GOVERNMENT OF INDIA
CENTRAL WATER COMMISSION

Photo 1: Delhi Railway Bridge during July 2023

Photo 2: River Teesta in Sikkim on 4th October 2023

FLOOD FORECASTING AND WARNING NETWORK PERFORMANCE APPRAISAL REPORT 2023

NEW DELHI - 110066 **March 2025**

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PREFACE

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

During 2023, the flood forecasting services are expanded to 338 stations which comprised of 200 level and 138 inflow forecast stations in 20 major river basins. It covered 22 States besides Union Territories of NCT Delhi, Jammu & Kashmir and Daman & Diu. The flood forecasting activities of the Commission are being performed every year from May to December through its 36 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 level flood forecasting stations and also monitors the flood situation and enters data in **http://india-water.gov.in/wims** website. During Flood Season 2023, level forecasts were issued for 128 stations out of 200 stations and inflow forecasts were issued for 79 reservoir/ dam/barrages out of 138 inflow stations. The inflow forecasts are formulated whenever the inflow into the reservoirs exceeds the threshold value fixed by the respective project authorities for reservoir regulation as well as flood moderation.

During the year 2023 flood season, 5 Flood Forecast stations flowed in Extreme Flood situation. Severe Flood situation was witnessed in 76 Flood Forecasting Stations and 47 Flood forecast stations witnessed Above Normal Flood Situation. The major flood events this year was the Extreme Floods witnessed in Assam, Uttar Pradesh, Telangana, NCT Delhi and Sikkim state.

During the year 2023, 6339 forecasts were issued out of which 5952 forecasts (93.89%) were found to be within the limits of accuracy. The number of level forecasts issued during the year 2023 were 4567 out of which 4336 (94.94%) was within the limit of accuracy of ± 0.15 m. The number of inflow forecasts issued were 1772 out of which 1616 (91.20%) was within limits of accuracy of ±20%. Daily Flood Situation Reports cum Advisories (DFSITREPcA) based on 5-day rainfall warning of IMD were issued on daily basis. Advisories about Extreme floods in Andhra Pradesh, Tamilnadu and Kerala, were issued in DFSITREPcA for taking up relief and rescue operations in advance which were well appreciated by the beneficiaries at both National and State Levels.

Rainfall-Runoff advisories based on the satellite estimates of rainfall, AWS/ARG data of IMD/CWC as well as the rainfall forecast products of Weather Research and Forecast (WRF) model at a resolution of 0.25mx0.25m was continued in 2021 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 Hydromel & Numerical Weather Prediction and AWS Lab units in the Headquarters, Pune as well as various FMOs of IMD.

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 hydro-meteorological observations & flood forecasting and monitoring of the field offices.

Flood Forecast Monitoring (FFM) Directorate under FMO 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 flood forecasting work with utmost devotion & dedication. The staff of FFM Directorate, along with other supporting staff from other Directorates/Wings during flood duties in the flood season of 2023 also deserves all appreciation in keeping the control room fully functional on all the weekdays, 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 of the forecast and adopting various modernization including in the field of 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 incorporate in the next edition.

New Delhi
March ,2025

(Anupam Prasad)
Member (RM)

CONTENTS

EXECUTIVE SUMMARY

0.1 METEOROLOGICAL SITUATION

During 2023, the performance of southwest monsoon is given as below.

- The Southwest Monsoon season rainfall over the country as a whole during 2023 was normal (94% of the Long Period Average (LPA)).

- The monthly rainfall over the country as a whole was less than LPA during two months of the season (91% of LPA in June, 64 % of LPA in August) and more than LPA during July (113% of LPA in July) and September (113% of LPA).

- The homogeneous regions of Northwest India (101% of LPA), Central India (100% of LPA), and South Peninsula (92% of LPA) received normal rainfall. However, the homogeneous region of East & Northeast India (82% of LPA) received below-normal rainfall.

- Out of the total 36 meteorological subdivisions, 3 subdivisions, constituting 9% of the total area of the country, received excess, 26 subdivisions received normal rainfall (73% of the total area), and 7 subdivisions (18% of the total area) received deficient season rainfall. The 7 Meteorological subdivisions which got deficient rainfall are Nagaland, Manipur, Mizoram & Tripura (NMMT), Gangetic West Bengal, Jharkhand, Bihar, East UP, South interior Karnataka and Kerala.

- During the season, 15 low pressure systems formed in the Indian region. One of these low-pressure systems intensified into an extremely severe Cyclonic storm ("BIPORJOY") that formed over the Northeast Arabian Sea from 6th to 19th June. There were two monsoon depressions during the season, one in August (1-3 August) and another on 30th September against the normal frequency of 6.

0.2 FLOOD SITUATION

Extreme flood situation was witnessed in 5 Flood Forecasting stations, Severe Flood situation was witnessed in 76 Flood Forecasting Stations and 47 Flood forecast stations witnessed Above Normal Flood Situation. No flood forecasts were issued for 131 flood forecasting stations which include 72 level forecasting stations and 59 inflow forecasting stations. Out of the 138 reservoirs in the network, inflow forecasts were issued at 79 reservoirs and in 59 reservoirs the inflows did not exceed the criteria for issuing inflow forecasts. The significant flood event of this year was the Extreme Floods witnessed in NCT Delhi, Assam, Uttar Pradesh, Telangana, and Sikkim state.

0.3 FLOOD FORECASTING PERFORMANCE

6339 forecasts were issued during the year 2023, out of which 5952 forecasts (93.89%) were found to be within the limits of accuracy. 4567 level forecasts were issued during the year

2023 out of which 4336 (94.94%) were within the limit of accuracy of ±0.15 m. 1772 inflow forecasts were issued out of which 1616 (91.20%) were within limits of accuracy of ±20%. CWC issued Daily Flood Situation Report cum Advisories (DFSITREPcA) during the monsoon season This contains the usual daily rainfall situation, rainfall forecast for the next 7 days, daily flood bulletin for the day and the flood situation and advisories for the next few days, GIS based Map indicating the districts alerted/affected by flood and reservoirs having inflow forecasts. Further, the reports were sent to all beneficiaries including State Governments through e-mail on a daily basis. In addition, long term i.e. 7 day advisory forecast was also disseminated through online portal in automated mode using IMD rainfall forecast and global GPM rainfall data.

SALIENT FEATURES OF FLOOD FORECASTING SYSTEM

The 'Salient Features' of Flood Forecasting and Warning System 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 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 Engineers' offices (including one CE, Flood Management, at CWC headquarters)	15
6.	No. of Superintending Engineers' offices (including one Flood Forecast Monitoring Directorate at CWC headquarter)	20
7.	No. of Flood Forecasting Divisions (As of 2023)	36
8.	No. of states including union territories covered under Flood Forecasting Programme	25
9.	No. of forecasting sites	338
10.	No. of gauge and gauge & discharge sites	1543
11.	No. of Telemetry Stations installed	1054
13.	No. of forecasts issued in flood season 2019	9754
14.	No. of forecasts issued in flood season 2020	11721
15.	No. of forecasts issued in flood season 2021	10617
16.	No. of forecasts issued in flood season 2022	11558
17.	No. of forecasts issued in flood season 2023	6339

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 RBA) 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 the 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 INDIA

Flood Forecasting has been recognized as the most important and cost effective non-structural measure for flood management. Recognizing this, flood forecasting of river Yamuna at Delhi was suggested by the Reddy Committee set up by the then Hon'ble Prime Minister, Govt. of India to manage floods in Delhi. Accordingly in the year 1958, CWC commenced the flood forecasting services in a small way by establishing a 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, with this, total number of forecasting sites aggregating to 43. Extension of the services followed from time to time. The year-wise positions of the number of flood forecasting sites till the flood season 2023 in the network of Central Water Commission are shown in the **Table -1.1** and **Fig 1.1.** The details of year wise expansion of Flood Forecasting Stations are shown in **Annex –I** (2017-2023).

Table - 1.1: Year-wise expansion of forecasting sites in CWC

Year	Cumulative No. of Flood Forecasting Sites
1958	01
1965	02
1969	43
1977	77
1980	84
1985	145
1987	147
1990	157
2001	159
2002	161
2003	166
2004	172

2005	173
2006	175
2015	176
2016	199
2017	226
2018	249
2019	325
2020	328
2021	331
2022	333
2023	338

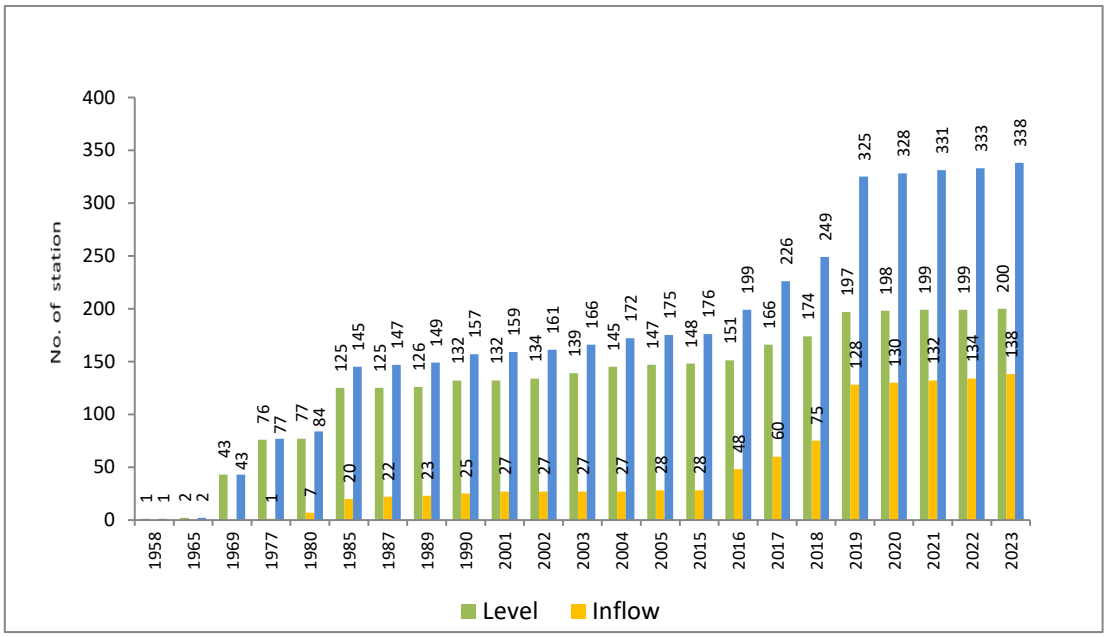
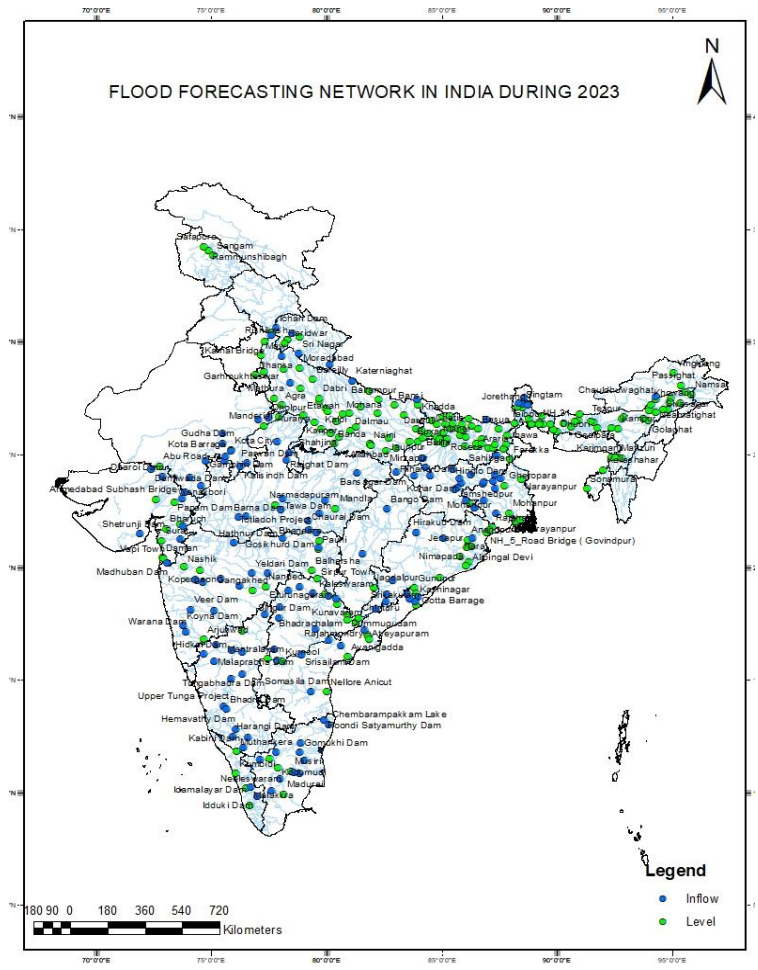


Fig 1.1: Year wise expansion of Flood Forecasting stations

The 'National Flood Forecasting and Warning Network' of Central Water Commission, which comprised of 338 flood forecasting sites including 138 inflow forecasting sites in flood season 2023 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**.



Map - 1: Flood Forecasting Network in India

Table - 1.2: Flood forecasting sites in inter-state river systems

Sr. No.	Major Interstate River Systems	No. of FF stations		
		Level	Inflow	Total
1	Indus and its tributaries	3	0	**3**
2	Ganga & its tributaries	96	42	**138**
3	Brahmaputra & its tributaries	39	6	**45**
4	Barak System	6	0	**6**
5	Subarnarekha (including Burhabalang)	4	3	**7**
6	Brahmani & Baitarni	3	2	**5**
7	East Flowing (Mahanadi to Pennar)	4	4	**8**
8	Narmada	4	6	**10**
9	Tapi	1	2	**3**
10	Mahi	1	4	**5**
11	Sabarmati	1	1	**2**
12	Mahanadi	3	3	**6**
13	Godavari	18	25	**43**
14	Krishna	5	19	**24**
15	West Flowing Rivers (Kutch & Saurashtra)	1	2	**3**
16	West Flowing Rivers (Tapi to Tadri)	2	1	**3**

17	Cauvery and its tributaries	4	9	**13**
18	Pennar	1	1	**2**
19	East Flowing Rivers (Pennar to Kanyakumari)	1	6	**7**
20	West Flowing River (Tadri to Kanyakumari)	3	2	5
Total		**200**	**138**	**338**

The above flood forecasting network covers the following 22 states & 3 Union Territories (UTs). State/ UT wise distribution of flood forecasting stations is shown in **Table - 1.3.**

Table - 1.3: State/ UT wise Flood Forecasting Network in CWC

Sl. No.	Name of State/UT	Number of flood Forecasting Stations		
		Level	Inflow	Total
1	Andhra Pradesh	10	10	20
2	Arunachal Pradesh	3	1	4
3	Assam	30	0	30
4	Bihar	40	3	43
5	Chhattisgarh	1	2	3
6	Gujarat	6	8	14
7	Haryana	1	1	2
8	Himachal Pradesh	1	0	1
9	Jharkhand	2	15	17
10	Karnataka	1	14	15
11	Kerela	4	2	6
12	Madhya Pradesh	2	12	14
13	Maharashtra	8	14	22
14	Odisha	12	7	19
15	Rajasthan	4	11	15
16	Sikkim	3	5	8
17	Tamil Nadu	4	11	15
18	Telangana	5	9	14
19	Tripura	2	0	2
20	Uttar Pradesh	39	5	44
21	Uttarakhand	4	4	8
22	West Bengal	12	4	16
23	Daman & Diu	1	0	1
24	NCT of Delhi	2	0	2
25	Jammu & Kashmir	3	0	3
Total		**200**	**138**	**338**

Central Water Commission through its 29 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 Jal Shakti, 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 through its level flood forecasting network, into the following 3 different categories, depending upon the severity of floods i.e. based on floods magnitudes.

(i) ABOVE NORMAL FLOOD

The river stage is said to be in **'ABOVE NORMAL'** situation at any Hydrological Observation station when the water level of the river touches or crosses the warning level, but remains below the danger level of the forecasting site.

(ii) SEVERE FLOOD

If the water level of the river touches or crosses its danger level, but remains below the Highest Flood Level of the site (commonly known as 'HFL'), then the river is in a '**SEVERE FLOOD'** situation.

(iii) EXTREME FLOOD

The flood situation is said to be **'EXTREME FLOOD'** when the water level of the river touches or crosses the '**HIGHEST FLOOD LEVEL'** recorded so far at any water level station.

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 modeling 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 (DFCR) 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/ Special Messengers during monsoon every year.
6. Sending flood alerts through SMS/Whatsapp on Mobile Phones to the concerned officers of State/ Central Government during severe (6 hourly updates) and extreme (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 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
III	Above Normal Flood (Water level between Warning level and Danger level)	Yellow
II	Severe Flood (Water level below HFL and above Danger Level)	Orange
I	Extreme Flood (Water Level equal and above Highest Flood Level - HFL)	Red

1.4.1 CAP ALERT THROUGH C-DOT IN ASSOCIATION WITH NDMA:

Common Alert Protocol (CAP) alerts are generated through an application developed by Centre for Development of Telematics (C-DoT) in association with NDMA. CAP alerts was first implemented during 2021 for Tamilnadu as a pilot project. In 2022 CAP alerts were issued pan India level through dedicated website https://platform.sachetdashboard.ndma.gov.in/. These alerts will be initially dispatched to the first beneficiary viz. SDMAs, who will in turn make understandable warnings to warn the general public. CWC (HQ) uploaded the alerts related to the level forecast to the dedicated website. In 2023, CWC disseminated 2873 CAP alerts to concerned SDMA's.

1.5 INFLOW FORECAST

Inflow Forecasts are issued for 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.

The salient features of all Flood Forecasting Sites **is shown in Annex – II**. The basin-wise as well as state-wise details of level and inflow sites during the flood season 2023, is shown at**, Annex – III (A & B)** and **Annex – IV (A & B)** respectively.

1.6 DATA COMMUNICATION SYSTEM

Central Water Commission maintains 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 and internet are also used for 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.

The installation of Telemetry System for automatic sensor based data collection and satellite based data communication was initiated during IX Plan. At present, 1054 telemetry stations have been installed.

The telemetry data received was mainly used by the divisions for formulating flood forecast. The telemetry data is also directly transferred to WIMS as central repository. Expansion of telemetry network is shown in **Fig 1.2** and **Table - 1.4.**

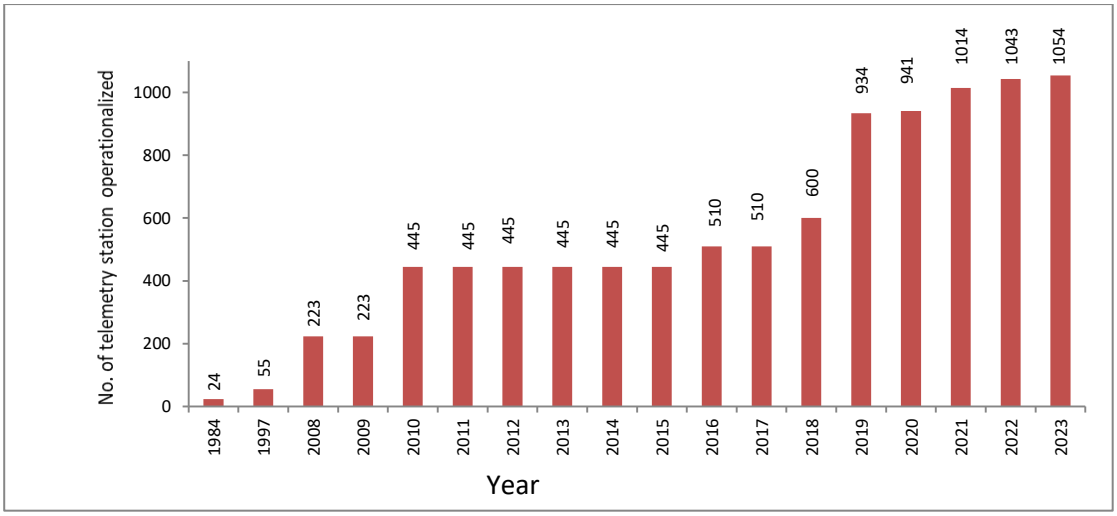


Fig. 1.2: Expansion of Telemetry Network

Table 1.4: TELEMETRY STATUS

Plan	No. of Stations with telemetry	Basins	No.
IX	55	Chambal	
		Upper Mahanadi Basin	
X	168	Godavari	63
		Krishna	41
		Brahmaputra	21
		Damodar	20
		Yamuna	15
		Mahanadi	8
XI	222	Indus	4
		Ganga	63
		Yamuna	25
		Narmada & Tapi	76
		Mahanadi	36
		Brahmaputra	14
		Godavari	4
XII	515	Brahmaputra	67
		Yamuna	51
		Godavari	25
		Pennar	5
		Krishna	15
		Eastern River	30
		Teesta	50
		Narmada	12
		Ganga	153
		Chenab	4
		Mahi Tapi	24
		Southern River	38
		Cauvery	32

		Wainganga	9
XIV	83 (Under 125)	Ganga	42
		Krishna	12
Earth Receiving Centre		: **3** (New Delhi, Jaipur, Burla)	
Modelling Centre		: **27** (Agra, Asansol, Bengaluru, Bhubaneshwar, Burla, Bhopal, Chennai, Haridwar, Dibrugarh, Gandhinagar, Gangtok, Guwahati, Hyderabad (2 Nos.- one each for Krishna and Godavari basins), Jaipur, Jalpaiguri, Nagpur, Two at Lucknow, Bhusawal, Maithon, New Delhi (2 Nos.- One each at headquarter and Yamuna basin), Patna, Shimla, Surat and Varanasi.	

1.7 DAMAGE DUE TO FLOODS/ HEAVY RAINS BETWEEN 1953 TO 2022

The damage due to floods for the entire country was Rs. 49618 Crore during the flood season 2021. The average annual damages to crops, houses and public utilities from the year 1953 to 2021 as reported by the States/ UTs are of the order of Rs. 7055 Crore. The maximum annual damage reported is Rs. 57291 Crore during 2015.

A comparative details showing the details of damages occurred during the flood season 2020 to 2022 on different accounts, received from the revenue authorities of the State Governments is given in the **Table - 1.5**.

Table 1.5: Damages occurred during flood season 2020 to 2021

Sl. No	Items	Flood Damages				Flood Damages (1953 - 2021)	
		2020	2021	2022* (updated till 13.06.2023)	Average (1953-2021)	Maximum	
						Year	Damage
1	Area affected (mha)	6.90	16.75	1.60	7.38	1978	17.50
2	Population affected (millions)	27.43	38.57	14.31	32.34	1978	70.45
3	Damage to Crops (mha)	6.55	7.79	5.47	4.11	2005	12.30
4	Damage to crops (Rs. Crore)	5626.02	22809.18	5954.74	2235.82	2021	22809.18
5	Damage to houses (numbers)	237196	461205	270327	1202701	2015	3959191

6	Damage to houses (Rs. Crore)	272.10	3960.07	1685.33	883.74	2009	10809.80
7	Cattle lost (number)	47463	64880	60742	90548	1979	618248
8	Human lives lost (numbers)	1815	1371	668	1671	1977	11316
9	Damage to public Utilities (Rs. Crores)	5458.01	25243.61	5955.01	3759.32	2013	38937.84
10	Total damages to crops, houses & public utilities (Rs. crores)	21189.17	49617.62	25116.43	7054.74	2015	57291.10

* Flood damage statistics available for States included are Andhra Pradesh, Assam, Jharkhand, Kerala, Maharashtra, Odisha, and Meghalaya.

1.8 ANALYSIS OF PERFORMANCE OF FLOOD FORECASTING NETWORK

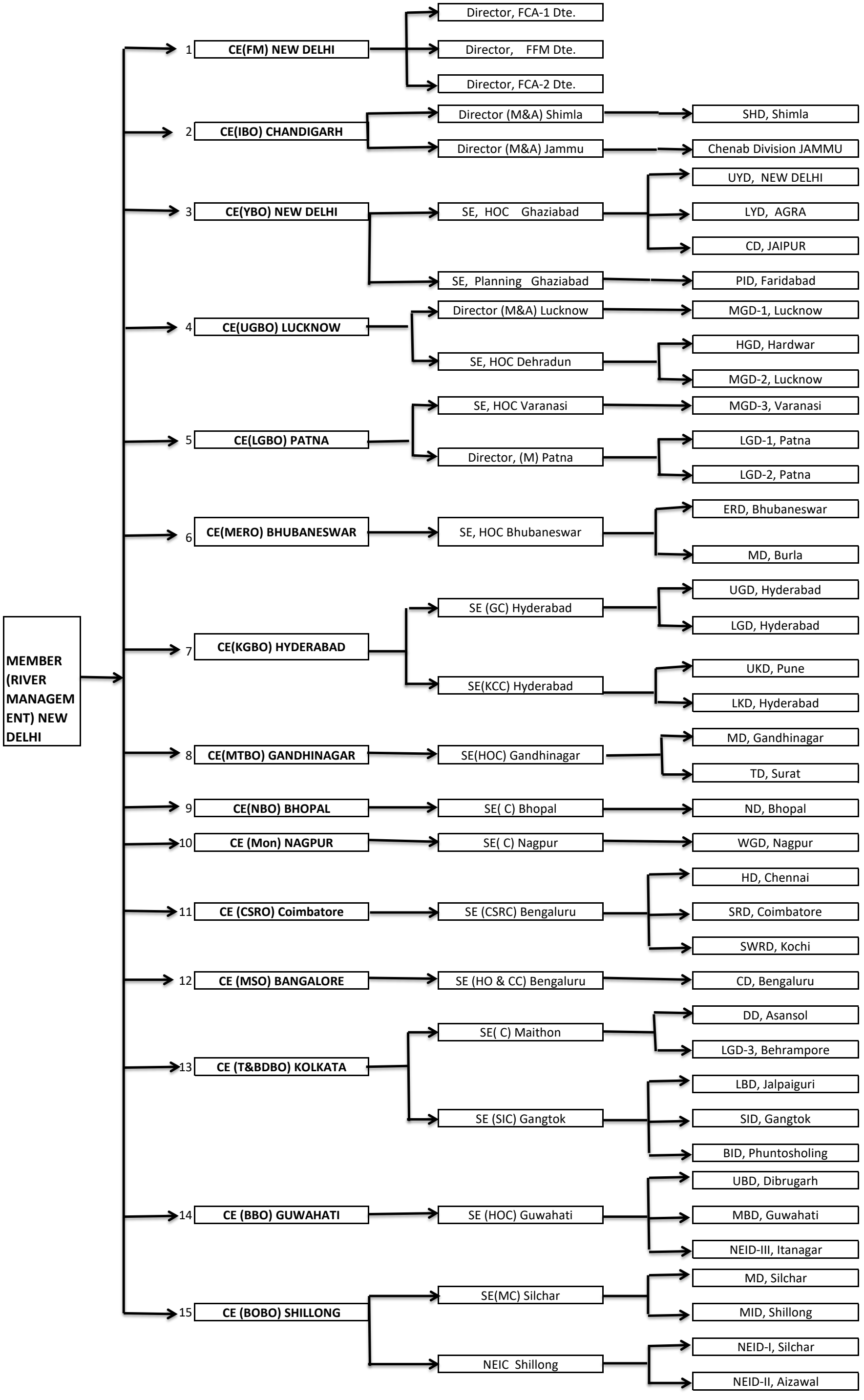
CWC carried out analysis and appraisal of the forecasting work, at the end of monsoon season. Based on this, measures for improvements are identified. A summary of the performance of the work carried out by the field divisions during the flood season 2023 has been presented in **Chapter - 4**. While 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.

1.9 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. 20 Circle Offices and 36 Divisions in its field formations carry out flood forecasting activities. Chief Engineer (Flood Management) and Flood Forecast Monitoring Directorate monitor the Flood Forecasting activities at headquarters. CWC 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 **Fig. 1.3.** List of flood forecasting stations are in **Table - 1.6.**

ORGANISATIONAL CHART OF FLOOD FORECASTING AND WARNING SET UP OF CENTRAL WATER COMMISSION Fig-1.3



NOTE:- Chief Office-15, Directorate-3, Circle Office-20, Division Office-38(36 involved in Flood Forecasting & Monitoring)

Table 1.6: List of Flood Forecast Stations											
1	Sangam	60	Lucknow (Hanuman Setu)	119	Kursela	178	Rangit-III HEP Dam	237	Garudeswar	296	Vir Dam
2	Rammunshibagh	61	Rae Bareilly	120	Sahibganj	179	Teesta V HEP	238	Bharuch	297	Ujni Dam
3	Safapora	62	Jaunpur	121	Taibpur	180	Singtam	239	Hathnur Dam	298	Deongaon Bridge
4	Tehri Dam	63	Ghazipur	122	Dhengraghat	181	Rongpo Dam	240	Ukai Dam	299	PD Jurala Project
5	Srinagar	64	Buxar	123	Jhawa	182	Rongli Dam	241	Surat	300	Upper Tunga
6	Ganganagar	65	Ballia	124	Araria	183	Melli Bazar	242	Madhuban Dam	301	Bhadra Dam
7	Rishikesh	66	Banbasa Barrage	125	Farakka	184	Jorethang	243	Vapi	302	Tungabhadra Dam
8	Haridwar	67	Katarniaghat Barrage	126	Massanjore Dam	185	Domohani Bridge	244	Daman	303	Singatlur Barrage
9	Chaudhury Charan Singh Madhya Ganga Barrage	68	Elginbridge	127	Tilpara Barrage	186	Mekhliganj	245	Nasik	304	Mantralayam
10	Garhmukhteshwar	69	Ayodhya	128	Narayanpur	187	AP Ghat (Silchar)	246	N M D Weir	305	Sunkesula Barrage
11	Narora Barrage	70	Kakardhari	129	Sikatia Barrage	188	Matizuri	247	Kopergaon	306	Kurnool
12	Kachlabridge	71	Balrampur	130	Gheropara	189	Badarpurghat	248	Mula Dam	307	Srisailam Dam
13	Fatehgarh	72	Bansi	131	Tenughat Dam	190	Karimganj	249	Jaikwadi Dam	308	Musi Dam
14	Kalagarh Dam	73	Birdghat (Gorakhpur)	132	Tilaiya Dam	191	Kailashahar	250	Manjlegaon Dam	309	Dr KLRS Pulichintala Dam
15	Moradabad	74	Turtipar	133	Konar Dam	192	Sonamura	251	Gangakhed	310	Prakasam Barrage
16	Bareilly	75	Darauli	134	Panchet Dam	193	Getlasud Dam	252	Yeldari Barrage	311	Avanigadda
17	Dabri	76	Gangpur Siswan	135	Maithon Dam	194	Chandil Dam	253	Nanded	312	Somasila Dam
18	Kannauj	77	Chhappra	136	Durgapur Barrage	195	Galudih Barrage	254	Karanja Dam	313	Nellore
19	Ankinghat	78	Bansagar Dam	137	Sundar Dam	196	Jamshedpur	255	Singur Dam	314	Poondi Reservoir
20	Kanpur	79	Rihand Dam	138	Harinkhola	197	Rajghat	256	Nizamsagar Dam	315	Chembarampakkam Lake
21	Dalmau	80	Annaraj Dam	139	Hinglow Dam	198	Mathani Rd Bridge	257	Sriramsagar Dam	316	Sathanur Dam
22	Phaphamau	81	Bhirawa Dam	140	Kangsabati Dam	199	Govindpur (NH5 Road Bridge)	258	Kaddam Project	317	Gomukhi Dam
23	Ichari Dam	82	Inderpuri Barrage	141	Mohanpur	200	Salandi Dam	259	Sripada Yellampally Project	318	Wellington Dam
24	Paonta Sahib	83	Inderpuri	142	Yingkiong	201	Anandpur	260	Upper Wainganga Project	319	Harangi Dam
25	Hathnikund Barrage	84	Koelwar	143	Pasighat	202	Akhuapada	261	Chaurai/Machchagora Rsvr	320	Hemavathy Dam
26	Karnal Bridge	85	Maner	144	Dholla Bazar	203	Rengali Dam	262	Bawanthadi Reservoir	321	Muthankera
27	Mawi	86	Patna (Dighaghat)	145	Dibrugarh	204	Jenapur	263	Totladoh Project	322	Kabini Dam
28	Dhansa	87	Gandak Barrage	146	Namsai	205	Ravi Shankar Dam	264	Bhandara	323	K R Sagar Dam
29	Delhi Railway Bridge	88	Khadda	147	Naharkatia	206	Bango Dam	265	Gosikhurd Dam	324	Mettur Dam
30	Mathura	89	Chatia	148	Chenimari (Khowang)	207	Hirakud Dam	266	Pauni	325	Bhavanisagar Dam
31	Agra	90	Dumariaghat	149	Nanglamoraghat	208	Naraj	267	Upper Wardha Prjoject	326	Savandapur

Table 1.6: List of Flood Forecast Stations											
32	Etawah	91	Rewaghat	150	Sivsagar	209	Alipingal	268	Issapur/Upper Penganga	327	Kodumudi
33	Gandhisagar Dam	92	Hajipur	151	Neamatighat	210	Nimapara	269	Balharsha	328	Kodaganar Dam
34	Rana Pratap Sagar Dam	93	Patna Gandhighat	152	Subansiri Lower Dam	211	Purushottampur	270	Sirpur Town	329	Musiri
35	Kota Barrage	94	Amanat Dam	153	Chouldhuaghat	212	Gunupur	271	Kaleswaram	330	Upper Anicut
36	Kota City	95	Batane Dam	154	NH Xing Ranganadi	213	Kashinagar	272	Laxmi Barrage	331	Grand Anicut
37	Bisalpur Dam	96	Sripalpur	155	Badatighat	214	Gotta Barrage	273	U Indravati Project	332	Vaigai Dam
38	Kalisindh Dam	97	Hathidah	156	Golaghat	215	Thottapalli reservoir	274	Jagdalpur	333	Madurai
39	Parwan Dam	98	Munger	157	Numaligarh	216	Madduvalasa Rsvr	275	PVN Rao Kanthapally Projct	334	Kumbidi
40	Gambhiri Dam	99	Lalbeghiaghat	158	Jiabharali NT Road Crossing	217	Narayanpuram Anicut	276	Eturunagaram	335	Idduki Dam
41	Panchana Dam	100	Ahirwalia	159	Tezpur	218	Srikakulam	277	Dummagudem	336	Idamalayar Dam
42	Gudha Dam	101	Sikandarpur (Muzzafarpur)	160	Kampur	219	Dantiwada Dam	278	Bhadrachalam	337	Neeleswaram
43	Parwati Dam	102	Samastipur	161	Dharamtul	220	Abu Road	279	Kolab Project	338	Malakkara
44	Dholpur	103	Rosera	162	Guwahati	221	Dharoi Dam	280	Machkund Project		
45	Manderial	104	Khagaria	163	Puthimari NH Crossing	222	Shetrunji Dam	281	Balimela Project		
46	Auraiya	105	Bhagalpur	164	Pagladiya NT Rd Crossing	223	Shubhash Bridge (Ahmedabad)	282	Chinturu		
47	Kalpi	106	Kahalgaon	165	Mathanguri	224	Mahi Bajajsagar Dam	283	Kunavaram		
48	Hamirpur	107	Kosi Barrage	166	Beki Road Bridge	225	Som Kamla Amba Dam	284	Indirasagar		
49	Rajghat Dam	108	Basua	167	Manas NH Crossing	226	Kadana Dam	285	Rajahmundry (Rly Bridge)		
50	Madikhera	109	Dheng Bridge	168	Goalpara	227	Panam Dam	286	Dowlaiswaram Barrage		
51	Matatila Dam	110	Runisaidpur	169	Kokrajhar	228	Wanakbori Weir	287	Atreyapuram		
52	Mohana	111	Benibad	170	Dhubri	229	Mandla	288	Koyna Dam		
53	Shahjina	112	Kamtaul	171	Golokganj	230	Barna Dam	289	Warna Dam		
54	Banda	113	Ekmighat	172	Tufanganj	231	Bargi Dam	290	Arjunwad		
55	Chillaghat	114	Hayaghat	173	NH 31 (Jaldhaka)	232	Tawa Dam	291	Hippargi Barrage		
56	Naini	115	Jainagar	174	Hasimara	233	Hoshangabad	292	Hidkal Dam		
57	Chhatnag (Allahabad)	116	Jhanjarpur	175	Ghugumari	234	Indira Sagar Dam	293	Almatti Dam		
58	Mirzapur	117	Sonebarsa	176	Mathabanga	235	Omkareswar Dam	294	Malaprabha Dam		
59	Varanasi	118	Baltara	177	Teesta III HEP	236	Sardar Sarovar Dam	295	Narayanpur Dam		

CHAPTER – 2

ROLE OF INDIA METEOROLOGICAL DEPARTMENT IN FLOOD FORECAST ACTIVITIES

2.1 ROLE OF INDIA METEOROLOGICAL DEPARTMENT

India Meteorological Department (IMD) is the nodal agency for issuing river sub-basin-wise Quantitative Precipitation Forecast (QPF). Central Water Commission (CWC) is the nodal agency for issuing Flood Forecast in the country. Flood forecasting, therefore, is the joint responsibility of IMD & CWC and there is a close coordination between the two departments in this activity (fig. -2.1). Flood Meteorological Offices (FMOs) of IMD provide hydrometeorological support mainly in terms of river sub-basin-wise 'Quantitative Precipitation Forecast (QPF)' through QPF & Hydro-met Bulletins. QPF bulletins and Hydromet Bulletins are issued at 0930hrs IST and at 1230hrs IST respectively. This special river sub-basin-wise forecast for a lead time of 7-days (forecast for 5 days and outlook for subsequent 2 days) are issued daily during flood season. QPF bulletins are further modified in the evening, if situation demands. These Bulletins are also issued by concerned FMOs during cyclone period or when there is a chance of heavy rainfall which may lead to flood in non-flood season.

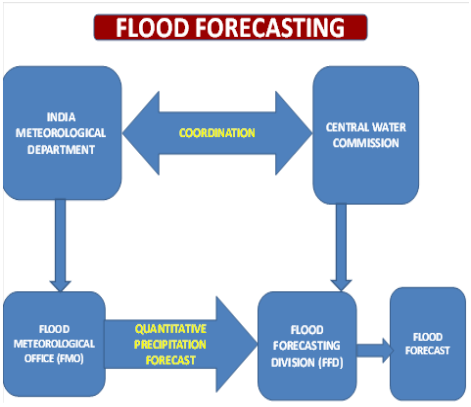


Fig.: 2.1 Coordination in Flood Forecast

The input of Hydro-met Bulletin are as follows;

a. Prevailing synoptic situations
b. River sub-basin wise QPF and probabilistic QPF for day-1, day-2, day-3, day-4 and day-5 for the categories as follows:
   i) 0 mm (ii) 0.1-10mm (iii) 11-25mm (iv) 26-50mm (v) 51-100mm (vi) >100mm
c. River sub-basin-wise outlook for the subsequent two days
d. River sub-basin-wise Heavy rainfall warnings
e. River sub-basin-wise Intensity and Spatial distribution of rainfall
f. Station-wise recorded significant rainfall
g. River sub-basin-wise past 24hrs realized rainfall

IMD has established 15 Flood Meteorological Offices (FMOs) at different parts of flood prone areas of the country which are located at Agra, Ahmedabad, Asansol, Bhubaneswar, DVC, Guwahati, Hyderabad, Jalpaiguri, Lucknow, New Delhi, Srinagar, Chennai, Bengaluru, Patna and Thiruvananthapuram (fig. 2.2). They cater to the river catchments of Yamuna, Narmada, Tapi, Ajoy, Mayurakshi and Kangsabati, Mahanadi, Brahmani and Subernarekha, Brahmaputra, Dhansiri and Barak, Godavari and Krishna, Cauvery, Teesta, Ganga and

Sharada, and Sahibi, Kosi, Baghmati, Gandak, etc. IMD also provides similar support to Damodar Valley Corporation (DVC) for the river basins viz., Barakar and Damodar. Flood Meteorological Offices of IMD provide hydrometeorological support to Flood Forecasting Divisions (FFDs) of Central Water Commission (CWC) to help them issue 'Flood warnings/Flood alerts'.

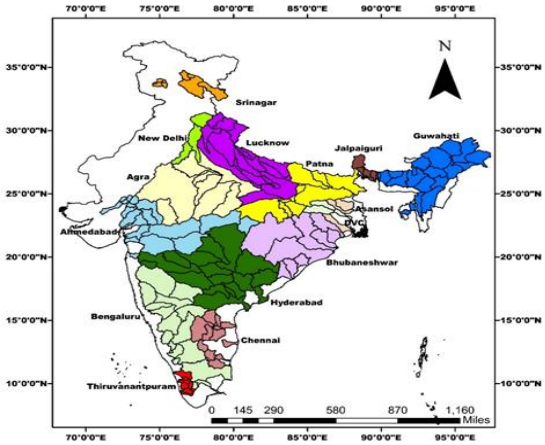


Fig.: 2.2 Flood Meteorological Offices

2.2 District-wise Rainfall Monitoring Scheme (DRMS)

The performance of monsoon rainfall over the country is monitored by evaluating the departures of area weighted total rainfall from the normal rainfall in respect of meteorological districts, sub-divisions, State and Country as a whole. IMD has categorized the rainfall as Large excess, Excess, Normal, Deficient and Large deficient according to the following criteria along with the color codes for graphical representation;

CATEGORY	% DEPARTURES OF RAINFALL	COLOUR CODE
Large Excess (LE or L. Excess)	> = 60%	
Excess (E)	>= 20% and <= 59%	
Normal (N)	>= - 19% and <= + 19%	
Deficient (D)	>= - 59% and <= - 20%	
Large Deficient (LD or L. Deficient)	>= - 99% and <= - 60%	
No Rain (NR)	= - 100%	
No Data (*)	Data Not Available	

2.3 SOUTH WEST MONSOON

India receives about 75% of its Annual rainfall during the Southwest monsoon season from June to September except over some portions of southeastern parts of Peninsular India where the main rains occur during the period of Northeast monsoon from October to

December, which overlap with the receding stage of the Southwest monsoon in October. Occasionally, cyclonic storms develop in the South Bay and move into the Peninsula producing heavy rains during Northeast monsoon season.

Southwest monsoon onsets over Kerala in the beginning of June and then advances further. During the season, spells of heavy, very heavy and extremely heavy rainfall occur across the country especially along the west coast of the Peninsula and on the southern slopes of Khasi and Jaintia hills in Northeast India.

In association with Depressions which occasionally form in the North Bay of Bengal and move west-northwestwards, heavy rains occur in the central parts of the country, Orissa, Gangetic West Bengal, Bihar, East and West Madhya Pradesh, East Rajasthan and Gujarat region.

A very important characteristic of southwest monsoon is the occurrence of "break". The break situations arise when the monsoon trough shifts to the foothills of 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 and occurrence of associated intense rainfall activity takes place. These two causes occurring in succession serve to intensify the floods.

The whole of India has been divided into 36 meteorological subdivisions by India Meteorological Department (IMD) for the purpose of description of rainfall/monsoon activities and for forecasting purpose.

2.4 HIGHLIGHTS OF SOUTH-WEST MONSOON 2023

- The Southwest Monsoon season rainfall over the country as a whole during 2023 was normal (94% of the Long Period Average (LPA)).

- The monthly rainfall over the country as a whole was less than LPA during two months of the season (91% of LPA in June, 64 % of LPA in August) and more than LPA during July (113% of LPA in July) and September (113% of LPA).

- The homogeneous regions of Northwest India (101% of LPA), Central India (100% of LPA), and South Peninsula (92% of LPA) received normal rainfall. However, the homogeneous region of East & Northeast India (82% of LPA) received below-normal rainfall.

- Out of the total 36 meteorological subdivisions, 3 subdivisions, constituting 9% of the total area of the country, received excess, 26 subdivisions received normal rainfall (73% of the total area), and 7 subdivisions (18% of the total area) received deficient season rainfall. The 7 Meteorological subdivisions which got deficient rainfall are Nagaland, Manipur, Mizoram & Tripura (NMMT), Gangetic West Bengal, Jharkhand, Bihar, East UP, South interior Karnataka and Kerala.

- During the season, 15 low pressure systems formed in the Indian region. One of these low-pressure systems intensified into an extremely severe Cyclonic storm ("BIPORJOY") that formed over the Northeast Arabian Sea from 6th to 19th June. There were two

monsoon depressions during the season, one in August (1-3 August) and another on 30th September against the normal frequency of 6.

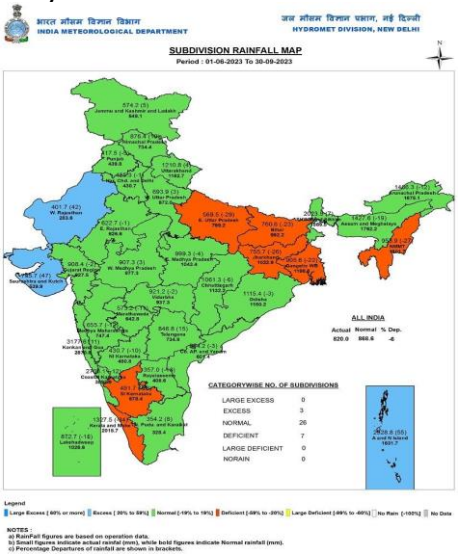


Fig.2. 3 Sub-divisional rainfall map of 2023 monsoon season.

2.5 ONSET AND ADVANCE OF SOUTHWEST MONSOON 2023

Southwest monsoon current advanced to the south Andaman Sea and Nicobar Islands on 19th May, 3 days ahead of its normal date. However, further advance after that was sluggish. It set in over Kerala on 8th June, 7 days behind the normal date. However, it covered the entire country by 2nd July, 6 days ahead of the normal date. The onset and advance of the monsoon 2023 over the Indian subcontinent are depicted in Figure 2.4.

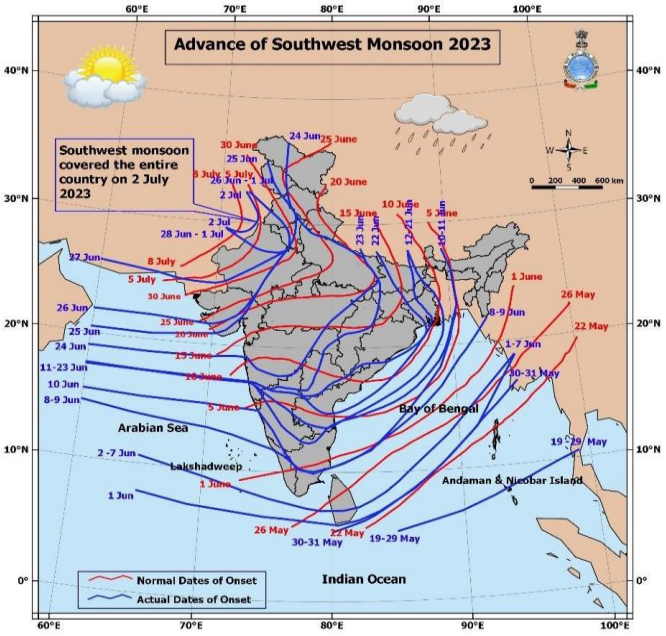


Fig.2.4 : Isochrones of the advance of southwest monsoon 2023

2.6 Synoptic Disturbances during SWM 2023

One deep depression, five well-marked low- pressure areas, six low pressure areas and one extremely severe cyclonic storm formed during the monsoon season 2023. The month

wise Low-pressure system formation, its area of origin and duration for SW monsoon 2023 is given below.

SW Monsoon 2023						
Month	L	WML	D	DD	ESCS	Total
June	0	2	0	0	1	3
July	3	1	0	0	0	4
August	1	0	0	1	0	2
September	2	2	1	0	0	5
Monsoon-23	6	5	1	1	1	14

2.7 Withdrawal of the Southwest Monsoon

With reduction in the rainfall and formation of the anti-cyclonic circulation in lower troposphere, withdrawal of the SW-monsoon 2023 from northwest Indian region began on 25th September against the normal date of 17th September. It retreated from most portion of the North West India, entire western Himalayan region by 06th October and most portion of the central Indian region by 12th October. The southwest monsoon was withdrawn from most portion of the East India and entire region of the central India by 15th October. An anticyclonic circulation prevailed over the central Indian region, accompanied by an upper air ridge around 20°N with absence of the SW monsoonal flow and rainfall over most region, SW monsoon was withdrawn from entire country on 16th October, 2023. The isochrones indicting the withdrawal of the SWM-2023 from the country is shown in Figure 2.5.

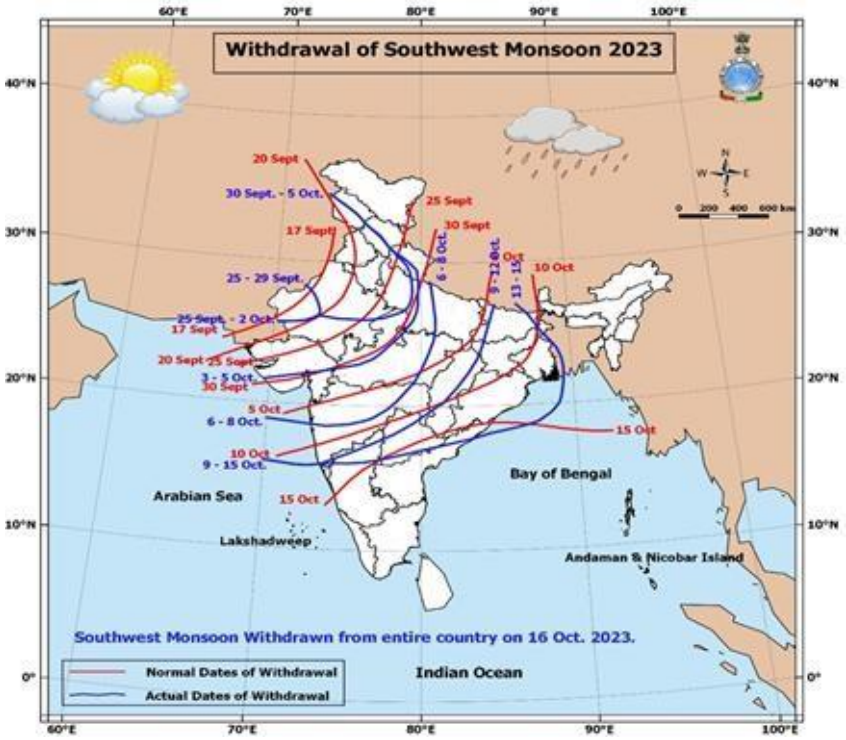


Fig. 2.5: Isochrones for withdrawal of South West Monsoon 2023

2.8 Conclusion

The SWM-2023 rainfall over the country as a whole during monsoon season, 2023 was 94% of its long period average (LPA). Monthly rainfall over the country as a whole was 91% of LPA in June, 113% of LPA in July, 64% of LPA in August, and 113% of LPA in September. The variations of the semi-permanent features of the SWM-2023 is in concurrence with the rainfall departures during the season. Southwest monsoon current advanced to south Andaman Sea and Nicobar Islands in time (on 19th May, 3 days ahead of its normal date). However, further advance thereafter was slow. It set in over Kerala on 8th June, 7 days behind the normal date and covered the entire country by 2nd July, 6 days ahead of normal date.

The SWM-2023 witnessed the one extremely severe cyclonic storm, six low pressure areas, five well-marked low-pressure areas, one depression and deep depression.

Monsoon withdrawal commenced from west Rajasthan on 25th September (with a delay of 8 days). With establishment of an anticyclonic circulation over the central Indian region and by satisfying all the conditions necessary for withdrawal of the monsoon from the country, SWM was withdrawn from entire country on 16th October.

2.9 Significant weather events during the season

The resultant weather which affected normal life and damage to property, excluding those from the lack of timely rains, are depicted in Fig. 1.10. High impact weather manifested as extremely heavy rainfall (rainfall amount ≥ 21cm during 24 hours) is also marked over the affected sub-divisions in the figure. A detailed analysis of some of these events is made in the subsequent chapters.

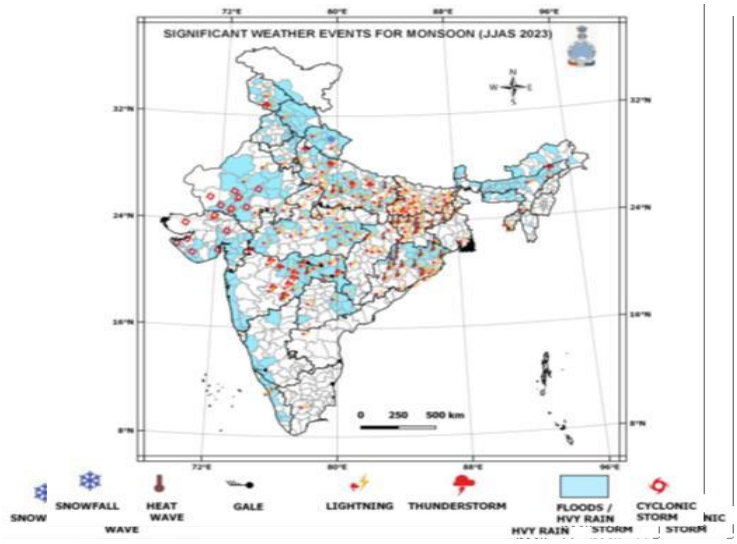


Fig. 2.6: Significant weather events in the southwest monsoon 2023 season causing disastrous situations.

2.9 RAINFALL DISTRIBUTION

The Southwest Monsoon season rainfall over the country as a whole during 2023 was 95% of Long Period Average (LPA). Rainfall distribution was generally fairly well distributed over major parts of the country, except Nagaland, Manipur, Mizoram and Tripura, East Uttar Pradesh, Bihar, Jharkhand, Gangetic West Bengal, South Interior

Karnataka and Kerala & Mahe Met sub-divisions. The country as a whole, rainfall during the month of July (113 % of LPA) & September (113 % of LPA) is higher side of the normal whereas, rainfall during the month of June (93 % of LPA) is lower side of the normal and August is (64 % of LPA) recoded as deficient.

General Features (Rainfall):

For the country as a whole, seasonal rainfall at the end of the southwest monsoon season (June to September) was 822.2 mm which is 95 % of 868.6mm LPA (1971-2020) value.

The four homogeneous regions received seasonal rainfall as follows:

i. East & Northeast India : 82 % of LPA
ii. Northwest India : 101 % of LPA
iii. Central India : 100 % of LPA
iv. South Peninsula : 92 % of LPA

The country received monthly rainfall during the season as follows:

i. June : 93% of its LPA
ii. July : 113% of its LPA
iii. August : 64% of its LPA
iv. September: 113 % of its LPA

2.11 INDIAN NORTHEAST MONSOON

The Indian southwest monsoon (SWM) season of June to September is the chief rainy season for India and about 75% of the country's annual rainfall is realised during this season. Subsequent to the withdrawal of SWM, the North East monsoon (NEM), a small scale monsoon confined to parts of southern peninsular India comprising of the meteorological sub-divisions of Tamil Nadu, Puducherry & Karaikal (TN), Kerala & Mahe (KER), Coastal Andhra Pradesh & Yanam (CAP), Rayalaseema (RYS) and South Interior Karnataka (SIK) occurs. For the subdivision of TN, the normal SWM seasonal rainfall realised is only about 36% (336.1 mm) of its annual rainfall (939.3 mm) as this subdivision comes under the rain-shadow region during the SWM. The northeast monsoon (NEM) season of October to December (OND) is the chief rainy season for this subdivision with 48% (443.3 mm) of its annual rainfall realised during this season and hence its performance is a key factor for this regional agricultural activity.

Further, the NEM season is also the primary cyclone season for the North Indian Ocean (NIO) basin comprising of the Bay of Bengal (BOB) and the Arabian Sea (AS) and cyclonic disturbances (CDs; low pressure systems (LPS) with maximum sustained surface wind speed (MSW) of 17 knots or more) forming over BOB and moving west/northwest-wards affect the coastal areas of southeastern peninsular India and also contribute significantly to NEM rainfall. As such, the NEM season assumes importance from the agricultural as well as cyclone disaster management perspectives.

Prior to the commencement of NEM rains, after the withdrawal of SWM upto 15°N, reversal of low level winds from southwesterly to northeasterly occurs. The normal date of setting in of easterlies over the southeastern peninsular India is 14th October. The normal date of onset of NEM over Coastal TN (CTN) and south CAP is 20th October.

The NEM rainfall is influenced by global climate parameters such as ENSO (El Nino/La Nina & Southern Oscillation Index), Indian Ocean Dipole (IOD) and Madden-Julian Oscillation (MJO). El Nino, positive IOD and MJO in phase 2-4 with amplitude greater than one are generally associated with good NEM rainfall.

2.12 ONSET PHASE

During October 2023, El Nino conditions prevailed over the equatorial Pacific Ocean, IOD was positive which were favourable for good NEM activity. However, MJO was in the western hemisphere and Africa (phase 7,8 &1) throughout the month which was not favourable for good NEM rainfall activity.

Under favourable large scale climate settings (El Nino & positive IOD), atmospheric flow pattern over the Indian region gradually changed from the SWM to NEM conditions during the second week of October 2023 with the establishment of low level anticyclone over the central India and reversal of low level winds over the southern peninsular India from westerly to easterly flow pattern around 12th October and gradually, the SWM withdrew from the entire country on 16th October. Pentad mean wind flow pattern depicting the reversal of wind from westerlies to easterlies during the second week of October 2023.

Simultaneously, under the influence of an upper air cyclonic circulation over TN and neighbourhood during 13th -16th October and another cyclonic circulation over LAK and neighbourhood during 15th & 16th October, generally scattered to fairly widespread rainfall occurred over TN during 13th -18th October and fairly widespread to widespread rainfall occurred on most days over KER during the same period. With isolated rainfall activity over CAP, RYS & SIK on 16th , commencement of NEM rains over TN, KER, CAP, RYS & SIK occurred on 16th October 2023. Upper air streamline analysis as on 0530 IST of 13th -16th October depicting the two cyclonic circulations in the lower levels, one over TN & neighbourhood during 13th -16th and another over LAK area during 15th & 16th October.

Scattered to fairly widespread rainfall occurred over TN during 15th -18th with isolated heavy to very heavy rain as on 24-hr ending 0830 IST of 15th & 16th & isolated heavy rain on 17th & 18th October. Thereafter, with the formation of a low pressure system over the BOB, moisture incursion over TN decreased considerably and rainfall activity over TN became weak till the end of October 2023. However, significant rainfall activity continued over KER till 25th October. Scattered to widespread rainfall occurred over KER on all days during 13th -25th October with isolated heavy to extremely heavy rainfall reports on 15th ; isolated heavy to very heavy rainfall on 24th ; and isolated heavy rain on 13th ,14th , 16th -18th , 21st , 23rd & 25th October 2023. Thiruvananthapuram airport (KER) recorded 21 cm and Chertala (Alapuzha district, KER) recorded 20 cm on 15th October. In TN, Mambazhathuraiyaru & Anaikedanku in Kanniyakumari district reported 17 cm on the same day.

Active NEM conditions prevailed over TN on 17th and over KER on 24th & 25th October 2023.

2.13 Major synoptic scale systems during the NEM 2023 season

During the period October-December 2023, four tropical cyclones formed over the Indian seas

(i) Extremely Severely Cyclonic Storm (ESCS) 'TEJ' over the Arabian sea during 20th -24th October , (ii) Very Severe Cyclonic Storm (VSCS) 'HAMOON' over the Bay of Bengal during 21st -25th October, (iii) Severe Cyclonic Storm (SCS) 'MIDHILI' over the Bay of Bengal during 15th - 18th November and (iv) Severe Cyclonic Storm 'MICHAUNG' over the Bay of Bengal during 01st -06th December 2023.

2.14 Summary

During the year 2023, the southwest monsoon withdrew from the Indian region on 16th October and the Northeast monsoon (NEM) of 2023 commenced simultaneously over the south eastern parts of peninsular India on 16th October 2023 against the normal date of 20th October.

Of the five meteorological sub divisions benefitted by the NEM, three subdivisions - Tamil Nadu (including Puducherry & Karaikal) (TN), Coastal Andhra Pradesh (CAP) & Kerala (KER) received normal to excess rainfall and the other two subdivisions - Rayalaseema (RYS), and South Interior Karnataka (SIK)] received deficient rainfall during the NEM season (October-December) 2023.

Active to vigorous monsoon conditions prevailed over TN on 20 days, over KER on 12 days and over RYS, CAP & SIK – 3-5 days during the season. There were 57 days of isolated heavy rainfall activity with 24 days of isolated very heavy rain including 07 days of isolated extremely heavy rainfall activity over TN.

Four cyclones affected the Indian seas during the season – Extremely Severe Cyclonic Storm (ESCS) TEJ over the Arabian Sea (AS) and Very Severe Cyclonic Storm (VSCS) HAMOON, Cyclonic Storm (CS) MIDHILI and Severe Cyclonic Storm (SCS) MICHAUNG over the Bay of Bengal (BOB).

The SCS MICHAUNG over the BOB during 01st -06th December crossed south Andhra Pradesh coast, south of Bapatla on 05th afternoon as SCS with maximum sustained surface wind speed of 90-100 kmph gusting to 110 kmph. Associated with the passage of this system, very heavy to extremely heavy rainfall occurred over Chennai and neighbouring districts of extreme north Tamilnadu, Rayalaseema & Coastal Andhra Pradesh during 04th - 06th December.

The other three cyclones ESCS TEJ that affected AS during 20th -24th Oct 2023 moved westwards and crossed Yemen coast, VSCS HAMOON that affected BOB during 21st -25th Oct 2023 tracked northeastwards and crossed Bangladesh coast and CS MIDHILI that affected BOB during 15th -18th Nov 2023 also tracked northeastwards and crossed Bangladesh coast leading to weak NEM rainfall activity over the peninsular India during the respective periods.

However, associated with an upper air cyclonic circulation over the Comorin area and neighbourhood, historical extremely heavy rainfall occurred over south Tamilnadu during 17th - 19th December, with Kayalpattinam in Thoothukudi district recording 95 cm/day and

30 other stations over Thoothukudi, Tirunelveli, Kanyakumari and Thenkasi districts recording over 30 cm/day on 18th December leading to devastating floods over extreme south Tamilnadu.

Thereafter, with the gradual decrease in rainfall activity, the cessation of NEM 2023 rainfall over the southern peninsular India was declared on 14th January 2024.

Chapter -3

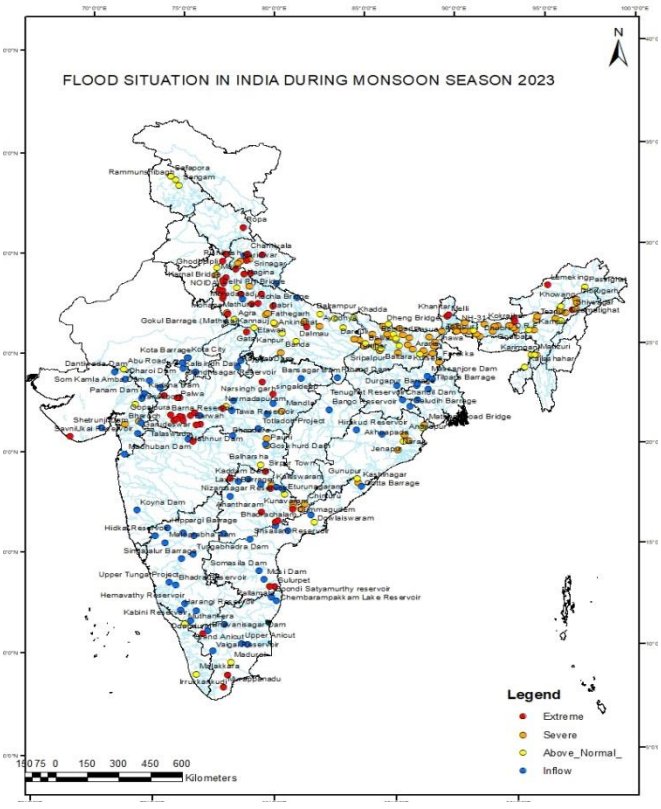
SIGNIFICANT FLOOD EVENTS

3.1 GENERAL

The Flood Forecasting Activity was expanded to 338 locations which includes 138 inflow forecasting sites. Desired hydro-meteorological data was observed/collected, during the flood season 2023 for these stations. Flood situation is monitored with respect to Warning Level (WL), Danger Level (DL) & previous Highest Flood Level (HFL).

3.2 AN OVERVIEW OF FLOOD EVENTS

Extreme flood situation (water level at or above previous HFL) were witnessed in 5 Flood Forecasting Stations in the State of Assam, Uttar Pradesh, Telangana, Sikkim and NCT Delhi. Severe flood events (water level at or above DL and below HFL) were witnessed in 76 stations and above normal floods (water level at or above WL and below DL) were witnessed at 47 stations and inflow forecasts were issued in 79 Stations. **Map 2** below shows the flood situation in the country during the year 2023.



Map 2: Flood situation in India during 2023

The number of stations flowed in Extreme, Severe, Above Normal Flood situation and the inflow Forecast issued during flood season 2023 are shown in **Fig 3.1.**

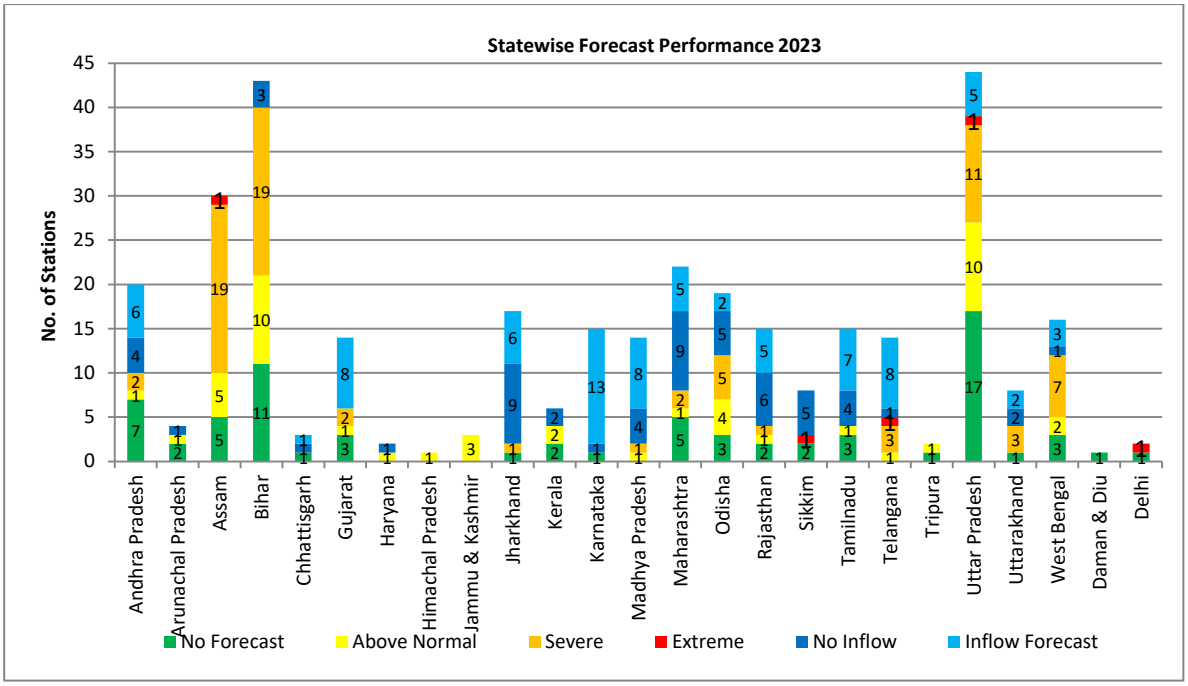


Fig 3.1 : Figure showing number of stations flowing in Extreme, Severe, Above Normal Flood situation and the inflow Forecast during flood season 2023.

State-wise flood situation, in terms of number of stations exceeding WL, DL, HFL and inflow exceeding threshold value at dams/barrages, has been tabulated in the following **Table 3.1**

Table 3.1

State/UT	Levels Exceeded				Inflow Exceeded	
	> WL	> DL	> HFL	Below (< WL) No Forecast	Dams/ Barrages	No forecast
1	2	3	4	5	6	7
Andhra Pradesh	1	2	0	7	6	4
Arunachal Pradesh	1	0	0	2	0	1
Assam	5	19	1	5	0	0
Bihar	10	19	0	11	0	3
Chhattisgarh	0	0	0	1	1	1
Gujarat	1	2	0	3	8	0
Haryana	1	0	0	0	0	1
Himachal Pradesh	1	0	0	0	0	0
Jammu & Kashmir	3	0	0	0	0	0
Jharkhand	0	1	0	1	6	9
Kerala	2	0	0	2	0	2
Karnataka	0	0	0	1	13	1
Madhya Pradesh	1	1	0	0	8	4
Maharashtra	1	2	0	5	5	9

Odisha	4	5	0	3	2	5
Rajasthan	1	1	0	2	5	6
Sikkim	0	0	1	2	0	5
Tamil Nadu	1	0	0	3	7	4
Telangana	1	3	1	0	8	1
Tripura	1	0	0	1	0	0
Uttar Pradesh	10	11	1	17	5	0
Uttarakhand	0	3	0	1	2	2
West Bengal	2	7	0	3	3	1
Daman & Diu	0	0	0	1	0	0
Delhi	0	0	1	1	0	0
Total	**47**	**76**	**5**	**72**	**79**	**59**

Basin wise information in terms of number of stations flowed in Extreme, Severe, Above Normal Flood situation and the inflow Forecast issued during flood season 2023 are shown in **Fig. 3.2.**

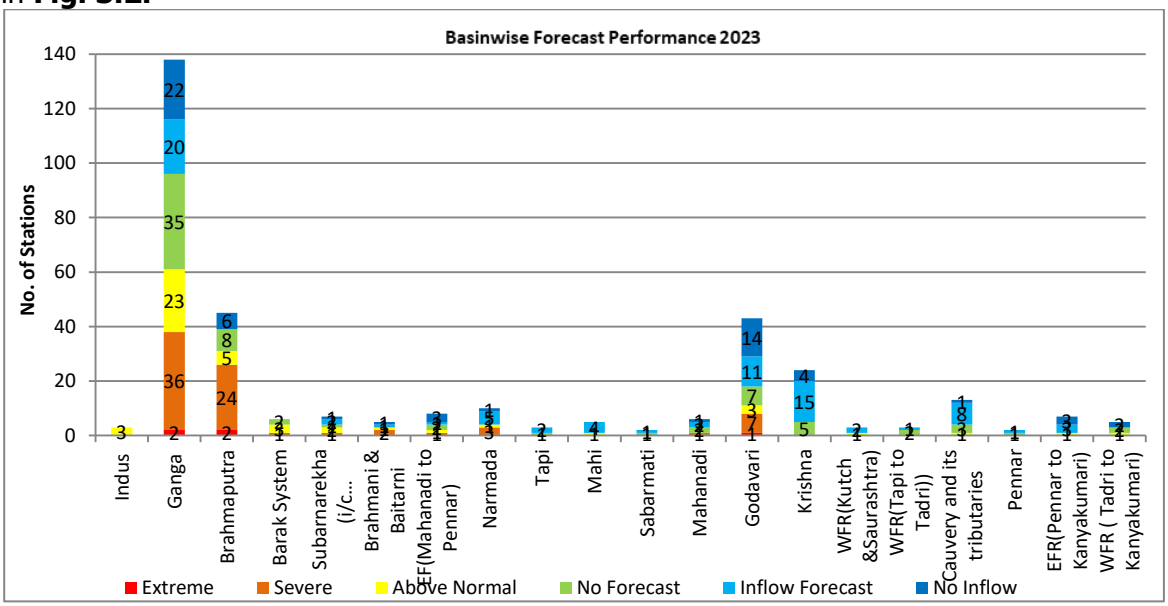


Fig 3.2 : Figure showing number of stations flowing in Extreme, Severe, Above Normal Flood situation and the inflow Forecast during flood season 2022 in different Basins

Basin-wise flood situation, in terms of number of stations in extreme, severe, above normal flood situation and inflow exceeding threshold value at dams/barrages, has been tabulated in the following **Table 3.2**

Table 3.2

Basin	Level				Inflow	
	Extreme Flood	Severe Flood	Above Normal	Below WL	Inflow Forecast	No Inflow
Indus	0	0	3	0	0	0
Ganga	2	36	23	35	20	22
Brahmaputra	2	24	5	8	0	6

Barak System	0	1	3	2	0	0
Subarnarekha (including Burhabalang)	0	1	2	1	2	1
Brahmani & Baitarni	0	2	1	0	1	1
EF(Mahanadi to Pennar)	0	1	1	2	1	3
Narmada	0	3	1	0	5	1
Tapi	0	0	0	1	2	0
Mahi	0	0	1	0	4	0
Sabarmati	0	0	0	1	1	0
Mahanadi	0	1	0	2	2	1
Godavari	1	7	3	7	11	14
Krishna	0	0	0	5	15	4
WFR(Kutch &Saurashtra)	0	0	1	0	2	0
WFR(Tapi to Tadri))	0	0	0	2	1	0
Cauvery and its tributaries	0	0	1	3	8	1
Pennar	0	0	0	1	1	0
EFR(Pennar to Kanyakumari)	0	0	1	0	3	3
WFR (Tadri to Kanyakumari)	0	0	1	2	0	2
Total	5	76	47	72	79	59

Details of flooding situation indicating districts affected and duration of different category of flood at a forecasting station during 2023 can be seen at **Annex – V**.

3.2.1 EXTREME FLOOD SITUATION

Extreme floods, exceeding previous highest flood levels (HFL), were observed in five sites namely **Sivsagar** in Sivasagar district of Assam, **Delhi Railway Bridge** in North Delhi district of NCT Delhi, , **Kachlabridge** in Budaun district of Uttar Pradesh , **Sirpur(T)** in Kumarambheem district of Telangana and **Melli** in Namchi district of Sikkim during the year 2023.

61 Flood Monitoring Stations flowed in Extreme Flood Situation in Arunachal Pradesh, Assam, Andhra Pradesh, Gujarat, Himachal Pradesh, Haryana, Maharashtra, Madhya Pradesh, Sikkim, Telangana, Tamil Nadu, Uttarakhand and Uttar Pradesh state.

Month wise number of flood forecast and monitoring stations witnessed Extreme Flood is shown in **Fig. 3.3**.

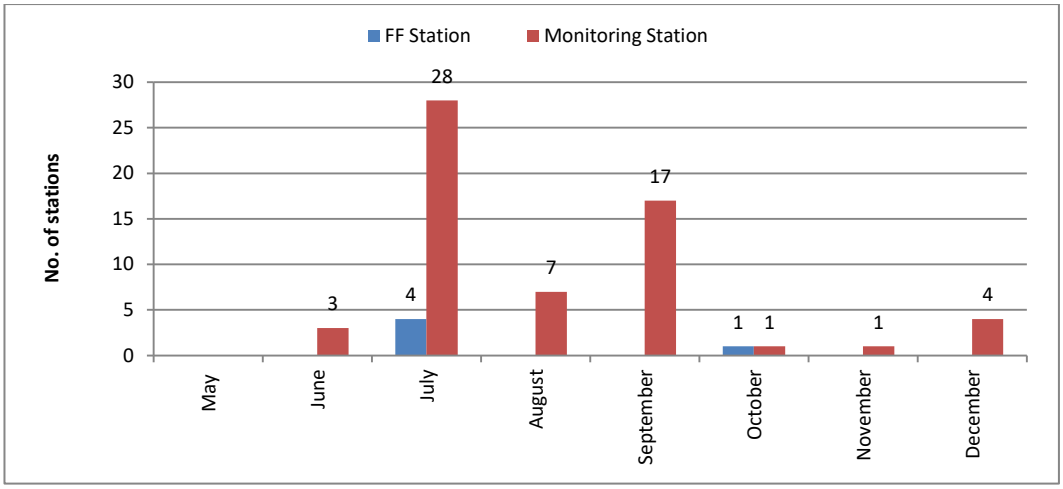


Fig. 3.3: Month wise number of flood forecasting/monitoring stations witnessed extreme floods during 2023

3.3 EXTREME FLOOD SITUATION (2019-2023)

It is observed that during the last 5 years extreme floods were witnessed in non-flood prone states such as Karnataka, Kerala, Maharashtra, Madhya Pradesh, Tamil Nadu in addition to existing flood prone states like Assam, Bihar, Odisha and Uttar Pradesh. **Fig 3.4** shows graph showing state wise extreme flood situation during the year 2019 to 2023.

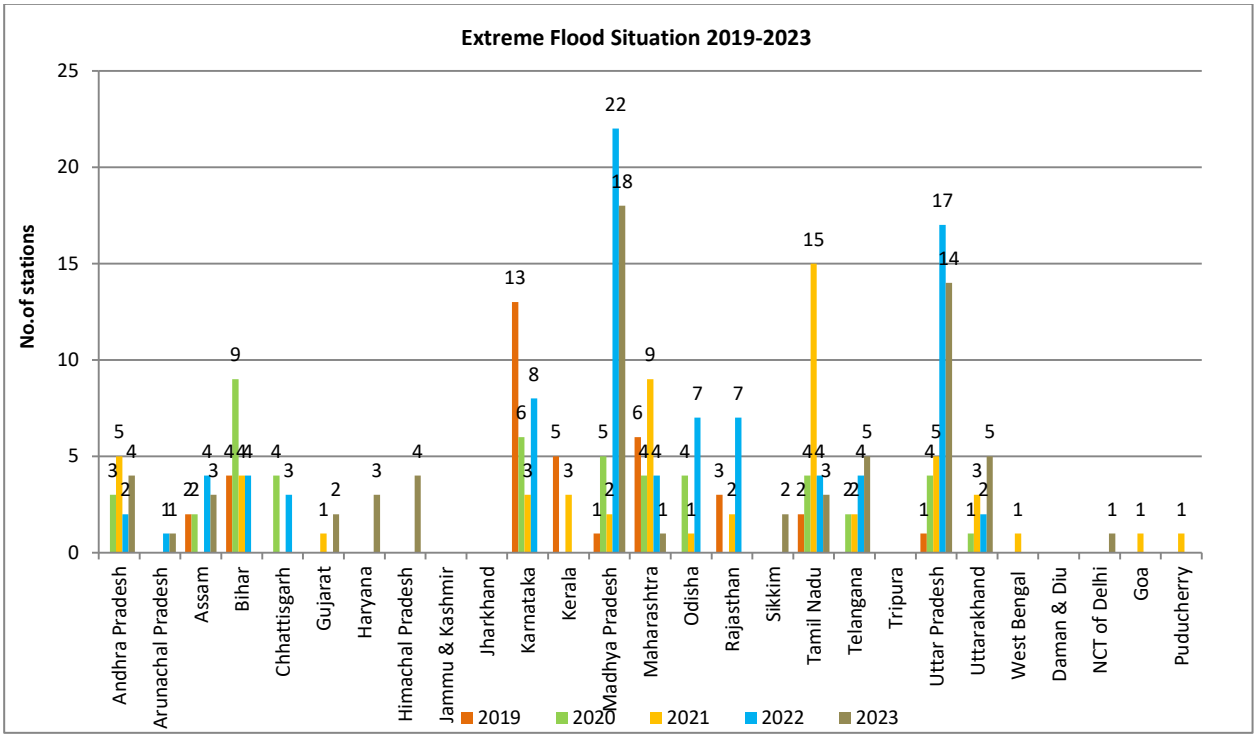


Fig. 3.4: State wise extreme flood situation during the years 2019 to 2023

3.4 MAJOR FLOOD EVENTS DURING LAST 10 YEARS

Year	States	Remarks
2011	**Odisha**	During the month of September Hirakud Dam received very heavy inflow and released huge quantum of water to downstream which causes unprecedented floods in delta area of Mahanadi.
2013	**Uttarakhand**	Very heavy to exceptionally very heavy rainfall recorded during the period 14th to 18th June 2013 in Uttarakhand due to cloudbursts which caused devastating floods and landslides. Due to this heavy rainfall, the glacier melts and Chorabari lake received large amount of water. This sudden increase of pressure broke the moraine embankment and the lake emptied in a few minutes, taking a large amount of debris and huge boulders along with water which led to heavy flood in Uttarakhand.
2014	**Jammu & Kashmir**	During the month of September extremely heavy rainfall occurred in Jhelum, Chenab and Tawi basin which causes the devastating flood.
2015	**Chennai**	During November heavy to very heavy rainfall occurred by NE monsoon system in Chennai due to which the lakes and reservoirs in Chennai got filled up and water was released from these reservoirs which leads to flood in Chennai.
2018	**Kerala**	During the Second and third week of August Kerala received extremely heavy rainfall. Due to back to back extremely heavy rainfall extreme flood situation occurred in Kerala.
2019	**Karnataka**	On first week of August Karnataka received 5 times more rainfall than the normal rainfall which causes intensified flood in Karnataka.
2020	**Assam**	During the month of July, Assam and Meghalaya received 30% more rainfall compared to normal rainfall. This excess rainfall causes flood in Assam.
2021	**Tamil Nadu , Andhra Pradesh**	Due to low pressure in Bay of Bengal occurred in November heavy to very heavy rainfall occurred in Andhra Pradesh. Due to this heavy rainfall Annamaya Dam receives high inflow and has breached. Overtopping and breach of Annamaya Dam leads to flood in the downstream areas.
2022	**Silchar(Assam)**	In the month of May 2022, parts of Silchar namely Rongpur and its adjacent areas were flooded due to heavy rainfall in the catchment area. Due to this river water overflowed the banks at many places and also overtopped some of the dykes of the Barak dyke system and flood water entered in some of the areas of Silchar. The dyke at Bethukandi which is located upstream of Annapurnaghat site was damaged and river water entered Silchar Town.
2023	**NCT Delhi, Sikkim Flood**	Very heavy rainfall occurred in Himalayan region upstream of Hathnikund Barrage during 9-11 July, 2023. The flow reached the Hathnikund Barrage on 11.07.2023 and Hathnikund Barrage passes peak discharge of 3.59 Lakh The high discharge downstream of Hathnikund Barrage created Flood situation in the river Yamuna. On 4 October 2023, due to heavy rains a Glacial Lake Outburst Flood (GLOF) occurred due to the breach of 'South Lhonak Lake' in the far north-western part of state of Sikkim and caused a devastating flood in river Teesta.

CHAPTER - 4

FLOOD FORECAST PERFORMANCE

4.1 INTRODUCTION

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.

4.2 EVALUATION CRITERIA 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.

4.3 FLOOD FORECASTING ACTIVITIES AND ITS ACCURACY

The flood forecasting activities like data collection, forecast formulation and its dissemination during 2023 covered various river basins and States. A total of 6339 forecast were issued during 2023. The performance of flood forecasting Division wise, Major Basin wise, State wise are given in **Annex -VI to VIII** and Flood forecasting performance for the period from 2000 to 2023 are given in **Annex -IX.**

4.3.1 RIVER BASIN-WISE DETAILS OF FLOOD FORECASTING ACTIVITES & ACCURACY OF FORECAST

The Basin-wise details of flood forecasting activity and accuracy of forecast was given in the **Table 4.1** and fig 4.1.

Table 4.1

Performance of Flood Forecasting Stations (Major Basinwise) in India during Flood Season 2023																
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 and its tributaries	3	3	0	0	0	0	46	37	80.43	0	0	-	**46**	**37**	80.43
2	Ganga & tributaries	138	96	42	57	35	22	2225	2115	95.06	427	384	89.93	**2652**	**2499**	94.23
3	Brahmaputra	45	39	6	14	8	6	2042	1979	96.91	0	0	-	**2042**	**1979**	96.91
4	Barak and others	6	6	0	2	2	0	34	31	91.18	0	0	-	**34**	**31**	91.18

5	Subarnarekha including Burhabalang	7	4	3	2	1	1	12	11	91.67	12	12	100.00	**24**	**23**	95.83
6	Brahmani and Baitarni	5	3	2	1	0	1	15	10	66.67	11	9	81.82	**26**	**19**	73.08
7	East flowing rivers between Mahanadi and Pennar	8	4	4	5	2	3	8	4	50.00	2	2	100.00	**10**	**6**	60.00
8	Narmada	10	4	6	1	0	1	39	36	92.31	91	87	95.60	**130**	**123**	94.62
9	Tapi	3	1	2	1	1	0	0	0	-	115	105	91.30	**115**	**105**	91.30
10	Mahi	5	1	4	0	0	0	6	2	-	32	26	81.25	**38**	**28**	73.68
11	Sabarmati	2	1	1	1	1	0	0	0	-	6	6	100.00	**6**	**6**	100.00
12	Mahanadi	6	3	3	3	2	1	16	15	93.75	72	67	93.06	**88**	**82**	93.18
13	Godavari	43	18	25	21	7	14	115	92	80.00	246	232	94.31	**361**	**324**	89.75
14	Krishna	24	5	19	9	5	4	0	0	-	288	266	92.36	**288**	**266**	92.36
15	West flowing rivers of Kutch and saurashtra including Luni	3	1	2	0	0	0	2	1	50.00	15	14	93.33	**17**	**15**	88.24
16	West Flowing rivers from Tapi to Tadri	3	2	1	1	1	0	2	0	0.00	15	13	86.67	**17**	**13**	76.47
17	Cauvery and tributaries	13	4	9	5	4	1	0	0	-	396	364	91.92	**396**	**364**	91.92
18	Pennr	2	1	1	1	1	0	0	0	-	1	0	0.00	**1**	**0**	0.00
19	East flowing rivers between Pennar and Kanyakumari	7	1	6	3	0	3	4	2	50.00	43	29	67.44	**47**	**31**	65.96
20	West Flowing river Tadri to Kanyakumari	5	3	2	4	2	2	1	1	100.00	0	0	-	**1**	**1**	100.00
Total		**338**	**200**	**138**	**131**	**72**	**59**	**4567**	**4336**	**94.94**	**1772**	**1616**	**91.20**	**6339**	**5952**	**93.89**

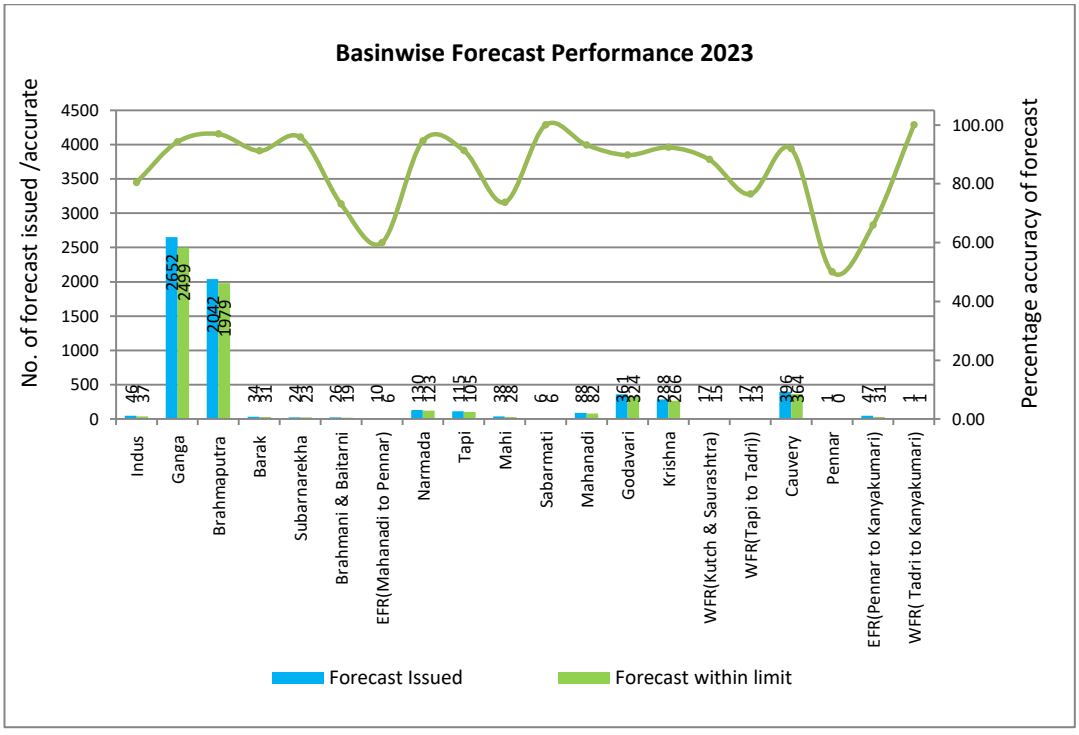


Fig 4.1: Basinwise Forecast performance during 2023

4.3.2 STATEWISE FLOOD FORECASTING PERFORMANCE

There are 22 states and three Union Territories of the Daman and Diu, Jammu & Kashmir and National Capital Territory of Delhi so far covered under the Flood Forecast and Warning Network of the Central Water Commission. The State-wise details of flood forecasting activity and accuracy of forecast was given in the **Table 4.2** and fig 4.2.

Table 4.2

Performance of Flood Forecasting Stations (Statewise) in India during Flood Season 2023

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	20	10	10	11	7	4	45	41	91.11	95	91	95.79	140	132	94.29
2	Arunachal Pradesh	4	3	1	3	2	1	7	7	100.00	0	0	-	7	7	100.00
3	Assam	30	30	0	5	5	0	1664	1651	99.22	0	0	-	1664	1651	99.22
4	Bihar	43	40	3	14	11	3	1180	1119	94.83	0	0	-	1180	1119	94.83
5	Chattisgarh	3	1	2	2	1	1	0	0	-	1	0	0.00	1	0	0.00
6	Gujarat	14	6	8	2	2	0	28	19	67.86	162	147	90.74	190	166	87.37
7	Haryana	2	1	1	1	0	1	2	2	100.00	0	0	-	2	2	100.00
8	Himachal Pradesh	1	1	0	0	0	0	2	0	0.00	0	0	-	2	0	0.00
9	Jammu & Kashmir	3	3	0	0	0	0	46	37	80.43	0	0	-	46	37	80.43
10	Jharkhand	17	2	15	10	1	9	41	40	97.56	84	84	100.00	125	124	99.20
11	Karnataka	15	1	14	2	1	1	0	0	-	356	336	94.38	356	336	94.38
12	Kerala	6	4	2	5	3	2	1	1	100.00	0	0	-	1	1	100.00
13	Madhya Pradesh	14	2	12	4	0	4	19	19	100.00	66	50	75.76	85	69	81.18
14	Maharashtra	22	8	14	14	5	9	21	9	42.86	84	67	79.76	105	76	72.38
15	Odisha	19	12	7	8	3	5	51	40	78.43	82	76	92.68	133	116	87.22
16	Rajasthan	15	4	11	8	2	6	7	3	42.86	26	20	76.92	33	23	69.70
17	Sikkim	8	3	5	7	2	5	3	0	0.00	0	0	-	3	0	-
18	Tamilnadu	15	4	11	7	3	4	4	2	50.00	320	280	87.50	324	282	87.04
19	Telangana	14	5	9	1	0	1	49	42	85.71	179	173	96.65	228	215	94.30
20	Tripura	2	2	0	1	1	0	2	1	50.00	0	0	-	2	1	50.00
21	Uttar Pradesh	44	39	5	17	17	0	846	826	97.64	214	195	91.12	1060	1021	96.32
22	Uttarakhand	8	4	4	3	1	2	29	24	82.76	56	50	89.29	85	74	87.06
23	West Bengal	16	12	4	4	3	1	463	414	89.42	47	47	100.00	510	461	90.39
24	Daman n Diu	1	1	0	1	1	0	0	0	-	0	0	-	0	0	-
25	NCT, DELHI	2	2	0	1	1	0	57	39	68.42	0	0	-	57	39	68.42
Total		**338**	**200**	**138**	**131**	**72**	**59**	**4567**	**4336**	**94.94**	**1772**	**1616**	**91.20**	**6339**	**5952**	**93.89**

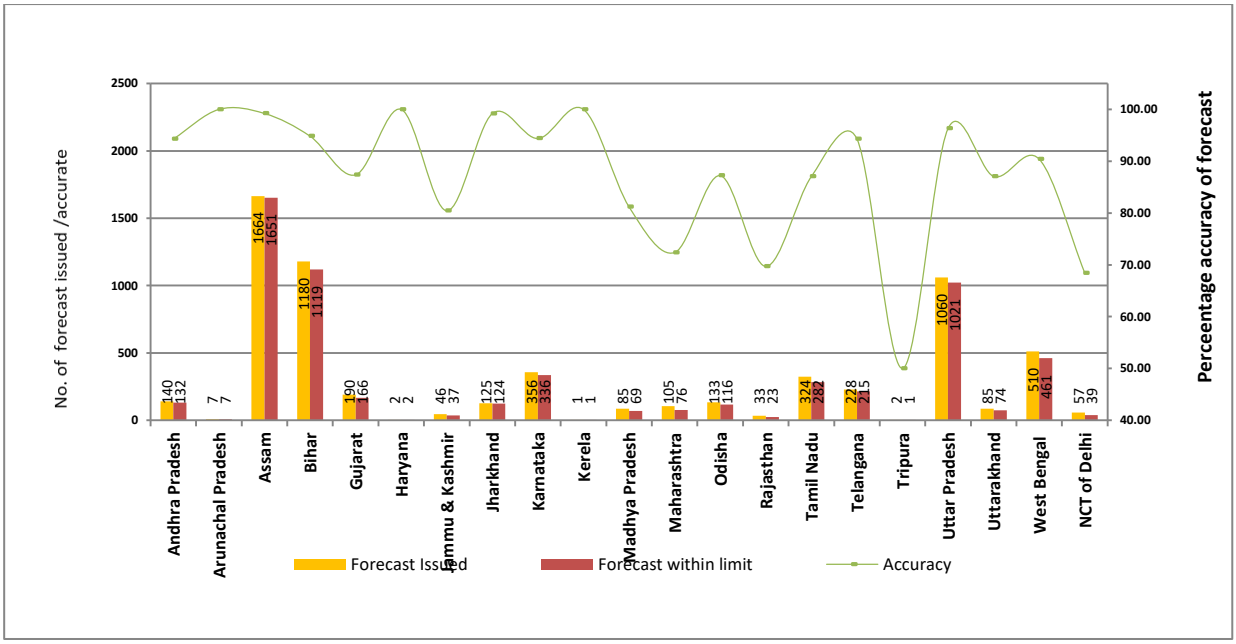


Fig. 4.2: State-wise Flood Forecast Performance during 2023

Details of Extreme flood events in the various river systems covered under the Flood Forecasting & Warning Network are given in **Annex–X** for the year 2023**.** Severe and Above Normal flood events are given at **Annex - XI to XIII,** for the year 2023.

4.4 AN OVERVIEW OF FLOOD FORECASTING PERFORMANCE

Central Water Commission has a flood forecasting network distributed over 20 major river systems The overall forecast performance was 93.89% for the country as a whole. Out of 338 sites, at 88 sites forecast performance was 100% accurate. The flood forecasting performance of the level forecasting as well as inflow forecasting sites from 2011 to 2023 is given in **Fig. 4.3.** Also, performance accuracy during 2023 of the sites where flood forecast was issued is attached as **Table 4.3**

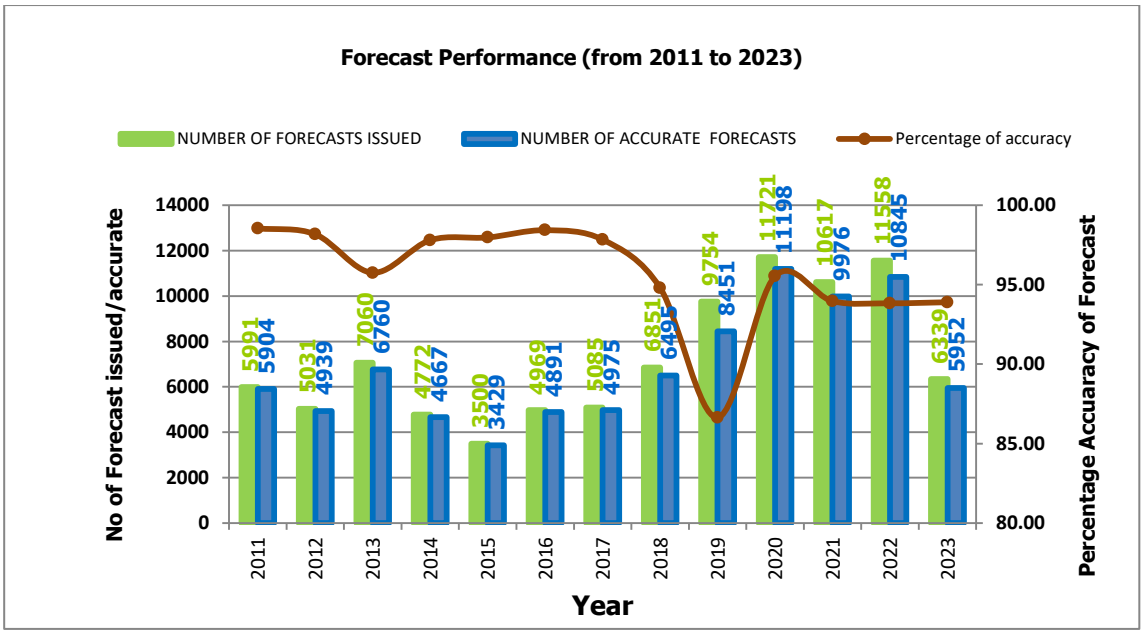


Fig. 4.3: Flood Forecast Performance from 2011 to 2023

Table 4.3: Performance accuracy during 2023 at flood forecasting sites of CWC

Sl. No.	Details	No. of Sites	%
1	Sites with performance accuracy between 0.0% to 25%	14	6.76%
2	Sites with performance accuracy between 25.1% to 50%	17	8.22%
3	Sites with performance accuracy between 50.1% to 75%	14	6.76%
4	Sites with performance accuracy between 75.1% to 99.99%	74	35.75%
5	Sites with 100% performance accuracy	88	42.51%
6	Total sites where forecasts were issued	**207**	**100%**

4.5 ACCURACY ANALYSIS REPORT:

Central Water Commission (CWC) through its field divisions collects hydrological and hydro-meteorological data on real–time basis during the flood season every year. Using these data, flood/inflow forecasts are formulated for 338 locations (200 Level and 138 Inflow Forecast Stations) and disseminated to various user agencies through Fax/e-mail/SMS and Website. In addition to the data collected from the network of CWC stations, the meteorological data and Quantitative Precipitation Forecast (QPF) received from India Meteorological Department are also utilised in formulation of flood forecast.

Under the conventional set up, the methodology used is generally either the basin persistence based mathematical/statistical techniques, co-axial graphs or mathematical models using rainfall data received from Indian Meteorological Department (IMD) or the rainfall data collected by CWC. The Level forecasts are issued whenever the water levels at CWC Flood Forecasting Station exceeds or expected to exceed the Warning Level (which is usually 1.0 m below the Danger Level but depends on the threat perception of the location) specified for the Flood Forecasting Station.

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.

Depending upon the above criteria the statewise last few years (2018-2023) accuracy performance report in tabular form is given below.

Forecast Performance (2018-2023) **Table 4.4**

Sl. No	Name of the Major River basin	Overall Forecast																		
		2018			2019			2020			2021			2022			2023			
		Total No.	Within limits	Accuracy (%)	Total No.	Within limits	Accuracy (%)	Total No.	Within limits	Accuracy (%)	Total No.	Within limits	Accuracy (%)	Total No.	Within limits	Accuracy (%)	Total No.	Within limits	Accuracy (%)
1	Andhra Pradesh	226	195	**86.28**	717	429	**59.83**	756	689	**91.14**	734	678	**92.37**	1253	1168	**93.22**	140.00	132.00	**94.29**
2	Arunachal Pradesh	73	72	**98.63**	30	30	**100.00**	130	129	**99.23**	49	49	**100.00**	0	0	-	7.00	7.00	**100.00**
3	Assam	2170	2156	**99.35**	2183	2168	**99.31**	3094	3081	**99.58**	1419	1415	**99.72**	1831	1820	**99.40**	1664.00	1651.00	**99.22**
4	Bihar	1225	1213	**99.02**	2186	2155	**98.58**	3223	3192	**99.04**	3317	3248	**97.92**	2429	2384	**98.15**	1180.00	1119.00	**94.83**
5	Chattisgarh	13	10	**76.92**	43	34	**79.07**	17	14	**82.35**	0	0	-	28	23	**82.14**	1.00	0.00	**0.00**
6	Daman n Diu	0	0	-	1	1	**100.00**	0	0	-	0	0	-	0	0	-	0.00	0.00	-
7	Gujarat	19	17	**89.47**	317	308	**97.16**	184	180	**97.83**	86	84	**97.67**	375	367	**97.87**	190.00	166.00	**87.37**
8	Haryana	1	1	**100**	2	2	**100.00**	0	0	-	0	0	-	1	0	**0.00**	2.00	2.00	**100.00**
9	Himachal Pradesh	0	0	-	4	2	**50.00**	0	0	-	0	0	-	1	0	**0.00**	2.00	0.00	**0.00**
10	Jammu & Kashmir	15	15	**100**	2	2	**100.00**	0	0	-	1	0	-	14	7	**50.00**	46.00	37.00	**80.43**
11	Jharkhand	153	152	**99.35**	140	131	**93.57**	364	339	**93.13**	625	565	**90.40**	235	227	**96.60**	125.00	124.00	**99.20**
12	Karnataka	760	664	**87.37**	1162	954	**82.10**	883	793	**89.81**	1012	933	**92.19**	1234	1154	**93.52**	356.00	336.00	**94.38**
13	Kerala		-	-	30	24	**80.00**	34	26	**76.47**	4	2	**50.00**	14	9	**64.29**	1.00	1.00	**100.00**
14	Madhya Pradesh	29	12	**41.38**	356	91	**25.56**	235	190	**80.85**	55	44	**80.00**	181	153	**84.53**	85.00	69.00	**81.18**
15	Maharashtra	31	30	**96.77**	277	198	**71.48**	153	136	**88.89**	147	122	**82.99**	303	261	**86.14**	105.00	76.00	**72.38**
16	NCT, DELHI	35	33	**94.29**	7	6	**85.71**	0	0	-	27	19	**70.37**	43	29	**67.44**	57.00	39.00	**68.42**
17	Odisha	203	199	**98.03**	233	216	**92.70**	266	239	**89.85**	200	170	**85.00**	280	252	**90.00**	133.00	116.00	**87.22**
18	Rajasthan	0	0	-	146	59	**40.41**	59	32	**54.24**	91	60	**65.93**	83	35	**42.17**	33.00	23.00	**69.70**
19	Sikkim	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	3.00	0.00	-
20	Tamilnadu	581	488	**83.99**	571	538	**94.22**	445	370	**83.15**	634	486	**76.66**	905	777	**85.86**	324.00	282.00	**87.04**
21	Telangana	86	63	**73.26**	219	113	**51.60**	335	310	**92.54**	323	302	**93.50**	700	655	**93.57**	228.00	215.00	**94.30**
22	Tripura	12	11	**91.67**	0	0	-	0	0	-	0	0	-	4	4	**100.00**	2.00	1.00	**50.00**
23	Uttar Pradesh	866	840	**97**	812	696	**85.71**	911	880	**96.60**	1370	1308	**95.47**	1261	1166	**92.47**	1060.00	1021.00	**96.32**
24	Uttarakhand	45	37	**82.22**	11	6	**54.55**	22	21	**95.45**	35	25	**71.43**	14	9	**64.29**	85.00	74.00	**87.06**
25	West Bengal	308	287	**93.18**	305	288	**94.43**	610	577	**94.59**	488	466	**95.49**	369	345	93.50	510.00	461.00	**90.39**
Total		6851	6495	**94.8**	**9754**	**8451**	**86.64**	**11721**	**11198**	**95.54**	**10617**	**9976**	**93.96**	**11558**	**10845**	**93.83**	**6339**	**5952**	**93.89**

Reasons for Low accuracy:

1. There are mainly two types of sites :-
   (i) Located on flashy rivers. In flashy rivers, the rate of change in river level is sudden/abrupt and sharp in magnitude.
   (ii) Located on unflashy rivers. Here the rate of change in river level is not so sudden or sharp.

Applying the same criteria of accuracy to all the forecasting sites on main stream Ganga in Bihar and to the forecasting sites at Haridwar on Ganga in Uttarakhand is not logically correct. It is observed that in Bihar the rate of rise and fall in the level of river Ganga is very gentle and even and within 15cm only which is the permissible limit of deviation (Table 4.5). Whereas the rate of rise and fall at Haridwar is more than 15 cm. (Table 4.6) Similarly it is observed that the rate of rise and fall of Water Level at Anandpur on the river Baitarni in Odisha is more than 15 cm during forecast time (Table 4.7).

Rate of Rise and fall of Water Level at Dighaghat in Bihar

Table 4.5

Date and time	Water Level in m	Rate of Rise/Fall (cm/hr)
Event 1		
07/08/2023 01:00:00.00	48.42	0
07/08/2023 02:00:00.00	48.42	2
07/08/2023 03:00:00.00	48.44	0
07/08/2023 04:00:00.00	48.44	0
07/08/2023 05:00:00.00	48.44	1
07/08/2023 06:00:00.00	48.45	1
07/08/2023 07:00:00.00	48.46	1
07/08/2023 08:00:00.00	48.47	1
Event 2		
04/10/2023 00:00:00.00	47.27	-1
04/10/2023 01:00:00.00	47.26	0
04/10/2023 02:00:00.00	47.26	-1
04/10/2023 03:00:00.00	47.25	0
04/10/2023 04:00:00.00	47.25	-1
04/10/2023 05:00:00.00	47.24	0
04/10/2023 06:00:00.00	47.24	0
04/10/2023 07:00:00.00	47.24	-1
04/10/2023 08:00:00.00	47.23	0
04/10/2023 09:00:00.00	47.23	-1

Rate of Rise and fall of Water Level at Haridwar in Uttarakhand

Table 4.6

Date and time	Water Level in m	Rate of Rise/Fall (cm/hr)
Event 1		
13/08/2023 23:00:00.00	292.88	32
14/08/2023 00:00:00.00	293.2	42
14/08/2023 01:00:00.00	293.62	78

14/08/2023 02:00:00.00	294.4	24
14/08/2023 03:00:00.00	294.64	31
Event 2		
14/08/2023 16:00:00.00	295.32	-29
14/08/2023 17:00:00.00	295.03	-43
14/08/2023 18:00:00.00	294.6	-10
14/08/2023 19:00:00.00	294.5	-33
14/08/2023 20:00:00.00	294.17	-17
14/08/2023 21:00:00.00	294	-19

Rate of Rise and fall of Water Level at Anandpur in Odisha

Table 4.7

Date and time	Water Level in m	Rate of Rise/Fall (cm/hr)
Event 1		
03/08/2023 16:00:00.00	38.22	-27
03/08/2023 17:00:00.00	37.95	-23
03/08/2023 18:00:00.00	37.72	-17
03/08/2023 19:00:00.00	37.55	-15
03/08/2023 20:00:00.00	37.4	-14

Thus applying the same criteria (±15cm) on both types of sites is technically incorrect.

2. It is not appropriate to compare the forecast performance accuracy of statistically insignificant number of forecasts. For example, South Western River Division, Kochi issued 1 no. of forecast and it is within permissible limit with 100% accuracy whereas in Lower Ganga Division-1, 1092 no. of forecast were issued for various sites under its jurisdiction in 2023 with 1035 no. within permissible limit with 94.78% which is less than 100%. This indicates that where the no. of forecasts issued are statistically insignificant in such cases the concerned division is likely to gain or lose in accuracy with a large swing. Therefore, the accuracy percentage must be seen together with related no. of forecast.

3. Actual and forecasted rainfall received from by IMD is not so accurate, sometimes it varies largely, that resulted into the inaccurate level and inflow forecast. In addition, spatial and temporal distribution of rainfall of rainfall is not so sufficient to predict accurate catchment rainfall representation.

4. The absence of Rain gauge station in the intervening catchment between Base station and Forecast station due to which accounting accurate runoff from intervening catchment is very difficult.

5. Forecast at the sites located downstream of reservoir, also affected by the release from the dam. Mostly estimated release is not matching with the actual release from the dam.

CHAPTER – 5

Advisory Flood Forecast

5.1 BACKGROUND

CWC currently provides a 7-day advisory flood forecast on its web portal https://aff.india-water.gov.in/ using mathematical model on pan-India for 20 major river basins of the country, covering 200 water level and 138 reservoir inflow forecast stations. This marks a significant paradigm shift from the conventional Gauge-to-Gauge correlation to a more scientific modelling technique for flood forecasting. The system uses regularly calibrated basin models developed using MIKE-11 modelling software, while its real time operation is done in automatic manner by scheduling scripts written in Python and then using JavaScript for publishing the model outputs in web portal. The entire system is updated every three hours for all stations simultaneously.

The system utilizes both hydrologic (Rainfall-Runoff module) and hydrodynamic modelling (HD module techniques) in integrated manner in MIKE11 for real-time water level and inflow prediction in major rivers and reservoirs, respectively. The hydrological module is primarily used for hydrologic prediction i.e. various runoff components. The major inputs into this model are near real time satellite rainfall estimate, IMD daily real time gridded rainfall , which is used to do correction of satellite rainfall estimate on daily basis and IMD rainfall forecast from numerical model for next seven days from time of forecast. The hydrological models are instrumental in performing Rainfall-Runoff conversion at sub basin level, while the hydrodynamic model is used to simulate river flow/level along with structural operations to provide flood forecast for all Forecasting stations in real-time. This has resulted in substantially increasing the lead time to 7 days for all stations.

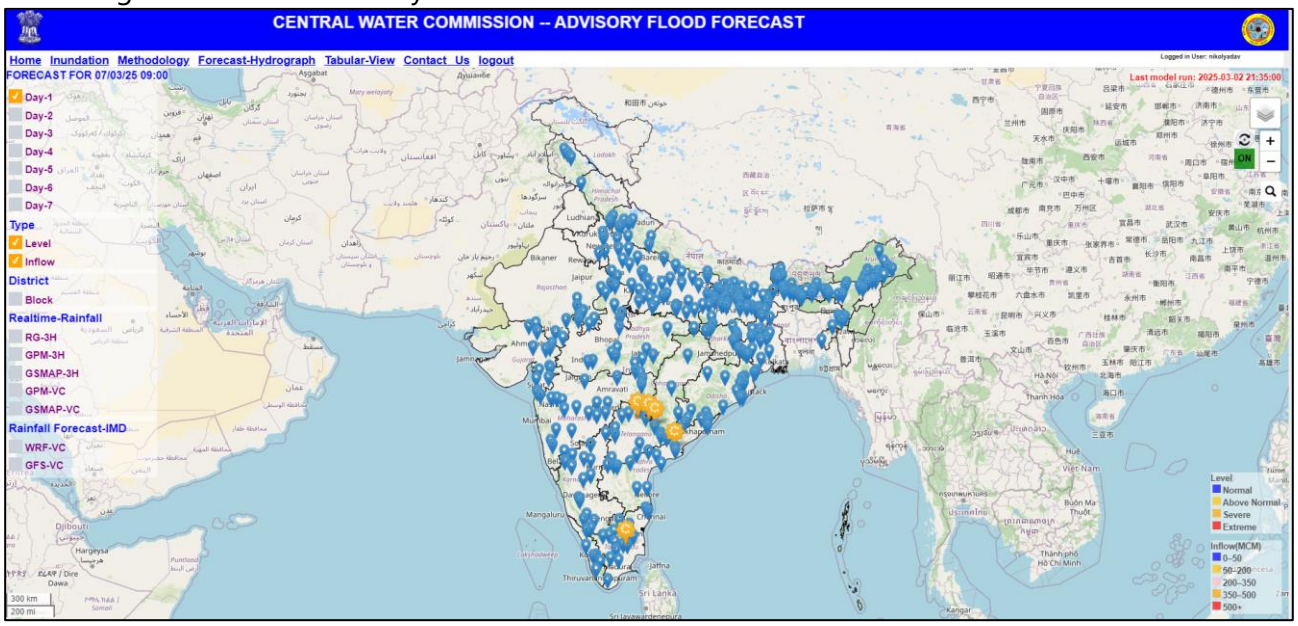


Fig 5.1 : Five day advisory flood forecast portal

5.2 Inputs for model

The 7 day advance advisory flood forecast is generated using reliable rainfall data products from various sources:

1. Near Real Time Rainfall data/ Satellite Estimates
    a. GsMaP (Global Satellite Mapping of Precipitation- JAXA product) at 10KM*10KM resolution at interval of 1 hour
    b. GPM (Global Precipitation Measurement- NASA & JAXA product) at 10KM*10KM resolution at interval of 30 minutes
    c. Daily Gridded Rainfall Dataset of all over India at 25KM*25KM resolution (past 24 hours accumulated rainfall based on observation stations)
2. Forecast data from IMD (Indian Meteorological Department):
    a. GFS (Global Forecast System) at 12.5KM*12.5KM degree resolution for next 10 days forecast period at interval of 3 hours
    b. WRF (Weather Research and Forecasting) at 3KM*3KM for next 3 days forecast period at interval of 1 hour

The process flow of various activities involved in forecast formulation is governed by various scripts that are scheduled to execute the required tasks seamlessly. These scripts are maintained & updated in house by CWC for smooth running of system. The datasets mentioned above are the major inputs to the system for real-time operation, and these datasets are received through API/FTP/SFTP mode, downloaded using Python, and processed into the required file formats for injection into the developed basin/sub-basin models. The hydrological data such as real-time water level and inflow/outflow are received from Water Information Management System (WIMS) through NWIC. Subsequently, all the river models run sequentially and generate results, which are then automatically displayed on the web portal

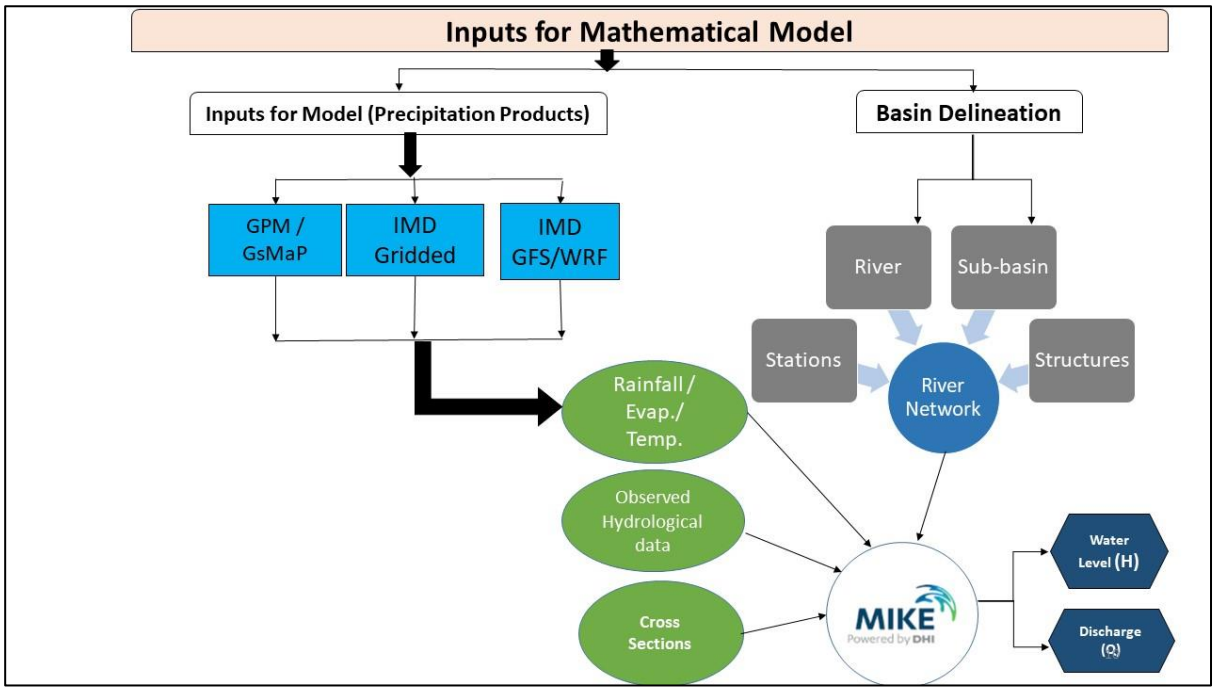


Fig 5.2 Inputs for Model

5.3 PERFORMANCE OF Advisory Flood Forecast System:

1. The Advisory Flood Forecast (AFF) System successfully provided 7-day flood forecasts for 200 water level stations and 140 reservoir inflow stations across 20 major river basins. The integration of hydrological and hydrodynamic models, along with satellite-based rainfall data and IMD forecasts, has significantly enhanced the system's ability to predict flood conditions in advance.
2. The forecast accuracy for each day of the 7-day forecast for all stations. For example, Day 1 accuracy was generally higher across most stations, while accuracy decreased progressively towards Day 7.
3. For Day 1 forecasts, many stations showed recall and precision values above 0.8, indicating that the system was able to predict the majority of critical flood conditions accurately.
4. The root mean square error values indicated the level of deviation between the predicted and observed values. Some of the stations had relatively low RMSE values, while some stations showed higher deviations.
5. The accuracy metrics for short-term forecasts (Day 1 to Day 3) were high, especially for critical flood categories such as Danger Level (DL) and Warning Level (WL).
6. Despite the overall success, the evaluation has identified several areas for improvement in the forecasting process:
7. The accuracy of the 7-day flood forecasts declines significantly beyond Day 3 based on the obtained values of the Root Mean Square Error (RMSE) and Mean Absolute Error (MAE) evaluations. For some stations, the Nash-Sutcliffe Efficiency (NSE) also showed lower values for long-term predictions.
8. The accuracy of the forecasts is heavily dependent on the quality of the input data, especially satellite-based rainfall estimates and ground observations. In cases where data was missing or inaccurate, the forecasts tended to have higher errors. This points to the need for improving data acquisition systems and ensuring the consistency and accuracy of real-time data inputs.
9. The model accuracy is being improved continuously by adopting techniques like bias correction i.e. being applied on both rainfall products & model output as well. Scientifically calibrating the model parameters, integrating the available additional hydrological & hydro-metrological data and enhancing the control strategies of the reservoir in the model is being implemented. The more advance techniques such as Data Assimilation and Flood Forecast module will also be explored.
10. Necessary steps will be taken to integrate the Nowcast product (very short range forecast i.e. upto 2-3 hours) of IMD will be integrated for further improvement of Day 1 forecast.
11. The system’s real-time automation, where models are updated every three hours and results are published on the AFF web portal, ensures that stakeholders have access to updated flood forecasts.

CHAPTER – 6

ANALYSIS OF FLOOD EVENTS IN INDIA

6.1 INTRODUCTION

In India about 80% of the annual rainfall occurs during the period of South- West monsoon from June to September except some portion of the south eastern part of peninsular India where the main rain occurs during the period of North East Monsoon from October to December.

The variation in rainfall pattern in India from one region to another is very vast. Generally, the normal annual rainfall in North Eastern region is very high compared to Western part of India. Main Flood prone basins are Ganga and Brahmaputra and the states affected are Assam, Bihar, Uttar Pradesh and West Bengal.

However, it is observed that during the last 5 years extreme floods were witnessed in non-flood prone states such as Karnataka, Kerala, Maharashtra, Madhya Pradesh, Tamilnadu in addition to existing flood prone states like Assam, Bihar, West Bengal and Uttar Pradesh. **Fig 6.1** and **Fig 6.2** shows graph showing state wise extreme and Severe flood situation during the year 2019 to 2023.

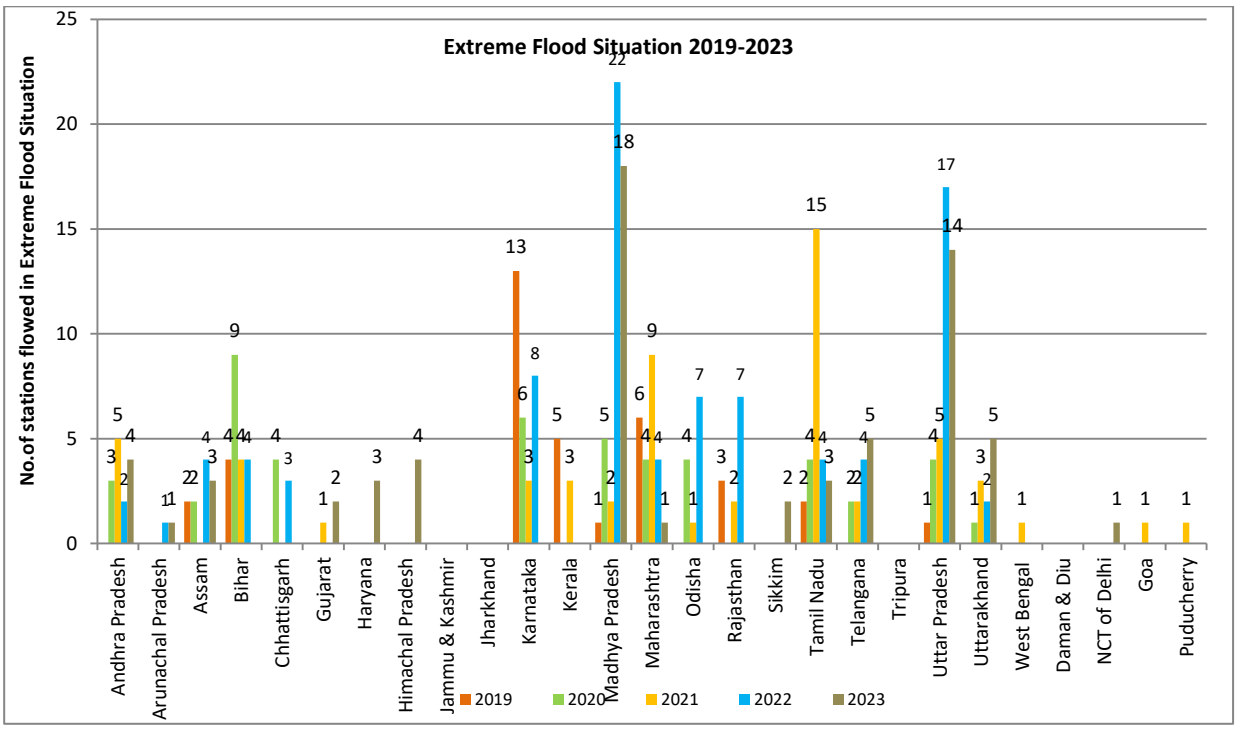


Fig. 6.1: State wise extreme flood situation during the years 2019 to 2023

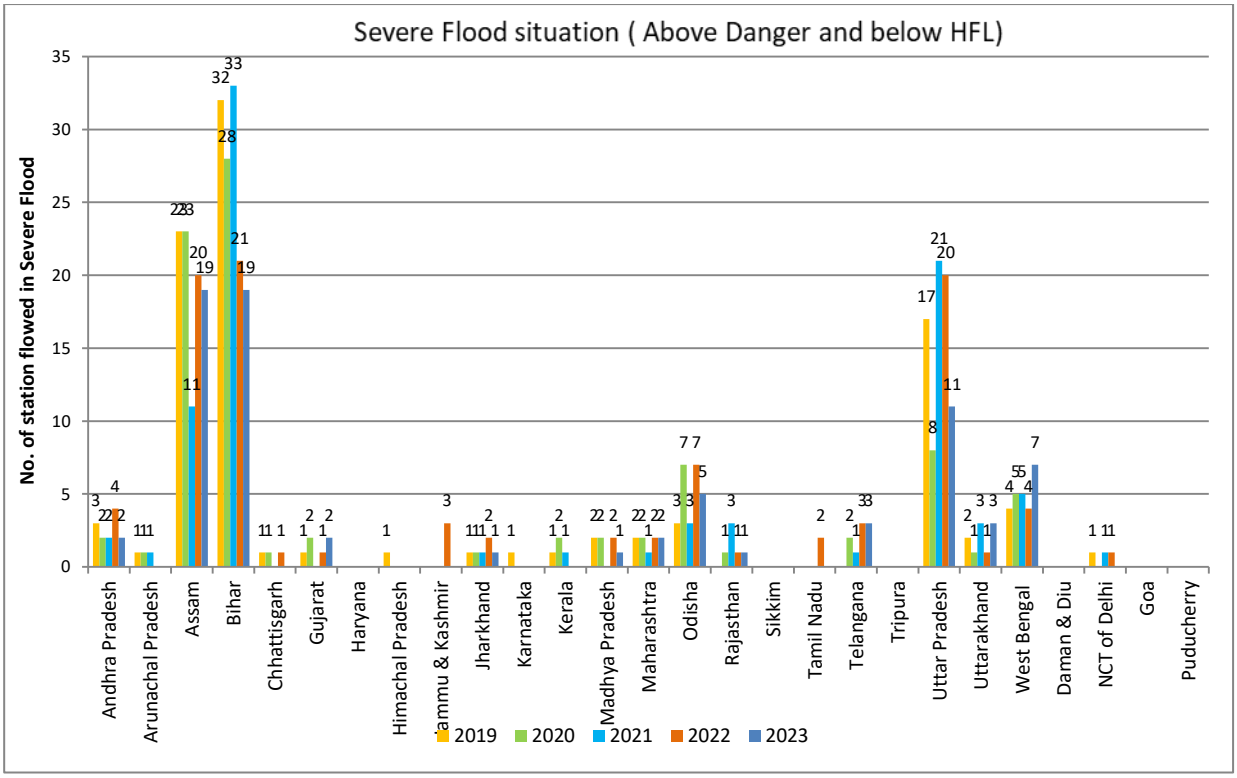


Fig. 6.2: State wise Severe flood situation during the years 2019 to 2023

6.2 STATE WISE FLOOD SITUATION IN INDIA DURING LAST FEW YEARS (2018-2023)

Under this section state-wise, no. of days on which river flowed in severe and extreme flood situation over various flood forecasting sites are presented.

6.2.1 ANDHRA PRADESH

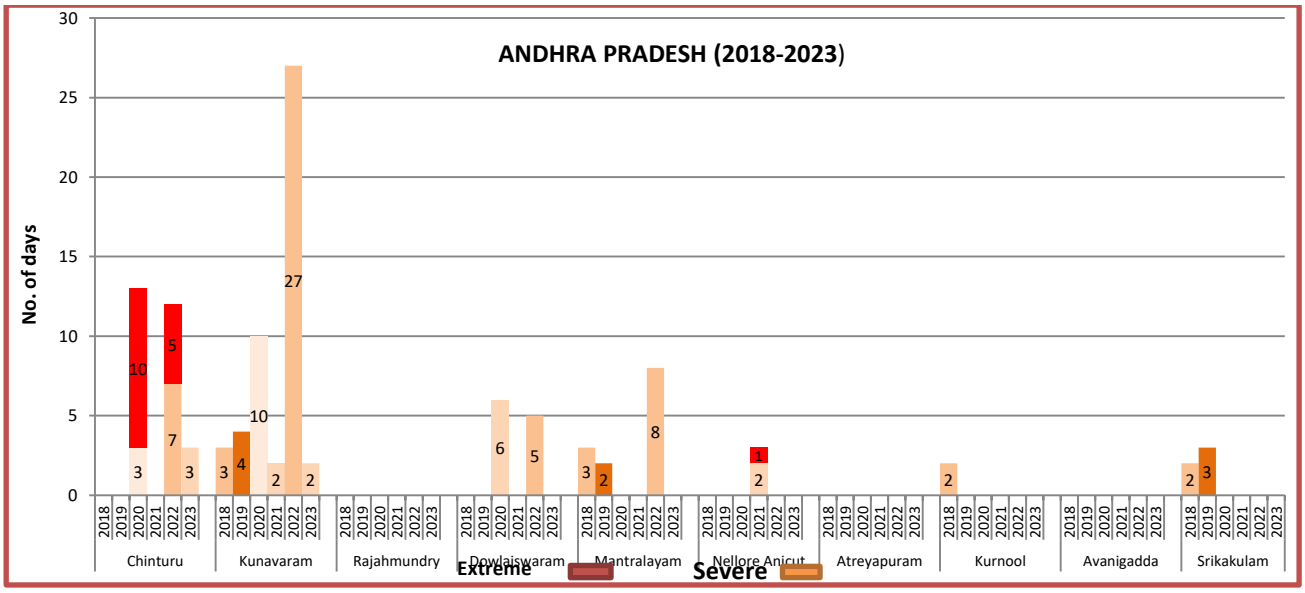
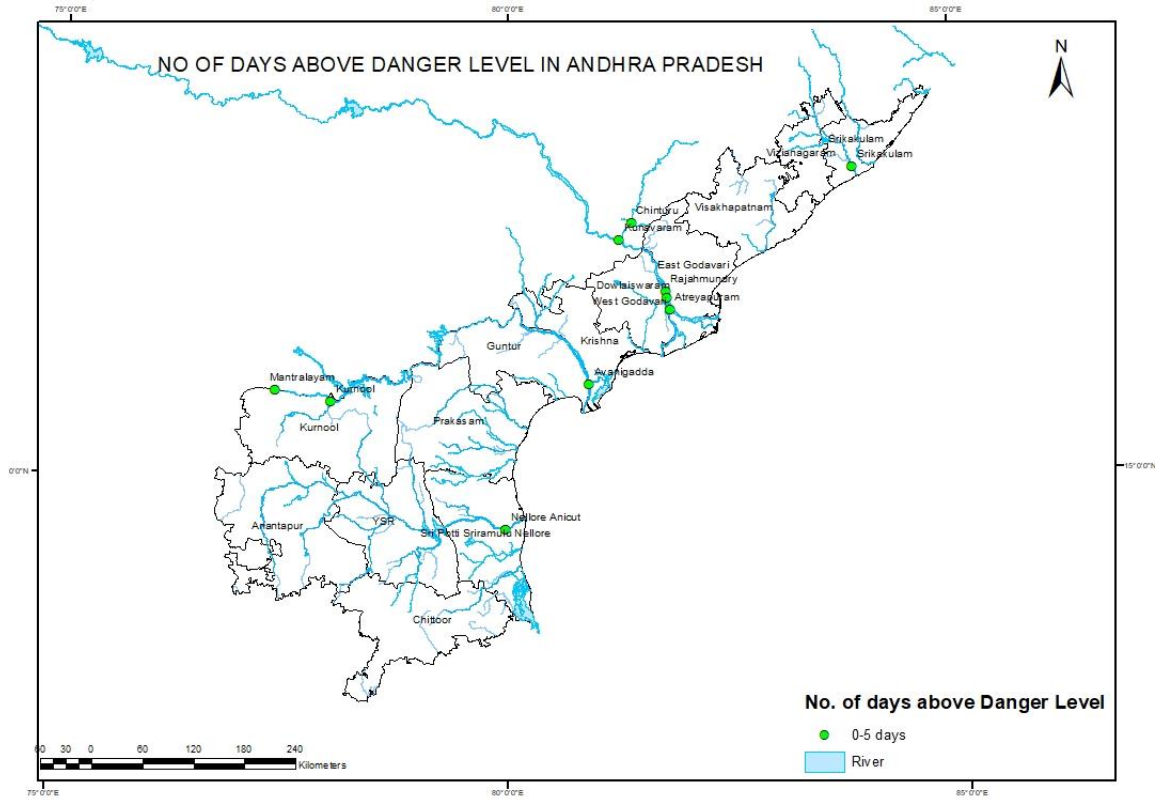


Fig 6.3

On analysis of 6 year extreme and severe situations it is observed that more no.of flood situations existed on Chinturu (on Sabari river) and Kunavaram sites over Godavari basin. This reflects the flood situations existed in Godavari and Sabari river in 2020 and 2022.

Flood situation in Andhra Pradesh during 2023 is shown in the **Map 6.1** given below.



Map 6.1

6.2.2 ARUNACHAL PRADESH

No CWC sites flowed in severe and extreme flood situations during last 5 years.

6.2.3 ASSAM

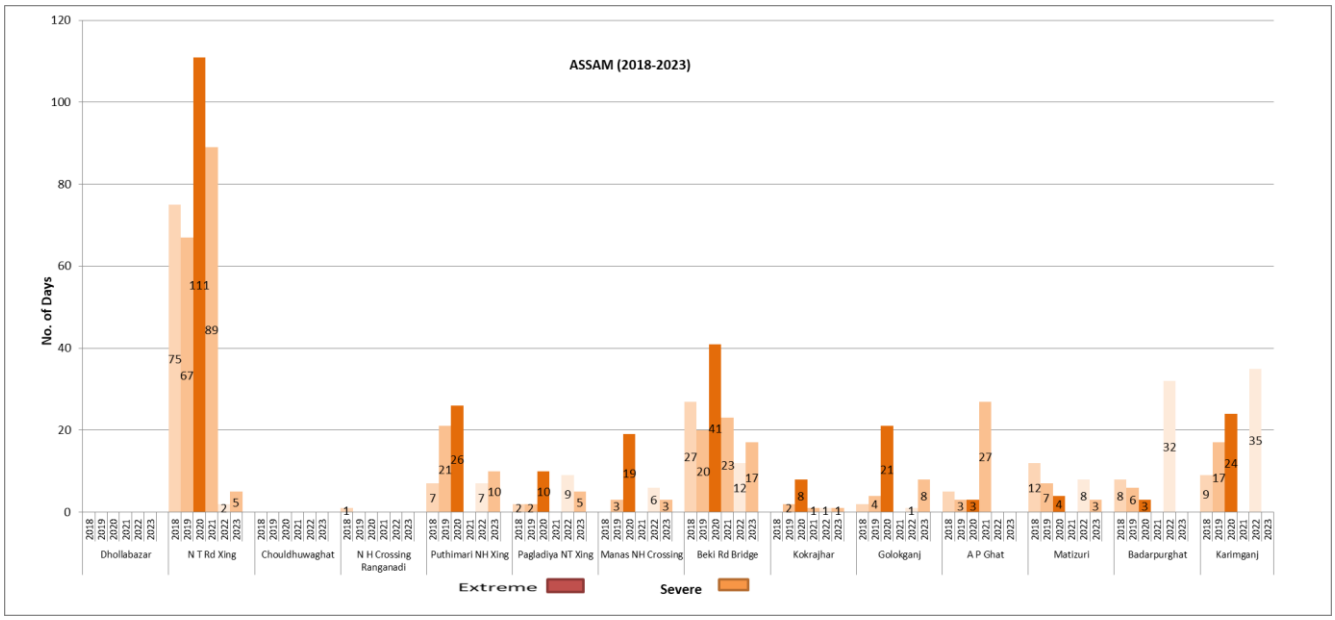


Fig 6.4(i)

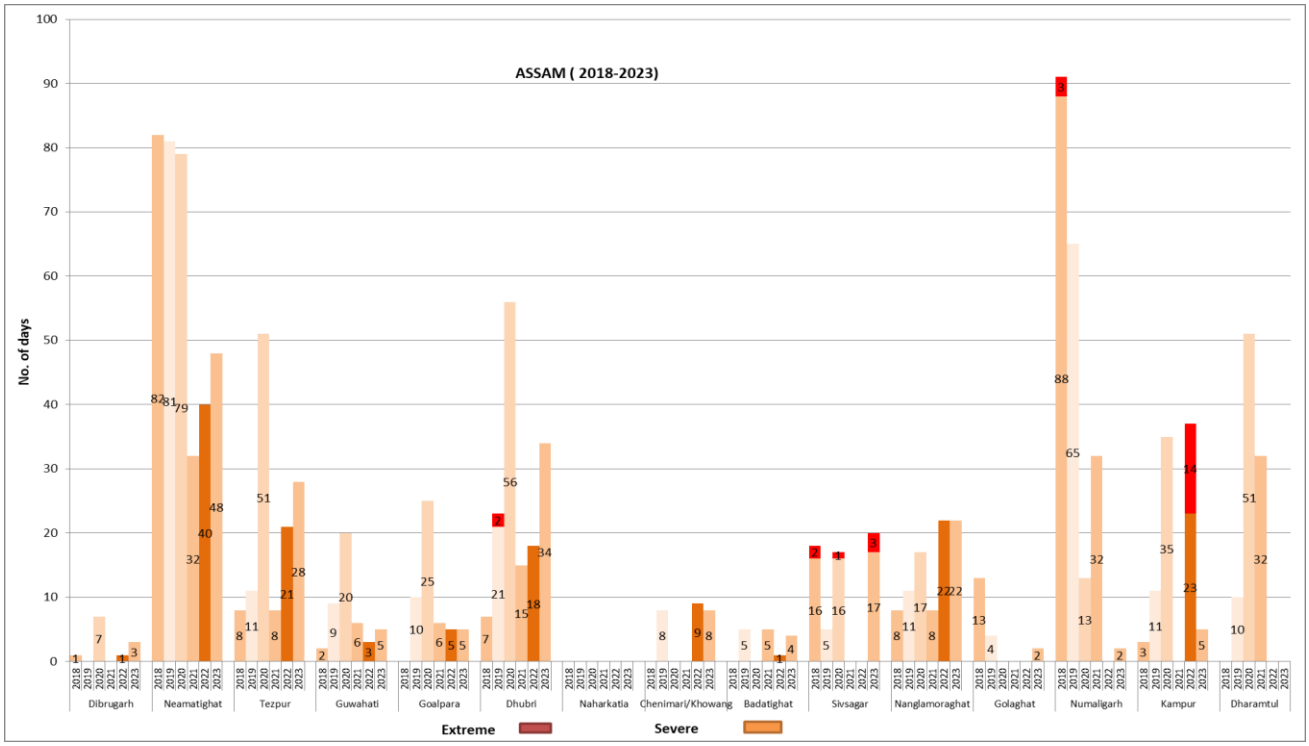
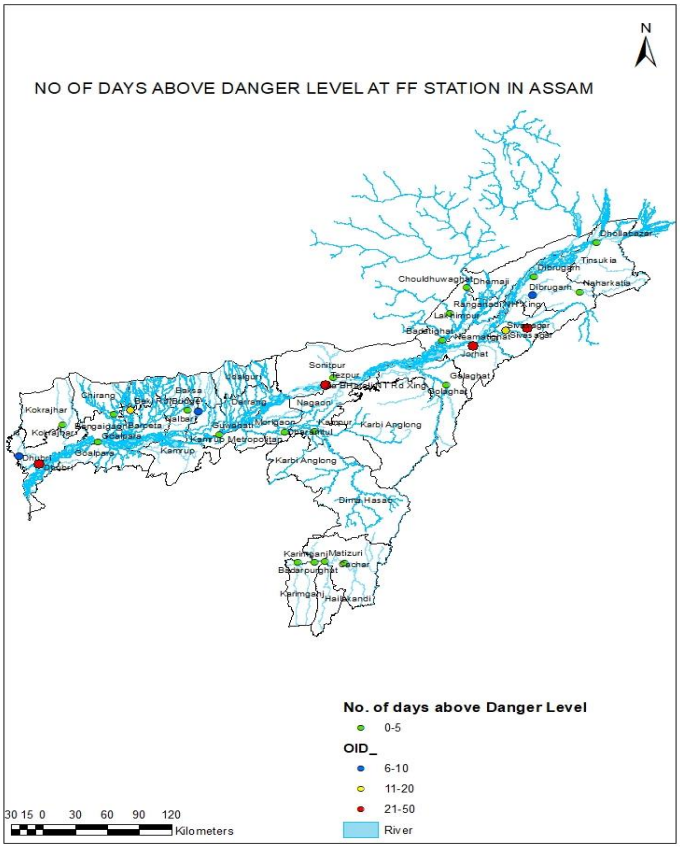


Fig 6.4(ii)

As per the plots more no.of severe and extreme flood situations occurred at sites

(1) NT Rd crossing Jiabharali over Jiabharali river, northern tributary of Brahamputra in Sonitpur district.
(2) Numaligh on Dhansiri river southern tributary of Brahamputra in Golaghat dist.
(3) Kampur and Dharamtul on Kopili river, southern tributary of Brahamputra in Nagaon and Marigaon districts respectively.
On Brahamputra main stem more no.of flood situations existed at sites Neamatighat (Jorhat dist.), Tezpur (Sonitpur dist.) and Dhubri (Dhubri dist.) in last 6 years.

Flood situation in Assam during 2023 is shown in the **Map 6.2** given below.



Map 6.2

6.2.4 BIHAR

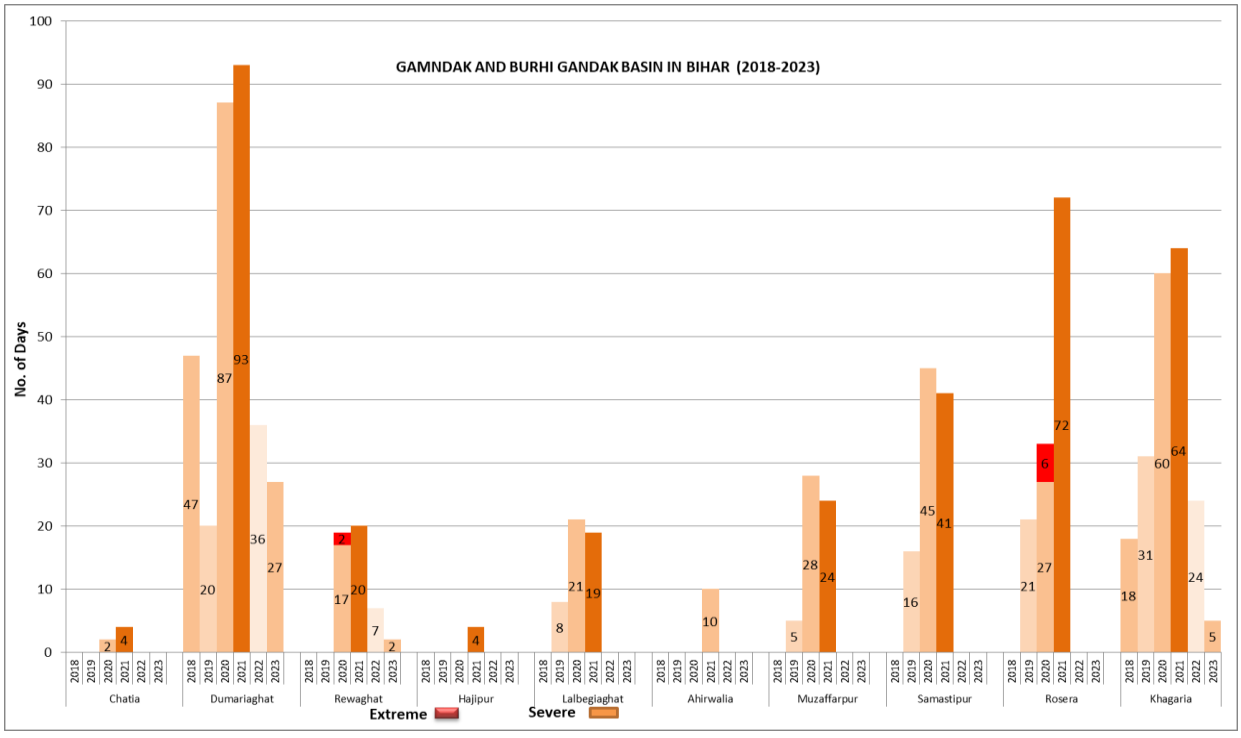


Fig 6.5(i)

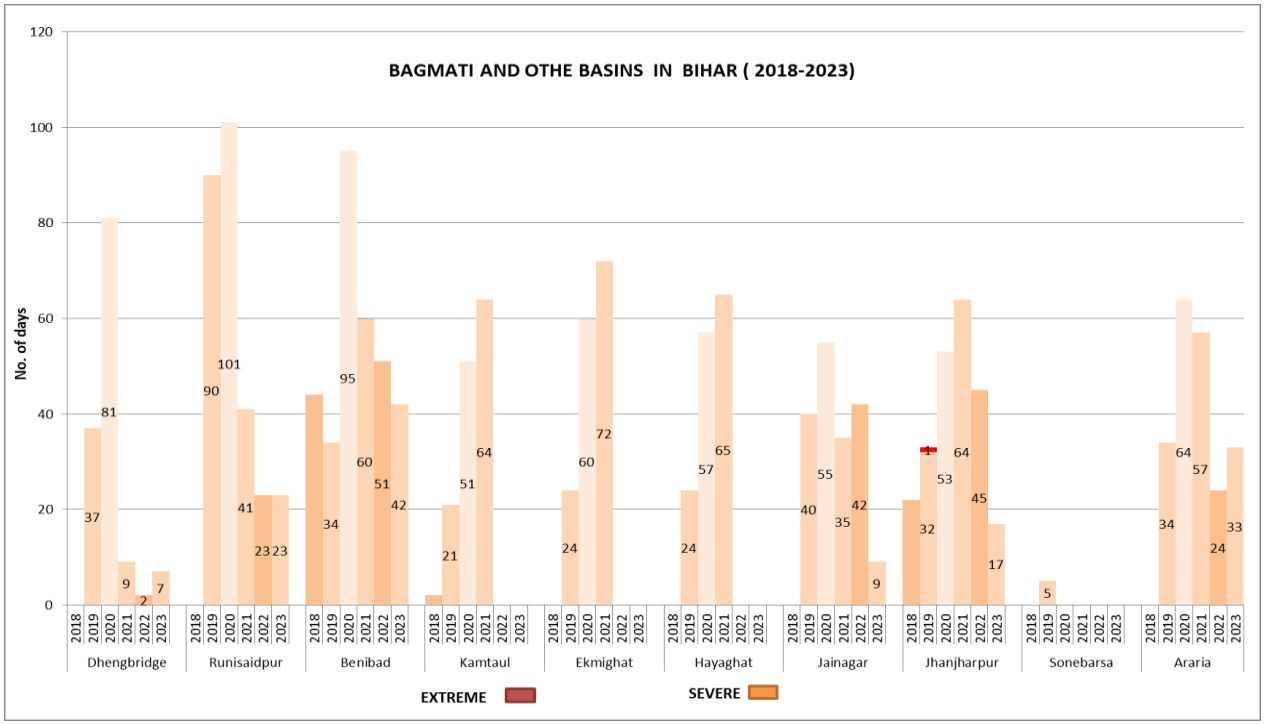


Fig 6.5(ii)

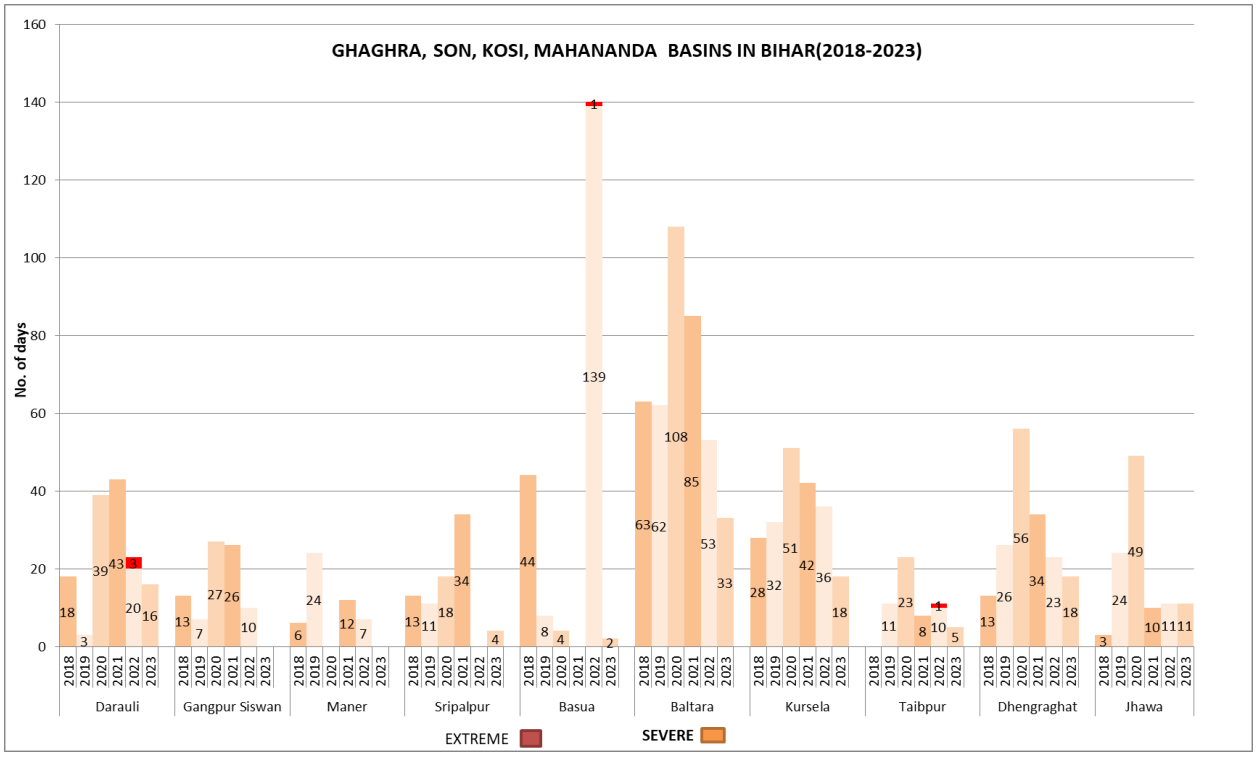


Fig 6.5(iii)

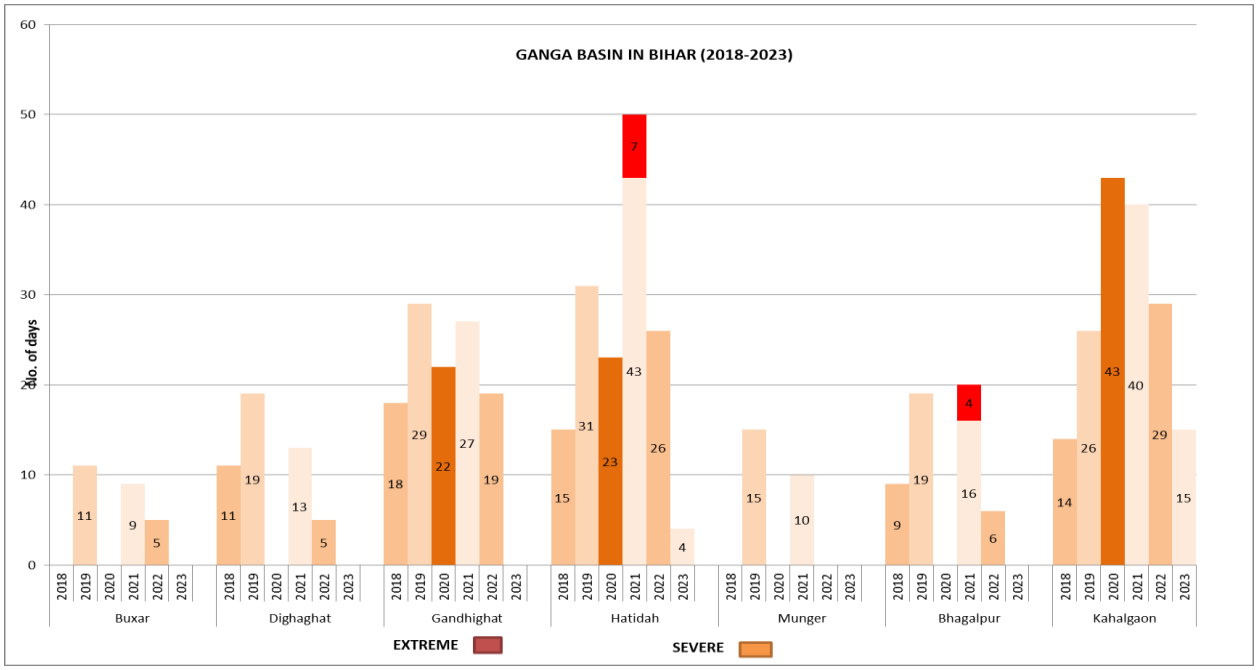
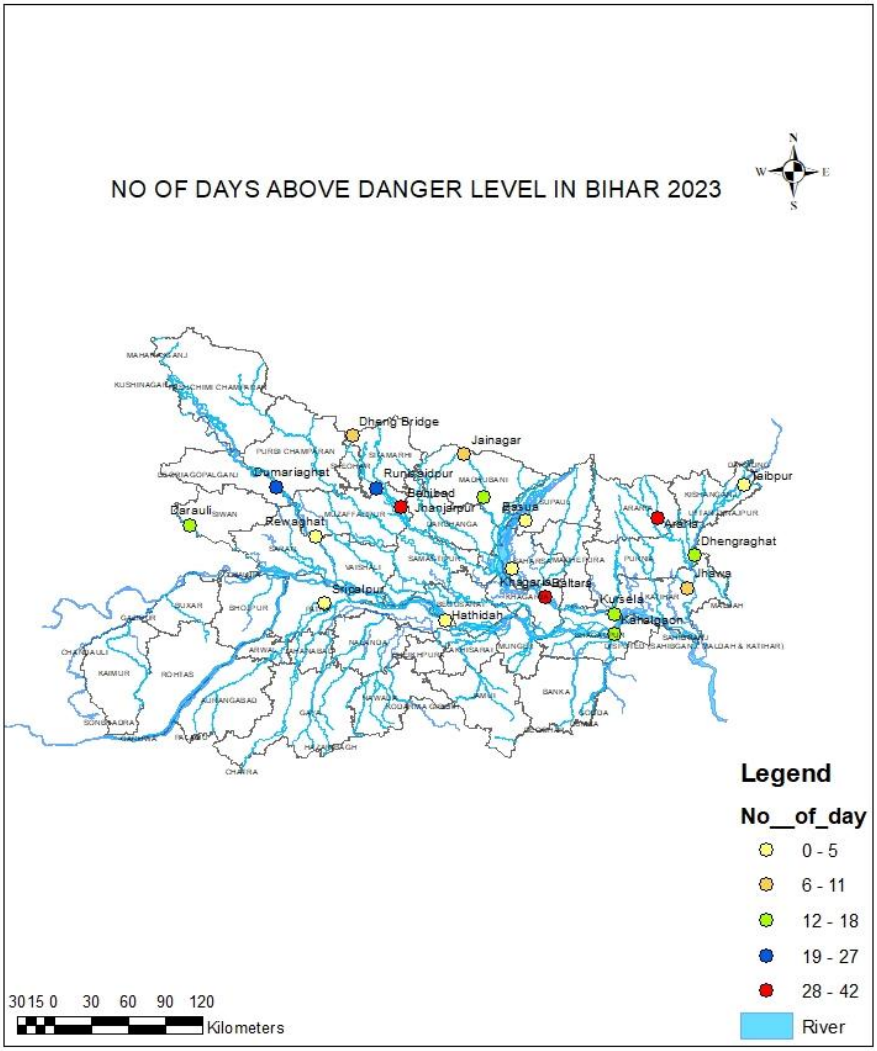


Fig 6.5(iv)

From the above given plots it is evident that more no.of flood situations occurs in northern tributaries of Ganga such as (1) Bagmati (sites Dhenbridge, Hayaghat, Runisaidpur, Benibad) in Sitamarhi, Dharbanga & Muzaffarpur districts; (2) river Adhwara (sites Sonebarsa, Kamtaul, Ekimghat) in Sitamarhi & Dharbanga districts; (3) rivers Kamala-balan (sites Jainagar & Jhanjharpur) in Madhubani district. Next frequent flooding's are found to occur in (1) main Kosi river (sites Basua & Baltara) in Supaul & Khagaria districts; (2) river Mahananda and its tributary Parman (sites Dhengraghat, Jhawa, Araria) in Purnea, Kathihar and Araria districts; (3) river Gandak (site Dumariaghat) in Gopalganj district; (4) river Burhi Gandak (sites Samastipur, Rosera, Khagaria) in Samastipur & Khagaria districts.

On main Ganga stem the state flood situations are comparatively less and more cases are found at sites Hatidah and Kahalgaon in Patna and Bhagalpur districts respectively.

Flood situation in Bihar during 2023 is shown in the **Map 6.3** given below.



Map 6.3

6.2.5 CHHATTISGARH

CWC sites showed no severe and extreme flood situations during last 6 years.

6.2.6 GUJARAT

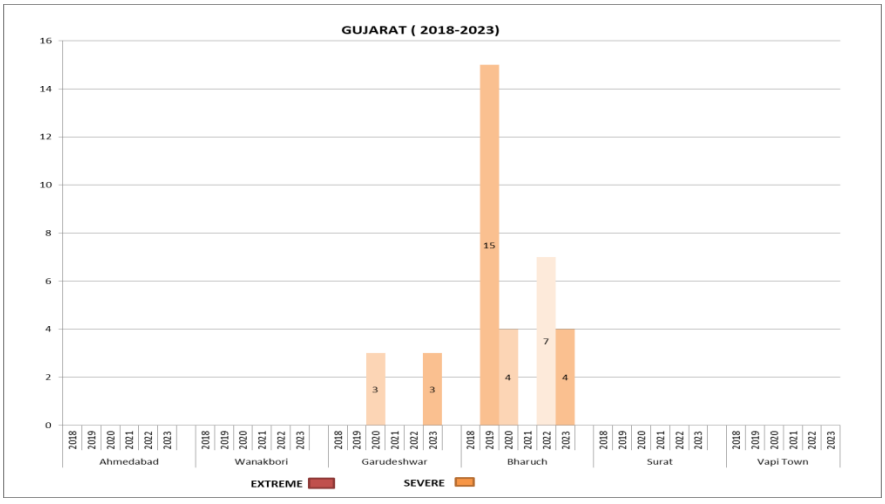
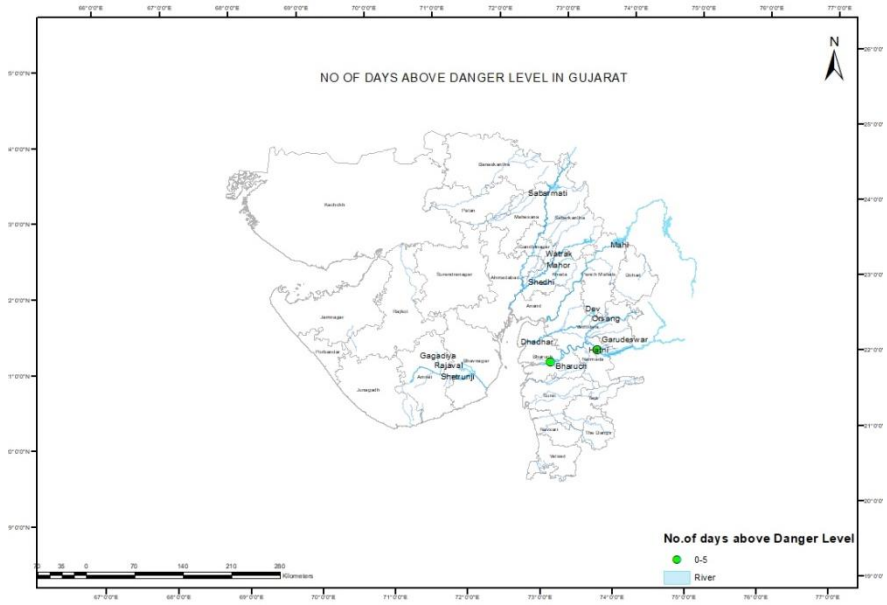


Fig 6.6

Flood situations in Gujarat are mainly confined to site Bharuch in Narmada basin situated downstream of Sardar Sarovar dam. The causative factors for floods are mainly releases from Sardar Sarovar and topography of the region.

Flood situation in Gujarat during 2023 is shown in the **Map 6.4** given below.



Map 6.4

6.2.7 JHARKHAND

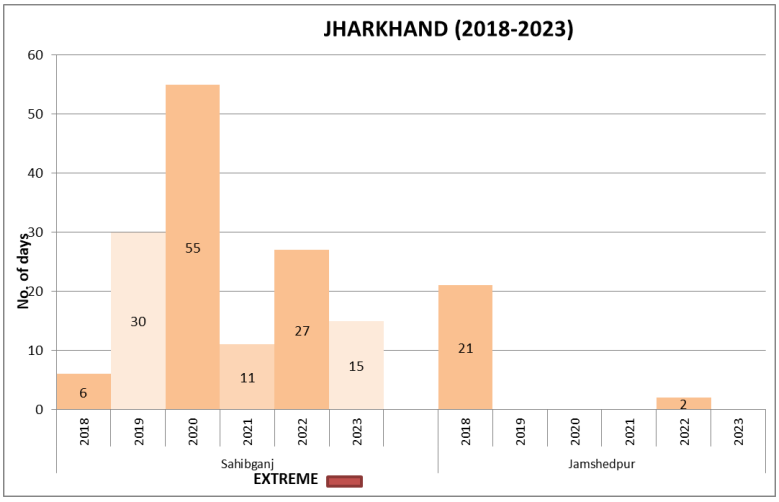
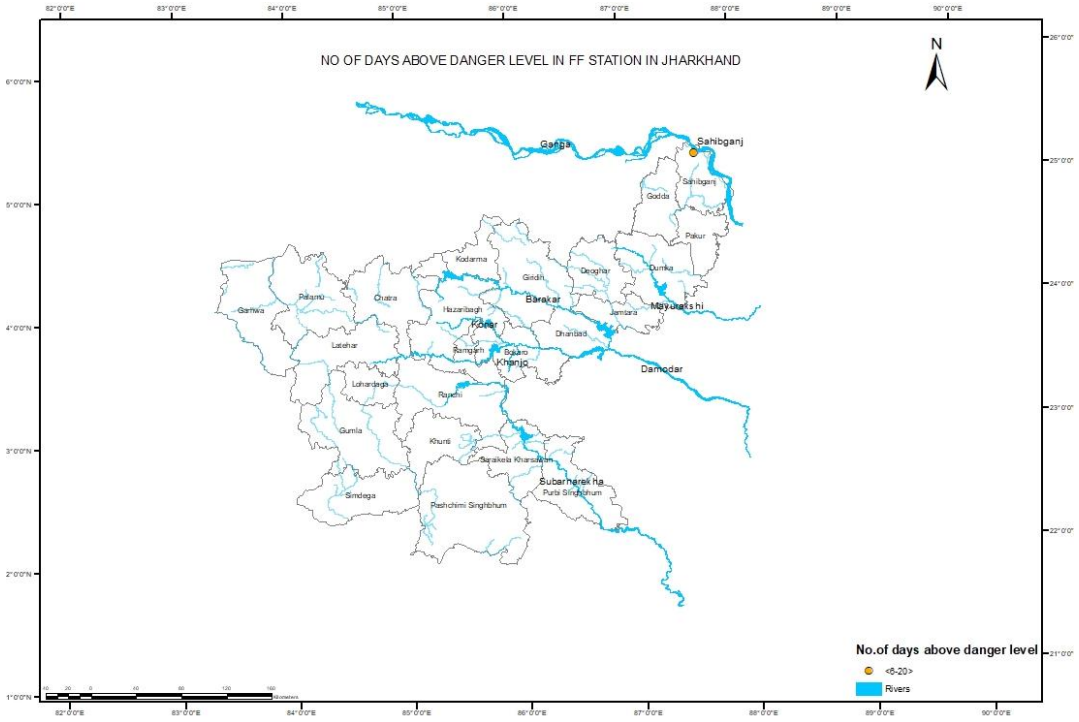


Fig 6.7

Main flood situations are reported on site Sahibganj in Sahibganj district on main Ganga.

Flood situation in Jharkhand during 2023 is shown in the **Map 6.5** given below.



Map 6.5

6.2.8 KARNATAKA

Adequate flood levels forecasting sites are needed in Karnataka for depicting flood situations in Karnataka.

6.2.9 KERALA

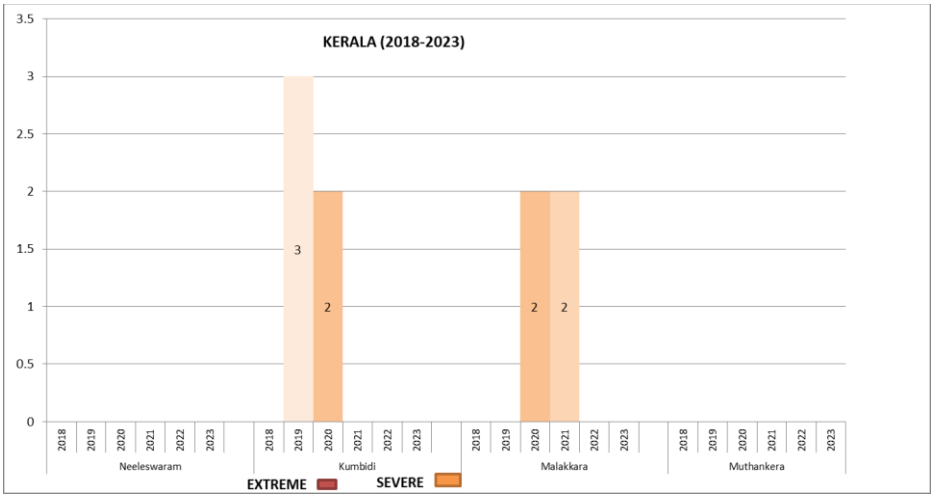


Fig 6.8

Kerala state flood forecasting sites were initialized after the devastating floods of 2018. As per observed scenario, flood situations occurred more in Kumbidi site on Bharathapuzha river and site Malakkara on Pamba river.

No Forecasting station crossed Danger level during 2023 in Kerala.

6.2.10 MADHYA PRADESH

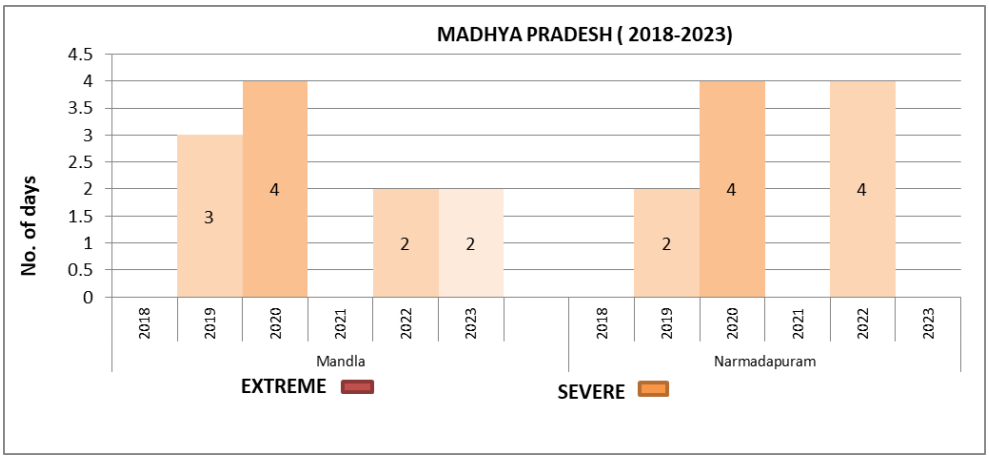
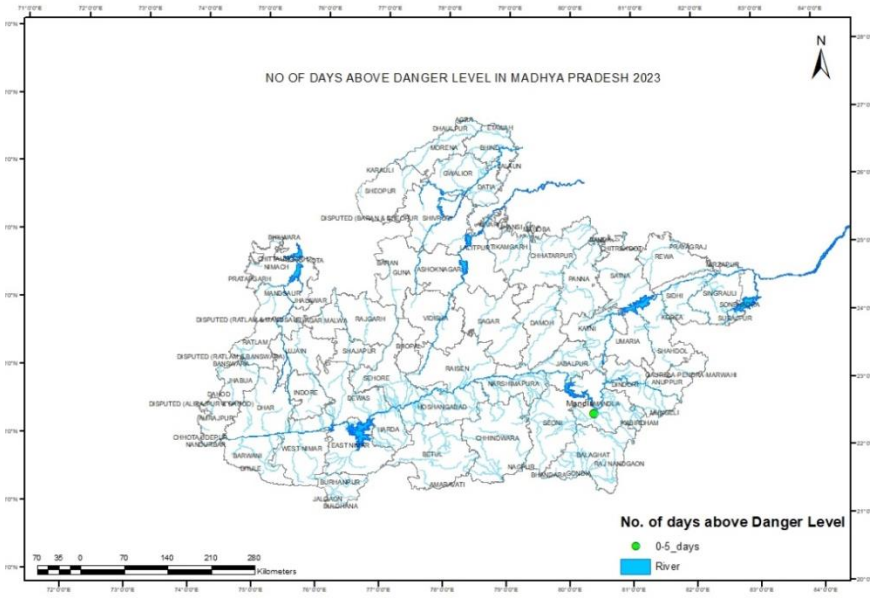


Fig 6.9

In Madhya Pradesh CWC has two level forecasting sites Mandla and Narmadapuram on main Narmada stem both the sites depicts more or less same flood situations in last 6 years.

Flood situation in Madhya Pradesh during 2023 is shown in the **Map 6.6** given below.



Map 6.6

6.2.11 MAHARASHTRA

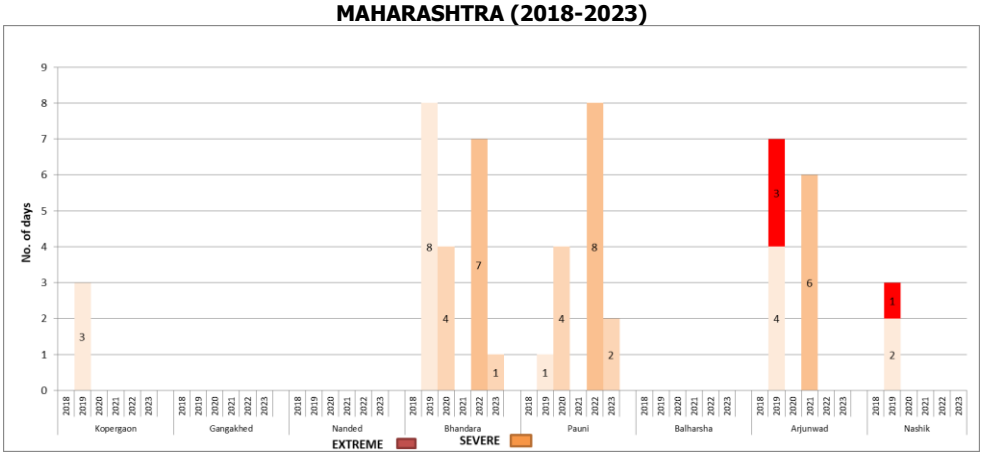
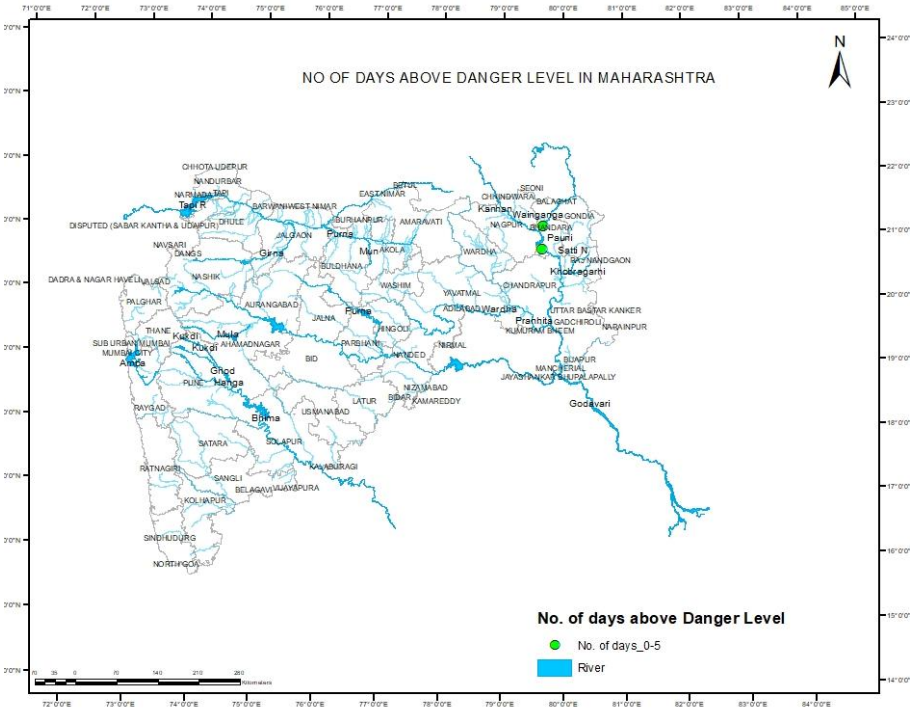


Fig 6.10

Floods situations are more frequent in Wainganga tributary of Godavari basin at sites Bhandara & Pauni in Bhandara district . In Krishna basin more flooding's occurred at Arjunwad site in Kolhapur district.

Flood situation in Maharashtra during 2023 is shown in the **Map 6.7** given below.



Map 6.7

6.2.12 ODISHA

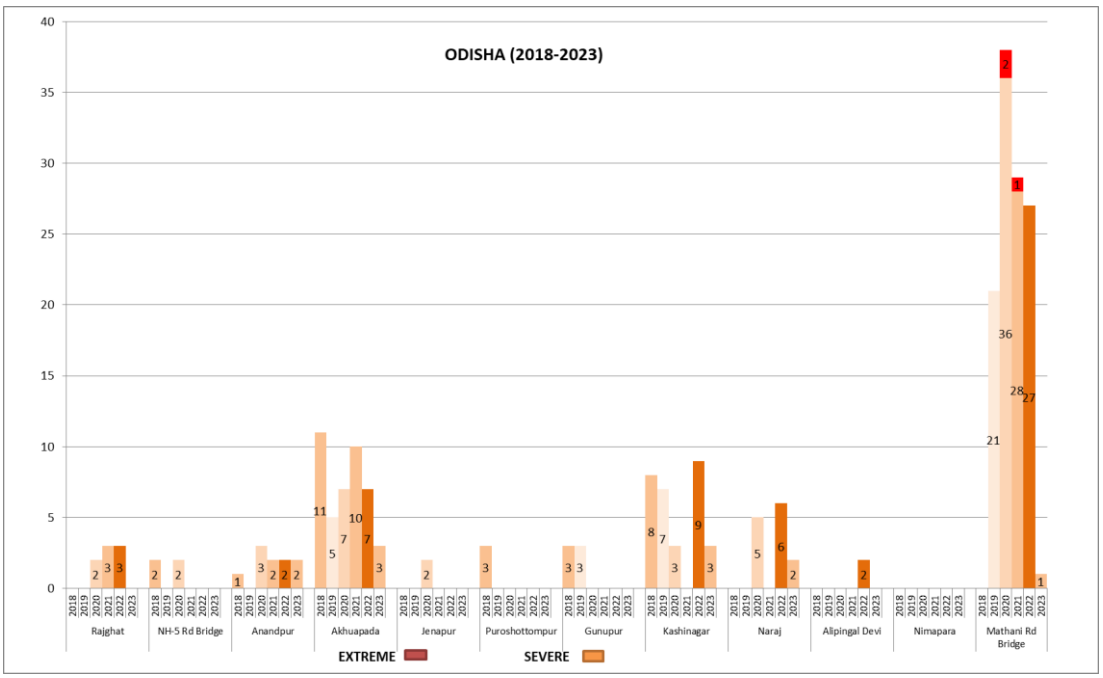
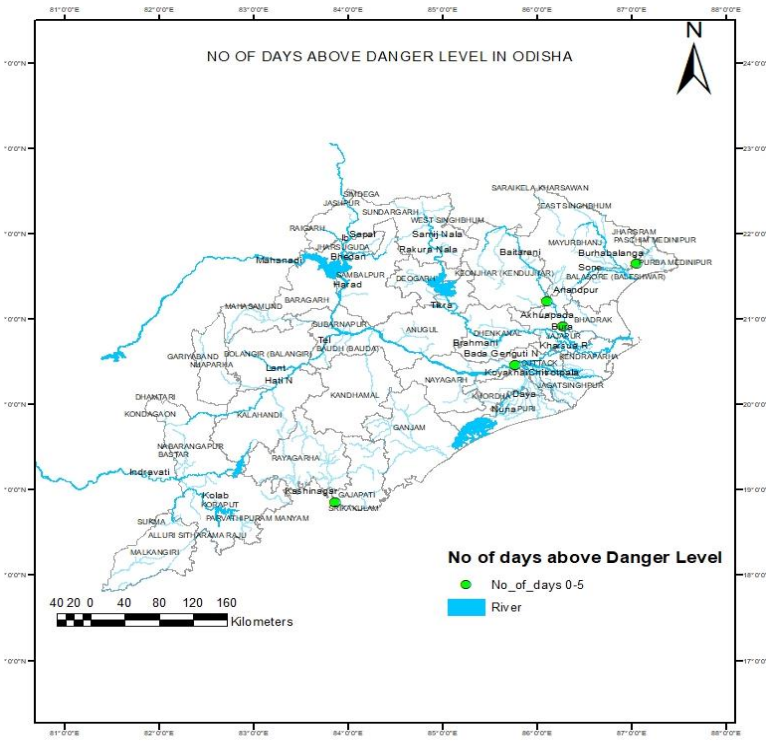


Fig 6.11

From the plots it is summarized that in Odisha most frequent flooding are reported from site Mathani Rd Bridge on Jalka river of Subarnarekha basin in Baleshwar district. Comparatively more cases also occur at sites Akhuapada (Bhadrak dist.) and Kashinagar (Gajapati dist.) in Baitarni and Vamsadhara rivers respectively.

Flood situation in Odisha during 2023 is shown in the **Map 6.8** given below.



Map 6.8

6.2.13 RAJASTHAN

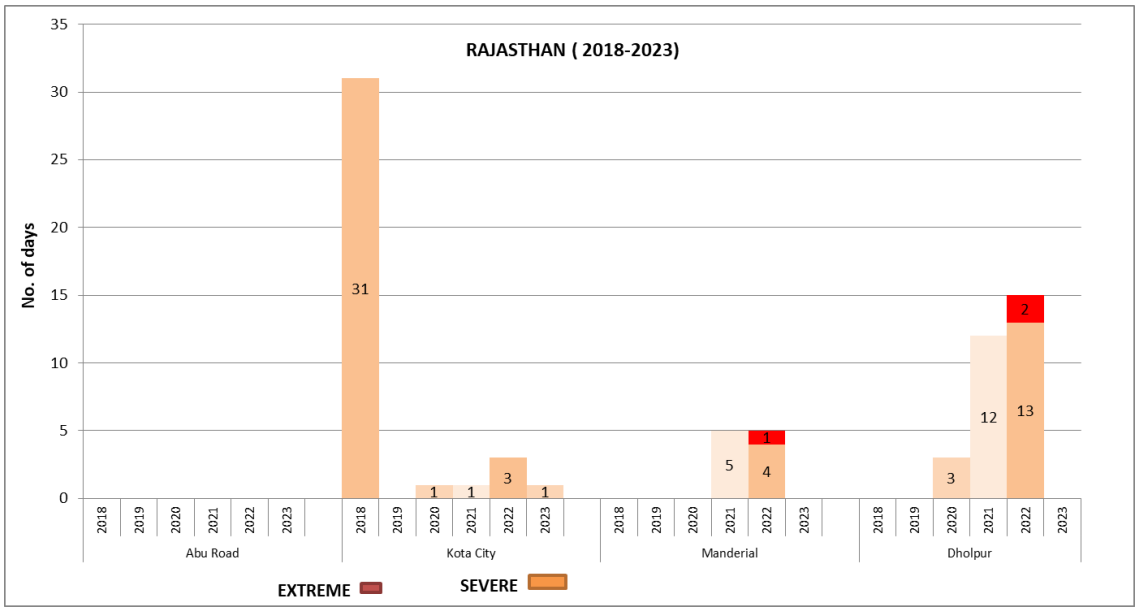
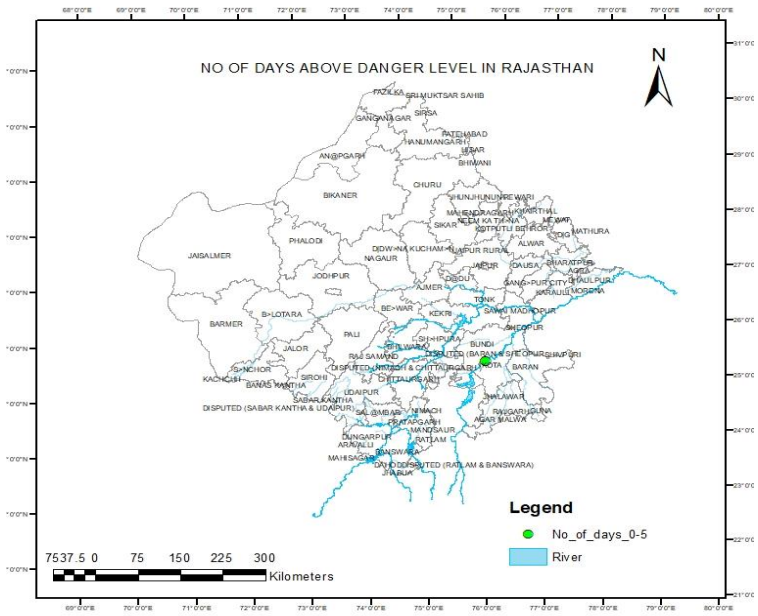


Fig 6.12

More frequent floods are found to occur on Chambal river at site Kota city (Kota district) and at Dholpur (Dholpur dist.). Manderial (Karauli dist.) site situated on Chambal River was initiated in 2021.

Flood situation in Rajasthan during 2023 is shown in the **Map 6.9** given below.



Map 6.9

6.2.14 SIKKIM

No significant flood occurred in Sikkim for the period from 2018 to 2022. During 2023 monsoon, on 4 October 2023, due to heavy rains a Glacial Lake Outburst Flood (GLOF) occurred due to the breach of 'South Lhonak Lake' in the far north-western part of state of Sikkim and caused a devastating flood in river Teesta. The Forecasting site Melli flowed above Danger Level for 2 days.

6.2.15 TAMILNADU

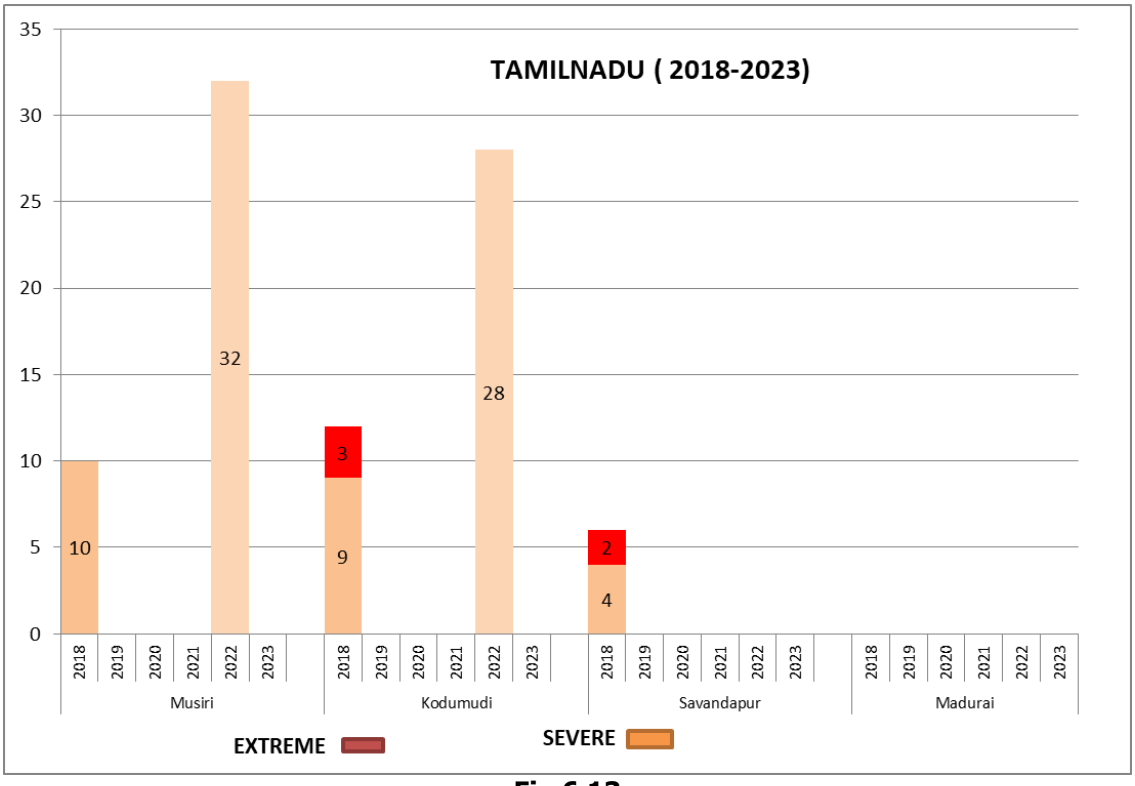


Fig 6.13

Figure reveals that more flood situations occur at two successive sites located on Cauvery river, Kodumudi (Erode dist.) and Musiri (Thiruchirapally dist.).

No Forecasting station crossed Danger level during 2023 in Tamilnadu.

6.2.16 TELANGANA

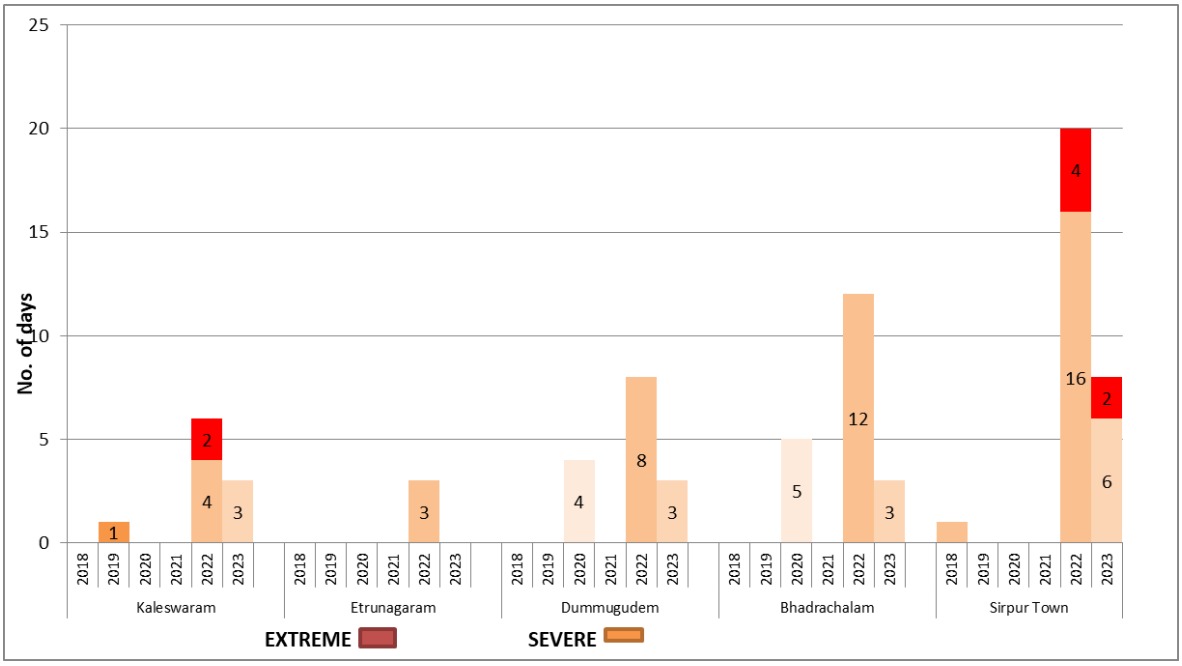
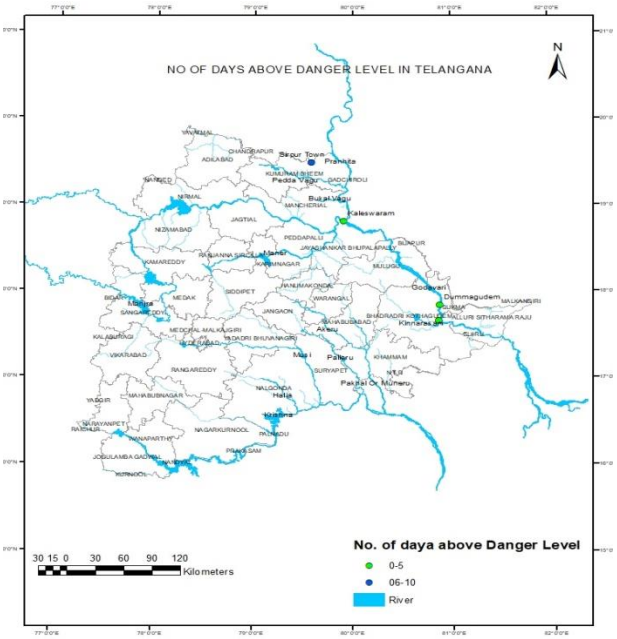


Fig 6.14

Figure shows that floods in Godavari are more frequent than in Krishna. Most flood situations occur on Wardha river (Godavari basin) at site Sirpur Town in Kumaram Bheem district. Flooding is also more in successive sites in Godavari main stem such as Dummagudem and Bhadrachalam both located in Bhadradri district.

Flood situation in Telangana during 2023 is shown in the **Map 6.10** given below.



Map 6.10

6.2.17 TRIPURA

No significant flood occurred in Tripura during last six years (2018-2023).

6.2.18 UTTAR PRADESH

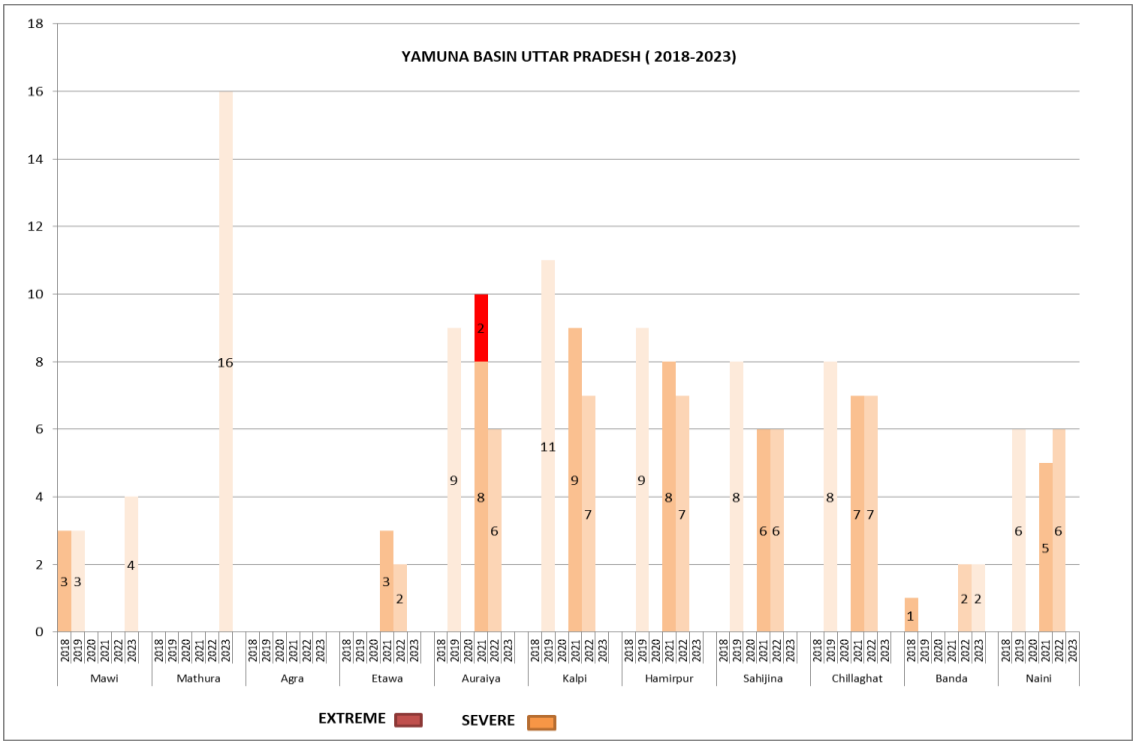


Fig 6.15 (i)

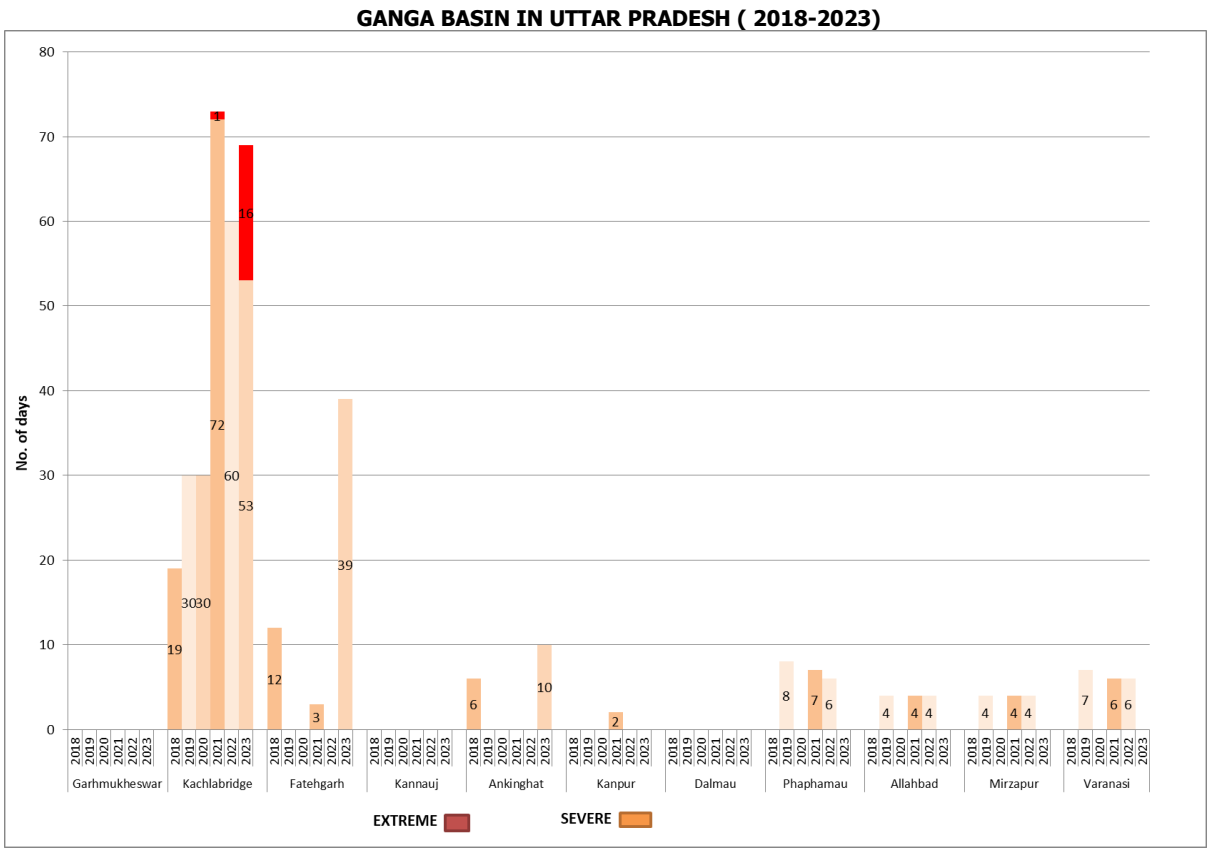


Fig 6.15 (ii)

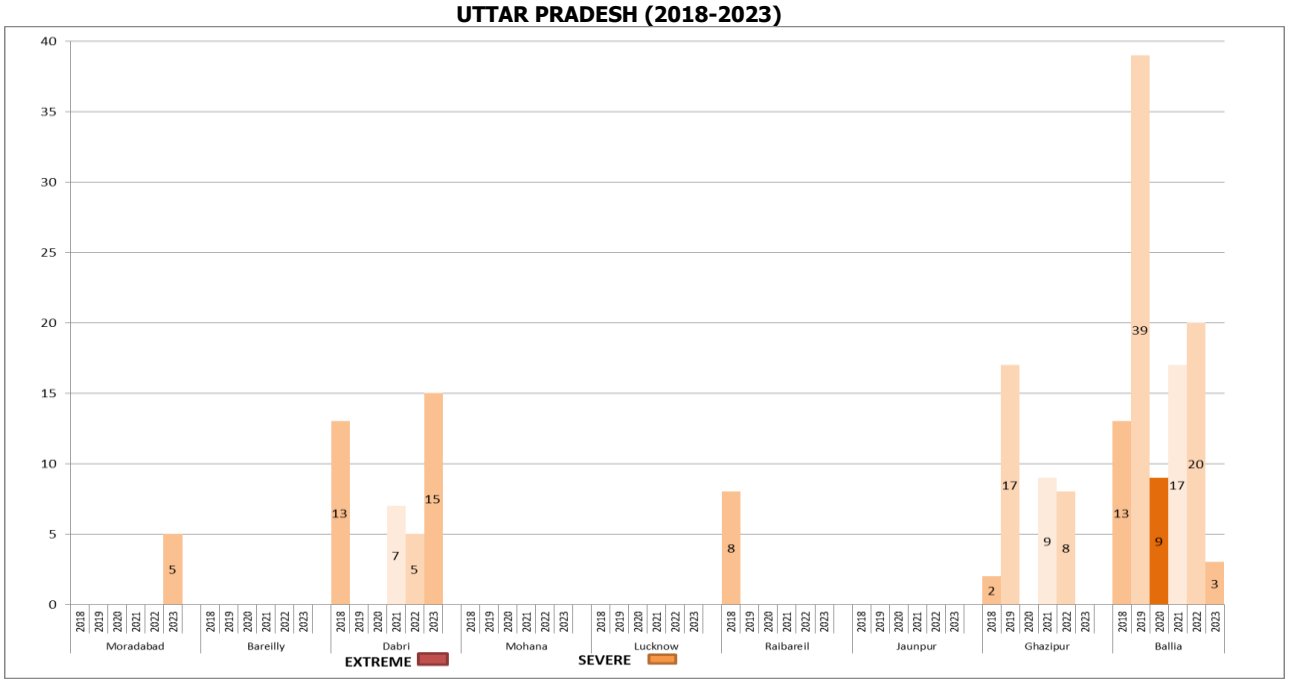


Fig 6.15 (iii)

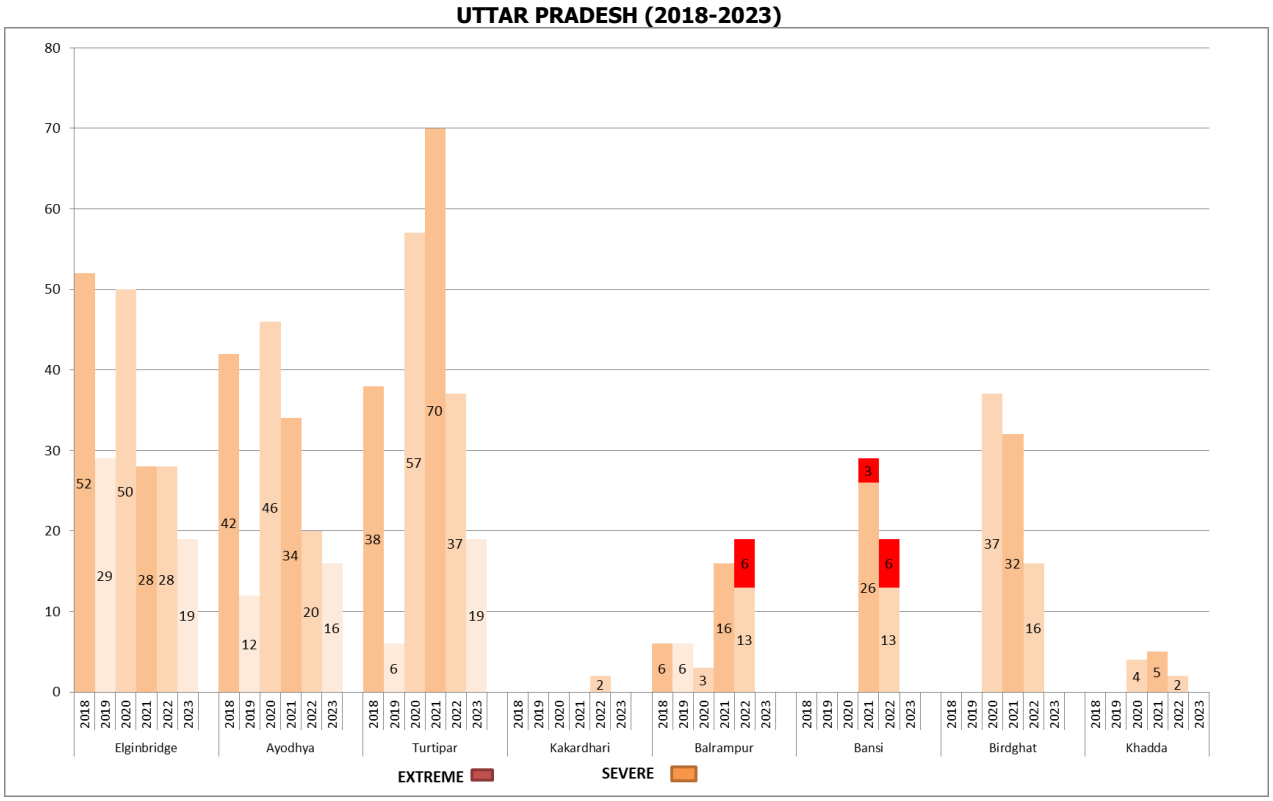
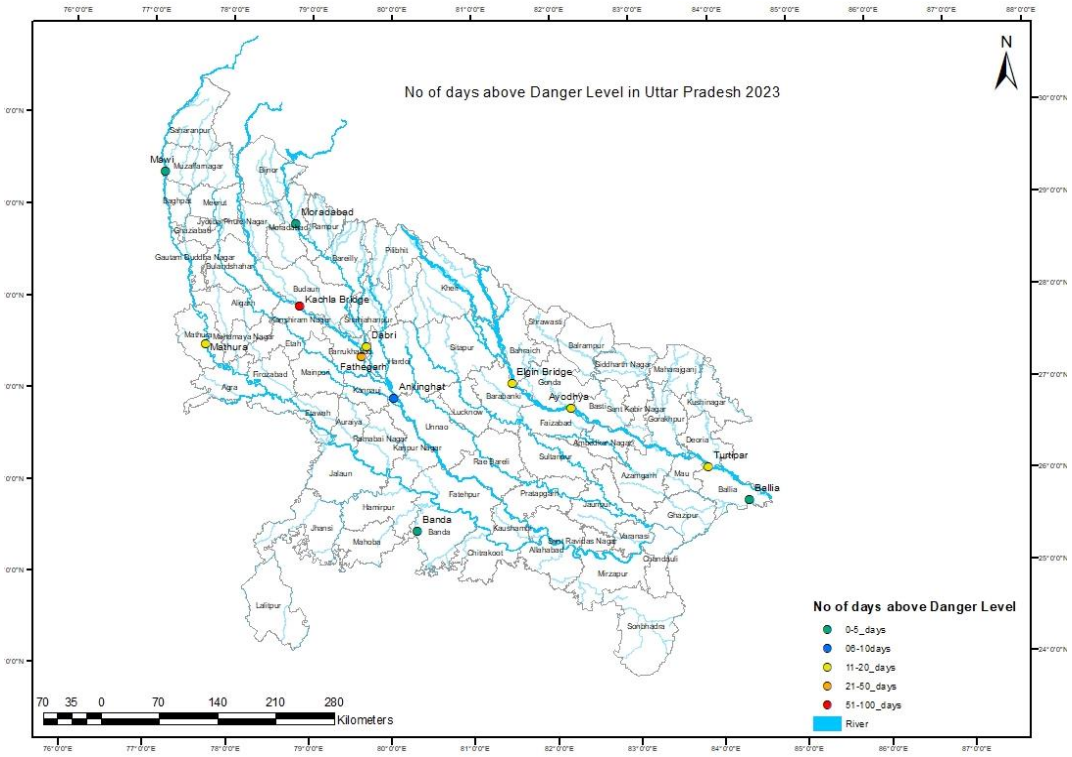


Fig 6.15 (iv)

Analysis show that more flooding happens in Ghagra river at sites Elginbridge (Barabanki dist.), Ayodhya (Ayodhya dist.) & Turtipar (Ballia dist.). In main Ganga stem, more flood situations are reported from sites Kachlabridge (Budaun dist.) & Ballia (Ballia dist.)

Flood situation in Uttar Pradesh during 2023 is shown in the **Map 6.11** given below.



Map 6.11

6.2.19 UTTARAKHAND

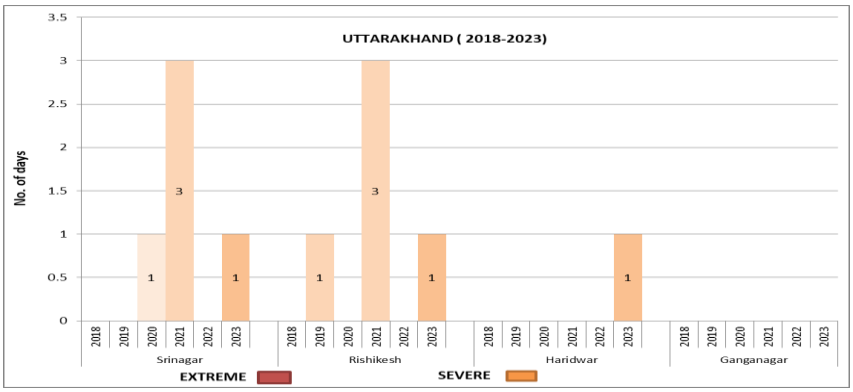
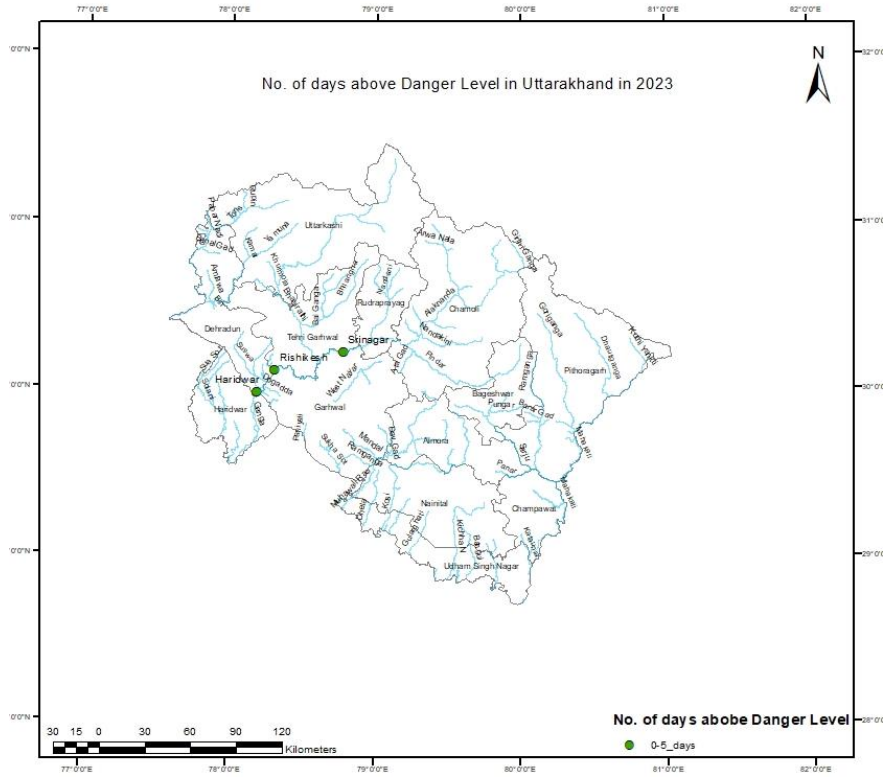


Fig 6.16

As per the analysis more no.of flood situations occur in upper Ganga and its tributary Alaknanda. Site Srinager on Alaknanda river (Pauri Garhwal dist.); Rishikesh (Dehradun dist.) and Haridwar (Haridwar dist.) on Upper Ganga are located sequentially in the basin and hence propagation of flood is clearly visible.

Flood situation in Uttarakhand during 2023 is shown in the **Map 6.12** given below.



6.2.20 WEST BENGAL

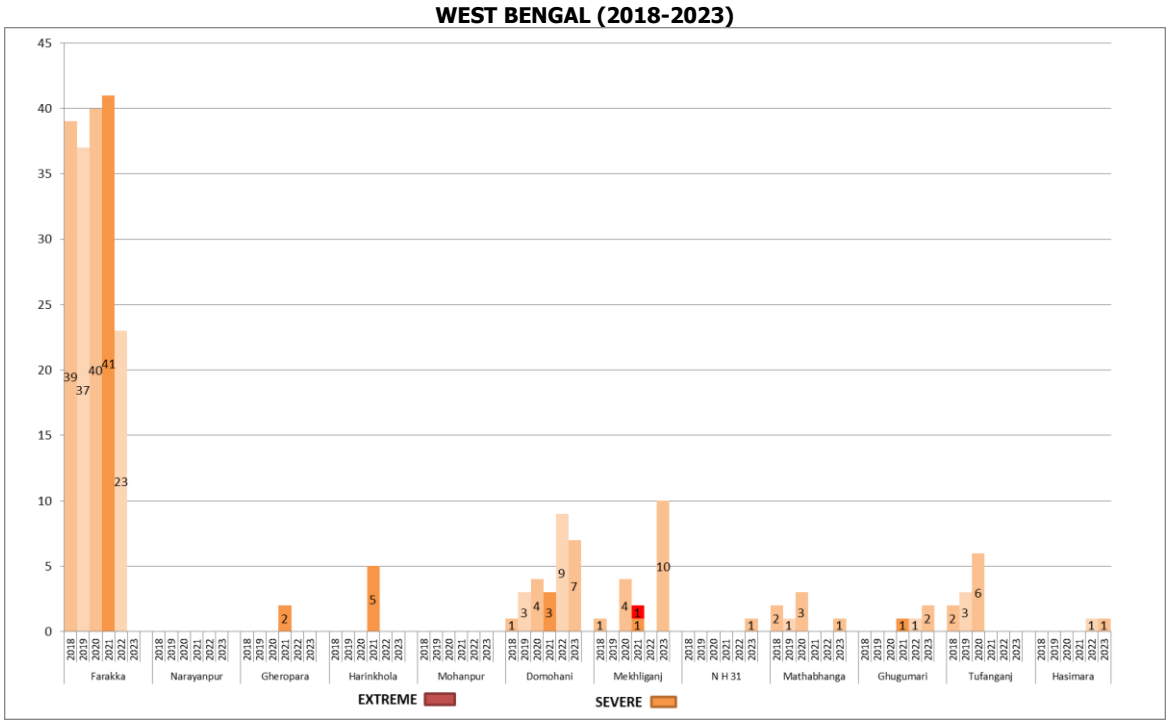
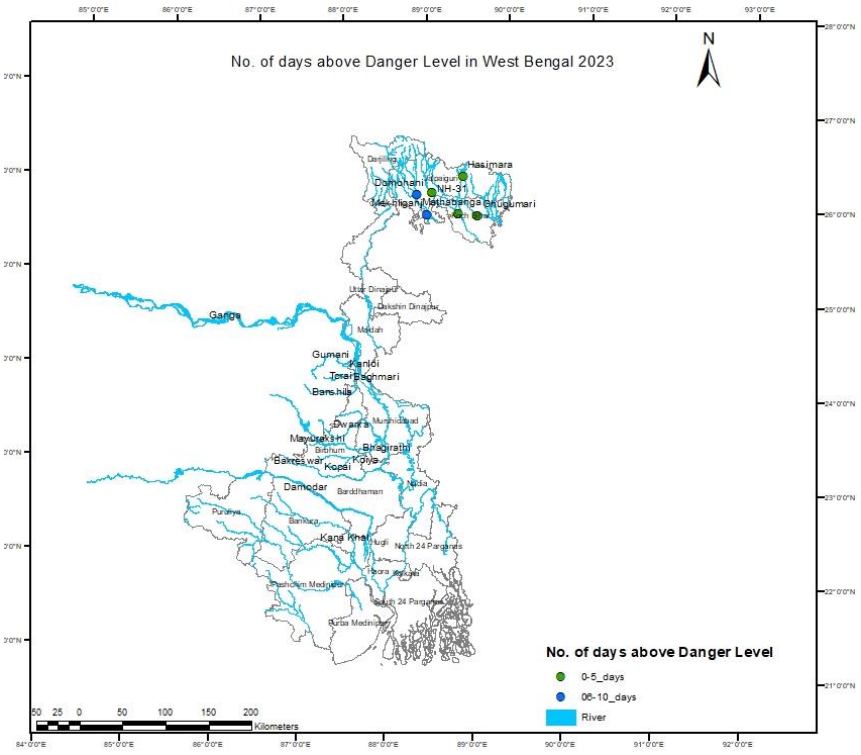


Fig 6.17

In West Bengal flooding is mainly confined to the tale end FF site Farkka (Murshidabad dist.)on river Ganga before the river enters Bangladesh.

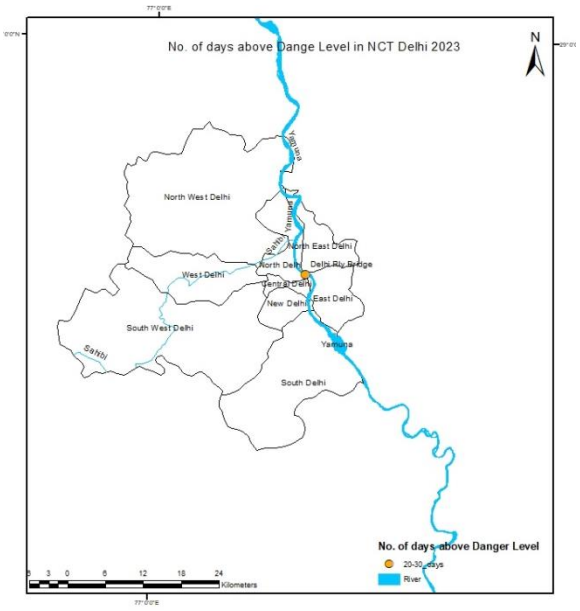
Flood situation in West Bengal during 2023 is shown in the **Map 6.13** given below.



Map 6.13

6.2.21 NCT Delhi

No flood occurred in NCT Delhi for the period from 2018 to 2022. During monsoon season 2023 very heavy rainfall occurred in Himalayan region upstream of Hathnikund Barrage. The high discharge passed from Hathnikund Barrage created Flood situation in the downstream region of the Barrage in the river Yamuna. The site Delhi Railway Bridge was above Danger level for 23 days.



Map 6.14

On viewing all the plots of various states in India it is summarized that

- Flood situation for more no.of days occured in Bihar, Uttar Pradesh and Assam.
- CWC flood level forecasting network is less representative of the flood situation in Peninsular India as the network is not wide compared to northern and eastern India. For that CWC is in a process of widening its network in the country.
- Analysis throws light to more frequent flooding rivers in various states but needs more critical analysis to conclude and comment on flooding pattern in the country.

CHAPTER - 7

RESPONSE FROM USER AGENCIES

7.1 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.

7.2 APPRECIATION LETTERS RECEIVED DURING FLOOD SEASON 2023

Abstract of some of the messages received by our field unit during the flood season 2023 are given below:

7.2.1 Office of the Executive Engineer, Flood Control division, Begusarai, Govt. of Bihar. (lr.No. 971 dt. 13/11/2023)

During 2023 flood season, the gauge data provided for the river Ganga and Burhi Gandak to this office was appropriate and helpful. Therefore it is requested to provide the same during 2024 for river Ganga and Burhi Gandak.

7.2.2 Office of the Engineer –in –Chief, Water Resoursces, Odisha, Bhubaneshwar. (No. HH,GIS & CEM-FFFM-138/23/36090/UE dated 11.12.2023.

The Flood Forecasts issued by CWC has been extremely useful for taking decision regarding reservoir operation & effective Flood Management during monsoon 2023.

It is suggested to include additional stations for Inflow & Level Forecast.

7.2.3 Office of the Executive Engineer, Ukai Division No. 1, Ukai Dam, Dist. Tapi. (Lr. no: Ukai-1/PB/Flood Forecast/2023/430 dt 06/02/2024)

The Flood Forecast issued by Central Water Commission in respect of Ukai Reservoir is very useful in operation of Ukai Reservoir during monsoon 2023. The cooperation rendered is highly appreciated.

7.2.4 Office of the Executive Engineer, Jalgaon Irrigation Division, Jalgaon. (No. JID/PB/338/2023 dt. 20/12/2023)

In rainy season of 2023-24 all information regarding flood of Tapi River given by your office is accurate and at right time. So there is no flood damage caused at upstream and downstream of Hathnur Dam. We are thankful to you for giving full cooperation and accurate information provided by your office during 2023-24.

ANNEXURES - I to XIII

Details of New Flood Forecasting Stations included in last Few Years (2017-2023)

Year	New Station	Total No. of Station	Name of Station	State	District
1	2	3	4	5	6
2017	27	199 + 27=226	Kurnool Town	Andhra Pradesh	Kurnool
			Srikakulam	Andhra Pradesh	Srikakulam
			Namsai	Arunachal Pradesh	Lohit
			Choldhowaghat	Assam	Lakhimpur
			N H Crossing Ranganadi	Assam	Lakhimpur
			Dholla Bazaar	Assam	Tinsukia
			Kokrajhar	Assam	Kokrajhar
			Dumariaghat	Bihar	Gopalganj
			Ahirwalia	Bihar	Muzzafarpur
			Sangam	Jammu & Kashmir	Anantnag
			Safapora	Jammu & Kashmir	Bandipora
			Fathegarh	Uttar Pradesh	Farukkabad
			Dabri	Uttar Pradesh	Shahjahanpur
			Garhmuktheswar	Uttar Pradesh	Ghaziabad
			Kachla Bridge	Uttar Pradesh	Badaun
			Panam Dam	Gujarat	Panchmahal
			Upper Tunga	Karnataka	Shimoga
			Bhadra Dam	Karnataka	Chikmagaluru
			Rengali Dam	Odisha	Angul
			Mahi Bajajsagar Dam	Rajasthan	Banswara
			Som Kamla Amba Dam	Rajasthan	Udaipur
			Upper Anicut	Tamilnadu	Tiruchirapalli
			Gomukhi Dam	Tamilnadu	Villupuram
			Wellington Dam	Tamilnadu	Cuddalore
			Sathanur Dam	Tamilnadu	Thiruvannamalai
			Chembarampakkam Lake	Tamilnadu	Kanchipuram
			Banbasa	Uttarakhand	Champawat
2018	23	226+ 23 =249	Atreyapuram	Andhra Pradesh	East Godavari
			Karnal Bridge	Haryana	Karnal
			Paonta Sahib	Himachal Pradesh	Sirmaur
			Musiri(Srirangam)	Tamilnadu	Tiruchirapalli
			Kodumudi (Erode)	Tamilnadu	Erode
			Savandapur(Bhavani)	Tamilnadu	Erode
			Sirpur Town	Telangana	Adilabad
			Ganganagar	Uttarakhand	Rudraprayag
			Narayanapuram Anicut	Andhra Pradesh	Srikakulam
			Madduvalasa Reservoir	Andhra Pradesh	Srikakulam
			Tilaiya Dam	Jharkhand	Koderma
			Sikatia Barrage	Jharkhand	Dumka
			Konar Dam	Jharkhand	Hazaribagh
			Kalisindh Dam	Rajasthan	Jhalawar
			Parwan Dam	Rajasthan	Baran
			Gambhiri Dam	Rajasthan	Chittorgarh
			Panchana Dam	Rajasthan	Karauli
			Gudha Dam	Rajasthan	Bundi
			Parwati Dam	Rajasthan	Dholpur
			Kota Barrage	Rajasthan	Kota
			Rangit-III HEP Dam	Sikkim	South Sikkim
			Dharmanagri Barrage	Uttar Pradesh	Bijnor

			Kalagarh Dam	Uttarakhand	Pauri Garhwal
2019	76	249+76=325	Chinturu	Andhra Pradesh	East Godavari
			Avanigadda	Andhra Pradesh	Krishna
			Yingkiang	Arunachal Pradesh	Upper Siang
			Mathanguri	Assam	Baska
			Dheng Bridge	Bihar	Sitamarhi
			Sonebarsha	Bihar	Sitamarhi
			Jainagar	Bihar	Madhubani
			Runisaidpur	Bihar	Sitamarhi
			Araria	Bihar	Araria
			Taibpur	Bihar	Kishanganj
			Neeleswaram	Kerala	Ernakulam
			Kumbidi	Kerala	Palakkad
			Malakkara	Kerala	Pathanamthitta
			Nasik	Maharashtra	Nasik
			Mathani Road Bridge	Odisha	Balasore
			Abu Road	Rajasthan	Sirohi
			Kota City	Rajasthan	Kota
			Malli Bazaar	Sikkim	South Sikkim
			Joretahang(Rothak)	Sikkim	South Sikkim
			Singtam	Sikkim	East Sikkim
			Madurai	Tamilnadu	Madurai
			Kakardhari	Uttar Pradesh	Bahraich
			Hasimara	West Bengal	Coochbehar
			Indrapuri Barrage	Bihar	Garhwa
			Gandak Barrage	Bihar	West Champaran
			Kosi Barrage	Bihar	Bhimnagar
			Ravishankar Dam	Chattisgarh	Dhamtari
			Bango Dam	Chattisgarh	Korba
			Sardar Sarovar Dam	Gujarat	Ahmedabad
			Sundar Dam	Jharkhand	Hazaribagh
			Amanat Barage	Jharkhand	Dumka
			Annaraj Dam	Jharkhand	Hazaribagh
			Bhairwa Dam	Jharkhand	Hazaribagh
			Batane Dam	Jharkhand	Giridih
			Galudih Barrage	Jharkhand	Saraikela Kharaswan
			Getlasud Dam	Jharkhand	Ranchi
			Karanja Dam	Karnataka	Bidar
			Malaprabha Dam	Karnataka	Belgaum
			Hippargi Dam	Karnataka	Bagalkot
			Hidkal Dam	Karnataka	Belagavi
			Singatalur Barrage	Karnataka	Gadag
			Idduki Dam	Kerala	Idduki
			Idamalayar	Kerala	Ernakulam
			Rajghat Dam	Madhya Pradesh	Lalitpur
			Tawa Dam	Madhya Pradesh	Hoshangabad
			Bargi Dam	Madhya Pradesh	Jabalpur
			Barna Dam	Madhya Pradesh	Raisen
			Indira Sagar Dam	Madhya Pradesh	Khandwa
			Omkareshwar Dam	Madhya Pradesh	Khandwa
			Totladoh Project	Maharashtra	Nagpur
			Upper Wainganga Project	Madhya Pradesh	Balaghat
			Upper Wardha Project	Maharashtra	Amaravati
			Mula Dam	Maharashtra	Ahmednagar
			Issapur/Upper Penganga P	Maharashtra	Hingoli

			N M D Weir	Maharashtra	Nasik
			Yeldari Dam	Maharashtra	Parbhani
			Koyna Dam	Maharashtra	Satara
			Warana Dam	Maharashtra	Kolhapur
			Ujjani Dam	Maharashtra	Solapur
			Veer Dam	Maharashtra	Satara
			Manjlegaon	Maharashtra	Beed
			Salandi Dam	Odisha	Bhadrak
			Upper Indravathi Project	Odisha	Kalahandi
			Kolab Project	Odisha	Koraput
			Machhkund Project	Odisha	Koraput
			Balimela Project	Odisha	Malkangiri
			Rana Pratap Sagar	Rajasthan	Chittorgarh
			Teesta-III HEP Dam Chung	Sikkim	North Sikkim
			Teesta V HEP Dam Singtar	Sikkim	North Sikkim
			Rongpo Dam	Sikkim	East Sikkim
			Rongli Dam	Sikkim	East Sikkim
			Kodaganar Dam	Tamilnadu	Dindugul
			Musi Project	Telangana	Nalgonda
			Matatilia Dam	Uttar Pradesh	Lalitpur
			Katerniaghat Dam	Uttar Pradesh	Bahraich
			Hinglow Dam	West Bengal	Bankura
2020	3	325+3=328	Dholpur	Rajasthan	Dholpur
			Indirasagar(Polavaram)	Andhra Pradesh	West Godavari
			Laxmi Barrage	Telangana	Bhupalpally
2021	3	328+3=331	Manderial	Rajasthan	Karauli
			Bawanthadi Reservoir	Madhya Pradesh	Balaghat
			Pench Reservoir/Chaurai/M	Madhya Pradesh	Chindwara
2022	2	331+2=333	Madikhera(Atal Sagar)	Madhya Pradesh	Shivpuri
			PVNR Kanthapally Project	Telangana	Warangal
2023	5	333+5=338	Muthankera	Kerala	Wayanad
			Subansiri Lower Dam	Arunachal Pradesh	Lower Subansiri
			Shetrunji Dam	Gujarat	Bhavnagar
			Ichari Dam	Uttarakhand	Dehradun
			Tehri Dam	Uttarakhand	Garhwal

Annex-II

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	Sangam	Jhelum/ Indus	Anantnag/Jammu and Kashmir	33.84	75.08		CD, Jammu / Dir (M), Jammu/ IBO	Jammu & Kashmir	1590.3	1592	1595	2014			
2	Rammunshibagh (Srinagar)	Jhelum/ Indus	Srinagar/Jammu and Kashmir	34.06	74.86	Sangam Khanabal Nunwan	CD, Jammu / Dir (M), Jammu/ IBO	Jammu & Kashmir	1585.53	1586.45	1588.99	2014	Telephone/ Mobile/ Telemtry	Rainfall Runoff Model	
3	Safapura	Jhelum/ Indus	Baramulla/Jammu and Kashmir	34.29	74.63		CD, Jammu / Dir (M), Jammu/ IBO	Jammu & Kashmir	1580	1580.8	1582.1	2014			
4	Srinagar	Alaknanda/Ganga	Srinagar/Pauri Garhwal/Uttrakhand	30.22	78.78	Rudrapryag(02) Joshimath(07) Nandkeshri(07) Karanparyag(04) Ganganagar(03)	HGD/HOC/UGBO	Uttarakhand	535.00	536.00	537.90	2013	Phone/Wireless/ Telemetry	Conventional	Lavel ff station
5	Ganganagar	Mandakini/Ganga	Ganganagar/Rudraparyag/Uttrakha nd	30.4	79.04	Ukhimath Gaurikund Gaundhar	HGD/HOC/UGBO	Uttarakhand	803.00	804.00	801.92	2015	Phone/Telemetry	Conventional	Rainfall based (Mathmatical Modelling)
6	Rishikesh	Ganga/Ganga	Rishikesh/Dehradun/Uttrakhand	30.11	78.31	Deoparyag(05) Marora(02)	HGD/HOC/UGBO	Uttarakhand	339.50	340.50	341.72	1995	Phone/Wireless/ Telemetry	Conventional	Lavel ff station
7	Hardwar	Ganga/Ganga	Haridwar/Uttrakhand	29.98	78.19	Deoparyag(05) Marora(03) Rishikesh(01)	HGD/HOC/UGBO	Uttarakhand	293.00	294.00	296.30	2010	Phone/Wireless/ Telemetry	Conventional	Lavel ff station
8	Dharmanagari Barrage	Ganga/Ganga	Bijnor/Uttar Pardesh	29.37	78.03	Haridwar (06)	HGD/HOC/UGBO	Uttar Pradesh	2000	3000	15855	2010	Phone/Telemetry	Conventional	Inflow FF Station
9	Garhmuktheswar	Ganga/Ganga	Gaziabad/UP	28.77	78.14	Daramnagri (36 Hrs.)	MGD2/HOCD/UGBO	IMD Lucknow	198.33	199.33	199.9	2010	By Phone	-	
10	Narora Barrage	Ganga/Ganga	Narora/ Bulanshahar/ Uttar Pradesh	28.19	78.40	Haridwar (40 Hrs.)	MGD2/HOCD/UGBO	IMD Lucknow	-	-	180.61	2010	Wireless/Mobile	Correlation Graph	
11	Kachlabridge	Ganga/Ganga	Budaun/UP	27.93	78.86	Garhmukteshwar (16 Hrs.)	MGD2/HOCD/UGBO	IMD Lucknow	161.00	162.00	162.79	2010	By Phone	-	
12	Fatehgarh	Ganga/Ganga	Farrukhabad/UP	27.39	79.62	Kachlabridge (24 Hrs.)	MGD2/HOCD/UGBO	IMD Lucknow	136.60	137.60	138.14	2010	Wireless/Mobile	Correlation Graph	
13	Kalagarh Dam	Ramganga/Ganga	Pauri/Garhwal/Uttarakhand	29.49	78.76	Bhikiasen Marchula	MGD2/HOCD/UGBO	IMD Lucknow	-	-	263.67	2010	Wireless/Mobile	Correlation Graph	
14	Moradabad	Ramganga/Ganga	Moradabad/Moradabad/Uttar Pradesh	28.83	78.80	Kalagarh (36 Hrs.)	MGD2/HOCD/UGBO	IMD Lucknow	189.60	190.60	192.88	2010	Wireless/Mobile	Correlation Graph	
15	Bareilly	Ramganga/Ganga	Bareilly/Bareilly/ Uttar pradesh	28.30	79.37	Moradabad (36 Hrs.)	MGD2/HOCD/UGBO	IMD Lucknow	162.07	163.07	162.88	1978	Wireless/Mobile	Correlation Graph	
16	Dabri	Ramganga/Ganga	Jalalabar/Shahjahanpur/UP	27.49	79.69	Bareilly (24 Hrs.)	MGD2/HOCD/UGBO	IMD Lucknow	136.30	137.30	139.70	1983	Wireless/Mobile	Correlation Graph	
17	Kannauj	Ganga/Ganga	Kannauj/Kannauj/ Uttar Pradesh	27.01	79.98	Narora (D/s) (48)	MGD2/HOCD/UGBO	IMD Lucknow	124.97	125.97	126.78	2010	Wireless	Conventional	
18	Ankinghat	Ganga/Ganga	Ankinghat/Kanpur/ Uttar Pradesh	26.93	80.03	Narora (D/s) (48) Bareilly (48) Fathegarh (12) Dabri (12)	MGD2/HOCD/UGBO	IMD Lucknow	123.00	124.00	124.49	2010	Wireless/ Telemetry	Conventional	
19	Kanpur	Ganga/Ganga	Kanpur/Kanpur/ Uttar Pradesh	26.47	80.38	Fathegarh (24) Dabri (24) Ankinghat (12)	MGD2/HOCD/UGBO	IMD Lucknow	112.00	113.00	114.08	2010	Wireless/ Telemetry	Conventional	
20	Dalmau	Ganga/Ganga	Rae-barerilly/ Rae-barerilly/ Uttar Pradesh	26.06	81.03	Ankninghat (28) Kanpur (16)	MGD2/HOCD/UGBO	IMD Lucknow	98.36	99.36	99.84	1973	Wireless/ Telemetry	Conventional	
21	Phaphamau	Ganga/Ganga	Allahabad/ Allahabad/ Uttar Pradesh	25.50	81.86	Kanpur (30) Chillaghat (24)	MGD3/HOCV/UGBO	East Uttar Prasdesh	83.73	84.73	87.98	1978	Wireless/ Telemetry	Conventional	

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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			
22	Paonta Sahib	Yamuna/Ganga	Poanta/Sirmaur/ Himachal Pradesh	30.43	77.59	Naugaon (03-08) Jateon Barrage(giri) (03-08) Haripur(02-07) Dakpathar Barrage (1-1.5)	UYD/HOC/YBO	Himachal Pradesh	383.5	384.5	384.6	1995		3 days advisory Forecast (CWC BETA Model)	
23	Tajewala Barrage (Hathnikund Barrage)	Yamuna/Ganga	Yamunanagar/ Yamunanagar/ Haryana	30.31	77.58	Paonta (06)	UYD/HOCN/ YBO	Haryana Chandigarh& Delhi	1982.00				Wireless		Inflow Forecast Not in Operation
24	Karnal	Yamuna/Ganga	Shergarh Tapu/ Karnal/ Haryana	30.06	77.14	Kalanaur (07-28) hrs	UYD/HOC/YBO	Haryana	248.8	249.5	250.07	2013		Conventional	
25	Mawi	Yamuna/Ganga	Panipat/ Muzzafarpur/ Uttar Pradesh	29.38	77.15	Kalanur (06-36)	UYD/HOCN/ YBO	West Uttar Pradesh	231.00	231.50	232.75	2013	Wireless/ Telemetry	Conventional	
26	Dhansa Regulator	Sahibi/Yamuna/ Ganga	Delhi/Delhi/ NCT Delhi	28.53	76.87	Dadri (03-05) Masani (31-40)	UYD/HOCN/ YBO	Haryana Chandigarh& Delhi	211.44	212.44	213.58	1977	Wireless	Conventional	
27	Delhi Railway Bridge	Yamuna/Ganga	Delhi/Delhi/ NCT Delhi	28.66	77.25	Mawi (09-41)	UYD/HOCN/ YBO	Haryana Chandigarh& Delhi	204.50	205.33	207.49	1978	Wireless/ Telemetry	Conventional	
28	Mathura	Yamuna/Ganga	Mathura/Mathura/ Uttar Pradesh	27.51	77.69	Mohana (12-65)	UYD/HOCN/ YBO	West Uttar Pradesh	165.20	166.00	169.73	1978	Wireless/ Telemetry	Conventional	
29	Agra	Yamuna/Ganga	Agra/Agra/ Uttar Pradesh	27.19	78.03	Mathura (16-28)	LYD/HOCN/ YBO	West Uttar Pradesh	151.40	152.40	154.76	1978	Wireless/ Telemetry	Conventional	
30	Etawah	Yamuna/Ganga	Etawah/Etawah/ Uttar Pradesh	26.75	78.99	Agra (18-51)	LYD/HOCN/ YBO	West Uttar Pradesh	120.92	121.92	126.13	1978	Wireless/ Telemetry	Conventional	
31	Gandhisagar Dam	Chambal/Ganga	Gandhisagar Dam/Mandasur/ Madhya Pradesh	24.65	75.61	Tal (8)	CD/HOCN/ YBO	West Madhya Pradesh	399.90	399.90	399.90	2011	Telemetry	Mathematical	
32	Rana Pratap Sagar Dam	Chambal/Ganga	Chittorgarh/Rajasthan	24.91	75.58	Gandhisagar Dam (1)	CD Jaipur/HOC Noida/YBO ND							Mathematical	
33	Kota Barrage	Chambal/Ganga	Kota/Rajasthan	25.17	75.82	Rana Pratap Sagar Dam(1-1.25)	CD Jaipur/HOC Noida/YBO ND							Mathematical	
34	Kota City	Chambal/Ganga	Kota/Rajasthan	25.19	75.84	Immediate D/S of Kota Barrage	CD Jaipur/HOC Noida/YBO ND		239	242	248.68	2019		Mathematical	
35	Bisalpur Dam	Banas/Ganga	Deoli/Tonk/Rajasthan	25.92	75.45	Bigod(09-10)	CD Jaipur/HOC Noida/YBO ND	East Rajasthan	FRL-315.5					Rainfall Runoff Model	
36	Kalisindh Dam	Kalisindh/Ganga	Khanpur/Jhalawar/Rajasthan	24.48	76.22	Sarangpur(10-12)	CD Jaipur/HOC Noida/YBO ND		FRL-316						
37	Parwan Dam	Parwan/Ganga	Baran/Jhalawar//Rajasthan	24.62	76.51		CD Jaipur/HOC Noida/YBO ND		308.8						
38	Gambhiri Dam	Gambhiri/Ganga	Chittorgarh/Rajasthan	24.7	74.73		CD Jaipur/HOC Noida/YBO ND							Rainfall Runoff Model	
39	Panchana Dam	Chambal/Ganga	Mandrail/Karauli/Rajasthan	26.55	77.00		CD Jaipur/HOC Noida/YBO ND		258.62					Rainfall Runoff Model	
40	Gudha Dam	Mej/Ganga	Bundi/Rajasthan	25.48	75.46		CD Jaipur/HOC Noida/YBO ND		FRL-305.86					Rainfall Runoff Model	
41	Parwati Dam	Parwati/Ganga	Dholpur / Rajasthan	26.65	77.9		CD Jaipur/HOC Noida/YBO ND		FRL-308.15						
42	Auraiya	Yamuna/Ganga	Auraiya/Auraiya/ Uttar Pradesh	26.42	79.48	Etawah (21-24) Dhaulpur (15-36)	LYD/HOCN/ YBO	West Uttar Pradesh	112.00	113.00	118.51	2021	Wireless/ Telemetry	Conventional	
43	Kalpi	Yamuna/Ganga	Kalpi/Jalaun/ Uttar Pradesh	26.13	79.76	Etawah (21-27) Dhaulpur (15-42)	LYD/HOCN/ YBO	West Uttar Pradesh	107.00	108.00	112.98	1996	Wireless/ Telemetry	Conventional	
44	Hamirpur	Yamuna/Ganga	Hamirpur/Hamirpur/ Uttar Pradesh	25.96	80.16	Auraiya (15) Mohana (18-24)	LYD/HOCN/ YBO	East Uttar Prasdesh	102.63	103.63	108.59	1983	Wireless/ Telemetry	Conventional	
45	Rajghat Dam	Betwa/Yamuna/ Ganga	Chanderi/ Madhya Pradesh	24.76	78.23		LYD/HOCN/ YBO		FRL-371					Mathematical Model	
46	Matatila Dam	Betwa/Yamuna/ Ganga	Lalitpur/UttarPradesh	25.10	78.36		LYD/HOCN/ YBO	East Uttar Prasdesh	308.46	310.04				Mathematical Model	
47	Mohana	Betwa/Yamuna/ Ganga	Jhansi/Jhansi/ Uttar Pradesh	25.65	78.99	Garrouli (15-21) Nautghat (12-21)	LYD/HOCN/ YBO	East Uttar Prasdesh	121.66	122.66	133.35	1983	Wireless/ Telemetry	Conventional	

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											(m)	Year			
48	Sahjiana	Betwa/Yamuna/ Ganga	Hamirpur/Hamirpur/ Uttar Pradesh	25.95	80.15	Mohana (18-26)	LYD/HOCN/ YBO	East Uttar Prasdesh	103.54	104.54	108.67	1983	Wireless/ Telemetry	Conventional	
49	Banda	Ken/Yamuna/ Ganga	Banda/Banda/ Uttar Pradesh	25.48	80.31	Madla (12-30) Kaimaha (9-15)	LYD/HOCN/ YBO	East Uttar Prasdesh	103.00	104.00	113.29	2005	Wireless/ Telemetry	Conventional	
50	Chillaghat	Yamuna/Ganga	Banda/Banda/ Uttar Pradesh	25.77	80.53	Hamirpur (12) Banda (12) Sahijina(12)	LYD/HOCN/ YBO	East Uttar Prasdesh	99.00	100.00	105.16	1978	Wireless/ Telemetry	Conventional	
51	Naini	Yamuna/Ganga	Allahabad/ Allahabad/ Uttar Pradesh	25.42	81.84	Chillaghat (18-24)	LYD/HOCN/ YBO	East Uttar Prasdesh	83.74	84.74	87.99	1978	Wireless/ Telemetry	Conventional	
52	Dholpur	Chambal/Ganga	Dholpur / Rajasthan	26.65	77.9	Pali (18-24) Manderial(06-12)	LYD Agra/YBO		129.79	130.79	145.54	1996	Wireless/ Telemetry	Conventional	
53	Manderial	Chambal/Ganga	Karauli/Rajasthan	26.28	77.28	Pali (08)	CD Jaipur/HOC Noida/YBO ND		164.00	165	169.96	1996			
54	Allahabad (Chatnag)	Ganga/Ganga	Allahabad/ Allahabad/ Uttar Pradesh	25.40	81.91	Kanpur (30) Chillaghat (24)	MGD3/HOCV/UG BO	East Uttar Prasdesh	83.73	84.73	88.03	1978	Wireless/ Telemetry	Conventional	
55	Mirzapur	Ganga/Ganga	Mirzapur/Mirzapur/ Uttar Pradesh	25.15	82.53	Dalmau (28) Chillaghat (34)	MGD3/HOCV/UG BO	East Uttar Prasdesh	76.72	77.72	80.34	1978	Wireless/ Telemetry	Conventional	
56	Varanasi	Ganga/Ganga	Varanasi/Varanasi/ Uttar Pradesh	25.33	83.04	Kanpur (48) Hamirpur(48)	MGD3/HOCV/UG BO	East Uttar Prasdesh	70.26	71.26	73.90	1978	Wireless/ Telemetry	Conventional	
57	Hanuman Setu	Gomti/Ganga	Lucknow/Lucknow/ Uttar Pradesh	26.86	80.95	Bhatpurwaghat (48 hrs.)	M.G.Divn.-2 Lucknow/H.O.C.Dehradun/UGBO Lucknow	IMD Lucknow	108.50	109.50	110.85	1971	Wireless/Mobile	Correlation Graph	
58	Rae-Bareilly	Sai/Gomti/Ganga	Rae-bareilly/Rae-bareilly/Uttar Pradesh	26.20	81.25	Bani (48 hrs.)	M.G.Divn.-2 Lucknow/H.O.C.Dehradun/UGBO Lucknow	IMD Lucknow	100.00	101.00	104.81	1982	Wireless/Mobile	Correlation Graph	
59	Jaunpur	Gomti/Ganga	Jaunpur/Jaunpur/ Uttar Pradesh	25.75	82.67	Sultanpur (24)	MGD3/HOCV/UG BO	East Uttar Prasdesh	73.06	74.06	77.74	1971	Wireless/ Telemetry	Conventional	
60	Ghazipur	Ganga/Ganga	Ghazipur/ Ghazipur/ Uttar Pradesh	25.58	83.60	Allahabad (28) Sultanpur (30)	MGD3/HOCV/UG BO	East Uttar Prasdesh	62.10	63.10	65.22	1978	Wireless/ Telemetry	Conventional	
61	Buxar	Ganga/Ganga	Buxar/Buxar/Bihar	25.58	83.97	Allahabad (30)	LGD-II/HOCP/LGBO	Bihar	59.32	60.32	62.09	1948	Wireless/ Telemetry	Conventional	
62	Ballia	Ganga/Ganga	Ballia/ Ballia/ Uttar Pradesh	25.77	84.37	Varanasi (28) Jaunpur (28)	MGD3/HOCV/UG BO	East Uttar Prasdesh	56.62	57.62	60.39	2016	Wireless/ Telemetry	Conventional	
63	Banbasa Barrage	Ghaghra/Ganga	Champawat/Uttarakhand	28..99	80.1	Pancheshwar(18-24)	MGD-I/HOC Varanasi/UGBO Lucknow	West UP	FRL 222.96		223.3	2013		3 days advisory Forecast (CWC BETA Model)	
64	Katarniaghat Barrage	Ghaghra/Ganga	Bahraich / UttarPradesh	28.27	81.09		MGD-I/HOC Varanasi/UGBO Lucknow	West UP	FRL-136.8						
65	Elgin Bridge	Ghaghra/Ganga	Barabanki/Barabanki/ Uttar Pradesh	27.09	81.49	B K Ghat (30-36) Shardanagar (30-36)	MGD1/HOCV/UG BO	East Uttar Prasdesh	105.07	106.07	107.62	2014	Wireless/ Telemetry	Conventional	
66	Ayodhya	Ghaghra/Ganga	Ayodhya/Faizbad/ Uttara Pradesh	26.81	82.21	Elgin Bridge (18-24)	MGD1/HOCV/UG BO	East Uttar Prasdesh	91.73	92.73	94.01	2009	Wireless/ Telemetry	Conventional	
67	Kakardhari	Rapti/Ghaghra/ Ganga	Bahraich / UttarPradesh	27.89	81.77		MGD1/HOCV/UG BO	East Uttar Prasdesh	130.00	131.00	132.37	2014			
68	Balrampur	Rapti/Ghaghra/ Ganga	Balrampur/ Balrampur/ Uttar Pradesh	27.44	82.23	Kakardhari (18-24)	MGD1/HOCV/UG BO	East Uttar Prasdesh	103.62	104.62	105.54	2017	Wireless/ Telemetry	Conventional	
69	Bansi	Rapti/Ghaghra/ Ganga	Bansi/ Siddarthnagar/ Uttar Pradesh	27.18	82.94	Balrampur (18-24)	MGD1/HOCV/UG BO	East Uttar Prasdesh	83.90	84.90	85.95	2021	Wireless/ Telemetry	Conventional	
70	Gorakhpur (Birdghat)	Rapti/Ghaghra/ Ganga	Gorahpur/ Gorakhpur/ Uttar Pradesh	26.73	83.35	Bansi (18-24) Kakardhari (18-24)	MGD1/HOCV/UG BO	East Uttar Prasdesh	73.98	74.98	77.54	1998	Wireless/ Telemetry	Conventional	

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											(m)	Year			
71	Turtipar	Ghaghra/Ganga	Balthra/Ballia/ Uttar Pradesh	26.14	83.88	Ayodhya (30-36) Gorakhpur (Birdghat) (30-36)	MGD1/HOCV/UGBO	East Uttar Prasdesh	63.01	64.01	66.00	1998	Wireless/ Telemetry	Conventional	
72	Darauli	Ghaghra/Ganga	Darauli/Siwan/Bihar	26.07	84.13	Elgin Bridge (54) Gorakhpur (Birdghat) (28)	LGDII/HOCP/LGBO	Bihar	59.82	60.82	61.74	1998	Wireless	Conventional	
73	Gangpur Siswan	Ghaghra/Ganga	Siwan/Siwan/Bihar	25.91	84.39	Turtipar (20)	LGDII/HOCP/LGBO	Bihar	56.04	57.04	58.01	1983	Wireless	Conventional	
74	Chhapra	Ghaghra/Ganga	Chhapra/Saran/Bihar	25.76	84.79	Gangpur Siswan (16)	LGDII/HOCP/LGBO	Bihar	52.68	53.68	54.59	1982	Wireless	Conventional	
75	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	
76	Rihand Dam	Rihand/ Ganga	Robertsganj/Sonbhadra/ Uttar Pradesh	24.21	83.02		MGDIII/HOC Varanashi/UGBO	East Uttar Pradesh	FRL-265.18					Rainfall Runoff Model	
77	Annaraj Dam	Khoranadi/Ganga	Bhadua / Hazaribagh/Jharkhand	24.06	83.8		LGDII/HOCP/LGBO		FRL-252.44						
78	Bhairawa Dam	Goda Nala /Ganga	Hazaribagh/Jharkhand	23.51	85.67		DD/HOCM/ LGBO		FRL-356.70						
79	Inderpuri Barrage	Sone/Ganga	Inderpuri/Garhwa/ Bihar	24.75	84.16		LGDII/HOCP/LGBO	Bihar	FRL-173.00						
80	Inderpuri	Sone/Ganga	Inderpuri/Rohtas/ Bihar	24.84	84.13	Chopan (12) Daltonganj (12)	LGDII/HOCP/LGBO	Bihar	107.20	108.20	108.85	1975	Wireless	Conventional	
81	Koelwar	Sone/Ganga	Koelwar/Bhojpur/ Bihar	25.57	84.79	Inderpuri (10-15) Japla	LGDII/HOCP/LGBO	Bihar	54.52	55.52	58.88	1971	Wireless	Conventional	
82	Maner	Sone/Ganga	Maner/Patna/Bihar	25.70	84.86	Gandhighat (6-8)	LGDII/HOCP/LGBO	Bihar	51.00	52.00	53.79	1976	Wireless	Conventional	
83	Patna (Dighaghat)	Ganga/Ganga	Patna/ Patna/ Bihar	25.64	85.10	Patna (Gandhighat) (04)	LGDII/HOCP/LGBO	Bihar	49.45	50.45	52.52	1975	Wireless	Conventional	
84	Gandak Barrage	Gandak/Ganga	West Champaran/Bihar	27.43	83.90		LGDI/HOCP/LGBO	Bihar	FRL-110.3						
85	Khadda	Gandak/Ganga	Deoria/Kushinagar/ Uttar Pradesh	27.23	83.87	Triveni (07)	LGD-I/MC/LGBO Patna	Bihar	95.00	96.00	97.50	2002	Wireless	Conventional	
86	Chatia	Gandak/Ganga	Ariraj West Champaran/ Motihari/ Bihar	26.50	84.54	Triveni (24)	LGD-I/MC/LGBO Patna	Bihar	68.15	69.15	70.04	2002	Wireless	Conventional	
87	Dumariaghat	Gandak/Ganga	Gopalganj/Bihar	26.35	84.76	Chatia(24)	LGD-I/MC/LGBO Patna	Bihar	61.22	62.22	64.36	2020	Wireless	Conventional	
88	Rewaghat	Gandak/Ganga	Muzzafarpur/Muzzafarpur/Bihar	25.99	85.05	Chatia (20)	LGDII/HOCP/LGBO	Bihar	53.41	54.41	55.46	2020	Wireless	Conventional	
89	Hazipur	Gandak/Ganga	Hazipur/Vaishali/ Bihar	25.69	85.20	Rewaghat (16)	LGDII/HOCP/LGBO	Bihar	49.32	50.32	50.93	1948	Wireless	Conventional	
90	Patna (Gandhighat)	Ganga/Ganga	Patna/ Patna/ Bihar	25.62	85.17	Buxar (24) Darauli (24) Rewaghat (24) Japla (24)	LGDII/HOCP/LGBO	Bihar	47.60	48.60	50.52	2016	Wireless/ Telemetry	Conventional	
91	Amanat Dam	Baranadi/Ganga	Hazaribagh/Jharkhand	24.01	84.47		LGDII/HOCP/LGBO		274.39						
92	Batane Dam	Punpun/Ganga	Chhatarpur/Palamu/Jharkhand	24.42	84.26		LGDII/HOCP/LGBO		FRL-232.85						
93	Sripalpur	Punpun/Ganga	Sripalpur/Patna/Bihar	25.50	85.11	Kinjer (24)	LGDII/HOCP/LGBO	Bihar	49.60	50.60	53.91	1976	Wireless	Conventional	

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											(m)	Year			
94	Hathidah	Ganga/Ganga	Hathidah/Patna/Bihar	25.37	85.99	Gandhighat (16)	LGDII/HOCP/LGBO	Bihar	40.76	41.76	43.52	2021	Wireless/ Telemetry	Conventional	
95	Munger	Ganga/Ganga	Munger/Munger/ Bihar	25.38	86.46	Gandhighat (24)	LGDII/HOCP/LGBO	Bihar	38.33	39.33	40.99	1976	Wireless/ Telemetry	Conventional	
96	Lalbeghiaghat	Burhi Gandak/ Ganga	Dhaka/Motihari/Bihar	26.65	85.03	Chainpatia (24)	LGDI/HOCP/LGBO	Bihar	62.20	63.20	67.09	1975	Wireless	Conventional	
97	Ahirwalia	Burhi Gandak/ Ganga	Chakia/Purba Champaren/Bihar	26.41	85.14	Lalbegiaghat(24)	LGD-I/MC/LGBO Patna	Bihar	58.62	59.62	61.17	2014			
98	Muzzafarpur (Sikandarpur)	Burhi Gandak/ Ganga	Sikandarpur/Muzzafarpur/Bihar	26.14	85.39	Ahirwala(S) (24)	LGDI/HOCP/LGBO	Bihar	51.53	52.53	54.29	1987	Wireless	Conventional	
99	Samastipur	Burhi Gandak/ Ganga	Samastipur/Samastipur/Bihar	25.86	85.79	Sikandarpur (20)	LGDI/HOCP/LGBO	Bihar	45.02	46.02	49.38	1987	Wireless	Conventional	
100	Rosera	Burhi Gandak/ Ganga	Rosera/Samastipur/ Bihar	25.74	86.02	Sikandarpur (28)	LGDI/HOCP/LGBO	Bihar	41.63	42.63	46.56	2020	Wireless	Conventional	
101	Khagaria	Burhi Gandak/ Ganga	Khagaria/Khagaria/ Bihar	25.75	86.48	Sikandarpur (24) Gandhighat (24)	LGDI/HOCP/LGBO	Bihar	35.58	36.58	39.22	1976	Wireless	Conventional	
102	Bhagalpur	Ganga/Ganga	Bhagalpur/Bhagalpur/Bihar	25.27	87.02	Gandhighat (32)	LGDII/HOCP/LGBO	Bihar	32.68	33.68	34.86	2021	Wireless/ Telemetry	Conventional	
103	Colgong/Kahalgaon	Ganga/Ganga	Colgong/Bhagalpur/ Bihar	25.27	87.23	Gandhighat (38)	LGDII/HOCP/LGBO	Bihar	30.09	31.09	32.87	2003	Wireless/ Telemetry	Conventional	
104	Kosi Barrage	Kosi/Ganga	Supaul/Supaul/Bihar	26.52	86.92		LGDI/HOCP/LGBO		FRL-74.69						
105	Basua	Kosi/Ganga	Supaul/Supaul/Bihar	26.10	86.58	Birpur (16)	LGDI/HOCP/LGBO	Bihar	46.75	47.75	49.24	2017	Wireless	Conventional	
106	Dheng Bridge	Bagmati/Ganga	Sitamarhi/Bihar	26.72	85.32	Karmaiya(Nepal) (24)	LGDI/HOCP/LGBO		70.00	71.00	73.00	2017			
107	Runisaidpur	Bagmati/Ganga	Sitamarhi/Bihar	26.34	85.49	Dheng Bridge(24)	LGDI/HOCP/LGBO		54.00	55.00	58.15	2017			
108	Benibad	Bagmati/Ganga	Benibad/Muzzafarpur/ Bihar	26.20	85.67	Runisaidpur (24)	LGDI/HOCP/LGBO	Bihar	47.68	48.68	50.01	2004	Wireless/ Telemetry	Conventional	
109	Kamtaul	Adhwara Group/Ganga	Kamtaul Market/Darbhanga/ Bihar	26.33	85.80	Sonebarsa (24)	LGDI/HOCP/LGBO	Bihar	49.00	50.00	52.99	1987	Wireless/ Telemetry	Conventional	
110	Ekmighat	Adhwara Group/Ganga	Laheria Seria/Darbhanga/ Bihar	26.12	85.88	Saulighat (24) Kamtaul(24)	LGDI/HOCP/LGBO	Bihar	45.94	46.94	49.52	2004	Wireless/ Telemetry	Conventional	
111	Hayaghat	Bagmati/Ganga	Hayaghat Papermill/Darbhanga/ Bihar	26.03	85.89	Benibad (24) Ekmighat (24)	LGDI/HOCP/LGBO	Bihar	44.72	45.72	48.96	1987	Wireless/ Telemetry	Conventional	
112	Jainagar	Kamlabalan/ Ganga	Madhubani/ Bihar	26.59	86.13	Sindhuli(Nepal) (08-28)	LGDI/HOCP/LGBO	Bihar	66.75	67.75	71.35	2016			
113	Jhanjharpur	Kamlabalan/ Ganga	Jhanjharpur/Madhubani/ Bihar	26.27	86.27	Jainagar (8-28)	LGDI/HOCP/LGBO	Bihar	49.00	50.00	53.11	2019	Wireless	Conventional	
114	Sonebarsa	Adhwara Group/Ganga	Sitamarhi/Bihar	26.85	85.85	Patharkot(Nepal) (24)	LGDI/HOCP/LGBO		80.85	81.85	83.20	1999			
115	Baltara	Kosi/Ganga	Choutham/Khagaria/ Bihar	25.54	86.72	Basua (24) Hayaghat (24)	LGDI/HOCP/LGBO	Bihar	32.85	33.85	36.40	1987	Wireless	Conventional	

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											(m)	Year			
116	Kursela	Kosi/Ganga	Kusela/Katihar/Bihar	25.42	87.23	Basua (24) Hathidah (24)	LGDI/HOCP/LGBO	Bihar	29.00	30.00	32.10	1982	Wireless	Conventional	
117	Sahibganj	Ganga/Ganga	Sahibganj/Sahibganj/Jharkhand	25.25	87.64	Munger (22)	LGDII/HOCP/LGBO	Jharkhand	26.25	27.25	30.91	1998	Wireless	Conventional	
118	Taibpur	Mahananda/ Ganga	Kishanganj/Bihar	26.36	88.17	Sonapur(16)	LGDI/HOCP/LGBO	Bihar	65.00	66.00	67.22	2016			
119	Dengraghat	Mahananda/ Ganga	Bayasi/Purnes/Bihar	25.85	87.81	Taibpur (24) Chargharia (24)	LGDI/HOCP/LGBO	Bihar	34.65	35.65	38.20	2017	Wireless	Conventional	
120	Jhawa	Mahananda/ Ganga	Jhawa/Katihar/Bihar	25.61	87.76	Dhengraghat (16) Araria (16)	LGDI/HOCP/LGBO	Bihar	30.40	31.40	34.07	2017	Wireless	Conventional	
121	Arraria	Parwan/Ganga	Arraria/Bihar	26.12	87.54	Bathnaha(16)	LGDI/HOCP/LGBO	Bihar	46.00	47.00	49.40	2017			
122	Farakka	Ganga/Ganga	Farakka/Murshidabad/ West Bengal	24.80	87.92	Munger (38) Baltara (30)	LGDI/HOCP/LGBO	Gangetic West Bengal	21.25	22.25	25.14	1998	Wireless	Conventional	
123	Massanjore Dam	Mayurakshi/Ganga	Massanjore Dam/ Santhal Parganas/ Jharkhand	24.11	87.31	Maharo (12-14)	DD/HOCM/ LGBO	Jharkhand	121.31		122.87	1999	Wireless/ Telemetry	Conventional	
124	Tilpara Barrage	Mayurakshi/Ganga	Tilpara Dam/Suri/ Birbhum/ West Bengal	23.95	87.53	Massanjore Dam (10-12) Tantoloi (10-12)	DD/HOCM/ LGBO	Gangetic West Bengal	62.79		67.05	1978	Wireless/ Telemetry	Conventional	
125	Narayanpur	Mayurakshi/ Ganga	Kandi/Murshidabad/ West Bengal	23.88	87.91	Tilpara Barrage (16-21)	DD/HOCM/ LGBO	Gangetic West Bengal	26.86	27.86	29.69	1995	Wireless	Conventional	
126	Sikatia Barrage	Ajoy/Ganga	Ausgram/Deoghar/Jharkhand	24.15	86.25		DD/HOCM/ LGBO								
127	Gheropara	Ajoy/Ganga	Khairasol/ Bhirbum/ West Bengal	23.62	87.70	Sikata Barrage (16-18)	DD/HOCM/ LGBO	Gangetic West Bengal	38.42	39.42	43.94	1978	Wireless	Conventional	
128	Tenughat Dam	Damodar/Ganga	Bokaro/Jharkhand	23.72	85.84	Hendgir (12-14)	DD/HOCM/ LGBO	Jharkhand	268.83				Wireless/ Telemetry	Conventional	
129	Tilaya Dam	Barakar/ Ganga	Koderma/Jharkhand	24.32	85.52		DD/HOCM/ LGBO								
130	Konar Dam	Konar/Ganga	Hazaribag/Jharkhand	23.93	85.76		DD/HOCM/ LGBO								
131	Panchet Dam	Damodar/Ganga	Panchet Dam/ Dhanbad/ Jharkhand	23.68	86.75	Tenughat Dam (12-14)	DD/HOCM/ LGBO	Jharkhand	132.59				Wireless/ Telemetry	Conventional	
132	Maithon Dam	Barakar/ Damodar	Maithon Dam/ Dhanbad/ Jharkhand	23.78	86.81	Barkisaraia (14-18)	DD/HOCM/ LGBO	Jharkhand	150.88				Wireless/ Telemetry	Conventional	
133	Durgapur Barrage	Damodar/Ganga	Durgapur/ Burdwan/ West Bengal	23.48	87.31	Panchet Dam (18-24) Maithon Dam (18-24)	DD/HOCM/ LGBO	Gangetic West Bengal	64.47				Wireless/ Telemetry	Conventional	
134	Sundar Dam	Anjanwa/ Ganga	Godda/Jharkhand	24.93	87.38		DD/HOCM/ LGBO		110.79						
135	Harinkhola	Mundeshwari/ West Benagl	Arambagh/Hooghly/ West Bengal	22.83	87.90	Durgapur Barrage (18-24)	DD/HOCM/ LGBO	Gangetic West Bengal	11.80	12.80	14.60	2017	Wireless/ Telemetry	Conventional	
136	Hinglow Dam	Kangsabati	Bankura/West Bengal	23.82	87.18		DD/HOCM/ LGBO	Gangetic West Bengal	97.84						
137	Kangsabati Dam	Kangsabati	Kangsabati Dam/Bankura West Bengal	22.96	86.75	Simulia (14-16)	DD/HOCM/ LGBO	Gangetic West Bengal	134.11		134.71	1978	Wireless	Conventional	
138	Mohanpur	Kangsabati/ Ganga	Medhinipur/ Medhinipur/ West Bengal	22.40	87.34	Kangsabati Dam (12-14)	DD/HOCM/ LGBO	Gangetic West Bengal	24.73	25.73	29.87	1978	Wireless	Conventional	
139	Yingkiang	Siang/ Brahmaputra	Upper Siang/Arunachal Pradesh	28.62	95.03	Tuting (06)	UBD/HOCG/ BBO	Assam and Meghalaya	303.00	304.00					
140	Passighat	Siang/ Brahmaputra	Passighat/ East Siang/ Arunachal Pradesh	28.06	95.33	Tuting (9)	UBD/HOCG/ BBO	Assam and Meghalaya	152.96	153.96	157.54	2000	Wireless	Conventional	
141	Dhollabazar	Lohit/Brahmaputra	Tinsukia/Assam	27.75	95.6	Tezu(09)	UBD/HOCG/ BBO	Assam & Meghalaya	127.27	128.27	130.07	2012			
142	Dibrugarh	Brahmaputra/ Brahmaputra	Dibrugarh/Dibrugarh/Assam	27.49	94.85	Passighat (12) Tezu (12)	UBD/HOCG/ BBO	Assam and Meghalaya	104.70	105.70	106.48	1998	Wireless/ Telemetry	Conventional	
143	Namsai	Nao Dehing/Brahmaput	Namsai/Lohit/Arunachal Pradesh	27.66	95.83	Miao(09) Motipur(09)	UBD/HOCG/ BBO	Arunachal Pradesh	144.8	145.8	146.6	1979			
144	Naharkatia	Buridehing/ Brahmaputra	Naharkatia/ Dibrugarh/ Assam	27.29	95.33	Margherita (12)	UBD/HOCG/ BBO	Assam and Meghalaya	119.40	120.40	122.69	1973	Wireless	Conventional	
145	Chenimari (Khowang)	Buridehing/ Brahmaputra	Khowang/ Dibrugarh/ Assam	27.31	94.88	Naharkatia (24)	UBD/HOCG/ BBO	Assam and Meghalaya	101.11	102.11	104.16	2015	Wireless	Conventional	

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											(m)	Year			
146	Nanglamoraghat	Desang/ Brahmaputra	Sibsagar/Sibsagar/ Assam	26.99	94.78	Dillighat (18)	UBD/HOCG/ BBO	Assam and Meghalaya	93.46	94.46	96.49	1998	Wireless	Conventional	
147	Sibsagar	Dikhow/ Brahmaputra	Sibsagar/Sibsagar/ Assam	26.98	94.58	Bihubar (09)	UBD/HOCG/ BBO	Assam and Meghalaya	91.40	92.40	94.24	2020	Wireless	Conventional	
148	Neamatighat	Brahmaputra/ Brahmaputra	Neamatighat/ Jorhat/ Assam	26.86	94.25	Dibrugarh (24) Chenimari (24)	UBD/HOCG/ BBO	Assam and Meghalaya	84.54	85.54	87.37	1991	Wireless/ Telemetry	Conventional	
149	Choldhowaghat	Subansiri/ Brahmaputra	Dhakuakhana/Lakhimpur/Assam	27.44	94.25	Daporizo(09)	UBD/HOCG/ BBO	Assam & Meghalaya	99.43	100.43	101.31	1972			
150	N.H.Xing Ranganadi	Ranganadi/Brahmaputra	Bihuparia/ Lakhimpur/ Assam	27.2	94.05	Yazali(09)	UBD/HOCG/ BBO	Assam & Meghalaya	93.81	94.81	95.92	1979			
151	Badatighat	Subansiri/ Brahmaputra	Bihuparia/ Lakhimpur/ Assam	26.95	93.96	Chouldhowaghat (18)	UBD/HOCG/ BBO	Assam and Meghalaya	81.53	82.53	86.21	1972	Wireless	Conventional	
152	Golaghat	Dhansisri (S)/ Brahmaputra	Golaghat/ Golaghat Assam	26.50	93.95	Bokajan (15) Gelabil (15)	UBD/HOCG/ BBO	Assam and Meghalaya	88.50	89.50	92.45	1986	Wireless	Conventional	
153	Numaligarh	Dhansisri (S)/ Brahmaputra	Numaligarh/ Golaghat/ Assam	26.63	93.73	Golaghat (12)	UBD/HOCG/ BBO	Assam and Meghalaya	77.42	78.42	80.16	2018	Wireless	Conventional	
154	N T Road Crossing	Jia- Bharali/ Brahmaputra	Balipara/Sonitpur/ Assam	26.81	92.88	Seppa (9)	UBD/HOCG/ BBO	Assam and Meghalaya	76.00	77.00	78.50	2007	Wireless	Conventional	
155	Tezpur	Brahmaputra/ Brahmaputra	Tezpur/ Sonitpur/ Assam	26.62	92.80	Neamatighat (24)	UBD/HOCG/ BBO	Assam and Meghalaya	64.23	65.23	66.59	1988	Wireless/ Telemetry	Conventional	
156	Kampur	Kopili/ Brahmaputra	Kampur/ Nagaon/ Assam	26.15	92.65	Kheronighat (24)	UBD/HOCG/ BBO	Assam and Meghalaya	59.50	60.50	61.79	2004	Wireless	Conventional	
157	Dharamtul	Kopili/ Brahmaputra	Dharamtul/Morigaon/Assam	26.17	92.36	Kampur (15)	UBD/HOCG/ BBO	Assam and Meghalaya	55.00	56.00	58.09	2004	Wireless	Conventional	
158	Guwahati D C Court	Brahmaputra/ Brahmaputra	Guwahati/Kamrup/ Assam	26.19	91.74	Tezpur (24)	MBD/HOCG/BBO	Assam and Meghalaya	48.68	49.68	51.46	2004	Wireless/ Telemetry	Conventional	
159	N H Crossing	Puthimari/ Brahmaputra	Rangia/ kamrup/ Assam	26.33	91.65	DRF (13)	MBD/HOCG/BBO	Assam and Meghalaya	50.81	51.81	55.08	2008	Wireless/ Telemetry	Conventional	
160	N T Road Crossing	Pagladiya/ Brahmaputra	Nalbari/Nalbari/ Assam	26.45	91.46	Melabazar (12)	MBD/HOCG/BBO	Assam and Meghalaya	51.75	52.75	55.45	2004	Wireless/ Telemetry	Conventional	
161	Mathanguri	Manas/ Brahmaputra	Baska/Assam	26.78	90.95		MBD/HOCG/BBO	Assam and Meghalaya	98.10	99.10	100.28	1973			
162	Road Bridge	Beki/ Brahmaputra	Sorbhog/ Barpeta/ Assam	26.49	90.91	Mathanguri (6) Kurijampa (12) (Bhutan)	MBD/HOCG/BBO	Assam and Meghalaya	44.10	45.10	46.20	2000	Wireless	Conventional	
163	N H Crossing	Manas/ Brahmaputra	Bijni/ Bongaigaon/ Assam	26.46	90.75	Panbari (6)	MBD/HOCG/BBO	Assam and Meghalaya	47.81	48.42	50.08	1984	Wireless	Conventional	
164	Goalpara	Brahmaputra/ Brahmaputra	Goalpara/ Goalpara/ Assam	26.20	90.65	Guwahati (24)	MBD/HOCG/BBO	Assam and Meghalaya	35.27	36.27	37.43	1954	Wireless/ Telemetry	Conventional	
165	Kokrajhar	Gaurang/ Brahmaputra	Kokrajhar/ Assam	26.61	90.25		MBD/HOCG/BBO	Assam & Meghalaya	41.85	42.85	43.6	2015			
166	Dhubri	Brahmaputra/ Brahmaputra	Dhubri/Dhubri/ Assam	26.01	89.99	Goalpara (12)	MBD/HOCG/BBO	Assam and Meghalaya	27.62	28.62	30.37	2019	Wireless/ Telemetry	Conventional	
167	Golokganj	Sankosh/ Brahmaputra	Golokganj/Dhubri/ Assam	26.11	89.82	Sankosh LRP (12) Barabisa (12)	LBD/SICG/T&BDBO	Assam and Meghalaya	28.94	29.94	30.95	2007	Wireless/ Telemetry	Conventional	
168	Tufangunj	Raidak -I	Tufangunj/ Coochbehar/ west Bengal	26.31	89.68	Chepan (12)	LBD/SICG/T&BDBO	Sub Himalayan West Bengal & Sikkim	34.22	35.30	36.50	2017	Wireless	Conventional	
169	N H 31	Jaldhaka/ Brahmaputra	Dhupguri/ Jalpaiguri/ West Bengal	26.57	88.94	Nagarakata (6) Diana (6) Murti (6)	LBD/SICG/T&BDBO	Sub Himalayan West Bengal & Sikkim	80.00	80.90	81.33	1972	Wireless	Conventional	
170	Hasimara	Torsa	Hasimara/Coochbehar/West Bengal	26.72	89.32	Dorokha (06)	LBD/SICG/T&BDBO	Sub Himalayan West Bengal & Sikkim	116.30	116.90	118.50	1996			
171	Ghughumari	Torsa	Coochbehar/Coochbehar/West Bengal	26.29	89.46	Hasimara (8)	LBD/SICG/T&BDBO	Sub Himalayan West Bengal & Sikkim	39.80	40.41	41.46	2000	Wireless	Conventional	

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											(m)	Year			
172	Mathabhanga	Jaldhaka/ Brahmaputra	Mathabhanga/ Coochbehar/ West Bengal	26.32	89.23	N H 31 (6)	LBD/SICG/T&BDBO	Sub Himalayan West Bengal & Sikkim	47.70	48.20	49.85	2007	Wireless	Conventional	
173	Domohani Road Bridge	Teesta/Brahmaputra	Jalpaiguri/ Jalpaiguri/ West Bengal	26.56	88.76	Khanitar (10) Majhitar (10) Coronation (6) Gazoldoba (04) Chel (06) Neora (6)	LBD/SICG/T&BDBO	Sub Himalayan West Bengal & Sikkim	85.65	85.95	89.30	1968	Wireless	Conventional	
174	Mekhligunj	Teesta/Brahmaputra	Mekhligunj/ Coochbehar/ West Bengal	26.33	88.85	Domohani Rd Brdige (6)	LBD/SICG/T&BDBO	Sub Himalayan West Bengal & Sikkim	65.45	65.95	66.45	1996	Wireless	Conventional	
175	Teesta III HEP	Teesta/Brahmaputra	North Sikkim/Sikkim	27.59	88.64	Lachen (01-02)	SID/IC Gangtak/T&BDBO	Sub Himalayan West Bengal & Sikkim	1585.00					Rainfall Runoff Model	
176	Rangit-III HEP Dam	Teesta/Brahmaputra	Gyalshing/West Sikkim/Sikkim	27.29	88.29		SID/IC Gangtak/T&BDBO	Sub Himalayan West Bengal & Sikkim	640					Rainfall Runoff Model	
177	Teesta V HEP	Teesta/Brahmaputra	North Sikkim/Sikkim	27.38	88.5	Sankalan(01-02)	SID/IC Gangtak/T&BDBO	Sub Himalayan West Bengal & Sikkim	579					Rainfall Runoff Model	
178	Singtam	Teesta/Brahmaputra	East Sikkim/ Sikkim	27.23	88.49	Ranipool(1)	SID/IC Gangtak/T&BDBO	Sub Himalayan West Bengal & Sikkim	377.07	377.57	379.17			Rainfall Runoff Model	
179	Rangpo Dam	Rongpo/Teesta/Brahmaputra	East Sikkim/ Sikkim	27.23	88.7		SID/IC Gangtak/T&BDBO	Sub Himalayan West Bengal & Sikkim	913.8					Rainfall Runoff Model	
180	Rongli Dam	Rongli/Teesta/Brahmaputra	East Sikkim/ Sikkim	27.2	88.71		SID/IC Gangtak/T&BDBO	Sub Himalayan West Bengal & Sikkim	913.8					Rainfall Runoff Model	
181	Melli Bazar	Teesta/Brahmaputra	South Sikkim/Sikkim	27.09	88.45	Teesta V Dam(02)	SID/IC Gangtak/T&BDBO	Sub Himalayan West Bengal & Sikkim	223	224	225.25			Rainfall Runoff Model	
182	Rothak	Teesta/Brahmaputra	West Sikkim/Sikkim	27.17	88.29	Sagbari (01)	SID/IC Gangtak/T&BDBO	Sub Himalayan West Bengal & Sikkim	350.6	351.6	353.2			Rainfall Runoff Model	
183	Annapurnaghat (Silchar)	Barak/ Barak	Silchar/Silchar/ Assam	24.83	92.80	Chottabekra (18) Amraghat(18) Dhalai(18)	MID/MC/ BOBO	Assam and Meghalaya	18.83	19.83	21.84	1989	Wireless	Conventional	
184	Matizuri	Katakhal/Barak	Hailakhandi/ Hailakhandi/ Assam	24.85	92.61	Gharmura (12)	MID/MC/ BOBO	Assam and Meghalaya	19.27	20.27	22.73	2007	Wireless	Conventional	
185	Badarpurghat	Barak/Barak	Silchar/Cachar/ Assam	24.86	92.52	Annapurnaghat (9)	MID/MC/ BOBO	Assam and Meghalaya	15.85	16.85	18.48	2007	Wireless	Conventional	
186	Karimgunj	Kushiyara/Barak	Karimgunj/Karimgunj/Assam	24.87	92.36	Annapurnaghat (12)	MID/MC/ BOBO	Assam and Meghalaya	13.94	14.94	16.57	2010	Wireless	Conventional	
187	Kailashshar	Manu	Kailashshar/ North Tripura Tripura	24.32	91.99	Manughat (18-24)	MD/MC/ BOBO	NMMT	24.34	25.34	25.95	2018	Wirless	Conventional	
188	Sonamura	Gumti	Sonamura/ West Tripura/ Tripura	23.47	91.27	Amarpur (15-21)	MD/MC/ BOBO	NMMT	11.50	12.50	14.42	1993	Wireless	Conventional	
189	Getlasud Dam	Subarnarekha/ Subarnarekha	Ranchi/Jharkhand	23.45	85.55	Kanke Road Bridge/Bada Ghagara	ERD/HOCB/ MERO		590.06						
190	Chandil Dam	Subarnarekha/ Subarnarekha	Musabani/Purba singbhum/ Jharkhand	22.97	86.05	Muri(10-12)	ERD/HOCB/ MERO	Jharkhand		FRL-189				Rainfall Runoff Model	

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											(m)	Year			
191	Galudih Barrage	Subarnarekha/ Subarnarekha	SaraikelaKhara/Jharkhand	22.64	86.39	Jamshedpur	ERD/HOCB/ MERO		FRL-94.50						
192	Jamshedpur	Subarnarekha/ East Flowing Rivers	Chakulia/Purba singbhum/ Jharkhand	22.82	86.21	Adtiyapur/Chandil Dam (6-8)	ERD/HOCB/ MERO	Jharkhand	122.50	123.50	129.82	1973	Wireless/ Telemetry	Conventional	
193	Rajghat	Subarnarekha/ East Flowing Rivers	Jaleswar/Balasore/ Odisha	21.77	87.16	Jamsaloghat (16-24) Fekoghat (16-24)	ERD/HOCB/ MERO	Odisha	9.45	10.36	12.69	2008	Wireless/ Telemetry	Conventional	
194	Mathani Road Bridge	Subarnarekha/ East Flowing	Baleshwar/Odisha	21.66	87.06	Jalaka Rd Bridge at Sansa (06-08)	ERD/HOCB/ MERO	Odisha	5.50	5.50	7.31	2021			
195	N H 5 Road Bridge	Burhabalang/ East Flowing Rivers	Govindpur/ Balasore/ Odisha	21.55	86.92	Baripada (13-15)	ERD/HOCB/ MERO	Odisha	7.21	8.13	9.50	1973	Wireless	Conventional	
196	Salandi Dam	Baitarani/Brahmani-Baitarani	Kendujhar/Odisha	21.28	86.30	Bhejdihi	ERD/HOCB/ MERO		82.30						
197	Anandpur	Baitrani/East Flowing Rivers	Anandpur/ Keonjargarh/ Odisha	21.22	86.11	Swampatna (6-8)	ERD/HOCB/ MERO	Odisha	37.44	38.36	41.35	2011	Wireless/ Telemetry	Conventional/ Mathematical	
198	Akhuapada	Baitrani/East Flowing Rivers	Akhuapada/ Bhadrak/ Odisha	20.92	86.28	Swampatna(12-15) Anandpur (12-15)	ERD/HOCB/ MERO	Odisha	17.83	17.83	21.95	1960	Wireless/ Telemetry	Conventional	
199	Rengali Dam	Brahmani/Brahmani-Baitarani	Angul/Odisha	21.28	85.03	Panposh (10-12)	ERD/HOC/MERO Bhubaneshwar		FRL-123.5						
200	Jenapur Expressway	Brahmani/East Flowing Rivers	Jenapur/Jajpur/ odisha	20.88	86.01	Talcher (15-16) Altuma)15-16)	ERD/HOCB/ MERO	Odisha	22.00	23.00	24.78	1975	Wireless/ Telemetry	Conventional	
201	Ravi Shankar Dam	Mahanadi/ Mahanadi	Dhamtari/Chattisgarh	20.61	81.56		MD/HOCB/MERO		FRL-348.70						
202	Bango Dam	Hasdeo/ Mahanadi	Korba/Chattisgarh	22.59	82.57		MD/HOCB/MERO		FRL-359.66						
203	Hirakud	Mahanadi/ Mahanadi	Burla/ Sambalpur/ Odisha	21.52	83.85	Basantpur (24) Kurubata (24) Sundergarh (24) Kelo (6-18)	MahanadiDiv/HOCB/MERO	Odisha	192.02				Wireless/ Telemetry	Conventional/ Mathematical	
204	Naraj	Mahanadi/ Mahanadi	Cuttack/ Cuttack/Odisha	20.47	85.77	Tikarapara (18-20)	MahanadiDiv/HOCB/MERO	Odisha	25.41	26.41	27.61	1982	Wireless	Conventional/ Mathematical	
205	Alipingal	Devi/Mahanadi	Alipingal/Jagitsinghpur/ Odisha	20.07	86.17	Naraj (12)	MahanadiDiv/HOCB/MERO	Odisha	10.85	11.76	13.11	2011	Wireless/ Telemetry	Conventional	
206	Nimapara	Kushbhadra/ Mahanadi	Nimapara/Puri/ Odisha	20.06	86.01	Naraj (12)	MahanadiDiv/HOCB/MERO	Odisha	9.85	10.76	11.60	1982	Wireless/ Telemetry	Conventional	
207	Purushottampur	Rishikulya/ East Flowing Rivers	Purushottampur/ Ganjam/ Odisha	19.50	84.87	Sorada (14-20)	ERD/HOCB/ MERO	Odisha	15.83	16.83	19.65	1990	Wireless/ Telemetry	Conventional	
208	Gunupur	Vamshadara/East Flowing Rivers	Gunupur/Koraput/ Odisha	19.08	83.81	Gudari (03-05)	ERD/HOCB/ MERO	Odisha	83.00	84.00	88.75	1980	Wireless/ Telemetry	Conventional	
209	Kashinagar	Vamshadara/East Flowing Rivers	Kashinagar/Ganjam/ Odisha	18.85	83.87	Gunupur (04-07)	ERD/HOCB/ MERO	Odisha	54.10	54.60	58.93	1980	Wireless/ Telemetry	Conventional/ Mathematical	
210	Gotta Barrage	Vamsadhara/ East Flowing Rivers	Gotta Barrage/ Srikakulam/ Andhra Pradesh	18.69	83.96	Kashinagar(06-08)	ERD/HOCB/ MERO	Coastal Andhra Pradesh	34.84				Wireless/ Telemetry	Conventional	
211	Thotapalli Resvr system	Nagavali/ East Flowing River Basin	Parvathipuram/Vizianagaram/ Andhra Pradesh	18.78	83.49	Jaggaguda/Brahmnihalua	ERD/HOCB/ MERO		FRL-105.00					Rainfall Runoff Model	
212	Madduvalasa Reservoir	Nagavali/ East Flowing River Basin	Vizianagaram/Andhra Pradesh	18.63	83.22	Seethanagaram/Paradi Rd Bridge	ERD/HOC/MERO Bhubaneshwar	Coastal Andhra Pradesh	FRL-65.00						
213	Narayanpuram Anicut	Nagavali/ East Flowing River Basin	Srikakulam/ Andhra Pradesh	18.48	83.8	Thottapalli Barrage Madduvalasa Dam	ERD/HOC/MERO Bhubaneshwar	Coastal Andhra Pradesh	FRL - 32.77						
214	Srikakulam	Nagavali/ East Flowing River Basin	Srikakulam/ Andhra Pradesh	18.31	83.88	Narayanpuram Anicut(06-08)	ERD/HOCB/ MERO	Coastal Andhra Pradesh	10.17	10.8	14.53	12-05-1990			
215	Dantiwada Dam	Banas/ West Flowing Rivers	Dantiwada dam/Palanpur/ Banaskanta/ Gujarat	24.34	72.34	Sarotry (3-5) Chitrasani (2-5)	MD/HOCG/ MTBO	Gujarat	184.10				Wireless/ Telemetry	Conventional	
216	Abu Road	Banas/West Flowing River	Sirohi/Rajasthan	24.49	72.79	Swaroopganj Moras(RF) Mount Abu(RF)	MD Gandhinagar/HOC/MTBO Gandhinagar		258.00	259.00	265.40	1973	Wireless/ Telemetry	Conventional	

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											(m)	Year			
217	Dharoi Dam	Sabarmati/ West Flowing Rivers	Dharoi Dam/ Mehsana/ Gujarat	24.00	72.86	Kheroj (3-5) Harnav Weir (2-4)	MD/HOCG/ MTBO	Gujarat	189.59				Wireless/ Telemetry	Conventional	
218	Subash Bridge (Ahmedabad)	Sabarmati/ West Flowing Rivers	Ahmedabad/Ahmedabad/ Gujarat	23.06	72.59	Derol Bridge (04-06) Hatmati Weir (04-06)	MD/HOCG/ MTBO	Gujarat	44.09	45.34	47.45	2006	Wireless/ Telemetry	Conventional	
219	Mahi Bajajsagar Dam	Mahi/Mahi	Banswara/Rajasthan	23.62	74.54	Mataji (02-06) Borwa(03-07) Sohagpura(02-06)	MD/HOCG/ MTBO	Rajasthan	FRL-281.5				Wireless/ Telemetry	Conventional	
220	Som Kamla Amba Dam	Som/Mahi	Dungarpur/Rajasthan	23.97	74.03	Khandiovri(02-06) Amarpura(02-06)	MD/HOCG/ MTBO	Rajasthan	FRL-213.5				Wireless/ Telemetry	Conventional	
221	Kadana Dam	Mahi/ West Flowing Rivers	Kadana Dam/ Panchmahal/ Gujarat	23.31	73.83	Paderdibadi (05-06) Anas PH -II (03-06)	MD/HOCG/ MTBO	Gujarat		127.71	127.74	1989	Wireless/ Telemetry	Conventional	
222	Panam Dam	Panam/Mahi	Kalol/Panchmahal/Gujrat	23.05	73.71	Sant Road(02-06) Hadaf Dam(02-06)	MD/HOCG/ MTBO		FRL-127.41						
223	Wanakbori Weir	Mahi/ West Flowing River	Wanakbori/Kheda	22.94	73.42	Kadana Dam (04-09) Panam Dam (03-09)	MD/HOCG/ MTBO	Gujarat	71.93	74.98	76.10	2006	Wireless/ Telemetry	Conventional	
224	Mandla	Narmada/ Narmada	Mandla/Mandla/ Madhya Pradesh	22.59	80.37	Dindori (11) Mukki (12) Manot (03) Mohgaon (04)	ND/SECB/ NBO	East Madhya Pradesh	437.20	437.80	439.41	1974	Wireless	Conventional	
225	Barna Dam	Narmada/ Narmada	Raisen/Madhya Pradesh	23.05	78.06		ND/SECB/ NBO		348.55					Mathematical Model	
226	Bargi Dam	Narmada/ Narmada	Jabalpur/Madhya Pradesh	22.94	79.92	Mandla (06)	ND/SECB/ NBO		422.76					Mathematical Model	
227	Tawa Dam	Narmada/ Narmada	Hoshangabad/ Madhya Pradesh	22.56	77.97	Pachmarhi (06-08)	ND/SECB/ NBO		355.39					Mathematical Model	
228	Hoshangabad	Narmada/ Narmada	Hoshangabad/ Hoshangabad/ Madhya Pradesh	22.76	77.69	Bargi Dam (38) Barmanghat(22) Sandia (10-12) Tawa Dam (08)	ND/SECB/ NBO	West Madhya Pradesh	292.80	293.80	301.33	1972	Wireless	Conventional	
229	Indirasagar Dam	Narmada/ Narmada	Khandwa/Madhya Pradesh	22.28	76.47	Hoshangabad (12-14)	ND/SECB/ NBO		262.13					Mathematical Model	
230	Omkareshwar Dam	Narmada/ Narmada	Khandwa/Madhya Pradesh	22.24	76.16	Indirasagar Dam (06-08)	ND/SECB/ NBO		196.60					Mathematical Model	
231	Sardar Sarovar Dam	Narmada/ Narmada	Ahmedabad/ Gujarat	21.82	73.74		TD/HOCG/ MTBO		138.38						
232	Garudeshwar	Narmada/ Narmada	Garudeshwar/ Bharuch/Gujarat	21.89	73.65	Sardar sarovar dam (02)	TD/HOCG/ MTBO	Gujarat	30.48	31.09	41.65	1970	Wireless/ Telemetry	Conventional	
233	Bharuch	Narmada/ Narmada	Bharuch/Bharuch/ Gujarat	21.70	73.00	Sardar Sarovar Dam(08-12)	TD/HOCG/ MTBO	Gujarat	6.71	7.31	12.65	1970	Wireless/ Telemetry	Conventional	
234	Hathnur Dam	Tapi/ Tapi	Hathnur Dam/ Jalgaon/ Maharashtra	21.07	75.95	Burhanpur (05-06) Yerli (05-06)	TD/HOCG/ MTBO	Marathwada	212.02	214.00	214.00	1989	Wireless/ Telemetry	Conventional	
235	Ukai Dam	Tapi/ Tapi	Ukai Dam/ Surat/ Gujarat	21.25	73.59	Gidadhe (10-12) Sarangkheda (6-7)	TD/HOCG/ MTBO	Gujarat	105.16	105.16	105.51	1990	Wireless/ Telemetry	Conventional	
236	Surat	Tapi/ Tapi	Surat/Surat/Gujarat	21.20	72.82	Ukai Dam (06-08)	TD/HOCG/ MTBO	Gujarat	8.50	9.50	12.50	2006	Wireless/ Telemetry	Conventional	
237	Madhuban Dam	Damanganga/ West Flowing	Madhuban Dam/ Valsad/ Gujarat	20.19	73.06	Ozarkheda (2-3) Nanipalsan (2-3)	TD/HOCG/ MTBO	Gujarat	79.86	82.40	80.60	1993	Wireless/ Telemetry	Conventional	
238	Vapi Town	Damanganga/ West Flowing Rivers	Vapi Town/ Valsad/Gujarat	20.37	72.88	Madhuban Dam (02-03)	TD/HOCG/ MTBO	Gujarat	18.20	19.20	23.76	2004	Wireless/ Telemetry	Conventional	
239	Daman	Damanganga/ West Flowing	Daman/Daman/Diu	20.41	72.84	Madhuban Dam (03)	TD/HOCG/ MTBO	Gujarat	2.60	3.40	4.00	2004	Wireless/ Telemetry	Conventional	
240	Nasik	Godavari/ Godavari	Nasik/Maharashtra	20.00	73.80		UGD/GC/KGBO		558.10	559.60	563.51	2019			
241	NMD Weir	Godavari/ Godavari	Nasik/Maharashtra	19.45	74.33		UGD/GC/KGBO		533.50						
242	Kopergaon	Godavari/ Godavari	Kopergaon/Ahmednagar/Maharashtra	19.89	74.49	N M Weir (18)	LGD/GC/ KGBO	Marathwada	490.90	493.68	499.17	1969	Wireless/ Telemetry	Conventional	
243	Mula Dam	Mula/Godavari	Ahmadnagar/Maharashtra	19.35	74.60		UGD/GC/KGBO		552.30						
244	Jaikwadi Dam	Godavari/Godavari	Paithan/ Aurangabad/ Maharashtra	19.48	75.37	N M Weir (24) Pachegaon(24)	LGD/GC/ KGBO	Marathwada	463.91	465.58	464.69	1990	Wireless	Conventional	

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											(m)	Year			
245	Manjlegaon Dam	Sindhpana/ Godavari	Beed / Maharashtra	19.15	76.18		UGD/GC/KGBO								
246	Gangakhed	Godavari/ Godavari	Gangakhed/Parbhani/Maharashtra	18.98	76.75	Dhalegaon (18)	LGD/GC/ KGBO	Marathwada	374.00	375.00	377.57	1947	Wireless/ Telemetry	Conventional	
247	Yeldari Barrage	Puma/Godavari	Patbhani/Maharashtra	19.71	76.75		UGD/GC/KGBO		461.77						
248	Nanded	Godavari/ Godavari	Nanded/Nanded/ Maharastra	19.15	77.31	Gangakhed (12) Purna (12)	LGD/GC/ KGBO	Marathwada	353.00	354.00	357.10	2006	Wireless/ Telemetry	Conventional	
249	Karanja Dam	Karanja/Godavari	Bidar/Karnataka	17.88	77.31		UGD/GC/KGBO								
250	Singur Dam	Manjira/ Godavari	Singur Dam/ Medak/ Andhra Pradesh	17.75	77.93	Saigaon (24) Karanja(24)	LGD/GC/ KGBO	Telangana	523.60				Wireless	Conventional	
251	Nizamsagar Dam	Manjira/ Godavari	Nizamsagar dam/ Nizamabad/ Andhra Pradesh	18.22	77.96	Singur Dam (24)	LGD/GC/ KGBO	Telangana	428.24				Wireless	Conventional	
252	Sriramsagar	Godavari/Godavari	Pochampad/ Nizamabad/ Andhra Pradesh	18.97	78.34	Nanded (24) Nizamsagar (24) Degloor (24) Bhainsa(24)	LGD/GC/ KGBO	Telangana	332.54	333.15	332.72	1990	Wireless	Conventional	
253	Kaddam Dam	Godavari/Godavari	Kaddam/Adilabad/Telengana	19.1	78.79		UGD/GC/KGBO		FRL-213.21					Rainfall Runoff Model	
254	Sripada Yellampalli project.	Godavari/Godavari	Karimnagar/ Telengana	18.84	79.36		UGD/GC/KGBO		FRL-148					Rainfall Runoff Model	
255	Upper Wainganga Project	Wainganga/ Godavari	Balaghat/Madhya Pradesh	22.37	79.66	Bakhari (05-30)	WD Nagpur/CC Nagpur/ MCO Nagpur		FRL-519.38						
256	Totladoh Project	Pench	Nagpur/Madhya Pradesh	21.65	79.23	Kokiwada(06-31)	WD Nagpur/CC Nagpur/ MCO Nagpur		FRL-490.00						
257	Bawanthadi Reservoir	Bawanthri	Balaghat/Madhya Pradesh	21.54	79.54		WD Nagpur/CC Nagpur/ MCO Nagpur		FRL-344.4						
258	Pench Reservoir/Chaurai Dam	Pench	Chindwara	21.65	79.23		WD Nagpur/CC Nagpur/ MCO Nagpur		FRL-625.75						
259	Bhandara	Wainganga/ Godavari	Bhandara/Bhandara/Maharashtra	21.15	79.66	Balaghat (158) Rajegaon (18)	WD Nagpur/CC Nagpur/ MCO Nagpur	Vidharbha	245.50	245.70	250.90	2005	Wireless/ Telemetry	Conventional	
260	Gosikhurd Dam	Godavari/Godavari	Pauni/Bhandara/ Maharashtra	20.87	79.6	Kumhari(22-60) Rajegaon(22-60) Satrapur(11-40)	WD Nagpur/CC Nagpur/ MCO Nagpur	Vidharbha	FRL-245.50					Rainfall Runoff Model	
261	Pauni	Wainganga/ Godavari	Pauni/Bhandara/ Maharashtra	20.79	79.65	Bhandara (03-06)	WD Nagpur/CC Nagpur/ MCO Nagpur	Vidharbha	226.73	227.73	237.12	1994	Wireless/ Telemetry	Conventional	
262	Upper Wardha Project	Wardha/Godavari	Amaravati/Maharashtra	21.27	78.05		WD Nagpur/CC Nagpur/ MCO Nagpur		FRL-342.50					Rainfall Runoff Model	
263	Issapur/Upper Penganga/SSP	Penganga	Hingoli/Maharashtra	19.71	77.45	Kanhargaon(11-40)	WD Nagpur/CC Nagpur/ MCO Nagpur		FRL-441.00						
264	Balharsha	Wardha/Godavari	Balharsha/Chandrapur/ Maharashtra	19.82	79.37	Ghugus (12) P G Bridge (18)	WD Nagpur/CC Nagpur/ MCO Nagpur	Vidharbha	171.50	174.00	176.45	1986	Wireless/ Telemetry	Conventional	
265	Sirpur Town	Wardha/Godavari	Chandrapur/Maharashtra	19.56	79.61	Ghugus (15) P.G.Bridge(21)	WD Nagpur/CC Nagpur/ MCO Nagpur		159.95	160.95	161.34	2018			
266	Kaleswaram	Godavari/ Godavari	Bhopalpally/Telangana	18.82	79.91	Mancherial (18) Tekra (18)	LGD/GC/ KGBO	Telangana	103.50	104.75	107.05	1986	Wireless/ Telemetry	Conventional	
267	Upper Indravati Project	Indravathi/ Godavari	Kalahandi/Odisha	19.27	82.82		LGD/GC/ KGBO		FRL-642.00						
268	Jagdalpur	Indravathi/ Godavari	Jagdalpur/ Bastar/ Chhatisgarh	19.09	82.03	Nowrangpur (15-18) Kosagumda (15-18)	LGD/GC/ KGBO	Chhatisgarh	539.50	540.80	544.68	1973	Wireless/ Telemetry	Conventional	

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269	Eturunagaram	Godavari/ Godavari	Eturunagaram/ Warangal/ Andhra Pradesh	18.32	80.46	Kaleswaram (12-18) Pathagudem (12-18)	LGD/GC/ KGBO	Telangana	73.32	75.82	77.66	1990	Wireless/ Telemetry	Conventional	
270	Dummagudem	Godavari/ Godavari	Dummagudem/ Khammam/ Andhra Pradesh	17.85	80.88	Perur (12-15)	LGD/GC/ KGBO	Telangana	53.00	55.00	60.25	1986	Wireless/ Telemetry	Conventional	
271	Bhadrachalam	Godavari/ Godavari	Bhadrachalam/ Khammam/ Andhra Pradesh	17.67	80.88	Perur (15-18)	LGD/GC/ KGBO	Telangana	45.72	48.77	55.66	1986	Wireless/ Telemetry	Conventional	
272	Kolab Project	Kolab/Godavari	Koraput/Odisha	18.78	82.60		LGD/GC/ KGBO		FRL-858.00						
273	Machkund Project	Machkund	Koraput/Odisha	18.45	82.54		LGD/GC/ KGBO		FRL-838.20						
274	Balimela Project	Balimela	Malkangiri/Odisha	18.30	82.25		LGD/GC/ KGBO		FRL-462.07						
275	Chinturu	Sabri/Godavari	East Godavari/Andhra Pradesh	17.82	81.39	Sukma(06)	LGD/GC/ KGBO		41.50	43.00	44.91	18-08-2018		3 days advisory Forecast (CWC BETA Model)	
276	Kunavaram	Godavari/ Godavari	Kunavaram/ Khammam/ Andhra Pradesh	17.57	81.25	Perur (12-18)	LGD/GC/ KGBO	Telangana	37.74	39.24	51.30	1986	Wireless	Conventional	
277	Rajahmundry GNV Railway Bridge	Godavari/ Godavari	Rajahmundry/ East Godavari/ Andhra Pradesh	17.01	81.77	Koida (15-18)	LGD/GC/ KGBO	Coastal Andhra Pradesh	17.68	19.51	20.48	1986	Wireless/ Telemetry	Conventional	
278	Dowlaiswaram	Godavari/ Godavari	Dowlaiswaram/ East Godavari/ Andhra Pradesh	16.94	81.78	Koida (15-21)	LGD/GC/ KGBO	Coastal Andhra Pradesh	14.25	16.08	18.36	1986	Wireless/ Telemetry	Conventional	
279	Atreyapuram	Godavari/Godavari	Atreyapuram/East Godavari/Andhra Pradesh	16.81	81.81	Dowlaisweram(3)	LGD Hyd/GC/KGBO	Coastal Andhra Pradesh	13.5	15	14.16	2020		3 days advisory Forecast (CWC BETA Model)	
280	Koyna Dam	Koyna	Satara/Maharashtra	17.4	73.75	Mahabaleshwar(12) Nawaja(01-05) Koyna (01-05)	UKD/KCC/KGBO		FRL-659.43				Phone	Rainfall Runoff Model/Correlation/3 day Advisory	
281	Warana Dam	Warana	Kolhapur/Maharashtra	17.13	73.85	Warana (01-05)	UKD/KCC/KGBO		FRL-626.90				Phone	Rainfall Runoff Model/Correlation/3 day Advisory	
282	Arjunwad	Krishna/Krishna	Arjunwad/ Kolhapur/ Maharashtra	16.78	74.63	Kowad (24) Samdoli (12)	UKD/KCC/ KGBO		539.20	540.70	544.35	2019	Phone	Conventional	
283	Hippargi Barrage	Krishna/Krishna	Bagalkot/Karnataka	16.55	75.16	Kurunwad(16-27) Sadalga(16-27)	UKD/KCC/KGBO		FRL-531.40				Phone	Conventional	
284	Hidkal Dam	Ghatprabha/Krishna	Belagavi/Karnataka	16.14	74.64		CD Bang/MSO		FRL-662.94						
285	Almatti Dam	Krishna/ krishna	Almatti Dam/**Bagalkot**/ Karnataka	16.33	75.88	Kurundwad (33-54) Sadalga (33-54) Gokak (21-30)	LKD/KCC/ KGBO	North Interior Karnataka	519.60				Wireless	Conventional	
286	Malaprabha Dam	Malaprabha	Belgum/Karnataka	15.82	75.09		CD Bang/MSO		FRL-633.83						
287	Narayanpur Dam	Krishna/ krishna	Narayanpur Dam/ Yadgir/ Karnataka	16.20	76.36	Almatti Dam (09-18) Cholachguda(12-24)	LKD/KCC/ KGBO	North Interior Karnataka	492.25				Wireless	Conventional	
288	Veer Dam	Nira/Krishna	Satara/Maharashtra	18.12	74.09	Niradeoghar(12) Bhatgar(12)	UKD/KCC/KGBO		FRL-579.85				Phone	Rainfall Runoff Model/Correlation/3 day Advisory	
289	Ujjani Dam	Bhima/ Krishna	Solapur/Maharashtra	18.07	75.12	Phulgaon(24) Dhond(12)	UKD/KCC/KGBO		FRL-496.83				Phone	Rainfall Runoff Model/Correlation/3 day Advisory	
290	Deongaon Bridge	Bhima/ Krishna	Afzalpur/ Gulbarga/ Karnataka	17.17	76.33	Takli (12-27) Wadakbal (15-27)	LKD/KCC/ KGBO	North Interior Karnataka	402.00	404.50	409.00	2020	Wireless/ Telemetry	Conventional	
291	Priyadharshini Jurala Project	Krishna/ krishna	Mahbubnagar/ Telangana	16.33	77.70	Huvinhedgi (12-30) Yadgir (09-30) Deosugur (03-06)	LKD/KCC/ KGBO	Telangana	318.52				Wireless	Conventional	

Annex-II

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											(m)	Year			
292	Upper Tunga	Tungabhadra/ Krishna	Shimoga/Krishna	13.84	75.52		CD Bangluru/C&SRC/ C&SRO Coimbtore	South interior Karnataka, Shimoga	FRL-588.24						
293	Bhadra Dam	Tungabhadra/ Krishna	Tarikere/Chikmagalur/Karnataka	13.7	75.63		CD Bangluru/C&SRC/ C&SRO Coimbtore	Coastal Karnataka, Lakkavalli	FRL-657.75						
294	Tungabhadra Dam	Tungabhadra/ Krishna	Hospet/ Bellary/ Karnataka	15.26	76.34	Harlahalli (12-27) Marol (12-27)	LKD/KCC/ KGBO	South Interior Karnataka	497.74				Wireless	Conventional	
295	Singatlur Barrage	Tungabhadra/Krishna	Gadag/Karnataka	15.03	75.83	Harlahalli(10-20) Marol(02-08)	LKD/KCC/ KGBO		FRL-507.00				Phone	Conventional	
296	Mantralayam	Tungabhadra	Mantralayam/ Kurnool/ Andhra Pradesh	15.95	77.43	Ollenur (18-30) T Ramapuram (09-18)	LKD/KCC/ KGBO	Rayalaseema	310.00	312.00	318.77	2009	Wireless/ Telemetry	Conventional	
297	Sunkesula Barrage	Tungabhadra/Krishna	C.Belagal/Kurnool/ Andhra Pradesh	15.88	77.83	Mantralayam (06-09)	LKD/KCC/ KGBO	Rayalaseema	FRL-292.00					Conventional	
298	Kurnool	Tungabhadra/ Krishna	Kurnool/Kurnool/ Andhra Pradesh	15.82	78.03	Mantralayam(06-15) Sunkesula Barrage (03-12)	LKD/KCC/ KGBO	Rayalaseema	273	274	281.23	02.10.09	Wireless	Conventional	
299	Srisailam Dam	Krishna/ krishna	Srisailam/ Kurnool/ Andhra Pradesh	16.08	78.90	Mantralayam (12-30) Krishna Agraharam (09-24)	LKD/KCC/ KGBO	Coastal Andhra Pradesh	269.75				Wireless	Conventional	
300	Musi Dam	Musi/Krishna	Nalgonda/Telengana	17.23	79.52	Valigonda(10-18) Anantaram(06-12)	LKD/KCC/ KGBO		FRL-196.60				Phone	Conventional	
301	Dr KLRS Pulichintala Dam	Krishna/Krishna	Bellamkonda/Guntur/Andhra Pradesh	16.75	80.05	NS Dam Release(09-24) Halia(03-06) Dhmercherla(06-12)	LKD/KCC/ KGBO	Coastal Andhra Pradesh	FRL-53.34					Conventional	
302	Prakasam Barrage	Krishna/ krishna	Vijayawada/ Krishna/ Andhra Pradesh	16.53	80.61	Wadenapalli (09-21) Madhira (09-15) Polampally (06-18) Paleru Bridge (09-18)	LKD/KCC/ KGBO	Coastal Andhra Pradesh	17.31				Wireless	Conventional	
303	Avanigadda	Krishna/ krishna	Krishna/Andhra Pradesh	16.02	80.91	Prakasam Barrage (03-09) Vijayawada	LKD/KCC/ KGBO	Coastal Andhra Pradesh	9.00	11.00	11.57	2009	Telemetry	Conventional	
304	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	
305	Nellore Anicut	North Pennar	Nellore/ Nellore/ Andhra Pradesh	14.47	79.99	Chennur (18) Nandipally (18) Somasila Project (09)	HD/SR	Coastal Andhra Pradesh	15.91	17.28	19.57	2021	Wireless	Conventional	
306	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	
307	Chembarampakkam	Adyar/EFRB Pennar Cauvery	Chenglepet/Kancheepuram/ Tamilnadu	13.01	80.08		HD Chennai/C&SRC Bangaluru/C & SRO Coimbtore	Tamilnadu & Puducherry	26.03						
308	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						
309	Gomukhi	Vellar/EFRB Pennar Cauvery	Kallakurichi/Villupuram/Tamilnadu	11.8	78.81		HD Chennai/C&SRC Bangaluru/C & SRO Coimbtore		FRL-183.18						
310	Wellington Dam	Vellar/EFRB Pennar Cauvery	Thittakudi/Cuddalore/Tamilnadu	11.4	79.09		HD Chennai/C&SRC Bangaluru/C & SRO Coimbtore		FRL-72.54						
311	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	

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											(m)	Year			
312	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	
313	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	
314	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	
315	Mettur Dam	Cauvery/Cauvery	Mettur/Salem/Tamilnadu	11.8	77.8		SRD/C & SRC / C & SRO	Tamilnadu & Puducherry	FRL-240.79					Rainfall Runoff Model	
316	Bhawanisagar Dam	Bhavani/Cauvery	Sathyamangalam/Erode/Tamilnadu	11.47	77.1		SRD/C & SRC / C & SRO	Tamilnadu & Puducherry	FRL-280.42					Rainfall Runoff Model	
317	Savandapur	Bhavani/Cauvery	Gobichettipalayam/Tamilnadu	11.52	77.51		SRD Coim/C&SRC Bang/C & SRO Coimb		184.5	185.5	187.75	2018			
318	Kodumudi	Cauvery/Cauvery	Erode/Erode/Tamilnadu	11.08	77.89		SRD Coim/C&SRC Bang/C & SRO Coimb	Tamilnadu and Puducherry	125.5	126.5	128.14	2018			
319	Kodaganar Dam	Kodaganar/Cauvery	Dindugul/Tamilnadu	10.59	77.97		SRD Coim/C&SRC Bang/C & SRO Coimb	Tamilnadu and Puducherry	FRL-200.25						
320	Musiri	Cauvery/Cauvery	Musiri/Tiruchirapalli/Tamilnadu	10.93	78.43		SRD Coim/C&SRC Bang/C & SRO Coimb	Tamilnadu and Puducherry	82.12	83.12	86.98	2005			
321	Upper Anicut	Cauvery/Cauvery	Thiruchirapalli/ Tamilnadu	10.88	78.57		SRD Coim/C&SRC Bang/C & SRO Coimb		FRL-74.40						
322	Grand Annicut	Cauvery/Cauvery	Thanjavur/ Tamilnadu	10.83	78.81		SRD/C & SRC / C & SRO	Tamilnadu & Puducherry	FRL-59.21					Rainfall Runoff Model	
323	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	
324	Madurai	Vaigai/EFR South of Cauvery	Madurai/Tamilnadu	9.93	78.11		SRD/C & SRC / C & SRO	Tamilnadu & Puducherry	131.5	132.5	134.76	1997			
325	Kumbidi	Bharathapuzha/WFR Tapi to Tadri	Palakkad/Kerala	10.85	76.02		SWRD/CSRO		8.2	9.2	11.27	2018			
326	Idduki Dam	Periyar/WFR Tadri to Kanyakumari	Idduki/Kerala	9.84	76.97		SWRD/CSRO		FRL-732.62						
327	Edamalayar Dam	Edamalayar/WFR Tadri to Kanyakumari	Ernakulam/Kerala	10.22	76.7		SWRD/CSRO		FRL-169.00						
328	Neeleswaram	Periyar/WFR Tadri to Kanyakumari	Ernakulam/Kerala	10.18	76.49		SWRD/CSRO		9	10	12.4	2018			
329	Malakkara	Pamba/WFR Tadri to Kanyakumari	Pathanamthitta	9.32	76.66		SWRD/CSRO		6	7	9.58	2018			
330	Polavaram	Godavari/Godavari	West Godavari/ Andhra Pradesh	17.29	81.64		LGD Hyd/GC/KGBO								
331	Laxmi Barrage	Godavari/Godavari	Bhupalpally/Telangana	18.7	80.08		UGD/GC/KGBO		100						
332	PVNR Kanthapally Project	Godavari/Godavari	Warangal/Telangana	18.58	80.39		UGD/GC/KGBO		FRL-83.00						
333	Madikhera(Atal Sagar)	Sindh/Ganga	Shivpuri/Madhya Pradesh	25.55	77.85		LYD/HOCN/ YBO		FRL-346.25						

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											(m)	Year			
334	Muthankera	Kabini/Cauvery	Waynad/Kerala	11.8	76.08		CD Banglore / C&SRC Bangalore/ C & SRO Coimbtore.		710.3	711.25	713.89	11-07-1905			
335	Subansiri Lower Dam	Subansiri/ Brahmaputra	Lower Subansiri/Arunachal Pradesh	27.55	94.26		UBD/HOCG/ BBO								
336	Shetrunji Dam	Shetrunji/WFR (Kutch & Saurashtra)	Bhavnagar/Gujarat	21.47	71.88		MD Gandhinagar/HOC /MTBO Gandhinagar		FRL-55.53						
337	Ichari Dam	Tons/Ganga	Dehradun/Uttarakhand	30.61	77.79		UYD/HOCN/ YBO		FRL-644.75						
338	Tehri Dam	Bhagirathi/Ganga	Garhwal/Ganga	30.37	78.48		HGD/HOC/UGBO		FRL-830						

Basinwise -Riverwise- Flood Forecasting Information in India during Flood Season 2023												
Sl.No.	Name of the river	Name of FF site	Name of State	Warning Level (m)	Danger level (m)	Highest Flood Level		Maximum Level -2023		No.of Forecasts issued	No.of Forecasts within limits	Percent-age of accuracy
						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
	1. Indus Basin											
1	Jhelum	Sangam	Jammu & Kashmir	1591.20	1592.42	1595.37	07-09-2014	**1591.80**	**09/07/2023 00**	6	2	33.33
2	Jhelum	Rammunshibagh	Jammu & Kashmir	1585.48	1586.40	1589.00	08-09-2014	**1586.05**	**09/07/2023 09**	9	5	55.56
3	Jhelum	Safapora	Jammu & Kashmir	1580.05	1581.30	1582.20	09-09-2014	**1580.45**	**10/07/2023 03**	31	30	96.77
	2 a. Ganga Basin											
4	Alaknanda	Srinagar	Uttarakhand	535.00	536.00	537.90	17-06-2013	**537.20**	**14/08/2023 07**	5	5	100.00
5	Mandakini	Ganganagar	Uttarakhand	803.00	804.00	801.92	26-06-2015	**800.85**	**14/08/2023 08**	0	0	-
6	Ganga	Rishikesh	Uttarakhand	339.50	340.50	341.72	05-09-1995	**341.30**	**14/08/2023 12**	9	7	77.78
7	Ganga	Haridwar	Uttarakhand	293.00	294.00	296.30	19-09-2010	**295.70**	**14/08/2023 14**	15	12	80.00
8	Ganga	Garhmuktheswar	Uttar Pradesh	198.33	199.33	199.90	23-09-2010	**199.10**	**17/08/2023 12**	50	49	98.00
9	Ganga	Kachla Bridge	Uttar Pradesh	161.00	162.00	162.79	23-10-2021	**162.91**	**20/07/2023 04**	87	87	100.00
10	Ganga	Fathegarh	Uttar Pradesh	136.60	137.60	138.14	26-09-2010	**138.00**	**23/08/2023 01**	50	50	100.00
11	Ramganga	Moradabad	Uttar Pradesh	189.60	190.60	192.88	21-09-2010	**190.77**	**13/09/2023 13**	68	68	100.00
12	Ramganga	Bareilly	Uttar Pradesh	162.07	163.07	162.88	06-08-1978	**161.29**	**14/09/2023 07**	0	0	-
13	Ganga	Dabri	Uttar Pradesh	136.30	137.30	139.70	28-09-1983	**137.83**	**16/09/2023 05**	49	49	100.00
14	Ganga	Kannauj	Uttar Pradesh	124.97	125.97	126.78	27-09-2010	**125.96**	**23/08/2023 10**	45	45	100.00
15	Ganga	Ankinghat	Uttar Pradesh	123.00	124.00	124.49	28-09-2010	**124.19**	**23/08/2023 09**	49	49	100.00
16	Ganga	Kanpur	Uttar Pradesh	113.00	114.00	114.08	29-09-2010	**113.21**	**25/08/2023 02**	44	44	100.00
17	Ganga	Dalmau	Uttar Pradesh	98.36	99.36	99.84	03-08-1973	**99.07**	**26/08/2023 16**	21	21	100.00
18	Ganga	Phaphamau	Uttar Pradesh	83.73	84.73	87.98	08-09-1978	**81.28**	**08/08/2023 00**	0	0	-
19	Yamuna	Paonta Sahib	Himachal Pradesh	383.50	384.50	384.60	05-09-1995	**383.6**	**11/07/2023 11**	2	0	0.00
20	Yamuna	Karnal Bridge	Haryana	248.80	249.50	250.07	17-06-2013	**248.91**	**11/07/2023 01**	2	2	100.00
21	Yamuna	Mawi	Uttar Pradesh	231.00	231.50	232.75	18-06-2013	**232.3**	**12/07/2023 16**	13	6	46.15
22	Sahibi	Dhansa	NCT Delhi	211.44	212.44	213.58	06-08-1977	**210.77**	**04/08/2023 03**	**0**	0	-
23	Yamuna	Delhi Rly Bridge	NCT Delhi	204.50	205.33	207.49	06-09-1978	**208.66**	**13/07/2023 18**	57	39	68.42
24	Yamuna	Mathura	Uttar Pradesh	165.20	166.00	169.73	08-09-1978	**167.35**	**17/07/2023 23**	48	41	85.42
25	Yamuna	Agra	Uttar Pradesh	151.40	152.40	154.76	09-09-1978	**152.00**	**18/07/2023 17**	5	5	100.00
26	Yamuna	Etawa	Uttar Pradesh	120.92	121.92	126.13	11-09-1978	**121.68**	**20/07/2023 20**	7	7	100.00
27	Chambal	Manderial	Rajasthan	164.00	165.00	170.05	25/08/2022	**155.50**	**20/09/2023 12**	0	0	-
28	Chambal	Dholpur	Rajasthan	129.79	130.79	146.57	25/08/2022	**128.25**	**20/09/2023 20**	0	0	-
29	Chambal	Kota City	Rajasthan	239.00	242.00	248.68	16-09-2019	**242.15**	**19/09/2023 03**	5	2	40.00
30	Yamuna	Auraiya	Uttar Pradesh	112.00	113.00	118.51	06-08-2021	**106.07**	**22/09/2023 07**	0	0	-
31	Yamuna	Kalpi	Uttar Pradesh	107.00	108.00	112.98	25-08-1996	**101.15**	**22/09/2023 11**	0	0	-
32	Yamuna	Hamirpur	Uttar Pradesh	102.63	103.63	108.59	12-09-1983	**96.66**	**07/08/2023 05**	0	0	-
33	Betwa	Mohana	Uttar Pradesh	121.66	122.66	132.16	05-09-1978	**114.78**	**06/08/2023 16**	0	0	-
34	Betwa	Sahjina	Uttar Pradesh	103.54	104.54	108.95	06-09-1978	**97.03**	**07/08/2023 04**	0	0	-
35	Ken	Banda	Uttar Pradesh	103.00	104.00	113.29	07-07-2005	**104.85**	**05/08/2023 18**	5	3	60.00
36	Yamuna	Chilaghat	Uttar Pradesh	99.00	100.00	108.50	26/09/1964	**94.88**	**07/08/2023 05**	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
37	Yamuna	Naini	Uttar Pradesh	83.74	84.74	87.97	07-09-1978	80.94	07/08/2023 14	0	0	-
38	Ganga	Allahabad Chhatnag	Uttar Pradesh	83.73	84.73	88.03	08-09-1978	80.27	07/08/2023 15	0	0	-
39	Ganga	Mirzapur	Uttar Pradesh	76.72	77.72	80.34	09-09-1978	73.66	08/08/2023 05	0	0	-
40	Ganga	Varanasi	Uttar Pradesh	70.26	71.26	73.90	09-09-1978	68.3	08/08/2023 06	0	0	-
41	Gomati	Lucknow	Uttar Pradesh	108.50	109.50	110.85	10-09-1971	105.92	11/09/2023 20	0	0	-
42	SAI	Raibareli	Uttar Pradesh	100.00	101.00	104.81	17-09-1982	98.61	14/09/2023 17	0	0	-
43	Gomati	Jaunpur	Uttar Pradesh	73.07	74.07	77.74	22-09-1971	71.29	17/09/2023 23	0	0	-
44	Ganga	Ghazipur	Uttar Pradesh	62.10	63.10	65.22	09-09-1978	61.70	09/08/2023 05	0	0	-
45	Ganga	Buxar	Bihar	59.32	60.32	62.09	01-08-1948	58.72	08/08/2023 22	0	0	-
46	Ganga	Ballia	Uttar Pradesh	56.62	57.62	60.39	25-08-2016	57.94	09/08/2023 08	7	7	100.00
47	Ghaghra	Elgin Bridge	Uttar Pradesh	105.07	106.07	107.62	18-08-2014	106.70	15/08/2023 20	70	68	97.14
48	Ghaghra	Ayodhya	Uttar Pradesh	91.73	92.73	94.01	11-10-2009	93.22	16/08/2023 17	51	51	100.00
49	Rapti	Kakardhari	Uttar Pradesh	130.00	131.00	132.37	15-08-2014	129.95	08/08/2023 20	0	0	-
50	Rapti	Balrampur	Uttar Pradesh	103.62	104.62	106.07	10-10-2022	104.57	09/08/2023 21	15	15	100.00
51	Rapti	Bansi	Uttar Pradesh	83.90	84.90	86.27	16/10/2022	84.39	15/08/2023 06	6	6	100.00
52	Rapti	Gorakpur_Birdghat	Uttar Pradesh	73.98	74.98	77.54	23-08-1998	74.08	13/08/2023 06	4	4	100.00
53	Ghaghra	Turtipar	Uttar Pradesh	63.01	64.01	66.00	28-08-1998	64.66	18/08/2023 11	49	49	100.00
54	Ghaghra	Darauli	Bihar	59.82	60.82	61.82	15/10/2022	61.05	18/08/2023 09	43	42	97.67
55	Ghaghra	Gangpur Siswan	Bihar	56.04	57.04	58.01	18-09-1983	56.75	13/08/2023 00	17	17	100.00
56	Ghaghra	Chhapra	Bihar	52.68	53.68	54.59	03-09-1982	50.65	10/08/2023 01	0	0	-
57	Sone	Inderpuri	Bihar	107.20	108.20	108.85	23-08-1975	103.05	05/08/2023 16	0	0	-
58	Sone	Koelwar	Bihar	54.52	55.52	58.88	20-07-1971	51.27	06/10/2023 12	0	0	-
59	Sone	Maner	Bihar	51.00	52.00	53.79	10-09-1976	51.00	10/08/2023 10	2	2	100.00
60	Ganga	Patna Dighaghat	Bihar	49.45	50.45	52.52	23-08-1975	49.67	10/08/2023 23	4	4	100.00
61	Gandak	Khadda	Uttar Pradesh	95.00	96.00	97.50	23-07-2002	95.80	14/08/2023 14	103	102	99.03
62	Gandak	Chatia	Bihar	68.15	69.15	70.04	26-07-2002	67.37	16/08/2023 00	0	0	-
63	Gandak	Dumariaghat	Bihar	61.22	62.22	64.36	24-07-2020	62.97	16/08/2023 11	109	107	98.17
64	Gandak	Rewaghat	Bihar	53.41	54.41	55.46	24-07-2020	54.44	17/08/2023 02	21	21	100.00
65	Gandak	Hazipur	Bihar	49.32	50.32	50.93	18/08/1948	48.77	10/08/2023 10	0	0	-
66	Ganga	Patna Gandhighat	Bihar	47.60	48.60	50.52	20-08-2016	48.58	10/08/2023 21	21	20	95.24
67	PunPun	Sripalpur	Bihar	49.60	50.60	53.91	18-09-1976	51.58	07/10/2023 09	5	4	80.00
68	Ganga	Hathidah	Bihar	40.76	41.76	43.52	16-08-2021	41.81	11/08/2023 17	22	21	95.45
69	Ganga	Munger	Bihar	38.33	39.33	40.99	19-09-1976	38.12	12/08/2023 12	0	0	-
70	Burhi Gandak	Lalbeghiaghat	Bihar	62.20	63.20	67.09	30-07-1975	61.42	30/08/2023 00	0	0	-
71	Burhigandak	Ahirwalia	Bihar	58.62	59.62	61.17	02-06-2014	56.85	01/09/2023 01	0	0	-
72	Burhi Gandak	Muzaffarpur	Bihar	51.53	52.53	54.29	15-08-1987	50.79	02/09/2023 03	0	0	-
73	Burhi Gandak	Samastipur	Bihar	45.02	46.02	49.38	15-08-1987	44.12	03/09/2023 10	0	0	-
74	Burhi Gandak	Rosera	Bihar	41.63	42.63	46.56	02-08-2020	41.77	03/09/2023 17	5	5	100.00
75	Burhi Gandak	Khagaria	Bihar	35.58	36.58	39.22	16/08/1976	36.91	12/08/2023 06	28	28	100.00

Basinwise -Riverwise- Flood Forecasting Information in India during Flood Season 2023												
Sl.No.	Name of the river	Name of FF site	Name of State	Warning Level (m)	Danger level (m)	Highest Flood Level		Maximum Level -2023		No.of Forecasts issued	No.of Forecasts within limits	Percent-age of accuracy
						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
76	Ganga	Bhagalpur	Bihar	32.68	33.68	34.86	18-08-2021	33.19	13/08/2023 03	15	15	100.00
77	Ganga	Kahalgaon	Bihar	30.09	31.09	32.87	17-09-2003	31.57	13/08/2023 14	41	40	97.56
78	Kosi	Basua	Bihar	46.75	47.75	49.24	08-02-2022	47.79	26/08/2023 19	117	114	97.44
79	Bagmati	Dheng Bridge	Bihar	70.00	71.00	73.00	13-08-2017	72.18	08/08/2023 19	50	35	70.00
80	Bagmati	Runisaidpur	Bihar	54.00	55.00	58.15	14-08-2017	57.04	27/08/2023 14	41	26	63.41
81	Bagmati	Benibad	Bihar	47.68	48.68	50.01	12-07-2004	49.92	28/08/2023 20	71	71	100.00
82	Adhwara Group	Kamtaul	Bihar	49.00	50.00	52.99	12-08-1987	49.02	30/08/2023 15	1	1	100.00
83	Adhwara Group	Ekmighat	Bihar	45.94	46.94	49.52	12-07-2004	46.43	01/09/2023 04	6	6	100.00
84	Bagmati	Hayaghat	Bihar	44.72	45.72	48.96	14-08-1987	45.32	01/09/2023 07	6	6	100.00
85	Kamla Balan	Jainagar	Bihar	67.50	68.50	71.35	01-08-1965	69.37	25/08/2023 22	76	75	98.68
86	Kamla Balan	Jhanjharpur	Bihar	49.50	50.50	53.11	14-07-2019	52.10	26/08/2023 14	100	99	99.00
87	Adhwara	Sonebarsha	Bihar	80.85	81.85	83.20	03-07-1999	81.27	08/08/2023 16	2	2	100.00
88	Kosi	Baltara	Bihar	32.85	33.85	36.40	15-08-1987	35.43	30/08/2023 16	93	83	89.25
89	Kosi	Kursela	Bihar	29.00	30.00	32.10	07-09-1982	30.35	14/08/2023 13	43	38	88.37
90	Ganga	Sahibgunj	Jharkhand	26.25	27.25	30.91	20/08/1998	27.76	13/08/2023 05	41	40	97.56
91	Mahananda	Taibpur	Bihar	65.00	66.00	67.26	29/06/2022	66.62	14/07/2023 07	25	24	96.00
92	Mahananda	Dhengraghat	Bihar	34.65	35.65	38.20	14-08-2017	36.86	26/08/2023 07	41	41	100.00
93	Mahananda	Jhawa	Bihar	30.40	31.40	34.07	14-08-2017	31.99	16/07/2023 04	62	60	96.77
94	Parwan	Araria	Bihar	46.00	47.00	49.40	14-08-2017	48.13	16/07/2023 06	113	112	99.12
95	Ganga	Farakka	West Bengal	21.25	22.25	25.14	07-09-1998	22.33	16/08/2023 12	61	61	100.00
96	Mayurakshi	Narayanpur	West Bengal	26.86	27.86	29.69	27-09-1995	23.91	06/10/2023 19	0	0	-
97	Ajoy	Gheropara	West Bengal	38.42	39.42	43.94	27-09-1978	36.60	05/10/2023 23	0	0	-
98	Mundeshwari	Harinkhola	West Bengal	11.80	12.80	14.60	28-07-2017	12.56	04/10/2023 06	2	2	100.00
99	Kangsabati	Mohanpur	West Bengal	24.73	25.75	29.62	02-09-1978	23.26	05/10/2023 09	0	0	-
	2 b Brahmaputra Basin											
100	Siang	Yingkiang	Arunachal Pradesh	303.00	304.00	274.48		272.92	28/08/2023 08	0	0	-
101	siang	Passighat	Arunachal Pradesh	152.96	153.96	157.54	11-06-2000	153.49	28/08/2023 17	7	7	100.00
102	Lohit	Dholla Bazaar	Assam	127.27	128.27	130.07	22-09-2012	126.62	13/07/2023 00	0	0	-
103	Brahmaputra	Dibrugrah	Assam	104.70	105.70	106.48	03-09-1998	105.87	28/08/2023 21	181	181	100.00
104	Noa-Dehing	Namsai	Arunachal Pradesh	144.80	145.80	146.60	07-10-1979	144.67	12/07/2023 23	0	0	-
105	Burhidihing	Naharkatia	Assam	119.40	120.40	122.69	17-06-1973	118.23	17/07/2023 13	0	0	-
106	Burhidihing	Khwong	Assam	101.11	102.11	104.16	02-09-2015	102.44	14/07/2023 13	30	30	100.00
107	Desang	Nanglamoraghat	Assam	93.46	94.46	96.49	06-09-1998	95.35	12/08/2023 13	77	77	100.00
108	Dikhow	Shivsagar	Assam	91.40	92.40	94.24	22-06-2020	94.34	11/08/2023 18	74	74	100.00
109	Brahmaputra	Neamatighat	Assam	84.54	85.54	87.37	11-07-1991	86.86	28/08/2023 23	100	100	100.00
110	Subansiri	Choldhowaghat	Assam	99.43	100.43	101.31	27-07-1972	96.45	17/07/2023 08	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
111	Ranganadi	N H Crossing Ranganad	Assam	93.81	94.81	95.92	02-07-1979	94.18	22/08/2023 21	9	9	100.00
112	Subansiri	Badatighat	Assam	81.53	82.53	86.21	28-07-1972	82.88	29/08/2023 13	93	93	100.00
113	Dhansiri (S)	Golaghat	Assam	88.50	89.50	92.45	11-10-1986	89.15	09/08/2023 11	4	4	100.00
114	Dhansiri (S)	Numaligarh	Assam	77.42	78.42	80.16	02-08-2018	78.53	09/08/2023 22	38	38	100.00
115	Jiabharali	Jiabharali_NTX	Assam	77.00	78.00	78.50	26-07-2007	78.25	13/08/2023 18	257	257	100.00
116	Brahmaputra	Tezpur	Assam	64.23	65.23	66.59	27-08-1988	66.16	30/08/2023 03	86	86	100.00
117	Kopilli	Kampur	Assam	59.50	60.50	62.20	18/06/2022	60.93	18/06/2023 00	13	13	100.00
118	Kopilli	Dharmatul	Assam	55.00	56.00	58.09	21-07-2004	55.44	19/06/2023 14	11	11	100.00
119	Brahmaputra	Guwahati	Assam	48.68	49.68	51.46	21-07-2004	50.10	31/08/2023 13	34	34	100.00
120	Puthimari	Puthimari _NHX	Assam	51.31	52.31	55.08	31-08-2008	54.13	21/06/2023 21	22	20	90.91
121	Pagladiya	Pagladia_NTX	Assam	51.75	52.75	55.45	08-07-2004	54.57	21/06/2023 18	29	28	96.55
122	Manas	Mathanguri	Assam	98.10	99.10	100.28	13-10-1973	95.95	13/08/2023 22	0	0	-
123	Beki	Beki NHX	Assam	44.10	45.10	46.20	04-08-2000	45.65	13/08/2023 21	176	173	98.30
124	Manas	Manas NHX	Assam	47.81	48.42	50.08	15-09-1984	49.07	22/06/2023 15	27	26	96.30
125	Brahmaputra	Goalpara	Assam	35.27	36.27	37.43	31-07-1954	36.52	31/08/2023 10	48	48	100.00
126	Gaurang	Kokrajhar	Assam	41.85	42.85	43.60	20-08-2015	42.85	22/06/2023 15	37	37	100.00
127	Brahmaputra	Dhubri	Assam	27.62	28.62	30.37	18-07-2019	29.48	01/09/2023 04	166	165	99.40
128	Sankosh	Golakganj	Assam	28.94	29.94	30.95	08-09-2007	30.15	14/07/2023 07	120	117	97.50
129	Raidak-I	Tufanganj	West Bengal	34.22	35.30	36.50	12-08-2017	35.22	22/06/2023 23	19	16	84.21
130	Jaldhaka	NH-31	West Bengal	80.00	80.90	81.33	28-08-1972	81.1	13/07/2023 12	55	41	74.55
131	Torsa	Hasimara	West Bengal	116.30	116.90	118.50	13-07-1996	117	13/07/2023 09	4	2	50.00
132	Torsa	Ghughumari	West Bengal	39.80	40.41	41.46	03-08-2000	40.67	13/07/2023 22	13	12	92.31
133	Jaldhaka	Mathabhanga	West Bengal	47.70	48.20	49.85	07-09-2007	48.46	13/07/2023 18	7	4	57.14
134	Tista	Domohani	West Bengal	85.65	85.95	89.30	14-10-1968	86.1	13/08/2023 20	48	38	79.17
135	Tista	Mekhliganj	West Bengal	65.45	65.95	66.62	20-10-2021	66.28	04/10/2023 14	254	238	93.70
136	Teesta	Malli Bazaar	Sikkim	223.00	224.00	225.25		228	04/10/2023 04	3	0	0.00
137	Teesta	Joretahang(Rothak)	Sikkim	363.98	364.98	353.20		361.9	13/08/2023 13	0	0	-
138	Teesta	Singtam	Sikkim	354.59	355.09	379.17		352.84	16/06/2023 07	0	0	-
	2 c Barak & Others											
139	Barak	APGhat	Assam	18.83	19.83	21.84	01-08-1989	18.66	29/08/2023 04	0	0	-
140	Katakhal	Matizuri	Assam	19.27	20.27	22.73	10-09-2007	21.12	10/08/2023 06	13	11	84.62
141	Kushiyara	Karimganj	Assam	13.94	14.94	16.57	10-06-2010	14.74	29/08/2023 03	15	15	100.00
142	Barak	Badarpurghat	Assam	15.85	16.85	18.48	11-09-2007	16.09	29/08/2023 01	4	4	100.00
143	Manu	Kailashar	Tripura	22.10	24.00	25.65	13-06-2018	22.48	09/08/2023 04	2	1	50.00
144	Gumti	Sonamura	Tripura	11.50	13.50	14.47	24-07-1993	10.73	09/08/2023 08	0	0	-
	3. Godavari Basin											
145	Godavari	Nasik	Maharashtra	558.10	559.60	563.51	04-08-2019	557.71	09/09/2023 04	0	0	-
146	Godavari	Kopergaon	Maharashtra	490.90	493.60	499.17	01-08-1969	490.05	09/09/2023 20	0	0	-
147	Godavari	Gangakhed	Maharashtra	374.00	375.00	377.57	01-08-1947	364.58	09/10/2023 12	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
148	Godavari	Nanded	Maharashtra	351.00	354.00	357.10	06-08-2006	345.13	28/07/2023 05	0	0	-
149	Wainganga	Bhandara	Maharashtra	245.50	245.70	250.90	16-09-2005	246.98	16/09/2023 19	3	0	0.00
150	Wainganga	Pauni	Maharashtra	226.73	227.73	237.12	07-09-1994	228.90	16/09/2023 08	8	1	12.50
151	Wardha	Balharsha	Maharashtra	171.50	174.00	176.45	14-08-1986	173.75	29/07/2023 03	10	8	80.00
152	Wardha	Sirpur Town	Telangana	159.95	160.95	162.57	15/07/2022	162.74	29/07/2023 11	12	10	83.33
153	Godavari	Kaleswaram	Telangana	103.50	104.75	108.19	15/07/2022	105.76	28/07/2023 23	5	4	80.00
154	Indravati	Jagdalpur	Chhatisgarh	539.50	540.80	544.68	09-07-1973	539.25	14/09/2023 23	0	0	-
155	Godavari	Eturunagaram	Telangana	73.33	75.83	77.66	24-08-1990	75.12	29/07/2023 10	5	4	80.00
156	Godavari	Dummagudam	Telangana	53.00	55.00	60.25	15-08-1986	55.57	29/07/2023 21	9	7	77.78
157	Godavari	Bhadrachalam	Telangana	45.72	48.77	55.66	16-08-1986	49.70	29/07/2023 23	18	17	94.44
158	Sabari	Chinturu	Andhra Pradesh	40.50	42.00	50.42	16/08/1986	42.93	30/07/2023 12	9	9	100.00
159	Godavari	Kunavaram	Andhra Pradesh	36.74	38.24	51.30	16-08-1986	42.86	30/07/2023 11	24	20	83.33
160	Godavari	Rajamundry	Andhra Pradesh	17.68	19.51	20.48	16-08-1986	17.55	30/07/2023 16	0	0	-
161	Godavari	Dowalaiswaram	Andhra Pradesh	14.25	16.08	18.36	16-08-1986	15.55	30/07/2023 19	12	12	100.00
162	Godavari	Atreyapuram	Andhra Pradesh	13.50	15.00	15.86	16/08/1986	12.35	30/07/2023 19	0	0	-
	4. Krishna Basin											
163	Krishna	Arjunwad	Maharashtra	539.20	540.70	544.35	09-08-2019	533.88	27/07/2023 03	0	0	-
164	Bhima	Deongaon	Karnataka	402.00	404.50	409.00	18-10-2020	397.86	06/05/2023 08	0	0	-
165	Tungabhadra	Mantralayam	Andhra Pradesh	310.00	312.00	318.77	02-10-2009	308.30	06/09/2023 22	0	0	-
166	Tungabhadra	Kurnool	Andhra Pradesh	273.00	274.00	281.23	02-10-2009	270.06	07/09/2023 22	0	0	-
167	Krishna	Avanigadda	Andhra Pradesh	9.00	11.00	11.87	05-10-2009	7.17	29/07/2023 12	0	0	-
	5. Cauvery Basin											
168	Cauvery	Musiri	Tamilnadu	82.12	83.12	86.98	25-11-2005	81.90	13/08/2023 22	0	0	-
169	Cauvery	Kodumudi	Tamilnadu	125.50	126.50	128.14	17-08-2018	123.67	07/11/2023 10	0	0	-
170	Bhavani	Savandapur	Tamilnadu	184.50	185.50	187.75	17-08-2018	182.13	09/11/2023 20	0	0	-
171	Kabini	Muthankera	Kerala	710.3	711.25	713.89	09-08-2019	710.69	25/07/2023 03	0	0	-
	6. Subarnarekha											
172	Subernarekna	Jamshedpur	Jharkhand	120.50	121.50	129.82	12-10-1973	120.84	04/10/2023 21	0	0	-
173	Subernarekna	Rajghat	Odisha	9.45	10.36	12.69	19-06-2008	9.63	06/10/2023 05	1	1	
174	Jalaka	Mathani Road Bridge	Odisha	6.00	6.50	7.31	22-09-2021	6.56	08/09/2023 08	10	10	100.00
175	Burhabalang	NH_5 _Road Bridge	Odisha	7.21	8.13	9.50	12-10-1973	7.6	03/08/2023 06	1	0	0.00
	7. Brahmani and Baitarani											
176	Baitarni	Anandpur	Odisha	37.44	38.36	41.35	23-09-2011	40.02	02/08/2023 16	5	2	40.00
177	Baitarni	Akhuapada	Odisha	17.83	18.33	21.95	16-08-1960	19.94	03/08/2023 06	9	8	88.89
178	Brahmani	Jenapur	Odisha	22.00	23.00	24.78	20-08-1975	22.20	03/08/2023 15	1	0	0.00
	8. Mahanadi Basin											
179	Mahanadi	Naraj	Odisha	25.41	26.41	27.61	31-08-1982	26.68	03/08/2023 18	16	15	93.75
180	Mahanadi	Alipingal Devi	Odisha	10.85	11.76	13.11	11-09-2011	10.54	04/08/2023 05	0	0	-
181	Mahanadi	Nimapara	Odisha	9.85	10.76	11.60	31-08-1982	8.92	04/08/2023 11	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
	9. Pennar Basin											
182	Pennar	Nellore	Andhra Pradesh	15.91	17.28	18.70	20-11-2021	10.95	06/12/2023 08	0	0	-
	10. Mahi Basin											
183	Mahi	Wanakbori	Gujarat	71.93	74.98	76.10	12-08-2006	74.97	18/09/2023 01	6	2	33.33
	11. Sabarmati Basin											
184	Sabarmati	Ahmedabad	Gujarat	44.09	45.34	47.45	19-08-2006	41.87	07/11/2023 18	0	0	-
	12. Narmada Basin											
185	Naramada	Mandla	Madhya Pradesh	437.00	437.80	439.40	15-07-1974	439.28	04/08/2023 07	16	16	100.00
186	Naramada	Narmadapuram	Madhya Pradesh	292.83	293.83	301.33	27-08-1972	293.61	16/09/2023 13	3	3	100.00
187	Naramada	Garudeswar	Gujarat	30.48	31.09	41.65	06-09-1970	38.90	17/09/2023 13	6	5	83.33
188	Naramada	Bharuch	Gujarat	6.71	7.31	12.65	07-09-1970	12.34	18/09/2023 05	14	12	85.71
	13. Tapi Basin											
189	Tapi	Surat	Gujarat	8.50	9.50	12.50	09-08-2006	7.7	18/09/2023 15	0	0	-
	14. West Flowing rivers from Tapi to Tadri											
190	Damanganga	Vapi Town	Gujarat	18.20	19.20	23.76	03-08-2004	18.1	28/07/2023 02	2	0	0.00
191	Damanganga	Daman	Daman & Diu	2.60	3.40	4.00	03-08-2004	2.50	05/05/2023 08	0	0	-
	16. East flowing rivers between Mahanadi and Pennar											
192	Rushikuluya	Purushottampur	Odisha	15.83	16.83	19.65	04-11-1990	14.80	14/09/2023 15	0	0	-
193	Vamsadhara	Gunupur	Odisha	83.00	84.00	88.75	17-09-1980	83.80	14/09/2023 11	3	1	33.33
194	Vamsadhara	Kashinagar	Odisha	54.10	54.60	58.93	18-09-1980	55.90	14/09/2023 12	5	3	60.00
195	Nagavali	Srikakulam	Andhra Pradesh	10.17	10.80	14.53	12-05-1990	10.00	08/09/2023 06	0	0	-
	17 East flowing rivers between Pennar and Kanyakumari											
196	Vaigai	Madurai	Tamilnadu	131.50	132.50	134.76	17-11-1997	131.90	10/11/2023 21	4	2	50.00
	18. West flowing rivers of Kutch and Saurashtra including Luni											
197	Banas	Abu Road	Rajasthan	258.00	259.00	265.40	31-08-1973	258.20	18/06/2023 00	2	1	50.00
	19. West Flowing River Tadri to Kanyakumari											
198	Periyar	Neeleswaram	Kerala	9.00	10.00	12.40	15-08-2018	4.20	05/07/2023 01	0	0	-
199	Bharathapuzha	Kumbidi	Kerala	8.20	9.20	11.27	17-08-2018	7.17	13/10/2023 06	0	0	-
200	Pamba	Malakkara	Kerala	6.00	7.00	9.58	16-08-2018	6.21	06/07/2023 11	1	1	100.00
								Total Level Forecasts		***4567***	***4336***	94.94
								Total Inflow Forecasts		**1772**	**1616**	91.20
								Total Forecasts		**6339**	**5952**	93.89

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Sl.No.	Name of the river	Name of FF site	Name of State	FRL/PL (m)	Maximum Level 2023				
					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
	1. Indus Basin								
	2 a. Ganga Basin								
1	Ganga	Choudhury CharanSingh Madhya Ganga Barrage	Uttar Pradesh	220.45	**220.3**	**14/08/2023 15**	85	82	96.47
2	Ganga	Narora Barrage	Uttar Pradesh	179.07	**179.56**	**17/08/2023 22**	49	47	95.92
3	Tons	Ichari Dam	Uttarakhand	644.75	**644.85**	**17/10/2023 19**	0	0	-
4	Bhagirathi	Tehri Dam	Uttarakhand	830	**829.31**	**03/10/2023 17**	43	37	86.05
5	Ramganga	Kalagarh Dam	Uttarakhand	365.3	**363.03**	**10/11/2023 08**	0	0	-
6	Yamuna	Tajewala Weir	Haryana	334	**336.35**	**11/07/2023 12**	0	0	-
7	Chambal	Gandhisagar Dam	Madhya Pradesh	399.9	**399.81**	**13/10/2023 08**	6	3	50.00
8	Chambal	Rana Pratap Sagar	Rajasthan	352.81	**352.77**	**03/10/2023 22**	1	1	100.00
9	Chambal	Kota Barrage	Rajasthan	260.3	**260.45**	**30/10/2023 08**	1	0	0.00
10	Banas	Bisalpur Dam	Rajasthan	315.50	**314.01**	**05/08/2023 08**	0	0	-
11	Kalisindh	Kalisindh Dam	Rajasthan	316	**315.96**	**01/10/2023 17**	10	7	70.00
12	Parwan	Parwan Dam	Rajasthan	308.8	NA		0	0	-
13	Gambhiri	Gambhiri Dam	Rajasthan	431.90	**429.78**	**08/10/2023 08**	0	0	-
14	Gambhiri	Panchana Dam	Rajasthan	258.62	**258.35**	**26/08/2023 08**	0	0	-
15	Mej	Gudha Dam	Rajasthan	305.87	**304.59**	**23/09/2023 08**	0	0	-
16	Parwati	Parwati Dam	Rajasthan	308.15	NA		0	0	-
17	Betwa	Rajghat Dam	Madhya Pradesh	371	**371**	**15/09/2023 06**	5	2	40.00
18	Betwa	Matatilia Dam	Uttar Pradesh	308.46	**308.45**	**17/09/2023 08**	5	1	20.00
19	Sharda	Banbasa	Uttarakhand	222.96	**222.90**	**14/08/2023 10**	13	13	100.00
20	Ghaghra	Katerniaghat Dam	Uttar Pradesh	136.8	**138.00**	**23/06/2023 06**	62	62	100.00
21	Sone	Bansagar Dam	Madhya Pradesh	341.65	**341.48**	**26/09/2023 08**	15	7	46.67
22	Sindh	Madikhera(Atal Sagar)	Madhya Pradesh	346.25	339.65	29/08/2023 08	0	0	-

23	Rihand	Rihand Dam	Uttar Pradesh	265.18	**259.63**	**09/10/2023 08**	13	3	23.08
24	Khoranadi	Annaraj Dam	Jharkhand	252.44	NA		0	0	-
25	Goda Nala	Bhairwa Dam	Jharkhand	356.70	NA		0	0	-
26	Sone	Indrapuri Barrage	Bihar	173	NA		0	0	-
27	Gandak	Gandak Barrage	Bihar	110.3	**108.99**	**14/08/2023 08**	0	0	-
28	Baranadi	Amanat Barage	Jharkhand	274.39	NA		0	0	-
29	Jamunia	Batane Dam	Jharkhand	232.85	NA		0	0	-
30	Kosi	Kosi Barrage	Bihar	74.69	**75.53**	**14/08/2023 08**	0	0	-
31	Mayurakshi	Massanjore Dam	Jharkhand	121.31	**117.76**	**10/10/2023 19**	3	3	100.00
32	Mayurakshi	Tilpara Barrage	West Bengal	62.79	**62.67**	**23/09/2023 11**	2	2	100.00
33	Ashra nadi	Sikatia Barrage	Jharkhand	170.10	**161.05**	**05/10/2023 10**	0	0	-
34	Damodar	Tenughat Dam	Jharkhand	268.83	**261.14**	**30/10/2023 06**	17	17	100.00
35	Barakar	Tilaiya Dam	Jharkhand	372.46	**368.06**	**23/10/2023 00**	0	0	-
36	Konar	Konar Dam	Jharkhand	427.93	**426.48**	**05/10/2023 12**	0	0	-
37	Damodar	Panchet Dam	Jharkhand	132.59	**128.07**	**06/10/2023 23**	31	31	100.00
38	Barakar	Maithon Dam	Jharkhand	150.88	**149.57**	**09/10/2023 15**	21	21	100.00
39	Damodar	Durgapur Barrage	West Bengal	64.47	**64.465**	**01/06/2023 00**	30	30	100.00
40	Anjanwa	Sundar Dam	Jharkhand	110.795	NA		0	0	-
41	Kangsabati	Hinglow Dam	West Bengal	97.84	**96.93**	**16/08/2023 06**	0	0	-
42	Kangsabati	Kangsabati Dam	West Bengal	134.11	**131.92**	**09/10/2023 00**	15	15	100.00
	2 b Brahmaputra Basin								
43	Subansiri	Subansiri Lower	Arunachal Pradesh				0	0	-
44	Teesta	Teesta-III HEP Dam Cl	Sikkim	1585	**1584.1**	**19/05/2023 16**	0	0	-
45	Teesta	Teesta V HEP Dam Si	Sikkim	579	**578.8**	**02/10/2023 08**	0	0	-
46	Rongpo	Rongpo Dam	Sikkim	913.8	**912.34**	**16/06/2023 06**	0	0	-
47	Rongli	Rongli Dam	Sikkim	913.8	**910.48**	**09/08/2023 04**	0	0	-
48	Rangit	Rangit-III HEP Dam	Sikkim	640	**639.22**	**25/05/2023 07**	0	0	-
	2 c Barak & Others								
	3. Godavari Basin								
49	Godavari	N M D Weir	Maharashtra	533.50	**533.51**	**22/12/2023 08**	0	0	-
50	Mula	Mula Dam	Maharashtra	552.3	**551.12**	**09/10/2023 06**	0	0	-
51	Godavari	Jaikwadi Dam	Maharashtra	463.91	**460.7**	**01/05/2023 08**	0	0	-
52	Sindhpana	Manjlegaon	Maharashtra	431.80	**428.9**	**05/05/2023 06**	0	0	-
53	Puma	Yeldari Dam	Maharashtra	461.77	**458.53**	**30/09/2023 08**	0	0	-

54	Karanja	Karanja Dam	Karnataka	584.15	**584.15**	**23/09/2023 06**	0	0	-
55	Manjira	Singur Dam	Telangana	523.6	**523.58**	**05/10/2023 06**	0	0	-
56	Manjira	Nizamsagar Dam	Telangana	428.24	**428.24**	**08/10/2023 06**	1	1	100.00
57	Godavari	Sriram Sagar	Telangana	332.54	**332.54**	**24/09/2023 09**	11	10	90.91
58	Kaddamvagu	Kaddam Dam	Telangana	213.21	**214.06**	**27/07/2023 08**	3	3	100.00
59	Godavari	Sripada Yellampally Da	Telangana	148.00	**148**	**03/09/2023 13**	20	18	90.00
60	Wainganga	Upper Wainganga Proj	Madhya Pradesh	519.38	**519.3**	**15/09/2023 17**	3	1	33.33
61	Pench	Totladoh Project	Maharashtra	490	**490**	**16/09/2023 03**	3	1	33.33
62	Wainganga	Goshikhurd Dam	Maharashtra	245.5	**244.5**	**07/10/2023 08**	5	5	100.00
63	Wardha	Upper Wardha Project	Maharashtra	342.5	**342.5**	**16/09/2023 03**	9	3	33.33
64	Penganga	Issapur/Upper Pengan	Maharashtra	441	**439.35**	**05/10/2023 08**	0	0	-
65	Godavari	Laxmi Barrage	Telangana	100.00	**99.7**	**29/07/2023 00**	58	57	98.28
66	Indravathi	Upper Indravathi Proje	Odisha	642	**638.11**	**05/10/2023 11**	0	0	-
67	Kolab	Kolab Project	Odisha	858	**856.53**	**06/11/2023 03**	0	0	-
68	Machhkund	Machhkund Project	Odisha	838.2	**833.51**	**05/11/2023 03**	0	0	-
69	Balimela	Balimela Project	Odisha	462.07	**453.969**	**12/10/2023 07**	0	0	-
70	Godavari	Indirasagar(Polavaram	Andhra Pradesh	-	**25.02**	**30/07/2023 13**	67	67	100.00
71	Pench	Pench Reservoir/Chau	Madhya Pradesh	625.75	**625.75**	**07/10/2023 14**	0	0	-
72	Bawanthri	Bawanthadi Reservoir	Madhya Pradesh	344.4	**344.2**	**23/09/2023 08**	0	0	-
73	Godavari	PVNR Kanthapally Pro	Telangana	83	**85.75**	**29/07/2023 06**	66	66	100.00
	4. Krishna Basin								
74	Krishna	Hippargi Dam	Karnataka	524.87	**524.87**	**22/08/2023 08**	19	18	94.74
75	Ghataprabha	Hidkal Dam	Karnataka	662.94	**661.77**	**10/10/2023 06**	29	27	93.10
76	Krishna	Alamati Dam	Karnataka	519.6	**519.60**	**16/08/2023 01**	36	32	88.89
77	Malaprabha	Malaprabha Dam	Karnataka	633.83	**630.08**	**20/08/2023 06**	10	9	90.00
78	Krishna	Narayanpur Dam	Karnataka	492.25	**492.17**	**10/08/2023 10**	21	19	90.48
79	Nira	Veer Dam	Maharashtra	579.85	**578.94**	**08/08/2023 08**	0	0	-
80	Bhima	Ujjani Dam	Maharashtra	496.83	**494.9**	**12/10/2023 08**	0	0	-
81	Krishna	Priyadarshini	Telangana	318.51	**318.46**	**03/10/2023 15**	15	13	86.67
82	Tunga	Upper Tunga	Karnataka	588.24	**588.24**	**06/08/2023 06**	51	51	100.00
83	Bhadra	Bhadra Dam	Karnataka	657.75	**651.97**	**12/08/2023 08**	9	8	88.89
84	Tungabhadra	Tungabhadra Dam	Karnataka	497.74	**496.43**	**12/08/2023 19**	32	30	93.75
85	Krishna	Singatalur Barrage	Karnataka	507	**506.9**	**21/11/2023 08**	30	29	96.67
86	Tungabhadra	Sunkesula Barrage	Andhra Pradesh	292	**292.00**	**10/09/2023 08**	0	0	-

87	Krishna	Srisailam Dam	Andhra Pradesh	269.75	**263.71**	**10/08/2023 15**	9	9	100.00
88	Musi	Musi Project	Telangana	196.60	**196.57**	**01/11/2023 08**	5	5	100.00
89	Krishna	Dr K L R S Pulichintala	Andhra Pradesh	53.34	**51.1**	**05/08/2023 08**	5	5	100.00
90	Koyna	Koyna Dam	Maharashtra	659.43	**656.84**	**04/10/2023 08**	6	3	50.00
91	Warana	Warana Dam	Maharashtra	626.9	**626.9**	**19/09/2023 08**	0	0	-
92	Krishna	Prakasham Barrage	Andhra Pradesh	17.39	**17.40**	**05/05/2023 08**	11	8	72.73
	5. Cauvery Basin								
93	Harangi	Harangi Dam	Karnataka	871.42	**871.37**	**12/08/2023 06**	13	13	100.00
94	Hemavathy	Hemavathy Dam	Karnataka	890.63	**888.86**	**12/08/2023 06**	16	14	87.50
95	Kabini	Kabini Dam	Karnataka	696.16	**696.00**	**02/08/2023 08**	36	35	97.22
96	Cauvery	Krishnarajasagar	Karnataka	752.49	**749.04**	**03/08/2023 08**	54	51	94.44
97	Cauvery	Mettur Dam	Tamilnadu	240.79	**287.37**	**08/07/2023 08**	25	14	56.00
98	Bhavani	Bhavanisagar Dam	Tamilnadu	280.42	**274.07**	**17/12/2023 08**	19	13	68.42
99	Kodaganar	Kodaganar Dam	Tamilnadu	200.25	**252.12**	**08/07/2023 06**	0	0	-
100	Cauvery	Grand Anicut	Tamilnadu	59.21	**74.21**	**08/07/2023 06**	113	109	96.46
101	Cauvery	Upper Anicut	Tamilnadu	74.40	**95.20**	**08/07/2023 06**	120	115	95.83
	6. Subarnarekha								
102	Subarnarekha	Getlasud Dam	Jharkhand	590.06	589.67	06/10/2023 08	0	0	-
103	Subernarekna	Chandil Dam	Jharkhand	189	**181.95**	**05/10/2023 08**	5	5	100.00
104	Subarnarekha	Galudih Barrage	Jharkhand	94.5	**92.3**	**14/10/2023 08**	7	7	100.00
	7. Brahmani and Baitarani								
105	Salandi	Salandi Dam	Odisha	82.3	**81.08**	**05/08/2023 08**	0	0	-
106	Brahmani	Rengali Dam	Odisha	123.5	**123.92**	**10/10/2023 08**	11	9	81.82
	8. Mahanadi Basin								
107	Mahanadi	Ravishankar Dam	Chattisgarh	348.7	**346.86**	**08/08/2023 07**	0	0	-
108	Hasdeo	Bango Dam	Chattisgarh	359.66	**357.1**	**05/10/2023 08**	1	0	0.00
109	Mahanadi	Hirakud Dam	Odisha	192.02	**192.02**	**29/09/2023 13**	71	67	94.37
	9. Pennar Basin								
110	North Pennar	Somasila Dam	Andhra Pradesh	100.58	**96.62**	**16/05/2023 06**	1	0	0.00
	10. Mahi Basin								
111	Mahi	Mahi Bajajsagar Dam	Rajasthan	281.5	**281.4**	**02/10/2023 08**	10	9	90.00
112	Som Kamla	Som Kamla Amba Dan	Rajasthan	213.5	**213.5**	**11/09/2023 08**	4	3	75.00
113	Mahi	Kadana Dam	Gujarat	127.71	**127.71**	**19/09/2023 16**	12	10	83.33
114	Panam	Panam Dam	Gujarat	127.41	**127.41**	**18/09/2023 06**	6	4	66.67

	11. Sabarmati Basin								
115	Sabarmati	Dharoi Dam	Gujarat	189.59	**189.60**	**24/10/2023 12**	6	6	100.00
	12. Narmada Basin								
116	Narmada	Barna Dam	Madhya Pradesh	348.55	**348.30**	**22/09/2023 08**	2	2	100.00
117	Narmada	Bargi Dam	Madhya Pradesh	422.76	**423.00**	**20/09/2023 08**	9	9	100.00
118	Narmada	Tawa Dam	Madhya Pradesh	355.39	**355.55**	**16/09/2023 00**	5	5	100.00
119	Narmada	Indira Sagar Dam	Madhya Pradesh	262.13	**262.13**	**16/09/2023 08**	21	21	100.00
120	Narmada	Omkareshwar Dam	Madhya Pradesh	196.6	**196.5**	**16/09/2023 08**	0	0	-
121	Narmada	Sardar Sarovar Dam	Gujarat	138.38	**138.83**	**20/09/2023 01**	54	50	92.59
	13. Tapi Basin								
122	Tapi	Hatnur Dam	Maharashtra	212.02	**214.09**	**27/10/2023 04**	61	55	90.16
123	Tapi	Ukai Dam	Gujarat	105.16	**105.16**	**03/10/2023 06**	54	50	92.59
	14. West Flowing rivers from Tapi to Tadri								
124	Damanganga	Madhuban Dam	Gujarat	79.86	**79.87**	**30/09/2023 10**	15	13	86.67
	16. East flowing rivers between Mahanadi and Pennar								
125	Vamsadhara	Gotta Barrage	Andhra Pradesh	34.84	**38.11**	**26/07/2023 19**	2	2	100.00
126	Nagavali	Thottapalli Reservoir S	Andhra Pradesh	105	**105**	**12/09/2023 08**	0	0	-
127	Suwarnamukhi	Madduvalasa Reservoi	Andhra Pradesh	65	**64.71**	**13/10/2023 06**	0	0	-
128	Nagavali	Narayanapuram Anicut	Andhra Pradesh	32.77	**29.50**	**22/09/2023 08**	0	0	-
	17 East flowing rivers between Pennar and Kanyakumari								
129	Kosasthaliyar	Poondi Satyamurthy re	Tamilnadu	42.67	**42.67**	**17/12/2023 06**	5	1	20.00
130	Adyar	Chembarampakkam	Tamilnadu	26.03	**25.83**	**06/12/2023 06**	4	1	25.00
131	South Pennar	Sathnur Dam	Tamilnadu	222.2	**221.88**	**22/12/2023 06**	0	0	-
132	Gomukhinadi	Gomukhi Dam	Tamilnadu	183.18	**182.88**	**17/10/2023 06**	0	0	-
133	Periyar Odai	Wellington Dam	Tamilnadu	72.54	**70.34**	**05/12/2023 06**	0	0	-
134	Vaigai	Vaigai Dam	Tamilnadu	279.20	**279.05**	**11/11/2023 06**	34	27	79.41
	18. West flowing rivers of Kutch and Saurashtra including Luni								
135	Shetrunji	Shetrunji Dam	Gujarat	55.54	**55.53**	**22/07/2023 07**	5	4	80.00
136	Banas	Dantiwada Dam	Gujarat	184.1	**185.75**	**25/08/2023 21**	10	10	100.00
	19. West Flowing River Tadri to Kanyakumari								
137	Periyar	Idduki Dam	Kerala	732.43	**720.96**	**22/12/2023 10**	0	0	-
138	Edamalayar	Idamalayar	Kerala	169	**158.59**	**11/12/2023 10**	0	0	-
				Total Inflow Forecasts			***1772***	***1616***	**91.20**
				Total Level Forecasts			**4567**	**4336**	**94.94**
				Total Forecasts			**6339**	**5952**	**93.89**

Annex IV(A)

Statewise Flood Forecasting Information In India during Flood Season 2023

Sl. No.	Name of the river	Name of FF site	Warning Level (m)	Danger level (m)	Highest Flood Level		Maximum Level -2023		No.of Forecasts issued	No.of Forecasts within limits	Percent-age of accuracy
					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	Sabari	Chinturu	40.50	42.00	50.42	16/08/1986	42.93	30/07/2023 12	9	9	100.00
2	Godavari	Kunavaram	36.74	38.24	51.30	16-08-1986	42.86	30/07/2023 11	24	20	83.33
3	Godavari	Rajahmundry	17.68	19.51	20.48	16-08-1986	17.55	30/07/2023 16	0	0	-
4	Godavari	Dowlaiswaram	14.25	16.08	18.36	16-08-1986	15.55	30/07/2023 19	12	12	100.00
5	Tungabhadra	Mantralayam	310.00	312.00	318.77	02-10-2009	308.30	06/09/2023 22	0	0	-
6	Pennar	Nellore Anicut	15.91	17.28	18.70	20-11-2021	10.95	06/12/2023 08	0	0	-
7	Godavari	Atreyapuram	13.50	15.00	15.86	16/08/1986	12.35	30/07/2023 19	0	0	-
8	Tungabhadra	Kurnool Town	273.00	274.00	281.23	02-10-2009	270.06	07/09/2023 22	0	0	-
9	Krishna	Avanigadda	9.00	11.00	11.87	05-10-2009	7.17	29/07/2023 12	0	0	-
10	Nagavali	Srikakulam	10.17	10.80	14.53	12-05-1990	10.00	08/09/2023 06	0	0	-
	Assam										
11	Brahmaputra	Dibrugarh	104.70	105.70	106.48	03-09-1998	105.87	28/08/2023 21	181	181	100.00
12	Brahmaputra	Neamatighat	84.54	85.54	87.37	11-07-1991	86.86	28/08/2023 23	100	100	100.00
13	Brahmaputra	Tezpur	64.23	65.23	66.59	27-08-1988	66.16	30/08/2023 03	86	86	100.00
14	Brahmaputra	Guwahati	48.68	49.68	51.46	21-07-2004	50.10	31/08/2023 13	34	34	100.00
15	Brahmaputra	Goalpara	35.27	36.27	37.43	31-07-1954	36.52	31/08/2023 10	48	48	100.00
16	Brahmaputra	Dhubri	27.62	28.62	30.37	18-07-2019	29.48	01/09/2023 04	166	165	99.40
17	Buridehing	Naharkatia	119.40	120.40	122.69	17-06-1973	118.23	17/07/2023 13	0	0	-
18	Buridehing	Khowang	101.11	102.11	104.16	02-09-2015	102.44	14/017/2023 13	30	30	100.00
19	Desang	Nanglamoraghat	93.46	94.46	96.49	06-09-1998	95.35	12/08/2023 13	77	77	100.00
20	Dikhow	Shivsagar	91.40	92.40	94.24	22-06-2020	94.34	11/08/2023 18	74	74	100.00
21	Subansiri	Badatighat	81.53	82.53	86.21	28-07-1972	82.88	29/08/2023 13	93	93	100.00
22	Dhansiri (S)	Golaghat	88.50	89.50	92.45	11-10-1986	89.15	09/08/2023 11	4	4	100.00
23	Dhansiri (S)	Numaligarh	77.42	78.42	80.16	02-08-2018	78.53	09/08/2023 22	38	38	100.00
24	Jiabharali	Jia-Bharali NT Road Crossing	77.00	78.00	78.50	26-07-2007	78.25	13/08/2023 18	257	257	100.00
25	Kopili	Kampur	59.50	60.50	62.20	18/06/2022	60.93	18/06/2023 00	13	13	100.00
26	Kopili	Dharamtul	55.00	56.00	58.09	21-07-2004	55.44	19/06/2023 14	11	11	100.00
27	Puthimari	Puthimari NH Crossing	51.31	52.31	55.08	31-08-2008	54.13	21/06/2023 21	22	20	90.91
28	Pagladiya	Pagladiya NT Road Crossing	51.75	52.75	55.45	08-07-2004	54.57	21/06/2023 18	29	28	96.55
29	Beki	Beki NH Crossing	44.10	45.10	46.20	04-08-2000	45.65	13/08/2023 21	176	173	98.30
30	Manas	Manas NH Crossing	47.81	48.42	50.08	15-09-1984	49.07	22/06/2023 15	27	26	98.30
31	Manas	Mathanguri	98.10	99.10	100.28	13-10-1973	95.95	13/08/2023 22	0	0	-
32	Sankosh	Golokganj	28.94	29.94	30.95	08-09-2007	30.15	14/07/2023 07	120	117	97.50
33	Barak	AP Ghat	18.83	19.83	21.84	01-08-1989	18.66	29/08/2023 04	0	0	-
34	Katakhal	Matizuri	19.27	20.27	22.73	10-09-2007	21.12	10/08/2023 06	13	11	84.62
35	Kushiyara	Karimganj	13.94	14.94	16.57	10-06-2010	14.74	29/08/2023 03	15	15	100.00
36	Barak	Badarpurghat	15.85	16.85	18.48	11-09-2007	16.09	29/08/2023 01	4	4	100.00
37	Subansiri	Choldhowaghat	99.43	100.43	101.31	27-07-1972	96.45	17/07/2023 08	0	0	-
38	Ranganadi	N H Crossing Ranganadi	93.81	94.81	95.92	02-07-1979	94.18	22/08/2023 21	9	9	100.00
39	Lohit	Dholla Bazaar	127.27	128.27	130.07	22-09-2012	126.62	13/07/2023 00	0	0	-

Annex IV(A)

Statewise Flood Forecasting Information In India during Flood Season 2023

Sl. No.	Name of the river	Name of FF site	Warning Level (m)	Danger level (m)	Highest Flood Level		Maximum Level -2023		No.of Forecasts issued	No.of Forecasts within limits	Percent-age of accuracy
					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
40	Gaurang	Kokrajhar	41.85	42.85	43.60	20-08-2015	42.85	22/06/2023 15	37	37	100.00
	Arunachal Pradesh										
41	Noa-Dehing	Namsai	144.80	145.80	146.60	07-10-1979	144.67	12/07/2023 23	0	0	-
42	Siang	Yingkiang	303.00	304.00	274.48		272.92	28/08/2023 08	0	0	-
43	Siang	Passighat	152.96	153.96	157.54	11-06-2000	153.49	28/08/2023 17	7	7	100.00
	Bihar										
44	Ganga	Buxar	59.32	60.32	62.09	01-08-1948	58.72	08/08/2023 22	0	0	-
45	Ganga	Patna Dighaghat	49.45	50.45	52.52	23-08-1975	49.67	10/08/2023 23	4	4	100.00
46	Ganga	Patna Gandhighat	47.60	48.60	50.52	20-08-2016	48.58	10/08/2023 21	21	20	95.24
47	Ganga	Hathidah	40.76	41.76	43.52	16-08-2021	41.81	11/08/2023 17	22	21	95.45
48	Ganga	Munger	38.33	39.33	40.99	19-09-1976	38.12	12/08/2023 12	0	0	-
49	Ganga	Bhagalpur	32.68	33.68	34.86	18-08-2021	33.19	13/08/2023 03	15	15	100.00
50	Ganga	Kahalgaon	30.09	31.09	32.87	17-09-2003	31.57	13/08/2023 14	41	40	97.56
51	Ghaghra	Darauli	59.82	60.82	61.82	15/10/2022	61.05	18/08/2023 09	43	42	97.67
52	Ghaghra	Gangpur Siswan	56.04	57.04	58.01	18-09-1983	56.75	13/08/2023 00	17	17	100.00
53	Ghaghra	Chhappra	52.68	53.68	54.59	03-09-1982	50.65	10/08/2023 01	0	0	-
54	Gandak	Chatia	68.15	69.15	70.04	26-07-2002	67.37	16/08/2023 00	0	0	-
55	Gandak	Rewaghat	53.41	54.41	55.46	24-07-2020	54.44	17/08/2023 02	21	21	100.00
56	Gandak	Hazipur	49.32	50.32	50.93	18/08/1948	48.77	10/08/2023 10	0	0	-
57	Burhi Gandak	Lalbeghiaghat	62.20	63.20	67.09	30-07-1975	61.42	30/08/2023 00	0	0	-
58	Burhi Gandak	Muzzafarpur Sikandarpur	51.53	52.53	54.29	15-08-1987	50.79	02/09/2023 03	0	0	-
59	Burhi Gandak	Samastipur	45.02	46.02	49.38	15-08-1987	44.12	03/09/2023 10	0	0	-
60	Burhi Gandak	Rosera	41.63	42.63	46.56	02-08-2020	41.77	03/09/2023 17	5	5	100.00
61	Burhi Gandak	Khagaria	35.58	36.58	39.22	16/08/1976	36.91	12/08/2023 06	28	28	100.00
62	Bagmati	Benibad	47.68	48.68	50.01	12-07-2004	49.92	28/08/2023 20	71	71	100.00
63	Bagmati	Hayaghat	44.72	45.72	48.96	14-08-1987	45.32	01/09/2023 07	6	6	100.00
64	Bagmati	Dheng Bridge	70.00	71.00	73.00	13-08-2017	72.18	08/08/2023 19	50	35	70.00
65	Adhwara Group	Kamtaul	49.00	50.00	52.99	12-08-1987	49.02	30/08/2023 15	1	1	100.00
66	Adhwara Group	Ekmighat	45.94	46.94	49.52	12-07-2004	46.43	01/09/2023 04	6	6	100.00
67	Adhwara	Sonebarsha	80.85	81.85	83.20	03-07-1999	81.27	08/08/2023 16	2	2	100.00
68	Kamla Balan	Jainagar	67.50	68.50	71.35	01-08-1965	69.37	25/08/2023 22	76	75	98.68
69	Bagmati	Runisaidpur	54.00	55.00	58.15	14-08-2017	57.04	27/08/2023 14	41	26	63.41
70	Parwan	Araria	46.00	47.00	49.40	14-08-2017	48.13	16/07/2023 06	113	112	99.12
71	Kamla Balan	Jhanjarpur	49.50	50.50	53.11	14-07-2019	52.10	26/08/2023 14	100	99	99.00
72	Kosi	Basua	46.75	47.75	49.24	08-02-2022	47.79	26/08/2023 19	117	114	97.44
73	Kosi	Baltara	32.85	33.85	36.40	15-08-1987	35.43	30/08/2023 16	93	83	89.25
74	Kosi	Kursela	29.00	30.00	32.10	07-09-1982	30.35	14/08/2023 13	43	38	88.37
75	Mahananda	Dhengraghat	34.65	35.65	38.20	14-08-2017	36.86	26/08/2023 07	41	41	100.00
76	Mahananda	Jhawa	30.40	31.40	34.07	14-08-2017	31.99	16/07/2023 04	62	60	96.77

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Sl. No.	Name of the river	Name of FF site	Warning Level (m)	Danger level (m)	Highest Flood Level		Maximum Level -2023		No.of Forecasts issued	No.of Forecasts within limits	Percent-age of accuracy
					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
77	Mahananda	Taibpur	65.00	66.00	67.26	29/06/2022	66.62	14/07/2023 07	25	24	96.00
78	Gandak	Dumariaghat	61.22	62.22	64.36	24-07-2020	62.97	16/08/2023 11	109	107	98.17
79	Burhigandak	Ahirwalia	58.62	59.62	61.17	02-06-2014	56.85	01/09/2023 01	0	0	-
80	Sone	Inderpuri	107.20	108.20	108.85	23-08-1975	103.05	05/08/2023 16	0	0	-
81	Sone	Koelwar	54.52	55.52	58.88	20-07-1971	51.27	06/10/2023 12	0	0	-
82	Sone	Maner	51.00	52.00	53.79	10-09-1976	51.00	10/08/2023 10	2	2	100.00
83	PunPun	Sripalpur	49.60	50.60	53.91	18-09-1976	51.58	07/10/2023 09	5	4	80.00
	Chhattisgarh										
84	Indravathi	Jagdalpur	539.50	540.80	544.68	09-07-1973	539.25	14/09/2023 23	0	0	-
	Daman & Diu										
85	Damanganga	Daman	2.60	3.40	4.00	03-08-2004	2.50	05/05/2023 08	0	0	-
	Gujarat										
86	Sabarmati	Ahmedabad Shubhash	44.09	45.34	47.45	19-08-2006	41.87	07/11/2023 18	0	0	-
87	Mahi	Wanakbori	71.93	74.98	76.10	12-08-2006	74.97	18/09/2023 01	6	2	33.33
88	Narmada	Garudeswar	30.48	31.09	41.65	06-09-1970	38.90	17/09/2023 13	6	5	83.33
89	Narmada	Bharuch	6.71	7.31	12.65	07-09-1970	12.34	18/09/2023 05	14	12	85.71
90	Tapi	Surat	8.50	9.50	12.50	09-08-2006	7.7	18/09/2023 15	0	0	-
91	Damanganga	Vapi Town	18.20	19.20	23.76	03-08-2004	18.1	28/07/2023 02	2	0	0.00
	Haryana										
92	Yamuna	Karnal Bridge	248.80	249.50	250.07	17-06-2013	248.91	11/07/2023 01	2	2	100.00
	Himachal Pradesh										
93	Yamuna	Paonta Sahib	383.50	384.50	384.60	05-09-1995	383.6	11/07/2023 11	2	0	0.00
	Jammu & Kashmir										
94	Jhelum	Rammunshibagh	1585.48	1586.40	1589.00	08-09-2014	1586.05	09/07/2023 09	9	5	55.56
95	Jhelum	Sangam	1591.20	1592.42	1595.37	07-09-2014	1591.80	09/07/2023 00	6	2	33.33
96	Jhelum	Safapora	1580.05	1581.30	1582.20	09-09-2014	1580.45	10/07/2023 03	31	30	96.77
	Jharkhand										-
97	Ganga	Sahibganj	26.25	27.25	30.91	20/08/1998	27.76	13/08/2023 05	41	40	97.56
98	Subarnarekha	Jamshedpur	120.50	121.50	129.82	12-10-1973	120.84	04/10/2023 21	0	0	-
	Karnataka										
99	Bhima	Deongaon	402.00	404.50	409.00	18-10-2020	397.86	06/05/2023 08	0	0	-
	Kerala										
100	Periyar	Neeleswaram	9.00	10.00	12.40	15-08-2018	4.20	05/07/2023 01	0	0	-
101	Bharathapuzha	Kumbidi	8.20	9.20	11.27	17-08-2018	7.17	13/10/2023 06	0	0	-

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Sl. No.	Name of the river	Name of FF site	Warning Level (m)	Danger level (m)	Highest Flood Level		Maximum Level -2023		No.of Forecasts issued	No.of Forecasts within limits	Percent-age of accuracy
					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
102	Pamba	Malakkara	6.00	7.00	9.58	16-08-2018	6.21	06/07/2023 11	1	1	100.00
103	Kabini	Muthankera	710.3	711.25	713.89	09-08-2019	710.69	25/07/2023 03	0	0	-
	Madhya Pradesh										
104	Naramada	Mandla	437.00	437.80	439.40	15-07-1974	439.28	04/08/2023 07	16	16	100.00
105	Naramada	Narmadapuram	292.83	293.83	301.33	27-08-1972	293.61	16/09/2023 13	3	3	100.00
	Maharashtra										
106	Godavari	Kopergaon	490.90	493.68	499.17	01-08-1969	490.05	09/09/2023 20	0	0	-
107	Godavari	Gangakhed	374.00	375.00	377.57	01-08-1947	364.58	09/10/2023 12	0	0	-
108	Godavari	Nanded	351.00	354.00	357.10	06-08-2006	345.13	28/07/2023 05	0	0	-
109	Wainganga	Bhandara	245.50	245.70	250.90	16-09-2005	246.98	16/09/2023 19	3	0	0.00
110	Wainganga	Pauni	226.73	227.73	237.12	07-09-1994	228.90	16/09/2023 08	8	1	12.50
111	Wardha	Balharsha	171.50	174.00	176.45	14-08-1986	173.75	29/07/2023 03	10	8	80.00
112	Krishna	Arjunwad	539.20	540.70	544.35	09-08-2019	533.88	27/07/2023 03	0	0	-
113	Godavari	Nasik	558.10	559.60	563.51	04-08-2019	557.71	09/09/2023 04	0	0	-
	NCT Delhi										
114	Yamuna	Delhi Rly Bridge	204.50	205.33	207.49	06-09-1978	208.66	13/07/2023 18	57	39	68.42
115	Sahibi	Dhansa	211.44	212.44	213.58	06-08-1977	210.77	04/08/2023 03	0	0	-
	Odisha										
116	Subarnarekha	Rajghat	9.45	10.36	12.69	19-06-2008	9.63	06/10/2023 05	1	1	100.00
117	Burhabalang	NH_5 _Road Bridge	7.21	8.13	9.50	12-10-1973	7.6	03/08/2023 06	1	0	0.00
118	Baitarni	Anandpur	37.44	38.36	41.35	23-09-2011	40.02	02/08/2023 16	5	2	40.00
119	Baitarni	Akhuapada	17.83	18.33	21.95	16-08-1960	19.94	03/08/2023 06	9	8	88.89
120	Brahmani	Jenapur	22.00	23.00	24.78	20-08-1975	22.20	03/08/2023 15	1	0	0.00
121	Rishikulya	Purushottampur	15.83	16.83	19.65	04-11-1990	14.80	14/09/2023 15	0	0	-
122	Vamsadhara	Gunupur	83.00	84.00	88.75	17-09-1980	83.80	14/09/2023 11	3	1	33.33
123	Vamsadhara	Kashinagar	54.10	54.60	58.93	18-09-1980	55.90	14/09/2023 12	5	3	60.00
124	Mahanadi	Naraj	25.41	26.41	27.61	31-08-1982	26.68	03/08/2023 18	16	15	93.75
125	Mahanadi	Alipingal Devi	10.85	11.76	13.11	11-09-2011	10.54	04/08/2023 05	0	0	-
126	Mahanadi	Nimapara	9.85	10.76	11.60	31-08-1982	8.92	04/08/2023 11	0	0	-
127	Jalaka	Mathani Road Bridge	6.00	6.50	7.31	22-09-2021	6.56	08/09/2023 08	10	10	100.00
	Rajasthan										
128	Chambal	Manderial	164.00	165.00	170.05	25/08/2022	155.50	20/09/2023 12	0	0	-
129	Chambal	Dholpur	129.79	130.79	146.57	25/08/2022	128.25	20/09/2023 20	0	0	-
130	Chambal	Kota City	239.00	242.00	248.68	16-09-2019	242.15	19/09/2023 03	5	2	40.00
131	Banas	Abu Road	258.00	259.00	265.40	31-08-1973	258.20	18/06/2023 00	2	1	50.00
	Sikkim										
132	Teesta	Malli Bazaar	223.00	224.00	225.25		228	04/10/2023 04	3	0	0.00
133	Teesta	Joretahang(Rothak)	363.98	364.98	353.20		361.9	13/08/2023 13	0	0	-
134	Teesta	Singtam	354.59	355.09	379.17		352.84	16/06/2023 07	0	0	-

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Sl. No.	Name of the river	Name of FF site	Warning Level (m)	Danger level (m)	Highest Flood Level		Maximum Level -2023		No.of Forecasts issued	No.of Forecasts within limits	Percent-age of accuracy
					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
	Tamilnadu										
135	Cauvery	Musiri(Srirangam)	82.12	83.12	86.98	25-11-2005	81.90	13/08/2023 22	0	0	-
136	Cauvery	Kodumudi (Erode)	125.50	126.50	128.14	17-08-2018	123.67	07/11/2023 10	0	0	-
137	Bhavani	Savandapur(Bhavani)	184.50	185.50	187.75	17-08-2018	182.13	09/11/2023 20	0	0	-
138	Vaigai	Madurai	131.50	132.50	134.76	17-11-1997	131.90	10/11/2023 21	4	2	50.00
	Telangana										
139	Godavari	Kaleswaram	103.50	104.75	108.19	15/07/2022	105.76	28/07/2023 23	5	4	80.00
140	Godavari	Eturunagaram	73.33	75.83	77.66	24-08-1990	75.12	29/07/2023 10	5	4	86.67
141	Godavari	Dummagudem	53.00	55.00	60.25	15-08-1986	55.57	29/07/2023 21	9	7	89.36
142	Godavari	Bhadrachalam	45.72	48.77	55.66	16-08-1986	49.70	29/07/2023 23	18	17	91.53
143	Wardha	Sirpur Town	159.95	160.95	162.57	15/07/2022	162.74	29/07/2023 11	12	10	83.33
	Tripura										
144	Manu	Kailashahar	22.10	24.00	25.65	13-06-2018	22.48	09/08/2023 04	2	1	50.00
145	Gumti	Sonamura	11.50	13.50	14.47	24-07-1993	10.73	09/08/2023 08	0	0	-
	Uttar Pradesh										
146	Ganga	Kannauj	124.97	125.97	126.78	27-09-2010	125.96	23/08/2023 10	45	45	100.00
147	Ganga	Ankinghat	123.00	124.00	124.49	28-09-2010	124.19	23/08/2023 09	49	49	100.00
148	Ganga	Kanpur	112.00	114.00	114.08	29-09-2010	113.21	25/08/2023 02	44	44	100.00
149	Ganga	Dalmau	98.36	99.36	99.84	03-08-1973	99.07	26/08/2023 16	21	21	100.00
150	Ganga	Phaphamau	83.73	84.73	87.98	08-09-1978	81.28	08/08/2023 00	0	0	-
151	Ganga	Allahabad Chhatnag	83.73	84.73	88.03	08-09-1978	80.27	07/08/2023 15	0	0	-
152	Ganga	Mirzapur	76.72	77.72	80.34	09-09-1978	73.66	08/08/2023 05	0	0	-
153	Ganga	Varanasi	70.26	71.26	73.90	09-09-1978	68.3	08/08/2023 06	0	0	-
154	Ganga	Ghazipur	62.10	63.10	65.22	09-09-1978	61.70	09/08/2023 05	0	0	-
155	Ganga	Ballia	56.62	57.62	60.39	25-08-2016	57.94	09/08/2023 08	7	7	100.00
156	Ramganga	Moradabad	189.60	190.60	192.88	21-09-2010	190.77	13/09/2023 13	68	68	100.00
157	Ramganga	Bareilly	162.07	163.07	162.88	06-08-1978	161.29	14/09/2023 07	0	0	-
158	Yamuna	Mawi	231.00	231.50	232.75	18-06-2013	232.3	12/07/2023 16	13	6	46.15
159	Yamuna	Mathura	165.20	166.00	169.73	08-09-1978	167.35	17/07/2023 23	48	41	85.42
160	Yamuna	Agra	151.40	152.40	154.76	09-09-1978	152.00	18/07/2023 17	5	5	100.00
161	Yamuna	Etawah	120.92	121.92	126.13	11-09-1978	121.68	20/07/2023 20	7	7	100.00
162	Yamuna	Auraiya	112.00	113.00	118.51	06-08-2021	106.07	22/09/2023 07	0	0	-
163	Yamuna	Kalpi	107.00	108.00	112.98	25-08-1996	101.15	22/09/2023 11	0	0	-
164	Yamuna	Hamirpur	102.63	103.63	108.59	12-09-1983	96.66	07/08/2023 05	0	0	-
165	Yamuna	Chillaghat	99.00	100.00	108.50	26/09/1964	94.88	07/08/2023 05	0	0	-
166	Yamuna	Naini	83.74	84.74	87.97	07-09-1978	80.94	07/08/2023 14	0	0	-
167	Betwa	Mohana	121.66	122.66	132.16	05-09-1978	114.78	06/08/2023 16	0	0	-
168	Ken	Banda	103.00	104.00	113.29	07-07-2005	104.85	05/08/2023 18	5	3	60.00
169	Gomati	Lucknow HanumanSetu	108.50	109.50	110.85	10-09-1971	105.92	11/09/2023 20	0	0	-
170	Gomati	Jaunpur	73.07	74.07	77.74	22-09-1971	71.29	17/09/2023 23	0	0	-
171	SAI	Rae-Bareli	100.00	101.00	104.81	17-09-1982	98.61	14/09/2023 17	0	0	-
172	Ghaghra	Elgin Bridge	105.07	106.07	107.62	18-08-2014	106.70	15/08/2023 20	70	68	97.14
173	Ghaghra	Ayodhya	91.73	92.73	94.01	11-10-2009	93.22	16/08/2023 17	51	51	100.00
174	Ghaghra	Turtipar	63.01	64.01	66.00	28-08-1998	64.66	18/08/2023 11	49	49	100.00
175	Rapti	Balrampur	103.62	104.62	106.07	10-10-2022	104.57	09/08/2023 21	15	15	100.00
176	Rapti	Bansi	83.90	84.90	86.27	16/10/2022	84.39	15/08/2023 06	6	6	100.00
177	Rapti	Gorakhpur Birdghat	73.98	74.98	77.54	23-08-1998	74.08	13/08/2023 06	4	4	100.00
178	Rapti	Kakardhari	130.00	131.00	132.37	15-08-2014	129.95	08/08/2023 20	0	0	-
179	Gandak	Khadda	95.00	96.00	97.50	23-07-2002	95.80	14/08/2023 14	103	102	99.03

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Sl. No.	Name of the river	Name of FF site	Warning Level (m)	Danger level (m)	Highest Flood Level		Maximum Level -2023		No.of Forecasts issued	No.of Forecasts within limits	Percent-age of accuracy
					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
180	Ganga	Fathegarh	136.60	137.60	138.14	26-09-2010	138.00	23/08/2023 01	50	50	100.00
181	Ganga	Dabri	136.30	137.30	139.70	28-09-1983	137.83	16/09/2023 05	49	49	100.00
182	Ganga	Garhmuktheswar	198.33	199.33	199.90	23-09-2010	199.10	17/08/2023 12	50	49	98.00
183	Ganga	Kachla Bridge	161.00	162.00	162.79	23-10-2021	162.91	20/07/2023 04	87	87	100.00
184	Betwa	Shahjina	103.54	104.54	108.95	06-09-1978	97.03	07/08/2023 04	0	0	-
	Uttarakhand										
185	Mandakini	Ganganagar	803.00	804.00	801.92	26-06-2015	800.85	14/08/2023 08	0	0	-
186	Alaknanda	Srinagar	535.00	536.00	537.90	17-06-2013	537.20	14/08/2023 07	5	5	100.00
187	Ganga	Rishikesh	339.50	340.50	341.72	05-09-1995	341.30	14/08/2023 12	9	7	77.78
188	Ganga	Haridwar	293.00	294.00	296.30	19-09-2010	295.70	14/08/2023 14	15	12	80.00
	West Bengal										
189	Ganga	Farakka	21.25	22.25	25.14	07-09-1998	22.33	16/08/2023 12	61	61	100.00
190	Mayurakshi	Narayanpur	26.86	27.86	29.69	27-09-1995	23.91	06/10/2023 19	0	0	-
191	Ajoy	Gheropara	38.42	39.42	43.94	27-09-1978	36.60	05/10/2023 23	0	0	-
192	Mundeswari	Harinkhola	11.80	12.80	14.60	28-07-2017	12.56	04/10/2023 06	2	2	100.00
193	Kangsabati	Mohanpur	24.73	25.75	29.62	02-09-1978	23.26	05/10/2023 09	0	0	-
194	Raidak-I	Tufanganj	34.22	35.30	36.50	12-08-2017	35.22	22/06/2023 23	19	16	84.21
195	Torsa	Hasimara	116.30	116.90	118.50	13-07-1996	117	13/07/2023 09	4	2	50.00
196	Torsa	Ghugumari	39.80	40.41	41.46	03-08-2000	40.67	13/07/2023 22	13	12	92.31
197	Jaldhaka	NH-31	80.00	80.90	81.33	28-08-1972	81.1	13/07/2023 12	55	41	74.55
198	Jaldhaka	Mathabanga	47.70	48.20	49.85	07-09-2007	48.46	13/07/2023 18	7	4	57.14
199	Tista	Domohani	85.65	85.95	89.30	14-10-1968	86.1	13/08/2023 20	48	38	79.17
200	Tista	Mekhliganj	65.45	65.95	66.62	20-10-2021	66.28	04/10/2023 14	254	238	93.70
							Total Level Forecasts		**4567**	**4336**	**94.94**
							Total Inflow Forecast		**1772**	**1616**	**91.20**
							Total Forecast		**6339**	**5952**	**93.89**

Statewise Flood Forecasting Information In India during Flood Season 2023								
Sl. No.	Name of the river	Name of FF site	FRL/PL (m)	Maximum 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
	Andhra Pradesh							
1	Godavari	Indirasagar(Polavaram)	-	**25.02**	**30/07/2023 13**	67	67	100.00
2	Tungabhadra	Sunkesula Barrage	292	**292.00**	**10/09/2023 08**	0	0	-
3	Krishna	Srisailam Dam	269.75	**263.71**	**10/08/2023 15**	9	9	100.00
4	Krishna	Dr K L R S Pulichintala Dam	53.34	**51.1**	**05/08/2023 08**	5	5	100.00
5	Krishna	Prakasham Barrage	17.39	**17.40**	**05/05/2023 08**	11	8	72.73
6	North Pennar	Somasila Dam	100.58	**96.62**	**16/05/2023 06**	1	0	0.00
7	Vamsadhara	Gotta Barrage	34.84	**38.11**	**26/07/2023 19**	2	2	100.00
8	Nagavali	Thottapalli Reservoir Scheme	105	**105**	**12/09/2023 08**	0	0	-
9	Suwarnamukhi	Madduvalasa Reservoir	65	**64.71**	**13/10/2023 06**	0	0	-
10	Nagavali	Narayanapuram Anicut	32.77	**29.50**	**22/09/2023 08**	0	0	-
	Assam							
	Arunachal Pradesh							
11	Subansiri	Lower Subansiri Dam				0	0	-
	Bihar							
12	Sone	Indrapuri Barrage	173	NA		0	0	-
13	Gandak	Gandak Barrage	110.3	**108.99**	**14/08/2023 08**	0	0	-
14	Kosi	Kosi Barrage	74.69	**75.53**	**14/08/2023 08**	0	0	-
	Chhattisgarh							
15	Mahanadi	Ravishankar Dam	348.7	**346.86**	**08/08/2023 07**	0	0	-
16	Hasdeo	Bango Dam	359.66	**357.1**	**05/10/2023 08**	1	0	0.00
	Daman & Diu							
	Gujarat							
17	Mahi	Kadana Dam	127.71	**127.71**	**19/09/2023 16**	12	10	83.33
18	Panam	Panam Dam	127.41	**127.41**	**18/09/2023 06**	6	4	66.67
19	Sabarmati	Dharoi Dam	189.59	**189.60**	**24/10/2023 12**	6	6	100.00
20	Narmada	Sardar Sarovar Dam	138.38	**138.83**	**20/09/2023 01**	54	50	92.59
21	Tapi	Ukai Dam	105.16	**105.16**	**03/10/2023 06**	54	50	92.59
22	Damanganga	Madhuban Dam	79.86	**79.87**	**30/09/2023 10**	15	13	86.67

23	Banas	Dantiwada Dam	184.1	**185.75**	**25/08/2023 21**	10	10	100.00
24	Shetrunji	Shetrunji Dam	55.54	**55.53**	**22/07/2023 07**	5	4	80.00
	Haryana							
25	Yamuna	Tajewala Weir	334	**336.35**	**11/07/2023 12**	0	0	-
	Himachal Pradesh							
	Jammu & Kashmir							
	Jharkhand							
26	Khoranadi	Annaraj Dam	252.44	NA		0	0	-
27	Goda Nala	Bhairwa Dam	356.70	NA		0	0	-
28	Baranadi	Amanat Barage	274.39	NA		0	0	-
29	Jamunia	Batane Dam	232.85	NA		0	0	-
30	Mayurakshi	Massanjore Dam	121.31	**117.76**	**10/10/2023 19**	3	3	100.00
31	Ashra nadi	Sikatia Barrage	170.10	**161.05**	**05/10/2023 10**	0	0	-
32	Damodar	Tenughat Dam	268.83	**261.14**	**30/10/2023 06**	17	17	100.00
33	Barakar	Tilaiya Dam	372.46	**368.06**	**23/10/2023 00**	0	0	-
34	Konar	Konar Dam	427.93	**426.48**	**05/10/2023 12**	0	0	-
35	Damodar	Panchet Dam	132.59	**128.07**	**06/10/2023 23**	31	31	100.00
36	Barakar	Maithon Dam	150.88	**149.57**	**09/10/2023 15**	21	21	100.00
37	Anjanwa	Sundar Dam	110.795	NA		0	0	-
38	Subarnarekha	Getlasud Dam	590.06	589.67	06/10/2023 08	0	0	-
39	Subernarekna	Chandil Dam	189	**181.95**	**05/10/2023 08**	5	5	100.00
40	Subarnarekha	Galudih Barrage	94.5	**92.3**	**14/10/2023 08**	7	7	100.00
	Karnataka							
41	Karanja	Karanja Dam	584.15	**584.15**	**23/09/2023 06**	0	0	-
42	Krishna	Hippargi Dam	524.87	**524.87**	**22/08/2023 08**	19	18	94.74
43	Ghataprabha	Hidkal Dam	662.94	**661.77**	**10/10/2023 06**	29	27	93.10
44	Krishna	Alamati Dam	519.6	**519.60**	**16/08/2023 01**	36	32	88.89
45	Malaprabha	Malaprabha Dam	633.83	**630.08**	**20/08/2023 06**	10	9	90.00
46	Krishna	Narayanpur Dam	492.25	**492.17**	**10/08/2023 10**	21	19	90.48
47	Tunga	Upper Tunga	588.24	**588.24**	**06/08/2023 06**	51	51	100.00
48	Bhadra	Bhadra Dam	657.75	**651.97**	**12/08/2023 08**	9	8	88.89
49	Tungabhadra	Tungabhadra Dam	497.74	**496.43**	**12/08/2023 19**	32	30	93.75
50	Krishna	Singatalur Barrage	507	**506.9**	**21/11/2023 08**	30	29	96.67
51	Harangi	Harangi Dam	871.42	**871.37**	**12/08/2023 06**	13	13	100.00

52	Hemavathy	Hemavathy Dam	890.63	**888.86**	**12/08/2023 06**	16	14	87.50
53	Kabini	Kabini Dam	696.16	**696.00**	**02/08/2023 08**	36	35	97.22
54	Cauvery	Krishnarajasagar	752.49	**749.04**	**03/08/2023 08**	54	51	94.44
	Kerala							
55	Periyar	Idduki Dam	732.43	**720.96**	**22/12/2023 10**	0	0	-
56	Edamalayar	Idamalayar	169	**158.59**	**11/12/2023 10**	0	0	-
	Madhya Pradesh							
57	Chambal	Gandhisagar Dam	399.9	**399.81**	**13/10/2023 08**	6	3	50.00
58	Betwa	Rajghat Dam	371	**371**	**15/09/2023 06**	5	2	40.00
59	Sone	Bansagar Dam	341.65	**341.48**	**26/09/2023 08**	15	7	46.67
60	Sindh	Madikhera(Atal Sagar)	346.25	339.65	29/08/2023 08	0	0	-
61	Wainganga	Upper Wainganga Project/SS	519.38	**519.3**	**15/09/2023 17**	3	1	33.33
62	Pench	Pench Reservoir/Chaurai/Ma	625.75	**625.75**	**07/10/2023 14**	0	0	-
63	Bawanthri	Bawanthadi Reservoir	344.4	**344.2**	**23/09/2023 08**	0	0	-
64	Narmada	Barna Dam	348.55	**348.30**	**22/09/2023 08**	2	2	100.00
65	Narmada	Bargi Dam	422.76	**423.00**	**20/09/2023 08**	9	9	100.00
66	Narmada	Tawa Dam	355.39	**355.55**	**16/09/2023 00**	5	5	100.00
67	Narmada	Indira Sagar Dam	262.13	**262.13**	**16/09/2023 08**	21	21	100.00
68	Narmada	Omkareshwar Dam	196.6	**196.5**	**16/09/2023 08**	0	0	-
	Maharashtra							
69	Godavari	N M D Weir	533.50	**533.51**	**22/12/2023 08**	0	0	-
70	Mula	Mula Dam	552.3	**551.12**	**09/10/2023 06**	0	0	-
71	Godavari	Jaikwadi Dam	463.91	**460.7**	**01/05/2023 08**	0	0	-
72	Sindhpana	Manjlegaon	431.80	**428.9**	**05/05/2023 06**	0	0	-
73	Puma	Yeldari Dam	461.77	**458.53**	**30/09/2023 08**	0	0	-
74	Pench	Totladoh Project	490	**490**	**16/09/2023 03**	3	1	33.33
75	Wainganga	Goshikhurd Dam	245.5	**244.5**	**07/10/2023 08**	5	5	100.00
76	Wardha	Upper Wardha Project	342.5	**342.5**	**16/09/2023 03**	9	3	33.33
77	Penganga	Issapur/Upper Penganga Pro	441	**439.35**	**05/10/2023 08**	0	0	-
78	Nira	Veer Dam	579.85	**578.94**	**08/08/2023 08**	0	0	-
79	Bhima	Ujjani Dam	496.83	**494.9**	**12/10/2023 08**	0	0	-
80	Koyna	Koyna Dam	659.43	**656.84**	**04/10/2023 08**	6	3	50.00
81	Warana	Warana Dam	626.9	**626.9**	**19/09/2023 08**	0	0	-
82	Tapi	Hatnur Dam	212.02	**214.09**	**27/10/2023 04**	61	55	90.16
	NCT Delhi							

	Odisha							
83	Indravathi	Upper Indravathi Project	642	**638.11**	**05/10/2023 11**	0	0	-
84	Kolab	Kolab Project	858	**856.53**	**06/11/2023 03**	0	0	-
85	Machhkund	Machhkund Project	838.2	**833.51**	**05/11/2023 03**	0	0	-
86	Balimela	Balimela Project	462.07	**453.969**	**12/10/2023 07**	0	0	-
87	Salandi	Salandi Dam	82.3	**81.08**	**05/08/2023 08**	0	0	-
88	Brahmani	Rengali Dam	123.5	**123.92**	**10/10/2023 08**	11	9	81.82
89	Mahanadi	Hirakud Dam	192.02	**192.02**	**29/09/2023 13**	71	67	94.37
	Rajasthan							
90	Chambal	Rana Pratap Sagar	352.81	**352.77**	**03/10/2023 22**	1	1	100.00
91	Chambal	Kota Barrage	260.3	**260.45**	**30/10/2023 08**	1	0	0.00
92	Banas	Bisalpur Dam	315.50	**314.01**	**05/08/2023 08**	0	0	-
93	Kalisindh	Kalisindh Dam	316	**315.96**	**01/10/2023 17**	10	7	70.00
94	Parwan	Parwan Dam	308.8	NA		0	0	-
95	Gambhiri	Gambhiri Dam	431.90	**429.78**	**08/10/2023 08**	0	0	-
96	Gambhiri	Panchana Dam	258.62	**258.35**	**26/08/2023 08**	0	0	-
97	Mej	Gudha Dam	305.87	**304.59**	**23/09/2023 08**	0	0	-
98	Parwati	Parwati Dam	308.15	NA		0	0	-
99	Mahi	Mahi Bajajsagar Dam	281.5	**281.4**	**02/10/2023 08**	10	9	90.00
100	Som Kamla	Som Kamla Amba Dam	213.5	**213.5**	**11/09/2023 08**	4	3	75.00
	Sikkim							
101	Teesta	Teesta-III HEP Dam Chungta	1585	**1584.1**	**19/05/2023 16**	0	0	-
102	Teesta	Teesta V HEP Dam Singtam	579	**578.8**	**02/10/2023 08**	0	0	-
103	Rongpo	Rongpo Dam	913.8	**912.34**	**16/06/2023 06**	0	0	-
104	Rongli	Rongli Dam	913.8	**910.48**	**09/08/2023 04**	0	0	-
105	Rangit	Rangit-III HEP Dam	640	**639.22**	**25/05/2023 07**	0	0	-
	Tamilnadu							
106	Cauvery	Mettur Dam	240.79	**287.37**	**08/07/2023 08**	25	14	56.00
107	Bhavani	Bhavanisagar Dam	280.42	**274.07**	**17/12/2023 08**	19	13	68.42
108	Kodaganar	Kodaganar Dam	200.25	**252.12**	**08/07/2023 06**	0	0	-
109	Cauvery	Grand Anicut	59.21	**74.21**	**08/07/2023 06**	113	109	96.46
110	Cauvery	Upper Anicut	74.40	**95.20**	**08/07/2023 06**	120	115	95.83
111	Kosasthaliyar	Poondi Satyamurthy reservoi	42.67	**42.67**	**17/12/2023 06**	5	1	20.00
112	Adyar	Chembarampakkam	26.03	**25.83**	**06/12/2023 06**	4	1	25.00
113	South Pennar	Sathnur Dam	222.2	**221.88**	**22/12/2023 06**	0	0	-

114	Gomukhinadi	Gomukhi Dam	183.18	182.88	17/10/2023 06	0	0	-
115	Periyar Odai	Wellington Dam	72.54	70.34	05/12/2023 06	0	0	-
116	Vaigai	Vaigai Dam	279.20	279.05	11/11/2023 06	34	27	79.41
	Telangana							
117	Manjira	Singur Dam	523.6	523.58	05/10/2023 06	0	0	-
118	Manjira	Nizamsagar Dam	428.24	428.24	08/10/2023 06	1	1	100.00
119	Godavari	Sriram Sagar	332.54	332.54	24/09/2023 09	11	10	90.91
120	Kaddamvagu	Kaddam Dam	213.21	214.06	27/07/2023 08	3	3	100.00
121	Godavari	Sripada Yellampally Dam	148.00	148	03/09/2023 13	20	18	90.00
122	Godavari	Laxmi Barrage	100.00	99.7	29/07/2023 00	58	57	98.28
123	Godavari	PVNR Kanthapally Project	83	85.75	29/07/2023 06	66	66	100.00
124	Krishna	Priyadarshini	318.51	318.46	03/10/2023 15	15	13	86.67
125	Musi	Musi Project	196.60	196.57	01/11/2023 08	5	5	100.00
	Tripura							
	Uttar Pradesh							
126	Ganga	Choudhury Charan Singh MC	220.45	220.3	14/08/2023 15	85	82	96.47
127	Ganga	Narora Barrage	179.07	179.56	17/08/2023 22	49	47	95.92
128	Betwa	Matatilia Dam	308.46	308.45	17/09/2023 08	5	1	20.00
129	Ghaghra	Katerniaghat Dam	136.8	138.00	23/06/2023 06	62	62	100.00
130	Rihand	Rihand Dam	265.18	259.63	09/10/2023 08	13	3	23.08
	Uttarakhand							
131	Ramganga	Kalagarh Dam	365.3	363.03	10/11/2023 08	0	0	-
132	Sharda	Banbasa	222.96	222.90	14/08/2023 10	13	13	100.00
133	Tons	Ichari Dam	644.75	644.85	17/10/2023 19	0	0	-
134	Bhagirathi	Tehri Dam	830	829.31	03/10/2023 17	43	37	86.05
	West Bengal							
135	Mayurakshi	Tilpara Barrage	62.79	62.67	23/09/2023 11	2	2	100.00
136	Damodar	Durgapur Barrage	64.47	64.465	01/06/2023 00	30	30	100.00
137	Kangsabati	Hinglow Dam	97.84	96.93	16/08/2023 06	0	0	-
138	Kangsabati	Kangsabati Dam	134.11	131.92	09/10/2023 00	15	15	100.00
			Total Inflow Forecast			**1772**	**1616**	**91.20**
			Total Level Forecast			**4567**	**4336**	**94.94**
			Total Forecast			**6339**	**5952**	**93.89**

Extreme Flood

S. No.	State	District	River	Station	Period	
					From	To
1	NCT Delhi	North Delhi	Yamuna	Delhi Railway Bridge	12/07/2023 13	15/07/2023 09
2	Uttar Pradesh	Budaun	Ganga	Kachlabridge	14/07/2023 22 16/07/2023 11 29/07/2023 18 18/08/2023 16	15/07/2023 18 22/07/2023 04 01/08/2023 07 20/08/2023 21
3	Assam	Sivasagar	Dikhow	Sivasagar	17/07/2023 05 11/08/2023 09	17/07/2023 13 12/08/2023 04
4	Telangana	KumuramBheem	Wardha	Sirpur Town	24/07/2023 13 29/07/2023 05	24/07/2023 18 29/07/2023 21
5	Sikkim	South Sikkim	Teesta	Melli	04/10/2023 04	04/10/2023 04

Severe Flood

S. No.	State	District	River	Station
1	Assam	Dhubri	Brahmaputra	Dhubri
2		Goalpara	Brahmaputra	Goalpara
3		Kamrup	Brahmaputra	Guwahati DC Court
4		Nalbari	Pagladiya	Pagladiya NT Rd Crossing
5		Kokrajhar	Gaurang	Kokrajhar
6		Barpeta	Beki	Beki Rd Bridge
7		Sonitpur	Brahmaputra	Tezpur
8		Kamrup	Puthimari	Puthimari N H Crossing
9		Dibrugarh	Brahmaputra	Dibrugarh
10		Jorhat	Brahmaputra	Neamatighat
11		Dibrugarh	Buridehing	Khowang
12		Lakhimpur	Subansiri	Badatighat
13		Sonitpur	Jiabharali	Jia-Bharali NT Road
14		Sivasagar	Desang	Nanglamoraghat
15		Nagaon	Kopili	Kampur
16		Hailakandi	Katakhal	Matizuri
17		Barpeta	Manas	Manas NH Xing
18		Golaghat	Dhansiri(s)	Numaligarh
19		Dhubri	Sankosh	Golokganj
20		Sitamarhi	Lakhanadi	Runisaidpur
21		Muzzafarpur	Bagmati	Benibad

22	Bihar	Sitamarhi	Bagmati	Dheng Bridge
23		Kishanganj	Mahananda	Taibpur
24		Madhubani	Kamalabalan	Jainagar
25		Madhubani	Kamlabalan	Jhanjharpur
26		Sapual	Kosi	Basua
27		Muzzafarpur	Gandak	Rewaghat
28		Siwan	Ghaghra	Darauli
29		Gopalganj	Gandak	Dumariaghat
30		Bhagalpur	Ganga	Kahalgaon
31		Patna	Ganga	Hatidah
32		Katihar	Kosi	Kursela
33		Purnea	Mahananda	Dhengraghat
34		Araria	Parwan	Araria
35		Katihar	Mahananda	Jhawa
36		Khagaria	Burhi Gandak	Khagaria
37		Khagaria	Kosi	Baltara
38		Patna	Punpun	Sripalpur
39	UttarPradesh	Barabanki	Ghaghra	Elginbridge
40		Farukkabad	Ganga	Fathegarh
41		Mathura	Yamuna	Mathura
42		Muzzafarnagar	Yamuna	Mawi
43		Ayodhya	Ghaghra	Ayodhya
44		Ballia	Ghaghra	Turtipar
45		Ballia	Ganga	Ballia
46		Kanpur	Ganga	Ankinghat
47		Moradabad	Ramganga	Moradabad
48		Shahjahanpur	Ganga	Dabri
49		Banda	Ken	Banda
50	Andhra Pradesh	Alluri Sitharama Raju	Godavari	Kunavaram
51		Alluri Sitharama Raju	Sabri	Chinturu
52	Telangana	Kothagudem	Godavari	Dummagudem
53		Kothagudem	Godavari	Bhadrachalam
54		Bhopalpalli	Godavari	Kaleswaram
55	West Bengal	Jalpaiguri	Teesta	Domohani
56		Jalpaiguri	Jaldhaka	NH 31
57		Coochbehar	Jaldhaka	Mathabhanga
58		Coochbehar	Teesta	Mekhliganj
59		Alipurduar	Torsa	Hasimara
60		Coochbehar	Torsa	Ghugumari
61		Murshidabad	Ganga	Farakka
62	Jharkhand	Sahibganj	Ganga	Sahibganj
63		Gajapati	Vamsadhara	Kashinagar

64	Odisha	Bhadrak	Baitarani	Akhuapada
65		Keonjar	Baitarani	Anandpur
66		Balasore	Jalaka	Mathani Road Bridge
67		Cuttack	Mahanadi	Naraj
68	Madhya Pradesh	Mandla	Narmada	Mandla
69	Uttarakhand	Haridwar	Ganga	Haridwar
70		Dehradun	Ganga	Rishikesh
71		Pauri Garhwal	Alaknanda	Srinagar
72	Maharashtra	Bhandara	Wainganga	Bhandara
73		Bhandara	Wainganga	Pauni
74	Rajasthan	Kota	Chambal	Kota city
75	Gujarat	Narmada	Narmada	Garudeshwar
76		Bharuch	Narmada	Bharuch

Above Normal

S. No	State	District	River	Station
1	Arunachal Pradesh	East Siang	Siang	Passighat
2	Assam	Lakhimpur	Ranganadi	Ranganadi NT Rd Crossing
3		Golaghat	Dhansiri (S)	Golaghat
4		Karimganj	Kushiyara	Karimganj
5		Karimganj	Barak	Badarpurghat
6		Morigaon	Kopili	Dharamtul
7	Bihar	Bhagalpur	Ganga	Bhagalpur
8		Siwan	Ghagra	Gangpur Siswan
9		Patna	Ganga	Dighaghat
10		Patna	Sone	Maner
11		Patna	Ganga	Gandhighat
12		Darbhanga	Adhwara gr.	Kamtaul
13		Adhwara	Sitamarhi	Sonebarsa
14		Darbhanga	Bagmati	Hayaghat
15		Khagaria	Burhi Gandak	Rosera
16		Darbhanga	Adhwara Group	Ekmighat
17	Jammu & Kashmir	Bandipora	Jhelum	Safapora
18		Anantnag	Jhelum	Sangam
19		Srinagar	Jhelum	Rammunshibagh
20	Rajasthan	Sirohi	Banas	Abu Road
21		Ghaziabad	Ganga	Garhmukhteshwar
22		Kushinagar	Gandak	Khadda
23		Siddharthnagar	Rapti	Bansi

24	Uttar Pradesh	Gorakhpur	Rapti	Birdghat
25		Balrampur	Rapti	Balrampur
26		Kanpur	Ganga	Kanpur
27		Kannauj	Ganga	Kannauj
28		Rae-Bareilly	Ganga	Dalmau
29		Agra	Yamuna	Agra
30		Etawah	Yamuna	Etawah
31	West Bengal	Coochbehar	Raidak-I	Tufanganj
32	Himachal Pradesh	Sirmaur	Yamuna	Paonta Sahib
33	Haryana	Karnal	Yamuna	Karnal Bridge
34	Odisha	Rayagada	Vamsadhara	Gunupur
35		Balasore	Burhabalang	Govindpur (NH5 Rd Bridge)
36		Jajpur	Brahmani	Jenapur
37	Maharashtra	Chandrapur	Wardha	Balharsha
38	Andhra Pradesh	East Godavari	Godavari	Dowlaiswaram
39	Telangana	Mulugu	Godavari	Eturunagaram
40	Kerala	Pathanamthitta	Pamba	Malakkara
41		Wayanad	Kabini	Muthankera
42	Tripura	North Tripura	Manu	Kailashahar
43	Madhya Pradesh	Narmadapuram	Narmada	Narmadapuram
44	Gujarat	Kheda	Mahi	Wanakbori
45	Tamilnadu	Madurai	Vaigai	Madurai

Annex VI

Performance of Flood Forecasting Stations (Divisionwise) in India during Flood Season 2023

Sl. No	Division	Level Forecasts only					Inflow Forecasts only					Total Forecast Stations				
		Stns.	F/c issued for	Level Forecast	Level Forecast Within Limit	Accuracy	Stns.	F/c issued for	Inflow Forecast	Inflow Forecast Within Limit	Accuracy	Stns.	F/c issued for	Total	Within Limit	Accuracy
1	Himalayan Ganga Divn, Dehradun	4	3	29	24	82.76	2	2	128	119	92.97	6	5	157	143	91.08
2	Middle Ganga Division 1, Lucknow	7	6	195	193	98.97	2	2	75	75	100.00	9	8	270	268	99.26
3	Middle Ganga Division 2, Lucknow	12	9	463	462	99.78	2	1	49	47	95.92	14	10	512	509	99.41
4	Middle Ganga Division 3, Varanasi	7	1	7	7	100.00	2	2	28	10	35.71	9	3	35	17	48.57
5	Lower Ganga Division I, Patna	25	20	1092	1035	94.78	2	0	0	0	-	27	20	1092	1035	94.78
6	Lower Ganga Division 2, Patna	18	12	293	287	97.95	4	0	0	0	-	22	12	293	287	97.95
7	Upper Yamuna Divn, Delhi	6	5	122	88	72.13	2	0	0	0	-	8	5	122	88	72.13
8	Chambal Division, Jaipur	2	1	5	2	40.00	10	4	18	11	61.11	12	5	23	13	56.52
9	Lower Yamuna Divn, Agra	11	3	17	15	88.24	3	2	10	3	30.00	14	5	27	18	66.67
10	Damodar Divn, Asansol	4	1	2	2	100.00	13	7	119	119	100.00	17	8	121	121	100.00
11	Upper Brahmaputra Divn, Dibrugarh	19	14	980	980	100.00	1	0	0	0	-	20	14	980	980	100.00
12	Middle Brahmaputra Divn, Guwahati	9	8	539	531	98.52	0	0	0	0	-	9	8	539	531	98.52
13	Meghna Division Silchar	2	1	2	1	50.00	0	0	0	0	-	2	1	2	1	50.00
14	Meghna Investigation Divn , Shillong	4	3	32	30	93.75	0	0	0	0	-	4	3	32	30	93.75
15	Lower Brahmaputra Divn, Jalpaiguri	8	8	520	468	90.00	0	0	0	0	-	8	8	520	468	90.00
16	Eastern Rivers Divn, Bhubaneswar	11	8	35	25	71.43	9	4	25	23	92.00	20	12	60	48	80.00
17	Mahanadi Divn, Burla	3	1	16	15	93.75	3	2	72	67	93.06	6	3	88	82	93.18
18	Lower Godavari Divn, Hyderabad	10	7	82	73	89.02	5	1	67	67	100.00	15	8	149	140	93.96
19	Upper Godavari Division	4	0	0	0	-	13	6	159	155	97.48	17	6	159	155	97.48
20	Lower Krishna Divn, Hyderabad	4	0	0	0	-	11	10	183	168	91.80	15	10	183	168	91.80
21	Mahi Divn, Gandhinagar	3	2	8	3	37.50	7	7	53	46	86.79	10	9	61	49	80.33
22	Tapi Divn,Surat	5	3	22	17	77.27	4	4	184	168	91.30	9	7	206	185	89.81
23	Narmada Divn, Bhopal	2	2	19	19	100.00	5	4	37	37	100.00	7	6	56	56	100.00
24	Chenab Divn. Jammu	3	3	46	37	80.43	0	0	0	0	-	3	3	46	37	80.43
25	Southern River Divn. Coimbtr.	4	1	4	2	50.00	6	5	311	278	89.39	10	6	315	280	88.89
26	Hydrology Divn. Chennai	1	0	0	0	-	6	3	10	2	20.00	7	3	10	2	20.00
27	Cauvery Divn. Bangalore	1	0	0	0	-	8	8	218	208	95.41	9	8	218	208	95.41
28	UKD Pune	1	0	0	0	-	4	1	6	3	50.00	5	1	6	3	50.00
29	WGD Nagpur	4	4	33	19	57.58	7	4	20	10	50.00	11	8	53	29	54.72
30	SWRD, Kochi	3	1	1	1	100.00	2	0	0	0	-	5	1	1	1	100.00
31	SID Gangtak	3	1	3	0	0.00	5	0	0	0	-	8	1	3	0	0.00
Total		**200**	**128**	**4567**	**4336**	**94.94**	**138**	**79**	**1772**	**1616**	**91.20**	**338**	**207**	**6339**	**5952**	**93.89**

Performance of Flood Forecasting Stations (Major Basinwise) in India during Flood Season 2023																
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 and its tributaries	3	3	0	0	0	0	46	37	80.43	0	0	-	**46**	**37**	80.43
2	Ganga & tributaries	138	96	42	57	35	22	2225	2115	95.06	427	384	89.93	**2652**	**2499**	94.23
3	Brahmaputra	45	39	6	14	8	6	2042	1979	96.91	0	0	-	**2042**	**1979**	96.91
4	Barak and others	6	6	0	2	2	0	34	31	91.18	0	0	-	**34**	**31**	91.18
5	Subarnarekha including Burhabalang	7	4	3	2	1	1	12	11	91.67	12	12	100.00	**24**	**23**	95.83
6	Brahmani and Baitarni	5	3	2	1	0	1	15	10	66.67	11	9	81.82	**26**	**19**	73.08
7	East flowing rivers between Mahanadi and Pennar	8	4	4	5	2	3	8	4	50.00	2	2	100.00	**10**	**6**	60.00
8	Narmada	10	4	6	1	0	1	39	36	92.31	91	87	95.60	**130**	**123**	94.62
9	Tapi	3	1	2	1	1	0	0	0	-	115	105	91.30	**115**	**105**	91.30
10	Mahi	5	1	4	0	0	0	6	2	-	32	26	81.25	**38**	**28**	73.68
11	Sabarmati	2	1	1	1	1	0	0	0	-	6	6	100.00	**6**	**6**	100.00
12	Mahanadi	6	3	3	3	2	1	16	15	93.75	72	67	93.06	**88**	**82**	93.18
13	Godavari	43	18	25	21	7	14	115	92	80.00	246	232	94.31	**361**	**324**	89.75
14	Krishna	24	5	19	9	5	4	0	0	-	288	266	92.36	**288**	**266**	92.36
15	West flowing rivers of Kutch and saurashtra including Luni	3	1	2	0	0	0	2	1	50.00	15	14	93.33	**17**	**15**	88.24
16	West Flowing rivers from Tapi to Tadri	3	2	1	1	1	0	2	0	0.00	15	13	86.67	**17**	**13**	76.47
17	Cauvery and tributaries	13	4	9	5	4	1	0	0	-	396	364	91.92	**396**	**364**	91.92
18	Pennr	2	1	1	1	1	0	0	0	-	1	0	0.00	**1**	**0**	0.00
19	East flowing rivers between Pennar and Kanyakumari	7	1	6	3	0	3	4	2	50.00	43	29	67.44	**47**	**31**	65.96
20	West Flowing river Tadri to Kanyakumari	5	3	2	4	2	2	1	1	100.00	0	0	-	**1**	**1**	100.00
Total		**338**	**200**	**138**	**131**	**72**	**59**	**4567**	**4336**	**94.94**	**1772**	**1616**	**91.20**	**6339**	**5952**	**93.89**

Performance of Flood Forecasting Stations (Statewise) in India during Flood Season 2023

Annex VIII

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	20	10	10	11	7	4	45	41	91.11	95	91	95.79	140	132	94.29
2	Arunachal Pradesh	4	3	1	3	2	1	7	7	100.00	0	0	-	7	7	100.00
3	Assam	30	30	0	5	5	0	1664	1651	99.22	0	0	-	1664	1651	99.22
4	Bihar	43	40	3	14	11	3	1180	1119	94.83	0	0	-	1180	1119	94.83
5	Chattisgarh	3	1	2	2	1	1	0	0	-	1	0	0.00	1	0	0.00
6	Gujarat	14	6	8	2	2	0	28	19	67.86	162	147	90.74	190	166	87.37
7	Haryana	2	1	1	1	0	1	2	2	100.00	0	0	-	2	2	100.00
8	Himachal Pradesh	1	1	0	0	0	0	2	0	0.00	0	0	-	2	0	0.00
9	Jammu & Kashmir	3	3	0	0	0	0	46	37	80.43	0	0	-	46	37	80.43
10	Jharkhand	17	2	15	10	1	9	41	40	97.56	84	84	100.00	125	124	99.20
11	Karnataka	15	1	14	2	1	1	0	0	-	356	336	94.38	356	336	94.38
12	Kerala	6	4	2	5	3	2	1	1	100.00	0	0	-	1	1	100.00
13	Madhya Pradesh	14	2	12	4	0	4	19	19	100.00	66	50	75.76	85	69	81.18
14	Maharashtra	22	8	14	14	5	9	21	9	42.86	84	67	79.76	105	76	72.38
15	Odisha	19	12	7	8	3	5	51	40	78.43	82	76	92.68	133	116	87.22
16	Rajasthan	15	4	11	8	2	6	7	3	42.86	26	20	76.92	33	23	69.70
17	Sikkim	8	3	5	7	2	5	3	0	0.00	0	0	-	3	0	-
18	Tamilnadu	15	4	11	7	3	4	4	2	50.00	320	280	87.50	324	282	87.04
19	Telangana	14	5	9	1	0	1	49	42	85.71	179	173	96.65	228	215	94.30
20	Tripura	2	2	0	1	1	0	2	1	50.00	0	0	-	2	1	50.00
21	Uttar Pradesh	44	39	5	17	17	0	846	826	97.64	214	195	91.12	1060	1021	96.32
22	Uttarakhand	8	4	4	3	1	2	29	24	82.76	56	50	89.29	85	74	87.06
23	West Bengal	16	12	4	4	3	1	463	414	89.42	47	47	100.00	510	461	90.39
24	Daman n Diu	1	1	0	1	1	0	0	0	-	0	0	-	0	0	-
25	NCT, DELHI	2	2	0	1	1	0	57	39	68.42	0	0	-	57	39	68.42
Total		**338**	**200**	**138**	**131**	**72**	**59**	**4567**	**4336**	**94.94**	**1772**	**1616**	**91.20**	**6339**	**5952**	**93.89**

Annex-IX

FLOOD FORECASTING PERFORMANCE FROM 2000 TO 2023

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
2018	4969	4871	98.03	1882	1624	86.29	6851	6495	94.80
2019	6004	5773	96.15	3750	2678	71.41	9754	8451	86.64
2020	8243	8133	98.67	3478	3065	88.13	11721	11198	95.54
2021	6670	6456	96.79	3947	3520	89.18	10617	9976	93.96
2022	6779	6476	95.53	4779	4369	91.42	11558	10845	93.83
2023	4567	4336	94.94	1772	1616	91.20	6339	5952	93.89
Average	5204	5064	97.31	1574	1415	89.90	6778	6479	95.59

Annex-X

Extreme flood events in India under CWC FF & W Network - 2023 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	Date and Time of Occurrence	From	To
1	Yamuna	Delhi Railway Bridge	NCT Delhi	**205.33**	207.49	06-09-1978	208.66	13/08/2023 1800	12/07/2023 1300	15/07/2023 0900
2	Ganga	Kachlabridge	Uttar Pradesh	162.00	162.79	23-10-2021	162.91	20/07/2023 0400	14/07/2023 2200 16/07/2023 1100 29/07/2023 1800 18/08/2023 1600	15/07/2023 1800 22/07/2023 0400 01/08/2023 0700 20/08/2023 2100
3	Dikhow	Sivasagar	Assam	92.40	94.24	22-06-2020	94.34	11/08/2023 1800	17/07/2023 0500 11/08/2023 0900	17/07/2023 1300 12/08/2023 0400
4	Wardha	Sirpur Town	Telangana	160.95	162.57	15/07/2022	162.74	29/07/2023 1100	24/07/2023 1300 29/07/2023 0500	24/07/2023 1800 29/07/2023 2100
5	Teesta	Melli	Sikkim	224.00	225.25		228	04/10/2023 0400	04/10/2023 0400	04/10/2023 0400

Annex XI

Above Normal and Severe flood events on main Ganga and its tributaries- 2023 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2023		Flood period above warning level			Flood period above danger level		
						Level in metres	Date	From	To	No.of days	From	To	No.of days
1	Alaknanda	Srinagar	Uttarakhand	535.00	536.00	537.20	14/08/2023 07	16/07/2023 08	16/07/2023 11	1	14/08/2023 06	14/08/2023 12	1
								24/07/2023 09	24/07/2023 14	1	-	-	-
								14/08/2023 04	14/08/2023 16	1	-	-	-
								15/08/2023 00	15/08/2023 00	1	-	-	-
								23/08/2023 16	23/08/2023 17	1	-	-	-
2	Ganga	Rishikesh	Uttarakhand	339.50	340.50	341.30	14/08/2023 12	16/07/2023 17	16/07/2023 20	1	14/08/2023 10	14/08/2023 19	1
								24/07/2023 17	24/07/2023 22	1	-	-	-
								06/08/2023 14	06/08/2023 20	1	-	-	-
								14/08/2023 01	16/08/2023 09	3	-	-	-
								24/08/2023 01	24/08/2023 03	1	-	-	-
3	Ganga	Haridwar	Uttarakhand	293.00	294.00	295.70	14/08/2023 14	12/07/2023 00	12/07/2023 01	1	14/08/2023 02	14/08/2023 21	1
								16/07/2023 18	16/07/2023 21	1	-	-	-
								18/07/2023 13	18/07/2023 19	1	-	-	-
								24/07/2023 18	24/07/2023 23	1	-	-	-
								26/07/2023 22	26/07/2023 23	1	-	-	-
								03/08/2023 14	03/08/2023 14	1	-	-	-
								06/08/2023 14	06/08/2023 20	1	-	-	-
								08/08/2023 11	08/08/2023 12	1	-	-	-
								10/08/2023 01	10/08/2023 11	1	-	-	-
								11/08/2023 05	11/08/2023 06	1	-	-	-
								14/08/2023 00	15/08/2023 17	2	-	-	-
								23/08/2023 23	24/08/2023 04	2	-	-	-
4	Mandakini	Ganganagar	Uttarakhand	803.00	804.00	800.85	14/08/2023 08	-	-	-	-	-	-
5	Ganga	Kannauj	Uttar Pradesh	124.97	125.97	125.96	23/08/2023 10	19/07/2023 08	06/08/2023 21	19	-	-	-
								07/08/2023 13	01/09/2023 18	26	-	-	-
6	Ganga	Ankinghat	Uttar Pradesh	123.00	124.00	124.19	23/08/2023 09	17/07/2023 19	02/09/2023 05	48	18/08/2023 03	27/08/2023 05	10
								18/09/2023 11	20/09/2023 07	3	-	-	-
7	Ganga	Kanpur	Uttar Pradesh	113.00	114.00	113.21	25/08/2023 02	20/08/2023 15	31/08/2023 00	12	-	-	-
8	Ganga	Dalmau	Uttar Pradesh	98.36	99.36	99.07	26/08/2023 16	15/08/2023 04	03/09/2023 09	20	-	-	-
9	Ganga	Phphamau	Uttar Pradesh	83.73	84.73	81.28	08/08/2023 00	-	-	-	-	-	-
10	Ganga	Allahabad Chhatnag	Uttar Pradesh	83.73	84.73	80.27	07/08/2023 15	-	-	-	-	-	-
11	Ganga	Mirzapur	Uttar Pradesh	76.72	77.72	73.66	08/08/2023 05	-	-	-	-	-	-
12	Ganga	Varanasi	Uttar Pradesh	70.26	71.26	68.3	08/08/2023 06	-	-	-	-	-	-
13	Ganga	Ghazipur	Uttar Pradesh	62.10	63.10	61.70	09/08/2023 05	-	-	-	-	-	-
14	Ganga	Buxar	Bihar	59.32	60.32	58.72	08/08/2023 22	-	-	-	-	-	-
15	Ganga	Ballia	Uttar Pradesh	56.62	57.62	57.94	09/08/2023 08	07/08/2023 12	13/08/2023 17	7	08/08/2023 16	10/08/2023 19	3
16	Ganga	Patna Dighaghat	Bihar	49.45	50.45	49.67	10/08/2023 23	10/08/2023 00	13/08/2023 01	4	-	-	-
17	Ganga	Patna Gandhighat	Bihar	47.60	48.60	48.58	10/08/2023 21	27/07/2023 00	27/07/2023 23	1	-	-	-
								07/08/2023 13	21/08/2023 04	15	-	-	-
								26/08/2023 17	02/09/2023 01	8	-	-	-
18	Ganga	Hathidah	Bihar	40.76	41.76	41.81	11/08/2023 17	27/07/2023 00	27/07/2023 23	1	10/08/2023 07	13/08/2023 04	4
								08/08/2023 07	08/08/2023 23	1	-	-	-
								09/08/2023 07	22/08/2023 19	14	-	-	-
								26/08/2023 22	03/09/2023 05	9	-	-	-
19	Ganga	Munger	Bihar	38.33	39.33	38.12	12/08/2023 12	-	-	-	-	-	-
20	Ganga	Bhagalpur	Bihar	32.68	33.68	33.19	13/08/2023 03	10/08/2023 19	20/08/2023 12	11	-	-	-
								30/08/2023 22	02/09/2023 11	4	-	-	-
21	Ganga	Colgong/ Kahalgaon	Bihar	30.09	31.09	31.57	13/08/2023 14	10/08/2023 00	08/09/2023 19	30	11/08/2023 03	21/08/2023 16	11
								25/09/2023 03	30/09/2023 22	6	30/08/2023 05	02/09/2023 23	4
								07/10/2023 20	11/10/2023 23	5	-	-	-
22	Ganga	Sahibganj	Jharkhand	26.25	27.25	27.76	13/08/2023 05	10/08/2023 00	08/09/2023 17	30	11/08/2023 17	20/08/2023 23	10
								25/09/2023 02	30/09/2023 18	6	30/08/2023 15	03/09/2023 06	5
								08/10/2023 20	12/10/2023 04	5	-	-	-
23	Ganga	Farakka	West Bengal	21.25	22.25	22.33	16/08/2023 12	27/07/2023 00	27/07/2023 06	1	28/07/2023 09	28/07/2023 09	1
								28/07/2023 09	28/07/2023 09	1	13/08/2023 11	18/08/2023 09	6
								10/08/2023 14	07/09/2023 17	29	-	-	-
								26/09/2023 09	29/09/2023 10	4	-	-	-

Above Normal and Severe flood events on main Ganga and its tributaries- 2023 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2023		Flood period above warning level			Flood period above danger level		
						Level in metres	Date	From	To	No.of days	From	To	No.of days
24	Ramganga	Moradabad	Uttar Pradesh	189.60	190.60	190.77	13/09/2023 13	09/07/2023 03	19/07/2023 00	11	25/08/2023 03	26/08/2023 01	2
								21/07/2023 02	22/07/2023 11	2	12/09/2023 22	14/09/2023 01	3
								08/08/2023 08	18/08/2023 23	11	-	-	-
								23/08/2023 13	28/08/2023 17	6	-	-	-
								11/09/2023 00	15/09/2023 14	5	-	-	-
25	Ramganga	Bareilly	Uttar Pradesh	162.07	163.07	161.29	14/09/2023 07	-	-	-	-	-	-
26	Yamuna	Mawi	Uttar Pradesh	231.00	231.50	232.3	12/07/2023 16	10/07/2023 17	15/07/2023 01	6	11/07/2023 00	14/07/2023 10	4
								23/07/2023 02	23/07/2023 17	1	-	-	-
27	Yamuna	Delhi Rly Bridge	NCT Delhi	204.50	205.33	208.66	13/07/2023 18	10/07/2023 13	30/07/2023 23	21	10/07/2023 17	18/07/2023 19	9
								01/08/2023 00	01/08/2023 21	1	19/07/2023 07	20/07/2023 07	2
								05/08/2023 16	06/08/2023 10	2	21/07/2023 18	22/07/2023 08	2
								15/08/2023 15	17/08/2023 06	3	23/07/2023 04	25/07/2023 18	3
								-	-	-	26/07/2023 15	29/07/2023 18	4
								-	-	-	30/07/2023 20	30/07/2023 21	1
								-	-	-	15/08/2023 22	16/08/2023 06	2
28	Yamuna	Mathura	Uttar Pradesh	165.20	166.00	167.35	17/07/2023 23	13/07/2023 21	04/08/2023 03	23	15/07/2023 14	22/07/2023 23	8
								07/08/2023 17	07/08/2023 21	1	25/07/2023 09	01/08/2023 16	8
								16/08/2023 22	18/08/2023 23	3	-	-	-
29	Yamuna	Agra	Uttar Pradesh	151.40	152.40	152.00	18/07/2023 17	17/07/2023 11	20/07/2023 11	4	-	-	-
30	Yamuna	Etawa	Uttar Pradesh	120.92	121.92	121.68	20/07/2023 20	18/07/2023 19	22/07/2023 11	5	-	-	-
31	Yamuna	Auraiya	Uttar Pradesh	112.00	113.00	106.07	22/09/2023 07	-	-	-	-	-	-
32	Yamuna	Kalpi	Uttar Pradesh	107.00	108.00	101.15	22/09/2023 11	-	-	-	-	-	-
33	Yamuna	Hamirpur	Uttar Pradesh	102.63	103.63	96.66	07/08/2023 05	-	-	-	-	-	-
34	Yamuna	Chilaghat	Uttar Pradesh	99.00	100.00	94.88	07/08/2023 05	-	-	-	-	-	-
35	Yamuna	Naini	Uttar Pradesh	83.74	84.74	80.94	07/08/2023 14	-	-	-	-	-	-
36	Sahibi	Dhansa	NCT Delhi	211.44	212.44	210.77	04/08/2023 03	-	-	-	-	-	-
37	Betwa	Mohana	Uttar Pradesh	121.66	122.66	114.78	06/08/2023 16	-	-	-	-	-	-
38	Betwa	Sahjina	Uttar Pradesh	103.54	104.54	97.03	07/08/2023 04	-	-	-	-	-	-
39	Ken	Banda	Uttar Pradesh	103.00	104.00	104.85	05/08/2023 18	04/08/2023 21	06/08/2023 15	3	05/08/2023 03	06/08/2023 10	2
40	Gomati	Lucknow	Uttar Pradesh	108.50	109.50	105.92	11/09/2023 20	-	-	-	-	-	-
41	Gomati	Jaunpur	Uttar Pradesh	73.07	74.07	71.29	17/09/2023 23	-	-	-	-	-	-
42	SAI	Raibareli	Uttar Pradesh	100.00	101.00	98.61	14/09/2023 17	-	-	-	-	-	-
43	Ghaghra	Elginbridge	Uttar Pradesh	105.07	106.07	106.70	15/08/2023 20	07/07/2023 06	07/07/2023 14	1	26/07/2023 10	27/07/2023 01	2
								12/07/2023 07	03/09/2023 08	54	06/08/2023 16	12/08/2023 23	7
								11/09/2023 15	21/09/2023 07	11	13/08/2023 15	17/08/2023 18	5
								22/09/2023 12	28/09/2023 05	7	24/08/2023 23	28/08/2023 15	5
44	Ghaghra	Ayodhya	Uttar Pradesh	91.73	92.73	93.22	16/08/2023 17	17/07/2023 00	17/07/2023 04	1	09/08/2023 1	13/08/2023 05	5
								20/07/2023 05	01/09/2023 11	44	14/08/2023 19	19/08/2023 08	6
								12/09/2023 06	16/09/2023 03	5	25/08/2023 09	29/08/2023 03	5
								24/09/2023 08	25/09/2023 14	2	-	-	-
45	Ghaghra	Turtipar	Uttar Pradesh	63.01	64.01	64.66	18/08/2023 11	22/07/2023 02	24/07/2023 20	3	09/08/2023 16	20/08/2023 21	12
								26/07/2023 20	04/09/2023 09	41	25/08/2023 22	31/08/2023 03	7
								13/09/2023 12	17/09/2023 01	5	-	-	-
46	Ghaghra	Darauli	Bihar	59.82	60.82	61.05	18/08/2023 09	22/07/2023 20	24/07/2023 16	3	27/07/2023 00	27/07/2023 23	1
								27/07/2023 00	27/07/2023 23	1	11/08/2023 15	14/08/2023 14	4
								28/07/2023 14	04/08/2023 06	8	16/08/2023 17	20/08/2023 18	5
								07/08/2023 16	04/09/2023 14	29	26/08/2023 18	31/08/2023 00	6
								13/09/2023 20	17/09/2023 02	5	-	-	-
47	Ghaghra	Gangpur Siswan	Bihar	56.04	57.04	56.75	13/08/2023 00	27/07/2023 01	27/07/2023 08	1	-	-	-
								11/08/2023 01	21/08/2023 08	11	-	-	-
								26/08/2023 01	01/09/2023 03	7	-	-	-
48	Ghaghra	Chhapra	Bihar	52.68	53.68	50.65	10/08/2023 01	-	-	-	-	-	-

Above Normal and Severe flood events on main Ganga and its tributaries- 2023 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2023		Flood period above warning level			Flood period above danger level		
						Level in metres	Date	From	To	No.of days	From	To	No.of days
49	Rapti	Balrampur	Uttar Pradesh	103.62	104.62	104.57	09/08/2023 21	26/07/2023 17	27/07/2023 11	2	-	-	-
								08/08/2023 15	12/08/2023 04	5	-	-	-
								13/08/2023 16	16/08/2023 17	4	-	-	-
								27/08/2023 03	28/08/2023 09	2	-	-	-
50	Rapti	Bansi	Uttar Pradesh	83.90	84.90	84.39	15/08/2023 06	10/08/2023 17	12/08/2023 21	3	-	-	-
								14/08/2023 11	17/08/2023 09	4	-	-	-
51	Rapti	Birdghat	Uttar Pradesh	73.98	74.98	74.08	13/08/2023 06	12/08/2023 19	15/08/2023 00	4	-	-	-
								28/08/2023 23	30/08/2023 07	3	-	-	-
52	Sone	Inderpuri	Bihar	107.20	108.20	103.05	05/08/2023 16	-	-	-	-	-	-
53	Sone	Koelwar	Bihar	54.52	55.52	51.27	06/10/2023 12	-	-	-	-	-	-
54	Sone	Maner	Bihar	51.00	52.00	51.00	10/08/2023 10	10/08/2023 10	11/08/2023 22	2	-	-	-
55	PunPun	Sripalpur	Bihar	49.60	50.60	51.58	07/10/2023 09	04/10/2023 21	08/10/2023 23	5	05/10/2023 13	08/10/2023 23	4
56	Yamuna	Karnal Bridge	Haryana	248.80	249.50	248.91	11/07/2023 01	10/07/2023 18	11/07/2023 04	2	-	-	-
								12/07/2023 02	12/07/2023 11	1	-	-	-
57	Yamuna	Paonta Sahib	Himachal Pradesh	383.50	384.50	383.6	11/07/2023 11	10/07/2023 02	10/07/2023 04	1	-	-	-
								11/07/2023 10	11/07/2023 16	1	-	-	-
58	Gandak	Khadda	Uttar Pradesh	95.00	96.00	95.80	14/08/2023 14	01/07/2023 11	02/07/2023 07	2	-	-	-
								04/07/2023 16	06/07/2023 06	3	-	-	-
								15/07/2023 09	16/07/2023 11	2	-	-	-
								17/07/2023 20	20/07/2023 03	4	-	-	-
								25/07/2023 13	26/07/2023 07	2	-	-	-
								29/07/2023 18	29/07/2023 21	1	-	-	-
								30/07/2023 14	31/07/2023 16	2	-	-	-
								01/08/2023 05	01/08/2023 11	1	-	-	-
								05/08/2023 16	06/08/2023 05	2	-	-	-
								07/08/2023 15	11/08/2023 00	5	-	-	-
								12/08/2023 19	19/08/2023 19	8	-	-	-
								20/08/2023 15	21/08/2023 06	2	-	-	-
								24/08/2023 09	30/08/2023 03	7	-	-	-
								03/09/2023 22	04/09/2023 06	2	-	-	-
								11/09/2023 16	11/09/2023 20	1	-	-	-
								22/09/2023 15	26/09/2023 20	5	-	-	-
								04/10/2023 09	06/10/2023 18	3	-	-	-
59	Ganga	Fathegarh	Uttar Pradesh	136.60	137.60	138.00	23/08/2023 01	13/07/2023 06	01/09/2023 06	51	19/07/2023 18	05/08/2023 09	18
								-	-	-	09/08/2023 12	29/08/2023 21	21
60	Ganga	Dabri	Uttar Pradesh	136.30	137.30	137.83	16/09/2023 05	12/07/2023 19	20/07/2023 03	9	17/08/2023 02	19/08/2023 05	3
								10/08/2023 02	02/09/2023 20	24	27/08/2023 03	31/08/2023 02	5
								12/09/2023 17	27/09/2023 08	16	14/09/2023 05	19/09/2023 12	6
								-	-	-	19/09/2023 20	20/09/2023 19	1
61	Ganga	Garhmuktheswar	Uttar Pradesh	198.33	199.33	199.10	17/08/2023 12	26/06/2023 10	26/06/2023 13	1	-	-	-
								11/07/2023 09	22/07/2023 00	12	-	-	-
								23/07/2023 09	24/07/2023 17	2	-	-	-
								25/07/2023 10	28/08/2023 18	4	-	-	-
								29/08/2023 03	29/08/2023 11	1	-	-	-
62	Ganga	Kachla Bridge	Uttar Pradesh	161.00	162.00	162.91	20/07/2023 04	26/06/2023 23	06/09/2023 02	73	28/06/2023 05	28/06/2023 08	1
								12/09/2023 17	15/09/2023 14	4	08/07/2023 03	09/07/2023 02	2
								16/09/2023 13	27/09/2023 04	12	11/07/2023 03	29/08/2023 01	50
63	Gandak	Chatia	Bihar	68.15	69.15	67.37	16/08/2023 00	-	-	-	-	-	-
64	Gandak	Rewaghat	Bihar	53.41	54.41	54.44	17/08/2023 02	27/07/2023 00	27/07/2023 23	1	16/08/2023 23	17/08/2023 06	2
								31/07/2023 23	01/08/2023 13	2	-	-	-
								09/08/2023 08	20/08/2023 14	12	-	-	-
								26/08/2023 04	31/08/2023 11	6	-	-	-
								06/10/2023 04	07/10/2023 12	2	-	-	-
65	Gandak	Hazipur	Bihar	49.32	50.32	48.77	10/08/2023 10	-	-	-	-	-	-
66	Burhi Gandak	Lalbeghiaghat	Bihar	62.20	63.20	61.42	30/08/2023 00	-	-	-	-	-	-
67	Burhi Gandak	Muzaffarpur (Sikandarpur	Bihar	51.53	52.53	50.79	02/09/2023 03	-	-	-	-	-	-
68	Burhi Gandak	Samastipur	Bihar	45.02	46.02	44.12	03/09/2023 10	-	-	-	-	-	-
69	Burhi Gandak	Rosera	Bihar	41.63	42.63	41.77	03/09/2023 17	02/09/2023 11	06/09/2023 22	5	-	-	-
70	Burhi Gandak	Khagaria	Bihar	35.58	36.58	36.91	12/08/2023 06	09/08/2023 06	24/08/2023 10	16	11/08/2023 20	15/08/2023 05	5
								27/08/2023 09	07/09/2023 20	12	-	-	-

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Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2023		Flood period above warning level			Flood period above danger level		
						Level in metres	Date	From	To	No.of days	From	To	No.of days
71	Bagmati	Benibad	Bihar	47.68	48.68	49.92	28/08/2023 20	24/06/2023 22	27/06/2023 22	4	25/06/2023 13	26/06/2023 04	2
								04/07/2023 11	09/07/2023 03	6	04/07/2023 20	07/07/2023 06	4
								13/07/2023 17	18/07/2023 19	6	14/07/2023 05	17/07/2023 11	4
								19/07/2023 18	20/07/2023 06	2	26/07/2023 16	27/07/2023 08	2
								25/07/2023 19	25/07/2023 23	1	30/07/2023 17	31/07/2023 19	2
								26/07/2023 10	28/07/2023 05	3	01/08/2023 00	01/08/2023 15	1
								30/07/2023 10	04/08/2023 21	6	09/08/2023 00	20/08/2023 21	12
								08/08/2023 12	11/09/2023 06	35	25/08/2023 10	04/09/2023 22	11
								13/09/2023 11	17/09/2023 23	5	06/10/2023 21	09/10/2023 10	4
								05/10/2023 11	11/10/2023 18	7	-	-	-
72	Bagmati	Hayaghat	Bihar	44.72	45.72	45.32	01/09/2023 07	30/08/2023 01	04/09/2023 18	6	-	-	-
73	Adhwara Group	Kamtaul	Bihar	49.00	50.00	49.02	30/08/2023 15	30/08/2023 12	31/08/2023 08	2	-	-	-
74	Adhwara Group	Ekmighat	Bihar	45.94	46.94	46.43	01/09/2023 04	29/08/2023 16	04/09/2023 06	7	-	-	-
75	Kamla Balan	Jhanjharpur	Bihar	49.50	50.50	52.10	26/08/2023 14	15/06/2023 07	15/06/2023 14	1	08/08/2023 20	10/08/2023 11	3
								05/07/2023 11	07/07/2023 08	3	11/08/2023 12	12/08/2023 03	2
								14/07/2023 07	15/07/2023 10	2	13/08/2023 09	15/08/2023 02	3
								08/08/2023 17	15/08/2023 22	8	25/08/2023 13	31/08/2023 08	7
								16/08/2023 14	20/08/2023 08	5	06/10/2023 23	07/10/2023 00	2
								25/08/2023 00	08/09/2023 06	15	-	-	-
								09/09/2023 15	10/09/2023 18	2	-	-	-
								06/10/2023 11	07/10/2023 14	2	-	-	-
								08/10/2023 07	09/10/2023 06	2	-	-	-
								13/10/2023 10	13/10/2023 21	1	-	-	-
76	Kosi	Basua	Bihar	46.75	47.75	47.79	26/08/2023 19	17/06/2023 07	17/06/2023 16	1	26/08/2023 14	27/08/2023 00	2
								05/07/2023 10	22/07/2023 10	18	-	-	-
								23/07/2023 13	27/07/2023 18	5	-	-	-
								28/07/2023 12	28/07/2023 13	1	-	-	-
								30/07/2023 08	02/09/2023 21	35	-	-	-
								24/09/2023 11	25/09/2023 01	2	-	-	-
77	Kosi	Baltara	Bihar	32.85	33.85	35.43	30/08/2023 16	01/07/2023 14	02/07/2023 00	2	15/07/2023 18	16/07/2023 22	2
								05/07/2023 19	12/07/2023 18	8	03/08/2023 05	03/08/2023 08	1
								13/07/2023 16	23/07/2023 06	11	09/08/2023 05	07/09/2023 09	30
								25/07/2023 05	16/09/2023 17	54	-	-	-
								23/09/2023 20	13/10/2023 03	21	-	-	-
78	Kosi	Kursela	Bihar	29.00	30.00	30.35	14/08/2023 13	08/08/2023 19	08/09/2023 15	32	10/08/2023 23	21/08/2023 12	12
								24/09/2023 13	30/09/2023 11	7	29/08/2023 10	03/09/2023 19	6
								07/10/2023 12	11/10/2023 09	5	-	-	-
79	Mahananda	Dhengraghat	Bihar	34.65	35.65	36.86	26/08/2023 07	24/06/2023 19	25/06/2023 12	2	13/07/2023 11	18/07/2023 08	6
								12/07/2023 08	21/07/2023 10	10	14/08/2023 12	15/08/2023 17	2
								08/08/2023 17	19/08/2023 01	12	25/08/2023 08	30/08/2023 02	6
								23/08/2023 17	02/09/2023 10	11	24/09/2023 23	27/09/2023 16	4
								24/09/2023 14	30/09/2023 10	7	-	-	-
80	Mahananda	Jhawa	Bihar	30.40	31.40	31.99	16/07/2023 04	13/07/2023 12	21/07/2023 13	9	14/07/2023 08	18/07/2023 06	5
								09/08/2023 17	12/08/2023 04	4	26/08/2023 00	28/08/2023 22	3
								13/08/2023 09	18/08/2023 04	6	25/09/2023 14	27/09/2023 04	3
								24/08/2023 12	02/09/2023 20	10	-	-	-
								24/09/2023 17	29/09/2023 06	6	-	-	-
81	Gandak	Dumariaghat	Bihar	61.22	62.22	62.97	16/08/2023 11	26/06/2023 12	28/06/2023 10	3	31/07/2023 15	01/08/2023 07	2
								01/07/2023 11	01/10/2023 19	93	08/08/2023 23	23/08/2023 14	16
								04/10/2023 10	17/10/2023 00	14	25/08/2023 06	31/08/2023 13	7
								-	-	-	06/10/2023 08	07/10/2023 06	2
82	Burhigandak	Ahirwalia	Bihar	58.62	59.62	56.85	01/09/2023 01	-	-	-	-	-	-
83	Mayurakshi	Narayanpur	West Bengal	26.86	27.86	23.91	06/10/2023 19	-	-	-	-	-	-
84	Ajoy	Gheropara	West Bengal	38.42	39.42	36.60	05/10/2023 23	-	-	-	-	-	-
85	Mundeshwari	Harinkhola	West Bengal	11.80	12.80	12.56	04/10/2023 06	03/10/2023 17	05/10/2023 08	3	-	-	-
86	Kangsabati	Mohanpur	West Bengal	24.73	25.73	23.26	05/10/2023 09	-	-	-	-	-	-
87	Bagmati	Dheng Bridge	Bihar	70.00	71.00	72.18	08/08/2023 19	23/07/2023 20	25/06/2023 09	3	24/06/2023 19	24/06/2023 23	1
								04/07/2023 06	06/07/2023 12	3	08/08/2023 10	09/08/2023 15	2
								13/07/2023 06	14/07/2023 22	2	14/08/2023 02	14/08/2023 04	1
								15/07/2023 07	16/07/2023 01	2	25/08/2023 06	26/08/2023 06	2
								25/07/2023 11	26/07/2023 09	2	28/08/2023 09	28/08/2023 11	1
								29/07/2023 08	30/07/2023 23	2	-	-	-
								31/07/2023 09	31/07/2023 21	1	-	-	-
								02/08/2023 06	02/08/2023 07	1	-	-	-
								08/08/2023 04	15/08/2023 17	8	-	-	-
								17/08/2023 12	17/08/2023 15	1	-	-	-
								24/08/2023 17	30/08/2023 23	7	-	-	-
								04/10/2023 21	05/10/2023 04	2	-	-	-
								06/10/2023 04	06/10/2023 20	1	-	-	-

Above Normal and Severe flood events on main Ganga and its tributaries- 2023 flood season													
Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2023		Flood period above warning level			Flood period above danger level		
						Level in metres	Date	From	To	No.of days	From	To	No.of days
88	Adhwara	Sonebarsha	Bihar	80.85	81.85	81.27	08/08/2023 16	08/08/2023 15	09/08/2023 00	2	-	-	-
								13/08/2023 02	13/08/2023 08	1	-	-	-
89	Kamla Balan	Jainagar	Bihar	66.75	67.75	69.37	25/08/2023 22	27/05/2023 18	27/05/2023 18	1	05/07/2023 21	05/07/2023 23	1
								12/06/2023 20	13/06/2023 04	2	08/08/2023 12	09/08/2023 09	2
								14/06/2023 05	15/06/2023 05	2	13/08/2023 03	13/08/2023 07	1
								04/07/2023 10	06/07/2023 15	3	14/08/2023 03	14/08/2023 07	1
								13/07/2023 18	15/07/2023 02	3	25/08/2023 10	26/08/2023 10	2
								08/08/2023 07	15/08/2023 22	8	28/08/2023 08	29/08/2023 18	2
								16/08/2023 07	16/08/2023 21	1	-	-	-
								24/08/2023 16	03/09/2023 16	11	-	-	-
								06/10/2023 07	06/10/2023 20	1	-	-	-
								07/10/2023 18	08/10/2023 00	2	-	-	-
90	Bagmati	Runisaidpur	Bihar	54.00	55.00	57.04	27/08/2023 14	25/06/2023 07	26/06/2023 18	2	25/06/2023 09	25/06/2023 16	1
								04/07/2023 10	07/07/2023 10	4	13/07/2023 20	16/07/2023 04	4
								13/07/2023 17	17/07/2023 02	5	08/08/2023 15	16/08/2023 11	9
								26/07/2023 04	27/07/2023 04	2	25/08/2023 08	31/08/2023 17	7
								29/07/2023 18	03/08/2023 04	6	06/10/2023 12	07/10/2023 07	2
								08/08/2023 12	21/08/2023 02	14	-	-	-
								25/08/2023 05	03/09/2023 00	10	-	-	-
								06/10/2023 10	07/10/2023 22	2	-	-	-
91	Parwan	Araria	Bihar	46.00	47.00	48.13	16/07/2023 06	03/07/2023 09	10/07/2023 14	8	14/07/2023 00	20/07/2023 08	7
								11/07/2023 08	22/07/2023 00	12	09/08/2023 04	14/08/2023 12	6
								08/08/2023 11	05/09/2023 01	29	18/08/2023 16	21/08/2023 08	4
								10/09/2023 19	11/09/2023 08	2	23/08/2023 14	02/09/2023 16	10
								24/09/2023 00	02/10/2023 15	9	24/09/2023 16	29/09/2023 03	6
								05/10/2023 17	06/10/2023 15	2	-	-	-
92	Mahananda	Taibpur	Bihar	65.00	66.00	66.62	14/07/2023 07	22/06/2023 10	22/06/2023 21	1	13/07/2023 12	15/07/2023 10	3
								23/06/2023 21	24/06/2023 09	2	25/08/2023 14	26/08/2023 08	2
								07/07/2023 20	08/07/2023 10	2	-	-	-
								10/07/2023 19	11/07/2023 13	2	-	-	-
								12/07/2023 15	16/07/2023 08	5	-	-	-
								13/08/2023 17	15/08/2023 01	3	-	-	-
								25/08/2023 10	26/08/2023 17	2	-	-	-
								27/08/2023 00	27/08/2023 12	1	-	-	-
								24/09/2023 15	25/09/2023 18	2	-	-	-
93	Chambal	Kota City	Rajasthan	239.00	242.00	242.15	19/09/2023 03	18/09/2023 17	19/09/2023 15	2	19/09/2023 02	19/09/2023 14	1
94	Rapti	Kakardhari	Uttar Pradesh	130.00	131.00	129.95	08/08/2023 20	-	-	-	-	-	-
95	Chambal	Dholpur	Rajasthan	129.79	130.79	128.25	20/09/2023 20	-	-	-	-	-	-
96	Chambal	Manderial	Rajasthan	164.00	165.00	155.50	20/09/2023 12	-	-	-	-	-	-

Annex XII

Above Normal and Severe flood events on main Brahamaputra and its tributaries- 2023 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2023		Flood period above warning level			Flood period above danger level		
						Level in metres	Date	From	To	No.of days	From	To	No.of days
1	Siang	Yingkiang	Arunachal Pradesh	303.00	304.00	274.48		-	-	-	-	-	-
2	Siang	Passighat	Arunachal Pradesh	152.96	153.96	153.49	28/08/2023 17	27/08/2023 07	29/08/2023 10	3	-	-	-
3	Noa-Dehing	Namsai	Arunachal Pradesh	144.80	145.80	144.67	12/07/2023 23	-	-	-	-	-	-
4	Brahmaputra	Dibrugarh	Assam	104.70	105.70	105.87	28/08/2023 21	07/05/2023 00	07/05/2023 02	1	27/08/2023 21	29/08/2023 10	3
								11/06/2023 15	25/06/2023 13	15	-	-	-
								29/06/2023 22	29/06/2023 22	1	-	-	-
								30/06/2023 02	06/09/2023 22	69	-	-	-
								23/09/2023 02	26/09/2023 10	4	-	-	-
								07/10/2023 05	07/10/2023 20	1	-	-	-
								09/10/2023 12	11/10/2023 03	3	-	-	-
5	Brahmaputra	Neamatighat	Assam	84.54	85.54	86.86	28/08/2023 23	13/06/2023 00	07/09/2023 19	87	16/06/2023 13	18/06/2023 09	3
								23/09/2023 21	28/09/2023 21	6	22/06/2023 05	24/06/2023 09	3
								08/10/2023 06	09/10/2023 03	2	07/07/2023 18	11/07/2023 18	5
								10/10/2023 02	14/10/2023 02	5	12/07/2023 11	20/07/2023 16	9
								-	-	-	29/07/2023 22	30/07/2023 16	2
								-	-	-	06/08/2023 15	19/08/2023 01	14
								-	-	-	22/08/2023 05	02/09/2023 12	12
6	Brahmaputra	Tezpur	Assam	64.23	65.23	66.16	30/08/2023 03	15/06/2023 12	28/06/2023 04	14	24/06/2023 06	24/06/2023 08	1
								01/07/2023 21	06/09/2023 09	68	10/07/2023 04	11/07/2023 22	2
								26/09/2023 10	28/09/2023 10	3	14/07/2023 05	20/07/2023 12	7
								11/10/2023 18	13/10/2023 04	3	06/08/2023 17	06/08/2023 17	1
								-	-	-	09/08/2023 04	10/08/2023 06	2
								-	-	-	13/08/2023 16	14/08/2023 11	2
								-	-	-	15/08/2023 06	17/08/2023 13	3
								-	-	-	25/08/2023 06	26/08/2023 07	2
								-	-	-	26/08/2023 11	02/09/2023 19	8
7	Brahmaputra	Guwahati	Assam	48.68	49.68	50.10	31/08/2023 13	11/07/2023 13	13/07/2023 04	3	29/08/2023 08	02/09/2023 08	5
								15/07/2023 06	22/07/2023 07	8	-	-	-
								09/08/2023 11	20/08/2023 23	12	-	-	-
								24/08/2023 10	04/09/2023 16	12	-	-	-
8	Brahmaputra	Goalpara	Assam	35.27	36.27	36.52	31/08/2023 10	18/06/2023 19	26/06/2023 22	9	29/08/2023 21	02/09/2023 15	5
								11/07/2023 06	23/07/2023 05	13	-	-	-
								09/08/2023 06	22/08/2023 05	14	-	-	-
								24/08/2023 06	06/09/2023 08	14	-	-	-
9	Brahmaputra	Dhubri	Assam	27.62	28.62	29.48	01/09/2023 04	17/06/2023 22	09/09/2023 04	85	22/06/2023 05	23/06/2023 16	2
								-	-	-	13/07/2023 02	22/07/2023 19	10
								-	-	-	11/08/2023 16	20/08/2023 23	10
								-	-	-	25/08/2023 14	05/09/2023 21	12
10	Buridehing	Naharkatia	Assam	119.40	120.40	118.23	17/07/2023 13	-	-	-	-	-	-
11	Buridehing	Chenimari/Khwong	Assam	101.11	102.11	102.44	14/07/2023 13	19/06/2023 13	20/06/2023 03	2	24/06/2023 16	24/06/2023 19	1
								23/06/2023 11	25/06/2023 23	3	13/07/2023 11	15/07/2023 17	3
								12/07/2023 11	20/07/2023 00	9	18/07/2023 02	19/07/2023 05	2
								09/08/2023 05	16/08/2023 07	8	29/08/2023 16	30/08/2023 23	2
								23/08/2023 12	25/08/2023 07	3	-	-	-
								28/08/2023 10	31/08/2023 21	4	-	-	-
12	Subansiri	Badatighat	Assam	81.53	82.53	82.88	29/08/2023 13	16/06/2023 01	18/06/2023 17	3	28/08/2023 07	31/08/2023 04	4
								22/06/2023 04	24/06/2023 08	3	-	-	-
								07/07/2023 08	11/07/2023 18	5	-	-	-
								12/07/2023 17	20/07/2023 20	9	-	-	-
								27/07/2023 06	27/07/2023 20	1	-	-	-
								28/07/2023 05	28/07/2023 20	1	-	-	-
								29/07/2023 05	02/08/2023 05	5	-	-	-
								05/08/2023 18	19/08/2023 16	15	-	-	-
								22/08/2023 20	02/09/2023 11	12	-	-	-

Above Normal and Severe flood events on main Brahamaputra and its tributaries- 2023 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2023		Flood period above warning level			Flood period above danger level		
						Level in metres	Date	From	To	No.of days	From	To	No.of days
13	Dikhow	Sivasagar	Assam	91.40	92.40	94.34	11/08/2023 18	06/07/2023 12	10/07/2023 14	5	06/07/2023 17	08/07/2023 17	3
								15/07/2023 17	19/07/2023 10	5	16/07/2023 07	18/07/2023 18	3
								05/08/2023 00	06/08/2023 15	2	07/08/2023 13	13/08/2023 21	7
								07/08/2023 02	16/08/2023 13	10	26/08/2023 08	29/08/2023 11	4
								25/08/2023 17	30/08/2023 21	6	-	-	-
14	Desang	Nanglamoraghat	Assam	93.46	94.46	95.35	12/08/2023 13	23/06/2023 14	25/06/2023 05	3	07/07/2023 02	13/07/2023 21	7
								29/06/2023 13	05/07/2023 11	7	17/07/2023 06	19/07/2023 03	3
								06/07/2023 12	19/07/2023 23	14	10/08/2023 14	14/08/2023 20	5
								09/08/2023 03	17/08/2023 10	9	23/08/2023 20	25/08/2023 14	3
								23/08/2023 03	31/08/2023 18	9	27/08/2023 04	30/08/2023 20	4
								24/09/2023 19	25/09/2023 15	2	-	-	-
15	Dhansiri(S)	Golaghat	Assam	88.50	89.50	89.15	09/08/2023 11	08/08/2023 19	10/08/2023 11	3	-	-	-
16	Dhansiri(S)	Numaligarh	Assam	77.42	78.42	78.53	09/08/2023 22	26/07/2023 03	26/07/2023 11	1	09/08/2023 15	10/08/2023 18	2
								27/07/2023 14	27/07/2023 16	1	-	-	-
								08/08/2023 12	17/08/2023 15	10	-	-	-
								20/08/2023 10	22/08/2023 16	3	-	-	-
								26/08/2023 13	01/09/2023 00	7	-	-	-
17	Kopili	Kampur	Assam	59.50	60.50	60.93	18/06/2023 00	15/06/2023 23	22/06/2023 08	8	16/06/2023 20	20/06/2023 00	5
18	Kopili	Dharamtul	Assam	55.00	56.00	55.44	19/06/2023 14	17/06/2023 08	22/06/2023 14	6	-	-	-
19	Jiabharali	NT.Rd.X-ing	Assam	77.00	78.00	78.25	13/08/2023 18	22/05/2023 12	22/05/2023 14	1	29/07/2023 08	29/07/2023 14	1
								27/05/2023 07	27/05/2023 16	1	13/08/2023 13	13/08/2023 22	1
								13/06/2023 10	18/06/2023 19	6	22/08/2023 21	22/08/2023 22	1
								19/06/2023 08	29/06/2023 19	11	27/08/2023 13	27/08/2023 14	1
								01/07/2023 02	03/09/2023 02	65	28/08/2023 08	28/08/2023 21	1
								12/09/2023 14	12/09/2023 20	1	-	-	-
								21/09/2023 11	28/09/2023 10	8	-	-	-
								04/10/2023 08	06/10/2023 13	3	-	-	-
20	Subansiri	Choldhowaghat	Assam	99.43	100.43	96.45	17/07/2023 08	-	-	-	-	-	-
21	Ranganadi	N H Crossing Ranganadi	Assam	93.81	94.81	94.18	22/08/2023 21	16/06/2023 18	16/06/2023 21	1	-	-	-
								21/06/2023 13	21/06/2023 19	1	-	-	-
								09/07/2023 07	09/07/2023 07	1	-	-	-
								16/07/2023 10	16/07/2023 12	1	-	-	-
								17/07/2023 20	18/07/2023 03	2	-	-	-
								29/07/2023 09	29/07/2023 13	1	-	-	-
								22/08/2023 20	23/08/2023 00	2	-	-	-
								28/08/2023 12	29/08/2023 01	2	-	-	-
22	Lohit	Dholla Bazaar	Assam	127.27	128.27	126.62	13/07/2023 00	-	-	-	-	-	-
23	Puthimari	Puthimari _NHX	Assam	51.31	52.31	54.13	21/06/2023 21	16/06/2023 11	24/06/2023 16	9	16/06/2023 16	18/06/2023 14	3
								28/08/2023 08	31/08/2023 05	4	20/06/2023 13	24/06/2023 06	5
								-	-	-	28/08/2023 11	29/08/2023 03	2
24	Pagladia	Pagladia_NTX	Assam	51.75	52.75	54.57	21/06/2023 18	15/06/2023 13	24/06/2023 15	10	20/06/2023 17	23/06/2023 19	4
								12/07/2023 11	14/07/2023 05	3	28/08/2023 13	28/08/2023 19	1
								22/08/2023 22	23/08/2023 11	2	-	-	-
								27/08/2023 12	27/08/2023 17	1	-	-	-
								28/08/2023 06	30/08/2023 05	3	-	-	-
25	Barak	APGhat	Assam	18.83	19.83	18.66	29/08/2023 04	-	-	-	-	-	-
26	Katakhal	Matizuri	Assam	19.27	20.27	21.12	10/08/2023 06	08/08/2023 22	11/08/2023 16	4	09/08/2023 11	11/08/2023 02	3
								28/08/2023 16	29/08/2023 17	2	-	-	-
								21/09/2023 01	22/09/2023 17	2	-	-	-

Above Normal and Severe flood events on main Brahamaputra and its tributaries- 2023 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2023		Flood period above warning level			Flood period above danger level		
						Level in metres	Date	From	To	No.of days	From	To	No.of days
27	Barak	Badarpurghat	Assam	15.85	16.85	16.09	29/08/2023 01	28/08/2023 10	29/08/2023 21	2	-	-	-
28	Kushiyara	Karimganj	Assam	13.94	14.94	14.74	29/08/2023 03	18/06/2023 16	21/06/2023 14	4	-	-	-
								27/08/2023 17	31/08/2023 05	5	-	-	-
29	Manu	Kailashar	Tripura	22.10	24.00	22.48	09/08/2023 04	09/08/2023 00	09/08/2023 10	1	-	-	-
30	Gumti	Sonamura	Tripura	11.50	13.50	10.73	09/08/2023 08	-	-	-	-	-	-
31	Manas	Mathanguri	Assam	98.10	99.10	95.95	13/08/2023 22	-	-	-	-	-	-
32	Manas	Manas NH- Crossing	Assam	47.81	48.42	49.07	22/06/2023 15	19/09/2023 00	19/06/2023 22	1	21/06/2023 11	23/06/2023 16	3
								21/06/2023 00	24/06/2023 04	4	-	-	-
								23/08/2023 00	23/08/2023 07	1	-	-	-
								28/08/2023 09	28/08/2023 20	1	-	-	-
								21/09/2023 12	22/09/2023 17	2	-	-	-
33	Beki	Beki Rd. Bridge	Assam	44.10	45.10	45.65	13/08/2023 21	15/06/2023 14	15/06/2023 22	1	21/06/2023 06	21/06/2023 17	1
								16/06/2023 13	25/06/2023 20	10	22/06/2023 07	22/06/2023 16	1
								26/06/2023 10	26/06/2023 23	1	12/07/2023 11	12/07/2023 23	1
								27/06/2023 16	27/06/2023 22	1	13/07/2023 07	14/07/2023 20	2
								29/06/2023 09	05/09/2023 16	69	18/07/2023 10	18/07/2023 14	1
								08/09/2023 19	08/09/2023 20	1	31/07/2023 14	31/07/2023 19	1
								11/09/2023 20	13/09/2023 14	3	05/08/2023 09	05/08/2023 16	1
								21/09/2023 12	22/09/2023 15	2	13/08/2023 10	14/08/2023 18	2
								23/09/2023 07	23/09/2023 11	1	23/08/2023 09	23/08/2023 10	1
								05/10/2023 10	06/10/2023 21	2	24/08/2023 20	26/08/2023 23	3
								-	-	-	27/08/2023 03	29/08/2023 20	3
34	Gaurang	Kokrajhar	Assam	41.85	42.85	42.85	22/06/2023 15	20/06/2023 18	24/06/2023 01	5	22/06/2023 15	22/06/2023 16	1
								03/07/2023 18	03/07/2023 22	1	-	-	-
								12/07/2023 09	15/07/2023 01	4	-	-	-
								13/08/2023 18	15/08/2023 20	3	-	-	-
								16/08/2023 10	17/08/2023 01	2	-	-	-
								23/08/2023 06	26/08/2023 15	4	-	-	-
								27/08/2023 07	30/08/2023 10	4	-	-	-
								21/09/2023 14	22/09/2023 05	2	-	-	-
35	Sankosh	Golokganj	Assam	28.94	29.94	30.15	14/07/2023 07	17/06/2023 05	25/06/2023 00	9	13/07/2023 20	15/07/2023 09	3
								03/07/2023 08	07/07/2023 10	5	14/08/2023 12	15/08/2023 02	2
								08/07/2023 05	21/07/2023 07	14	26/08/2023 07	26/08/2023 10	1
								01/08/2023 18	04/08/2023 15	4	29/08/2023 11	30/08/2023 00	2
								05/08/2023 06	21/08/2023 16	17	-	-	-
								22/08/2023 11	03/09/2023 02	13	-	-	-
								25/09/2023 18	26/09/2023 08	2	-	-	-
								06/10/2023 06	06/10/2023 19	1	-	-	-
36	Teesta	Domohani	W.B.	85.65	85.95	86.1	13/08/2023 20	16/06/2023 10	16/06/2023 17	1	13/07/2023 09	13/07/2023 21	1
								18/06/2023 11	18/06/2023 17	1	14/07/2023 14	14/07/2023 16	1
								29/06/2023 13	29/06/2023 16	1	13/08/2023 14	14/08/2023 00	2
								03/07/2023 10	03/07/2023 14	1	25/08/2023 06	25/08/2023 19	1
								04/07/2023 14	04/07/2023 20	1	28/08/2023 06	28/08/2023 10	1
								07/07/2023 10	07/07/2023 19	1	04/10/2023 10	04/10/2023 10	1
								08/07/2023 09	08/07/2023 13	1	-	-	-
								12/07/2023 16	15/07/2023 20	3	-	-	-
								18/07/2023 08	18/07/2023 18	1	-	-	-
								05/08/2023 08	05/08/2023 11	1	-	-	-
								09/08/2023 15	10/08/2023 08	2	-	-	-
								12/08/2023 08	12/08/2023 16	1	-	-	-
								13/08/2023 10	14/08/2023 16	2	-	-	-

Above Normal and Severe flood events on main Brahamaputra and its tributaries- 2023 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2023		Flood period above warning level			Flood period above danger level		
						Level in metres	Date	From	To	No.of days	From	To	No.of days
								24/08/2023 15	26/08/2023 18	3	-	-	-
								27/08/2023 00	27/08/2023 15	1	-	-	-
								28/08/2023 00	28/08/2023 17	1	-	-	-
								29/08/2023 02	29/08/2023 10	1	-	-	-
								04/10/2023 08	04/10/2023 11	1	-	-	-
37	Teesta	Mekhliganj	W.B.	65.45	65.95	66.28	04/10/2023 14	16/06/2023 13	24/06/2023 08	9	13/07/2023 14	15/07/2023 07	3
								28/06/2023 05	19/07/2023 20	22	09/08/2023 20	10/08/2023 12	2
								21/07/2023 20	20/08/2023 22	31	13/08/2023 15	14/08/2023 11	2
								23/08/2023 16	01/09/2023 04	10	25/08/2023 14	26/08/2023 04	2
								04/09/2023 10	04/09/2023 21	1	04/10/2023 12	04/10/2023 16	1
								23/09/2023 20	26/09/2023 02	4	-	-	-
								04/10/2023 11	04/10/2023 20	1	-	-	-
38	Jaldhaka	N H 31	W.B.	80.00	80.90	81.1	13/07/2023 12	17/06/2023 07	17/06/2023 14	1	13/07/2023 09	13/07/2023 13	1
								18/06/2023 07	18/06/2023 21	1	-	-	-
								19/06/2023 05	19/06/2023 21	1	-	-	-
								20/06/2023 05	20/06/2023 15	1	-	-	-
								21/06/2023 06	21/06/2023 07	1	-	-	-
								30/06/2023 11	30/06/2023 16	1	-	-	-
								02/07/2023 08	03/07/2023 18	2	-	-	-
								06/07/2023 07	06/07/2023 13	1	-	-	-
								07/07/2023 07	09/07/2023 10	3	-	-	-
								10/07/2023 07	10/07/2023 17	1	-	-	-
								12/07/2023 09	15/07/2023 04	4	-	-	-
								13/08/2023 07	14/08/2023 08	2	-	-	-
								25/08/2023 07	26/08/2023 01	2	-	-	-
								28/08/2023 04	28/08/2023 18	1	-	-	-
								29/08/2023 00	29/08/2023 05	1	-	-	-
								21/09/2023 15	21/09/2023 17	1	-	-	-
39	Jaldhaka	Mathabhanga	W.B.	47.70	48.20	48.46	13/07/2023 18	13/07/2023 13	14/07/2023 16	2	13/07/2023 14	13/07/2023 22	1
								28/08/2023 11	28/08/2023 16	1	-	-	-
40	Torsa	Ghughumari	W. B.	39.80	40.41	40.67	13/07/2023 22	08/07/2023 10	08/07/2023 15	1	13/07/2023 17	14/07/2023 02	2
								10/07/2023 12	10/07/2023 16	1	-	-	-
								12/07/2023 09	15/07/2023 02	4	-	-	-
								28/08/2023 08	28/08/2023 20	1	-	-	-
41	Radak-I	Tufanganj	W. B.	34.22	35.30	35.22	22/06/2023 23	19/06/2023 09	24/06/2023 07	6	-	-	-
								12/07/2023 21	15/07/2023 22	4	-	-	-
								24/08/2023 07	24/08/2023 13	1	-	-	-
42	Teesta	Malli Bazaar	Sikkim	223.00	224.00	228	04/10/2023 04	04/10/2023 04	04/10/2023 08	1	04/10/2023 04	04/10/2023 06	1
								04/10/2023 11	05/10/2023 06	1	04/10/2023 20	05/10/2023 06	1
43	Teesta	Joretahang(Rothak)	Sikkim	363.98	364.98	361.9	13/08/2023 13	-	-	-	-	-	-
44	Teesta	Singtam	Sikkim	354.59	355.09	352.84	16/06/2023 07	-	-	-	-	-	-
45	Torsa	Hasimara	West Bengal	116.30	116.90	117	13/07/2023 09	13/07/2023 07	13/07/2023 17	1	13/07/2023 09	13/07/2023 11	1
								28/08/2023 07	28/08/2023 18	1	-	-	-

Annex XIII

Above Normal and Severe flood events on various river systems (excluding Ganga and Brahmaputra basins)- 2023 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2023		Flood period above warning level			Flood period above danger level		
						Level in metres	Date/T	From	To	No. of days	From	To	No. of days
1	Jhelum	Rammunshibagh	Jammu & Kashmir	1585.48	1586.40	1586.05	09/07/2023 09	08/07/2023 23	10/07/2023 08	3	-	-	-
2	Jhelum	Sangam	Jammu & Kashmir	1591.20	1592.42	1591.80	09/07/2023 00	08/07/2023 18	09/07/2023 17	2	-	-	-
3	Jhelum	Safapora	Jammu & Kashmir	1580.05	1581.30	1580.45	10/07/2023 03	27/06/2023 14	27/06/2023 23	1	-	-	-
								09/07/2023 05	11/07/2023 09	3	-	-	-
4	Subernarekna	Jamshedpur	Jharkhand	120.50	121.50	120.84	04/10/2023 21	04/10/2023 17	05/10/2023 06	2	-	-	-
5	Subernarekna	Rajghat	Odisha	9.45	10.36	9.63	06/10/2023 05	06/10/2023 00	06/10/2023 12	1	-	-	-
6	Burhabalang	NH_5 _Road Bridge	Odisha	7.21	8.13	7.6	03/08/2023 06	02/08/2023 23	03/08/2023 14	2	-	-	-
7	Baitarni	Anandpur	Odisha	37.44	38.36	40.02	02/08/2023 16	02/08/2023 09	03/08/2023 19	2	02/08/2023 10	03/08/2023 14	2
8	Baitarni	Akhuapada	Odisha	17.83	18.33	19.94	03/08/2023 06	02/08/2023 13	04/08/2023 19	3	02/08/2023 14	04/08/2023 08	3
								18/08/2023 20	19/08/2023 17	2	-	-	-
								22/09/2023 05	22/09/2023 10	1	-	-	-
								03/10/2023 23	05/10/2023 10	3	-	-	-
9	Brahmani	Jenapur	Odisha	22.00	23.00	22.20	03/08/2023 15	03/08/2023 12	04/08/2023 03	2			
10	Rushikuluya	Purushottampur	Odisha	15.83	16.83	14.80	14/09/2023 15	-	-	-	-	-	-
11	Vamsadhara	Gunupur	Odisha	83.00	84.00	83.80	14/09/2023 11	02/08/2023 03	02/08/2023 04	1	-	-	-
								14/09/2023 07	14/09/2023 21	1	-	-	-
12	Vamsadhara	Kashinagar	Odisha	54.10	54.60	55.90	14/09/2023 12	02/08/2023 02	02/08/2023 14	1	02/08/2023 02	02/08/2023 08	1
								14/09/2023 09	15/09/2023 06	2	14/09/2023 09	15/09/2023 00	2
								21/09/2023 05	21/09/2023 12	1	-	-	-
13	Jalaka	Mathani Road Bridge	Odisha	6.00	6.50	6.56	08/09/2023 08	03/08/2023 00	03/08/2023 18	1	08/09/2023 08	08/09/2023 20	1
								05/09/2023 13	06/09/2023 13	2	-	-	-
								08/09/2023 08	08/09/2023 23	1	-	-	-
								09/09/2023 07	09/09/2023 15	1	-	-	-
14	Mahanadi	Naraj	Odisha	25.41	26.41	26.68	03/08/2023 18	03/08/2023 02	04/08/2023 20	2	03/08/2023 12	04/08/2023 05	2
								07/08/2023 19	08/08/2023 05	2	-	-	-
								16/09/2023 05	19/09/2023 10	4	-	-	-
								24/09/2023 17	26/09/2023 21	3	-	-	-
15	Mahanadi	Alipingal Devi	Odisha	10.85	11.76	10.54	04/08/2023 05	-	-	-	-	-	-
16	Mahanadi	Nimapara	Odisha	9.85	10.76	8.92	04/08/2023 11	-	-	-	-	-	-
17	Godavari	Atreyapuram	Andhra Pradesh	13.50	15.00	12.35	30/07/2023 19	-	-	-	-	-	-
18	Godavari	Kopergaon	Maharashtra	490.90	493.68	490.05	09/09/2023 20	-	-	-	-	-	-
19	Godavari	Gangakhed	Maharashtra	374.00	375.00	364.58	09/10/2023 12	-	-	-	-	-	-
20	Godavari	Nanded	Maharashtra	351.00	354.00	345.13	28/07/2023 05	-	-	-	-	-	-
21	Godavari	Kaleswaram	Telangana	103.50	104.75	105.76	28/07/2023 23	27/07/2023 16	29/07/2023 16	3	27/07/2023 21	29/07/2023 08	3
22	Godavari	Eturunagaram	Telangana	73.32	75.82	75.12	29/07/2023 10	27/07/2023 23	30/07/2023 14	4	-	-	-
23	Godavari	Dummagudam	Telangana	53.00	55.00	55.57	29/07/2023 21	26/07/2023 16	27/07/2023 16	2	28/07/2023 22	30/07/2023 05	3
								28/07/2023 07	30/07/2023 21	3	-	-	-
24	Godavari	Bhadrachalam	Telangana	45.72	48.77	49.70	29/07/2023 23	20/07/2023 15	21/07/2023 13	2	28/07/2023 21	30/07/2023 13	3
								23/07/2023 04	23/07/2023 15	1	-	-	-
								26/07/2023 14	31/07/2023 12	6	-	-	-
25	Wardha	Sirpur Town	Telangana	159.95	160.95	162.74	29/07/2023 11	23/07/2023 00	25/07/2023 16	3	23/07/2023 12	25/07/2023 12	3
								28/07/2023 05	30/07/2023 15	3	28/07/2023 12	30/07/2023 11	3
26	Godavari	Kunavaram	Andhra Pradesh	36.74	38.24	42.86	30/07/2023 11	20/07/2023 15	25/07/2023 02	6	21/07/2023 06	22/07/2023 00	2
								26/07/2023 05	01/08/2023 12	7	26/07/2023 19	01/08/2023 06	7
27	Godavari	Rajamundry	Andhra Pradesh	17.68	19.51	17.55	30/07/2023 16	-	-	-	-	-	-
28	Godavari	Dowalaiswaram	Andhra Pradesh	14.25	16.08	15.55	30/07/2023 19	27/07/2023 06	01/08/2023 13	6	-	-	-

Annex XIII

Above Normal and Severe flood events on various river systems (excluding Ganga and Brahmaputra basins)- 2023 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2023		Flood period above warning level			Flood period above danger level		
						Level in metres	Date/T	From	To	No. of days	From	To	No. of days
29	Wainganga	Bhandara	Maharashtra	245.50	245.70	**246.98**	**16/09/2023 19**	16/09/2023 01	17/09/2023 10	2	16/09/2023 02	17/09/2023 09	1
30	Wainganga	Pauni	Maharashtra	226.73	227.73	**228.90**	**16/09/2023 08**	15/09/2023 23	17/09/2023 09	3	16/09/2023 03	17/06/2023 07	2
31	Wardha	Balharsha	Maharashtra	171.50	174.00	**173.75**	**29/07/2023 03**	23/07/2023 06	25/07/2023 01	3	-	-	-
								28/07/2023 05	30/07/2023 00	3	-	-	-
32	Indravati	Jagdalpur	Chhatisgarh	539.50	540.80	**539.25**	**14/09/2023 23**	-	-	-	-	-	-
33	Krishna	Arjunwad	Maharashtra	539.20	540.70	**533.88**	**27/07/2023 03**	-	-	-	-	-	-
34	Bhima	Deongaon	Karnataka	402.00	404.50	**397.86**	**06/05/2023 08**	-	-	-	-	-	-
35	Tungabhadra	Mantralayam	Andhra Pradesh	310.00	312.00	**308.30**	**06/09/2023 22**	-	-	-	-	-	-
36	Tungabhadra	Kurnool	Andhra Pradesh	273.00	274.00	**270.06**	**07/09/2023 22**	-	-	-	-	-	-
37	Nagavali	Srikakulam	Andhra Pradesh	10.17	10.80	**10.00**	**08/09/2023 06**	-	-	-	-	-	-
38	Pennar	Nellore	Andhra Pradesh	15.91	17.28	**10.95**	**06/12/2023 08**	-	-	-	-	-	-
39	Sabarmati	Ahmedabad Shubhash Bridge	Gujarat	44.09	45.34	**41.87**	**07/11/2023 18**	-	-	-	-	-	-
40	Mahi	Wanakbori	Gujarat	71.93	74.98	**74.97**	**18/09/2023 01**	17/09/2023 13	18/09/2023 14	2	-	-	-
41	Naramada	Mandla	Madhya Pradesh	437.00	437.80	**439.28**	**04/08/2023 07**	03/08/2023 08	05/08/2023 03	3	03/08/2023 10	04/08/2023 19	2
42	Naramada	Narmadapuram	Madhya Pradesh	292.83	293.83	**293.61**	**16/09/2023 13**	16/09/2023 08	16/09/2023 16	1	-	-	-
43	Naramada	Garudeswar	Gujarat	30.48	31.09	**38.90**	**17/09/2023 13**	16/09/2023 20	18/09/2023 05	3	16/09/2023 21	18/09/2023 05	3
44	Naramada	Bharuch	Gujarat	6.70	7.32	**12.34**	**18/09/2023 05**	17/09/2023 03	20/09/2023 12	4	17/09/2023 04	20/09/2023 10	4
45	Tapi	Surat	Gujarat	8.50	9.50	**7.7**	**18/09/2023 15**	-	-	-	-	-	-
46	Damanganga	Vapi Town	Gujarat	18.20	19.20	**18.1**	**28/07/2023 02**	-	-	-	-	-	-
47	Damanganga	Daman	Dadra & Nagar Have	2.60	3.40	**2.50**	**05/05/2023 08**	-	-	-	-	-	-
48	Cauvery	Musiri	Tamilnadu	82.12	83.12	**81.9**	**13/08/2023 22**	-	-	-	-	-	-
49	Cauvery	Kodumudi	Tamilnadu	125.50	126.50	**123.67**	**07/11/2023 10**	-	-	-	-	-	-
50	Bhavani	Savandapur	Tamilnadu	184.50	185.50	**182.13**	**09/11/2023 20**	-	-	-	-	-	-
51	Sabari	Chinturu	Andhra Pradesh	40.50	42.00	**42.93**	**30/07/2023 12**	27/07/2023 09	31/07/2023 17	5	29/07/2023 14	31/07/2023 05	3
52	Krishna	Avanigadda	Andhra Pradesh	9.00	11.00	7.17	29/07/2023 12	-	-	-	-	-	-
53	Periyar	Neeleswaram	Kerala	9.00	10.00	**4.20**	**05/07/2023 01**	-	-	-	-	-	-
54	Bharathapuzha	Kumbidi	Kerala	8.20	9.20	**7.17**	**13/10/2023 06**	-	-	-	-	-	-
55	Pamba	Malakkara	Kerala	6.00	7.00	**6.21**	**06/07/2023 11**	06/07/2023 05	06/07/2023 21	1	-	-	-
56	Kabini	Muthankera	Kerala	710.3	711.25	**710.69**	**25/07/2023 03**	06/07/2023 16	07/07/2023 07	2	-	-	-
								23/07/2023 04	27/07/2023 15	5	-	-	-
57	Godavari	Nasik	Maharashtra	558.10	559.60	**557.71**	**09/09/2023 04**	-	-	-	-	-	-
58	Banas	Abu Road	Rajasthan	258.00	259.00	**258.20**	**18/06/2023 00**	17/06/2023 23	18/06/2023 07	2	-	-	-
59	Vaigai	Madurai	Tamilnadu	131.50	132.50	**131.9**	**10/11/2023 21**	10/11/2023 20	11/11/2023 00	2	-	-	-
								24/11/2023 12	25/11/2023 02	2	-	-	-
								18/12/2023 20	19/12/2023 05	2	-	-	-