.71Crore for payment to Government of Bhutan for maintaining hydrometeorological stations in river common to India and Bhutan and strengthening & Modernization of FF and Hyd. Obs. Network in Brahmaputra and Barak Basin. The expansion of the network with a view to cover additional flood prone areas is proposed to be covered under 'Plan' head. Work on such Plan schemes is subject to approval of specific schemes by the Government and the budget allocation of funds.

The salient features of all Flood Forecasting Sites, the details of all the sites basin-wise as well as Statewise during the flood season 2017, is shown at **Annex-I, Annex-II** and **Annex-III** respectively.

1.7 DATA COMMUNICATION SYSTEM

Central Water Commission maintains 544 Wireless Stations for near real – time data communication. These wireless sets work on pre-fixed schedules for receiving the vital hydro-meteorological data immediately after its observation. In addition, telephone/mobile phone, fax and internet are also used dissemination of flood forecasts to user agencies.

Now under modernization program, satellite based Telemetry System has been installed at various stations for sensor based automatic data collection and satellite based communication.

1.7.1 Wireless Communication

Wireless network in CWC maintains 544 stations that work on HighFrequency Range (3 to 30 MHz) and Very High Frequency Range (30 to 300MHz) sets. The HF sets are used for long distance communication between Site and Division (15 to 20Watts), Division to Division (100 to500 Watts) whereas VHF sets are used for short distance communication (i.e. from river to Site office).

1.7.2 Telemetry

Sensor based data collection and satellite based communication was installed at 445 sites upto end of XI Plan and another 65 stations have been installed during 2012-13 to 2013-14 under XII Plan for real time hourly water levels, hourly rainfall and other important meteorological parameters, established in Krishna, Godavari, Mahanadi, Chambal, Damodar, Ganga, Yamuna, Brahmaputra, Tapi, Mahi and Sutlej Basins. Three earth stations (DDRGS) located at Jaipur and Burla (in PRBS mode) and New Delhi (TDMA mode) are receiving through INSAT satellite. The data from remote stations received in DDRGS are further transmitted to the respective modelling centre through VSAT. Presently, installation of 264 telemetry stations on various river basins has been completed and data is being received at respective modelling centres(Chennai, Bhopal) and modelling centre at FFM Directorate and installation of 194 telemetry stations are under progress. Earth stations at Burla

and Jaipur as well as 168 stations installed under 10th Plan which were being operated in PRBS mode are now being shifted to TDMA mode of communication after fading away of the satellite INSAT 1A and shifting of IMD DRT at INSAT 3D.

The data received was used mainly by the divisions issuing forecast by MIKE-11. Also, it is planned to transfer data observed through telemetry to eSWIS software for flood forecasting activities.

1.8 DAMAGE DUE TO FLOODS/ HEAVY RAINS BETWEEN 1953 TO 2017

The damage due to floods for the entire country was estimated to be Rs.22706.990Crore during the flood season 2017. The average annual damages to crops, houses and public utilities from the year 1953 to 2017 as reported by the States/UT's are of the order of Rs. 5696.741Crore, the maximum annual damage being Rs.57291.098Crore during 2015.

A comparative details showing the details of damages occurred during the flood season 2015 to 2017 on different accounts, based on the reports (tentative), received from the revenue authorities of the state governments is given in the **Table 1.4**.

Table 1.4: Damages occurred during flood season, 2015 to 2017

Sl. No.	Items	Flood damages during Year the Year				Flood Damages during 1953-2017	
		2015	2016	2017	Average 1953-2017	Maximum	
						Year	Damage
1	Area affected (in mha)	4.478	7.065	6.141	7.175	1978	17.5
2	Population affected (in millions)	33.203	26.555	46.988	32.112	1978	70.45
3	Damaged to Crops(area in mha)	3.374	6.658	5.046	3.940	2005	12.299
4	Damaged to crops(value in Rs. Crore)	17043.948	4052.723	8738.411	1707.878	2015	17043.948
5	Damaged to houses (in numbers)	3959191	278240	1200623	1241011	2015	3959191
6	Damaged to houses (value in Rs. Crore)	8046.969	114.676	9235.507	825.013	2009	10809.795
7	Cattle lost (in number)	45597	22367	14182	92875	1979	618248
8	Human lives lost (in numbers)	1420	1420	2062	1654	1977	11316
9	Damaged to public Utilities (in Rs. Crores)	32200.182	1507.926	4733.071	3145.588	2013	38937.843
10	Total damages to crops, houses & public utilities (in Rs. Crores)	57291.098	5675.325	22706.990	5696.741	2015	57291.098

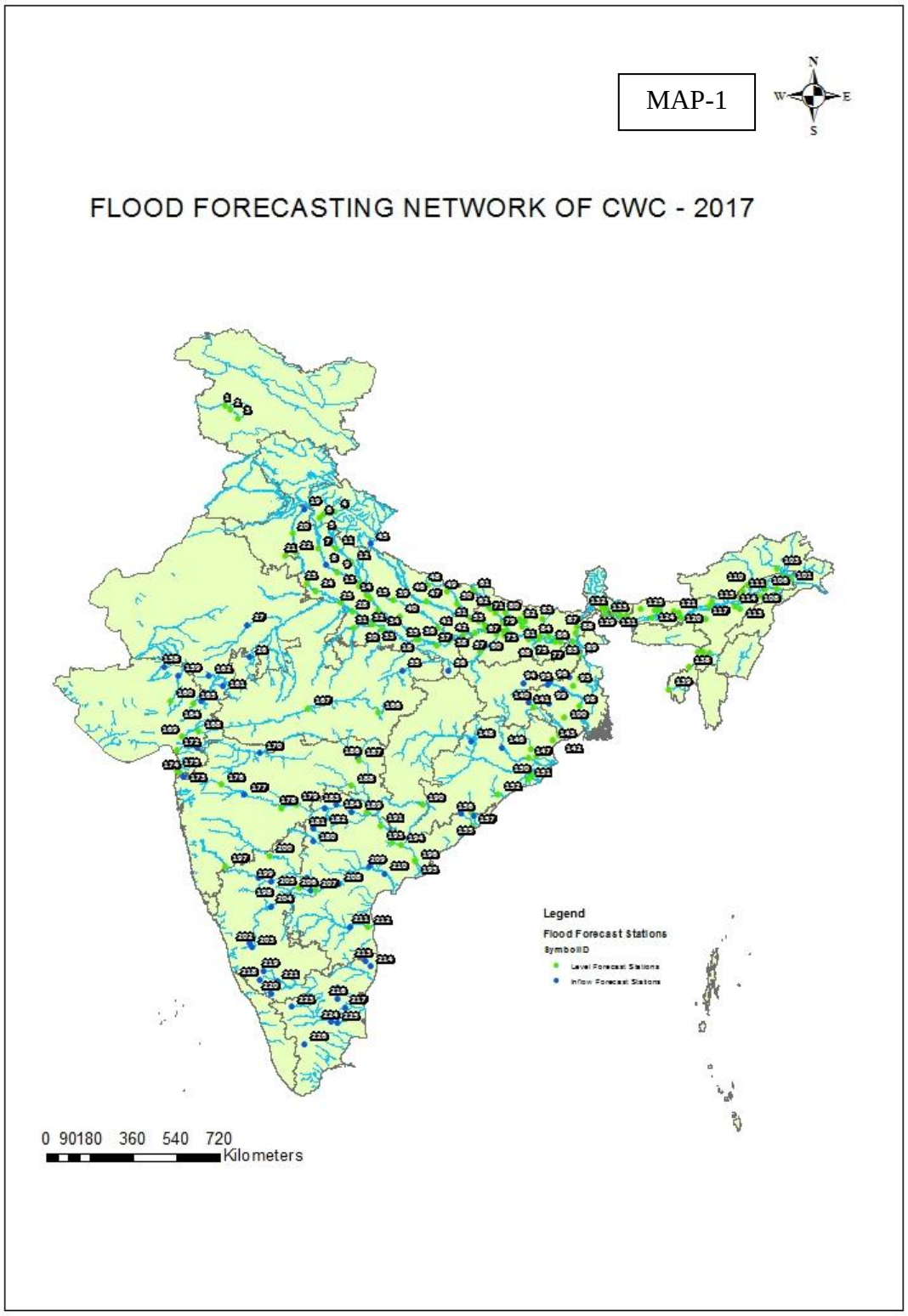
1.9 ANALYSIS OF PERFORMANCE OF FLOOD FORECASTING NETWORK

CWC carried out analysis and appraisal of the forecasting work, at the end of monsoon season. Based on this, measures for improvements, if necessary, are identified. A summary of the performance of the work carried out by the field divisions during the flood season 2017 presented in Chapter-3. While the performance of the flood forecasting system is satisfactory, yet there is constant endeavor for improving the performance especially for additional warning time as new technology and more data are becoming available.

1.10 ORGANISATIONAL SET-UP OF FLOOD FORECASTING NETWORK

The present organizational set up of Flood-forecasting & Warning Establishment of Central Water Commission under the Member (River-Management) is spread over regional offices of CWC each headed by a Chief Engineer. Fifteen Circle Offices and twenty six Divisions in its field formations carry out flood forecasting activities. Chief Engineer (Flood Management) and Flood Forecast Monitoring Directorate monitor the Flood Forecasting activities in the headquarters. It also issues flood bulletins at national level.

The organizational chart of Flood Forecasting and Warning set up of the Central Water Commission is given at **Figure-1.1**



Map -1: Flood Forecasting Network in India

List of River Basins

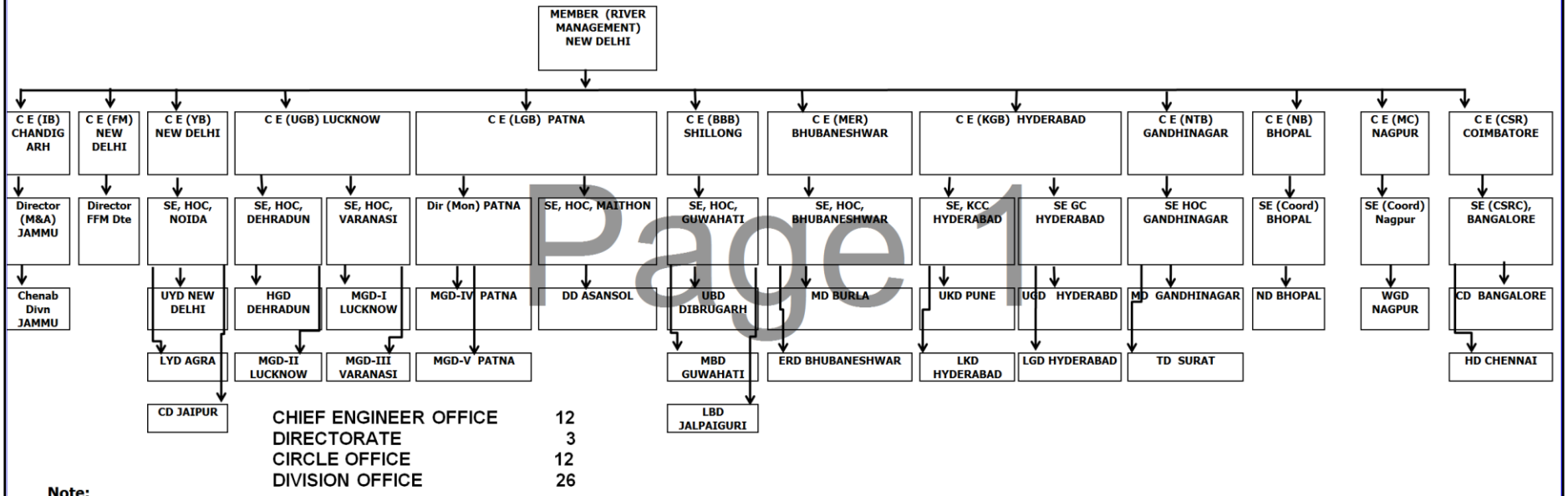
Basin Code	Basin Name
1	Cauvery
2	East flowing rivers between Pennar and Kanyakumari
3	Pennar
4	Godavari
5	Mahanadi
6	Subarnarekha
7	Brahmani and Baitarni
8	Minor rivers draining into Myanmar and Bangladesh
9	Sabarmati
10	Barak and Others
11	Brahmaputra
12	Ganga
13	Indus (Up to border)
14	West flowing rivers of Kutch and Saurashtra including Luni
15	Narmada
16	West flowing rivers from Tadri to Kanyakumari
17	Area of Inland drainage in Rajasthan
18	Krishna
19	Area North of Ladakh not draining into Indus
20	Drainage areas of Andaman & Nicobar Island
21	Drainage areas of Lakshadweep Island
22	East flowing rivers between Mahanadi and Pennar
23	Mahi
24	Tapi
25	West flowing rivers from Tapi to Tadri

List of Flood Forecast Stations									
1	Safapura	47	Ayodhya	93	Gheropara	139	Sonamura	185	Bhandara
2	Rammunshibagh	48	Balrampur	94	Tenughat Dam	140	Chandil Dam	186	Gosikhurd Dam
3	Sangam	49	Bansi	95	Panchet Dam	141	Jamshedpur	187	Pauni
4	Srinagar	50	Birdghat(Gorakhpur)	96	Maithon Dam	142	Rajghat	188	Balharsha
5	Rishikesh	51	Turtipar	97	Durgapur Barrage	143	Govindpur(NH5 Road Bridge)	189	Kaleswaram
6	Haridwar	52	Darauli	98	Harinkhola	144	Anandpur	190	Jagdalpur
7	Garhmuktheswar	53	Gangpur Siswan	99	Kangsabati Dam	145	Akhuapada	191	Eturunagaram
8	Narora Barrage	54	Chhappra	100	Mohanpur	146	Rengali Dam	192	Dummagudem
9	Kachlabridge	55	Bansagar Dam	101	Namsai	147	Jenapur	193	Bhadrachalam
10	Fatehgarh	56	Rihand Dam	102	Dhollabazar	148	Hirakud Dam	194	Kunavaram
11	Moradabad	57	Inderpuri	103	Passighat	149	Naraj	195	Rajahmundry(Rly Bridge)
12	Bareilly	58	Koelwar	104	Dibrugarh	150	Alipingal	196	Dowlaiswaram Barrage
13	Dabri	59	Maner	105	Naharkatia	151	Nimapara	197	Arjunwad
14	Kannauj	60	Patna(Dighaghat)	106	Chenimari(Khowang)	152	Purushottampur	198	Almatti Dam
15	Ankinghat	61	Khadda	107	Nanglamoraghat	153	Gunupur	199	Narayanpur Dam
16	Kanpur	62	Chatia	108	Sibsagar	154	Kashinagar	200	Deongaon Bridge
17	Dalmau	63	Dumariaghat	109	Neamatighat	155	Gotta Barrage	201	PD Jurala Project
18	Phaphamau	64	Rewaghat	110	Chouldhuaghat	156	Thottapalli reservoir	202	Upper Tunga
19	Hathnikund Barrage	65	Hajipur	111	NH Crossing Ranganadi	157	Srikakulam	203	Bhadra Dam
20	Mawi	66	Patna Gandhighat	112	Badatighat	158	Dantiwada Dam	204	Tungabhadra Dam
21	Dhansa	67	Sripalpur	113	Golaghat	159	Dharoi Dam	205	Mantralayam
22	Delhi Railway Bridge	68	Hathidah	114	Numaligarh	160	Shubhash Bridge(Ahmedabad)	206	Sunkesula Barrage
23	Mathura	69	Munger	115	Jiabharali NT Road Crossing	161	Mahi Bajajsagar Dam	207	Kurnool
24	Agra	70	Lalbeghiaghat	116	Tezpur	162	SomKamlaAmba Dam	208	Srisailam Dam
25	Etawah	71	Ahirwalia	117	Kampur	163	Kadana Dam	209	Dr KLRS Pulichintala Dam
26	Gandhisagar Dam	72	Sikandarpur (Muzzafarpur)	118	Dharamtul	164	Panam Dam	210	Prakasam Barrage
27	Bisalpur Dam	73	Samastipur	119	Guwahati	165	Wanakbori Weir	211	Somasila Dam
28	Auraiya	74	Rosera	120	Puthimari NH Crossing	166	Mandla	212	Nellore
29	Kalpi	75	Khagaria	121	Pagladiya NT Road Crossing	167	Hoshangabad	213	Poondi Reservoir Chennai
30	Hamirpur	76	Bhagalpur	122	Beki Road Bridge	168	Garudeswar	214	Chembarampakkam Lake
31	Mohana	77	Kahalgaon	123	Manas NH Crossing	169	Bharuch	215	Sathanur Dam
32	Shahjina	78	Basua	124	Goalpara	170	Hathnur Dam	216	Gomukhi Dam

33	Banda	79	Benibad	125	Kokrajhar	171	Ukai Dam	217	Wellington Dam
34	Chillaghat	80	Kamtaul	126	Dhubri	172	Surat	218	Harangi Dam
35	Naini	81	Ekmighat	127	Golokganj	173	Madhuban Dam	219	Hemavathy Dam
36	Chhatnag(Allahabad)	82	Hayaghat	128	Tufanganj	174	Vapi	220	Kabini Dam
37	Mirzapur	83	Jhanjarpur	129	NH 31(Jaldhaka)	175	Daman	221	K R Sagar Dam
38	Varanasi	84	Baltara	130	Ghugumari	176	Kopergaon	222	Mettur Dam
39	Lucknow(Hanuman Setu)	85	Kursela	131	Mathabanga	177	Jaikwadi Dam	223	Bhavanisagar Dam
40	Rae Bareilly	86	Sahibganj	132	Domohani Bridge	178	Gangakhed	224	Upper Anicut
41	Jaunpur	87	Dhengraghat	133	Mekhliganj	179	Nanded	225	Grand Anicut
42	Ghazipur	88	Jhawa	134	AP Ghat(Silchar)	180	Singur Dam	226	Vaigai Dam
43	Buxar	89	Farakka	135	Matizuri	181	Nizamsagar Dam		
44	Ballia	90	Massanjore Dam	136	Badarpurghat	182	Sriramsagar Dam		
45	Banbasa Barrage	91	Tilpara Barrage	137	Karimganj	183	Kaddam Project		
46	Elginbridge	92	Narayanpur	138	Kailashahar	184	SripadaYellampally Project		

Fig-1.1

ORGANISATION CHART OF FLOOD FORECASTING AND WARNING SETUP OF CENTRAL WATER COMMISSION



CHIEF ENGINEER OFFICE	12
DIRECTORATE	3
CIRCLE OFFICE	12
DIVISION OFFICE	26

Note:

i) UGD, Hyderabad and WGD, Nagpur support LGD, Hyderabad by supplying data of sitesu nder their jurisdiction on real -time basis.

ii) UKD Pune, HD Chennai and CD, Bangalore support LKD, Hyderabad by supplying data of sites under their jurisdiction on real -time basis.

CHAPTER – 2

ROLE OF IMD IN FF ACTIVITIES AND SOUTHWEST MONSOON ACTIVITIES

2.1 ROLE OF IMD & SOUTHWEST MONSOON

2.1a Role of IMD

India Meteorological Department (IMD) provides various Meteorological inputs for formulation of Flood Forecast in Divisional Flood Control Rooms (DFCR) of CWC. The inputs include rainfall in stations other than those operated by CWC on different sub-catchments of river basins, providing Quantitative Precipitation Forecast (QPF) for 24 hours, Weather Situation and Heavy Rainfall Warnings over various basins and outlook for further 48 hours. The QPFs are issued by 0930 hours daily and are modified if necessary around 1230 hours. For this purpose, IMD is operating Flood Meteorological Offices (FMO) in different river basins. These are located at Agra, Ahmedabad, Asansol, Bhubaneswar, Delhi, Guwahati, Hyderabad, Jalpaiguri, Lucknow Patna, Bengaluru and Chennai. These FMOs provide all the weather related inputs to the concerned DFCR by fastest available modes of communication. The FMOs are also provided the rainfall figures observed by the stations operated by CWC as well as the water level in the flood forecast stations in the basin by the concerned DFCR.

During the year 2017,the Hydromet division of IMD provided online QPF by using two Numerical Weather Prediction (NWP) models namely WRF ARW (9km x 9km) and Multi Model Ensemble (MME) for various sub-basins of different river basins as well as there was seamless transfer of WRF products from NWP Division for use in 3-day Rainfall Runoff based Flood Advisories.

The FMO at Hyderabad uploaded the daily weather summaries, QPF and rainfall figures issued in the web site of Meteorological Centre Hyderabad during the flood season from 1st June to 31stOctober.

The INSAT-DRT secretariat of IMD looks after the works of allocation of Station Index number, Time slot allotment and frequency allocation for the various Automatic Weather Stations setup by different organisations. CWC is one of the members of INSAT-DRT User and officers of CWC attend the INSAT-DRT User meetings convened by the INSAT DRT Secretariat of IMD. CWC has so far installed 510 Satellite based Automatic Data Collection Units for collection of Hourly Water Level and Rainfalls from remote stations. IMD has allocated the Station Index Numbers and other parameters for all these stations. During the 12th Plan there is a proposal to install 458 additional automatic data collection units in various river basins and IMD has provided the Station Index numbers/ Time slot/ Frequency for these 458 stations. There is a provision in XII Plan to upgrade the telemetry equipments installed in IX Plan as well as to convert the mode of communication from Pseudo Random Burst System to Time Division Multiple Access System for the stations installed under X Plan. Accordingly, IMD was approached for

providing Satellite ID and Time slot allotment for these 224 stations which have been allotted by IMD AWS lab Pune.

2.1b Southwest Monsoon

India gets about 80% of its Annual rainfall during the south-west monsoon from June to September except some portions of south-eastern parts of peninsular India where the main rains occur during the period of north-east monsoon from October to December, which overlap with the receding stage of the south-west monsoon in October. Occasionally, cyclonic storm develop in the south-west bay and move into the Peninsula and produces heavy rain during north-east monsoon season.

Southwest monsoon advances from Kerala in the beginning of June. It produces spell of heavy rainfall along the western coast of the peninsula and on the southern slopes of Khasi and Jaintia hills in north- eastern region.

In association with the depression which occasionally form in the North Bay of Bengal and move north-westwards, heavy rains are produced in the central parts of the country, Orissa, Gangetic West Bengal, southern districts of Bihar, Gujarat region, and East Rajasthan and in the later monsoon months in and around North Deccan.

A very important characteristic of southwest monsoon is the occurrence of "break". The break situations arise when the monsoon trough shifts to the Himalayas and are very important as these cause floods in the rivers rising from the Eastern Himalayas. Sometimes, the phenomenon of break sets in immediately after a monsoon depression has occurred. These two causes occurring in succession serve to intensify the floods.

The whole India has been divided into 36 meteorological sub-divisions by India Meteorological Department (IMD) for the purpose of studies of rainfall/monsoon activities.

The progress of monsoon rainfall over the country is monitored by evaluating the departures of total rainfall from the normal rainfall in respect of meteorological sub-divisions and districts. The IMD has classified the rainfall as excess, normal, deficient and scanty, according to the following criteria.

Excess	:	+ 20% or more than normal
Normal	:	+ 19% to - 19% of the normal
Deficient	:	- 20% to - 59% of the normal
Scanty	:	- 60% to - 99% of the normal
No Rain (N.R.)	:	- 100% of the normal

Normal is defined as the Long Period Average say for 50 years for the period from 1st June to 30th September. Presently Long Period average for the years 1951 to 2000 is being used to define normal. For the country as a whole the normal rainfall during the period 1st June to 30th September is 89 cm.

2.2 HIGHLIGHTS OF SOUTH-WEST MONSOON

HIGHLIGHTS

☐The rainfall over the country as a whole during the monsoon season (June – September) was 95% of its long period average (LPA).

☐ Seasonal rainfall over Northwest India, Central India, south Peninsula and Northeast (NE) India were recorded at 90%, 94%, 100% and 96% of respective LPAs.

☐Out of the total 36 meteorological subdivisions, 25 subdivisions constituting 65% of the total area of the country received normal seasonal rainfall, 5 subdivisions received excess rainfall (18% of the total area), and 6 subdivisions (17% of the total area) received deficient seasonal rainfall.

☐Monthly rainfall over the country realized as a whole was 104% of LPA in June, 102% of LPA in July, 87% of LPA in August, and 88% of LPA in September.

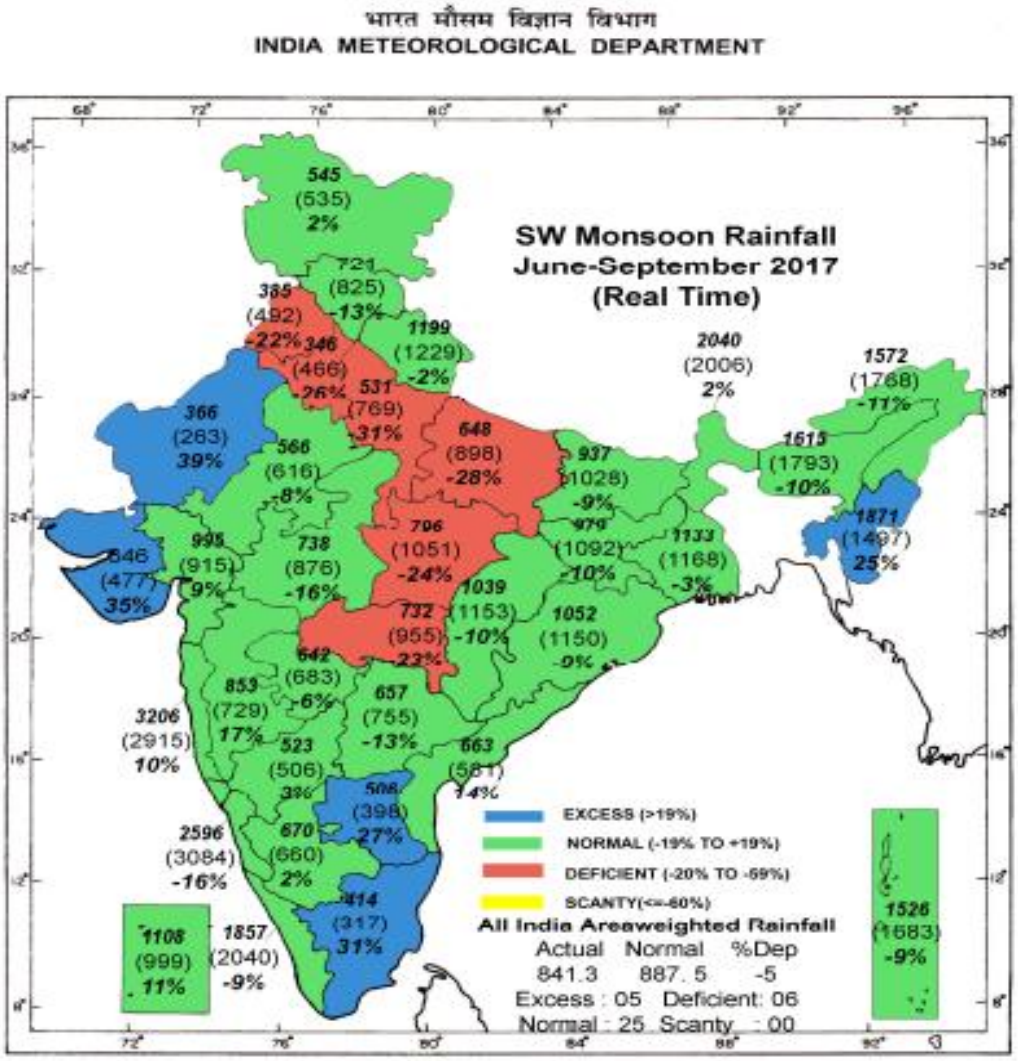
☐Southwest monsoon reached parts of southeast Bay of Bengal, south Andaman Sea and Nicobar Islands on 14th May (6 days ahead of its normal date). It advanced over Kerala on 30th May (2 days ahead of the normal schedule) and covered the entire country by 19th July (4 days later than the normal date).

☐Monsoon withdrawal was delayed and commenced from parts of northwest India on 27th September (with a delay of nearly 3 weeks). It withdrew from some more parts of northwest India on 30th September. As on 11th October, the monsoon has withdrawn from most parts of northwest India except east Uttar Pradesh.

☐ During the season, 14 low pressure systems (1 Deep Depression, 2 Depressions, 6 well marked low pressure areas & 5 low pressure areas) formed against an average of 6 Depressions & 8 low pressure areas.

☐The forecast for monsoon onset over Kerala for this year was very accurate, as both the forecasted and realized date of onset of monsoon over Kerala was 30thMay.

☐The forecasts for the seasonal rainfall over country as whole and the four broad geographical regions and the forecast for July rainfall over the country as whole were within the forecast range. However, the forecasts for the rainfall during the second half of the monsoon season and the August rainfall were found to be overestimated to the observed rainfall.



Map-2 Sub-Divisionwise South West Monsoon rainfall during 2017

2.3 ONSET AND ADVANCE OF SOUTH-WEST MONSOON SEASON

The heating of land mass and moisture availability in the lower troposphere led to convection over major parts of India during the first week of May. Later the Madden Julian Oscillation (MJO) also strengthened and propagated eastwards across the Indian Ocean since 13th May and thus enhanced the convection over the Andaman region. With the formation of a cyclonic circulation over Andaman Sea, south westerlies crossing the equator strengthened and deepened leading to persistent cloudiness and rainfall over the region. This resulted into advance of Southwest monsoon (SWM) into some parts of southeast Bay of Bengal, Nicobar Islands, entire south Andaman Sea and parts of north Andaman Sea on 14th May. It further advanced into some parts of southwest Bay of Bengal, some more parts of southeast Bay of Bengal and north Andaman Sea and remaining parts of Andaman & Nicobar Islands on 16th May and further into parts of southeast and east central Bay of Bengal and remaining parts of north Andaman Sea on

18th May. However, the predominance of mid-latitude westerlies and sub-tropical ridge during the third week of May caused a hiatus in the further advance of monsoon for 6 days. Towards the end of the month, propagation and strengthening of MJO made conducive conditions for the genesis of Severe Cyclonic Storm (SCS) 'Mora' over the Bay of Bengal during 28th -31st May. In association with its genesis phase, further advance of SWM took place into southern parts of Comorin area and some more parts of southwest, southeast and east central Bay of Bengal on 26th and into some parts of south Arabian Sea, Maldives, Comorin area and some more parts of southwest, southeast and east central Bay of Bengal on 29th May. The SWM advanced over Kerala on 30th May. It further advanced into some more parts of northeast Bay of Bengal, remaining parts of Arunachal Pradesh, Nagaland, Manipur, Mizoram and most parts of Tripura and Assam & Meghalaya on 2nd June. Subsequently there was a hiatus in the advancement due to the weakening of the monsoon flow over the Arabian Sea upto 5th June. Later on, the formation of a cyclonic circulation over Madhya Maharashtra and neighbourhood and the formation of a low pressure area over west central Arabian Sea on 6th June revitalized the monsoon current. It led to advance of monsoon over remaining parts of south Arabian Sea, Lakshadweep area, most parts of Kerala and some more parts of Tamil Nadu and southwest Bay of Bengal on 6th and into some parts of central Arabian Sea, remaining parts of Kerala and Tamil Nadu, most parts of coastal Karnataka and south interior Karnataka, some parts of Rayalaseema, coastal Andhra Pradesh and some more parts of central Bay of Bengal on 7th.The formation of first intense low pressure system as a Deep Depression over North Bay of Bengal and its northward movement during 11th – 12th June accelerated the monsoon westerlies. This led to advancement of monsoon which almost covered most parts of Peninsular India and entire northeast India by 14th June. It slowed thereafter owing to the presence of anti-cyclones over the Arabian Sea & Bay of Bengal. The presence of a short-lived low pressure area over northwest Bay of Bengal and its associated cyclonic circulation along with the north-south trough over the eastern parts of India and the east-west shear zone along Lat. 17° N & Lat.18°N led to the advance of monsoon into some more parts of Madhya Maharashtra, remaining parts of Marathwada, some parts of Vidarbha, some more parts of Chhattisgarh, most parts of Odisha, remaining parts of West Bengal and some parts of Jharkhand and Bihar on 16th June and into some more parts of Vidarbha, Chhattisgarh, Jharkhand & Bihar and remaining parts of Odisha on 21st June. During the third week of June, the stronger than normal cross equatorial flow over the Bay of Bengal, increase in north-south pressure gradient and establishment of Tibetan High in its normal position, led to the increased rainfall over the core monsoon zone. This led to further advance of SWM over most parts of central and western India by 27th June. It covered remaining parts of north Arabian Sea, Saurashtra & Kutch, Gujarat region, some more parts of Madhya Pradesh and some parts of south Rajasthan by 27th June. Thereafter, a hiatus of 3 days occurred towards the end of June. Subsequent westward movement of cyclonic circulations along the seasonal trough zone triggered the rainfall activity over the central and north India. It caused further advancement of southwest monsoon over remaining parts of central India and most parts of north India during 1st - 3rd July. It covered remaining parts of Bihar, Madhya Pradesh, Uttar Pradesh and Uttarakhand by 3rd July. Thereafter, the seasonal trough along the northern plains gradually shifted northwards, due to a Western Disturbance which caused widespread precipitation over parts of northwest India. This led to a weak monsoon pattern, with an anomalous anticyclone prevailing over western India causing a prolonged hiatus of 8 days. As the trough became active and a well-

marked low pressure area formed over Indo- Gangetic plains, SWM advanced into remaining parts of Himachal Pradesh and Jammu & Kashmir and some more parts of east Rajasthan, Haryana and some parts of Punjab on 12th July. Further, with the subsequent advance on 14th, 17th and 18th, it advanced into remaining parts of west Rajasthan, Haryana and Punjab on 19th and thus covering the entire country on 19th July 2017.

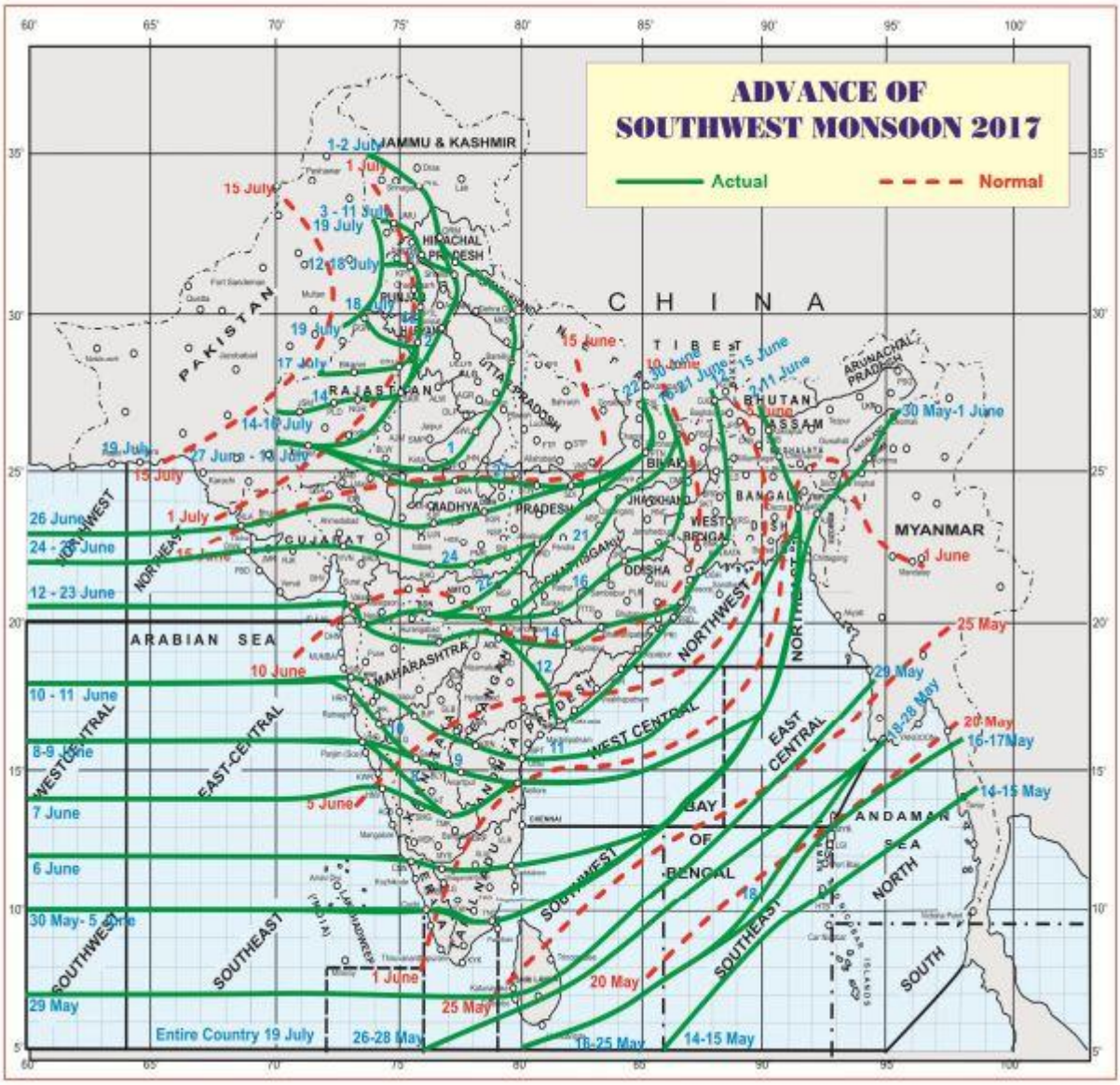


Fig. 1 Advance of southwest Monsoon–2017**.**

2.4 CHIEF SYNOPTIC FEATURES

During the season, 14 low pressure systems formed over the Indian subcontinent. Their month-wise frequency and intensity are given in the table below.

Systems / Month	Deep Depression	Depression	Well marked low pressure area	Low pressure area	Total
June	1	0	2	2	**5**
July	0	2	1	3	**6**
August	0	0	2	0	**2**
Sept.	0	0	1	0	**1**
Total	**1**	**2**	**6**	**5**	**14**

The first intense system formed as a Deep Depression (11th – 12th June) over northwest and adjoining northeast Bay of Bengal and dissipated over Bangladesh.

The second system in June, a well marked low pressure area, formed over west central Arabian Sea and neighbourhood and dissipated off Oman coast (6th – 8th June).Two subsequent low pressure systems; a low pressure area (15th – 16th June) and a well marked low pressure area (25th – 26th June) formed over northwest Bay of Bengal. The first one weakened over Bangladesh and northwest Bay of Bengal and adjoining areas of coastal Odisha and the second weakened over Gangetic west Bengal. The last system during June formed as a low pressure area (28th – 30th June) over Saurashtra and adjoining northeast Arabian Sea and dissipated over Kutch and neighbourhood. The first low pressure area in July (7th – 8th July) formed over northern parts of Uttar Pradesh and neighbourhood and dissipated over northeastern parts of Uttar Pradesh and adjoining Bihar. The second system, a well marked low pressure area (11th–16th July) also formed over east Uttar Pradesh and neighbourhood but moved westwards and became less marked over south Pakistan and neighbourhood.

The third system concentrated into a Depression (18th – 19th July) which formed over northwest and adjoining westcentral Bay of Bengal and coastal areas of Odisha and dissipated over coastal Odisha and neighbourhood. This was followed by two very short lived low pressure areas on 20th & 21st July respectively over Kutch and neighbourhood and south Gujarat region and neighbourhood. The last system of July formed as a Land Depression (26th–27thJuly) over northwest Jharkhand and neighbourhood and dissipated over south east Uttar Pradesh and neighbourhood.

Cyclogenesis during August and September remained very much subdued as a result of the overall weakening of the monsoon flow pattern over the Indian region. This is also reflected in the number of Low Pressure System (LPS) [low pressure areas and depressions combined] days, which shows 11 in June, 12 in July, 10 in August and 6 in September against a normal of 11, 14, 17 & 16 during the respective months. **The total number of LPS days during the season had been only 39 as against the normal of 58.** The two well marked low pressure areas in August occurred during 18th – 21st August & 27th August – 1st September. However, both of them traversed across central India, the first one formed over northwest Bay of Bengal and neighbourhood and dissipated over Kutch & neighbourhood and the second one formed over southeast Odisha and neighbourhood and became less marked over south Pakistan. The only one system formed in September, a well marked low pressure area (19th –24th September formed over northwest Bay of Bengal and neighbourhood and dissipated over west Uttar Pradesh and adjoining Uttarakhand. Tracks of Depressions & Deep Depressions are given in Fig.2**.**

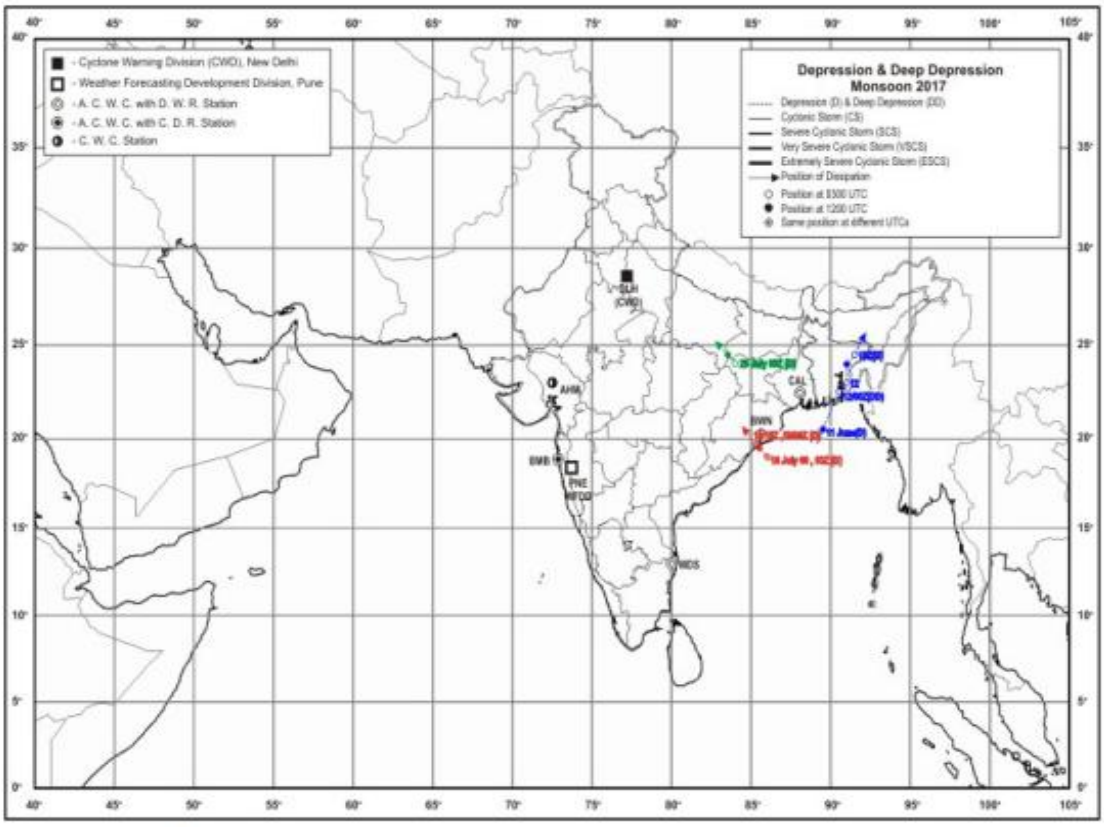


Fig.2: Tracks of the monsoon Depressions

2.4.1 High Impact Weather Events

Fig. 3 depicts the met. Sub-divisions or parts thereof, which experienced high impact weather events like, floods, landslides, lightning associated with thunderstorms and Heat waves during the southwest monsoon season (June- September) along with the dates. **Fig.3** also indicates areas that experienced isolated extremely heavy rainfall (Rainfall amount ≥ 21 cm reported during the 24 hours ending at 0830hrs IST) events during the season without any reference to the dates of these occurrences. Apart from the flood situations experienced in association with the advance phase of SWM over northeast India and southern most peninsular India, there had been flood situations over various other parts including Odisha, Bihar, Gujarat, Kankan (Mumbai city also experienced extremely heavy rainfall twice during the season viz., 29thAugust&19th \September), Karnataka, Madhya Pradesh, East Rajasthan (Mount Abu received exceptionally heavy rainfall of 77 cm on 24th July), parts of Haryana etc. High temporal and spatial variability of rainfall caused such floods and flash floods and at the same time, intense convection during the weak phases of monsoon led to events of severe thunderstorms and lightning over major parts of the country.

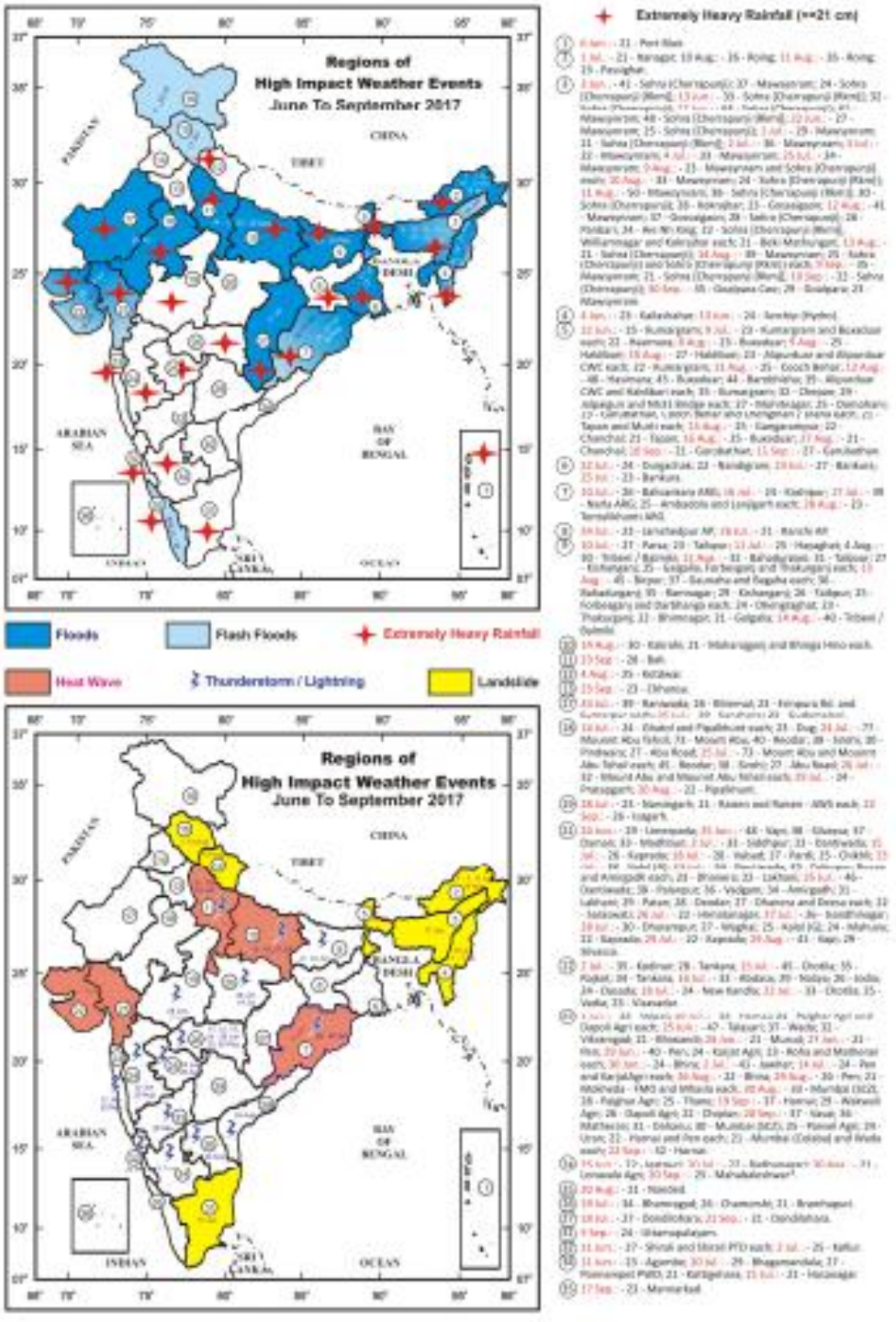


Fig 3 Areas and dates of high impact weather events during the 2017 southwest Monsoon.

2.5 WITHDRAWAL OF SOUTHWEST MONSOON

Dry weather prevailed over western parts of Rajasthan since 18th September. However, the changeover of atmospheric circulation was delayed. Establishment of an anti-cyclone in the lower tropospheric levels, substantial reduction in moisture content

and prevalence of dry weather indicated the withdrawal of southwest monsoon from some parts of Punjab, Haryana, most parts of west Rajasthan, some parts of Kutch and north Arabian Sea on 27th September. It further withdrew from remaining parts of Punjab, Haryana, Chandigarh & Delhi, west Rajasthan, Kutch, entire Jammu & Kashmir, Himachal Pradesh, some parts of Uttarakhand, west Uttar Pradesh, most parts of east Rajasthan, some parts of west Madhya Pradesh, north Gujarat region, Saurashtra and some more parts of north Arabian Sea on 30th September. A cyclonic circulation which subsequently developed into a Deep Depression in the monsoon flow regime over Gangetic west Bengal caused moisture incursion over the main land and thereby delayed further withdrawal of southwest monsoon. However, it further withdrew from remaining parts of Uttarakhand, West Uttar Pradesh and East Rajasthan, some parts of East Uttar Pradesh and some more parts of north Madhya Pradesh and Gujarat on 11th October. As on 11thOctober,the monsoon withdrawal line passes through Lat.28.5˚N /Long.81.0˚E, Kheri, Nowgong, Shajapur, Ahmedabad, Dwarka, Lat.22.0˚N/Long.65.0˚E and Lat.22.0˚N / Long.60.0˚E. It withdrew from the entire country on 25th October.

Fig.4 shows the isochrones of withdrawal of monsoon 2017

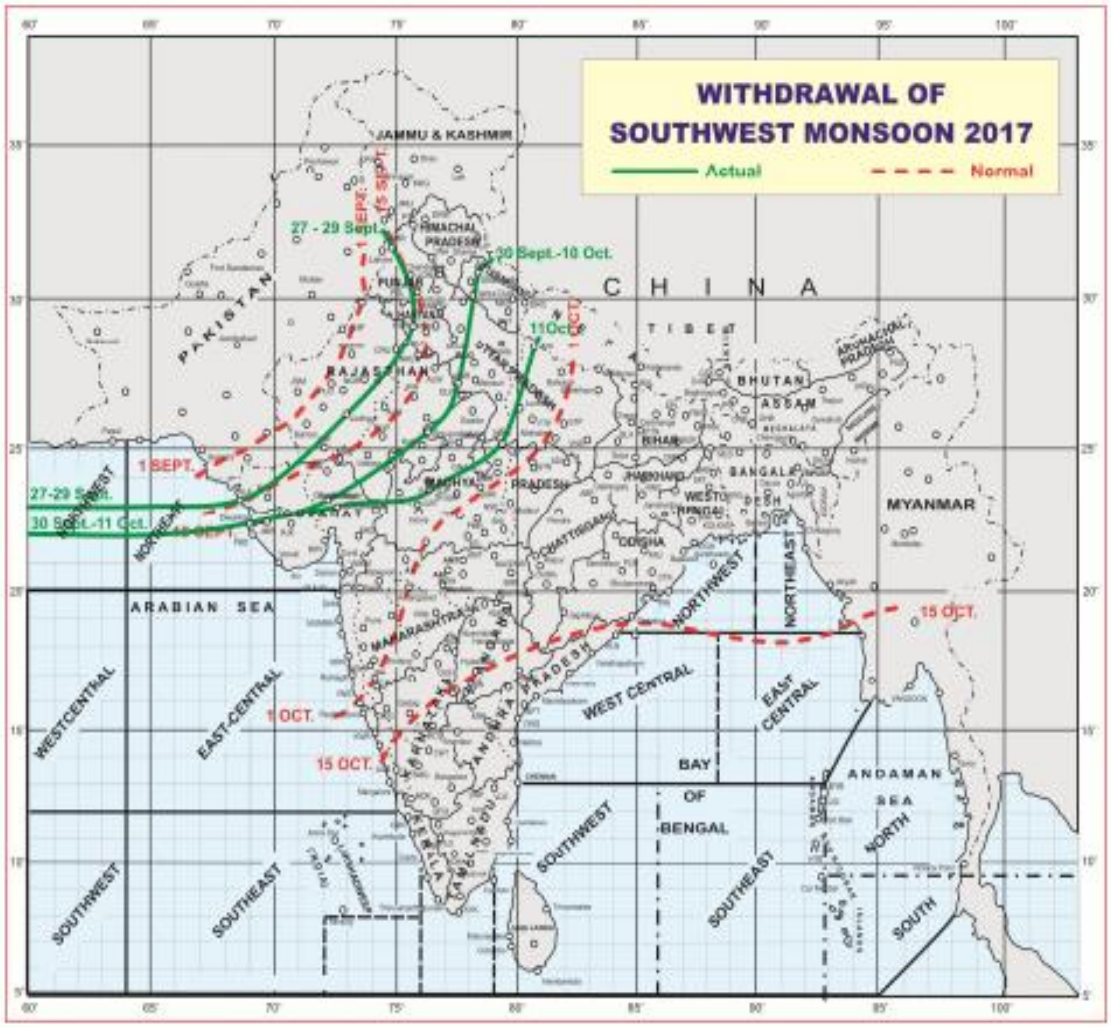


Fig 3 Isochrones of Withdrawal of southwest Monsoon 2017

2.6 NORTH EAST MONSOON

Normally, the onset of NEM takes place over coastal Tamil Nadu (CTN) by 20th October after the withdrawal of SWM up to about 15°N latitude. Prior to the onset of NEM over CTN, the low level winds reverse from south westerlies (during the SWM) to north easterlies along CTN and south coastal Andhra Pradesh (SCAP). During the year 2017, due to extended SWM activity over the peninsular India, withdrawal of SWM up to 15°N latitude took place only around 25th October when it withdrew from the entire country. Simultaneously, setting in of easterlies in the lower tropospheric levels over the southern peninsula took place and with the prevalence of an upper air cyclonic circulation over southeast Tamilnadu and neighbourhood and another cyclonic circulation over Lakshadweep area and neighbourhood on 25th October, conditions became favourable for commencement of northeast monsoon rains during the subsequent 48 hrs.

Very Severe Cyclonic Storm (VSCS) Ockhi (29 Nov - 06Dec): A low pressure area formed over southwest Bay Of Bengal (BOB) and adjoining areas of south Sri Lanka & equatorial Indian Ocean in the forenoon of 28th Nov. It became a Well Marked in the early morning of 29th over the same region. Under favourable environmental conditions, it concentrated into a Depression over southwest BOB off southeast Sri Lanka coast in the forenoon of 29th Nov. Moving westwards across Srilanka, it emerged into Comorin area in the evening of 29th and intensified into a DD in the early hours of 30th Nov. It further moved northwestwards and intensified into a Cyclonic Storm (CS) 'Ockhi' in the forenoon of 30th Nov over the Comorin area. At about 0830 IST of 30th Nov, it was centered at about 60 km south of Kanyakumari (KYK). It caused extensive damages over Kanyakumari and adjoining areas of south coastal Tamilnadu as well as Thiruvananthapuram (TRV) and adjoining areas of south Kerala. Very heavy to extremely heavy rainfall occurred over Tamilnadu and Kerala on 30th Nov and 01st Dec. Moving westwards, Ockhi further intensified into a Severe Cyclonic Storm (SCS) over Lakshadweep area in the early morning of 01st Dec and into VSCS over southeast Arabian Sea to the west of Lakshadweep (LAK) in the afternoon of 01st Dec. Moving northwestwards, it attained its peak intensity of 150-160 kmph gusting to 180 kmph in the afternoon of 2nd Dec with lowest central pressure of 976 hPa. It moved north-northwestwards for some time and then recurved north northeastwards and maintained its intensity till early morning of 03rd Dec. It then continued to move north-northeastwards and weakened gradually. It crossed south Gujarat coast between Surat and Dahanu as a WML around early morning of 6th Dec. INSAT-3D infra-red imagery and U.S Naval Research Laboratory, microwave imagery (Windsat 37 GHz), ISRO, Thiruvananthapuram, Doppler Weather Radar (DWR) reflectivity product in association with the cyclone Ockhi when it was closest to the extreme south Tamil Nadu and Kerala coasts on the morning of 30th Nov 2017 are presented in Fig.3a.

Adverse weather associated with the system: Heavy rainfall occurred over Tamil Nadu, Kerala and Lakshadweep in association with the passage of cyclone Ockhi. Several areas of south coastal Tamil Nadu experienced inland flooding and inundation due to heavy (≥ 7 cm/day) to very heavy (≥ 12 cm/day) rainfall on 30th Nov and 01st Dec 2017. Extremely heavy rainfall (≥ 21 cm/day) has been recorded at Papanasam (45 cm) and Manimutharu (38 cm) in Tirunelveli district of south Tamil Nadu and at Aryankavu (26 cm) in Kollam district of Kerala as on 24-hr ending 0830 IST of 01st Dec 2017; at

Sathanur dam (23 cm) in Tiruvannamalai district of north interior Tamil Nadu on 2nd Dec 2017. The sub divisional rainfall figures of TN improved from -17% as on 29th November to +5% as on 02 December 2017.

Gale wind of the order of 65-75 kmph gusting to 85 kmph over KYK and TRV during 30thNov01stDec 2017 and gale winds of the order of 100-160 kmph gusting to 180 kmph over LAK islands during 01st -02ndDec caused extensive damages to electrical poles, transformers, agricultural plantation, mechanized and country boats of fishermen, houses and roads aside from uprooting of thousands of trees. Heavy rainfall occurrences over Tamil Nadu, Kerala and Lakshadweep associated with the passage of the cyclone are presented in Table-2 and a few photographs and media reports depicting the damages due to the cyclone are presented in Fig.3b.

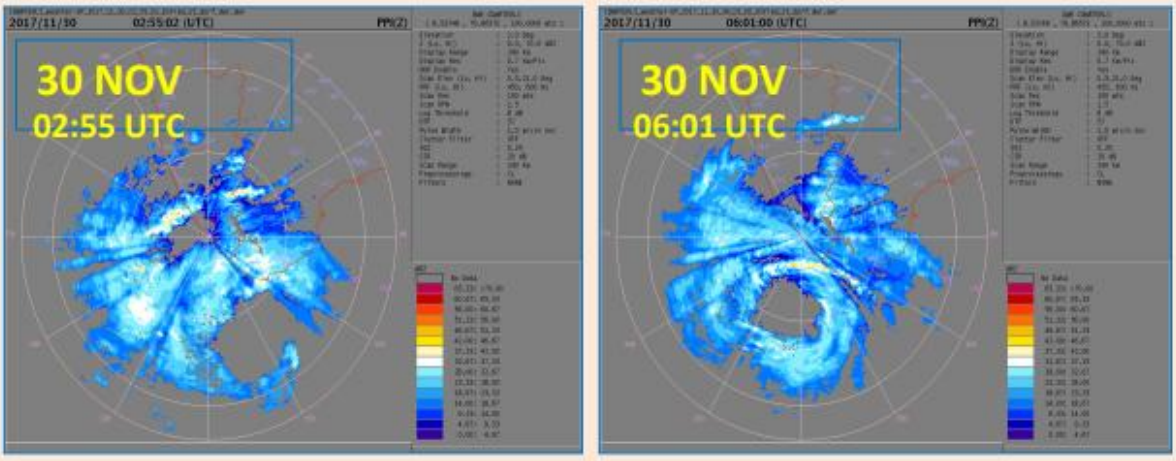


Fig.3a INSAT-3D infra-red imagery and U.S Naval Research Laboratory, microwave imagery (Source: www.nrlmry.navy.mil/), ISRO, Thiruvananthapuram, Doppler Weather Radar (DWR) reflectivity product as on the morning of 30th November 2017.

SEASONAL RAINFALL PERFORMANCE DURING NEM 2017

The northeast monsoon performance during 2017 was normal (-19% to +19%) over 4 subdivisions benefitted by the NEM (TN, KER, RYS and SIK) and deficient (-20% to -59%) over the other subdivision, CAP (-48%). Fig.4 and Table-3 presents the season ending (01st Oct31st Dec) rainfall figures over these subdivisions. Even though four subdivisions recorded normal seasonal rainfall, three (TN: -9%, KER: -8% & SIK: -5%) were on the negative side of the normal range. RYS was the lone subdivision that recorded positive rainfall departure of +19% during the season.

Table-3: Sub divisional seasonal rainfall during October-December 2017

Subdivision	01st October – 31st December 2017		
	Actual (mm)	Normal (mm)	PDN (%)
TN	401.0	442.0	-9
KER	441.8	480.7	-8
CAP	171.6	327.4	-48
RYS	261.8	219.2	19
SIK	199.9	209.6	-5

PDN: Percentage Departure from Normal
TN: Tamil Nadu &Puducherry; KER: Kerala;
CAP: Coastal Andhra Pradesh; RYS: Rayalaseema; SIK: South Interior Karnataka

Legend:

Largely Deficient	*Deficient*	*Normal*	*Excess*	*Large Excess*
≤ -60%	-20% to -59%	-19% to +19%	+20% to +59%	≥+60%

SUMMARY

The onset of NEM 2017 over the southeastern parts of peninsular India took place on 27th October. Four subdivisions (Tamilnadu, Kerala, Rayalaseema and South Interior Karnataka) received normal rainfall during the season. Coastal Andhra Pradesh ended up deficient at the end of the season. Whereas TN and KER received normal to excess rainfall in November and December, the other three subdivisions benefitted mainly from the extended southwest monsoon rainfall in October prior to the onset of NEM. Tropical cyclone Ockhi during 29 Nov to 06 Dec caused extensive rainfall activity and severe damages over south Tamil Nadu, Kerala and Lakshadweep.

CHAPTER 3

FLOOD FORECAST PERFORMANCE

3.1 FLOOD FORECASTING EVALUATION - PRESENT CRITERIA AND PROCEDURE

A number of techniques are being utilised for formulation of river stage and inflow forecasts by Central Water Commission. While inflow forecast is being provided for assisting project authorities in reservoir regulation, the stage forecast is done for warning the civil and engineering authorities about the predicted water level well ahead of its occurrence. An accurate forecast is one where the forecast level and corresponding actual observed level exactly synchronize or have such a small difference that it can be taken as reasonably accurate. In an ideal situation, not only the forecast and the corresponding observed value of river stage/ inflow should be the same but also the time of such occurrence should be the same as that predicted.

3.2 EVALUATIONCRITERIA FOR STAGE/ INFLOW FORECASTING

As per present practice, all the level and inflow forecasts are being judged by the single criteria of accuracy i.e. the actual level attained is within ± 15cm of forecasted value for stage forecasts and the actual inflow/ volume received in the dam/ barrage is within ± 20% of the forecasted value for inflow forecast.

The forecast of incoming flood gives the water level or inflow and "time" of occurrences. It is also observed that in many cases the levels attained were found within permissible limit of accuracy but the time of occurrence was not the same.

3.3 FLOOD FORECASTING ACTIVITIES

The flood forecasting activities like data collection, forecast formulation and its dissemination during 2017 covered various river basins and States. There was an expansion of Flood Forecasting activity in existing States covered in the network. A total of 6297 forecast were issued during 2017. The performance of flood forecasting Divisionwise, Major Basinwise, Statewise and for the period 2000 to 2017 are given from **Annex-IV to VII.**

3.4 RIVERWISE DETAILS OF FLOOD FORECASTING ACTIVITES & ACCURACY OF FORECAST

3.4.1 Indus Basin

During the flood season 2017, 1 forecast was issued in Jhelum basin for Rammunshibagh site in Jammu and Kashmir. However the water level did not cross the warning level.

3.4.2 Brahmaputra Basin

During the flood season 2017, analysis of the flood forecasts issued reveals that 2489 forecasts (39.53% of 6297 forecast) were issued for 30 sites (30 Level Forecast Sites) located on the main Brahmaputra and tributaries. Out of these, 2440forecasts (98.03%) were found within permissible limit of accuracy.

3.4.3 Barak and other Basin

During the flood season 2017, 512forecasts (8.13% of 6297) were issued for 6 (6 Level) Sites. Out of these, 509 forecasts (99.41%) were found within permissible limit of accuracy.

3.4.4 Ganga Basin

Six new Level Forecasting sites namely Dumariaghat, Ahirwalia, Fatehgarh, Dabri, Garmukhteshwar and Kachlabridge and one inflow forecast stations namely, Banbasa were added during 2017 flood season. During the flood season 2017, 2292 forecasts (36.39% of 6297) were issued for 63sites (51 Level and 12 Inflow), out of total 97 sites (83 Level and 14 Inflow Forecast) located on the main Ganga and its tributaries. No forecast was issued for the remaining 34 sites. Out of these, 2203 forecasts (96.12%) were found within permissible limit of accuracy.

3.4.5 Godavari

During the flood season 2017, 25 forecasts (0.39% of 6297) were issued for 3 (2 Level and 1 Inflow) of the21 sites (14 Level and 7 Inflow) on Godavari Basin and 23 (92%) forecasts were found within permissible limit of accuracy. No forecasts were issued for remaining 18 sites.

3.4.6 Krishna Basin

Two new inflow forecast sites namely, Bhadra Dam and Upper Tunga and one Level forecast site namely Kurnool were added during flood season 2017. During the flood season 2017, 354 forecasts (5.62% of 6297) were issued for 10 forecasting sites out of 14 sites. Out of 354 forecasts issued, 254forecasts were found to be within limit with an accuracy of 71.75%. No forecasts were issued for the remaining 4sites.

3.4.7 Cauvery Basin

One new inflow forecast site namely Upper Anicut was added in the Cauvery Basin during the flood season 2017. A rainfall runoff based mathematical model was developed for the basin which was run on daily basis for formulation of inflow forecasts. During the flood season 2017, 341 forecasts (5.41% of 6297) were issued for 8 forecasting sites and 230 forecasts (67.45 %) were found within permissible limit of accuracy.

3.4.8 Subarnarekha Basin including Burhabalang

During the flood season 2017, 30 forecasts (0.47% of 6297) were issued for all the 4 forecasting sites (3level and 1 inflow). Out of 30 (25 are level and 5 are inflow forecasts) forecasts issued, 25(20 Level and 5 Inflow) forecasts were found to be within limit with an accuracy of 83.33%.

3.4.9 Brahmani and Baitarni Basin

One new inflow forecast site named Rengali Dam was added during flood season 2017. During the flood season 2017, 34 forecasts (0.54% of 6297) were issued for all the 3 level forecasting sites. Out of 34level forecast issued, 32 forecasts were found to be within limit with an accuracy of 94.12%. No inflowforecasts was issued during flood season 2017.

3.4.10 Mahanadi Basin

During the flood season 2017, 41 forecasts (0.65% of 6297) were issued for 1 forecasting sites (1 Inflow) out of 4 (3 level and 1 inflow) sites. Out of 41 (1 Inflow forecast Site) forecast issued, 40 forecasts was found to be within limit with an accuracy of 97.56%. No forecasts were issued for the remaining sites.

3.4.11 East Flowing between Mahanadi and Pennar Basin

One new level forecast site Srikakulam was added during flood season 2017. During the flood season 2017, 53 forecasts (0.84% of 6297) were issued for 4 forecasting site (3 Level and 1 inflow) out of 6 (4 level and 2 inflow) sites. Out of 53 (46 Level and 7 inflow) forecast issued, 46 forecasts(39 level and 7 inflow) were found to be within limit with an accuracy of 86.79%. No forecasts were issued for the remaining sites (1 Level and 1 Inflow).

3.4.12 Pennar Basin

During the flood season 2017, 14 forecasts (0.22% of 6297) were issued for 1 forecasting sites (1 Inflow) out of 2 (1 level and 1 inflow) sites. Out of 14 (14 Inflow) forecast issued, 9 forecasts were found to be within limit with an accuracy of 64.29%. No forecasts were issued for the remaining sites.

3.4.13 East Flowing between Pennar and Kanyakumari Basin

Four new inflow forecast site were added during flood season 2017. During the flood season 2017, 12 forecasts (0.19% of 6297) were issued for 3 forecasting sites (3 Inflow) out of 6 (6 inflow) sites. Out of 12 Inflow forecasts issued, 10 forecasts were found to be within limit with an accuracy of 83.33%. No forecasts were issued for the remaining site.

3.4.13.1 Mahi Basin

Three new inflow forecast site were added during flood season 2017. During the flood season 2017, no forecast was issued in Mahi Basin.

3.4.14 Sabarmati Basin

During the flood season 2017, 25 forecasts (0.39% of 6297) were issued for 2 forecasting sites (1 level and 1 Inflow). Out of 25 (1 level and 24 Inflow) forecast issued, 22 (22 Inflow) forecasts were found to be within limit with an accuracy of 88%.

3.4.15 Narmada Basin

During the flood season 2017, no forecast was issued in Narmada Basin.

3.4.16 Tapi Basin

During the flood season 2017, 23 forecasts (0.36% of 6297) were issued for 1 forecasting site (1 Inflow) out of 3 (1 level and 2 Inflow) sites. Out of 23 forecast issued, 9 forecasts were found to be within limit with an accuracy of 39.13%. No forecast was issued for remaining forecast stations in the basin.

3.4.17 West Flowing from Tapi to Tadri Basin

During the flood season 2017, 18 forecasts (0.28% of 6297) were issued for 1 forecasting site (1 Inflow) out of 3 (2 level and 1 Inflow) sites. All the 18 forecast (18 inflow) were found to be within limit with an accuracy of 100%. No forecast was issued for remaining two level forecast station in the basin.

3.4.18 West flowing rivers of Kutch and Saurashtra including Luni

During the flood season 2017, 33 inflow forecast were issued for 1 forecasting site (1 Inflow). Out of 33 forecast issued, 31 forecasts were found to be within limit with an accuracy of 93.94%.

The Basinwise – Riverwise flood forecasting information in India during flood season 2017 is given in **Annex-II.**

3.5 STATEWISE FLOOD FORECASTING PERFORMANCE

There are 20 states, one Union Territory of the Dadra & Nagar Haveli, and National Capital Territory of Delhi so far covered under the Flood Forecast and Warning Network of the Central Water Commission. The Statewise flood forecasting information in India during the flood season 2017, is given in **Annex –III.** Their salient features are as under:

3.5.1 Andhra Pradesh

In state of Andhra Pradesh, there were 14 (7 Level and 7 Inflow) forecasting sites. Forecasts were issued for 6 (2 Level and 4 Inflow) forecasting sites.

It is revealed that 139 forecasts (133level and 6 inflow) were issued out of which 119 forecasts (116 level and 3 inflow) were within limits (85.61%). No forecasts were issued for 8 stations.

3.5.2 Arunachal Pradesh

One new Flood Forecasting site Namsai was added in Arunachal Pradesh during 2017 flood season. 72 Level Forecasts were issued for Passighat out of which 71 were within limit of accuracy (98.61%).

3.5.3 Assam

Flood Forecasting activity was expanded by four additional station at Chauldhuwaghat, NH Xing Ranganadi, Dholla Bazar and Kokrajhar in Brahmaputra Basin during 2017. In the state of Assam, there were 29 forecasting sites and all of them were level forecasting sites during 2017. Forecasts were issued for 27 sites. It is seen that during 2017 season, 2824 forecasts were issued out of which 2789 forecasts (98.76%) were found within limit of accuracy.

River Lohit at Kibithu a flood monitoring station flowed in Unprecedented Flood Situation from 10th to 12th August 2017.

Following Flood Forecast Stations River Brahmaputra at Dibrugarh, Neamatighat, Tezpur, Goalpara and Dhubri, River Jia-Bharali at N T Road Crossing, River Dikhow at Shivsagar, River Beki at Road Bridge, River Katakhal at Matizuri, River Kushiyara at Karimgunj, River Gaurang at Kokrajhar and River Sankosh at Golokganj flowed in High Flood Situation during the designated monsoon period.

Flood Monitoring Station on river Brahmaputra at Bhomraguri, River Champamati at Bahalpur and Aie at N H Crossing, also flowed in High Flood Situation during designated flood season 2017.

3.5.4 Bihar

Two new Flood Forecasting sites Dumariaghat and Ahirwalia were added in Bihar during 2017 flood season. In the state of Bihar, there were 34 level forecasting sites. Forecasts were issued for 27 sites during the year 2017. Out of 1222 forecasts issued during the flood season 2017, 1209 forecasts (98.94%) were found within limit of accuracy. No forecasts were issued for 7sites.

River Kosi at Basua, River Mahananda at Dhengraghat and Jhawa River Gandak at Dumariaghat flowed in Unprecedented Flood Situation during 13th to 18th of August 2017.

Following Flood Monitoring stations on River Mahananda at Chargharia and Araria, River Bagmati at Dhengbridge and Runisaidpur also flowed in Unprecedented Flood Situation during 2017.

Following Flood Forecasting Stations on River Kosi at Baltara, River Bagmati at Benibad, River Kamlabalan at Jhanjarpur and River Ghaghra at Gangpur Siswan also flowed in High Flood Situation during 2017.

Following Flood Monitoring stations on River Burhi Gandak at Muzzafarpur, River Kosi at Birpur and River Mahananda at Taibpur also flowed in High Flood Situation during 2017.

3.5.5 Chhattisgarh

In the state of Chhattisgarh there was one level flood forecasting site (i.e. Jagdalpur) on the Indravathi River (a tributary of the Godavari River). 15 flood forecast were issued for this station during the flood season 2017 out of which 14 (93.33%) were within the limits of accuracy.

3.5.6 Gujarat

One new Flood Forecasting inflow site Panam Dam was added in Gujrat during 2017 flood season. There were 12(6 Level and 6 Inflow) forecasting sites in the state of Gujarat. However, forecasts were issued for only 4(1 Level and 3 Inflow) sites. Out of 76 forecasts issued (1level and 75inflow), 71 forecasts (71 inflow) were found within limits of accuracy (93.42%) during the flood season 2017. No forecasts were issued for 8(5 Level and 3 Inflow) sites.

River Sabarmati at Vautha a flood monitoring station flowed in Unprecedented Flood Situation from 27th to 28th July 2017.

River Banas at Kamalpur a flood monitoring station flowed in High Flood Situation during July2017.

3.5.7 Haryana

Data from Hathnikund Barrage were collected. However, no inflow forecasts were issued due to very little travel time available from base station.

3.5.8 Jammu and Kashmir

Flood forecasting activity was expanded by two additional station at Sangam and Safapora in Indus Basin during 2017.1 Level forecast is issued for River Jhelum at Rammunshibagh.

3.5.9 Jharkhand

In the state of Jharkhand, there were five inflow and two level flood forecasting sites due to the expansion of the activity. Flood forecasts were issued for all of them. During the flood season 2017, Out of 210 (52 level and 158 inflow) forecasts issued, 200 (48 level and 152 inflow) forecasts (95.24 %) were found within limit of accuracy.

3.5.10 Karnataka

Flood Forecasting Activity was expanded to Two additional stations in Cauvery Basin during 2017.There were 10 (1 Level and 9 Inflow) forecasting sites in the state of Karnataka. During the flood season 2017, forecasts were issued for all forecast sites. Out of 333 forecasts (2 level and 331 inflow) issued, 216 (1 level and 215 inflow) forecasts (64.86%) were found within limit of accuracy.

River Arkavathy at T'Bekuppe a flood monitoring station flowed in Unprecedented Flood Situation during September 2017.

3.5.11 Madhya Pradesh

In the state of Madhya Pradesh, there were two level forecasting sites on the river Narmada and two inflow forecast sites at Gandhisagar on river Chambal and Bansagar Dam on river Sone during 2017. During the flood season 2017, forecasts were issued for all inflow sites. Out of 27inflow forecasts issued, 4 (14.81%) forecasts were found within the limit of accuracy. No level forecast was issued during the Flood Season 2017.

3.5.12 Maharashtra

In the state of Maharashtra, there were 10 (7 Level and 3 Inflow) forecasting sites. During the flood season 2017, forecasts were issued for 3 (1 Level and 2 Inflow forecast) sites. Total 33forecasts were issued (5 Level and 28 inflow) during 2017 out of which 18 (5 Level and 13 inflow) were within limit (54.55%). No forecasts were issued for 7 stations.

3.5.13 Odisha

Flood Forecasting Activity was expanded to one additional station during 2017. In the state of Odisha, there were 13 (11Level 2 Inflow) forecasting site. During the flood season 2017, 133 (92 level and 41 inflow) forecasts were issued for 8 forecast sites (7Level and 1 Inflow) out of which 123 (83 level and 40 inflow) (92.48 %) were found within limit of accuracy. No forecasts were issued for remaining 5 flood forecasting sites.

River Brahmani-Baitarani at Indupur a flood monitoring station flowed in High Flood Situation during July 2017.

3.5.14 Rajasthan

Flood Forecasting Activity was expanded to two additional stations during 2017. No Forecast was issued during Flood Season 2017.

3.5.15 Tamilnadu

Flood Forecasting Activity was expanded to five additional stations during 2017. In the state of Tamilnadu there are 10 inflow forecast stations. 187 Inflow Forecasts were issued out of which 154 were within limit of accuracy (82.35%).

River Tamraparini at Kuzhithurai and river Pazhayar at Ashramam both flood monitoring stations flowed in Unprecedented Flood Situation during December 2017

River Moyar at Thengumarahada a flood monitoring station flowed in High Flood Situation during September 2017.

3.5.16 Telangana

In the state of Telangana there are 10 forecast stations (4 level and 6 inflow forecast stations) during Flood Season 2017. Forecasts were issued for 1 (0 Level and 1 Inflow) Sites. 72 inflow forecast were issued in the State of Telangana during 2017. Out of which 23 Inflow forecast were within limit of accuracy (31.94%). No forecasts were issued for the remaining sites.

3.5.17 Tripura

There were two level forecasting sites in the state of Tripura namely, Kailashahar on river Manu and Sonamura on river Gumti. 8 level Forecast were issued during 2017 and all the forecast were within the limit of accuracy (100%).

3.5.18 Uttarakhand

One Inflow forecast site namely Banbasa was added in the state Uttarakhand during Flood Season 2017. There were three level forecasting sites in the state of Uttarakhand, namely, Srinagar on the Alaknanda, Rishikesh and Haridwar on the main river Ganga. Forecasts were issued for three stations (2level and 1 inflow) in 2017. 16 forecasts(12 level and 4 inflow) were issued out of which 11 forecast (8 level and 3 inflow) were within limit of accuracy (100%).

3.5.19 Uttar Pradesh

Flood Forecasting Activity was expanded to four level forecast site Ganga Basin during 2017. With this expansion there were 40 (38 Level and 2 Inflow) flood forecasting sites in the state of Uttar Pradesh. During the flood season 2017, forecasts were issued for 19 stations (17level and 2 inflow). Out of 650 forecasts (575 level and 75 inflow), 613 forecasts (556 level and 57 inflow) (94.31%) were found within limit of accuracy. No forecasts were issued for 21 sites.

Flood Forecasting Site Balrampur and Bansi on river Rapti flowed in Unprecedented Flood Situation during August 2017. Flood Monitoring Sites at Trimohinighat and Maniram on river Rohin flowed in Unprecedented Flood Situation during August 2017.

Flood Forecasting Site Kachlabridge on river Ganga and Birdghat on Rapti, Ayodhya and Elgin Bridge on river Ghaghra flowed in High Flood Situation during August 2017. Flood Monitoring Station at Bhinga and Kakardhari on river Rapti, Paliakalan on river Sharda also flowed in High Flood Situation during August 2017.

3.5.20 West Bengal

In the state of West Bengal, there were 14 (11 Level and 3 Inflow) flood forecasting sites. During the flood season 2017, forecasts were issued for 12 sites (9 level and 3 inflow stations). Out of 269 forecasts (188 level and 81inflow), 248 forecasts (170level and 78inflow) (92.19%) were found within limit of accuracy. No forecasts were issued for two level forecast sites.

Flood Forecasting Site Harinkhola on river Mundeshwari and Tufanganj on river Raidak-I flowed in Unprecedented Flood Situation during July and August 2017. Flood Monitoring Sites at Sankosh LRP on river Sankosh flowed in Unprecedented Flood Situation during July 2017.

Flood Forecasting Site Ghugumari on river Torsa and Mekhliganj on river Teesta flowed in High Flood Situation during August 2017

3.5.21 Daman& Diu

In the Union Territory of Daman & Diu, there was one flood forecasting site at Daman on river Damanganga. No flood forecast was issued for the site during the flood season 2017.

3.5.22 NCT of Delhi

There are two flood forecasting sites in the National Capital Territory of Delhi (NCT of Delhi), namely, Delhi Railway Bridge on the Yamuna River and Dhansa Regulator at Delhi and Haryana border on the Sahibi river, a tributary of Yamuna River which is commonly known by name of Najafgarh drain within Delhi town. Both the sites are level

forecasting sites. Forecast was issued for Delhi Railway Bridge only. During the flood season 2017,Total 10 level forecast were issued and all the forecasts were within permissible limit with 100% accuracy.

The performance of flood forecasting Stations (Divisionwise) in India during flood season 2017 is given in **Annex-IV.**

The Major Basin/Statewise performance of flood forecasting stations in India during flood season is given in **Annex-V to VI**.

Details of unprecedented and high flood events in the various river systems covered under the Flood Forecasting & Warning Network are given in **Annex- VIII** and **Annex-IX** respectively for the year 2017**.** Moderate and low flood events were observed as listed at **Annex-X to XII,** for the year 2017.

3.6 AN OVERVIEW OF FLOOD FORECASTING PERFORMANCE

During the flood season 2017, an average number of flood forecasts issued per forecasting site were 27.86. The number of forecasting sites where the performance accuracy of the issued forecasts was found to be above 93.71 % (National average for flood season 2017) was 90 sites (39.82 %) which include 57 sites (25.22 %) where flood forecasting stations having 100% accurate forecasts.

The flood forecasting performance of the level forecasting as well as inflow forecasting sites from 2000 to 2017 is given in **Annex-VII** and from 2000 to 2017 as **Fig.3.1.**

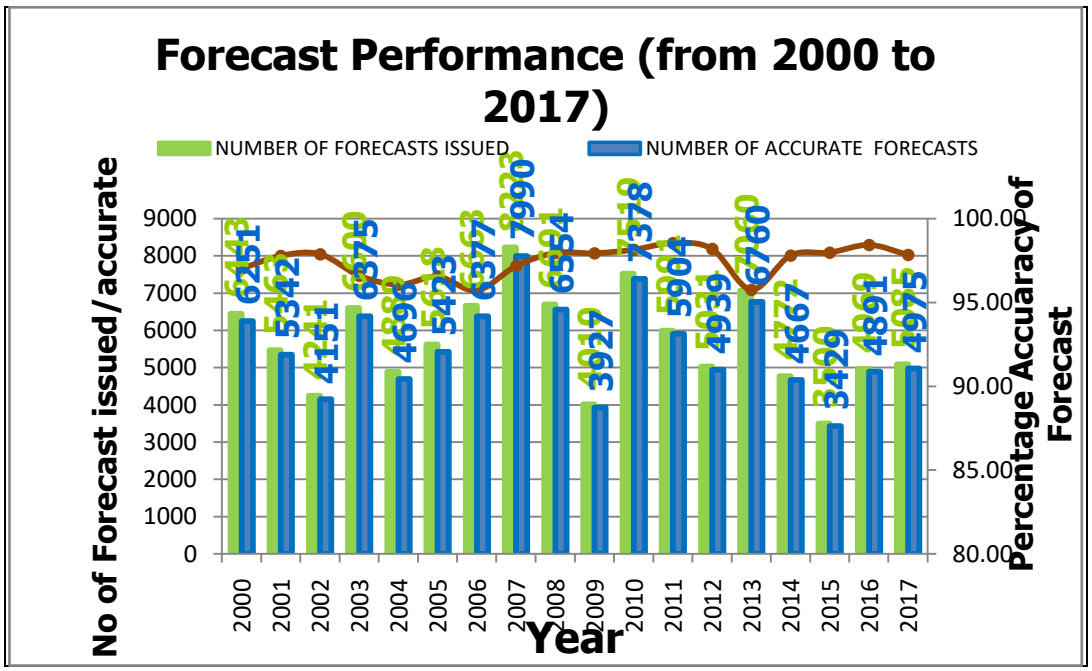


Fig.3.1 Flood Forecast Performance from 2000 to 2017

3.6.1 Overall Performance

Thus, in the nine major river systems in the country where "Flood Forecasting & Warning Network" of the Central Water Commission exists, and floods are being monitored, the accuracy of the forecasting performance during 2017 season varies from a maximum of 100% for West flowing rivers from Tapi to Tadri to a minimum of 39.13% for the Tapi Basin. The overall accuracy performance was of the order of 93.71% for the country as a whole.

Sitewise "Forecast Performance" out of 226 operational sites in flood season 2017 is shown in **Table 3.1**.

Table 3.1 Site wise "Forecast Performance" of flood forecasting sites of CWC in Flood Season, 2017

Sl. No.	Details of sites within different range of permissible limit of accuracy (±15cm,±20%cumec)	Flood Season 2017	
		No. of Sites	% age
1	Sites with performance accuracy between 0.0 % to 25.0%	8	5.63%
2	Sites with performance accuracy between 25.1 % to 50.0%	7	4.92%
3	Sites with performance accuracy between 50.1 % to 75.0%	13	9.15%
4	Sites with performance accuracy between 75.1 % to 99.99%	56	39.43%
5	Sites with 100% performance accuracy i.e. where all forecasts issued were within permissible limit of accuracy	58	40.84%
6	Total sites where forecasts were issued	142	100

CHAPTER – 4
SIGNIFICANT FLOOD EVENTS

4.1 GENERAL

The Flood Forecasting Activity was expanded to 226 locations as explained in previous Chapter. All the 226 flood forecasting sites including 60 inflow forecasting sites were operational i.e. where desired hydro-meteorological data was observed/ collected, during the flood season 2017.

4.1.1 Rainfall Runoff based 3-day Advisories

Rainfall Runoff advisories based on the satellite estimates of rainfall using Tropical Rainfall Measuring Mission (TRMM) satellite, Global Precipitation Measurement (GPM) satellite as well as AWS of IMD/CWC taken from IMD AWS/ARG website as well as the rainfall forecast products of Weather Research and Forecast (WRF) model at a resolution of 0.25x0.25 grid was developed using Mike-11, a one-dimensional flood forecast model. These models were run on automatic mode by fetching the data through file transfer protocol (ftp) from the respective websites and scheduling the operations of Mike-11 model to run every hour. The model was operationalised during 2017 flood season and was put in Uniform resource Locator (URL) http:120.57.32.251. All the stake holders were informed about the same and to utilise the same for getting advance information about floods. The model covered around 80-90% of the existing flood forecasting stations.

4.2 AN OVERVIEW OF FORECAST EVENTS

The highlight of this year is as follows:

4.2.1 Unprecedented Flood Situation

Eight Flood Forecast stations namely **Harinkhola** in Hoogly district of West Bengal flowed in Unprecedented flood situation on 28th July 2017 and **Tufanganj** in Coochbehar district of West Bengal, **Dumariaghat** in East Champaran district, **Basua** in Sapual district, **Dhengraghat** in Purnia district and **Jhawa** in Katihar district of Bihar, **Balrampur** in Balrampur district and **Bansi** in Siddarthnagar district of Uttar Pradesh flowed in Unprecedented flood situation during the period from 12th to 23rd August 2017.

4.2.2 High Flood events

High Flood Situation was witnessed in 22flood forecasting stations in the rivers Brahmaputra at **Dibrugarh, Neamatighat, Tezpur, Goalpara and Dhubri**, River Jia-Bharali at **N T Road Crossing**, River Dikhow at **Shivsagar**, River Katakhal at **Matizuri**, River Kushiyara at **Karimgunj**, River Beki at **Road Bridge**, River Sankosh at **Golokganj** and River Gaurang at **Kokrajhar** in Assam, River Torsa at **Ghugumari**, River Teesta at **Mekhliganj** ,in West Bengal, River Ghaghra at **Gangpur Siswan,** River Kosi at **Baltara,** River Bagmati at **Benibad,** River Kamlabalan at **Jhanjarpur** in Bihar**,** River Ghaghra at **Elgin Bridge** and **Ayodhya** , River Rapti at **Gorakhpur Birdghat**, River Ganga at **Kachlabridge,** in Uttar Pradesh during designated Flood Season 2017.

4.2.3 Moderate to Low flood events and inflow forecasts

Moderate flood events were witnessed in 45 stations and low flood were witnessed at 27 stations and inflow forecasts were issued in 40 Stations.

4.2.4 No Forecasts

No flood forecasts were issued at 84 flood forecast stations (64 level and 20 inflow) as they did not cross warning level or flows above criteria in case of inflow forecasts.

Statement showing number of stations where level/inflow crossed Warning Level

State	Level					Inflow	
	No of Stations where River WL exceeded	No. of Station where DL exceeded	No of Stations where within 0.5 m of HFL exceeded	No of Stations where HFL is exceeded	No of station where river level remained below WL	No. of Dams/ Barrages where inflow forecast issued	No. of Dams/ Barrages where inflow forecast not issued
Andhra Pradesh	1	1	0	0	5	4	3
Arunachal Pradesh	0	1	0	0	1	0	0
Assam	0	15	12	0	2	0	0
Bihar	6	17	0	4	7	0	0
Chhattisgarh	0	1	0	0	0	0	0
Gujarat	1	0	0	0	5	3	3
Haryana	0	0	0	0	0	0	1
J & K	1	0	0	0	2	0	0
Jharkhand	0	2	0	0	0	5	0
Karnataka	1	0	0	0	0	9	0
Madhya Pradesh	0	0	0	0	2	2	0
Maharashtra	1	0	0	0	6	2	1
Odisha	2	5	0	0	4	1	1
Rajasthan	0	0	0	0	0	0	3
Tripura	2	0	0	0	0	0	0
Tamilnadu	0	0	0	0	0	7	3
Telangana	0	0	0	0	4	1	5
Uttarakhand	1	1	0	0	1	1	0
Uttar Pradesh	9	4	2	2	21	2	0
West Bengal	1	6	0	2	2	3	0
Daman & Diu	0	0	0	0	1	0	0
Delhi	1	0	0	0	1	0	0
Total	**27**	**53**	**14**	**8**	**64**	**40**	**20**

CHAPTER 5

RESPONSE FROM USER AGENCIES

5.1 GENERAL

Central Water Commission performs the Flood Forecasting and Warning job on flood prone interstate river basins in the country. It issues the forecast to the users such as various civil and engineering departments of the state and central governments including, railway, defense, revenues authorities, public sector undertakings besides National Disaster Management Cell in the Ministry of Home Affairs, who are responsible for taking timely flood fighting measures, rescue operations including shifting of flood affected people to safer places etc.

Though the various state government agencies in-charge of the flood management and relief operations generally do not give their views in writing on usefulness of the flood forecasting activities of CWC, yet some of them do write to the Central Water Commission conveying their views on the usefulness of the flood forecasts received by them.

5.2 APPRECIATION LETTERS RECEIVED DURING FLOOD SEASON 2017

Abstract of some of the messages received by our field unit during the flood season 2017 are given below:

5.2.1 District Disaster Management Department Government of Bihar, Darbhanga. Lr. no: 229/DDM dated 02.02.2018 and **Executive Engineer**, **Flood Control Department, Darbhanga** , Lr No. 20 dated 08.01.2018.

(*Translated from Hindi Version*)

With respect to the above subject, the Water Level and Flood forecasting information provided by your office on time helped us to operate the flood control room smoothly.

During the natural disaster like flood, the flood data provided by your office makes it easier to monitor the dams as well as the security of inaccessible sites. Thank you and hope that, same cooperation shall continue in future too.

5.2.2 Executive Engineer, Flood Control Department, Rosera, Samastipur- Lr No. 16 dated 08.01.2018

(*Translated from Hindi Version*)

On the above subject, it is stated that information provided by your office in respect of water level and flood forecast in the river Burhi Gandak and Kosiwas very satisfactory and appreciable. Hope that, same cooperation shall continue in future also.

5.2.3 Executive Engineer, Flood Control Department-1, Khagaria- Lr No. 16 dated 04.01.2018

(*Translated from Hindi Version*)

On the above subject, it is stated that during flood season 2017 the daily water level, flood forecast and other flood related information provided by your office were very useful.

It is requested to provide flood forecast, Water level, trend and rainfall data in future too.

5.2.4 Superintending Engineer, Flood Control Zone-1, Khagaria- Lr No. 05 dated 05.01.2018

(*Translated from Hindi Version*)

On the above subject, it is stated that information provided by your office in respect of water level and flood forecast is very useful. Hope that, same cooperation shall continue in future too. It is added here that information sent on holidays are delayed it will be more helpful if delay is avoided.

5.2.5 District Disaster Management Department Government of Bihar, Begusarai. Lr. no: 72/DDM dated 01.02.2018

(*Translated from Hindi Version*)

On the above subject, it is stated that during flood season 2017, the daily flood report provided by your office helped us to become aware for flood disaster. Daily dissemination reports were quite appreciable. Hope that, same cooperation shall continue in future too.

5.2.6 District Disaster Management Department Government of Bihar, Purnia. Lr. no: 129/DDM dated 25.01.2018

(*Translated from Hindi Version*)

On the above subject, it is stated that during flood season 2017 the daily water level, flood forecast provided by your office contribute a vital role in village security from flood disaster.

It is requested to provide flood forecast, Water level on time in future too.

5.2.7 Executive Engineer, Eastern Embankment Division, Supaul- Lr No. 154 dated 12.02.2018

(*Translated from Hindi Version*)

On the above subject, it is stated that the daily water level, flood forecast and other flood related information provided by your office were very helpful for flood preparedness related activities. The work done by your office is extremely appreciable.

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ANNEXURES-I to XII

Salient Features of Flood Forecasting Stations maintained by Central Water Commission

S.No	Name of FF Station/Type	River/Basin	Nearest Town/Vill/District/State	Lat (N)	Long (E)	Base Station (TT in hrs)	Div/Circle/ Orgn	Met Sub Division as per IMD	WL (m)	DL (m)	HFL		Mode of Data Collection	Methodology/ Model used for FF Formulation	Remarks
											(m)	Year			
1	Rammunshibagh (Srinagar)	Jhelum/ Indus	Srinagar/Jammu and Kashmir	34.06	74.86	1.1 Sangam 1.2 Khanabal 1.3 Nunwan	CD, Jammu / Dir (M), Jammu/ IBO	Jammu & Kashmir	1585.5	1586.45	1589.65	2014	Telephone/ Mobile/ Telemtry	Rainfall Runoff Model	
2	Sangam	Jhelum/ Indus	Anantnag/Jammu and Kashmir	33.84	75.08		CD, Jammu / Dir (M), Jammu/ IBO	Jammu & Kashmir	1590.3	1591.2	1595.7	09-06-2014			
3	Safapura	Jhelum/ Indus	Baramulla/Jammu and Kashmir	34.29	74.63		CD, Jammu / Dir (M), Jammu/ IBO	Jammu & Kashmir	1580	1580.5	1580.69	25-06-2015			
4	Srinagar	Alaknanda/Ganga	Srinagar/Garhwal/ Uttarakhand	30.22	78.78	2.1 Rudraprayag (06)	HGD/HOCD/UGBO	Uttarakhand	539.00	540.00	536.85	1995	Wireless/ Telemetry	Conventional	
5	Rishikesh	Ganga/Ganga	Rishikesh/Dehradun/Uttarakhand	30.11	78.31	3.1 Deoprayag (08) 3.2 Marora (05)	HGD/HOCD/ UGBO	Uttarakhand	339.50	340.50	341.72	1995	Wireless/ Telemetry	Conventional	
6	Hardwar	Ganga/Ganga	Hardwar/Hardwar/ Uttarakhand	29.98	78.19	4.1 Deoprayag (09) 4.2 Marora (06)	HGD/HOCD/ UGBO	Uttarakhand	293.00	294.00	296.30	2010	Wireless/ Telemetry	Conventional	
7	Moradabad	Ramganga/Ganga	Moradabad/Moradabad/Uttar Pradesh	28.83	78.80	5.1 Kalagarh (36)	MGD2/HOCD/ UGBO	West Uttar Prasdesh	189.60	190.60	192.88	2010	Wireless/ Telemetry	Conventional	
8	Bareilly	Ramganga/Ganga	Bareilly/Bareilly/ Uttar pradesh	28.30	79.37	6.1 Moradabad (28)	MGD2/HOCD/ UGBO	West Uttar Prasdesh	162.70	163.70	162.88	1978	Wireless/ Telemetry	Conventional	
9	Kannauj	Ganga/Ganga	Kannauj/Kannauj/ Uttar Pradesh	27.02	79.97	7.1 Narora (D/s) (48)	MGD2/HOCD/ UGBO	West Uttar Prasdesh	124.97	125.97	126.78	2010	Wireless	Conventional	
10	Ankinghat	Ganga/Ganga	Ankinghat/Kanpur/ Uttar Pradesh	26.93	80.03	8.1 Narora (D/s) (48) 8.2 Bareilly (48) 8.3 Fathegarh (12) 8.4 Dabri (12)	MGD2/HOCD/ UGBO	East Uttar Prasdesh	123.00	124.00	124.49	2010	Wireless/ Telemetry	Conventional	
11	Kanpur	Ganga/Ganga	Kanpur/Kanpur/ Uttar Pradesh	26.47	80.38	9.1 Fathegarh (24) 9.2 Dabri (24) 9.3 Ankinghat (12)	MGD2/HOCD/ UGBO	East Uttar Prasdesh	113.00	114.00	114.08	2010	Wireless/ Telemetry	Conventional	
12	Dalmau	Ganga/Ganga	Rae-barerilly/ Rae-barerilly/ Uttar Pradesh	26.06	81.03	10.1 Ankninghat (28) 10.2 Kanpur (16)	MGD2/HOCD/ UGBO	East Uttar Prasdesh	98.36	99.36	99.84	1973	Wireless/ Telemetry	Conventional	
13	Phaphamau	Ganga/Ganga	Allahabad/ Allahabad/ Uttar Pradesh	25.47	83.11	11.1 Kanpur (30) 11.2 Chillaghat (24)	MGD3/HOCV/ UGBO	East Uttar Prasdesh	83.73	84.73	87.98	1978	Wireless/ Telemetry	Conventional	
14	Mawi	Yamuna/Ganga	Panipat/ Muzzafarpur/ Uttar Pradesh	29.38	77.07	12.1 Kalanur (18-30)	UYD/HOCN/ YBO	West Uttar Pradesh	230.00	230.85	232.45	1988	Wireless/ Telemetry	Conventional	

S.No	Name of FF Station/Type	River/Basin	Nearest Town/Vill/District/State	Lat (N)	Long (E)	Base Station (TT in hrs)	Div/Circle/ Orgn	Met Sub Division as per IMD	WL (m)	DL (m)	HFL		Mode of Data Collection	Methodology/ Model used for FF Formulation	Remarks
											(m)	Year			
15	Delhi Railway Bridge	Yamuna/Ganga	Delhi/Delhi/ NCT Delhi	28.66	77.25	13.1 Mawi (18-32)	UYD/HOCN/ YBO	Haryana Chandigarh& Delhi	204.00	204.83	207.49	1978	Wireless/ Telemetry	Conventional	
16	Dhansa Regulator	Sahibi/Yamuna/ Ganga	Delhi/Delhi/ NCT Delhi	28.53	76.87	14.1 Dadri (48) 14.2 Masani (48)	UYD/HOCN/ YBO	Haryana Chandigarh& Delhi	211.44	212.44	213.58	1977	Wireless	Conventional	
17	Mathura	Yamuna/Ganga	Mathura/Mathura/ Uttar Pradesh	27.51	77.69	15.1 Mohana (20-33)	UYD/HOCN/ YBO	West Uttar Pradesh	164.20	165.20	169.73	1978	Wireless/ Telemetry	Conventional	
18	Agra	Yamuna/Ganga	Agra/Agra/ Uttar Pradesh	27.19	78.03	16.1 Mathura (216-4)	LYD/HOCN/ YBO	West Uttar Pradesh	151.40	152.40	154.76	1978	Wireless/ Telemetry	Conventional	
19	Etawah	Yamuna/Ganga	Etawah/Etawah/ Uttar Pradesh	26.75	78.99	17.1 Agra (20-45)	LYD/HOCN/ YBO	West Uttar Pradesh	120.92	121.92	126.13	1978	Wireless/ Telemetry	Conventional	
20	Auraiya	Yamuna/Ganga	Auraiya/Auraiya/ Uttar Pradesh	26.42	79.48	18.1 Etawah (21-24) 18.2 Dhaulpur (15-36)	LYD/HOCN/ YBO	West Uttar Pradesh	112.00	113.00	118.19	1996	Wireless/ Telemetry	Conventional	
21	Kalpi	Yamuna/Ganga	Kalpi/Jalaun/ Uttar Pradesh	26.13	79.76	19.1 Etawah (21-27) 19.2 Dhaulpur (15-42)	LYD/HOCN/ YBO	West Uttar Pradesh	107.00	108.00	112.98	1996	Wireless/ Telemetry	Conventional	
22	Hamirpur	Yamuna/Ganga	Hamirpur/Hamirpur/ Uttar Pradesh	25.96	80.16	20.1 Auraiya (15)	LYD/HOCN/ YBO	East Uttar Prasdesh	102.63	103.63	108.59	1983	Wireless/ Telemetry	Conventional	
23	Chillaghat	Yamuna/Ganga	Banda/Banda/ Uttar Pradesh	25.77	80.53	21.1 Hamirpur (12)	LYD/HOCN/ YBO	East Uttar Prasdesh	99.00	100.00	105.16	1978	Wireless/ Telemetry	Conventional	
24	Mohana	Betwa/Yamuna/ Ganga	Jhansi/Jhansi/ Uttar Pradesh	25.65	78.99	21.1 Garrouli (16-21) 21.2 Nautghat (12-21)	LYD/HOCN/ YBO	East Uttar Prasdesh	121.66	122.66	133.69	1983	Wireless/ Telemetry	Conventional	
25	Sahjiana	Betwa/Yamuna/ Ganga	Hamirpur/Hamirpur/ Uttar Pradesh	25.95	80.15	22.1 Mohana (18-24)	LYD/HOCN/ YBO	East Uttar Prasdesh	103.54	104.54	108.67	1983	Wireless/ Telemetry	Conventional	
26	Banda	Ken/Yamuna/ Ganga	Banda/Banda/ Uttar Pradesh	25.48	80.31	23.1 Madla (12-18) 23.2 Kaimaha (9-15)	LYD/HOCN/ YBO	East Uttar Prasdesh	103.00	104.00	113.29	2005	Wireless/ Telemetry	Conventional	
27	Naini	Yamuna/Ganga	Allahabad/ Allahabad/ Uttar Pradesh	25.42	81.84	24.1 Chillaghat (18-24)	LYD/HOCN/ YBO	East Uttar Prasdesh	83.74	84.74	87.99	1978	Wireless/ Telemetry	Conventional	
28	Allahabad (Chatnag)	Ganga/Ganga	Allahabad/ Allahabad/ Uttar Pradesh	25.41	81.91	25.1 Kanpur (30) 25.2 Chillaghat (24)	MGD3/HOCV/ UGBO	East Uttar Prasdesh	83.73	84.73	88.03	1978	Wireless/ Telemetry	Conventional	

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											(m)	Year			
29	Mirzapur	Ganga/Ganga	Mirzapur/Mirzapur/ Uttar Pradesh	25.15	82.53	26.1 Dalmau (28) 26.2 Chillaghat (34)	MGD3/HOCV/ UGBO	East Uttar Prasdesh	76.72	77.72	80.34	1978	Wireless/ Telemetry	Conventional	
30	Varanasi	Ganga/Ganga	Varanasi/Varanasi/ Uttar Pradesh	25.33	83.04	27.1 Kanpur (48) 27.2 Hamirpur(48)	MGD3/HOCV/ UGBO	East Uttar Prasdesh	70.26	71.26	73.90	1978	Wireless/ Telemetry	Conventional	
31	Rae-Bareilly	Sai/Gomti/Ganga	Rae-bareilly/Rae-bareilly/Uttar Pradesh	26.20	81.25	28.1 Bani (48)	MGD2/HOCD/ UGBO	East Uttar Prasdesh	100.00	101.00	104.81	1982	Wireless/ Telemetry	Conventional	
32	Hanuman Setu	Gomti/Ganga	Lucknow/Lucknow/ Uttar Pradesh	26.86	80.95	29.1 Bhatpurwaghat (48)	MGD2/HOCD/ UGBO	East Uttar Prasdesh	108.50	109.50	110.85	1971	Wireless	Conventional	
33	Jaunpur	Gomti/Ganga	Jaunpur/Jaunpur/ Uttar Pradesh	25.75	82.69	30.1 Sultanpur (24)	MGD3/HOCV/ UGBO	East Uttar Prasdesh	73.07	74.07	77.74	1971	Wireless/ Telemetry	Conventional	
34	Ghazipur	Ganga/Ganga	Ghazipur/ Ghazipur/ Uttar Pradesh	25.58	83.60	31.1 Allahabad (28) 31.2 Sultanpur (30)	MGD3/HOCV/ UGBO	East Uttar Prasdesh	62.11	63.11	65.22	1978	Wireless/ Telemetry	Conventional	
35	Buxar	Ganga/Ganga	Buxar/Buxar/Bihar	25.58	83.97	32.1 Allahabad (30)	MGD5/HOCP/ LGBO	Bihar	59.32	60.32	62.09	1948	Wireless/ Telemetry	Conventional	
36	Elgin Bridge	Ghaghra/Ganga	Barabanki/Barabanki/ Uttar Pradesh	27.09	81.49	33.1 Katernighat (30-36) 33.2 Shardanagar (30-36)	MGD1/HOCV/ UGBO	East Uttar Prasdesh	105.07	106.07	107.56	2009	Wireless/ Telemetry	Conventional	
37	Ayodhya	Ghaghra/Ganga	Ayodhya/Faizbad/ Uttara Pradesh	26.81	82.21	34.1 Elgin Bridge (18-24)	MGD1/HOCV/ UGBO	East Uttar Prasdesh	91.73	92.73	94.01	2009	Wireless/ Telemetry	Conventional	
38	Balrampur	Rapti/Ghaghra/ Ganga	Balrampur/ Balrampur/ Uttar Pradesh	27.44	82.23	35.1 Kakardhari (18-24)	MGD1/HOCV/ UGBO	East Uttar Prasdesh	103.62	104.62	105.25	2000	Wireless/ Telemetry	Conventional	
39	Bansi	Rapti/Ghaghra/ Ganga	Bansi/ Siddarthnagar/ Uttar Pradesh	27.18	82.93	36.1 Balrampur (18-24)	MGD1/HOCV/ UGBO	East Uttar Prasdesh	83.90	84.90	85.82	1998	Wireless/ Telemetry	Conventional	
40	Gorakhpur (Birdghat)	Rapti/Ghaghra/ Ganga	Gorahpur/ Gorakhpur/ Uttar Pradesh	26.73	83.35	37.1 Bansi (18-24)	MGD1/HOCV/ UGBO	East Uttar Prasdesh	73.98	74.98	77.54	1998	Wireless/ Telemetry	Conventional	
41	Turtipar	Ghaghra/Ganga	Balthra/Ballia/ Uttar Pradesh	26.14	83.88	38.1 Ayodhya (30-36) 38.2 Gorakhpur (Birdghat) (30-36)	MGD1/HOCV/ UGBO	East Uttar Prasdesh	63.01	64.01	66.00	1998	Wireless/ Telemetry	Conventional	
42	Darauli	Ghaghra/Ganga	Darauli/Siwan/Bihar	26.07	84.13	39.1 Elgin Bridge (54) 39.2 Gorakhpur (Birdghat) (28)	MGD5/HOCP/ LGBO	Bihar	59.82	60.82	61.74	1998	Wireless	Conventional	

S.No	Name of FF Station/Type	River/Basin	Nearest Town/Vill/District/State	Lat (N)	Long (E)	Base Station (TT in hrs)	Div/Circle/ Orgn	Met Sub Division as per IMD	WL (m)	DL (m)	HFL		Mode of Data Collection	Methodology/ Model used for FF Formulation	Remarks
											(m)	Year			
43	Gangpur Siswan	Ghaghra/Ganga	Siwan/Siwan/Bihar	25.91	84.39	40.1 Turtipar (20)	MGD5/HOCP/ LGBO	Bihar	56.04	57.04	58.01	1983	Wireless	Conventional	
44	Chhapra	Ghaghra/Ganga	Chhapra/Saran/Bihar	25.76	84.79	41.1 Gangpur Siswan (16)	MGD5/HOCP/ LGBO	Bihar	52.68	53.68	54.59	1982	Wireless	Conventional	
45	Ballia	Ganga/Ganga	Ballia/ Ballia/ Uttar Pradesh	25.77	84.37	42.1 Varanasi (28) 42.2 Jaunpur (28)	MGD3/HOCV/ UGBO	East Uttar Prasdesh	56.62	57.62	60.25	2003	Wireless/ Telemetry	Conventional	
46	Inderpuri	Sone/Ganga	Inderpuri/Rohtas/ Bihar	24.84	84.13	43.1 Chopan (12) 43.2 Daltonganj (12)	MGD5/HOCP/ LGBO	Bihar	107.20	108.20	108.85	1975	Wireless	Conventional	
47	Koelwar	Sone/Ganga	Koelwar/Bhojpur/ Bihar	25.57	84.79	44.1 Inderpuri (10-15)	MGD5/HOCP/ LGBO	Bihar	54.52	55.52	58.88	1971	Wireless	Conventional	
48	Maner	Sone/Ganga	Maner/Patna/Bihar	25.70	84.86	45.1 Gandhighat (8)	MGD5/HOCP/ LGBO	Bihar	51.00	52.00	53.79	1976	Wireless	Conventional	
49	Sripalpur	Punpun/Ganga	Sripalpur/Patna/Bihar	25.50	85.11	46.1 Kinjer (24)	MGD5/HOCP/ LGBO	Bihar	49.60	50.60	53.91	1976	Wireless	Conventional	
50	Patna (Dighaghat)	Ganga/Ganga	Patna/ Patna/ Bihar	25.64	85.10	47.1 Allahabad (30) 47.2 Patna (Gandhighat) (04)	MGD5/HOCP/ LGBO	Bihar	49.45	50.45	52.52	1975	Wireless	Conventional	
51	Patna (Gandhighat)	Ganga/Ganga	Patna/ Patna/ Bihar	25.62	85.17	48.1 Buxar (24) 48.2 Darauli (24) 48.3 Japla (24) . 48.4 Rewaghat (24)	MGD5/HOCP/ LGBO	Bihar	47.60	48.60	50.27	1994	Wireless/ Telemetry	Conventional	
52	Hathidah	Ganga/Ganga	Hathidah/Patna/Bihar	25.37	85.99	49.1 Gandhighat (16)	MGD5/HOCP/ LGBO	Bihar	40.76	41.76	43.15	1971	Wireless/ Telemetry	Conventional	
53	Munger	Ganga/Ganga	Munger/Munger/ Bihar	25.38	86.46	50.1 Gandhighat (24)	MGD5/HOCP/ LGBO	Bihar	38.33	39.33	40.99	1976	Wireless/ Telemetry	Conventional	
54	Khadda	Gandak/Ganga	Deoria/Kushinagar/ Uttar Pradesh	27.19	83.95	51.1 Triveni (07)	MGD4/HOCP/ LGBO	Bihar	95.00	96.00	97.50	2002	Wireless	Conventional	
55	Chatia	Gandak/Ganga	Ariraj West Champaran/ Motihari/ Bihar	26.50	84.54	52.1 Triveni (24)	MGD4/HOCP/ LGBO	Bihar	68.15	69.15	70.04	2002	Wireless	Conventional	
56	Rewaghat	Gandak/Ganga	Muzzafarpur/Muzzafarpur/ Bihar	25.99	85.05	53.1 Chatia (20)	MGD5/HOCP/ LGBO	Bihar	53.41	54.41	55.41	1986	Wireless	Conventional	

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											(m)	Year			
57	Hazipur	Gandak/Ganga	Hazipur/Vaishali/ Bihar	25.69	85.20	54.1 Rewaghat (16)	MGD5/HOCP/ LGBO	Bihar	49.32	50.32	50.93	1948	Wireless	Conventional	
58	Lalbeghiaghat	Burhi Gandak/ Ganga	Dhaka/Motihari/Bihar	26.65	85.03	55.1 Chainpatia (24)	MGD4/HOCP/ LGBO	Bihar	62.20	63.20	67.09	1975	Wireless	Conventional	
59	Muzzafarpur (Sikandarpur)	Burhi Gandak/ Ganga	Sikandarpur/Muzzafarpur/Bihar	26.14	85.39	56.1 Ahirwala(S) (22)	MGD4/HOCP/ LGBO	Bihar	51.53	52.53	54.29	1987	Wireless	Conventional	
60	Samastipur	Burhi Gandak/ Ganga	Samastipur/Samastipur/Bihar	25.86	85.79	57.1 Sikandarpur (20)	MGD4/HOCP/ LGBO	Bihar	45.02	46.02	49.38	1987	Wireless	Conventional	
61	Rosera	Burhi Gandak/ Ganga	Rosera/Samastipur/ Bihar	25.74	86.02	58.1 Sikandarpur (28)	MGD4/HOCP/ LGBO	Bihar	41.63	42.63	46.35	1987	Wireless	Conventional	
62	Khagaria	Burhi Gandak/ Ganga	Khagaria/Khagaria/ Bihar	25.50	86.48	59.1 Sikandarpur (24) 59.2 Gandhighat (24)	MGD4/HOCP/ LGBO	Bihar	35.58	36.58	39.22	1976	Wireless	Conventional	
63	Benibad	Bagmati/Ganga	Benibad/Muzzafarpur/ Bihar	26.20	85.67	60.1 Runisaidpur (24)	MGD4/HOCP/ LGBO	Bihar	47.68	48.68	50.01	2004	Wireless/ Telemetry	Conventional	
64	Hayaghat	Bagmati/Ganga	Hayaghat Papermill/Darbhanga/ Bihar	26.08	85.89	61.1 Benibad (24) 61.2 Ekmighat (24)	MGD4/HOCP/ LGBO	Bihar	44.72	45.72	48.96	1987	Wireless/ Telemetry	Conventional	
65	Kamtaul	Adhwara Group/Ganga	Kamtaul Market/Darbhanga/ Bihar	26.33	85.85	62.1 Sonebarsa (24)	MGD4/HOCP/ LGBO	Bihar	49.00	50.00	52.99	1987	Wireless/ Telemetry	Conventional	
66	Ekmighat	Adhwara Group/Ganga	Laheria Seria/Darbhanga/ Bihar	26.12	85.88	63.1 Saulighat (24)	MGD4/HOCP/ LGBO	Bihar	45.94	46.94	49.52	2004	Wireless/ Telemetry	Conventional	
67	Jhanjharpur	Kamlabalan/ Ganga	Jhanjharpur/Madhubani/ Bihar	26.27	86.27	64.1 Jainagar (8)	MGD4/HOCP/ LGBO	Bihar	49.00	50.00	53.01	2004	Wireless	Conventional	
68	Bhagalpur	Ganga/Ganga	Bhagalpur/Bhagalpur/Bihar	25.27	87.02	65.1 Gandhighat (32)	MGD5/HOCP/ LGBO	Bihar	32.68	33.68	34.20	2003	Wireless/ Telemetry	Conventional	
69	Colgong/Kahalgaon	Ganga/Ganga	Colgong/Bhagalpur/ Bihar	25.27	87.23	66.1 Gandhighat (38)	MGD5/HOCP/ LGBO	Bihar	30.09	31.09	32.87	2003	Wireless/ Telemetry	Conventional	
70	Basua	Kosi/Ganga	Supaul/Supaul/Bihar	26.13	86.58	67.1 Birpur (16)	MGD4/HOCP/ LGBO	Bihar	46.75	47.75	49.17	2010	Wireless	Conventional	

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											(m)	Year			
71	Balthara	Kosi/Ganga	Choutham/Khagaria/ Bihar	25.54	86.72	68.1 Basua (24) 68.2 Hayaghat (24)	MGD4/HOCP/ LGBO	Bihar	32.85	33.85	36.40	1987	Wireless	Conventional	
72	Kursela	Kosi/Ganga	Kusela/Katihar/Bihar	25.42	87.23	69.1 Basua (24) 69.2 Hathidah (24)	MGD4/HOCP/ LGBO	Bihar	29.00	30.00	32.04	1998	Wireless	Conventional	
73	Sahibganj	Ganga/Ganga	Sahibganj/Sahibganj/Jharkhand	25.25	87.64	70.1 Bhagalpur (22)	MGD5/HOCP/ LGBO	Jharkhand	26.25	27.25	30.91	1998	Wireless	Conventional	
74	Dengraghat	Mahananda/ Ganga	Bayasi/Purnes/Bihar	25.85	87.81	71.1 Taibpur (24) 71.2 Chargharia (24)	MGD4/HOCP/ LGBO	Bihar	34.65	35.65	38.09	1968	Wireless	Conventional	
75	Jhawa	Mahananda/ Ganga	Jhawa/Katihar/Bihar	25.43	87.76	72.1 Dhengraghat (16) 72.2 Araria (16)	MGD4/HOCP/ LGBO	Bihar	30.40	31.40	33.51	1987	Wireless	Conventional	
76	Farakka Barrage	Ganga/Ganga	Farakka/Murshidabad/ West Bengal	24.80	87.92	73.1 Bhagalpur (36)	MGD4/HOCP/ LGBO	Gangetic West Bengal	21.25	22.25	25.14	1998	Wireless	Conventional	
77	Passighat	Siang/ Brahmaputra	Passighat/ East Siang/ Arunachal Pradesh	28.06	95.33	74. 1 Tuting (9)	UBD/HOCG/ BBBO	Assam and Meghalaya	152.96	153.96	157.54	11-06-2000	Wireless	Conventional	
78	Dibrugarh	Brahmaputra/ Brahmaputra	Dibrugarh/Dibrugarh/Assam	27.49	94.91	74.1 Passighat (12) 74.2 Tezu (12)	UBD/HOCG/ BBBO	Assam and Meghalaya	104.70	105.70	106.48	1998	Wireless/ Telemetry	Conventional	
79	Naharkatia	Buridehing/ Brahmaputra	Naharkatia/ Dibrugarh/ Assam	27.29	95.33	75.1 Margherita (10)	UBD/HOCG/ BBBO	Assam and Meghalaya	119.40	120.40	122.69	1973	Wireless	Conventional	
80	Chenimari (Khowang)	Buridehing/ Brahmaputra	Khowang/ Dibrugarh/ Assam	27.31	94.88	76.1 Naharkatia (21)	UBD/HOCG/ BBBO	Assam and Meghalaya	101.11	102.11	103.92	1988	Wireless	Conventional	
81	Nanglamoraghat	Desang/ Brahmaputra	Sibsagar/Sibsagar/ Assam	26.99	94.78	77.1 Dillighat (18)	UBD/HOCG/ BBBO	Assam and Meghalaya	93.46	94.46	96.49	1998	Wireless	Conventional	
82	Sibsagar	Dikhow/ Brahmaputra	Sibsagar/Sibsagar/ Assam	26.98	94.58	78.1 Bihubar (09)	UBD/HOCG/ BBBO	Assam and Meghalaya	91.40	92.40	95.62	1974	Wireless	Conventional	
83	Badatighat	Subansiri/ Brahmaputra	Bihuparia/ Lakhimpur/ Assam	26.95	93.96	79.1 Chouldhowaghat (18)	UBD/HOCG/ BBBO	Assam and Meghalaya	81.53	82.53	86.84	1972	Wireless	Conventional	
84	Neamatighat	Brahmaputra/ Brahmaputra	Neamatighat/ Jorhat/ Assam	26.86	94.25	80.1 Dibrugarh (24) 80.2 Chenimari (24)	UBD/HOCG/ BBBO	Assam and Meghalaya	84.04	85.04	87.37	1991	Wireless/ Telemetry	Conventional	

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85	Tezpur	Brahmaputra/ Brahmaputra	Tezpur/ Sonitpur/ Assam	26.62	92.80	81.1 Neamatighat (24)	UBD/HOCG/ BBBO	Assam and Meghalaya	64.23	65.23	66.59	1988	Wireless/ Telemetry	Conventional	
86	Golaghat	Dhansisri (S)/ Brahmaputra	Golaghat/ Golaghat Assam	26.50	93.95	82.1 Bokajan (14) 82.2 Gelabil (14)	UBD/HOCG/ BBBO	Assam and Meghalaya	88.50	89.50	91.30	1986	Wireless	Conventional	
87	Numaligarh	Dhansisri (S)/ Brahmaputra	Numaligarh/ Golaghat/ Assam	26.63	93.73	83.1 Golaghat (10)	UBD/HOCG/ BBBO	Assam and Meghalaya	76.42	77.42	79.87	1985	Wireless	Conventional	
88	N T Road Crossing	Jia- Bharali/ Brahmaputra	Balipara/Sonitpur/ Assam	26.81	92.88	84.1 Seppa (9)	UBD/HOCG/ BBBO	Assam and Meghalaya	76.00	77.00	78.50	2007	Wireless	Conventional	
89	Kampur	Kopili/ Brahmaputra	Kampur/ Nagaon/ Assam	26.15	92.65	85.1 Kheronighat (24)	UBD/HOCG/ BBBO	Assam and Meghalaya	59.50	60.50	61.86	1973	Wireless	Conventional	
90	Dharamtul	Kopili/ Brahmaputra	Dharamtul/Morigaon/Assam	26.17	92.36	86.1 Kampur (15)	UBD/HOCG/ BBBO	Assam and Meghalaya	55.00	56.00	58.09	2004	Wireless	Conventional	
91	Guwahati D C Court	Brahmaputra/ Brahmaputra	Guwahati/Kamrup/ Assam	26.19	91.74	87.1 Tezpur (24)	MBD/HOCG/ BBBO	Assam and Meghalaya	48.68	49.68	51.46	2004	Wireless/ Telemetry	Conventional	
92	N H Crossing	Puthimari/ Brahmaputra	Rangia/ kamrup/ Assam	26.44	91.56	88.1 DRF (13)	MBD/HOCG/ BBBO	Assam and Meghalaya	50.81	51.81	55.08	2008	Wireless/ Telemetry	Conventional	
93	N T Road Crossing	Pagladiya/ Brahmaputra	Nalbari/Nalbari/ Assam	26.45	91.46	89.1 Melabazar (12)	MBD/HOCG/ BBBO	Assam and Meghalaya	51.75	52.75	55.45	2004	Wireless/ Telemetry	Conventional	
94	Road Bridge	Beki/ Brahmaputra	Sorbhog/ Barpeta/ Assam	26.49	90.91	90.1 Kurijampa (12) (Bhutan)	LBD/HOCG/ BBBO	Assam and Meghalaya	44.10	45.10	46.20	2000	Wireless	Conventional	
95	N H Crossing	Manas/ Brahmaputra	Bijni/ Bongaigaon/ Assam	26.46	90.75	91.1 Panbari (6)	LBD/HOCG/ BBBO	Assam and Meghalaya	47.81	48.42	50.08	1984	Wireless	Conventional	
96	Goalpara	Brahmaputra/ Brahmaputra	Goalpara/ Goalpara/ Assam	26.20	90.58	92.1 Guwahati (24)	MBD/HOCG/ BBBO	Assam and Meghalaya	35.27	36.27	37.43	1954	Wireless/ Telemetry	Conventional	
97	Golokganj	Sankosh/ Brahmaputra	Golokganj/Dhubri/ Assam	26.11	89.82	93.1 Sankosh LRP (12) 93.2 Barabisa (12)	LBD/HOCG/ BBBO	Assam and Meghalaya	28.94	29.94	30.95	2007	Wireless/ Telemetry	Conventional	
98	N H 31	Jaldhaka/ Brahmaputra	Dhupguri/ Jalpaiguri/ West Bengal	26.57	88.94	94.1 Nagarakata (6) 94.2 Diana (6) 94.3 Murti (6)	LBD/HOCG/ BBBO	Sub Himalayan West Bengal & Sikkim	80.00	80.90	81.33	1972	Wireless	Conventional	

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99	Mathabhanga	Jaldhaka/ Brahmaputra	Mathabhanga/ Coochbehar/ West Bengal	26.32	89.23	95.1 N H 31 (6)	LBD/HOCG/ BBBO	Sub Himalayan West Bengal & Sikkim	47.70	48.20	49.85	2007	Wireless	Conventional	
100	Ghughumari	Torsa	Coochbehar/Coochbehar/ West Bengal	26.29	89.46	96.1 Hasimara (8)	LBD/HOCG/ BBBO	Sub Himalayan West Bengal & Sikkim	39.80	40.41	41.46	2000	Wireless	Conventional	
101	Tufangunj	Raidak -I	Tufangunj/ Coochbehar/ west Bengal	26.31	89.68	97.1 Chepan (12)	LBD/HOCG/ BBBO	Sub Himalayan West Bengal & Sikkim	34.22	35.30	36.36	1993	Wireless	Conventional	
102	Domohani Road Bridge	Tista	Jalpaiguri/ Jalpaiguri/ West Bengal	26.56	88.77	98.1 Tista Bazaar (8) 98.2 Ghista (4-6) 98.3 Chel (4-6) 98.4 Nebra (6)	LBD/HOCG/ BBBO	Sub Himalayan West Bengal & Sikkim	85.65	85.95	89.30	1968	Wireless	Conventional	
103	Mekhligunj	Tista	Mekhligunj/ Coochbehar/ West Bengal	26.33	88.85	99.1 Domohani Rd Brdige (6)	LBD/HOCG/ BBBO	Sub Himalayan West Bengal & Sikkim	65.45	65.95	66.45	1996	Wireless	Conventional	
104	Dhubri	Brahmaputra/ Brahmaputra	Dhubri/Dhubri/ Assam	26.01	89.99	100.1 Goalpara (15)	LBD/HOCG/ BBBO	Assam and Meghalaya	27.62	28.62	30.36	1988	Wireless/ Telemetry	Conventional	
105	Annapurnaghat (Silchar)	Barak/ Barak	Silchar/Silchar/ Assam	24.83	92.80	101.1 Chottabekra (18)	MBD/HOCG/ BBBO	Assam and Meghalaya	18.83	19.83	21.84	1989	Wireless	Conventional	
106	Badarpurghat	Barak/Barak	Silchar/Cachar/ Assam	24.86	92.52	102. 1 Annapurnaghat (9)	MBD/HOCG/ BBBO	Assam and Meghalaya	15.85	16.85	18.48	2007	Wireless	Conventional	
107	Matizuri	Katakhal/Barak	Hailakhandi/ Hailakhandi/ Assam	24.85	92.61	102.1 Gharmura (12)	MBD/HOCG/ BBBO	Assam and Meghalaya	19.27	20.27	22.73	2007	Wireless	Conventional	
108	Karimgunj	Kushiyara/Barak	Karimgunj/Karimgunj/Assa m	24.87	92.36	103.1 Annapurnaghat (12)	MBD/HOCG/ BBBO	Assam and Meghalaya	13.94	14.94	16.57	2010	Wireless	Conventional	
109	Kailashshar	Manu	Kailashshar/ North Tripura Tripura	24.32	91.99	104.1 Manughat (18-24)	MBD/HOCG/ BBBO	NMMT	24.34	25.34	25.79	1993	Wirless	Conventional	
110	Sonamura	Gumti	Sonamura/ West Tripura/ Tripura	23.47	91.27	105.1 Amarpur (15-21)	MBD/HOCG/ BBBO	NMMT	11.50	12.50	14.42	1993	Wireless	Conventional	
111	Narayanpur	Mayurakshi/ Ganga	Kandi/Murshidabad/ West Bengal	23.88	87.99	106.1 Tilpara Barrage (12-18)	DD/HOCM/ LGBO	Gangetic West Bengal	26.99	27.99	29.69	1995	Wireless	Conventional	
112	Gheropara	Ajoy/Ganga	Khairasol/ Bhirbum/ West Bengal	23.62	87.71	107.1 Jamtara (8-24) 107.2 Sikata Barrage (8-24)	DD/HOCM/ LGBO	Gangetic West Bengal	38.42	39.42	43.94	1978	Wireless	Conventional	

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113	Harinkhola	Mundeshwari/ West Benagl	Arambagh/Hooghly/ West Bengal	22.88	87.78	108.1 Durgapur Barrage (20-26)	DD/HOCM/ LGBO	Gangetic West Bengal	11.80	12.80	14.58	1978	Wireless/ Telemetry	Conventional	
114	Mohanpur	Kangsabati/ Ganga	Medhinipur/ Medhinipur/ West Bengal	22.40	87.34	109.1 Kangsabati Dam (24) 109.2 D P Ghat (24)	DD/HOCM/ LGBO	Gangetic West Bengal	24.73	25.73	29.87	1978	Wireless	Conventional	
115	Rajghat	Subarnarekha/ East Flowing Rivers	Jaleswar/Balasore/ Odisha	21.77	87.16	110.1 Jamsaloghat (18-20) 110.2 Fekoghat (6-9)	ERD/HOCB/ MERO	Odisha	9.45	10.36	12.69	2008	Wireless/ Telemetry	Conventional	
116	N H 5 Road Bridge	Burhabalang/ East Flowing Rivers	Govindpur/ Balasore/ Odisha	21.55	86.92	111.1 Baripada (18-20) 111.2 Jayapur (16-18)	ERD/HOCB/ MERO	Odisha	7.21	8.13	9.50	1973	Wireless	Conventional	
117	Anandpur	Baitrani/East Flowing Rivers	Anandpur/ Keonjargarh/ Odisha	21.22	86.11	112.1 Swampatna (6-7)	ERD/HOCB/ MERO	Odisha	37.44	38.36	41.35	2011	Wireless/ Telemetry	Conventional/ Mathematical	
118	Akhuapada	Baitrani/East Flowing Rivers	Akhuapada/ Bhadrak/ Odisha	20.92	86.28	113.1 Anandpur (18-20)	ERD/HOCB/ MERO	Odisha	17.83	17.83	21.56	1960	Wireless/ Telemetry	Conventional	
119	Jenapur Expressway	Brahmani/East Flowing Rivers	Jenapur/Jajpur/ odisha	20.88	86.01	114.1 Talcher (18-20)	ERD/HOCB/ MERO	Odisha	22.00	23.00	24.78	1975	Wireless/ Telemetry	Conventional	
120	Jamshedpur	Subarnarekha/ East Flowing Rivers	Chakulia/Purba singbhum/ Jharkhand	22.82	86.21	115. 1 Adtiyapur (6-8)	ERD/HOCB/ MERO	Jharkhand	122.50	123.50	129.82	1973	Wireless/ Telemetry	Conventional	
121	Naraj	Mahanadi/ Mahanadi	Cuttack/ Cuttack/Odisha	20.47	85.77	115.1 Tikarapara (18-20)	ERD/HOCB/ MERO	Odisha	25.41	26.41	27.61	1982	Wireless	Conventional/ Mathematical	
122	Alipingal	Devi/Mahanadi	Alipingal/Jagitsinghpur/ Odisha	20.07	86.17	116.1 Naraj (12)	ERD/HOCB/ MERO	Odisha	10.85	11.76	13.11	2011	Wireless/ Telemetry	Conventional	
123	Nimapara	Kushbhadra/ Mahanadi	Nimapara/Puri/ Odisha	20.06	86.01	117.1 Naraj (12)	ERD/HOCB/ MERO	Odisha	9.85	10.76	11.60	1982	Wireless/ Telemetry	Conventional	
124	Purushottampur	Rishikulya/ East Flowing Rivers	Purushottampur/ Ganjam/ Odisha	19.50	84.87	118.1 Sorada (18-20)	ERD/HOCB/ MERO	Odisha	15.83	16.83	19.65	1990	Wireless/ Telemetry	Conventional	
125	Gunupur	Vamshadara/East Flowing Rivers	Gunupur/Koraput/ Odisha	19.08	83.81	119.1 Kutragada (03-06)	ERD/HOCB/ MERO	Odisha	83.00	84.00	88.75	1980	Wireless/ Telemetry	Conventional	
126	Kashinagar	Vamshadara/East Flowing Rivers	Kashinagar/Ganjam/ Odisha	18.85	83.87	120.1 Kutragada (06-09)	ERD/HOCB/ MERO	Odisha	53.60	54.60	58.93	1980	Wireless/ Telemetry	Conventional/ Mathematical	

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127	Mandla	Narmada/ Narmada	Mandla/Mandla/ Madhya Pradesh	23.77	85.56	121.1 Dindori (11) 121.2 Mohgaon (04) 121.3 Mukki (12)	ND/SECB/ NBO	East Madhya Pradesh	437.20	437.80	439.41	1974	Wireless	Conventional	
128	Hoshangabad	Narmada/ Narmada	Hoshangabad/ Hoshangabad/ Madhya Pradesh	22.76	77.69	122.1 Barman(22) 122.2 Tawanagar (08)	ND/SECB/ NBO	West Madhya Pradesh	292.83	293.83	300.90	1973	Wireless	Conventional	
129	Garudeshwar	Narmada/ Narmada	Garudeshwar/ Bharuch/Gujarat	21.89	73.65	123.1 Sardar sarovar dam (12)	TD/HOCG/ NTBO	Gujarat	30.48	31.09	41.65	1970	Wireless/ Telemetry	Conventional	
130	Bharuch	Narmada/ Narmada	Bharuch/Bharuch/ Gujarat	21.70	73.00	124.1 Garudeshwar (12)	TD/HOCG/ NTBO	Gujarat	6.71	7.31	12.65	1970	Wireless/ Telemetry	Conventional	
131	Subash Bridge (Ahmedabad)	Sabarmati/ West Flowing Rivers	Ahmedabad/Ahmedabad/ Gujarat	23.06	72.59	125.1 Derol Bridge (04-06) 125.2 Hatmati Weir (04-06)	MD/HOCG/ NTBO	Gujarat	44.09	45.34	47.45	2006	Wireless/ Telemetry	Conventional	
132	Wanakbori Weir	Mahi/ West Flowing River	Wanakbori/Kheda	22.74	72.69	126.1 Kadana Dam (06) 126.2 Panam Dam (06)	MD/HOCG/ NTBO	Gujarat	71.00	72.54	76.10	2006	Wireless/ Telemetry	Conventional	
133	Surat	Tapi/ Tapi	Surat/Surat/Gujarat	21.20	72.82	127.1 Hatnur Dam (24)	TD/HOCG/ NTBO	Gujarat	8.50	9.50	12.50	2006	Wireless/ Telemetry	Conventional	
134	Vapi Town	Damanganga/ West Flowing Rivers	Vapi Town/ Valsad/Gujarat	20.37	72.88	128.1 Madhuban Dam (03-06)	TD/HOCG/ NTBO	Gujarat	18.20	19.20	23.76	1976	Wireless/ Telemetry	Conventional	
135	Daman	Damanganga/ West Flowing Rivers	Daman/Daman/Diu	20.41	72.84	129.1 Madhuban Dam (05-09)	TD/HOCG/ NTBO	Gujarat	2.60	3.40	4.00	2004	Wireless/ Telemetry	Conventional	
136	Kopergaon	Godavari/ Godavari	Kopergaon/Ahmednagar/Maharashtra	19.89	74.49	130.1 N M Weir (05-06)	LGD/GC/ KGBO	Marathwada	490.90	493.68	499.17	1969	Wireless/ Telemetry	Conventional	
137	Gangakhed	Godavari/ Godavari	Gangakhed/Parbhani/Maharashtra	18.98	76.75	131.1 Dhalegaon (15-18)	LGD/GC/ KGBO	Marathwada	374.00	375.00	377.57	1947	Wireless/ Telemetry	Conventional	
138	Nanded	Godavari/ Godavari	Nanded/Nanded/ Maharastra	19.15	77.31	132.1 Dhalegaon (24-27) 132.2 Purna (03-06)	LGD/GC/ KGBO	Marathwada	353.00	354.00	357.10	2006	Wireless/ Telemetry	Conventional	
139	Bhandara	Wainganga/ Godavari	Bhandara/Bhandara/Maharashtra	21.15	79.66	133.1 Balaghat (15-18) 133.2 Rajegaon (15-18) 133.3 Sitakesa (15-18)	LGD/GC/ KGBO	Vidharbha	244.00	244.50	250.90	2005	Wireless/ Telemetry	Conventional	
140	Pauni	Wainganga/ Godavari	Pauni/Bhandara/ Maharashtra	20.79	79.65	134.1 Bhandara (06-09) 134.2 K R Bridge (06)	LGD/GC/ KGBO	Vidharbha	226.73	227.73	232.35	1994	Wireless/ Telemetry	Conventional	

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141	Balharsha	Wardha/Godavari	Balharsha/Chandrapur/ Maharashtra	19.82	79.37	135.1 Hivra (24-30) 135.2 Nandgaon (24) 135.3 Ghugus (12) 135.4 P G Bridge (12-15)	LGD/GC/ KGBO	Vidharbha	171.50	174.00	176.00	1986	Wireless/ Telemetry	Conventional	
142	Kaleswaram	Godavari/ Godavari	Kaleswaram/Karimnagar/ Andhra Pradesh	18.82	79.91	136.1 Ashti (12) 136.2 Balharsha (12-15) 136.3 Mancherial (12)	LGD/GC/ KGBO	Telangana	103.50	104.75	107.05	1986	Wireless/ Telemetry	Conventional	
143	Jagdalpur	Indravathi/ Godavari	Jagdalpur/ Bastar/ Chhatisgarh	19.09	82.03	137.1 Nowrangpur (06-24) 137.2 Kosagumda (06-24)	LGD/GC/ KGBO	Chhatisgarh	539.50	540.80	544.68	1973	Wireless/ Telemetry	Conventional	
144	Eturunagaram	Godavari/ Godavari	Eturunagaram/ Warangal/ Andhra Pradesh	18.32	80.46	138.1 Kaleswaram (12) 138.2 Pathagudem (09) 138.3 Perur (03)	LGD/GC/ KGBO	Telangana	73.29	75.79	77.66	1990	Wireless/ Telemetry	Conventional	
145	Dummagudem	Godavari/ Godavari	Dummagudem/ Khammam/ Andhra Pradesh	17.85	80.88	139.1 Perur (12-15) 139.2 Taliperu dam (06)	LGD/GC/ KGBO	Telangana	53.00	55.00	60.25	1986	Wireless/ Telemetry	Conventional	
146	Bhadrachalam	Godavari/ Godavari	Bhadrachalam/ Khammam/ Andhra Pradesh	17.67	80.88	140.1 Perur (15-18) 140.2 Taliperu dam (09)	LGD/GC/ KGBO	Telangana	45.72	48.77	55.66	1986	Wireless/ Telemetry	Conventional	
147	Kunavaram	Godavari/ Godavari	Kunavaram/ Khammam/ Andhra Pradesh	17.57	81.25	141.1 Perur (24-27) 141.2 Taliperu (15-18) 141.3 Konta (06)	LGD/GC/ KGBO	Telangana	37.74	39.24	51.30	1986	Wireless	Conventional	
148	Rajahmundry GNV Railway Bridge	Godavari/ Godavari	Rajahmundry/ East Godavari/ Andhra Pradesh	17.01	81.77	142.1 Koida (12)	LGD/GC/ KGBO	Coastal Andhra Pradesh	17.68	19.51	20.48	1986	Wireless/ Telemetry	Conventional	
149	Dowlaiswaram Barrage	Godavari/ Godavari	Dowlaiswaram/ East Godavari/ Andhra Pradesh	16.94	81.78	143.1 Koida (15)	LGD/GC/ KGBO	Coastal Andhra Pradesh	14.25	16.08	18.36	1986	Wireless/ Telemetry	Conventional	
150	Arjunwad	Krishna/Krishna	Arjunwad/ Kolhapur/ Maharashtra	16.78	74.63	144.1 Karad (24) 144.2 Samdoli (21)	LKD/KCC/ KGBO	Madhya Maharashtra	542.07	543.29	543.69	2005			Not in Operation. State Government is
151	Deongaon Bridge	Bhima/ Krishna	Afzalpur/ Gulbarga/ Karnataka	17.17	76.33	145.1 Takli (18) 145.2 Wadakbal (18)	LKD/KCC/ KGBO	North Interior Karnataka	402.00	404.50	407.34	2006	Wireless/ Telemetry	Conventional	
152	Mantralayam	Tungabhadra	Mantralayam/ Kurnool/ Andhra Pradesh	15.94	77.42	146.1 Ollenur (18) 146.2 T Ramapuram (18)	LKD/KCC/ KGBO	Rayalaseema	310.00	312.00	318.77	2009	Wireless/ Telemetry	Conventional	
153	Nellore Anicut	North Pennar	Nellore/ Nellore/ Andhra Pradesh	14.47	79.99	147.1 Chennur (18) 147.2 Nandipally (18) 147.3 Somasila Project (09)	HD/SR	Coastal Andhra Pradesh	15.91	17.28	18.70	1882	Wireless	Conventional	

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											(m)	Year			
154	Narora Barrage	Ganga/Ganga	Narora/ Bulanshahar/ Uttar Pradesh	28.19	78.40	148.1 Haridwar (48)	MGD2/HOCD/ UGBO	West Uttar Pradesh	NA	NA	NA	NA	Wireless	Conventional	
155	Tajewala Barrage (Hathnikund Barrage)	Yamuna/Ganga	Yamunanagar/ Yamunanagar/ Haryana	30.31	77.58	149.1 Paonta (06)	UYD/HOCN/ YBO	Haryana Chandigarh& Delhi					Wireless		Inflow Forecast Not in Operation
156	Gandhisagar Dam	Chambal/Ganga	Gandhisagar Dam/Mandasur/ Madhya Pradesh	24.65	75.61	150.1 Tal (12-21) 150.2 Mahidpur (12-20)	CD/HOCN/ YBO	West Madhya Pradesh	399.90	399.90	399.90	2011	Telemetry	Mathematical	
157	Massanjore Dam	Mayurakshi/Ganga	Massanjore Dam/ Santhal Parganas/ Jharkhand	24.11	87.31	151.1 Maharo (24) 151.2 Kusiyari (24) 151.3 Haripur (24)	DD/HOCM/ LGBO	Jharkhand	121.31		122.87	1999	Wireless/ Telemetry	Conventional	
158	Tilpara Barrage	Mayurakshi/Ganga	Tilpara Dam/Suri/ Birbhum/ West Bengal	23.95	87.53	152.1 Massanjore Dam (24) 152.2 Tantoloi (24)	DD/HOCM/ LGBO	Gangetic West Bengal	62.79		67.05	1978	Wireless/ Telemetry	Conventional	
159	Tenughat Dam	Damodar/Ganga	Tenughat Dam	23.72	85.84	153.1 Hendgir (24) 153.2 Ramgarh (24)	DD/HOCM/ LGBO	Jharkhand	268.83		265.56	1985	Wireless/ Telemetry	Conventional	
160	Panchet Dam	Damodar/Ganga	Panchet Dam/ Dhanbad/ Jharkhand	23.68	86.75	154.1 Pupunki (24) 154.2 Tenughat Dam (24) 154.3 Konar Dam (24)	DD/HOCM/ LGBO	Jharkhand	132.59		132.89	1959	Wireless/ Telemetry	Conventional	
161	Durgapur Barrage	Damodar/Ganga	Durgapur/ Burdwan/ West Bengal	23.48	87.31	155.1 Panchet Dam (24) 155.2 Maithon Dam (24)	DD/HOCM/ LGBO	Gangetic West Bengal	64.47		64.47	2011	Wireless/ Telemetry	Conventional	
162	Maithon Dam	Barakar/ Damodar	Maithon Dam/ Dhanbad/ Jharkhand	23.78	86.81	156.1 Nandadih (24) 156.2 Tilaiya Dam (24) 156.3 Barkisaraia (24)	DD/HOCM/ LGBO	Jharkhand	150.88		151.79	1959	Wireless/ Telemetry	Conventional	
163	Kangsabati Dam	Kangsabati	Kangsabati Dam/Bankura West Bengal	22.96	86.75	157.1 Simulia (24) 157.2 Purihalsa (24) 157.3 Tusuma (24) 157.4 Kharidwar (24) 157.5 Phulbaria (24)	DD/HOCM/ LGBO	Gangetic West Bengal	134.11		134.71	1978	Wireless	Conventional	
164	Hirakud	Mahanadi/ Mahanadi	Burla/ Sambalpur/ Odisha	21.52	83.85	158.1 Basantpur (24) 158.2 Kurubata (24) 158.3 Sundergarh (24) 158.4 Kelo (6-18) 158.5 Paramapur (4-18)	MahanadiDiv/ HOCB/MERO	Odisha	192.02		192.30	1978	Wireless/ Telemetry	Conventional/ Mathematical	
165	Gotta Barrage	Vamsadhara/ East Flowing Rivers	Gotta Barrage/ Srikakulam/ Andhra Pradesh	18.69	83.96	159.1 Kutragada (12)	ERD/HOCB/ MERO	Coastal Andhra Pradesh	34.84		39.92	1999	Wireless/ Telemetry	Conventional	
166	Dantiwada Dam	Banas/ West Flowing Rivers	Dantiwada dam/Palanpur/ Banaskanta/ Gujarat	24.34	72.34	160.1 Sarotry (2-5) 160.2 Chitrasani (2-5)	MD/HOCG/ NTBO	Gujarat	182.88	185.06	186.04	1973	Wireless/ Telemetry	Conventional	
167	Dharoi Dam	Sabarmati/ West Flowing Rivers	Dharoi Dam/ Mehsana/ Gujarat	24.00	72.86	161.1 Kheroj (2-5) 161.2 Harnav Weir (2-5)	MD/HOCG/ NTBO	Gujarat	187.45	192.25	189.63	1990	Wireless/ Telemetry	Conventional	

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											(m)	Year			
168	Kadana Dam	Mahi/ West Flowing Rivers	Kadana Dam/ Panchmahal/ Gujarat	23.31	73.83	162.1 Paderdibadi (2-7) 162.2 Anas PH -II (2-7)	MD/HOCG/ NTBO	Gujarat	126.19	127.71	127.74	1989	Wireless/ Telemetry	Conventional	
169	Hathnur Dam	Tapi/ Tapi	Hathnur Dam/ Jalgaon/ Maharashtra	21.07	75.95	163.1 Burhanpur (12) 163.2 Yerli (12)	TD/HOCG/ NTBO	Marathwada	212.02	214.00	214.00	1989	Wireless/ Telemetry	Conventional	
170	Ukai Dam	Tapi/ Tapi	Ukai Dam/ Surat/ Gujarat	21.25	73.59	164.1 Gidadhe (6) 164.2 Sarangkheda (6)	TD/HOCG/ NTBO	Gujarat	102.41	105.16	105.51	1990	Wireless/ Telemetry	Conventional	
171	Madhuban Dam	Damanganga/ West Flowing River	Madhuban Dam/ Valsad/ Gujarat	20.19	73.06	165.1 Ozarkheda (6) 165.2 Nanipalsan (6)	TD/HOCG/ NTBO	Gujarat	79.86	82.40	80.60	1993	Wireless/ Telemetry	Conventional	
172	Jailwadi Dam	Godavari/Godavari	Paithan/ Aurangabad/ Maharashtra	19.48	75.37	166.1 N M Weir (12)	LGD/GC/ KGBO	Marathwada	463.91	465.58	464.69	1990	Wireless	Conventional	
173	Singur Dam	Manjira/ Godavari	Singur Dam/ Medak/ Andhra Pradesh	17.75	77.93	167.1 Saigaon (24)	LGD/GC/ KGBO	Telangana	523.60	523.60	523.60	1999	Wireless	Conventional	
174	Nizamsagar Dam	Manjira/ Godavari	Nizamsagar dam/ Nizamabad/ Andhra Pradesh	18.22	77.96	168.1 Singur Dam (24)	LGD/GC/ KGBO	Telangana	428.24	428.24	428.24	1999	Wireless	Conventional	
175	Sriramsagar	Godavari/Godavari	Pochampad/ Nizamabad/ Andhra Pradesh	18.97	78.34	169.1 Nanded (24) 169.2 Nizamsagar (24) 169.3 Degloor (24)	LGD/GC/ KGBO	Telangana	332.54	333.15	332.72	1990	Wireless	Conventional	
176	Almatti Dam	Krishna/ krishna	Almatti Dam/Bijapur/ Karnataka	16.33	75.88	170.1 Kurundwad (48) 170.2 Sadalga (48) 170.3 Gokak (27)	LKD/KCC/ KGBO	North Interior Karnataka	519.60	519.60	519.60	2002	Wireless	Conventional	
177	Narayanpur Dam	Krishna/ krishna	Narayanpur Dam/ Gulbarga/ Karnataka	16.20	76.36	171.1 Kurundwad (54) 171.2 Sadalga (54) 171.3 Gokak (35) 171.4 Almatti Dam (09)	LKD/KCC/ KGBO	North Interior Karnataka	492.25	492.25	492.22	2008	Wireless	Conventional	
178	Priyadharshini Jurala Project	Krishna/ krishna	Gadwal/ Mahbubnagar/ Andhra Pradesh	16.33	77.70	172.1 Huvinhedgi (18) 172.2 Yadgir (18) 172.3 Deosugur (06)	LKD/KCC/ KGBO	Telangana	318.52	318.52	318.50	2012	Wireless	Conventional	
179	Tungabhadra Dam	Tungabhadra/ Krishna	Hospet/ Bellary/ Karnataka	15.26	76.34	173.1 Harlahalli (12) 173.2 Marol (12)	LKD/KCC/ KGBO	South Interior Karnataka	497.74	497.74	497.74	1994	Wireless	Conventional	
180	Srisailam Dam	Krishna/ krishna	Srisailam/ Kurnool/ Andhra Pradesh	16.08	78.90	174.1 Mantralayam (18) 174.2 Krishna Agraharam (18)	LKD/KCC/ KGBO	Rayalaseema	269.75	269.75	273.25	2009	Wireless	Conventional	
181	Prakasam Barrage	Krishna/ krishna	Vijayawada/ Krishna/ Andhra Pradesh	16.50	80.60	175.1 Wadenapalli (16) 175.2 Madhira (12) 175.3 Polampally (12) 175.4 Paleru Bridge (12) 175.5 Keesara (12)	LKD/KCC/ KGBO	Coastal Andhra Pradesh	18.30		21.50	1903	Wireless	Conventional	

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											(m)	Year			
182	Somasila Dam	Pennar/Pennar	Ozili//Nellore/ Andhra Pradesh	14.48	79.3		HD/ C&SRC Bangalore/ C & SRO Coimbtore.	Coastal Andhra Pradesh	FRL-100.58					Rainfall Runoff Model	
183	Dr KLRS Pulichintala Dam	Krishna/Krishna	Bellamkonda/Guntur/Andhra Pradesh	16.75	80.05		LKD/KCC/ KGBO	Coastal Andhra Pradesh	FRL-53.34					Rainfall Runoff Model	
184	Thotapalli Resvr system	Nagavali/ East Flowing River Basin	Parvathipuram/Vizianagaram/ Andhra Pradesh	18.78	83.49		ERD/HOCB/ MERO		FRL-105.00					Rainfall Runoff Model	
185	Sunkesula Barrage	Krishna/Krishna	C.Belagal/Kurnool/ Andhra Pradesh	15.88	77.82		LKD/KCC/ KGBO	Rayalaseema	FRL-292.00					Rainfall Runoff Model	
186	Kaddam Dam	Godavari/Godavari	Kaddam/Adilabad/Telengana	19.1	78.79		UGD/GC/KGBO		FRL-213.21					Rainfall Runoff Model	
187	Sripada Yellampalli project.	Godavari/Godavari	Karimnagar/ Telengana	18.84	79.36		UGD/GC/KGBO		FRL-148					Rainfall Runoff Model	
188	Chandil Dam	Subarnarekha/ Subarnarekha	Musabani/Purba singbhum/ Jharkhand	22.97	86.05		ERD/HOCB/ MERO	Jharkhand	FRL-192					Rainfall Runoff Model	
189	Hemavathy Dam	Cauvery/Cauvery	Channaryapatra/Hassan/Karnataka	12.82	76.05		CD Banglore / C&SRC Bangalore/ C & SRO Coimbtore.	Coastal Andhra Pradesh	FRL-890.63					Rainfall Runoff Model	
190	Harangi Dam	Cauvery/Cauvery	Somwarpet/ Kodagu/ Karnataka	12.49	75.9		CD Banglore / C&SRC Bangalore/ C & SRO Coimbtore.	Coastal Andhra Pradesh	FRL-871.42					Rainfall Runoff Model	
191	Kabini Dam	Cauvery/Cauvery	Heggadevanakote/Mysore/ Karnataka	11.84	76.33		CD Banglore / C&SRC Bangalore/ C & SRO Coimbtore.	South Interior Karnataka	FRL-696.16					Rainfall Runoff Model	
192	Krishnaraj sagar	Cauvery/Cauvery	Srirangapatna/Mandya/Karnataka	12.45	76.57		CD Banglore / C&SRC Bangalore/ C & SRO Coimbtore.	South Interior Karnataka	FRL-752.49					Rainfall Runoff Model	
193	Bansagar Dam	Ganga/Ganga	Beohari/Shahdol/Madhya Pradesh	24.19	81.8		MGDIII/HOC Varanashi/UGBO	East Madhya Pradesh	FRL-341.65					Rainfall Runoff Model	
194	Gosikhurd Dam	Godavari/Godavari	Pauni/Bhandara/ Maharashtra	20.87	79.6		WD Nagpur/CC Nagpur/ MCO Nagpur	Vidharbha	FRL-245.50					Rainfall Runoff Model	
195	Rihand Dam	Rihand/ Ganga	Robertsganj/Sonbhadra/ Uttar Pradesh	24.21	83.02		MGDIII/HOC Varanashi/UGBO	East Uttar Pradesh	FRL-268.22					Rainfall Runoff Model	

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											(m)	Year			
196	Mettur Dam	Cauvery/Cauvery	Mettur/Salem/Tamilnadu	11.8	77.8		SRD/C & SRC / C & SRO	Tamilnadu & Puducherry	FRL-					Rainfall Runoff Model	
197	Grand Annicut	Cauvery/Cauvery	Thanjavur/ Tamilnadu	10.83	78.81		SRD/C & SRC / C & SRO	Tamilnadu & Puducherry	FRL-240.80					Rainfall Runoff Model	
198	Bhawanisagar Dam	Bhavani/Cauvery	Sathyamangalam/Erode/Tamilnadu	11.47	77.1		SRD/C & SRC / C & SRO	Tamilnadu & Puducherry	FRL-280.42					Rainfall Runoff Model	
199	Vaigai Dam	Vaigai/EFR South of Cauvery	Andipatti/ Theni/ Tamilnadu	10.5	77.33		SRD/C & SRC / C & SRO	Tamilnadu & Puducherry	FRL-279.2					Rainfall Runoff Model	
200	Poondi Satyamurthy Dam	Kosasthalaiyar/ EFRB Pennar-Cauvery	Thiruvallur/ Tamilnadu	13.18	79.86		HD / C & SRC / C & SRO	Tamilnadu & Puducherry	FRL-42.67					Rainfall Runoff Model	
201	Bisalpur Dam	Banas/Ganga	Deoli/Tonk/Rajasthan	25.92	75.45		CD Jaipur/HOC Noida/YBO ND	East Rajasthan	FRL-315.5					Rainfall Runoff Model	
202	Kurnool	Tungabhadra/ Krishna	Kurnool/Kurnool/ Andhra Pradesh	15.82	78.03		LKD/KCC/ KGBO		276	278	285.225	02.10.09		Rainfall Runoff Model	
203	Srikakulam	Nagavali/ East Flowing River Basin	Srikakulam/ Andhra Pradesh	18.31	83.88		ERD/HOCB/ MERO	Coastal Andhra Pradesh	10.17	10.8	14.53	12-05-1990		Rainfall Runoff Model	
204	Namsai	Nao Dehing/Brahmaputra	Namsai/Lohit/Arunachal Pradesh	27.66	95.83		UBD/HOC/B& BBO	Arunachal Pradesh	140.6	141.1	144.46	07-10-1979		Rainfall Runoff Model	
205	Choldhowaghat	Subansiri/ Brahmaputra	Dhakuakhana/Lakhimpur/Assam	27.44	94.25		UBD/HOC/B& BBO	Assam & Meghalaya	99.02	100.02	101.31	27-07-1972		Rainfall Runoff Model	
206	N.H.Xing Ranganadi	Ranganadi/Brahmaputra	Bihuparia/ Lakhimpur/ Assam	27.2	94.05		UBD/HOC/B& BBO	Assam & Meghalaya	93.81	94.81	95.92	02-07-1979		Rainfall Runoff Model	
207	Dhollabazar	Lohit/Brahmaputra	Tinsukia/Assam	27.75	95.6		UBD/HOC/B& BBO	Assam & Meghalaya	127.27	128.27	130.07	22-09-2012		Rainfall Runoff Model	
208	Kokrajhar	Gaurang/ Brahmaputra	Kokrajhar/ Assam	26.39	90.25		LBD/HOCG/B & BBO	Assam & Meghalaya	41.85	42.85	43.6	20-08-2015		Rainfall Runoff Model	
209	Dumariaghat	Gandak/Ganga	Gopalganj/Bihar	26.35	84.76		LGD-I/MC/LGBO Patna	Bihar	61.22	62.22	64.1	17-08-2017		Rainfall Runoff Model	

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											(m)	Year			
210	Ahirwalia	Burhi Gandak/ Ganga	Chakia/Purba Champaren/Bihar	26.36	85.14		LGD-I/MC/LGBO Patna	Bihar	58.62	59.62	61.17	02-06-2014		Rainfall Runoff Model	
211	Fatehgarh	Ganga/Ganga	Farrukhabad/UP	27.39	79.62		MGD-II/HOCDehradun/UGBO Patna	East Uttar Pradesh	136.6	137.6	138.14	26-09-2010		Rainfall Runoff Model	
212	Dabri	Ramganga/Ganga	Jalalabar/Shahjahanpur/UP	27.49	79.37		MGD-II/HOCDehradun/UGBO Patna	East Uttar Pradesh	136.3	137.3	139.69	28-09-1983		Rainfall Runoff Model	
213	Garhmuktheswar	Ganga/Ganga	Gaziabad/UP	28.77	78.14		MGD-II/HOCDehradun/UGBO Patna	East Uttar Pradesh	198.33	199.33	199.9	23-09-2010		Rainfall Runoff Model	
214	Kachlabridge	Ganga/Ganga	Budaun/UP	27.93	78.86		MGD-II/HOCDehradun/UGBO Patna	East Uttar Pradesh	161	162	162.79	24-09-2010		Rainfall Runoff Model	
215	Panam Dam	Panam/Mahi	Kalol/Panchmahal/Gujrat	23.05	73.71		MD Gandhinagar/ HOC/NTBO Gandhinagar		FRL-121.41					Rainfall Runoff Model	
216	Upper Tunga	Tungabhadra/ Krishna	Shimoga/Krishna	13.84	75.52		CD Bangluru/C&SRC/ C&SRO Coimbtore	South interior Karnataka, Shimoga	FRL-588.24					Rainfall Runoff Model	
217	Bhadra Dam	Tungabhadra/ Krishna	Tarikere/Chikmagalur/Karnataka	13.7	75.63		CD Bangluru/C&SRC/ C&SRO Coimbtore	Coastal Karnataka, Lakkavalli	FRL-657.75					Rainfall Runoff Model	
218	Rengali Dam	Brahmani/Brahmani-Baitarani	Angul/Odisha	21.28	85.03		ERD/HOC/MERO Bhubaneshwar		FRL-123.5					Rainfall Runoff Model	
219	Mahi Bajajsagar Dam	Mahi/Mahi	Banswara/Rajasthan	23.62	74.54		MD Gandhinagar/ HOC/NTBO Gandhinagar		FRL-281.5					Rainfall Runoff Model	
220	Som Kamla Amba Dam	Som/Mahi	Dungarpur/Rajasthan	23.97	74.03		MD Gandhinagar/ HOC/NTBO Gandhinagar		FRL-212.5					Rainfall Runoff Model	
221	Banbasa Barrage	Ghaghra/Ganga	Champawat/Uttarakhand	28..99	80.1		MGD-I/HOC Varanasi/UGBO Lucknow	West UP	222.3	223.3	223.3	18-06-2013		Rainfall Runoff Model	
222	Gomukhi	Vellar/EFRB Pennar Cauvery	Kallakurichi/Villupuram/Tamilnadu	11.8	78.81		HD Chennai/C&SRC Bangaluru/C & SRO Coimbtore							Rainfall Runoff Model	

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											(m)	Year			
223	Wellington Dam	Vellar/EFRB Pennar Cauvery	Thittakudi/Cuddalore/Tamil nadu	11.4	79.09		HD Chennai/C&SRC Bangaluru/C & SRO Coimbtore		FRL-72.54					Rainfall Runoff Model	
224	Chembarampakkam	Adyar/EFRB Pennar Cauvery	Chenglepet/Kancheepuram /Tamilnadu	13.01	80.08		HD Chennai/C&SRC Bangaluru/C & SRO Coimbtore	Tamilnadu & Puducherry						Rainfall Runoff Model	
225	Sathnur Dam	Ponnaiyar/ EFRB Pennar-Cauvery	Chengam/Thiruvannamalai /Tamilnadu	12.2	78.59		HD Chennai/C&SRC Bangaluru/C & SRO Coimbtore	Tamilnadu & Puducherry	FRL-222.2					Rainfall Runoff Model	
226	Upper Anicut	Cauvery/Cauvery	Thiruchirapalli/ Tamilnadu	10.88	78.57		SRD Coim/C&SRC Bang/C & SRO Coimb		FRL-					Rainfall Runoff Model	

Basinwise -Riverwise- Flood Forecasting Information in India during Flood Season 2017												
Sl.No.	Name of the river	Name of FF site	Name of State	Warning Level (m)	Danger level (m)	Highest Flood Level		Maximum Level -2017				
						Level (m)	Date/ Month/ Year	Level (m)	Date and Time DD/MM/YY)	No.of Forecasts issued	No.of Forecasts within limits	Percent-age of accuracy
1	2	3	4	5	6	7	8	9	10	11	12	13.00
	1. Indus Basin											
1	Jhelum	Rammunshibagh	Jammu & Kashmir	1585.53	1586.45	1589.65	08-09-2014	1585.31	01-Jul-17 17	1	0	0.00
2	Jhelum	Sangam	Jammu & Kashmir	1590.30	1591.20	1595.70	09-06-2014	1589.44	22-Jun-17 08	0	0	-
3	Jhelum	Safapora	Jammu & Kashmir	1580.00	1580.50	1580.69	25-06-2015	1579.75	08-Jun-17 12	0	0	-
	2 a. Ganga Basin											
4	Alaknanda	Srinagar	Uttarakhand	535.00	536.00	537.90	17-06-2013	534.75	13-Jul-17 02	0	0	-
5	Ganga	Rishikesh	Uttarakhand	339.50	340.50	341.72	05/09/1995	339.90	05-Aug-17 06	5	3	60.00
6	Ganga	Haridwar	Uttarakhand	293.00	294.00	296.30	19/09/2010	294.00	05-Aug-17 08	7	5	71.43
7	Ganga	Narora Barrage	Uttar Pradesh			180.61	23/09/2010	179.07	24-Aug-17 00	50	49	98.00
8	Ganga	Kannauj	Uttar Pradesh	124.97	125.97	126.78	27/09/2010	125.10	17-Aug-17 03	6	6	100.00
9	Ganga	Ankinghat	Uttar Pradesh	123.00	124.00	124.49	28/09/2010	123.25	17-Aug-17 01	10	10	100.00
10	Ganga	Kanpur	Uttar Pradesh	113.00	114.00	114.08	29/09/2010	112.21	18-Aug-17 02	7	7	100.00
11	Ganga	Dalmau	Uttar Pradesh	98.36	99.36	99.84	03/08/1973	97.85	18-Aug-17 18	0	0	-
12	Ganga	Phphamau	Uttar Pradesh	83.73	84.73	87.98	08/09/1978	79.31	19-Aug-17 00	0	0	-
13	Ganga	Allahabad Chhatnag	Uttar Pradesh	83.73	84.73	88.03	08/09/1978	76.22	17-Aug-17 07	0	0	-
14	Ganga	Mirzapur	Uttar Pradesh	76.72	77.72	80.34	09/09/1978	69.33	18-Aug-17 11	0	0	-
15	Ganga	Varanasi	Uttar Pradesh	70.26	71.26	73.90	09/09/1978	64.44	18-Aug-17 06	0	0	-
16	Ganga	Ghazipur	Uttar Pradesh	62.11	63.11	65.22	09/09/1978	57.90	19-Aug-17 17	0	0	-
17	Ganga	Buxar	Bihar	59.32	60.32	62.09	1948	55.82	19-Aug-17 23	0	0	-
18	Ganga	Ballia	Uttar Pradesh	56.62	57.62	60.25	14/09/2003	55.52	21-Aug-17 17	0	0	-
19	Ganga	Patna Dighaghat	Bihar	49.45	50.45	52.52	23/08/1975	49.47	21-Aug-17 23	1	1	100.00
20	Ganga	Patna Gandhighat	Bihar	47.60	48.60	50.27	14/08/1994	48.43	21-Aug-17 09	25	25	100.00
21	Ganga	Hathidah	Bihar	40.76	41.76	43.15	07/08/1971	41.41	22-Aug-17 06	19	19	100.00
22	Ganga	Munger	Bihar	38.33	39.33	40.99	19/09/1976	37.95	22-Aug-17 11	0	0	-
23	Ganga	Bhagalpur	Bihar	32.68	33.68	34.20	17/09/2003	33.10	23-Jul-17 04	10	10	100.00
24	Ganga	Kahalgaon	Bihar	30.09	31.09	32.87	17/09/2003	31.06	23-Aug-17 14	32	31	96.88
25	Ganga	Sahibgunj	Jharkhand	26.25	27.25	30.91	1998	27.94	22-Aug-17 20	42	42	100.00
26	Ganga	Farakka	West Bengal	21.25	22.25	25.14	07/09/1998	23.19	23-Aug-17 11	83	81	97.59
27	Ramganga	Moradabad	Uttar Pradesh	189.60	190.60	192.88	21/09/2010	190.54	05-Sep-17 09	13	13	100.00
28	Ramganga	Bareilly	Uttar Pradesh	162.70	163.70	162.88	06/8/1978	160.55	04-Sep-17 21	0	0	-
29	Banas	Bisalpur Dam	Rajasthan	FRL 315.5				472.61	21-May-17 18	0	0	-
30	Yamuna	Tajewala Weir	Haryana			338.90	17/06/1013	335.00	12-Jul-17 16	0	0	

Basinwise -Riverwise- Flood Forecasting Information in India during Flood Season 2017												
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						Level (m)	Date/ Month/ Year	Level (m)	Date and Time DD/MM/YY)	No.of Forecasts issued	No.of Forecasts within limits	Percent-age of accuracy
1	2	3	4	5	6	7	8	9	10	11	12	13.00
31	Yamuna	Mawi	Uttar Pradesh	230.00	230.85	232.45	26/09/1988	230.46	03-Sep-17 18	10	9	90.00
32	Yamuna	Delhi Rly Bridge	NCT Delhi	204.00	204.83	207.49	06/09/1978	204.81	04-Sep-17 14	10	10	100.00
33	Yamuna	Mathura	Uttar Pradesh	164.20	165.20	169.73	08/09/1978	165.06	06-Sep-17 19	7	7	100.00
34	Yamuna	Agra	Uttar Pradesh	151.40	152.40	154.76	09/09/1978	149.40	07-Sep-17 12	0	0	-
35	Yamuna	Etawa	Uttar Pradesh	120.92	121.92	126.13	11/09/1978	118.38	08-Aug-17 08	0	0	-
36	Yamuna	Auraiya	Uttar Pradesh	112.00	113.00	118.19	25/08/1996	104.58	02-Aug-17 09	0	0	-
37	Yamuna	Kalpi	Uttar Pradesh	107.00	108.00	112.98	25/08/1996	99.77	03-Aug-17 06	0	0	-
38	Yamuna	Hamirpur	Uttar Pradesh	102.63	103.63	108.59	12/09/1983	92.72	16-Aug-17 02	0	0	-
39	Yamuna	Chilaghat	Uttar Pradesh	99.00	100.00	105.16	06-09-1978	88.60	15-Aug-17 18	0	0	-
40	Yamuna	Naini	Uttar Pradesh	83.74	84.74	87.99	08-09-1978	76.80	17-Aug-17 20	0	0	-
41	Sahibi	Dhansa	NCT Delhi	211.44	212.44	213.58	06-08-1977	209.60	10-Aug-17 09	0	0	-
42	Chambal	Gandhisagar Dam	Madhya Pradesh	399.99				396.95	27-Sep-17 17	1	1	100.00
43	Betwa	Mohana	Uttar Pradesh	121.66	122.66	133.69	11/09/1983	113.46	23-Sep-17 11	0	0	-
44	Betwa	Sahjina	Uttar Pradesh	103.54	104.54	108.67	12/09/1983	90.85	24-Sep-17 22	0	0	-
45	Ken	Banda	Uttar Pradesh	103.00	104.00	113.29	07/07/2009	99.75	23-Sep-17 04	0	0	-
46	Gomati	Lucknow	Uttar Pradesh	108.50	109.50	110.85	10/09/1971	105.85	23-Oct-17 02	0	0	-
47	Gomati	Jaunpur	Uttar Pradesh	73.07	74.07	77.74	22/09/1971	69.15	02-Sep-17 05	0	0	-
48	SAI	Raibareli	Uttar Pradesh	100.00	101.00	104.81	17/09/1982	99.22	12-Jul-17 20	0	0	-
49	Sharda	Banbasa	Uttarakhand					220.60	05-Aug-17 01	4	3	75.00
50	Ghaghra	Elgin Bridge	Uttar Pradesh	105.07	106.07	107.56	10-10-2009	107.32	16-Aug-17 11	73	72	98.63
51	Ghaghra	Ayodhya	Uttar Pradesh	91.73	92.73	94.01	11-10-2009	93.72	17-Aug-17 19	65	64	98.46
52	Ghaghra	Turtipar	Uttar Pradesh	63.01	64.01	66.00	28/08/1998	65.03	21-Aug-17 05	69	69	100.00
53	Ghaghra	Darauli	Bihar	59.82	60.82	61.74	29/08/1998	61.21	21-Aug-17 10	45	44	97.78
54	Ghaghra	Gangpur Siswan	Bihar	56.04	57.04	58.01	18/09/1983	57.64	22-Aug-17 07	44	44	100.00
55	Ghaghra	Chhapra	Bihar	52.68	53.68	54.59	03/09/1982	50.75	21-Aug-17 11	0	0	-
56	Rapti	Balrampur	Uttar Pradesh	103.62	104.62	105.25	11/09/2000	105.54	15-Aug-17 15	35	34	97.14
57	Rapti	Bansi	Uttar Pradesh	83.90	84.90	85.82	21/08/1998	85.88	20-Aug-17 21	22	21	95.45
58	Rapti	Gorakpur_Birdghat	Uttar Pradesh	73.98	74.98	77.54	23/08/1998	77.23	21-Aug-17 14	25	25	100.00
59	Sone	Inderpuri	Bihar	107.20	108.20	108.85	23/08/1975	106.14	27-Jul-17 16	0	0	-
60	Sone	Koelwar	Bihar	54.52	55.52	58.88	20/07/1971	53.26	28-Jul-17 23	0	0	-

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						Level (m)	Date/ Month/ Year	Level (m)	Date and Time DD/MM/YY)	No.of Forecasts issued	No.of Forecasts within limits	Percent-age of accuracy
1	2	3	4	5	6	7	8	9	10	11	12	13.00
61	Sone	Maner	Bihar	51.00	52.00	53.79	10/09/1976	50.19	22-Aug-17 02	0	0	-
62	Sone	Bansagar Dam	Madhya Pradesh		FRL 341.65			338.97	25-Sep-17 08	26	3	11.54
63	PunPun	Sripalpur	Bihar	49.60	50.60	53.91	18/09/1976	52.50	09-Aug-17 05	24	23	95.83
64	Gandak	Khadda	Uttar Pradesh	95.00	96.00	97.50	23/07/2002	96.51	14-Aug-17 07	80	79	98.75
65	Ganga	Fathegarh	Uttar Pradesh	136.6	137.6	138.14	26-09-2010	137.52	12-Aug-17 07	46	46	100.00
66	Ganga	Dabri	Uttar Pradesh	136.3	137.3	139.695	28-09-1983	136.77	28-Sep-17 19	12	12	100.00
67	Ganga	Garhmuktheswar	Uttar Pradesh	198.33	199.33	199.9	23-09-2010	198.80	07-Aug-17 06	14	2	14.29
68	Ganga	Kachla Bridge	Uttar Pradesh	161	162	162.79	24-09-2010	162.61	09-Aug-17 02	81	80	98.77
69	Gandak	Chatia	Bihar	68.15	69.15	70.04	26/07/2002	68.80	15-Aug-17 09	6	6	100.00
70	Gandak	Rewaghat	Bihar	53.41	54.41	55.41	17/09/1986	54.60	18-Aug-17 02	13	13	100.00
71	Gandak	Hazipur	Bihar	49.32	50.32	50.93	1948	48.88	18-Aug-17 04	0	0	-
72	Rihand	Rihand Dam	Uttar Pradesh		FRL=268.22			264.02	03-Sep-17 08	25	8	32.00
73	Burhi Gandak	Lalbeghiaghat	Bihar	62.20	63.20	67.09	30/07/1975	64.96	19-Aug-17 09	16	16	100.00
74	Burhi Gandak	Muzaffarpur	Bihar	51.53	52.53	54.29	15/08/1987	53.74	23-Aug-17 23	19	19	100.00
75	Burhi Gandak	Samastipur	Bihar	45.02	46.02	49.38	15/08/1987	48.10	26-Aug-17 21	20	20	100.00
76	Burhi Gandak	Rosera	Bihar	41.63	42.63	46.35	16/08/1987	45.63	28-Aug-17 08	25	24	96.00
77	Burhi Gandak	Khagaria	Bihar	35.58	36.58	39.22	1976	37.03	26-Aug-17 15	30	30	100.00
78	Bagmati	Benibad	Bihar	47.68	48.68	50.01	12/07/2004	49.60	17-Aug-17 08	74	74	100.00
79	Bagmati	Hayaghat	Bihar	44.72	45.72	48.96	14/08/1987	46.13	25-Aug-17 01	35	35	100.00
80	Adhwara Group	Kamtaul	Bihar	49.00	50.00	52.99	12/08/1987	51.90	15-Aug-17 06	35	34	97.14
81	Adhwara Group	Ekmighat	Bihar	45.94	46.94	49.52	12/07/2004	48.33	19-Aug-17 02	40	40	100.00
82	Kamla Balan	Jhanjharpur	Bihar	49.00	50.00	53.01	10/07/2004	52.69	14-Aug-17 13	227	224	98.68
83	Kosi	Basua	Bihar	46.75	47.75	49.17	25/08/2010	49.24	13-Aug-17 10	141	139	98.58
84	Kosi	Baltara	Bihar	32.85	33.85	36.40	15/08/1987	36.10	17-Aug-17 05	99	99	100.00
85	Kosi	Kursela	Bihar	29.00	30.00	32.04	06/09/1998	30.54	23-Aug-17 05	38	38	100.00
86	Mahananda	Dhengraghat	Bihar	34.65	35.65	38.09	1968	38.20	14-Aug-17 09	47	46	97.87
87	Mahananda	Jhawa	Bihar	30.40	31.40	33.51	14/08/1987	34.07	14-Aug-17 10	46	44	95.65
88	Gandak	Dumariaghat	Bihar	61.22	62.22	63.6	18-08-2014	64.10	17-Aug-17 03	98	98	100.00
89	Burhigandak	Ahirwalia	Bihar	58.62	59.62	61.17		60.39	21-Aug-17 14	13	13	100.00
90	Mayurakshi	Massanjore Dam	Jharkhand	121.31		122.87	25/09/1999	120.78	01-Nov-17 08	11	8	72.73

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						Level (m)	Date/ Month/ Year	Level (m)	Date and Time DD/MM/YY)			
1	2	3	4	5	6	7	8	9	10	11	12	13.00
91	Mayurakshi	Tilpara Barrage	West Bengal	62.79		67.05	27/09/1978	62.93	31-Oct-17 18	6	5	83.33
92	Mayurakshi	Narayanpur	West Bengal	26.99	27.99	29.69	27/09/1995	26.60	12-Oct-17 09	0	0	-
93	Ajoy	Gheropara	West Bengal	38.42	39.42	43.94	27/09/1978	39.84	11-Oct-17 18	2	2	100.00
94	Damodar	Tenughat Dam	Jharkhand	268.83		265.56	17/09/1985	264.37	27-Jul-17 00	46	45	97.83
95	Damodar	Panchet Dam	Jharkhand	132.59		132.89	02/10/1959	131.35	26-Jul-17 12	66	66	100.00
96	Damodar	Durgapur Barrage	West Bengal	64.47		64.47	31/10/2002	64.48	14-Jul-17 21	47	43	91.49
97	Barakar	Maithon Dam	Jharkhand	150.88		151.79	02/10/1959	149.72	05-Nov-17 06	29	27	93.10
98	Mundeshwari	Harinkhola	West Bengal	11.80	12.80	14.58	29/09/1978	14.60	28-Jul-17 07	6	6	100.00
99	Kangsabati	Kangsabati Dam	West Bengal	134.11		134.71	02/09/1978	132.77	26-Oct-17 05	28	28	100.00
100	Kangsabati	Mohanpur	West Bengal	24.73	25.73	29.87	02/09/1978	24.42	23-Jul-17 23	0	0	-
	2 b Brahmaputra Basin											
101	siang	Passighat	Arunachal Pradesh	152.96	153.96	157.54	11-06-2000	155.04	09-Jul-17 06	72	71	98.61
102	Noa-Dehing	Namsai	Arunachal Pradesh	140.6	141.1	145.03	31-08-1974	140.45	10-Aug-17 21	0	0	-
103	Brahmaputra	Dibrugrah	Assam	104.70	105.70	106.48	03/09/1998	106.4	11-Aug-17 18	99	99	100.00
104	Brahmaputra	Neamatighat	Assam	84.04	85.04	87.37	11/07/1991	87.27	12-Aug-17 08	135	135	100.00
105	Brahmaputra	Tezpur	Assam	64.23	65.23	66.59	27/08/1988	66.31	13-Aug-17 17	69	69	100.00
106	Brahmaputra	Guwahati	Assam	48.68	49.68	51.46	21/07/2004	50.38	14-Aug-17 17	36	35	97.22
107	Brahmaputra	Goalpara	Assam	35.27	36.27	37.43	31/07/1954	37.02	15-Aug-17 04	40	39	97.50
108	Brahmaputra	Dhubri	Assam	27.62	28.62	30.36	28/08/1988	29.87	15-Aug-17 14	204	201	98.53
109	Burhidihing	Naharkatia	Assam	119.40	120.40	122.69	17/06/1973	118.89	11-Jul-17 04	0	0	-
110	Burhidihing	Khwong	Assam	101.11	102.11	104.16	02-09-2015	102.87	12-Jul-17 14	21	21	100.00
111	Desang	Nanglamoraghat	Assam	93.46	94.46	96.49	06/09/1998	94.82	06-Jul-17 08	43	42	97.67
112	Dikhow	Shivsagar	Assam	91.40	92.40	95.62	08/07/1974	93.85	11-Jul-17 04	62	62	100.00
113	Subansiri	Badatighat	Assam	81.53	82.53	86.84	28/06/1972	83.01	11-Jul-17 10	48	48	100.00
114	Dhansiri (S)	Golaghat	Assam	88.50	89.50	91.30	11/10/1986	89.96	22-Jul-17 10	97	97	100.00
115	Dhansiri (S)	Numaligarh	Assam	76.42	77.42	79.87	24/09/1985	79.33	03-Jul-17 09	307	306	99.67
116	Jiabharali	Jiabharali_NTX	Assam	76.00	77.00	78.50	26/07/2007	78.25	02-Jul-17 07	476	472	99.16
117	Kopilli	Kampur	Assam	59.50	60.50	61.86	16/06/1973	61.07	24-Oct-17 00	19	19	100.00
118	Kopilli	Dharmatul	Assam	55.00	56.00	58.09	21/07/2004	56.21	18-Aug-17 07	63	63	100.00
119	Puthimari	Puthimari _NHX	Assam	50.81	51.81	55.08	31/08/2008	53.50	12-Aug-17 04	190	183	96.32
120	Pagladiya	Pagladia_NTX	Assam	51.75	52.75	55.45	08/07/2004	52.77	12-Aug-17 12	24	22	91.67

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						Level (m)	Date/ Month/ Year	Level (m)	Date and Time DD/MM/YY)	No.of Forecasts issued	No.of Forecasts within limits	Percent-age of accuracy
1	2	3	4	5	6	7	8	9	10	11	12	13.00
121	Beki	Beki NHX	Assam	44.10	45.10	46.20	04/08/2000	45.97	11-Aug-17 06	230	230	100.00
122	Manas	Manas NHX	Assam	47.81	48.42	50.08	15/09/1984	49.43	12-Aug-17 07	17	17	100.00
123	Subansiri	Choldhowaghat	Assam	99.02	100.02	101.31	27-07-1972	97.95	09-Jul-17 14	0	0	-
124	Ranganadi	N H Crossing Ranganad	Assam	93.81	94.81	94.96	13-08-2009	95.4	09-Jul-17 19	44	41	93.18
125	Lohit	Dholla Bazaar	Assam	127.27	128.27	130.07	22-09-2012	128.33	11-Aug-17 05	9	9	100.00
126	Gaurang	Kokrajhar	Assam	41.85	42.85	43.6	20-08-2015	43.22	12-Aug-17 04	40	36	90.00
127	Sankosh	Golakganj	Assam	28.94	29.94	30.95	08/09/2007	30.82	13-Aug-17 03	47	42	89.36
128	Raidak-I	Tufanganj	West Bengal	34.22	35.30	36.36	21/07/1993	36.50	12-Aug-17 20	21	18	85.71
129	Torsa	Ghughumari	West Bengal	39.80	40.41	41.46	03/08/2000	41.36	12-Aug-17 10	18	14	77.78
130	Jaldhaka	NH-31	West Bengal	80.00	80.90	82.33	28-07-1972	80.40	12-Aug-17 14	5	5	100.00
131	Jaldhaka	Mathabhanga	West Bengal	47.70	48.20	49.85	07/09/2007	49.25	12-Aug-17 21	10	6	60.00
132	Tista	Domohani	West Bengal	85.65	85.95	89.30	14/10/1968	86.02	12-Aug-17 19	8	7	87.50
133	Tista	Mekhliganj	West Bengal	65.45	65.95	66.45	13/07/1996	65.95	13-Aug-17 06	35	31	88.57
	2 c Barak & Others											
134	Barak	APGhat	Assam	18.83	19.83	21.84	01/08/1989	20.30	28-Jun-17 11	98	98	100.00
135	Katakhal	Matizuri	Assam	19.27	20.27	22.73	10/09/2007	22.34	15-Jun-17 19	82	81	98.78
136	Kushiyara	Karimganj	Assam	13.94	14.94	16.57	10/06/2010	16.07	28-Jun-17 14	178	178	100.00
137	Barak	Badarpurghat	Assam	15.85	16.85	18.48	11-09-2007	17.56	28-Jun-17 10	146	144	98.63
138	Manu	Kailashar	Tripura	24.34	25.34	25.79	07/06/1993	25.12	05-Jun-17 06	2	2	100.00
139	Gumti	Sonamura	Tripura	11.50	12.50	14.42	23/07/1993	12.38	23-Oct-17 06	6	6	100.00
	3. Godavari Basin											
140	Godavari	Kopergaon	Maharashtra	490.90	493.68	499.17	1969	491.40	24-Jul-17 12	5	5	100.00
141	Godavari	Jaikwadi Dam	Maharashtra	463.91		464.69	12/10/1990	463.91	25-Oct-17 14	5	4	80.00
142	Godavari	Gangakhed	Maharashtra	374.00	375.00	377.57	1947	368.26	11-Oct-17 18	0	0	0.00
143	Godavari	Nanded	Maharashtra	353.00	354.00	357.10	06/08/2006	345.40	10-Sep-17 01	0	0	0.00
144	Manjira	Singur Dam	Telangana	523.60		523.60	15/10/1999	524.54	27-Oct-17 16	0	0	-
145	Manjira	Nizamsagar Dam	Telangana	428.24		428.24	15/10/1999	424.00	03-Oct-17 10	0	0	-
146	Godavari	Sriram Sagar	Telangana	332.54		332.72	13/10/1990	329.49	24-Oct-17 06	0	0	-
147	Wainganga	Bhandara	Maharashtra	244.00	244.50	250.90	16/09/2005	242.30	30-Aug-17 10	0	0	-
148	Wainganga	Pauni	Maharashtra	226.73	227.73	232.35	07/09/1994	223.80	30-Aug-17 10	0	0	-
149	Wainganga	Goshikhurd Dam	Maharashtra	FRL=245.5				242.00	16-Oct-17 08	0	0	-
150	Wardha	Balharsha	Maharashtra	171.50	174.00	176.00	15/08/1986	162.74	20-Jul-17 06	0	0	-

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						Level (m)	Date/ Month/ Year	Level (m)	Date and Time DD/MM/YY)			
1	2	3	4	5	6	7	8	9	10	11	12	13.00
151	Godavari	Kaleswaram	Telangana	103.50	104.75	107.05	15/08/1986	98.94	20-Jul-17 11	0	0	-
152	Indravati	Jagdalpur	Chhatisgarh	539.50	540.80	544.68	09/07/1973	542.47	20-Jul-17 10	15	14	93.33
153	Godavari	Eturunagaram	Telangana	73.29	75.79	77.66	24/08/1990	72.04	20-Jul-17 01	0	0	-
154	Godavari	Dummagudam	Telangana	53.00	55.00	60.25	16/08/1986	50.50	20-Jul-17 06	0	0	-
155	Godavari	Bhadrachalam	Telangana	45.72	48.77	55.66	16/08/1986	43.80	20-Jul-17 17	0	0	-
156	Godavari	Kunavaram	Andhra Pradesh	37.74	39.24	51.30	16/08/1986	33.28	21-Jul-17 05	0	0	-
157	Godavari	Rajamundry	Andhra Pradesh	17.68	19.51	20.48	16/08/1986	15.24	21-Jul-17 11	0	0	-
158	Godavari	Sripada Yellampally Da	Telangana	FRL 148				147.87	01-Nov-17 08	0	0	-
159	Godavari	Dowalaiswaram	Andhra Pradesh	14.25	16.08	18.36	16/08/1986	14.96	06-Oct-17 23	0	0	-
160	Kaddamvagu	Kaddam Dam	Telangana	FRL 213.21				212.98	03-Sep-17 06	0	0	-
	4. Krishna Basin											
161	Krishna	Dr K L R S Pulichintala	Andhra Pradesh	FRL 53.34				46.10	22-Oct-17 07	0	0	-
162	Krishna	Arjunwad	Maharashtra	542.07	543.29	543.69	05-08-2005	533.61	21-Jul-17 19	0	0	-
163	Krishna	Alamati Dam	Karnataka	519.60		519.60	18-09-2002	519.60	09-Aug-17 12	26	24	92.31
164	Krishna	Narayanpur Dam	Karnataka	492.25		492.22	26-09-2008	492.25	22-Oct-17 13	29	26	89.66
165	Krishna	Priyadarshini	Telangana	318.52		318.50	09-10-2012	318.51	10-Oct-17 16	72	23	31.94
166	Krishna	Srisailam Dam	Andhra Pradesh	269.75		273.25	03-10-2009	269.69	12-Oct-17 06	72	68	94.44
167	Krishna	Prakasham Barrage	Andhra Pradesh	18.30		21.50	07-10-1903	17.39	19-Jul-17 14	0	0	-
168	Bhima	Deongaon	Karnataka	402.00	404.50	407.34	13-08-2006	402.30	17-Sep-17 12	2	1	50.00
169	Tungabhadra	Tungabhadra Dam	Karnataka	497.74		497.74	08-10-1994	496.89	19-Oct-17 13	59	58	98.31
170	Tungabhadra	Sunkesula Barrage	Andhra Pradesh	FRL 292				292.00	22-Oct-17 09	40	32	80.00
171	Tungabhadra	Kurnool	Andhra Pradesh	276	278	285.22	02-10-2009	274.52	16-Sep-17 06	0	0	-
172	Tunga	Upper Tunga	Karnataka	FRL 588.24				588.24	25-Jul-17 08	33	18	18
173	Bhadra	Bhadra Dam	Karnataka	FRL 657.75				653.53	10-Nov-17 08	18	3	3
174	Tungabhadra	Mantralayam	Andhra Pradesh	310.00	312.00	318.77	02-10-2009	310.51	16-Sep-17 03	3	1	33.33
	5. Cauvery Basin											
175	Cauvery	Krishnarajasagar	Karnataka	FRL 752.49				749.30	23-Oct-17 08	63	37	58.73
176	Cauvery	Mettur Dam	Tamilnadu	FRL=240.79				234.09	16-Oct-17 06	63	54	85.71
177	Bhavani	Bhavanisagar Dam	Tamilnadu	FRL=280.42				273.49	05-Oct-17 06	20	12	60.00
178	Cauvery	Grand Anicut	Tamilnadu					64.31	24-Nov-17 08	43	38	88.37
179	Cauvery	Upper Anicut	Tamilnadu					82.04	20-Oct-17 08	49	40	81.63
180	Harangi	Harangi Dam	Karnataka	FRL 871.42				871.30	08-Aug-17 08	21	8	38.10

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						Level (m)	Date/ Month/ Year	Level (m)	Date and Time DD/MM/YY)	No.of Forecasts issued	No.of Forecasts within limits	Percent-age of accuracy
1	2	3	4	5	6	7	8	9	10	11	12	13.00
181	Hemavathy	Hemavathy Dam	Karnataka	FRL 890.63				890.63	11-Aug-17 08	34	13	38.24
182	Kabini	Kabini Dam	Karnataka	FRL 696.16				696.16	21-Sep-17 08	49	31	63.27
	6. Subarnarekha											
183	Subernarekna	Jamshedpur	Jharkhand	122.5	123.5	129.82	12-10-1973	123.65	27-Jul-17 03	10	6	60.00
184	Subernarekna	Chandil Dam	Jharkhand	FRL 192				182.70	27-Jul-17 08	5	5	100.00
185	Subernarekna	Rajghat	Odisha	9.45	10.36	12.69	19/06/2008	11.33	28-Jul-17 07	11	10	90.91
186	Burhabalang	NH_5 _Road Bridge	Odisha	7.21	8.13	9.50	12/10/1973	7.94	21-Oct-17 13	4	4	100.00
	7. Brahmani and Baitarani											
187	Baitarni	Anandpur	Odisha	37.44	38.36	41.35	23-09-2011	39.12	25-Jul-17 04	6	4	66.67
188	Baitarni	Akhuapada	Odisha		17.83	21.95	16/08/1960	18.62	25-Jul-17 13	23	23	100.00
189	Brahmani	Jenapur	Odisha	22.00	23.00	24.78	20/08/1975	22.64	29-Jul-17 18	5	5	-
190	Brahmani	Rengali Dam	Odisha	FRL 123.5				123.79	12-Oct-17 23	0	0	-
	8. Mahanadi Basin											
191	Mahanadi	Hirakud Dam	Odisha	192.02		192.30	30/01/1998	192.18	13-Oct-17 22	41	40	97.56
192	Mahanadi	Naraj	Odisha	25.41	26.41	27.61	31/08/1982	24.79	19-Jul-17 21	0	0	-
193	Mahanadi	Alipingal Devi	Odisha	10.85	11.76	13.11	11-09-2011	5.14	31-Jul-17 14	0	0	-
194	Mahanadi	Nimapara	Odisha	9.85	10.76	11.60	31/08/1982	4.46	20-Oct-17 23	0	0	-
	9. Pennar Basin											
195	North Pennar	Somasila Dam	Andhra Pradesh	FRL 100.58				96.45	07-Nov-17 08	14	9	64.29
196	Pennar	Nellore	Andhra Pradesh	15.91	17.28	18.70	30-11-1882	13.38	27-Nov-17 06	0	0	-
	10. Mahi Basin											
197	Mahi	Mahi Bajajsagar Dam	Rajasthan	FRL 281.5				281.5	12-Sep-17 07	0	0	-
198	Som Kamla	Som Kamla Amba Dan	Rajasthan	FRL 212.5				213.55	26-Oct-17 12	0	0	-
199	Mahi	Kadana Dam	Gujarat	126.19	127.71	127.74	09/09/1989	127.71	25-Sep-17 08	0	0	-
200	Mahi	Wanakbori	Gujarat	71.93	74.98	76.10	12/08/2006	70.18	27-Jul-17 14	0	0	-
201	Panam	Panam Dam	Gujarat	FRL 121.41						0	0	-
	11. Sabarmati Basin											
202	Sabarmati	Dharoi Dam	Gujarat	187.45	192.25	189.63	03/09/1990	189.58	05-Oct-17 00	24	22	91.67
203	Sabarmati	Ahmedabad	Gujarat	44.09	45.34	47.45	19/08/2006	44.80	25-Jul-17 18	1	0	0.00
	12. Narmada Basin											
204	Naramada	Mandla	Madhya Pradesh	437.20	437.80	439.41	18/08/1974	436.20	16-Jul-17 19	0	0	-
205	Naramada	Hoshangabad	Madhya Pradesh	292.83	293.83	300.90	30/08/1973	286.50	22-Jul-17 03	0	0	-
206	Naramada	Garudeswar	Gujarat	30.48	31.09	41.65	06/09/1970	15.78	25-Jun-17 00	0	0	-
207	Naramada	Bharuch	Gujarat	6.71	7.31	12.65	07/09/1970	5.50	27-Jun-17 22	0	0	-
	13. Tapi Basin											
208	Tapi	Hatnur Dam	Maharashtra	212.00	214.00	214.00	12/10/1989	214.04	27-Oct-17 08	23	9	39.13
209	Tapi	Ukai Dam	Gujarat	102.41	105.16	105.51	08/10/1990	98.83	15-Oct-17 17	0	0	-
210	Tapi	Surat	Gujarat	8.50	9.50	12.50	09/08/2006	4.40	23-Aug-17 15	0	0	-

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						Level (m)	Date/ Month/ Year	Level (m)	Date and Time DD/MM/YY)	No.of Forecasts issued	No.of Forecasts within limits	Percent-age of accuracy
1	2	3	4	5	6	7	8	9	10	11	12	13.00
	14. West Flowing rivers from Tapi to Tadri											
211	Damanganga	Madhuban Dam	Gujarat	79.86	82.40	80.60	27/09/1993	80.05	20-Oct-17 13	18	18	100.00
212	Damanganga	Vapi Town	Gujarat	18.20	19.20	23.76	03/08/2004	17.55	29-Aug-17 00	0	0	-
213	Damanganga	Daman	Dadra & Nagar Haveli	2.60	3.40	4.00	03/08/2004	2.30	26-Jun-17 16	0	0	-
	16. East flowing rivers between Mahanadi and Pennar											
214	Rushikuluya	Purushottampur	Odisha	15.83	16.83	19.65	04/11/1990	14.85	21-Oct-17 06	0	0	-
215	Vamsadhara	Gunupur	Odisha	83.00	84.00	88.75	17/09/1980	84.15	20-Oct-17 19	7	4	-
216	Vamsadhara	Kashinagar	Odisha	53.60	54.60	58.93	18/09/1980	56.70	20-Oct-17 22	36	33	91.67
217	Vamsadhara	Gotta Barrage	Andhra Pradesh	34.84	34.84	39.92	07/10/1999	38.10	28-Sep-17 00	7	7	-
218	Nagavali	Srikakulam	Andhra Pradesh	10.17	10.8	14.53	12-05-1990	11.4	17-Jul-17 11	3	2	66.67
219	Nagavali	Thottapalli Reservoir S	Andhra Pradesh	FRL 105.00				103.81	17-Jul-17 17	0	0	-
	17 East flowing rivers between Pennar and Kanyakumari											
220	Vaigai	Vaigai Dam	Tamilnadu	FRL=279.2				360.89	24-Aug-17 06	5	4	80.00
221	Kosasthaliyar	Poondi Satyamurthy re	Tamilnadu	FRL=42.67				40.10	06-Dec-17 06	3	3	100.00
222	South Pennar	Sathnur Dam	Tamilnadu	FRL=222.2				222.20	17-Dec-17 06	4	3	75.00
223	Gomukhinadi	Gomukhi Dam	Tamilnadu					182.58	11-Oct-17 06	0	0	-
224	Periyar Odai	Wellington Dam	Tamilnadu	FRL=72.54				68.33	05-Dec-17 06	0	0	-
225	Adyar	Chembarampakkam	Tamilnadu	FRL=26.03				23.87	04-Dec-17 06	0	0	-
	18. West flowing rivers of Kutch and Saurashtra including Luni											
226	Banas	Dantiwada Dam	Gujarat	182.88	185.06	186.04	01/09/1973	184.10	08-Oct-17 02	33	31	93.94
							Total Forecasts			***6297***	***5901***	93.71
							Level Forecasts			5085	4975	97.84
							Inflow Forecast			1212	926	76.40

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					Level (m)	Date/ Month/ Year	Level (m)	Date and Time DD/MM/YY)			
1	2	3	4	5	6	7	8	9	10	11	12
	Andhra Pradesh										
1	North Pennar	Somasila Dam	FRL 100.58				96.45	07-Nov-17 08	14	9	64.29
2	Krishna	DrKLRS Pulichintala Dam	FRL = 53.34				46.10	22-Oct-17 07	0	0	-
3	Tungabhadra	Sunkesula Barrage	FRL 292				292.00	22-Oct-17 09	40	32	80.00
4	Nagavali	Thottapalli Reservoir Sc	FRL 105.00				103.81	17-Jul-17 17	0	0	-
5	Vamsadhara	Gotta Barrage	34.84	34.84	39.92	07/10/1999	38.10	28-Sep-17 00	7	7	-
6	Godavari	Kunavaram	37.74	39.24	51.30	16/08/1986	33.28	21-Jul-17 05	0	0	-
7	Godavari	Rajamundry	17.68	19.51	20.48	16/08/1986	15.24	21-Jul-17 11	0	0	-
8	Godavari	Dowalaiswaram	14.25	16.08	18.36	16/08/1986	14.96	06-Oct-17 23	0	0	-
9	Krishna	Srisailam Dam	269.75		273.25	03/10/2009	269.69	12-Oct-17 06	72	68	94.44
10	Krishna	Prakasam Barrage	18.30		21.50	07/10/1903	17.39	19-Jul-17 14	0	0	-
11	Tungabhadra	Kurnool	276	278	285.22	02-10-2009	274.52	16-Sep-17 06	0	0	-
12	Tungabhadra	Mantralayam	310.00	312.00	318.77	02-10-2009	310.51	16-Sep-17 03	3	1	33.33
13	Pennar	Nellore	15.91	17.28	18.70	30-11-1882	13.38	27-Nov-17 06	0	0	-
14	Nagavali	Srikakulam	10.17	10.8	14.53	12-05-1990	11.4	17-Jul-17 11	3	2	66.67
	Assam										
15	Brahmaputra	Dibrugrah	104.70	105.70	106.48	03/09/1998	106.4	11-Aug-17 18	99	99	100.00
16	Brahmaputra	Neamatighat	84.04	85.04	87.37	11/07/1991	87.27	12-Aug-17 08	135	135	100.00
17	Brahmaputra	Tezpur	64.23	65.23	66.59	27/08/1988	66.31	13-Aug-17 17	69	69	100.00
18	Brahmaputra	Guwahati	48.68	49.68	51.46	21/07/2004	50.38	14-Aug-17 17	36	35	97.22
19	Brahmaputra	Goalpara	35.27	36.27	37.43	31/07/1954	37.02	15-Aug-17 04	40	39	97.50
20	Brahmaputra	Dhubri	27.62	28.62	30.36	28/08/1988	29.87	15-Aug-17 14	204	201	98.53
21	Burhidihing	Naharkatia	119.40	120.40	122.69	17/06/1973	118.89	11-Jul-17 04	0	0	-
22	Burhidihing	Khwong	101.11	102.11	104.16	02-09-2015	102.87	12-Jul-17 14	21	21	100.00
23	Desang	Nanglamoraghat	93.46	94.46	96.49	06/09/1998	94.82	06-Jul-17 08	43	42	97.67
24	Dikhow	Shivsagar	91.40	92.40	95.62	08/07/1974	93.85	11-Jul-17 04	62	62	100.00
25	Subansiri	Badatighat	81.53	82.53	86.84	28/06/1972	83.01	11-Jul-17 10	48	48	100.00
26	Dhansiri (S)	Golaghat	88.50	89.50	91.30	11/10/1986	89.96	22-Jul-17 10	97	97	100.00
27	Dhansiri (S)	Numaligarh	76.42	77.42	79.87	24/09/1985	79.33	03-Jul-17 09	307	306	99.67
28	Jiabharali	Jiabharali NTX	76.00	77.00	78.50	26/07/2007	78.25	02-Jul-17 07	476	472	99.16
29	Kopilli	Kampur	59.50	60.50	61.86	16/06/1973	61.07	24-Oct-17 00	19	19	100.00
30	Kopilli	Dharmatul	55.00	56.00	58.09	21/07/2004	56.21	18-Aug-17 07	63	63	100.00

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1	2	3	4	5	6	7	8	9	10	11	12
31	Puthimari	Puthimari NHX	50.81	51.81	55.08	31/08/2008	53.50	12-Aug-17 04	190	183	96.32
32	Pagladiya	Pagladia NTX	51.75	52.75	55.45	08/07/2004	52.77	12-Aug-17 12	24	22	91.67
33	Beki	Beki NHX	44.10	45.10	46.20	04/08/2000	45.97	11-Aug-17 06	230	230	100.00
34	Manas	Manas NHX	47.81	48.42	50.08	15/09/1984	49.43	12-Aug-17 07	17	17	100.00
35	Subansiri	Choldhowaghat	99.02	100.02	101.31	27-07-1972	97.95	09-Jul-17 14	0	0	-
36	Ranganadi	N H Crossing Ranganad	93.81	94.81	94.96	13-08-2009	95.4	09-Jul-17 19	44	41	93.18
37	Lohit	Dholla Bazaar	127.27	128.27	130.07	22-09-2012	128.33	11-Aug-17 05	9	9	100.00
38	Gaurang	Kokrajhar	41.85	42.85	43.6	20-08-2015	43.22	12-Aug-17 04	40	36	90.00
39	Sankosh	Golakganj	28.94	29.94	30.95	08/09/2007	30.82	13-Aug-17 03	47	42	89.36
40	Barak	APGhat	18.83	19.83	21.84	01/08/1989	20.30	28-Jun-17 11	98	98	100.00
41	Katakhal	Matizuri	19.27	20.27	22.73	10/09/2007	22.34	15-Jun-17 19	82	81	98.78
42	Kushiyara	Karimganj	13.94	14.94	16.57	10/06/2010	16.07	28-Jun-17 14	178	178	100.00
43	Barak	Badarpurghat	15.85	16.85	18.48	11-09-2007	17.56	28-Jun-17 10	146	144	98.63
	Arunachal Pradesh										
44	Siang	Passighat	152.96	153.96	157.54	11-06-2000	155.04	09-Jul-17 06	72	71	98.61
45	Noa-Dehing	Namsai	140.6	141.1	145.03	31-08-1974	140.45	10-Aug-17 21	0	0	-
	Bihar										
46	Ganga	Buxar	59.32	60.32	62.09	1948	55.82	19-Aug-17 23	0	0	-
47	Ganga	Patna Dighaghat	49.45	50.45	52.52	23/08/1975	49.47	21-Aug-17 23	1	1	100.00
48	Ganga	Patna Gandhighat	47.60	48.60	50.27	14/08/1994	48.43	21-Aug-17 09	25	25	100.00
49	Ganga	Hathidah	40.76	41.76	43.15	07/08/1971	41.41	22-Aug-17 06	19	19	100.00
50	Ganga	Munger	38.33	39.33	40.99	19/09/1976	37.95	22-Aug-17 11	0	0	-
51	Ganga	Bhagalpur	32.68	33.68	34.20	17/09/2003	33.10	23-Jul-17 04	10	10	100.00
52	Ganga	Kahalgaon	30.09	31.09	32.87	17/09/2003	31.06	23-Aug-17 14	32	31	96.88
53	Ghaghra	Darauli	59.82	60.82	61.74	29/08/1998	61.21	21-Aug-17 10	45	44	97.78
54	Ghaghra	Gangpur Siswan	56.04	57.04	58.01	18/09/1983	57.64	22-Aug-17 07	44	44	100.00
55	Ghaghra	Chhapra	52.68	53.68	54.59	03/09/1982	50.75	21-Aug-17 11	0	0	-
56	Sone	Inderpuri	107.20	108.20	108.85	23/08/1975	106.14	27-Jul-17 16	0	0	-
57	Sone	Koelwar	54.52	55.52	58.88	20/07/1971	53.26	28-Jul-17 23	0	0	-
58	Sone	Maner	51.00	52.00	53.79	10/09/1976	50.19	22-Aug-17 02	0	0	-
59	PunPun	Sripalpur	49.60	50.60	53.91	18/09/1976	52.50	09-Aug-17 05	24	23	95.83
60	Gandak	Chatia	68.15	69.15	70.04	26/07/2002	68.80	15-Aug-17 09	6	6	100.00

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					Level (m)	Date/ Month/ Year	Level (m)	Date and Time DD/MM/YY)			
1	2	3	4	5	6	7	8	9	10	11	12
61	Gandak	Rewaghat	53.41	54.41	55.41	17/09/1986	54.60	18-Aug-17 02	13	13	100.00
62	Gandak	Hazipur	49.32	50.32	50.93	1948	48.88	18-Aug-17 04	0	0	-
63	Burhi Gandak	Lalbeghiaghat	62.20	63.20	67.09	30/07/1975	64.96	19-Aug-17 09	16	16	100.00
64	Burhi Gandak	Muzaffarpur	51.53	52.53	54.29	15/08/1987	53.74	23-Aug-17 23	19	19	100.00
65	Burhi Gandak	Samastipur	45.02	46.02	49.38	15/08/1987	48.10	26-Aug-17 21	20	20	100.00
66	Burhi Gandak	Rosera	41.63	42.63	46.35	16/08/1987	45.63	28-Aug-17 08	25	24	96.00
67	Burhi Gandak	Khagaria	35.58	36.58	39.22	1976	37.03	26-Aug-17 15	30	30	100.00
68	Bagmati	Benibad	47.68	48.68	50.01	12/07/2004	49.60	17-Aug-17 08	74	74	100.00
69	Bagmati	Hayaghat	44.72	45.72	48.96	14/08/1987	46.13	25-Aug-17 01	35	35	100.00
70	Adhwara Group	Kamtaul	49.00	50.00	52.99	12/08/1987	51.90	15-Aug-17 06	35	34	97.14
71	Adhwara Group	Ekmighat	45.94	46.94	49.52	12/07/2004	48.33	19-Aug-17 02	40	40	100.00
72	Kamla Balan	Jhanjharpur	49.00	50.00	53.01	10/07/2004	52.69	14-Aug-17 13	227	224	98.68
73	Kosi	Basua	46.75	47.75	49.17	25/08/2010	49.24	13-Aug-17 10	141	139	98.58
74	Kosi	Baltara	32.85	33.85	36.40	15/08/1987	36.10	17-Aug-17 05	99	99	100.00
75	Kosi	Kursela	29.00	30.00	32.04	06/09/1998	30.54	23-Aug-17 05	38	38	100.00
76	Mahananda	Dhengraghat	34.65	35.65	38.09	1968	38.20	14-Aug-17 09	47	46	97.87
77	Mahananda	Jhawa	30.40	31.40	33.51	14/08/1987	34.07	14-Aug-17 10	46	44	95.65
78	Gandak	Dumariaghat	61.22	62.22	63.6	18-08-2014	64.10	17-Aug-17 03	98	98	100.00
79	Burhigandak	Ahirwalia	58.62	59.62	61.17		60.39	21-Aug-17 14	13	13	100.00
	Chhatisgarh										
80	Indravati	Jagdalpur	539.50	540.80	544.68	09/07/1973	542.47	20-Jul-17 10	15	14	93.33
	Dadra & Nagar Haveli										
81	Damanganga	Daman	2.60	3.40	4.00	03/08/2004	2.30	26-Jun-17 16	0	0	-
	Gujarat										
82	Mahi	Kadana Dam	126.19	127.71	127.74	09/09/1989	127.71	25-Sep-17 08	0	0	-
83	Mahi	Wanakbori	71.93	74.98	76.10	12/08/2006	70.18	27-Jul-17 14	0	0	-
84	Panam	Panam Dam	FRL 121.41						0	0	-
85	Sabarmati	Dharoi Dam	187.45	192.25	189.63	03/09/1990	189.58	05-Oct-17 00	24	22	91.67
86	Sabarmati	Ahmedabad Shubhash	44.09	45.34	47.45	19/08/2006	44.80	25-Jul-17 18	1	0	0.00
87	Naramada	Garudeswar	30.48	31.09	41.65	06/09/1970	15.78	25-Jun-17 00	0	0	-
88	Naramada	Bharuch	6.71	7.31	12.65	07/09/1970	5.50	27-Jun-17 22	0	0	-
89	Tapi	Ukai Dam	102.41	105.16	105.51	08/10/1990	98.83	15-Oct-17 17	0	0	-
90	Tapi	Surat	8.50	9.50	12.50	09/08/2006	4.40	23-Aug-17 15	0	0	-

Statewise Flood Forecasting Information In India during Flood Season 2017

Sl. No.	Name of the river	Name of FF site	Warning Level (m)	Danger level (m)	Highest Flood Level		Maximum Level -2017				
					Level (m)	Date/ Month/ Year	Level (m)	Date and Time DD/MM/YY)	No.of Forecasts issued	No.of Forecasts within limits	Percent-age of accuracy
1	2	3	4	5	6	7	8	9	10	11	12
91	Damanganga	Madhuban Dam	79.86	82.40	80.60	27/09/1993	80.05	20-Oct-17 13	18	18	100.00
92	Damanganga	Vapi Town	18.20	19.20	23.76	03/08/2004	17.55	29-Aug-17 00	0	0	-
93	Banas	Dantiwada Dam	182.88	185.06	186.04	01/09/1973	184.10	08-Oct-17 02	33	31	93.94
	Haryana										
94	Yamuna	Tajewala Weir			338.90	17/06/1013	335.00	12-Jul-17 16	0	0	-
	Jharkhand										
95	Ganga	Sahibgunj	26.25	27.25	30.91	1998	27.94	22-Aug-17 20	42	42	100.00
96	Mayurakshi	Massanjore Dam	121.31		122.87	25/09/1999	120.78	01-Nov-17 08	11	8	72.73
97	Damodar	Tenughat Dam	268.83		265.56	17/09/1985	264.37	27-Jul-17 00	46	45	97.83
98	Damodar	Panchet Dam	132.59		132.89	02/10/1959	131.35	26-Jul-17 12	66	66	100.00
99	Barakar	Maithon Dam	150.88		151.79	02/10/1959	149.72	05-Nov-17 06	29	27	93.10
100	Subernarekna	Jamshedpur	122.5	123.5	129.82	12-10-1973	123.65	27-Jul-17 03	10	6	60.00
101	Subernarekna	Chandil Dam	FRL 192				182.70	27-Jul-17 08	5	5	100.00
	Jammu and Kashmir										
102	Jhelum	Rammunshibagh	1585.53	1586.45	1589.65	08-09-2014	1585.31	01-Jul-17 17	1	0	-
103	Jhelum	Sangam	1590.30	1591.20	1595.70	09-06-2014	1589.44	22-Jun-17 08	0	0	-
104	Jhelum	Safapora	1580.00	1580.50	1580.69	25-06-2015	1579.75	08-Jun-17 12	0	0	-
	Karnataka										
105	Krishna	Alamati Dam	519.60		519.60	18-09-2002	519.60	09-Aug-17 12	26	24	92.31
106	Krishna	Narayanpur Dam	492.25		492.22	26-09-2008	492.25	22-Oct-17 13	29	26	89.66
107	Bhima	Deongaon	402.00	404.50	407.34	13-08-2006	402.30	17-Sep-17 12	2	1	50.00
108	Tungabhadra	Tungabhadra Dam	497.74		497.74	08-10-1994	496.89	19-Oct-17 13	59	58	98.31
109	Tunga	Upper Tunga	FRL 588.24				588.24	25-Jul-17 08	33	18	18
110	Bhadra	Bhadra Dam	FRL 657.75				653.53	10-Nov-17 08	18	3	3
111	Cauvery	Krishnarajasagar	FRL 752.49				749.30	23-Oct-17 08	63	37	58.73
112	Harangi	Harangi Dam	FRL 871.42				871.30	08-Aug-17 08	21	8	38.10
113	Hemavathy	Hemavathy Dam	FRL 890.63				890.63	11-Aug-17 08	34	13	38.24
114	Kabini	Kabini Dam	FRL 696.16				696.16	21-Sep-17 08	49	31	63.27
	Madhya Pradesh										
115	Chambal	Gandhisagar Dam	399.99				396.95	27-Sep-17 17	1	1	100.00
116	Sone	Bansagar Dam		FRL 341.65			338.97	25-Sep-17 08	26	3	11.54
117	Naramada	Mandla	437.20	437.80	439.41	18/08/1974	436.20	16-Jul-17 19	0	0	-
118	Naramada	Hoshangabad	292.83	293.83	300.90	30/08/1973	286.50	22-Jul-17 03	0	0	-
	Maharashtra										-
119	Godavari	Kopergaon	490.90	493.68	499.17	1969	491.40	24-Jul-17 12	5	5	100.00
120	Godavari	Jaikwadi Dam	463.91		464.69	12/10/1990	463.91	25-Oct-17 14	5	4	80.00

Statewise Flood Forecasting Information In India during Flood Season 2017

Sl. No.	Name of the river	Name of FF site	Warning Level (m)	Danger level (m)	Highest Flood Level		Maximum Level -2017				
					Level (m)	Date/ Month/ Year	Level (m)	Date and Time DD/MM/YY)	No.of Forecasts issued	No.of Forecasts within limits	Percent-age of accuracy
1	2	3	4	5	6	7	8	9	10	11	12
121	Godavari	Gangakhed	374.00	375.00	377.57	1947	368.26	11-Oct-17 18	0	0	0.00
122	Godavari	Nanded	353.00	354.00	357.10	06/08/2006	345.40	10-Sep-17 01	0	0	0.00
123	Wainganga	Bhandara	244.00	244.50	250.90	16/09/2005	242.30	30-Aug-17 10	0	0	-
124	Wainganga	Pauni	226.73	227.73	232.35	07/09/1994	223.80	30-Aug-17 10	0	0	-
125	Wainganga	Goshikhurd Dam	FRL=245.5				242.00	16-Oct-17 08	0	0	-
126	Wardha	Balharsha	171.50	174.00	176.00	15/08/1986	162.74	20-Jul-17 06	0	0	-
127	Krishna	Arjunwad	542.07	543.29	543.69	05-08-2005	533.61	21-Jul-17 19	0	0	-
128	Tapi	Hatnur Dam	212.00	214.00	214.00	12/10/1989	214.04	27-Oct-17 08	23	9	39.13
	NCT Delhi										-
129	Yamuna	Delhi Rly Bridge	204.00	204.83	207.49	06/09/1978	204.81	04-Sep-17 14	10	10	100.00
130	Sahibi	Dhansa	211.44	212.44	213.58	06-08-1977	209.60	10-Aug-17 09	0	0	-
	Odisha										
131	Subernarekna	Rajghat	9.45	10.36	12.69	19/06/2008	11.33	28-Jul-17 07	11	10	90.91
132	Burhabalang	NH 5 Road Bridge	7.21	8.13	9.50	12/10/1973	7.94	21-Oct-17 13	4	4	100.00
133	Baitarni	Anandpur	37.44	38.36	41.35	23-09-2011	39.12	25-Jul-17 04	6	4	66.67
134	Baitarni	Akhuapada		17.83	21.95	16/08/1960	18.62	25-Jul-17 13	23	23	100.00
135	Brahmani	Jenapur	22.00	23.00	24.78	20/08/1975	22.64	29-Jul-17 18	5	5	-
136	Brahmani	Rengali Dam	FRL 123.5				123.79	12-Oct-17 23	0	0	-
137	Mahanadi	Hirakud Dam	192.02		192.30	30/01/1998	192.18	13-Oct-17 22	41	40	97.56
138	Mahanadi	Naraj	25.41	26.41	27.61	31/08/1982	24.79	19-Jul-17 21	0	0	-
139	Mahanadi	Alipingal Devi	10.85	11.76	13.11	11-09-2011	5.14	31-Jul-17 14	0	0	-
140	Mahanadi	Nimapara	9.85	10.76	11.60	31/08/1982	4.46	20-Oct-17 23	0	0	-
141	Rushikuluya	Purushottampur	15.83	16.83	19.65	04/11/1990	14.85	21-Oct-17 06	0	0	-
142	Vamsadhara	Gunupur	83.00	84.00	88.75	17/09/1980	84.15	20-Oct-17 19	7	4	-
143	Vamsadhara	Kashinagar	53.60	54.60	58.93	18/09/1980	56.70	20-Oct-17 22	36	33	91.67
	Rajasthan										
144	Banas	Bisalpur Dam	FRL 315.5				472.61	21-May-17 18	0	0	-
145	Mahi	Mahi Bajajsagar Dam	FRL 281.5				281.5	12-Sep-17 07	0	0	-
146	Som Kamla	Som Kamla Amba Dam	FRL 212.5				213.55	26-Oct-17 12	0	0	-
	Tamilnadu										
147	Cauvery	Mettur Dam	FRL=240.79				234.09	16-Oct-17 06	63	54	85.71
148	Bhavani	Bhavanisagar Dam	FRL=280.42				273.49	05-Oct-17 06	20	12	60.00
149	Cauvery	Grand Anicut					64.31	24-Nov-17 08	43	38	88.37
150	Cauvery	Upper Anicut					82.04	20-Oct-17 08	49	40	81.63

Statewise Flood Forecasting Information In India during Flood Season 2017

Sl. No.	Name of the river	Name of FF site	Warning Level (m)	Danger level (m)	Highest Flood Level		Maximum Level -2017				
					Level (m)	Date/ Month/ Year	Level (m)	Date and Time DD/MM/YY)	No.of Forecasts issued	No.of Forecasts within limits	Percent-age of accuracy
1	2	3	4	5	6	7	8	9	10	11	12
151	Vaigai	Vaigai Dam	FRL=279.2				360.89	24-Aug-17 06	5	4	80.00
152	Kosasthaliyar	Poondi Satyamurthy res	FRL=42.67				40.10	06-Dec-17 06	3	3	100.00
153	South Pennar	Sathnur Dam	FRL=222.2				222.20	17-Dec-17 06	4	3	75.00
154	Gomukhinadi	Gomukhi					182.58	11-Oct-17 06	0	0	-
155	Periyar Odai	Wellington Dam	FRL=72.54				68.33	05-Dec-17 06	0	0	-
156	Adyar	Chembarampakkam	FRL=26.03				23.87	04-Dec-17 06	0	0	-
	Telagana										
157	Manjira	Singur Dam	523.60		523.60	15/10/1999	524.54	27-Oct-17 16	0	0	-
158	Manjira	Nizamsagar Dam	428.24		428.24	15/10/1999	424.00	03-Oct-17 10	0	0	-
159	Godavari	Sriram Sagar	332.54		332.72	13/10/1990	329.49	24-Oct-17 06	0	0	-
160	Godavari	Kaleswaram	103.50	104.75	107.05	15/08/1986	98.94	20-Jul-17 11	0	0	-
161	Godavari	Eturunagaram	73.29	75.79	77.66	24/08/1990	72.04	20-Jul-17 01	0	0	-
162	Godavari	Dummagudam	53.00	55.00	60.25	16/08/1986	50.50	20-Jul-17 06	0	0	-
163	Godavari	Bhadrachalam	45.72	48.77	55.66	16/08/1986	43.80	20-Jul-17 17	0	0	-
164	Godavari	Sripada Yellampally Da	FRL 148				147.87	01-Nov-17 08	0	0	-
165	Kaddamvagu	Kaddam Dam	FRL 213.21				212.98	03-Sep-17 06	0	0	-
166	Krishna	Priyadarshini	318.52		318.50	09-10-2012	318.51	10-Oct-17 16	72	23	31.94
	Tripura										
167	Manu	Kailashar	24.34	25.34	25.79	07/06/1993	25.12	05-Jun-17 06	2	2	100.00
168	Gumti	Sonamura	11.50	12.50	14.42	23/07/1993	12.38	23-Oct-17 06	6	6	100.00
	Uttar Pradesh										
169	Ganga	Narora Barrage			180.61	23/09/2010	179.07	24-Aug-17 00	50	49	98.00
170	Ganga	Kannauj	124.97	125.97	126.78	27/09/2010	125.10	17-Aug-17 03	6	6	100.00
171	Ganga	Ankinghat	123.00	124.00	124.49	28/09/2010	123.25	17-Aug-17 01	10	10	100.00
172	Ganga	Kanpur	113.00	114.00	114.08	29/09/2010	112.21	18-Aug-17 02	7	7	100.00
173	Ganga	Dalmau	98.36	99.36	99.84	03/08/1973	97.85	18-Aug-17 18	0	0	-
174	Ganga	Phphamau	83.73	84.73	87.98	08/09/1978	79.31	19-Aug-17 00	0	0	-
175	Ganga	Allahabad Chhatnag	83.73	84.73	88.03	08/09/1978	76.22	17-Aug-17 07	0	0	-
176	Ganga	Mirzapur	76.72	77.72	80.34	09/09/1978	69.33	18-Aug-17 11	0	0	-
177	Ganga	Varanasi	70.26	71.26	73.90	09/09/1978	64.44	18-Aug-17 06	0	0	-
178	Ganga	Ghazipur	62.11	63.11	65.22	09/09/1978	57.90	19-Aug-17 17	0	0	-
179	Ganga	Ballia	56.62	57.62	60.25	14/09/2003	55.52	21-Aug-17 17	0	0	-
180	Ramganga	Moradabad	189.60	190.60	192.88	21/09/2010	190.54	05-Sep-17 09	13	13	100.00

Statewise Flood Forecasting Information In India during Flood Season 2017

Sl. No.	Name of the river	Name of FF site	Warning Level (m)	Danger level (m)	Highest Flood Level		Maximum Level -2017				
					Level (m)	Date/ Month/ Year	Level (m)	Date and Time DD/MM/YY)	No.of Forecasts issued	No.of Forecasts within limits	Percent-age of accuracy
1	2	3	4	5	6	7	8	9	10	11	12
181	Ramganga	Bareilly	162.70	163.70	162.88	06/8/1978	160.55	04-Sep-17 21	0	0	-
182	Yamuna	Mawi	230.00	230.85	232.45	26/09/1988	230.46	03-Sep-17 18	10	9	90.00
183	Yamuna	Mathura	164.20	165.20	169.73	08/09/1978	165.06	06-Sep-17 19	7	7	100.00
184	Yamuna	Agra	151.40	152.40	154.76	09/09/1978	149.40	07-Sep-17 12	0	0	-
185	Yamuna	Etawa	120.92	121.92	126.13	11/09/1978	118.38	08-Aug-17 08	0	0	-
186	Yamuna	Auraiya	112.00	113.00	118.19	25/08/1996	104.58	02-Aug-17 09	0	0	-
187	Yamuna	Kalpi	107.00	108.00	112.98	25/08/1996	99.77	03-Aug-17 06	0	0	-
188	Yamuna	Hamirpur	102.63	103.63	108.59	12/09/1983	92.72	16-Aug-17 02	0	0	-
189	Yamuna	Chilaghat	99.00	100.00	105.16	06-09-1978	88.60	15-Aug-17 18	0	0	-
190	Yamuna	Naini	83.74	84.74	87.99	08-09-1978	76.80	17-Aug-17 20	0	0	-
191	Betwa	Mohana	121.66	122.66	133.69	11/09/1983	113.46	23-Sep-17 11	0	0	-
192	Betwa	Sahjina	103.54	104.54	108.67	12/09/1983	90.85	24-Sep-17 22	0	0	-
193	Ken	Banda	103.00	104.00	113.29	07/07/2009	99.75	23-Sep-17 04	0	0	-
194	Gomati	Lucknow	108.50	109.50	110.85	10/09/1971	105.85	23-Oct-17 02	0	0	-
195	Gomati	Jaunpur	73.07	74.07	77.74	22/09/1971	69.15	02-Sep-17 05	0	0	-
196	SAI	Raibareli	100.00	101.00	104.81	17/09/1982	99.22	12-Jul-17 20	0	0	-
197	Ghaghra	Elgin Bridge	105.07	106.07	107.56	10-10-2009	107.32	16-Aug-17 11	73	72	98.63
198	Ghaghra	Ayodhya	91.73	92.73	94.01	11-10-2009	93.72	17-Aug-17 19	65	64	98.46
199	Ghaghra	Turtipar	63.01	64.01	66.00	28/08/1998	65.03	21-Aug-17 05	69	69	100.00
200	Rapti	Balrampur	103.62	104.62	105.25	11/09/2000	105.54	15-Aug-17 15	35	34	97.14
201	Rapti	Bansi	83.90	84.90	85.82	21/08/1998	85.88	20-Aug-17 21	22	21	95.45
202	Rapti	Gorakpur Birdghat	73.98	74.98	77.54	23/08/1998	77.23	21-Aug-17 14	25	25	100.00
203	Gandak	Khadda	95.00	96.00	97.50	23/07/2002	96.51	14-Aug-17 07	80	79	98.75
204	Ganga	Fathegarh	136.6	137.6	138.14	26-09-2010	137.52	12-Aug-17 07	46	46	100.00
205	Ganga	Dabri	136.3	137.3	139.695	28-09-1983	136.77	28-Sep-17 19	12	12	100.00
206	Ganga	Garhmuktheswar	198.33	199.33	199.9	23-09-2010	198.80	07-Aug-17 06	14	2	14.29
207	Ganga	Kachla Bridge	161	162	162.79	24-09-2010	162.61	09-Aug-17 02	81	80	98.77
208	Rihand	Rihand Dam		FRL=268.22			264.02	03-Sep-17 08	25	8	32.00
	Uttarakhand										
209	Alaknanda	Srinagar	535.00	536.00	537.90	17-06-2013	534.75	13-Jul-17 02	0	0	-
210	Ganga	Rishikesh	339.50	340.50	341.72	05/09/1995	339.90	05-Aug-17 06	5	3	60.00

Statewise Flood Forecasting Information In India during Flood Season 2017

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1	2	3	4	5	6	7	8	9	10	11	12
211	Ganga	Haridwar	293.00	294.00	296.30	19/09/2010	294.00	05-Aug-17 08	7	5	71.43
212	Sharda	Banbasa					220.60	05-Aug-17 01	4	3	75.00
	West Bengal										
213	Ganga	Farakka	21.25	22.25	25.14	07/09/1998	23.19	23-Aug-17 11	83	81	97.59
214	Mayurakshi	Tilpara Barrage	62.79		67.05	27/09/1978	62.93	31-Oct-17 18	6	5	83.33
215	Mayurakshi	Narayanpur	26.99	27.99	29.69	27/09/1995	26.60	12-Oct-17 09	0	0	-
216	Ajoy	Gheropara	38.42	39.42	43.94	27/09/1978	39.84	11-Oct-17 18	2	2	100.00
217	Damodar	Durgapur Barrage	64.47		64.47	31/10/2002	64.48	14-Jul-17 21	47	43	91.49
218	Mundeshwari	Harinkhola	11.80	12.80	14.58	29/09/1978	14.60	28-Jul-17 07	6	6	100.00
219	Kangsabati	Kangsabati Dam	134.11		134.71	02/09/1978	132.77	26-Oct-17 05	28	28	100.00
220	Kangsabati	Mohanpur	24.73	25.73	29.87	02/09/1978	24.42	23-Jul-17 23	0	0	-
221	Raidak-I	Tufanganj	34.22	35.30	36.36	21/07/1993	36.50	12-Aug-17 20	21	18	85.71
222	Torsa	Ghughumari	39.80	40.41	41.46	03/08/2000	41.36	12-Aug-17 10	18	14	77.78
223	Jaldhaka	NH-31	80.00	80.90	82.33	28-07-1972	80.40	12-Aug-17 14	5	5	100.00
224	Jaldhaka	Mathabhanga	47.70	48.20	49.85	07/09/2007	49.25	12-Aug-17 21	10	6	60.00
225	Tista	Domohani	85.65	85.95	89.30	14/10/1968	86.02	12-Aug-17 19	8	7	87.50
226	Tista	Mekhliganj	65.45	65.95	66.45	13/07/1996	65.95	13-Aug-17 06	35	31	88.57
							Total Forecasts		***6297***	***5901***	**93.71**
							Level Forecasts		**5085**	**4975**	**97.84**
							Inflow Forecast		**1212**	**926**	**76.40**

Performance of Flood Forecasting Stations (Divisionwise) in India during Flood Season 2017

Sl. No	Division	Level Forecasts only					Inflow Forecasts only					Total Forecast Stations				
		Stns.	F/c issued for	Total	Within Limit	Accuracy	Stns.	F/c issued for	Total	Within Limit	Accuracy	Stns.	F/c issued for	Total	Within Limit	Accuracy
1	Himalayan Ganga Divn, Dehradun	3	2	12	8	66.67	0	0	0	0	-	3	2	12	8	66.67
2	Middle Ganga Division 1, Lucknow	6	6	289	285	98.62	1	1	4	3	75.00	7	7	293	288	98.29
3	Middle Ganga Division 2, Lucknow	12	8	189	176	93.12	1	1	50	49	98.00	13	9	239	225	94.14
4	Middle Ganga Division 3, Varanasi	7	0	0	0	-	2	2	51	11	21.57	9	2	51	11	21.57
5	Lower Ganga Division I, Patna	19	19	1089	1078	98.99	0	0	0	0	-	19	19	1089	1078	98.99
6	Lower Ganga Division 2, Patna	18	11	338	333	98.52	0	0	0	0	-	18	11	338	333	98.52
7	Upper Yamuna Divn, Delhi	4	3	27	26	96.30	1	0	0	0	-	5	3	27	26	96.30
8	Chambal Division, Jaipur	0	0	0	0	-	2	1	1	1	100.00	2	1	1	1	100.00
9	Lower Yamuna Divn, Agra	10	0	0	0	-	0	0	0	0	-	10	0	0	0	-
10	Damodar Divn, Asansol	4	2	8	8	100.00	7	7	233	222	95.28	11	9	241	230	95.44
11	Upper Brahmaputra Divn, Dibrugarh	18	15	1564	1554	99.36	0	0	0	0	-	18	15	1564	1554	99.36
12	Middle Brahmaputra Divn, Guwahati	10	10	802	788	98.25	0	0	0	0	-	10	10	802	788	98.25
13	Lower Brahmaputra Divn, Jalpaiguri	11	11	635	607	95.59	0	0	0	0	-	11	11	635	607	95.59
14	Eastern Rivers Divn, Bhubaneswar	10	9	105	91	86.67	4	2	12	12	100.00	14	11	117	103	88.03
15	Mahanadi Divn, Burla	3	0	0	0	-	1	1	41	40	97.56	4	1	41	40	97.56
16	Lower Godavari Divn, Hyderabad	9	1	15	14	93.33	0	0	0	0	-	9	1	15	14	93.33
17	Upper Godavari Division	3	1	5	5	100.00	6	1	5	4	80.00	9	2	10	9	90.00
18	Lower Krishna Divn, Hyderabad	3	2	5	2	40.00	8	6	298	231	77.52	11	8	303	233	76.90
19	Mahi Divn, Gandhinagar	2	1	1	0	0.00	6	2	57	53	92.98	8	3	58	53	91.38
20	Tapi Divn,Surat	5	0	0	0	-	3	2	41	27	65.85	8	2	41	27	65.85
21	Narmada Divn, Bhopal	2	0	0	0	-	0	0	0	0	-	2	0	0	0	-
22	Chenab Divn. Jammu	3	1	1	0	-	0	0	0	0	-	3	1	1	0	0.00
23	Southern River Divn. Coimbtr.	0	0	0	0	-	5	5	180	148	82.22	5	5	180	148	82.22
24	Hydrology Divn. Chennai	1	0	0	0	-	6	3	21	15	71.43	7	3	21	15	71.43
25	Cauvery Divn. Bangalore	0	0	0	0	-	6	6	218	110	50.46	6	6	218	110	50.46
26	UKD Pune	1	0	0	0	-	0	0	0	0	-	1	0	0	0	-
27	WGD Nagpur	3	0	0	0	-	0	0	0	0	-	3	0	0	0	-
Total		**167**	**102**	**5085**	**4975**	**97.84**	**59**	**40**	**1212**	**926**	**76.40**	**226**	**142**	**6297**	**5901**	**93.71**

Performance of Flood Forecasting Stations (Major Basinwise) in India during Flood Season 2017

Sl. No	Name of the Major River basin	Total no.of FF sites			No.of FF sites where no forecast was issued			Level Forecasts			Inflow Forecasts			Overall Forecasts		
		Total no	Level FF sites	Inflow FF sites	Total no	Level FF sites	Inflow FF sites	Total No.	Within limits	% of Accu-racy	Total No.	Within limits	% of Accu-racy	Total No.	Within limits	% of Accu-racy
1	Indus	3	3	0	2	2	0	1	0	0.00	0	0	-	1	0	-
2	Ganga	97	83	14	34	32	2	1952	1914	98.05	339	286	84.37	2291	2200	96.03
3	Brahmaputra	33	33	0	3	3	0	2489	2440	98.03	0	0	-	2489	2440	98.03
4	Barak and others	6	6	0	0	0	0	512	509	99.41	0	0	-	512	509	99.41
5	Godavari	21	14	7	18	12	6	20	19	95.00	5	4	80.00	25	23	92.00
6	Krishna	14	4	10	4	2	2	5	2	40.00	349	252	72.21	354	254	71.75
7	Cauvery	8	0	8	0	0	0	0	0	-	342	233	68.13	342	233	68.13
8	Subarnarekha	4	3	1	0	0	0	25	20	80.00	5	5	100.00	30	25	83.33
9	Brahmani and Baitarni	4	3	1	1	0	1	34	32	94.12	0	0	-	34	32	94.12
10	Mahanadi	4	3	1	3	3	0	0	0	-	41	40	97.56	41	40	97.56
11	Pennr	2	1	1	1	1	0	0	0	-	14	9	64.29	14	9	64.29
12	Mahi	5	1	4	5	1	4	0	0	-	0	0	-	0	0	-
13	Sabarmati	2	1	1	0	0	0	1	0	-	24	22	91.67	25	22	88.00
14	Narmada	4	4	0	4	4	0	0	0	-	0	0	-	0	0	-
15	Tapi	3	1	2	2	1	1	0	0	-	23	9	39.13	23	9	39.13
16	West Flowing rivers from Tapi to Tadri	3	2	1	2	2	0	0	0	-	18	18	100.00	18	18	100.00
17	East flowing rivers between Mahanadi and Pennar	6	4	2	2	1	1	46	39	84.78	7	7	-	53	46	86.79
18	East flowing rivers between Pennar and Kanyakumari	6	0	6	3	0	3	0	0	-	12	10	83.33	12	10	83.33
19	West flowing rivers of Kutch and saurashtra including Luni	1	0	1	0	0	0	0	0	-	33	31	-	33	31	-
Total		**226**	**166**	**60**	**84**	**64**	**20**	**5085**	**4975**	**97.84**	**1212**	**926**	**76.40**	**6297**	**5901**	**93.71**

Performance of Flood Forecasting Stations (Statewise) in India during Flood Season 2017

Sl. No	Name of the Major River basin	Total no.of FF sites			No.of FF sites where no forecast was issued			Level Forecasts			Inflow Forecasts			Overall Forecasts		
		Total no	Level FF sites	Inflow FF sites	Total no	Level FF sites	Inflow FF sites	Total No.	Within limits	Accuracy (%)	Total No.	Within limits	Accuracy (%)	Total No.	Within limits	Accuracy (%)
1	Andhra Pradesh	14	7	7	8	5	3	6	3	50.00	133	116	87.22	139	119	85.61
2	Arunachal Pradesh	2	2	0	1	1	0	72	71	98.61	0	0	98.61	72	71	98.61
3	Assam	29	29	0	2	2	0	2824	2789	98.76	0	0	98.76	2824	2789	98.76
4	Bihar	34	34	0	7	7	0	1222	1209	98.94	0	0	98.94	1222	1209	98.94
5	Chattisgarh	1	1	0	0	0	0	15	14	93.33	0	0	93.33	15	14	93.33
6	D,NH	1	1	0	1	1	0	0	0	-	0	0	-	0	0	-
7	Gujarat	12	6	6	8	5	3	1	0	0.00	75	71	0.00	76	71	93.42
8	Haryana	1	0	1	1	0	1	0	0	-	0	0	-	0	0	-
9	Jammu & Kashmir	3	3	0	2	2	0	1	0	0.00	0	0	-	1	0	0.00
10	Jharkhand	7	2	5	0	0	0	52	48	92.31	157	151	96.18	209	199	95.22
11	Karnataka	10	1	9	0	0	0	2	1	50.00	332	218	65.66	334	219	65.57
12	Madhya Pradesh	4	2	2	2	2	0	0	0	-	27	4	14.81	27	4	14.81
13	Maharashtra	10	7	3	7	6	1	5	5	100.00	28	13	46.43	33	18	54.55
14	NCT, DELHI	2	2	0	1	1	0	10	10	100.00	0	0	-	10	10	100.00
15	Odisha	13	11	2	5	4	1	92	83	90.22	41	40	97.56	133	123	92.48
16	Rajasthan	3	0	3	3	0	3	0	0	-	0	0	-	0	0	-
17	Tamilnadu	10	0	10	3	0	3	0	0	-	187	154	82.35	187	154	82.35
18	Telangana	10	4	6	9	4	5	0	0	-	72	23	31.94	72	23	31.94
19	Tripura	2	2	0	0	0	0	8	8	100.00	0	0	-	8	8	100.00
20	Uttar Pradesh	40	38	2	21	21	0	575	556	96.70	75	57	76.00	650	613	94.31
21	Uttarakhand	4	3	1	1	1	0	12	8	66.67	4	3	75.00	16	11	68.75
22	West Bengal	14	11	3	2	2	0	188	170	90.43	81	76	93.83	269	246	91.45
Total		**226**	**166**	**60**	**84**	**64**	**20**	**5085**	**4975**	**97.84**	**1212**	**926**	**76.40**	**6297**	**5901**	**93.71**

FLOOD FORECASTING PERFORMANCE FROM 2000 TO 2017

Year	No.of Level Forecasts issued			No.of Inflow Forecasts issued			Total No.of Forecasts issued		
	Total	Within +/-15 cm of deviation from actual	Accuracy (%)	Total	Within +/- 20% cumec of deviation from actual	Accuracy (%)	Total	Within +/- 15 cm or +/- 20% cumec of deviation from actual	Accuracy (%)
2000	5622	5504	97.90	821	747	90.99	6443	6251	97.02
2001	4606	4533	98.42	857	809	94.40	5463	5342	97.79
2002	3618	3549	98.09	623	602	96.63	4241	4151	97.88
2003	5989	5789	96.66	611	586	95.91	6600	6375	96.59
2004	4184	4042	96.61	705	654	92.77	4889	4696	96.05
2005	4323	4162	96.28	1295	1261	97.37	5618	5423	96.53
2006	5070	4827	95.21	1593	1550	97.30	6663	6377	95.71
2007	6516	6339	97.28	1707	1651	96.72	8223	7990	97.17
2008	5670	5551	97.90	1021	1003	98.24	6691	6554	97.95
2009	3343	3298	98.65	667	629	94.30	4010	3927	97.93
2010	6491	6390	98.44	1028	988	96.11	7519	7378	98.12
2011	4848	4795	98.91	1143	1109	97.03	5991	5904	98.55
2012	4200	4136	98.47	831	803	96.63	5031	4939	98.17
2013	5741	5471	95.30	1319	1289	97.73	7060	6760	95.75
2014	3884	3804	97.94	888	863	97.18	4772	4667	97.80
2015	3500	3429	97.97	572	562	98.25	4072	3991	98.01
2016	4969	4891	98.43	1270	1057	83.23	6239	5948	95.34
2017	5085	4975	97.84	1212	926	76.40	6297	5901	93.71
Average	4870	4749	97.52	1009	949	94.05	5879	5699	96.94

Unprecedented flood events in India under CWC FF & W Network - 2017 flood season										
Sl. No	River	Station	State	Danger level in metres	Existing Highest Flood Level (HFL)		New HFL		Duration	
					Level in metres	Date of occurrence	Level (m)	Date and Time of Occurrence	From	To
1	Raidak-I	Tufanganj	West Bengal	35.30	36.36	21/07/1993	36.50	12-Aug-17 20	12/08/2017 15	13/08/2017 18
2	Mundeshwari	Harinkhola	West Bengal	12.80	14.58	29/09/1978	14.60	28-Jul-17 07	28/07/2017 03	28/07/2017 09
3	Gandak	Dumariaghat	Bihar	62.22	63.6	18-08-2014	64.10	17-Aug-17 03	15/08/2017 05	15/08/2017 22
									16/08/2017 09	18/08/2017 21
4	Kosi	Basua	Bihar	47.75	49.17	25/08/2010	49.24	13-Aug-17 10	13/08/2017 05	13/08/2017 20
5	Mahananda	Dhengraghat	Bihar	35.65	38.09	1968	38.20	14-Aug-17 09	14/08/2017 03	14/08/2017 14
6	Mahananda	Jhawa	Bihar	31.40	33.51	14/08/1987	34.07	14-Aug-17 10	14/08/2017 03	14/08/2017 21
7	Rapti	Balrampur	Uttar Pradesh	104.62	105.25	11/09/2000	105.54	15-Aug-17 15	15/08/2017 13	16/08/2017 07
8	Rapti	Bansi	Uttar Pradesh	84.90	85.82	21/08/1998	85.88	20-Aug-17 21	20/08/2017 04	23/08/2017 05

High Flood Events during Flood Season - 2017

Sl.No	River	Station	State	District	Danger level in metres	Existing HFL		Peak Level attained in 2017		Duration of High Flood	
						Level in metres	Date of occurrence	Level	Date/Time	From	To
1	Brahmaputra	Goalpara	Assam	Goalpara	36.27	37.43	31/07/1954	37.02	15-Aug-17 04	14-Aug-17 15	16-Aug-17 07
2	Katakhal	Matizuri	Assam	Hailakandi	20.27	22.73	10/09/2007	22.34	15-Jun-17 19	14/06/2017 16 15/06/2017 15	14/06/2017 22 16/06/2017 00
3	Beki	Beki NHX	Assam	Barpeta	45.10	46.20	04/08/2000	45.97	11-Aug-17 06	11/07/2017 12	12/07/2017 02
										10/08/2017 19	11/08/2017 14
										11/08/2017 20	12/08/2017 18
										13/08/2017 10	13/08/2017 23
4	Brahmaputra	Dhubri	Assam	Dhubri	28.62	30.36	28/08/1988	29.87	15-Aug-17 14	15/08/2017 10	16/08/2017 12
5	Sankosh	Golakganj	Assam	Dhubri	29.94	30.95	08/09/2007	30.82	13-Aug-17 03	10/07/2017 02	10/07/2017 12
										12/08/2017 09	14/08/2017 07
6	Raidak-I	Tufanganj	West Bengal	Coochbehar	35.30	36.36	21/07/1993	36.50	12-Aug-17 20	11/08/2017 21	14/08/2017 13
7	Torsa	Ghughumari	West Bengal	Coochbehar	40.41	41.46	03/08/2000	41.36	12-Aug-17 10	12/08/2017 07	13/08/2017 06
8	Gaurang	Kokrajhar	Assam	Kokrajhar	42.85	43.6	20-08-2015	43.22	12-Aug-17 04	11/08/2017 16	12/08/2017 16
9	Brahmaputra	Dibrugrah	Assam	Dibrugrah	105.70	106.48	03/09/1998	106.4	11-Aug-17 18	09/07/2017 16	10/07/2017 04
										10/08/2017 18	12/08/2017 11
10	Brahmaputra	Neamatighat	Assam	Jorhat	85.04	87.37	11/07/1991	87.27	12-Aug-17 08	11/08/2017 12	13/08/2017 06
11	Dikhow	Shivsagar	Assam	Shivsagar	92.40	95.62	08/07/1974	93.85	11-Jul-17 04	10/07/2017 07	12/07/2017 01
12	Jiabharali	Jiabharali_NTX	Assam	Sonitpur	77.00	78.50	26/07/2007	78.25	02-Jul-17 07	02/07/2017 05	02/07/2017 12
										03/07/2017 09	03/07/2017 14
										04/07/2017 06	04/07/2017 14
										05/07/2017 04	05/07/2017 18
										09/07/2017 11	10/07/2017 07
										10/09/2017 06	10/09/2017 08

Annex IX

Sl.No	River	Station	State	District	Danger level in metres	Existing HFL		Peak Level attained in 2017		Duration of High Flood	
						Level in metres	Date of occurrence	Level	Date/Time	From	To
13	Brahmaputra	Tezpur	Assam	Sonitpur	65.23	66.59	27/08/1988	66.31	13-Aug-17 17	12/08/2017 12	14/08/2017 18
14	Mundeshwari	Harinkhola	West Bengal	Hoogly	12.80	14.58	29/09/1978	14.60	28-Jul-17 07	27/07/2017 04	28/07/2017 22
15	Ghaghra	Gangpur Siswan	Bihar	Siwan	57.04	58.01	18/09/1983	57.64	22-Aug-17 07	20/08/2017 09	23/08/2017 09
16	Ghaghra	Elgin Bridge	Uttar Pradesh	Barabanki	106.07	107.56	10-10-2009	107.32	16-Aug-17 11	15/08/2017 06	18/08/2017 07
17	Ghaghra	Ayodhya	Uttar Pradesh	Faizabad	92.73	94.01	11-10-2009	93.72	17-Aug-17 19	16/08/2017 05	20/08/2017 10
18	Rapti	Balrampur	Uttar Pradesh	Balrampur	104.62	105.25	11/09/2000	105.54	15-Aug-17 15	13/08/2017 18	20/08/2017 01
19	Rapti	Bansi	Uttar Pradesh	Bansi	84.90	85.82	21/08/1998	85.88	20-Aug-17 21	17/08/2017 10	25/08/2017 02
20	Rapti	Gorakhpur_Birdghat	Uttar Pradesh	Gorakhpur	74.98	77.54	23/08/1998	77.23	21-Aug-17 14	19/08/2017 22	23/08/2017 10
21	Ganga	Kachla Bridge	Uttar Pradesh	Buduan	162	162.79	24-09-2010	162.61	09-Aug-17 02	16/07/2017 02	16/07/2017 10
										03/08/2017 04	16/08/2017 04
										04/09/2017 18	06/09/2017 04
22	Gandak	Dumariaghat	Bihar	East Champaran	62.22	63.6	18-08-2014	64.10	17-Aug-17 03	14/08/2017 07	20/08/2017 03
23	Bagmati	Benibad	Bihar	Muzaffarpur	48.68	50.01	12/07/2004	49.60	17-Aug-17 08	14/08/2017 03	15/08/2017 22
										16/08/2017 16	18/08/2017 08
24	Kamla Balan	Jhanjharpur	Bihar	Madhubani	50.00	53.01	10/07/2004	52.69	14-Aug-17 13	13/08/2017 14	14/08/2017 23
25	Kosi	Basua	Bihar	Muzaffarpur	47.75	49.17	25/08/2010	49.24	13-Aug-17 10	12/08/2017 13	16/08/2017 15
26	Kosi	Baltara	Bihar	Khagaria	33.85	36.40	15/08/1987	36.10	17-Aug-17 05	15/08/2017 13	18/08/2017 06
27	Mahananda	Dhengraghat	Bihar	Purnia	35.65	38.09	1968	38.20	14-Aug-17 09	13/08/2017 12	15/08/2017 07
28	Mahananda	Jhawa	Bihar	Katihar	31.40	33.51	14/08/1987	34.07	14-Aug-17 10	13/08/2017 21	15/08/2017 08
29	Kushiyara	Karimganj	Assam	Karimganj	14.94	16.57	10/06/2010	16.07	28/06/2017	28/06/17 14	28/06/17 16
30	Teesta	Mekhliganj	W. B.	Coochbehar	65.95	66.45	13/07/1996	65.95	13-Aug-17 06	13/08/17 05	13/08/17 06
High Flood Level= HFL-0.50 M											

Low and Moderate flood events on main Ganga and its tributaries- 2017 flood season														
Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2017		Flood period above warning level			Flood period above danger level			
						Level in metres	Date/Time	From	To	No.of days	From	To	No.of days	
1	Alaknanda	Srinagar	Uttarakhand	535.00	536.00	534.75	13-Jul-17 02	-	-	-	-	-	-	
2	Ganga	Rishikesh	Uttarakhand	339.50	340.50	339.90	05-Aug-17 06	13/07/2017 03	13/07/2017 06	1	-	-	-	
								01/08/2017 09	01/08/2017 12	1	-	-	-	
								05/08/2017 04	06/08/2017 09	2	-	-	-	
								10/08/2017 08	10/08/2017 14	1	-	-	-	
3	Ganga	Haridwar	Uttarakhand	293.00	294.00	294.00	05-Aug-17 08	12/07/2017 13	12/07/2017 19	1	05/08/2017 08	05/08/2017 09	1	
								13/07/2017 05	13/07/2017 11	1	-	-	-	
								31/07/2017 12	31/07/2017 13	1	-	-	-	
								01/08/2017 04	01/08/2017 16	1	-	-	-	
								04/08/2017 13	04/08/2017 14	1	-	-	-	
								05/08/2017 04	05/08/2017 08	1	-	-	-	
								05/08/2017 10	06/08/2017 09	1	-	-	-	
								10/08/2017 08	10/08/2017 17	1	-	-	-	
4	Ganga	Kannauj	Uttar Pradesh	124.97	125.97	125.10	17-Aug-17 03	11/08/2017 08	13/08/2017 15	3	-	-	-	
								15/08/2017 12	17/08/2017 20	3	-	-	-	
5	Ganga	Ankinghat	Uttar Pradesh	123.00	124.00	123.25	17-Aug-17 01	10/08/2017 05	18/08/2017 07	9	-	-	-	
								07/09/2017 13	08/09/2017 21	2				
6	Ganga	Kanpur	Uttar Pradesh	113.00	114.00	112.21	18-Aug-17 02	-	-	-	-	-	-	
7	Ganga	Dalmau	Uttar Pradesh	98.36	99.36	97.85	18-Aug-17 18	-	-	-	-	-	-	
8	Ganga	Phphamau	Uttar Pradesh	83.73	84.73	79.31	19-Aug-17 00	-	-	-	-	-	-	
9	Ganga	Allahabad Chhatnag	Uttar Pradesh	83.73	84.73	76.22	17-Aug-17 07	-	-	-	-	-	-	
10	Ganga	Mirzapur	Uttar Pradesh	76.72	77.72	69.33	18-Aug-17 11	-	-	-	-	-	-	
11	Ganga	Varanasi	Uttar Pradesh	70.26	71.26	64.44	18-Aug-17 06	-	-	-	-	-	-	
12	Ganga	Ghazipur	Uttar Pradesh	62.11	63.11	57.90	19-Aug-17 17	-	-	-	-	-	-	
13	Ganga	Buxar	Bihar	59.32	60.32	55.82	19-Aug-17 23	-	-	-	-	-	-	
14	Ganga	Ballia	Uttar Pradesh	56.62	57.62	55.52	21-Aug-17 17	-	-	-	-	-	-	
15	Ganga	Patna Dighaghat	Bihar	49.45	50.45	49.47	21-Aug-17 23	21/08/2017 05	22/08/2017 03	2	-	-	-	
16	Ganga	Patna Gandhighat	Bihar	47.60	48.60	48.43	21-Aug-17 09	09/08/2017 01	01/09/2017 10	24	-	-	-	
											-	-	-	
17	Ganga	Hathidah	Bihar	40.76	41.76	41.41	22-Aug-17 06	11/08/2017 03	30/08/2017 03	20	-	-	-	
18	Ganga	Munger	Bihar	38.33	39.33	37.95	22-Aug-17 11	-	-	-	-	-	-	
19	Ganga	Bhagalpur	Bihar	32.68	33.68	33.10	23-Jul-17 04	17/08/2017 01	27/08/2017 09	11	-	-	-	
20	Ganga	Colgong/ Kahalgaon	Bihar	30.09	31.09	31.06	23-Aug-17 14	31/07/2017 09	03/08/2017 07	4	-	-	-	
								10/08/2017 07	06/09/2017 01	28	-	-	-	
21	Ganga	Sahibgunj	Jharkhand	26.25	27.25	27.94	22-Aug-17 20	30/07/2017 09	10/09/2017 05	43	11/08/2017 14	02/09/2017 03	23	
22	Ganga	Farakka	West Bengal	21.25	22.25	23.19	23-Aug-17 11	30/07/2017 23	04/08/2017 17	44	12/08/2017 09	03/09/2017 22	23	
								04/08/2017 22	11/09/2017 09		-	-	-	
23	Ramganga	Moradabad	Uttar Pradesh	189.60	190.60	190.54	05-Sep-17 09	06/08/2017 14	09/08/2017 08	4	-	-	-	
								12/08/2017 11	14/08/2017 14	3	-	-	-	
								02/09/2017 14	07/09/2017 04	6	-	-	-	
								25/09/2017 05	26/09/2017 20	2	-	-	-	
24	Ramganga	Bareilly	Uttar Pradesh	162.70	163.70	160.55	04-Sep-17 21	-	-	-	-	-	-	
25	Yamuna	Mawi	Uttar Pradesh	230.00	230.85	230.46	03-Sep-17 18	01/08/2017 14	03/08/2017 01	3	-	-	-	
								02/09/2017 23	04/09/2017 15	3	-	-		
26	Yamuna	Delhi Rly Bridge	NCT Delhi	204.00	204.83	204.81	04-Sep-17 14	02/08/2017 17	04/08/2017 04	3	-	-	-	
								03/09/2017 14	05/09/2017 15	3			-	
27	Yamuna	Mathura	Uttar Pradesh	164.20	165.20	165.06	06-Sep-17 19	05/08/2017 03	06/08/2017 05	2	-	-	-	
								05/09/2017 14	07/09/2017 20	3				
28	Yamuna	Agra	Uttar Pradesh	151.40	152.40	149.40	07-Sep-17 12	-	-	-	-	-	-	

Low and Moderate flood events on main Ganga and its tributaries- 2017 flood season														
Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2017		Flood period above warning level			Flood period above danger level			
						Level in metres	Date/Time	From	To	No.of days	From	To	No.of days	
29	Yamuna	Etawa	Uttar Pradesh	120.92	121.92	118.38	08-Aug-17 08	-	-	-	-	-	-	
30	Yamuna	Auraiya	Uttar Pradesh	112.00	113.00	104.58	02-Aug-17 09	-	-	-	-	-	-	
31	Yamuna	Kalpi	Uttar Pradesh	107.00	108.00	99.77	03-Aug-17 06	-	-	-	-	-	-	
32	Yamuna	Hamirpur	Uttar Pradesh	102.63	103.63	92.72	16-Aug-17 02	-	-	-	-	-	-	
33	Yamuna	Chilaghat	Uttar Pradesh	99.00	100.00	88.60	15-Aug-17 18	-	-	-	-	-	-	
34	Yamuna	Naini	Uttar Pradesh	83.74	84.74	76.80	17-Aug-17 20	-	-	-	-	-	-	
35	Sahibi	Dhansa	NCT Delhi	211.44	212.44	209.60	10-Aug-17 09	-	-	-	-	-	-	
36	Betwa	Mohana	Uttar Pradesh	121.66	122.66	113.46	23-Sep-17 11	-	-	-	-	-	-	
37	Betwa	Sahjina	Uttar Pradesh	103.54	104.54	90.85	24-Sep-17 22	-	-	-	-	-	-	
38	Ken	Banda	Uttar Pradesh	103.00	104.00	99.75	23-Sep-17 04	-	-	-	-	-	-	
39	Gomati	Lucknow	Uttar Pradesh	108.50	109.50	105.85	23-Oct-17 02	-	-	-	-	-	-	
40	Gomati	Jaunpur	Uttar Pradesh	73.07	74.07	69.15	02-Sep-17 05	-	-	-	-	-	-	
41	SAI	Raibareli	Uttar Pradesh	100.00	101.00	99.22	12-Jul-17 20	-	-	-	-	-	-	
42	Ghaghra	Elginbridge	Uttar Pradesh	105.070	106.070	107.320	16.08.2017/1100	05.07.2017/0400	08.07.2017/1200	4	08.07.2017/1300	09.07.2017/0600	2	
								09.07.2017/0700	11.07.2017/1000	3	11.07.2017/1100	15.07.2017/1300	5	
								15.07.2017/1400	23.07.2017/1500	9	23.07.2017/1600	15.08.2017/0500	24	
								30.08.2017/0500	02.09.2017/0900	4	18.08.2017/0600	30.08.2017/0400	13	
								04.09.2017/1400	10.09.2017/2400	7	02.09.2017/1000	04.09.2017/1300	3	
								23.09.2017/1300	24.09.2017/2400	2				
								25.09.2017/1500	27.09.2017/2100	3				
43	Ghaghra	Ayodhya	Uttar Pradesh	91.730	92.730	93.720	17.08.2017/1900	07.07.2017/0800	05.08.2017/1700	30	05.08.2017/1800	16.08.2017/0500	12	
								31.08.2017/0700	08.09.2017/1500	9	20.08.2017/0900	31.08.2017/0600	12	
								27.09.2017/0400	27.09.2017/2200	1				
44	Ghaghra	Turtipar	Uttar Pradesh	63.010	64.010	65.030	21.08.2017/0500	09.07.2017/0800	07.08.2017/0900	30	07.08.2017/1000	02.09.2017/0100	27	
								02.09.2017/0200	11.09.2017/1800	10				
								25.09.2017/1900	29.09.2017/1700	5				
45	Ghaghra	Darauli	Bihar	59.82	60.82	61.21	21-Aug-17 10	11/07/2017 13	17/07/2017 14	7	17/08/2017 15	24/08/2017 11	8	
								02/08/2017 11	08/09/2017 20	38	25/08/2017 21	30/08/2017 06	6	
46	Ghaghra	Gangpur Siswan	Bihar	56.04	57.04	57.64	22-Aug-17 07	11/07/2017 13	18/07/2017 13	8	15/08/2017 15	30/08/2017 18	16	
								02/08/2017 22	07/09/2017 21	37				
47	Ghaghra	Chhapra	Bihar	52.68	53.68	50.75	21-Aug-17 11	-	-	-	-	-	-	

Low and Moderate flood events on main Ganga and its tributaries- 2017 flood season													
Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2017		Flood period above warning level			Flood period above danger level		
						Level in metres	Date/Time	From	To	No.of days	From	To	No.of days
48	Rapti	Balrampur	Uttar Pradesh	103.620	104.620	105.540	15.08.2017/1500	10.07.2017/2400	13.07.2017/0700	4	05.08.2017/2300	07.08.2017/0500	3
								31.07.2017/2100	01.08.2017/1400	2	13.08.2017/0300	13.08.2017/1600	1
								03.08.2017/2300	05.08.2017/2200	3	20.08.2017/0200	20.08.2017/2100	1
								07.08.2017/0600	13.08.2017/0200	7			
								20.08.2017/2200	30.08.2017/0400	11			
								01.09.2017/2400	03.09.2017/1000	3			
								23.09.2017/0600	24.09.2017/1100	2			
49	Rapti	Bansi	Uttar Pradesh	83.900	84.900	85.880	20.08.2017/2100	07.08.2017/1300	08.08.2017/2200	2	15.08.2017/0800	17.08.2017/0200	3
								13.08.2017/1000	15.08.2017/0700	3			
								27.08.2017/0500	31.08.2017/0400	5			
								02.09.2017/2200	03.09.2017/2000	2			
50	Rapti	Birdghat	Uttar Pradesh	73.980	74.980	77.230	21.08.2017/1400	12.08.2017/0900	15.08.2017/0500	4	15.08.2017/0600	19.08.2017/2100	5
								01.09.2017/1400	06.09.2017/0400	6	23.08.2017/1000	01.09.2017/1300	10
51	Sone	Inderpuri	Bihar	107.20	108.20	106.14	27-Jul-17 16	-	-	-	-	-	-
52	Sone	Koelwar	Bihar	54.52	55.52	53.26	28-Jul-17 23	-	-	-	-	-	-
53	Sone	Maner	Bihar	51.00	52.00	50.19	22-Aug-17 02	-	-	-	-	-	-
54	PunPun	Sripalpur	Bihar	49.60	50.60	52.50	09-Aug-17 05	26/07/2017 11	30/07/2017 15	5	26/07/2017 22	29/07/2017 18	4
								05/08/2017 05	14/08/2017 12	10	05/08/2017 21	12/08/2017 14	8
								15/08/2017 20	23/08/2017 15	9	18/08/2017 09	22/08/2017 15	5
55	Gandak	Khadda	Uttar Pradesh	95.00	96.00	96.51	14-Aug-17 07	02/07/2017 15	04/07/2017 11	3	13/08/2017 18	15/08/2017 01	3
								06/07/2017 09	07/07/2017 12	2			
								10/07/2017 08	14/07/2017 07	5			
								26/07/2017 22	28/07/2017 05	3			
								30/07/2017 15	01/08/2017 04	3			
								03/08/2017 08	06/08/2017 15	4			
								07/08/2017 23	09/08/2017 15	3			
								11/08/2017 15	13/08/2017 18	3	-	-	-
								15/08/2017 01	16/08/2017 06	2			
								16/08/2017 08	17/08/2017 21	1			
								18/08/2017 15	22/08/2017 21	5			
								04/09/2017 08	05/09/2017 06	2			
56	Ganga	Fathegarh	Uttar Pradesh	136.6	137.6	137.52	12-Aug-17 07	16/07/2017 11	18/07/2017 01	3			
								27/07/2017 02	28/07/2017 19	2			
								29/07/2017 04	21/08/2017 16	24			
								23/08/2017 13	28/08/2017 08	6			
								29/08/2017 20	30/08/2017 12	2			
								02/09/2017 06	11/09/2017 02	10			
								27/09/2017 08	29/09/2017 02	3			
57	Ganga	Dabri	Uttar Pradesh	136.3	137.3	136.77	28-Sep-17 19	15/08/2017 16	18/08/2017 08	4			
								06/09/2017 13	10/09/2017 10	5			
								27/09/2017 08	30/09/2017 14	4			

Low and Moderate flood events on main Ganga and its tributaries- 2017 flood season													
Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2017		Flood period above warning level			Flood period above danger level		
						Level in metres	Date/Time	From	To	No.of days	From	To	No.of days
58	Ganga	Garhmuktheswar	Uttar Pradesh	198.33	199.33	198.80	07-Aug-17 06	13/07/2017 15	15/07/2017 13	3			
								27/07/2017 19	29/07/2017 11	3			
								31/07/2017 18	15/08/2017 20	16			
								23/08/2017 03	23/08/2017 11	1			
								02/09/2017 14	04/09/2017 14	3			
								25/09/2017 08	26/09/2017 01	2			
59	Ganga	Kachla Bridge	Uttar Pradesh	161	162	162.61	09-Aug-17 02	06/07/2017 18	12/07/2017 16	7	14/07/2017 23	17/07/2017 00	4
								13/07/2017 17	14/07/2017 23	2	26/07/2017 04	26/07/2017 09	1
								17/07/2017 00	26/07/2017 04	10	29/07/2017 00	31/07/2017 11	3
								26/07/2017 09	29/07/2017 00	3	01/08/2017 18	20/08/2017 07	20
								31/07/2017 11	01/08/2017 18	2	23/08/2017 23	25/08/2017 23	3
								20/08/2017 07	23/08/2017 23	4	04/09/2017 02	07/09/2017 04	4
								25/08/2017 23	04/09/2017 02	11			
								07/09/2017 04	14/09/2017 19	8			
								26/09/2017 13	06/10/2017 10	11			
60	Gandak	Chatia	Bihar	68.15	69.15	68.80	15-Aug-17 09	14/08/2017 09	18/08/2017 05	5	-	-	-
								18/08/2017 16	19/08/2017 13	1			
61	Gandak	Rewaghat	Bihar	53.41	54.41	54.60	18-Aug-17 02	06/08/2017 05	08/08/2017 11	3	17/08/2017 01	18/08/2017 15	2
								13/08/2017 11	23/08/2017 07	11			
62	Gandak	Hazipur	Bihar	49.32	50.32	48.88	18-Aug-17 04	-	-	-	-	-	-
63	Burhi Gandak	Lalbeghiaghat	Bihar	62.20	63.20	64.96	19-Aug-17 09	14/08/2017 09	16/08/2017 08	3	16/08/2017 08	26/08/2017 16	11
								26/08/2017 16	29/08/2017 09	4			
64	Burhi Gandak	Muzaffarpur (Sikandarpur	Bihar	51.53	52.53	53.74	23-Aug-17 23	16/08/2017 20	18/08/2017 19	3	18/08/2017 19	01/09/2017 05	15
								01/09/2017 05	03/09/2017 15	3			
65	Burhi Gandak	Samastipur	Bihar	45.02	46.02	48.10	26-Aug-17 21	18/08/2017 09	20/08/2017 13	3	20/08/2017 13	04/09/2017 20	16
								04/09/2017 20	07/09/2017 04	4			
66	Burhi Gandak	Rosera	Bihar	41.63	42.63	45.63	28-Aug-17 08	16/08/2017 19	18/08/2017 16	3	18/08/2017 16	07/09/2017 08	21
								07/09/2017 08	10/09/2017 06	4	-	-	-
67	Burhi Gandak	Khagaria	Bihar	35.58	36.58	37.03	26-Aug-17 15	10/08/2017 17	19/08/2017 21	10	19/08/2017 21	03/09/2017 18	16
								03/09/2017 18	09/09/2017 08	7			
68	Bagmati	Benibad	Bihar	47.68	48.68	49.60	17-Aug-17 08	22/06/2017 21	23/06/2017 14	2	25/07/2017 00	26/07/2017 00	2
								06/07/2017 09	07/07/2017 23	2	04/08/2017 12	08/08/2017 10	5
								11/07/2017 10	13/07/2017 22	3	12/08/2017 10	07/09/2017 05	27
								16/07/2017 18	18/07/2017 01	3	11/09/2017 22	16/09/2017 03	6
								24/07/2017 07	25/07/2017 00	2	16/09/2017 11	17/09/2017 01	2
								26/07/2017 00	28/07/2017 05	3	21/09/2017 22	23/09/2017 20	3
								31/07/2017 04	01/08/2017 04	2	03/10/2017 11	04/10/2017 19	2
								04/08/2017 01	04/08/2017 12	1			
								08/08/2017 10	11/08/2017 03	4			
								11/08/2017 09	12/08/2017 10	1			
								07/09/2017 05	11/09/2017 22	5			
								16/09/2017 03	16/09/2017 11	1			
								17/09/2017 01	21/09/2017 22	5			
								23/09/2017 20	27/09/2017 05	5			
								02/10/2017 02	03/10/2017 11	2			
								04/10/2017 19	06/10/2017 10	3			

Low and Moderate flood events on main Ganga and its tributaries- 2017 flood season													
Sl. No.	**River**	**Station**	**State**	**Warning level in metres**	**Danger level in metres**	**Peak level in 2017**		**Flood period above warning level**			**Flood period above danger level**		
						Level in metres	**Date/Time**	**From**	**To**	**No.of days**	**From**	**To**	**No.of days**
69	Bagmati	Hayaghat	Bihar	44.72	45.72	46.13	25-Aug-17 01	17/08/2017 00	19/08/2017 20	3	19/08/2017 20	02/09/2017 07	15
								02/09/2017 07	21/09/2017 02	20			
70	Adhwara Group	Kamtaul	Bihar	49.00	50.00	51.90	15-Aug-17 06	12/08/2017 19	13/08/2017 12	2	13/08/2017 12	28/08/2017 22	16
								28/08/2017 22	01/09/2017 22	5			
								02/09/2017 20	08/09/2017 21	7			
								14/09/2017 11	16/09/2017 18	3			
								21/09/2017 03	25/09/2017 04	5			
71	Adhwara Group	Ekmighat	Bihar	45.94	46.94	48.33	19-Aug-17 02	13/08/2017 23	16/08/2017 01	4	16/08/2017 01	11/09/2017 00	27
								11/09/2017 00	22/09/2017 09	12			
72	Kamla Balan	Jhanjharpur	Bihar	49.00	50.00	52.69	14-Aug-17 13	17/06/2017 13	17/06/2017 23	1	01/07/2017 21	02/07/2017 04	2
								22/06/2017 06	23/06/2017 08	2	30/07/2017 14	30/07/2017 19	1
								29/06/2017 07	29/06/2017 22	1	03/08/2017 09	05/08/2017 08	3
								01/07/2017 12	01/07/2017 21	1	10/08/2017 18	10/08/2017 23	1
								02/07/2017 04	13/07/2017 14	12	11/08/2017 14	19/08/2017 17	9
								16/07/2017 03	16/07/2017 20	1	25/08/2017 12	25/08/2017 16	1
								18/07/2017 13	19/07/2017 08	2	26/08/2017 21	27/08/2017 05	2
								25/07/2017 02	25/07/2017 08	1	27/08/2017 12	27/08/2017 18	0
								30/07/2017 10	30/07/2017 14	1	03/09/2017 12	03/09/2017 19	1
								30/07/2017 19	03/08/2017 09	3	20/09/2017 16	20/09/2017 23	1
								05/08/2017 08	10/08/2017 18	6			
								10/08/2017 23	11/08/2017 14	1			
								19/08/2017 17	25/08/2017 12	7			
								25/08/2017 16	26/08/2017 21	1			
								27/08/2017 05	27/08/2017 12	1			
								27/08/2017 18	30/08/2017 15	3			
								31/08/2017 03	03/09/2017 12	4			
								03/09/2017 19	17/09/2017 04	14			
								19/09/2017 02	20/09/2017 16	2			
								20/09/2017 23	24/09/2017 22	4			
								25/09/2017 03	27/09/2017 10	3			
								02/10/2017 02	06/10/2017 06	5			
								10/10/2017 13	11/10/2017 04	2			

Low and Moderate flood events on main Ganga and its tributaries- 2017 flood season														
Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2017		Flood period above warning level			Flood period above danger level			
						Level in metres	Date/Time	From	To	No.of days	From	To	No.of days	
73	Kosi	Basua	Bihar	46.75	47.75	49.24	13-Aug-17 10	30/06/2017 12	23/07/2017 13	24	05/08/2017 10	08/08/2017 18	4	
								23/07/2017 15	05/08/2017 10	13	09/08/2017 22	10/08/2017 01	2	
								08/08/2017 18	09/08/2017 22	2	10/08/2017 23	19/08/2017 20	9	
								10/08/2017 01	10/08/2017 23	1	20/08/2017 18	27/08/2017 17	8	
								19/08/2017 20	20/08/2017 18	2	05/09/2017 00	07/09/2017 02	3	
								27/08/2017 17	05/09/2017 00	10				
								07/09/2017 02	09/09/2017 02	3				
74	Kosi	Baltara	Bihar	32.85	33.85	36.10	17-Aug-17 05	30/06/2017 06	05/07/2017 11	6	05/07/2017 11	08/07/2017 23	4	
								08/07/2017 23	11/07/2017 04	4	11/07/2017 04	18/09/2017 13	70	
								18/09/2017 13	23/09/2017 23	6	23/09/2017 23	24/09/2017 13	2	
								24/09/2017 13	01/10/2017 12	8				
								02/10/2017 09	07/10/2017 05	6				
75	Kosi	Kursela	Bihar	29.00	30.00	30.54	23-Aug-17 05	06/08/2017 05	16/08/2017 15	11	16/08/2017 15	28/08/2017 22	13	
								28/08/2017 22	13/09/2017 05	17				
76	Mahananda	Dhengraghat	Bihar	34.65	35.65	38.20	14-Aug-17 09	06/07/2017 03	08/07/2017 05	3	10/07/2017 07	13/07/2017 13	4	
								09/07/2017 16	10/07/2017 07	2	09/08/2017 15	10/08/2017 07	2	
								13/07/2017 13	15/07/2017 04	3	11/08/2017 05	20/08/2017 09	10	
								04/08/2017 05	05/08/2017 16	2	28/08/2017 08	29/08/2017 09	2	
								08/08/2017 18	09/08/2017 15	2				
								10/08/2017 07	11/08/2017 05	2				
								20/08/2017 09	28/08/2017 08	9				
								29/08/2017 09	06/09/2017 05	9				
								11/09/2017 00	16/09/2017 20	6				
								22/09/2017 12	24/09/2017 05	3				
77	Mahananda	Jhawa	Bihar	30.40	31.40	34.07	14-Aug-17 10	10/07/2017 10	11/07/2017 12	2	11/07/2017 12	12/07/2017 18	2	
								12/07/2017 18	14/07/2017 08	3	12/08/2017 05	19/08/2017 08	8	
								09/08/2017 16	10/08/2017 19	2				
								11/08/2017 05	12/08/2017 05	2				
								19/08/2017 08	25/08/2017 05	7				
								27/08/2017 20	30/08/2017 12	4				
78	Gandak	Dumariaghat	Bihar	61.22	62.22	64.10	17-Aug-17 03	30/06/2017 01	04/07/2017 00	5	04/07/2017 00	04/07/2017 13	1	
								04/07/2017 13	11/07/2017 11	7	11/07/2017 11	14/07/2017 21	4	
								14/07/2017 21	01/08/2017 06	19	01/08/2017 06	02/08/2017 11	2	
								02/08/2017 11	04/08/2017 09	3	04/08/2017 09	27/08/2017 17	24	
								27/08/2017 17	02/09/2017 09	7	02/09/2017 09	07/09/2017 10	6	
								07/09/2017 10	23/09/2017 15	17	23/09/2017 15	24/09/2017 10	2	
								24/09/2017 10	29/09/2017 12	6				
								01/10/2017 09	07/10/2017 03	7				
79	Burhigandak	Ahirwalia	Bihar	58.62	59.62	60.39	21-Aug-17 14	17/08/2017 20	19/08/2017 06	3	19/08/2017 06	25/08/2017 16	7	
								25/08/2017 16	29/08/2017 20	5				
80	Mayurakshi	Narayanpur	West Bengal	26.99	27.99	26.60	12-Oct-17 09	-	-	-	-	-	-	
81	Ajoy	Gheropara	West Bengal	38.42	39.42	39.84	11-Oct-17 18	11/10/2017 10	11/10/2017 13	1	11/10/2017 13	11/10/2017 22	1	
								11/10/2017 22	12/10/2017 06	1				
82	Mundeshwari	Harinkhola	West Bengal	11.80	12.80	14.60	28-Jul-17 07	26/07/2017 11	26/07/2017 15	1	26/07/2017 15	29/07/2017 16	4	
								29/07/2017 16	30/07/2017 09	2				
83	Kangsabati	Mohanpur	West Bengal	24.73	25.73	24.42	23-Jul-17 23	-	-	-	-	-	-	

Low and Moderate flood events on main Brahamaputra and its tributaries- 2017 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2017		Flood period above warning level			Flood period above danger level		
						Level in metres	From	From	To	No.of days	From	To	No.of days
1	siang	Passighat	Arunachal Pradesh	152.96	153.96	155.04	09-Jul-17 06	19/06/2017 21	19/06/2017 22	1	08/07/2017 21	11/07/2017 08	4
								30/06/2017 13	08/07/2017 21	8	10/08/2017 13	12/08/2017 15	3
								11/07/2017 08	13/07/2017 11	3			
								09/08/2017 09	10/08/2017 13	2			
								12/08/2017 15	18/08/2017 00	7			
								05/09/2017 07	06/09/2017 22	2			
2	Noa-Dehing	Namsai	Arunachal Pradesh	140.6	141.1	140.45	10-Aug-17 21	-	-	-	-	-	-
3	Brahmaputra	Dibrugarh	Assam	104.70	105.70	106.4	11-Aug-17 18	01/06/2017 03	03/06/2017 03	3	09/07/2017 09	11/07/2017 12	3
								03/06/2017 18	05/06/2017 15	2	10/08/2017 09	12/08/2017 19	3
								15/06/2017 17	15/06/2017 20	1			
								19/06/2017 19	20/06/2017 22	2			
								26/06/2017 12	27/06/2017 18	2			
								30/06/2017 13	09/07/2017 09	10			
								11/07/2017 12	15/07/2017 16	5			
								26/07/2017 06	26/07/2017 17	1			
								30/07/2017 04	30/07/2017 23	1			
								09/08/2017 04	10/08/2017 09	2			
								12/08/2017 19	20/08/2017 19	9			
								03/09/2017 23	07/09/2017 23	5			
								10/09/2017 02	11/09/2017 12	2			
								02/10/2017 07	06/10/2017 01	5			
								16/10/2017 01	17/10/2017 05	2			
4	Brahmaputra	Neamatighat	Assam	84.04	85.04	87.27	12-Aug-17 08	27/05/2017 04	28/05/2017 07	2	02/06/2017 01	03/06/2017 17	2
								01/06/2017 10	02/06/2017 01	2	04/06/2017 02	06/06/2017 05	3
								03/06/2017 17	04/06/2017 02	2	20/06/2017 17	21/06/2017 14	2
								06/06/2017 05	09/06/2017 07	4	27/06/2017 13	28/06/2017 08	2
								14/06/2017 16	20/06/2017 17	7	01/07/2017 08	16/07/2017 23	16
								21/06/2017 14	27/06/2017 13	7	10/08/2017 04	24/08/2017 01	15
								28/06/2017 08	01/07/2017 08	4	04/09/2017 07	09/09/2017 09	6
								16/07/2017 23	10/08/2017 04	26	09/09/2017 22	12/09/2017 11	3
								24/08/2017 01	04/09/2017 07	12	03/10/2017 12	06/10/2017 11	4
5	Brahmaputra	Tezpur	Assam	64.23	65.23	66.31	13-Aug-17 17	03/06/2017 05	07/06/2017 14	5	02/07/2017 18	15/07/2017 15	14
								16/06/2017 22	24/06/2017 01	9	11/08/2017 15	17/08/2017 05	7
								27/06/2017 09	02/07/2017 18	6	08/09/2017 02	08/09/2017 11	1
								15/07/2017 15	21/07/2017 02	7			
								29/07/2017 08	29/07/2017 13	1			
								10/08/2017 12	11/08/2017 15	2			
								17/08/2017 05	26/08/2017 03	10			
								04/09/2017 09	08/09/2017 02	5			
								08/09/2017 11	14/09/2017 08	6			
								04/10/2017 11	07/10/2017 16	4			

Low and Moderate flood events on main Brahamaputra and its tributaries- 2017 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2017		Flood period above warning level			Flood period above danger level		
						Level in metres	From	From	To	No.of days	From	To	No.of days
6	Brahmaputra	Guwahati	Assam	48.68	49.68	50.38	14-Aug-17 17	03/07/2017 00	05/07/2017 02	**3**	05/07/2017 02	07/07/2017 08	**3**
								07/07/2017 08	11/07/2017 11	**5**	11/07/2017 11	14/07/2017 17	**4**
								14/07/2017 17	18/07/2017 06	**5**	12/08/2017 14	17/08/2017 01	**6**
								12/08/2017 01	12/08/2017 14	**1**			
								17/08/2017 01	23/08/2017 22	**7**			
								07/09/2017 01	12/09/2017 11	**6**			
7	Brahmaputra	Goalpara	Assam	35.27	36.27	37.02	15-Aug-17 04	02/07/2017 07	05/07/2017 23	**4**	05/07/2017 23	09/07/2017 01	5
								09/07/2017 01	10/07/2017 02	**2**	10/07/2017 02	15/07/2017 16	6
								15/07/2017 16	20/07/2017 06	**6**	13/08/2017 02	18/08/2017 20	6
								11/08/2017 06	13/08/2017 02	**3**			
								18/08/2017 20	25/08/2017 17	**8**			
								07/09/2017 23	13/09/2017 18	**7**			
8	Brahmaputra	Dhubri	Assam	27.62	28.62	29.87	15-Aug-17 14	06/06/2017 07	09/06/2017 08	**4**	05/07/2017 01	19/07/2017 06	15
								18/06/2017 08	05/07/2017 01	**18**	12/08/2017 00	24/08/2017 09	13
								19/07/2017 06	12/08/2017 00	**25**	10/09/2017 11	11/09/2017 17	2
								24/08/2017 09	10/09/2017 11	**18**			
								11/09/2017 17	18/09/2017 20	**8**			
								30/09/2017 18	03/10/2017 05	**4**			
								06/10/2017 18	10/10/2017 04	**5**			
9	Buridehing	Naharkatia	Assam	119.40	120.40	118.89	11-Jul-17 04	-	-	-	-	-	-
10	Buridehing	Chenimari/Khwong	Assam	101.11	102.11	102.87	12-Jul-17 14	03/07/2017 19	08/07/2017 03	**6**	11/07/2017 01	13/07/2017 18	3
								10/07/2017 00	11/07/2017 01	**2**	09/08/2017 21	15/08/2017 07	7
								13/07/2017 18	14/07/2017 15	**2**			
								09/08/2017 06	09/08/2017 21	**1**			
								15/08/2017 07	16/08/2017 20	**2**			
								06/09/2017 07	07/09/2017 06	**2**			
11	Subansiri	Badatighat	Assam	81.53	82.53	83.01	11-Jul-17 10	03/06/2017 15	03/06/2017 22	**1**	10/07/2017 03	13/07/2017 07	4
								01/07/2017 05	10/07/2017 03	**10**	11/08/2017 23	13/08/2017 20	3
								13/07/2017 07	15/07/2017 11	**3**			
								11/08/2017 07	11/08/2017 23	**1**			
								13/08/2017 20	19/08/2017 00	**7**			
								07/09/2017 03	07/09/2017 20	**1**			

Low and Moderate flood events on main Brahamaputra and its tributaries- 2017 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2017		Flood period above warning level			Flood period above danger level		
						Level in metres	From	From	To	No.of days	From	To	No.of days
12	Dikhow	Sivasagar	Assam	91.4	92.4	93.85	11-Jul-17 04	05/06/2017 23	06/06/2017 10	2	02/07/2017 21	06/07/2017 21	5
								25/06/2017 12	27/06/2017 05	3	09/07/2017 06	13/07/2017 06	5
								02/07/2017 09	02/07/2017 21	1			
								06/07/2017 21	09/07/2017 06	4			
								13/07/2017 06	13/07/2017 21	1			
								31/07/2017 15	01/08/2017 03	2			
								08/08/2017 03	09/08/2017 08	2			
								11/08/2017 08	13/08/2017 07	3			
								03/09/2017 18	05/09/2017 20	3			
13	Desang	Nanglamoraghat	Assam	93.46	94.46	94.82	06-Jul-17 08	26/05/2017 16	28/05/2017 10	3	05/07/2017 16	07/07/2017 16	3
								26/06/2017 23	29/06/2017 06	4	11/07/2017 19	14/07/2017 09	4
								04/07/2017 09	05/07/2017 16	2			
								07/07/2017 16	09/07/2017 04	3			
								10/07/2017 03	11/07/2017 19	2			
								14/07/2017 09	15/07/2017 08	2			
								08/08/2017 06	11/08/2017 06	4			
								11/09/2017 22	13/09/2017 15	3			
								14/09/2017 02	15/09/2017 07	2			
14	Dhansiri(S)	Golaghat	Assam	88.50	89.50	89.96	22-Jul-17 10	26/06/2017 10	26/06/2017 15	1	02/07/2017 20	03/07/2017 09	2
								27/06/2017 07	27/06/2017 13	1	07/07/2017 12	08/07/2017 07	2
								28/06/2017 01	30/06/2017 13	3	20/07/2017 05	23/07/2017 06	4
								01/07/2017 14	02/07/2017 20	2			
								03/07/2017 09	07/07/2017 12	5			
								08/07/2017 07	09/07/2017 16	2			
								10/07/2017 15	14/07/2017 05	5			
								15/07/2017 05	18/07/2017 06	4			
								19/07/2017 14	20/07/2017 05	2			
								23/07/2017 06	24/07/2017 00	2			
								25/07/2017 00	26/07/2017 02	2			
								29/07/2017 22	03/08/2017 11	6			
								05/08/2017 09	06/08/2017 23	2			
								22/08/2017 07	23/08/2017 20	2			
								27/08/2017 03	31/08/2017 23	5			
								01/09/2017 21	04/09/2017 03	4			
								14/09/2017 20	17/09/2017 08	4			
								30/09/2017 07	02/10/2017 12	3			
								22/10/2017 16	25/10/2017 15	4			

Low and Moderate flood events on main Brahamaputra and its tributaries- 2017 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2017		Flood period above warning level			Flood period above danger level		
						Level in metres	From	From	To	No.of days	From	To	No.of days
15	Dhansiri(S)	Numaligarh	Assam	76.42	77.42	79.33	03-Jul-17 09	31/05/2017 10	31/05/2017 18	1	31/05/2017 18	02/06/2017 06	3
								02/06/2017 06	07/06/2017 19	6	17/06/2017 19	20/06/2017 07	4
								10/06/2017 17	11/06/2017 02	2	25/06/2017 08	19/09/2017 07	87
								13/06/2017 13	17/06/2017 19	5	20/09/2017 12	24/09/2017 08	5
								20/06/2017 07	25/06/2017 08	6	28/09/2017 21	07/10/2017 03	10
								19/09/2017 07	20/09/2017 12	2	08/10/2017 01	10/10/2017 03	3
								24/09/2017 08	28/09/2017 21	5	22/10/2017 10	28/10/2017 17	7
								07/10/2017 03	08/10/2017 01	2			
								10/10/2017 03	19/10/2017 20	10			
								21/10/2017 06	22/10/2017 10	2			
								28/10/2017 17	06/11/2017 05	10			
16	Kopili	Kampur	Assam	59.50	60.50	61.07	24-Oct-17 00	03/06/2017 06	04/06/2017 16	2	04/06/2017 16	05/06/2017 23	2
								05/06/2017 23	07/06/2017 06	3	21/06/2017 05	21/06/2017 09	1
								14/06/2017 08	17/06/2017 07	4	23/10/2017 10	24/10/2017 20	2
								19/06/2017 09	21/06/2017 05	3			
								21/06/2017 09	22/06/2017 18	1			
								13/08/2017 09	17/08/2017 23	5			
								23/10/2017 07	23/10/2017 10	1			
								24/10/2017 20	26/10/2017 05	3			
17	Kopili	Dharamtul	Assam	55.00	56.00	56.21	18-Aug-17 07	05/06/2017 00	05/06/2017 18	1	15/08/2017 11	22/08/2017 10	8
								17/06/2017 19	25/06/2017 18	9			
								13/07/2017 06	14/07/2017 16	2			
								13/08/2017 07	15/08/2017 11	3			
								22/08/2017 10	30/08/2017 03	9			
								04/09/2017 06	05/09/2017 13	2			
								24/10/2017 05	26/10/2017 16	3	-	-	-

Low and Moderate flood events on main Brahamaputra and its tributaries- 2017 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2017		Flood period above warning level			Flood period above danger level		
						Level in metres	From	From	To	No.of days	From	To	No.of days
18	Jiabharali	NT.Rd.X-ing	Assam	76.00	77.00	78.25	02-Jul-17 07	03/05/2017 12	03/05/2017 22	1	13/06/2017 11	15/06/2017 19	3
								05/05/2017 07	06/05/2017 02	1	17/06/2017 09	21/06/2017 22	5
								06/05/2017 08	06/05/2017 19	1	22/06/2017 10	22/06/2017 21	1
								20/05/2017 09	24/05/2017 06	5	24/06/2017 18	24/06/2017 20	1
								24/05/2017 11	28/05/2017 00	4	25/06/2017 12	25/06/2017 18	1
								28/05/2017 16	29/05/2017 04	1	27/06/2017 08	28/06/2017 04	2
								31/05/2017 07	05/06/2017 20	6	28/06/2017 11	13/07/2017 04	15
								08/06/2017 15	09/06/2017 01	2	02/08/2017 05	03/08/2017 19	2
								09/06/2017 15	10/06/2017 06	1	04/08/2017 05	05/08/2017 04	1
								10/06/2017 10	13/06/2017 11	3	05/08/2017 15	05/08/2017 21	1
								15/06/2017 19	17/06/2017 09	3	09/08/2017 05	19/08/2017 18	11
								21/06/2017 22	22/06/2017 10	2	22/08/2017 17	23/08/2017 05	2
								22/06/2017 21	24/06/2017 18	2	02/09/2017 10	02/09/2017 22	1
								24/06/2017 20	25/06/2017 12	1	03/09/2017 07	12/09/2017 15	9
								25/06/2017 18	27/06/2017 08	2	12/09/2017 18	12/09/2017 23	1
								28/06/2017 04	28/06/2017 11	1	13/09/2017 06	13/09/2017 15	1
								13/07/2017 04	02/08/2017 05	21	13/09/2017 18	14/09/2017 05	1
								03/08/2017 19	04/08/2017 05	2	14/09/2017 09	14/09/2017 17	0
								05/08/2017 04	05/08/2017 15	1	20/09/2017 10	20/09/2017 13	1
								05/08/2017 21	09/08/2017 05	4	22/09/2017 10	22/09/2017 17	1
								19/08/2017 18	22/08/2017 17	4	23/09/2017 13	25/09/2017 03	3
								23/08/2017 05	02/09/2017 10	11	30/09/2017 06	01/10/2017 08	2
								02/09/2017 22	03/09/2017 07	1	02/10/2017 09	05/10/2017 10	4
								12/09/2017 15	12/09/2017 18	1	14/10/2017 09	14/10/2017 11	1
								12/09/2017 23	13/09/2017 06	1	15/10/2017 07	15/10/2017 22	1
								13/09/2017 15	13/09/2017 18	0			
								14/09/2017 05	14/09/2017 09	1			
								14/09/2017 17	20/09/2017 10	6			
								20/09/2017 13	22/09/2017 10	2			
								22/09/2017 17	23/09/2017 13	1			
								25/09/2017 03	30/09/2017 06	6			
								01/10/2017 08	02/10/2017 09	2			
								05/10/2017 10	14/10/2017 09	10			
								14/10/2017 11	15/10/2017 07	1			
								15/10/2017 22	29/10/2017 05	14			
19	Subansiri	Choldhowaghat	Assam	99.02	100.02	97.95	09-Jul-17 14	-	-	-	-	-	-
20	Ranganadi	N H Crossing Ranganadi	Assam	93.81	94.81	95.4	09-Jul-17 19	31/05/2017 11	31/05/2017 15	1	09/07/2017 14	10/07/2017 02	2
								14/06/2017 00	15/06/2017 07	2	11/07/2017 00	11/07/2017 01	1
								17/06/2017 20	18/06/2017 16	2			
								01/07/2017 01	06/07/2017 09	6			
								07/07/2017 11	07/07/2017 17	1			
								08/07/2017 05	09/07/2017 14	2			
								10/07/2017 02	11/07/2017 00	2			
								11/07/2017 01	12/07/2017 02	1			
								10/08/2017 21	11/08/2017 04	2			
								11/08/2017 08	11/08/2017 16	0			
								11/08/2017 23	12/08/2017 03	1			
								05/09/2017 15	05/09/2017 17	1			
								30/09/2017 23	01/10/2017 04	2			
								03/10/2017 05	03/10/2017 08	1			

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Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2017		Flood period above warning level			Flood period above danger level		
						Level in metres	From	From	To	No.of days	From	To	No.of days
21	Lohit	Dholla Bazaar	Assam	127.27	128.27	128.33	11-Aug-17 05	04/06/2017 07	04/06/2017 11	1	11/08/2017 02	11/08/2017 08	1
								10/08/2017 04	11/08/2017 02	2			
								11/08/2017 08	13/08/2017 08	2			
22	Puthimari	Puthimari _NHX	Assam	50.81	51.81	53.50	12-Aug-17 04	02/06/2017 11	06/06/2017 05	5	14/06/2017 03	15/06/2017 07	2
								13/06/2017 22	14/06/2017 03	2	17/06/2017 15	18/06/2017 04	2
								15/06/2017 07	17/06/2017 15	3	09/07/2017 17	10/07/2017 11	2
								18/06/2017 04	22/06/2017 04	5	10/07/2017 15	11/07/2017 20	1
								01/07/2017 12	04/07/2017 09	4	10/08/2017 13	15/08/2017 23	6
								04/07/2017 13	09/07/2017 17	5	24/09/2017 18	25/09/2017 02	2
								10/07/2017 11	10/07/2017 15	1			
								11/07/2017 20	18/07/2017 17	8			
								10/08/2017 06	10/08/2017 13	1			
								15/08/2017 23	24/09/2017 18	41			
								25/09/2017 02	09/10/2017 16	15			
								21/10/2017 18	26/10/2017 06	6			
23	Pagladia	Pagladia_NTX	Assam	51.75	52.75	52.77	12-Aug-17 12	02/06/2017 12	02/06/2017 18	1	12/08/2017 10	12/08/2017 14	1
								02/06/2017 20	03/06/2017 23	1			
								14/06/2017 12	15/06/2017 06	2			
								17/06/2017 14	18/06/2017 05	2			
								04/07/2017 06	05/07/2017 17	2			
								06/07/2017 07	06/07/2017 16	1			
								10/08/2017 13	12/08/2017 10	3			
								12/08/2017 14	15/08/2017 05	2			
								10/09/2017 06	11/09/2017 05	2			
								18/09/2017 08	18/09/2017 18	1			
24	Barak	APGhat	Assam	18.83	19.83	20.30	28-Jun-17 11	04/06/2017 03	06/06/2017 18	3	27/06/2017 08	29/06/2017 18	
								25/06/2017 08	27/06/2017 08	3	15/07/2017 21	17/07/2017 09	
								29/06/2017 18	12/07/2017 17	14			
								13/07/2017 04	15/07/2017 21	3			
								17/07/2017 09	18/07/2017 20	2			
								07/08/2017 12	08/08/2017 14	2			
								12/08/2017 14	19/08/2017 18	8			
								26/08/2017 05	31/08/2017 23	6			
								01/09/2017 12	07/09/2017 03	7			
								13/09/2017 16	15/09/2017 14	3			

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Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2017		Flood period above warning level			Flood period above danger level		
						Level in metres	From	From	To	No.of days	From	To	No.of days
25	Katakhal	Matizuri	Assam	19.27	20.27	22.34	15-Jun-17 19	02/06/2017 12	04/06/2017 07	3	04/06/2017 07	07/06/2017 14	4
								07/06/2017 14	08/06/2017 01	2	14/06/2017 03	17/06/2017 04	4
								14/06/2017 01	14/06/2017 03	1	24/06/2017 22	29/06/2017 18	6
								17/06/2017 04	17/06/2017 13	1	16/07/2017 04	18/07/2017 04	3
								24/06/2017 12	24/06/2017 22	1	13/08/2017 02	15/08/2017 11	3
								29/06/2017 18	01/07/2017 00	3	25/08/2017 13	30/08/2017 09	6
								15/07/2017 10	16/07/2017 04	2			
								18/07/2017 04	18/07/2017 23	1			
								12/08/2017 13	13/08/2017 02	2			
								15/08/2017 11	16/08/2017 22	2			
								18/08/2017 16	25/08/2017 13	8			
								30/08/2017 09	01/09/2017 17	3			
								23/10/2017 03	24/10/2017 00	2			
26	Barak	Badarpurghat	Assam	15.85	16.85	17.56	28-Jun-17 10	03/06/2017 08	04/06/2017 22	2	04/06/2017 22	06/06/2017 11	**3**
								06/06/2017 11	07/06/2017 17	2	26/06/2017 20	01/07/2017 03	**6**
								15/06/2017 11	16/06/2017 11	2	02/07/2017 03	04/07/2017 11	**3**
								24/06/2017 16	26/06/2017 20	3	09/07/2017 09	10/07/2017 11	**2**
								01/07/2017 03	02/07/2017 03	2	15/07/2017 07	18/07/2017 12	**4**
								04/07/2017 11	09/07/2017 09	6	27/08/2017 20	29/08/2017 06	**3**
								10/07/2017 11	15/07/2017 07	6			
								18/07/2017 12	21/07/2017 19	4			
								06/08/2017 08	09/08/2017 23	4			
								12/08/2017 09	27/08/2017 20	16			
								29/08/2017 06	09/09/2017 08	12			
								10/09/2017 13	17/09/2017 06	8			
27	Kushiyara	Karimganj	Assam	13.94	14.94	16.07	28-Jun-17 14	02/06/2017 16	04/06/2017 03	3	04/06/2017 03	07/06/2017 09	4
								07/06/2017 09	08/06/2017 11	2	27/06/2017 00	27/06/2017 01	1
								14/06/2017 12	17/06/2017 18	4	27/06/2017 02	13/07/2017 03	16
								18/06/2017 17	23/06/2017 08	6	13/07/2017 13	20/07/2017 10	7
								24/06/2017 09	27/06/2017 00	4	13/08/2017 05	18/08/2017 03	6
								27/06/2017 01	27/06/2017 02	0	18/08/2017 14	20/08/2017 04	2
								13/07/2017 03	13/07/2017 13	1	26/08/2017 13	07/09/2017 18	13
								20/07/2017 10	24/07/2017 01	5	13/09/2017 23	16/09/2017 19	4
								07/08/2017 15	13/08/2017 05	7			
								18/08/2017 03	18/08/2017 14	1			
								20/08/2017 04	26/08/2017 13	7			
								07/09/2017 18	13/09/2017 23	7			
								16/09/2017 19	19/09/2017 04	4			
								24/10/2017 00	25/10/2017 06	2			
28	Manu	Kailashar	Tripura	24.34	25.34	25.12	05-Jun-17 06	04/06/2017 16	05/06/2017 18	2	-	-	-
29	Gumti	Sonamura	Tripura	11.50	12.50	12.38	23-Oct-17 06	22/10/2017 08	25/10/2017 05	4	-	-	-
30	Manas	Manas NH- Crossing	Assam	47.81	48.42	49.43	12-Aug-17 07	11/08/2017 08	11/08/2017 15	1	11/08/2017 15	13/08/2017 18	3
								13/08/2017 18	14/08/2017 09	2			
								01/10/2017 06	02/10/2017 03	2			

Low and Moderate flood events on main Brahamaputra and its tributaries- 2017 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2017		Flood period above warning level			Flood period above danger level		
						Level in metres	From	From	To	No.of days	From	To	No.of days
31	Beki	Beki Rd. Bridge	Assam	44.10	45.10	45.97	11-Aug-17 06	13/06/2017 18	30/06/2017 13	18	30/06/2017 13	01/07/2017 02	2
								01/07/2017 02	01/07/2017 12	1	01/07/2017 12	02/07/2017 00	1
								02/07/2017 00	04/07/2017 11	3	04/07/2017 11	07/07/2017 03	4
								07/07/2017 03	07/07/2017 15	1	07/07/2017 15	07/07/2017 20	0
								07/07/2017 20	09/07/2017 09	2	09/07/2017 09	14/07/2017 01	6
								14/07/2017 01	09/08/2017 12	27	09/08/2017 12	20/08/2017 06	12
								20/08/2017 06	20/08/2017 08	1	20/08/2017 08	21/08/2017 01	1
								21/08/2017 01	21/08/2017 13	1	21/08/2017 13	22/08/2017 01	1
								22/08/2017 01	22/08/2017 16	1	22/08/2017 16	23/08/2017 02	1
								23/08/2017 02	06/10/2017 16	45			
32	Gaurang	Kokrajhar	Assam	41.85	42.85	43.22	12-Aug-17 04	04/07/2017 12	05/07/2017 18	2	11/08/2017 11	13/08/2017 05	3
								09/07/2017 12	12/07/2017 21	4			
								09/08/2017 12	11/08/2017 11	3			
								13/08/2017 05	17/08/2017 22	5			
								09/09/2017 10	11/09/2017 23	3			
								30/09/2017 10	02/10/2017 11	3			
33	Sankosh	Golokganj	Assam	28.94	29.94	30.82	13-Aug-17 03	05/07/2017 02	08/07/2017 01	4	09/07/2017 16	12/07/2017 19	4
								09/07/2017 13	09/07/2017 16	1	10/08/2017 18	16/08/2017 07	7
								12/07/2017 19	15/07/2017 08	4	16/08/2017 19	17/08/2017 04	1
								09/08/2017 03	10/08/2017 18	2			
								16/08/2017 07	16/08/2017 19	1			
								17/08/2017 04	22/08/2017 22	6			
34	Teesta	Domohani	W.B.	85.65	85.95	86.02	12-Aug-17 19	30/06/2017 14	30/06/2017 20	1	12/08/2017 18	13/08/2017 00	2
								09/07/2017 08	10/07/2017 01	2			
								12/08/2017 07	12/08/2017 18	1			
								13/08/2017 00	13/08/2017 09	1			
35	Teesta	Mekhliganj	W.B.	65.45	65.95	65.95	13-Aug-17 06	01/07/2017 06	01/07/2017 10	1	-	-	-
								01/07/2017 18	02/07/2017 10	1	-	-	-
								02/07/2017 18	03/07/2017 02	1			
								09/07/2017 18	13/07/2017 09	5			
								03/08/2017 17	04/08/2017 03	2			
								10/08/2017 04	14/08/2017 03	5			
								21/09/2017 11	22/09/2017 00	2			
36	Jaldhaka	N H 31	W.B.	80.00	80.90	80.40	12-Aug-17 14	12/08/2017 01	13/08/2017 09	2	-	-	-
37	Jaldhaka	Mathabhanga	W.B.	47.70	48.20	49.25	12-Aug-17 21	10/08/2017 14	12/08/2017 07	3	12/08/2017 07	13/08/2017 16	2
								13/08/2017 16	13/08/2017 19	1			
38	Torsa	Ghughumari	W. B.	39.80	40.41	41.36	12-Aug-17 10	09/07/2017 13	10/07/2017 06	2	11/08/2017 21	13/08/2017 14	3
								10/08/2017 09	11/08/2017 21	1			
								13/08/2017 14	14/08/2017 18	2			
								15/08/2017 05	15/08/2017 14	1			
39	Radak-I	Tufanganj	W. B.	34.22	35.30	36.50	12-Aug-17 20	10/07/2017 04	12/07/2017 18	3	11/08/2017 03	14/08/2017 23	4
								10/08/2017 00	11/08/2017 03	2			
								14/08/2017 23	16/08/2017 15	3			
								16/08/2017 18	17/08/2017 09	1			

Low and Moderate flood events on various river systems (excluding Ganga and Brahmaputra basins)- 2017 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2017		Flood period above warning level			Flood period above danger level		
						Level in metres	Time	From	To	No. of days	From	To	No. of days
1	Jhelum	Rammunshibagh	Jammu & Kashmir	1585.53	1586.45	1585.31	01-Jul-17 17	-	-	-	-	-	-
2	Jhelum	Sangam	Jammu & Kashmir	1590.30	1591.20	1589.44	22-Jun-17 08	-	-	-	-	-	-
3	Jhelum	Safapora	Jammu & Kashmir	1580.00	1580.50	1579.75	08-Jun-17 12	-	-	-	-	-	-
4	Subernarekna	Jamshedpur	Jharkhand	122.5	123.5	123.65	27-Jul-17 03	26/07/2017 05	27/07/2017 00	1	27/07/2017 00	27/07/2017 06	1
								27/07/2017 06	27/07/2017 15	1			
5	Subernarekna	Rajghat	Odisha	9.45	10.36	11.33	28-Jul-17 07	25/07/2017 01	25/07/2017 08	1	25/07/2017 08	29/07/2017 00	5
								29/07/2017 00	29/07/2017 08	1			
								06/08/2017 23	07/08/2017 22	2			
6	Burhabalang	NH_5 _Road Bridge	Odisha	7.21	8.13	7.94	21-Oct-17 13	20/10/2017 22	22/10/2017 13	3	-	-	-
7	Baitarni	Anandpur	Odisha	37.44	38.36	39.12	25-Jul-17 04	24/07/2017 07	24/07/2017 21	1	24/07/2017 21	25/07/2017 11	2
								25/07/2017 11	25/07/2017 15	1			
8	Baitarni	Akhuapada	Odisha	17.33	17.83	18.62	25-Jul-17 13	24/07/2017 04	24/07/2017 09	1	24/07/2017 09	26/07/2017 07	3
								26/07/2017 07	27/07/2017 02	2	21/10/2017 16	22/10/2017 06	2
								27/07/2017 04	28/07/2017 04	1			
								01/08/2017 16	02/08/2017 00	2			
								06/08/2017 08	07/08/2017 11	2			
								16/08/2017 08	16/08/2017 14	1			
								19/08/2017 09	19/08/2017 15	1			
								03/09/2017 07	03/09/2017 08	1			
								19/09/2017 20	20/09/2017 11	2			
								20/10/2017 21	21/10/2017 16	1			
								22/10/2017 06	22/10/2017 19	1			
9	Brahmani	Jenapur	Odisha	22.00	23.00	22.64	29-Jul-17 18	28/07/2017 16	30/07/2017 18	3	-	-	-
10	Rushikuluya	Purushottampur	Odisha	15.83	16.83	14.85	21-Oct-17 06	-	-	-	-	-	-
11	Vamsadhara	Gunupur	Odisha	83.00	84.00	84.15	20-Oct-17 19	17/07/2017 21	18/07/2017 00	2	20/10/2017 18	20/10/2017 21	1
								19/07/2017 07	19/07/2017 15	1			
								20/10/2017 15	20/10/2017 18	1			
								20/10/2017 21	21/10/2017 02	1			

Low and Moderate flood events on various river systems (excluding Ganga and Brahmaputra basins)- 2017 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2017		Flood period above warning level			Flood period above danger level		
						Level in metres	Time	From	To	No. of days	From	To	No. of days
12	Vamsadhara	Kashinagar	Odisha	53.60	54.60	56.70	20-Oct-17 22	16/07/2017 21	17/07/2017 07	2	17/07/2017 07	17/07/2017 11	1
								17/07/2017 11	18/07/2017 01	1	18/07/2017 01	18/07/2017 08	1
								18/07/2017 08	18/07/2017 23	0	18/07/2017 23	19/07/2017 23	1
								19/07/2017 23	20/07/2017 21	2	07/10/2017 04	07/10/2017 11	1
								28/08/2017 12	30/08/2017 02	3	07/10/2017 12	08/10/2017 17	1
								01/09/2017 00	07/10/2017 04	7	10/10/2017 12	10/10/2017 17	1
								07/10/2017 11	07/10/2017 12	0	20/10/2017 18	25/10/2017 03	6
								08/10/2017 17	10/10/2017 12	3	25/10/2017 06	26/10/2017 07	2
								10/10/2017 17	20/10/2017 18	10			
								25/10/2017 03	25/10/2017 06	1			
								26/10/2017 07	01/11/2017 00	7			
13	Mahanadi	Naraj	Odisha	25.41	26.41	24.79	19-Jul-17 21	-	-	-	-	-	-
14	Mahanadi	Alipingal Devi	Odisha	10.85	11.76	5.14	31-Jul-17 14	-	-	-	-	-	-
15	Mahanadi	Nimapara	Odisha	9.85	10.76	4.46	20-Oct-17 23	-	-	-	-	-	-
16	Godavari	Kopergaon	Maharashtra	490.90	493.68	491.40	24-Jul-17 12	23/07/2017 23	24/07/2017 21	2	-	-	
								29/07/2017 05	29/07/2017 13	1	-	-	-
								12/10/2017 07	12/10/2017 13	1	-	-	-
17	Godavari	Gangakhed	Maharashtra	374.00	375.00	368.26	11-Oct-17 18	-	-	-	-	-	-
18	Godavari	Nanded	Maharashtra	353.00	354.00	345.40	10-Sep-17 01	-	-	-	-	-	-
19	Godavari	Kaleswaram	Telangana	103.50	104.75	98.94	20-Jul-17 11	-	-	-	-	-	-
20	Godavari	Eturunagaram	Telangana	73.29	75.79	72.04	20-Jul-17 01	-	-	-	-	-	-
21	Godavari	Dummagudam	Telangana	53.00	55.00	50.50	20-Jul-17 06	-	-	-	-	-	-
22	Godavari	Bhadrachalam	Telangana	45.72	48.77	43.80	20-Jul-17 17	-	-	-	-	-	-
23	Godavari	Kunavaram	Andhra Pradesh	37.74	39.24	33.28	21-Jul-17 05	-	-	-	-	-	-
24	Godavari	Rajamundry	Andhra Pradesh	17.68	19.51	15.24	21-Jul-17 11	-	-	-	-	-	-
25	Godavari	Dowalaiswaram	Andhra Pradesh	14.25	16.08	14.96	06-Oct-17 23	06/10/2017 23	07/10/2017 00	2	-	-	-
26	Wainganga	Bhandara	Maharashtra	244.00	244.50	242.30	30-Aug-17 10	-	-	-	-	-	-
27	Wainganga	Pauni	Maharashtra	226.73	227.73	223.80	30-Aug-17 10	-	-	-	-	-	-
28	Wardha	Balharsha	Maharashtra	171.50	174.00	162.74	20-Jul-17 06	-	-	-	-	-	-
29	Indravati	Jagdalpur	Chhatisgarh	539.50	540.80	542.47	20-Jul-17 10	18/07/2017 11	18/07/2017 17	1	18/07/2017 17	21/07/2017 06	4
								21/07/2017 06	21/07/2017 12	1	29/08/2017 07	30/08/2017 04	2
								28/08/2017 19	29/08/2017 07	2	-	-	-
								30/08/2017 04	30/08/2017 14	1	-	-	-

Low and Moderate flood events on various river systems (excluding Ganga and Brahmaputra basins)- 2017 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2017		Flood period above warning level			Flood period above danger level		
						Level in metres	Time	From	To	No. of days	From	To	No. of days
30	Krishna	Arjunwad	Maharashtra	542.07	543.29	533.61	21-Jul-17 19	-	-	-	-	-	-
31	Bhima	Deongaon	Karnataka	402.00	404.50	402.30	17-Sep-17 12	17/09/2017 08	17/09/2017 19	1			
32	Tungabhadra	Mantralayam	Andhra Pradesh	310.00	312.00	310.51	16-Sep-17 03	15/09/2017 18	16/09/2017 11	2	-	-	-
33	Tungabhadra	Kurnool	Andhra Pradesh	276	278	274.52	16-Sep-17 06						
34	Nagavali	Srikakulam	Andhra Pradesh	10.17	10.8	11.4	17-Jul-17 11	17/07/2017 04	17/07/2017 05	1	17/07/2017 05	17/07/2017 14	1
								07/10/2017 09	07/10/2017 21	1			
35	Pennar	Nellore	Andhra Pradesh	15.91	17.28	13.38	27-Nov-17 06	-	-	-	-	-	-
36	Sabarmati	Ahmedabad Shubhash Bridge	Gujarat	44.09	45.34	44.80	25-Jul-17 18	25/07/2017 15	25/07/2017 21	1	-	-	
37	Mahi	Wanakbori	Gujarat	71.93	74.98	70.18	27-Jul-17 14	-	-	-	-	-	
38	Naramada	Mandla	Madhya Pradesh	437.20	437.80	436.20	16-Jul-17 19	-	-	-	-	-	-
39	Naramada	Hoshangabad	Madhya Pradesh	292.83	293.83	286.50	22-Jul-17 03				-	-	-
40	Naramada	Garudeswar	Gujarat	30.48	31.09	15.78	25-Jun-17 00	-	-	-	-	-	-
41	Naramada	Bharuch	Gujarat	6.71	7.31	5.50	27-Jun-17 22	-	-	-	-	-	-
42	Tapi	Surat	Gujarat	8.50	9.50	4.40	23-Aug-17 15	-	-	-	-	-	-
43	Damanganga	Vapi Town	Gujarat	18.20	19.20	17.55	29-Aug-17 00	-	-	-	-	-	-
44	Damanganga	Daman	Daman & Diu	2.60	3.40	2.30	26-Jun-17 16	-	-	-	-	-	-