GOVERNMENT OF INDIA
CENTRAL WATER COMMISSION
FLOOD FORECAST MONITORING DIRECTORATE

Outflow from Narora Barrage in September, 2010

FLOOD FORECASTING AND WARNING NETWORK PERFORMANCE APPRAISAL REPORT 2010

NEW DELHI – 110066 **March 2012**

PREFACE

Central Water Commission had started Flood Forecasting & Warning service in India in November 1958 by setting one forecasting station at Old Delhi bridge, for the national capital, on the river Yamuna. Today, its network of Flood Forecasting and Warning Stations gradually extended covering almost all the major inter-state flood prone river basins throughout the country. It comprises of 175 Flood Forecasting Stations including 28 inflow forecast in 9 major river basins and 71 sub basins of the country. It covered 15 states besides NCT Delhi and UT of Dadra & Nagar Haveli. The flood forecasting activities of the Commission are being performed every year from May to October through its 20 field divisions which issue flood forecasts and warnings to the civil authorities of the states as well as to other organizations of the central & state governments, as and when the river water level touches or is expected to cross the warning level at the flood forecasting stations.

The flood season 2010 witnessed unprecedented flood events in rivers Ganga in upstream reaches in Uttarakhand and Uttar Pradesh, Kosi in Bihar and Kushiyara in Assam. High Flood Situation was witnessed in Ganga in Uttarakhand and Uttar Pradesh. Rivers Ghaghra in Uttar Pradesh, Bagmati in Bihar, Sankosh, Beki and Kopili in Assam also witnessed High Flood Situation. The year witnessed moderate and low intensity floods in many parts of India.

During the flood season 2010, 7519 flood forecasts were issued by various units of CWC spread all over the country and 7378 forecasts i.e., 98.12% forecasts were found within permissible limit of accuracy. Out of 7519, 1028 were inflow forecasts and 6491 level forecasts. Out of 6491 level forecasts, 6390 forecasts i.e., 98.44 % of the forecasts were found within permissible limit of accuracy of ±15 cm. Similarly out of 1028 inflow forecasts, 988 inflow forecasts i.e., 96.11% of the inflow forecasts were found within permissible limits of accuracy of ±20%.

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

Flood Forecast Monitoring (FFM) Directorate plays an important role in compiling the information received from various field offices at Headquarters and issues daily bulletins which are sent to various offices of the MOWR, MHA, Railway Board, Transport Ministry and Ministry of Agriculture. I wish to place on record my deep appreciations of the efforts put in by the officers and staff of FFM Directorate in carrying out the work with utmost devotion & dedication in bringing out this report. The staff of this Directorate, along with other supporting staff from other Directorates attached to this Directorate during flood duties in the flood season of 2010 also deserves all appreciation in keeping the control room fully functional on all the week days, including holidays, Saturdays & Sundays. The control room was kept operational round the clock throughout the flood season. Special mention is made of Shri. V D Roy, Director, Shri. A.K. Srivastava, Deputy Director (Comm), Shri. S. Lakshminarayanan, AD (HM), Shri. Krishna Kumar, EAD (HM), Shri R. Jayachandran,

S.A., Shri. S. N. Biswas, S. A., Shri. Rajbir Singh, Data Entry Operator and Shri. Jameel Ahmed, PA, in preparing this Appraisal Report.

It is hoped that the momentum gained in improving performance, innovations in evaluation, modernization as well as computerization, year after year, will be further accelerated to achieve greater accuracy of each and every forecast especially in high and unprecedented flood situations.

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

S Kakran

New Delhi
March, 2012

(S P Kakran) 20/3/12
MEMBER (RM)

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EXECUTIVE SUMMARY

0.1 GENERAL

The South West Monsoon for the country as a whole was normal and the rainfall for the season (June-September) was 102% of its Long Period Average (LPA). As regards zonal variation, the seasonal rainfall was 112% of its LPA over Northwest India, 104% of its LPA over Central India, 118% of its LPA over south Peninsula and 82% of its LPA over Northeast (NE) India. Monthly rainfall over the country as a whole was 84% of LPA in June, 103% of LPA in July, 106% of LPA in August and 113% of LPA in September.

Contrary to normal formation of 4 to 6 monsoon depressions, no monsoon depression formed during this monsoon season. However, 14 low pressure areas formed during the season including 13 over the Bay of Bengal and one over the Arabian Sea.

0.2 Flood Situation

Unprecedented floods were witnessed at Karimgunj on river Kushiyara in Karimgunj District of Assam during June 2010, Basua in Supaul District of Bihar on river Kosi during August 2010, Haridwar in Haridwar District of Uttarakhand on river Ganga, Kannauj in Kannauj District of Uttar Pradesh on river Ganga, Ankinghat and Kanpur both in Kanpur District of Uttar Pradesh on river Ganga and Moradabad in Moradabad District of Uttar Pradesh ob river Ramganga during September - October 2010.

High flood events occurred at Rishikesh, Dalmau on main Ganga, Bareilly on river Ramganga, Mawi and Delhi Railway Bridge on river Yamuna, Elgin Bridge and Ayodhya on river Ghaghra, Benibad on river Bagmati, River Beki at Road Bridge, River Sankosh at Golokganj and river Kopili at Kampur in 2010.

Moderate to Low floods were witnessed in most of basins at various Flood Forecasting Stations. At 62 forecast stations, the water levels did not cross warning levels.

0.3 Flood Forecasting Performance

Total 7519 flood forecasts consisting of 1028 inflow and 6491 level forecasts were issued and 7378 (98.12%) forecasts consisting of 988 (96.11%) inflow and 6390 (98.44%) level forecast forecasts were found within permissible limit of accuracy.

The highest number of forecasts was issued for Brahmaputra basin with an accuracy of 99.39%. The Brahmaputra was followed by Ganga (98.06%),

Krishna (94.63%), Godavari (93.37%), Barak (98.20%), West Flowing rivers (99.48%), Mahanadi (98.59%) and Eastern Rivers (100%). No forecast was issued for North Pennar basin.

At 74 sites in 8 states, namely Andhra Pradesh (5), Assam (17), Bihar (26), Gujarat (3), Jharkhand (4), Odisha (3), Uttar Pradesh (11) and West Bengal (5), all the forecasts issued during the flood season 2010 were within permissible limit of accuracy (100% accuracy).

Salient Features of Flood Forecasting System

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

1.	Establishment of 'First Scientific Flood Forecasting Unit" (F.F.U.) at Delhi in India	November, 1958
2.	Date of issue of first scientific flood forecast	25th July, 1959
3.	Name of first forecasting site and river	Delhi Railway Bridge (old) on the River Yamuna
4.	Year of commencement of flood forecasting system on the inter-state rivers i.e. first national level expansion	1969
5.	No. of Chief Engineer's offices including one CE (Flood Management) at CWC' headquarters, Monitoring – Central, Nagpur and Cauvery and Southern Rivers Oragnisation, Coimbatore being organisations supporting the Flood Forecasting Activities	11
6.	No. of Superintending Engineer's offices including one Flood Forecast Monitoring Directorate at CWC headquarter	14
7.	No. of present Flood Forecasting Divisions and No. of Divisions supporting FF Activities	25
8.	No. of Control Room/Sub-Divisions engaged in flood forecasting work	64
9.	No. of inter-state rivers (main/tributaries) covered by flood forecasting programme	71
10.	No. of states including union -territories covered under F.F. Programme	17
11.	No. of forecasting sites	175
12.	No. of exclusive base stations	165
13.	No. of gauge and gauge & discharge sites	866
14.	No. of exclusive rain gauge stations (ordinary/self recording)	97
15.	No. of wireless stations including Control Rooms)	544
16.	No. of Telemetry Stations installed/under installation during IX,X and XI Plans	445
17.	Maximum no. of forecasts issued in any one year Second Highest no. of forecasts issued	8566 (in 1990) 8223 (in 2007)
18.	No. of forecasts issued in flood season 2008	6691
19.	No. of forecasts issued in flood season 2009	4010
20.	No. of forecasts issued in flood season 2010	7519

CHAPTER-1

NATIONAL FLOOD FORECASTING NETWORK

1.1 FLOOD FORECASTING SERVICES

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

1.2 FLOOD FORECASTING NETWORK IN THE COUNTRY

Flood Forecasting has been recognized as the most important, reliable and cost effective non-structural measures for flood mitigation. Recognizing the great importance of this measure, flood forecasting of river Yamuna at Delhi was suggested by Reddy Committee set up by Prime Minister, Govt. of India to manage flooding of Delhi. Accordingly in the year 1958, CWC commenced the flood forecasting service in a small way by establishing flood forecasting unit for issuing water level forecasts of the Yamuna for the National Capital, Delhi. On the recommendation of various committees/panels, a "Flood Forecast & Warning Organisation" was set up in CWC in 1969 to establish forecasting sites on inter-state rivers at various flood prone places in the country. 41 forecasting sites were added in 1969, making total number of forecasting sites to 43. Extension of the service followed from time to time and now the river forecasting has been expanded over the years to cover nine major inter-state flood prone river basins, which comprises of 71 sub-river basins traversing the country. The year-wise positions of the number of flood forecasting sites till the flood season 2010 in the network of Central Water Commission are shown in the **Table 1.1** given below:

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

Year	No. of Flood Forecasting Sites	Year	No. of Flood Forecasting Sites
1958	01	2001	159
1965	02	2002	161
1969	43	2003	166
1977	77	2004	172
1980	84	2005	173
1985	145	2006	175
1987	147	2007	175
1990	157	2010	175

The "National Flood Forecasting and Warning Network" of Central Water Commission, which comprised of 175 flood forecasting sites including 28 inflow forecasting sites in flood season 2010 is shown in **Map-1.** The number of flood forecasting sites on each of the nine major inter-state river systems, which constitutes 71 river sub-basins in the country, are given in the **Table 1.2**.

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

S. No.	Major Interstate River Systems	Type of Forecasting Sites		Total
		Level Forecasting	Inflow Forecasting	
1	Ganga & its tributaries	77	10	87
2	Brahmaputra & its tributaries	27	00	27
3	Barak System	05	00	05
4	Eastern Rivers	08	01	09
5	Mahanadi	03	01	04
6	Godavari	14	04	18
7	Krishna	03	06	10
8	West Flowing Rivers	09	06	15
9	Southern River System (Pennar)	01	00	01
Total		147	28	175

The above flood forecasting network covers the following 15 states, one Union Territory and NCT of Delhi as shown in the **Table 1.3**

Table 1.3 Statewise Flood Forecasting Network in CWC

Sl. No.	State	Type of Forecasting sites		Total Forecasting sites
		Stage forecasting	Inflow forecasting	
1	Andhra Pradesh	9	7	16
2	Assam	24	0	24
3	Bihar	32	0	32
4	Chhattisgarh	1	0	1
5	Gujarat	6	5	11
6	Haryana	0	1	1
7	Jharkhand	1	4	5
8	Karnataka	1	3	4
9	Madhya Pradesh	2	1	3
10	Maharashtra	7	2	9
11	Orissa	11	1	12
12	Tripura	2	0	2
13	Uttarakhand	3	0	3
14	Uttar Pradesh	34	1	35
15	West Bengal	11	3	14
16	Dadra & Nagar Haveli	1	0	1
17	NCT of Delhi	2	0	2
Total		147	28	175

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

1.3 CLASSIFICATIONS OF VARIOUS FLOOD SITUATIONS

The Central Water Commission has categorized various flood situations, for monitoring the floods in the country though its flood forecasting network, into the following four different categories, depending upon the severity of floods i.e. based on floods magnitudes.

1.3a Level Forecast

(i) LOW FLOOD

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

(ii) MODERATE FLOOD

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

(iii) HIGH FLOOD

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

(iv) UNPRECEDENTED FLOOD

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

1.3b Standard Operating Procedure (SOP) for Flood Forecasting & Warning

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

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

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

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

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

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

1.4 Inflow Forecasts

Inflow Forecasts are issued for 28 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. As discussed in the previous section, the criteria for issue of High and Unprecedented floods are applicable only to level forecast. However, they are not applicable for inflow forecasts. In view of the unprecedented floods in Krishna, it is high time that similar criteria are fixed for inflow forecasts too. Locally some of the reservoirs in Krishna and Godavari Basins have categorized certain inflow figures for warning downstream areas for Low, Moderate, High and Unprecedented situations, it has still not been recommended for all the reservoirs in the country as a whole. The categorization of inflow shall be done taking into account the total live storage of the reservoir and the largest design flood discharging capacity and the likely effect of this discharge on the downstream areas, for each inflow forecast stations. 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. Thus, the criteria should cover all the aspects of the flood pattern at the reservoir as well as the downstream.

A committee is proposed to be constituted for looking into various aspects for fixing similar criteria for categorization of inflow forecast.

1.5 EXPANSION OF THE NETWORK OF FLOOD FORECASTING SITES

The operation and maintenance of existing flood forecasting network is carried out as per budget allotment each year under 'Non-Plan' head and is thus subject to such restrictions and cuts applied to items under `Non-Plan'. The allocation during the year 2010-11 was Rs.56.74 Crore only including that for payment to Government of Bhutan for maintaining hydrometeorological stations in river common to India and Bhutan. The expansion of the network with a view to cover additional flood prone areas is proposed to be covered under 'Plan' head. Work on such Plan schemes is subject to approval of specific schemes by the Government and the budget allocation of funds.

The details of all the sites basin-wise as well as Statewise during the flood season 2010, is shown at **Annex-I** and **Annex-II** respectively. The list of real – time data station using Wireless and Telemetry in CWC during the flood season 2010 is shown as **Annex-III**.

1.6 Data Communication System

Central Water Commission maintains 544 Wireless Stations for near real –time data communication. In addition, satellite based Telemetry System has been installed/ or under installation at 445 stations for automatic data communication. As the wireless works on pre-fixed schedules and the Telemetry transmit the data at pre-fixed time intervals only, telephone/mobile phone, fax and internet in particular was used for receiving the vital hydro-meteorological data immediately after its observation and dissemination of flood forecasts to user agencies.

1.6.a Wireless Communication

Wireless network in CWC consists of HF (3 to 30 MHz) and VHF (30 to 300MHz) sets. The HF sets are used for long distance communication between Site and Division (15 to 20Watts), Division to Division (20 to 100 Watts) and Division to CWC Headquarters (100 to 500 Watts). VHF sets are used for short distance communication (i.e. from river to Site office). The details of functional wireless network is given in **Annex-III**.

Wireless network works on pre-fixed schedules only. The schedules are decided by the respective field divisions and intimated well in advance to all the stations under their jurisdiction for strict compliance. The wireless schedules from divisions to CFCR are generally operated between 0700-0800 for collecting 06 hrs data, 0900- 1000 for collecting 08 hrs data, 1000-1100 for collecting forecast, 1530-1630 for collecting 1500 hrs data and 1830-1930 hours for collecting 18 hrs on normal days and throughout night in case of High or Unprecedented Flood Situations.

1.6b Telemetry

Sensor based data collection and satellite based communication was installed at 223 sites upto X plan for real time hourly water levels, hourly rainfall and other important meteorological parameters, established in Krishna, Godavari, Mahanadi, Chambal Damodar Yamuna and Brahmaputra Basins.. Two earth stations (DDRGS) located at Jaipur and Burla are receiving through INSAT/Kalpana satellite, the data from remote stations for further transmission to the respective modelling centre through VSAT. The data received was used mainly by the divisions issuing forecast by MIKE-11. Data from 39 sites was not received because of theft, vandalism and damage due to floods. Installation of sensor based Telemetry System at 222 sites was in progress and data from those stations were not used for flood forecasting purposes in 2010.

1.7 DAMAGE DUE TO FLOODS/ HEAVY RAINS BETWEEN 1953 TO 2010

The damage due to floods for the entire country was estimated to be Rs.1101.469 Crore (tentative) during the flood season 2010. The average annual damages to crops, houses and public utilities from the year 1953 to 2010 as reported by the States/UT's are of the order of Rs. 1824.207 Crore (tentative), the maximum annual damage being Rs.8864.544 Crore during 2000.

A comparative details showing the details of damages occurred during the flood season 2008 to 2010 on different accounts, based on the reports (tentative), received from the revenue authorities of the state governments is given in the **Table 1.4**. (Figures given for all the three years are tentative- Source: FMP Directorate- CWC)

Table 1.4: Damages occurred during flood season, 2008 to 2010

Sl. No.	Items	Flood damages during Year the Year			Flood Damages during 1953-2010		
		2008	2009	2010	Average	Maximum	
						Year	Damage
1	Area affected (in mha)	0.000	0.000	5.070	7.167	1978	17.500
2	Population affected (in millions)	19.213	11.372	5.668	31.901	1978	70.45
3	Damaged to Crops(area in mha)	1.783	1.006	3.597	3.692	2005	15.18
4	Damaged to crops(value in Rs. Crore)	679.284	438.35	349.474	677.604	2000	4246.622
5	Damaged to houses (in numbers)	914251	933490	135641	1199149	1978	3507542
6	Damaged to houses (value in Rs. Crore)	441.105	129.07	40.348	271.807	1995	1307.894
7	Cattle lost (in number)	17214	38578	8541	92369	1979	618248
8	Human lives lost (in numbers)	2143	1326	1199	1611	1977	11316
9	Damaged to public Utilities (in Rs. Crores)	1188.016	831.857	711.639	779.310	2001	5604.46
10	Total damages to crops, houses & public utilities (in Rs. Crores)	2214.405	1399.275	1101.469	1784.263	2000	8864.54

1.9 ANALYSIS OF PERFORMANCE OF FLOOD FORECASTING NETWORK

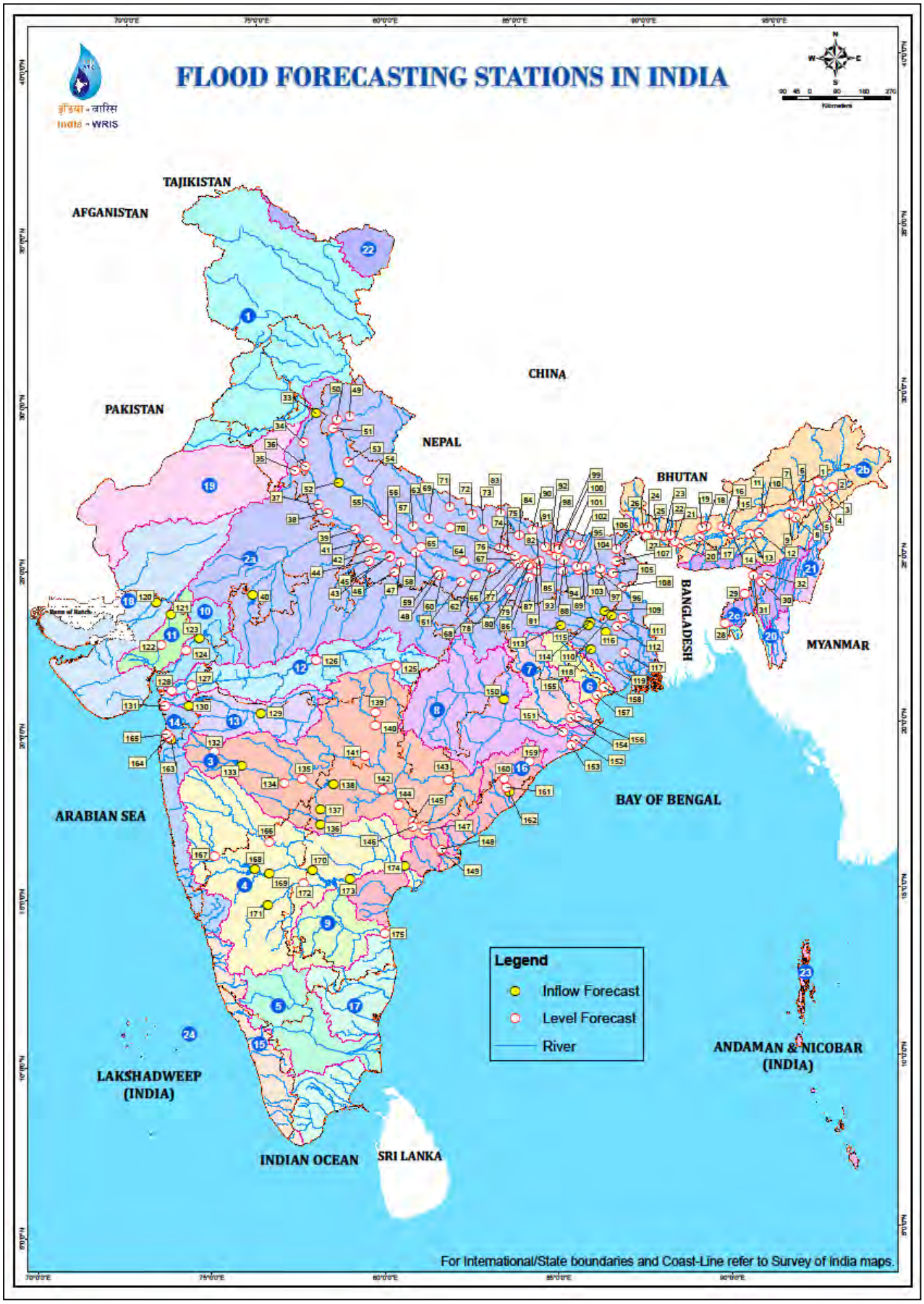
CWC carries out analysis and appraisal of the forecasting work, at the end of monsoon season. Based on this, measures for improvements, if necessary, are identified. A summary of the performance of the work carried out by the field divisions during the flood season 2010 presented in chapter-3. While the performance of the flood forecasting system is satisfactory, yet there is constant endeavor for improving the performance as new technology and more data are becoming available.

1.10 ORGANISATIONAL SET-UP OF FLOOD FORECASTING NETWORK

The present organizational set up of Flood-forecasting & Warning Establishment of Central Water Commission under the Member (River-Management) is spread over regional offices of CWC each headed by a Chief

Engineer. Fourteen Circle Offices and twenty five Divisions in its field formations carry out flood forecasting activities. Chief Engineer (Flood Management) and Flood Forecast Monitoring Directorate monitor the Flood Forecasting activities in the headquarters. It also issues flood bulletins at national level.

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

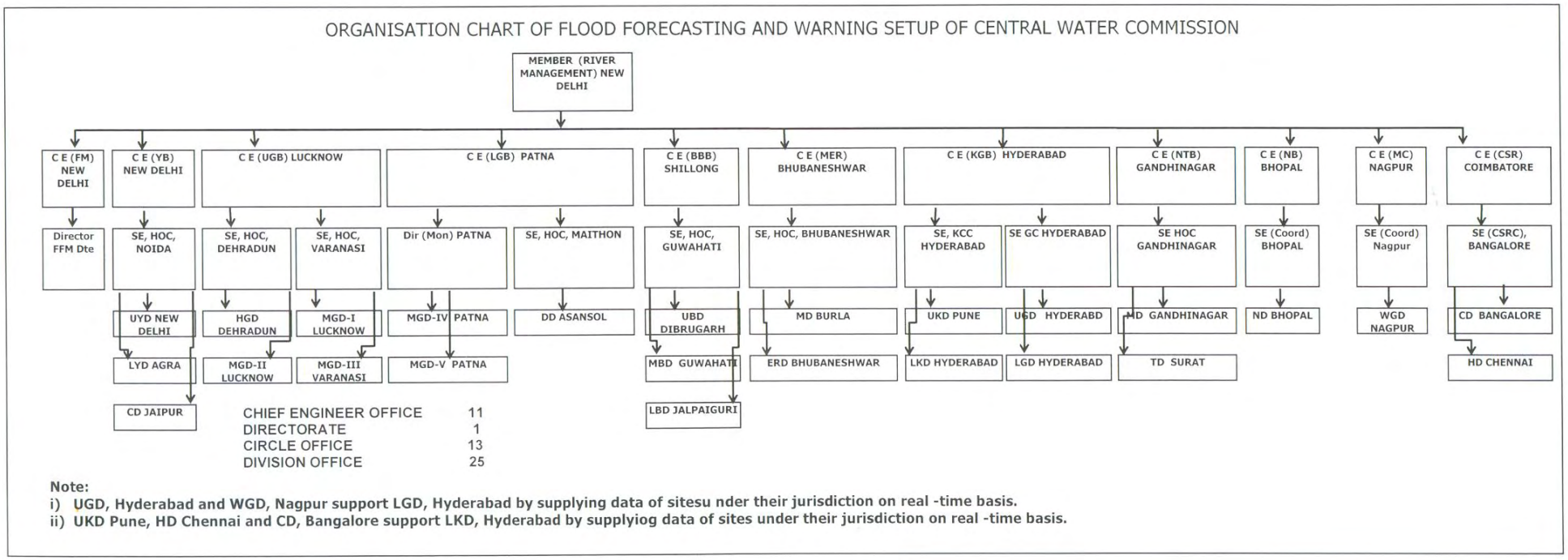


Map -1 Flood Forecasting Network in India

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

List of Flood Forecasting Stations											
Sl. No.	**Name of Forecast Station**	**Sl. No.**	**Name of Forecast Station**	**Sl. No.**	**Name of Forecast Station**	**Sl. No.**	**Name of Forecast Station**	**Sl. No.**	**Name of Forecast Station**	**Sl. No.**	**Name of Forecast Station**
1	Dibrugarh	34	Mawi	67	Ballia	100	Hayaghat	133	Jaikwadi Dam	166	Deongaon Bridge
2	Naharkatia	35	Dhansa Regulator	68	Buxar	101	Jhanjharpur	134	Gangakhed	167	Arjunwad
3	Chenimari (Khowang)	36	Delhi Railway Bridge	69	Elgin Bridge	102	Basua	135	Nanded	168	Almatti Dam
4	Nanglamoraghat	37	Mathura	70	Ayodhya	103	Balthara	136	Singur Dam	169	Narayanpur Dam
5	Sibsagar	38	Agra	71	Balrampur	104	Kursela	137	Nizamsagar Dam	170	PD Jurala Project
6	Neamatighat	39	Etawah	72	Bansi	105	Sahibganj	138	Sriramsagar	171	Tungabhadra Dam
7	Badatighat	40	Gandhisagar Dam	73	Gorakhpur (Birdghat)	106	Dengraghat	139	Bhandara	172	Mantralayam
8	Golaghat	41	Auraiya	74	Turtipar	107	Jhawa	140	Pauni	173	Srisailam Dam
9	Numaligarh	42	Kalpi	75	Darauli	108	Farakka Barrage	141	Balharsha	174	Prakasam Barrage
10	N T Road Crossing (Jiabharali)	43	Hamirpur	76	Gangpur Siswan	109	Massanjore Dam	142	Kaleswaram	175	Nellore Anicut
11	Tezpur	44	Mohana	77	Chhapra	110	Tilpara Barrage	143	Jagdalpur		
12	Kampur	45	Sahjiana	78	Inderpuri	111	Narayanpur	144	Eturunagaram		
13	Dharamtul	46	Banda	79	Koelwar	112	Gheropara	145	Dummagudem		
14	Guwahati (D C Court)	47	Chillaghat	80	Maner	113	Tenughat Dam	146	Bhadrachalam		
15	NH Crossing (Puthimari)	48	Naini	81	Patna (Dighaghat)	114	Panchet Dam	147	Kunavaram		
16	NT Road Crossing (Pagladiya)	49	Srinagar	82	Patna (Gandhighat)	115	Maithon Dam	148	Rajahmundry GNV Railway Bridge		
17	Goalpara	50	Rishikesh	83	Khadda	116	Durgapur Barrage	149	Dowlaiswaram Barrage		
18	Beki Road Bridge	51	Hardwar	84	Chatia	117	Harinkhola	150	Hirakud Dam		
19	NH Crossing (Manas)	52	Narora Barrage	85	Hazipur	118	Kangsabati Dam	151	Naraj		
20	Dhubri	53	Moradabad	86	Kamtaul	119	Mohanpur	152	Alipingal		
21	Golokganj	54	Bareilly	87	Sripalpur	120	Dantiwada Dam	153	Nimapara		
22	Tufangunj	55	Kannauj (Gurnatia)	88	Hathidah	121	Dharoi Dam	154	Jenapur Expressway		
23	Ghughumari	56	Ankinghat	89	Munger	122	Subash Bridge (Ahmedabad)	155	Anandpur		
24	NH 31	57	Kanpur	90	Lalbeghiaghat	123	Kadana Dam	156	Akhuapada		
25	Mathabhanga	58	Dalmau	91	Muzzafarpur (Sikandarpur)	124	Wanakbori Weir	157	NH 5 Road Bridge		
26	Domohani Road Bridge	59	Phaphamau	92	Rewaghat	125	Mandla	158	Rajghat		
27	Mekhligunj	60	Allahabad (Chatnag)	93	Samastipur	126	Hoshangabad	159	Purushottampur		
28	Sonamura	61	Mirzapur	94	Rosera	127	Garudeshwar	160	Gunupur		
29	Kailashshar	62	Varanasi	95	Khagaria	128	Bharuch	161	Kashinagar		
30	Matizuri	63	Hanuman Setu(Lucknow)	96	Bhagalpur	129	Hathnur Dam	162	Gotta Barrage		
31	Karimgunj	64	Jaunpur	97	Colgong/Kahalgaon	130	Ukai Dam	163	Madhuban Dam		
32	Annapurnaghat (Silchar)	65	Rae-Bareilly	98	Benibad	131	Surat	164	Daman		
33	Tajewala Barrage (Hathnikund Barrage)	66	Ghazipur	99	Ekmighat	132	Kopergaon	165	Vapi Town		

Fig -1.1


ORGANISATION CHART OF FLOOD FORECASTING AND WARNING SETUP OF CENTRAL WATER COMMISSION
MEMBER (RIVER MANAGEMENT) NEW DELHI
C E (FM) NEW DELHI
C E (YB) NEW DELHI
C E (UGB) LUCKNOW
C E (LGB) PATNA
C E (BBB) SHILLONG
C E (MER) BHUBANESHWAR
C E (KGB) HYDERABAD
C E (NTB) GANDHINAGAR
C E (NB) BHOPAL
C E (MC) NAGPUR
C E (CSR) COIMBATORE
Director FFM Dte
SE, HOC, NOIDA
SE, HOC, DEHRADUN
SE, HOC, VARANASI
Dir (Mon) PATNA
SE, HOC, MAITHON
SE, HOC, GUWAHATI
SE, HOC, BHUBANESHWAR
SE, KCC HYDERABAD
SE GC HYDERABAD
SE HOC GANDHINAGAR
SE (Coord) BHOPAL
SE (Coord) Nagpur
SE (CSRC), BANGALORE
UYD NEW DELHI
HGD DEHRADUN
MGD-I LUCKNOW
MGD-IV PATNA
DD ASANSOL
UBD DIBRUGARH
MD BURLA
UKD PUNE
UGD HYDERABD
MD GANDHINAGAR
ND BHOPAL
WGD NAGPUR
CD BANGALORE
LYD AGRA
MGD-II LUCKNOW
MGD-III VARANASI
MGD-V PATNA
MBD GUWAHATI
ERD BHUBANESHWAR
LKD HYDERABAD
LGD HYDERABAD
TD SURAT
HD CHENNAI
CD JAIPUR
LBD JALPAIGURI
CHIEF ENGINEER OFFICE 11
DIRECTORATE 1
CIRCLE OFFICE 13
DIVISION OFFICE 25
Note:
i) UGD, Hyderabad and WGD, Nagpur support LGD, Hyderabad by supplying data of sitesu nder their jurisdiction on real -time basis.
ii) UKD Pune, HD Chennai and CD, Bangalore support LKD, Hyderabad by supplyiog data of sites under their jurisdiction on real -time basis.

CHAPTER – 2

SOUTHWEST MONSOON ACTIVITIES

2.1 GENERAL

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

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

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

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

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

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

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

Normal is defined as the Long Period Average say for 50 years for the period from 1st June to 30th September. Presently Long Period average for the

years 1941 to 1990 is being used to define normal. For the country as a whole the normal rainfall during the period 1st June to 30th September is 89 cm.

2.2 HIGHLIGHTS OF SOUTH-WEST MONSOON 2010

For the country as a whole, the rainfall for the season (June-September) was 102% of its long period average (LPA).

Seasonal rainfall was 112% of its LPA over Northwest India, 104% of its LPA over Central India, 118% of its LPA over south Peninsula and 82% of its LPA over Northeast (NE) India.

Monthly rainfall over the country as a whole was 84% of LPA in June, 103% of LPA in July, 106% of LPA in August and 113% of LPA in September.

Out of 597 meteorological districts for which data are available, 173 districts (29%) received excess, 240 districts (40%) received normal, 173 districts (29%) received deficient and the remaining 11 districts (2%) received scanty rainfall during the season.

Southwest monsoon current advanced over the Andaman Sea on 17th May. The monsoon set in over Kerala on 31st May, one day earlier than its normal date of 1st June and covered the entire country by 6th July, 9 days earlier than its normal date of 15th July. The withdrawal of monsoon was delayed and it commenced from west Rajasthan only on 27th September compared to its normal date of 1st September.

Though there were two intense systems viz., the Severe Cyclonic Storm (LAILA, 16th–21st May) over the Bay of Bengal and the Very Severe Cyclonic Storm (PHET, 31st May–2nd June) over the Arabian Sea during the advance phase, the entire monsoon season was devoid of any monsoon depressions. Thus, 2010 has been the only year in the recorded history after 2002, to have no depressions during the entire season.

2.3 ONSET OF SOUTH-WEST MONSOON SEASON 2010

Climatologically, the southwest monsoon has an onset phase from end of May to end of June and a withdrawal phase from the first week of September continuing up to the middle of October. The **Fig. 2.1 and Fig.2.2** show the "Normal dates on Onset and Withdrawal" of southwest monsoon in India, respectively. The intervening months of July and August are the months of peak monsoon activity. However, the rainfall over various parts of the country occurs in association with the movement of low-pressure systems. The monsoon rainfall thus has its active and weak phases. Also the paths traversed by the low-pressure systems determine the spatial rainfall pattern.

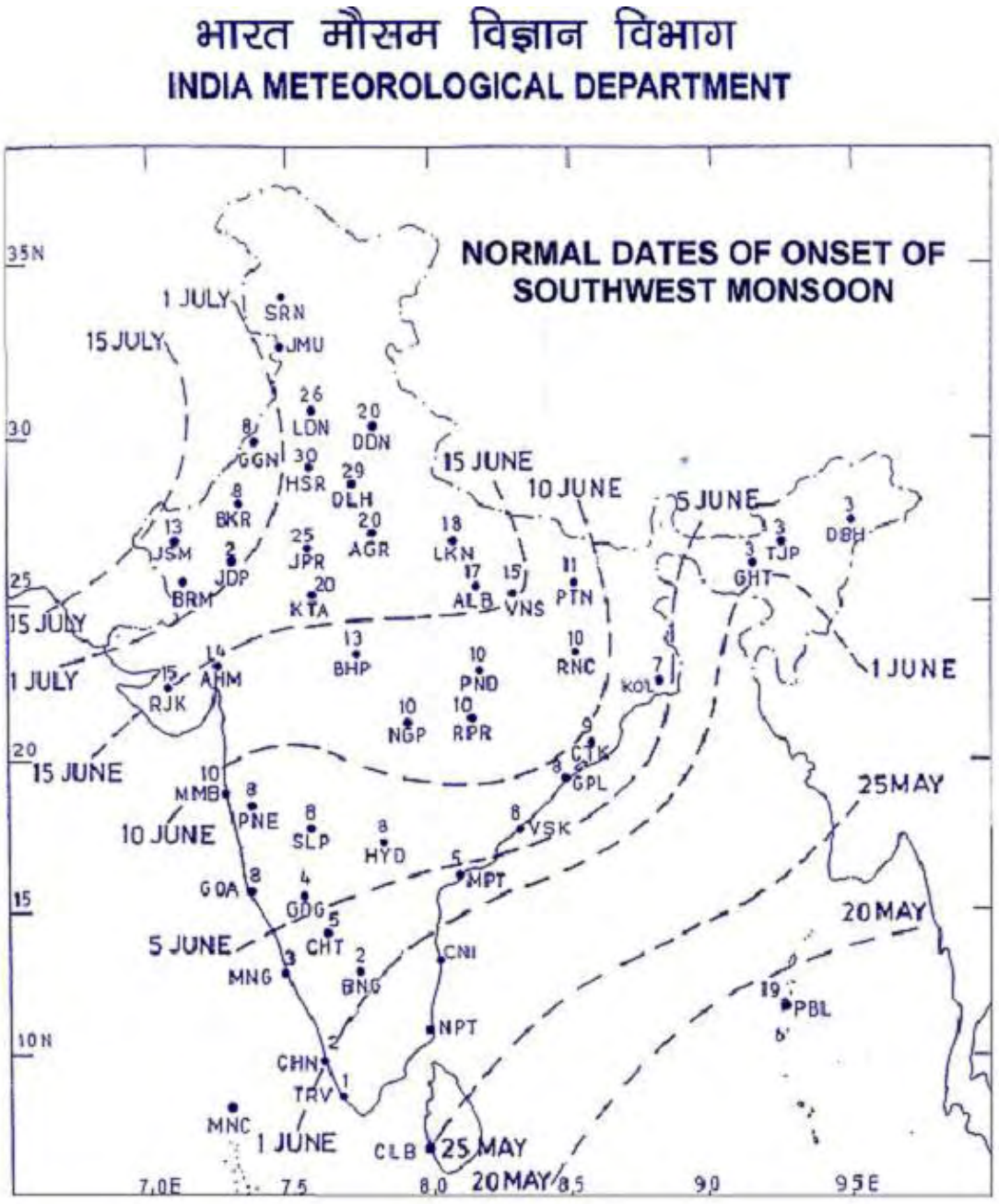


Fig – 2.1 Normal Dates of Onset of South West Monsoon

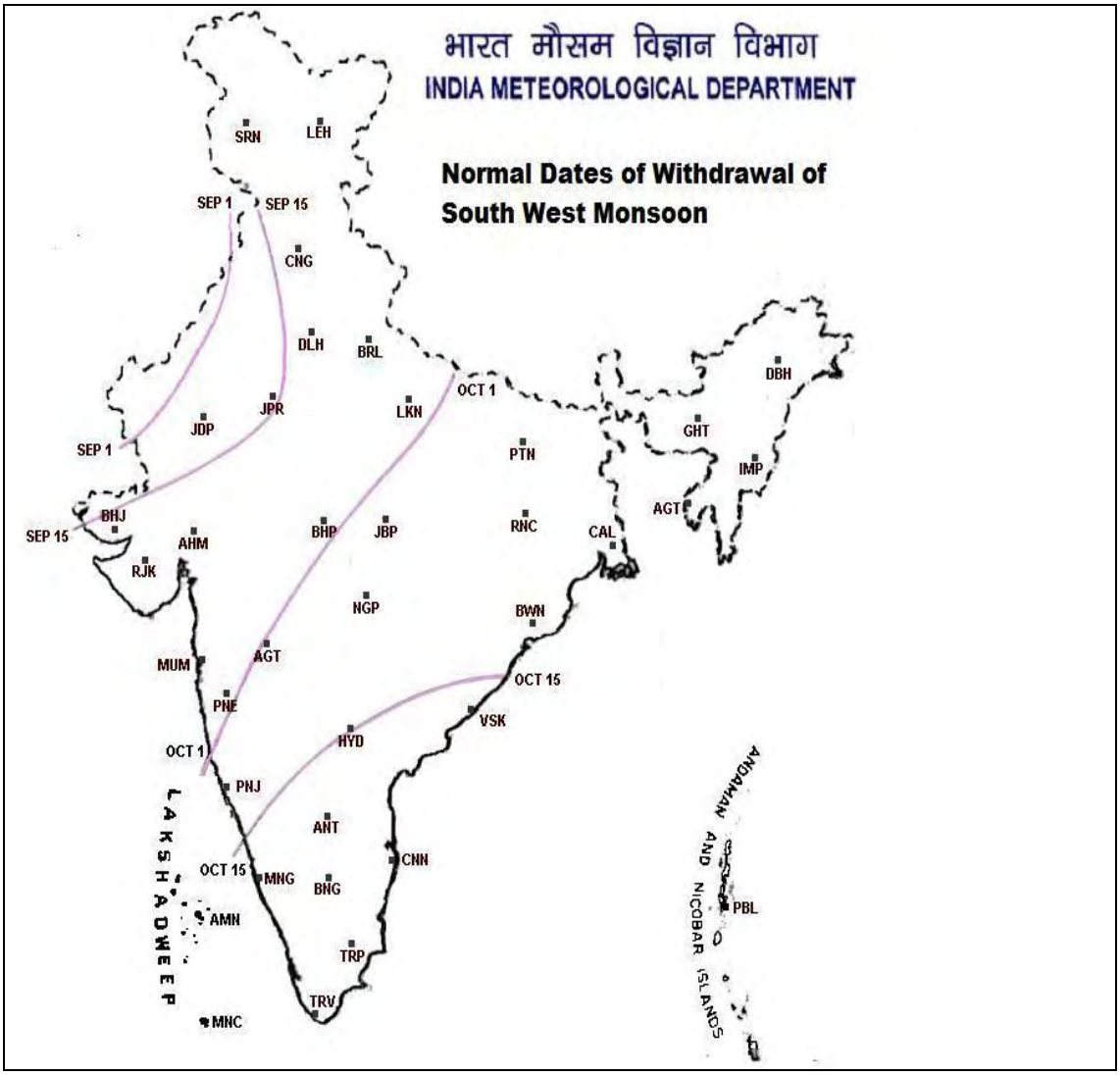


Fig – 2.2 Normal Dates of Withdrawal of South West Monsoon

During phases of the weak monsoon activity mentioned above, the monsoon trough of low pressure, which normally runs across the northern parts of the country, shifts to the foothills of the Himalayas. This produced heavy rainfall and led to floods in Bihar, West Bengal and northeastern states.

Southwest monsoon set in over Andaman Sea on 17th May, 3 days prior to normal date in association with a severe cyclonic storm (LAILA, 16th–21st May 2010) over the Bay of Bengal. The track of the storm Laila is shown in the **Fig - 2.3.**

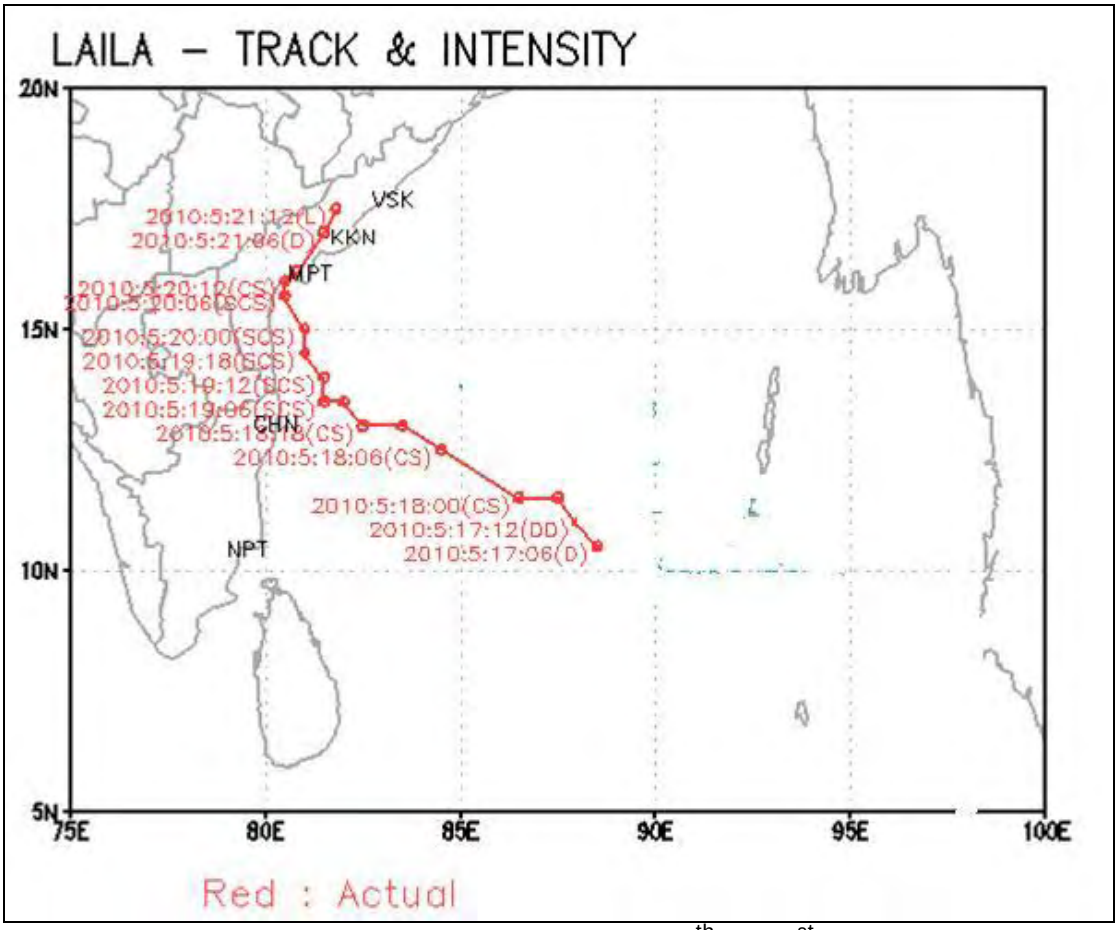


Fig – 2.3 Track of Cyclonic Storm, Laila 17th to 21st May 2010

The southwest monsoon further advanced over parts of Comorin area and some more parts of Bay of Bengal on 21st May and thereafter there was a hiatus in the monsoon advance lasting for more than a week. However, monsoon set in over Kerala on 31st May, just one day before its normal onset date (1st June). The advance of monsoon over northeastern parts of the country was earlier than normal date. But monsoon advance over most parts of Bihar and Jharkhand, interior Orissa, Chhattisgarh was delayed by 2-3 weeks than the normal.

Subsequent to the onset over Kerala, a very severe cyclonic Storm (PHET, 31st May–2nd June) formed over the Arabian Sea and it delayed further advancement of the monsoon across west coast by about one week. Around 6th June, monsoon got activated and by middle of June, it covered nearly half of the country. A prolonged hiatus was observed in the further advance till 30th June, due to weakening of monsoon current and prevalence of non-conducive conditions for the formation of low pressure systems over the Bay of Bengal. As a result, over most parts of central and north India including Madhya Pradesh and Uttar Pradesh, monsoon advance was delayed by 2-3 weeks and 1-2 weeks respectively. Severe heat wave/heat wave conditions prevailed over many parts of north, northwest and central India

during this period. Associated with the formation of a low pressure area over the North Bay of Bengal and neighbourhood on 2nd July and its subsequent west-northwestward movement, the monsoon current advanced over most parts of the country, outside parts of west Rajasthan by 5th July itself. The southwest monsoon covered the entire country by 6th July, about 9 days earlier than its normal date of 15th July. The advance of south west monsoon 2010 is enclosed as **Fig.2.4**.

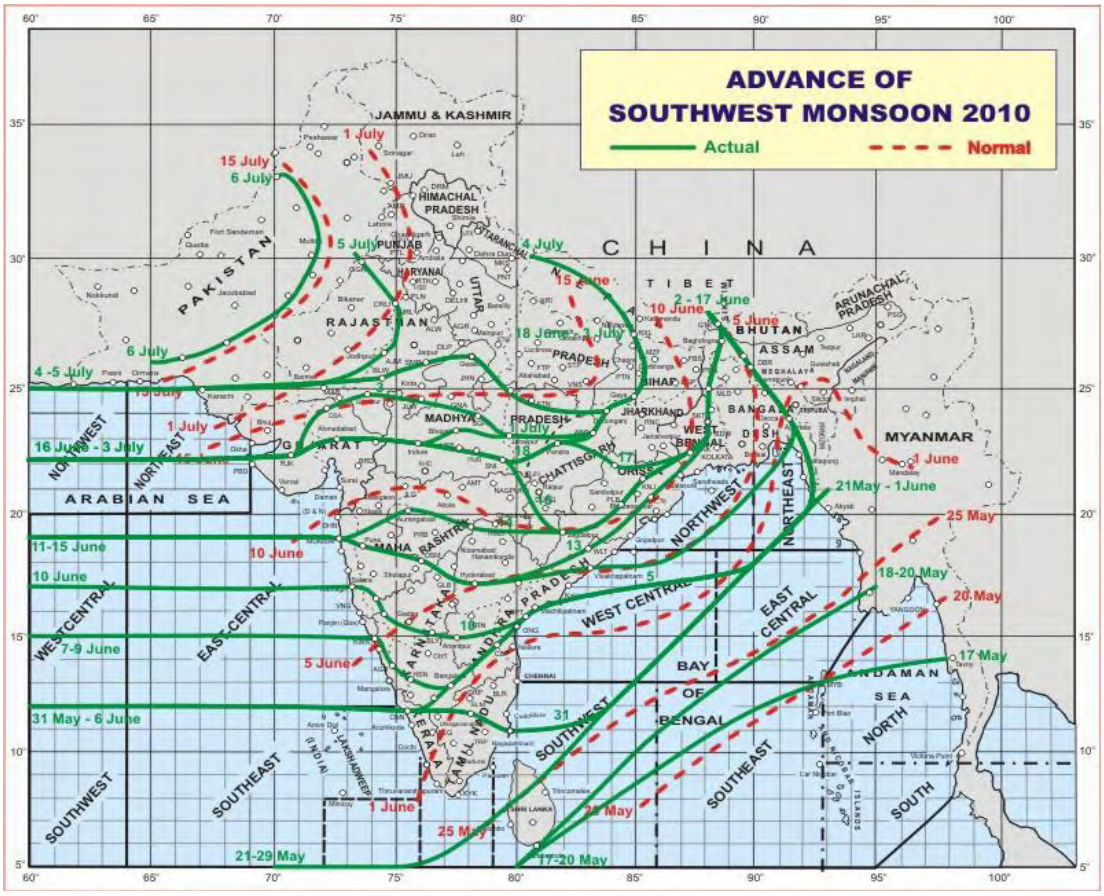


Fig - 2.4 Advance of South West Monsoon in the year 2010

2.4 SYNOPTIC FEATURES ASSOCIATED WITH THE MONSOON 2010

Weak cross equatorial flow prevailed during most parts of June and in the first fortnight of July. Though the monsoon trough, displayed rapid north-south oscillations, there had been active periods often in association with the low pressure areas and remnant cyclonic circulations embedded with the monsoon trough extending upto mid-tropospheric levels, and tilting southward with height.

Though there had been spells of subdued rainfall activity all through the season in different spatial and temporal scales, there was no all India break monsoon condition during this year.

Normally 4-6 monsoon depressions form per season (June - September). However, no depression formed over Indian monsoon region during this monsoon season. The causative factors which inhibited the low pressure areas from intensifying further might be, (a) basin wide warming of sea surface temperature (SST) over the north Indian Ocean [absence of favourable SST gradient] (b) presence of a weak negative Indian Ocean Dipole pattern over the equatorial India Ocean and (c) a weaker than normal low level monsoon flow which prevailed quite often, which in turn with its slackened horizontal wind shear curtailed the generation of barotropic instability required for intensification of monsoon lows.

Two low pressure areas formed over the northwest Bay of Bengal and neighbourhood in the month of June. One low pressure area (9^{th} – 13^{th} June) dissipated in situ and the other low pressure area (24^{th}– 26^{th}June) was short lived and dissipated over Gangetic west Bengal and neighbourhood. Because of its very short trajectory, it could not revive the monsoon current which resulted in the prolonged hiatus during 19^{th}– 30^{th} June in further advance of southwest monsoon over the country, but it contributed to the active monsoon conditions over Orissa with very heavy rainfall.

Out of four low pressure areas that formed in the month of July over the Bay of Bengal, two low pressure areas formed during the first week and the other two in the last week of July. The first low pressure area (2^{nd}– 6^{th}July) formed over northwest Bay of Bengal became well marked, moved west-northwestwards across Orissa, Chhattisgarh and Madhya Pradesh and merged with the monsoon trough. This system was responsible for strengthening of monsoon current and rapid advance of the monsoon in the country. The second low pressure area (6^{th}– 9^{th} July) formed over northwest and adjoining west central Bay of Bengal off south Orissa & north Andhra coast, moved west-northwestwards and dissipated over north Madhya Pradesh and neighbourhood. These two systems gave good rainfall over central India and Andhra Pradesh. The third low pressure area (24^{th}– 27^{th}July) formed over northwest Bay of Bengal, moved west-northwestwards along the monsoon trough and dissipated over south Rajasthan and adjoining Gujarat State. Active/ vigorous monsoon conditions prevailed over central, western and north Peninsular India in association with this system. The fourth low pressure area (28^{th}July–2^{nd}August) developed over northwest Bay of Bengal, moved west-northwestwards across south Orissa, Chhattisgarh and dissipated over Rajasthan on 3rd August.

The month of August also witnessed formation of four low pressure areas over the Bay of Bengal The first low pressure area (4^{th}-9^{th}August) formed over northwest Bay of Bengal off Orissa coast and moved west-northwestwards across Orissa, Chhattisgarh and Madhya Pradesh and dissipated over Rajasthan. After the dissipation of this low pressure area, the monsoon trough shifted to north and monsoon activity remained subdued over major parts of the country outside northwest and western parts. The second low pressure area (12^{th} -14^{th} August) formed over northwest and

adjoining west central Bay of Bengal off south Orissa – north Andhra coast and dissipated over south Chhattisgarh and east Madhya Pradesh. After the dissipation of this low pressure area, the monsoon flow pattern in general resembled weak condition. With the formation of two more low pressure areas, one over west central Bay off Andhra coast during 23rd-27thAugust and another over northwest Bay of Bengal during 30th–31stAugust and their subsequent west-northwestward movement, active to vigorous monsoon conditions prevailed over major parts of south peninsula and central India in the last week of August.

Four low pressure areas formed in the month of September. Two formed over west central Bay of Bengal off north Andhra-south Orissa coast. One of these two (3rd-6th September) weakened over Orissa and neighbourhood and second (17th–20th September) weakened over north Madhya Pradesh. The third low pressure area (8th–13th September) formed over Vidarbha and neighbourhood. It weakened over northeast Rajasthan and adjoining Haryana. The fourth low pressure area formed over the southeast Arabian Sea on 29th and lay over the southeast and adjoining east central Arabian Sea on 30th Sept.

Considering season as a whole, 14 low pressure areas formed during the season including 13 over the Bay of Bengal and one over the Arabian Sea. As normally 13.5 low pressure systems including lows and depressions form during monsoon season, the formation of higher number of low pressure areas compensated the adverse impact of the absence of depression during the season. Further, most of the low pressure areas formed over relatively southerly latitudes (over northwest and adjoining west central Bay) and moved west-northwestwards along the monsoon trough upto Rajasthan leading to a good rainfall activity over Central and Peninsular India. On the other hand, it caused deficient rainfall over many parts of east and northeast India including north Orissa, Gangetic West Bengal, Jharkhand, Bihar, east Uttar Pradesh and Assam & Meghalaya. The remnant of some of the low pressure areas interacted with the mid-latitude westerly systems and caused excess rainfall over northwest India. Frequent development of these lows in regular intervals led to frequent oscillation of monsoon trough and hence absence of prolonged all India weak monsoon conditions during this season. Comparing with the past years, there was only one year (2002) in the recorded history when there was no depression like this year. While the year 2002 was all India drought year, the year 2010 has been a normal year.

2.5 RAINFALL DISTRIBUTION IN INDIA DURING THE MONSOON SEASON (2010)

The southwest monsoon season (June to September) rainfall for the country as a whole and the four broad geographical regions are as follows

Table 2.1 Southwest monsoon rainfall (June to September) for the country as a whole and four broad homogenous regions

Region	Actual (mm)	Long Period Average (LPA) (mm)	Actual % of LPA	Coefficient of Variation (CV) % of LPA
All-India	912.8	893.2	102	10
Northwest(NW) India	688.2	613	112	19
Central India	1027.9	991.5	104	14
South peninsula	853.6	722.9	118	15
Northeast (NE) India	1175.8	1436.2	82	8

The seasonal rainfall is classified as normal when the actual rainfall is within LPA ± CV. The CV for seasonal rainfall over various regions is given in the Table above. Similarly, seasonal rainfall is classified as deficient when the actual rainfall is less than (LPA – CV) and as excess when the actual rainfall is more than (LPA+CV). Considering the above criteria, the monsoon seasonal rainfall over the country as a whole has been normal during 2010 (102% of LPA). Similarly, the seasonal rainfall has been normal over northwest and central India, excess over the Peninsular India and deficient over the northeast India.

The cumulative seasonal rainfall from 1st June to 30 September 2010 was excess in 14 meteorological subdivisions (43% of the total area of the country) and normal in 17 meteorological subdivisions (42% of the total area of the country). Five subdivisions (East U.P, Bihar, Jharkhand, Gangetic W. B and Assam & Meghalaya) constituting 15% of the country received deficient rainfall.

In June, large rainfall deficiency was observed over many subdivisions of central, northern and eastern parts of the country due to delayed monsoon advance over these regions. However, the rainfall situation over the country improved significantly during July, especially during second half of this month. Normal or excess rainfall was received over most of the subdivisions except a few subdivisions from eastern and northeastern parts of the country where the rainfall was deficient. Rainfall distribution over the country during August was more non-uniform than July, as number of subdivisions with excess and deficient rainfall during August (excess 18 & deficient 9) was more than that during July (excess 13 & deficient 5). During August, most of the subdivisions from northwest and Peninsular India received excess rainfall and most of the subdivisions from eastern part of the country were deficient. However, subdivisions from northeastern part received normal or excess rainfall.

The weekly rainfall was negative during all the weeks of June. In July, the weekly rainfall was positive during the first and last weeks and negative during the two weeks between them. During second and third weeks of August and last week of September the rainfall was deficient. Except for these three weeks, the weekly rainfall during the second half of the season (August-September) was positive. The cumulative rainfall distribution shows the large deficiency in rainfall during early part of the season. As a result, the cumulative weekly rainfall remained negative till end of August. In the first week of September only, the cumulative weekly rainfall became positive and remained so till the end of the season. The cumulative seasonal rainfall deficiency by more than 10% prevailed from the week ending 23rd June to the week ending 21st July.

2.6 WITHDRAWAL OF MONSOON SEASON 2010

The withdrawal started from west Rajasthan on 27th September with a delay of nearly 4 weeks as the normal date of withdrawal from extreme western parts of Rajasthan is 1st September. Subsequently, it withdrew from the entire northwest India and some parts of west Uttar Pradesh, west Madhya Pradesh and Gujarat State on 28th September and from most parts of Uttar Pradesh, some more parts of Madhya Pradesh and some parts of Bihar on 1st October.

(Note: Sources of this Chapter have been taken from "end of Monsoon report-2010" from web site of the India Meteorological Department collected from time to time.)

CHAPTER 3

FLOOD FORECAST PERFORMANCE

3.1 FLOOD FORECASTING EVALUATION - PRESENT CRITERIA AND PROCEDURE

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

3.2 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. However, the analysis of the forecasts data of individual sites has indicated that the application of uniform criteria to all sites is misleading especially for flashy rivers where rate of change in river level / inflow is sudden / abrupt and large in magnitude. Therefore, there is a need of setting different yardsticks for judging accuracy of flood forecasts for flashy and flat rivers.

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. This factor is not presently being taken into account while judging the accuracy of forecasts.

3.3 FLOOD FORECASTING ACTIVITIES

The flood forecasting activities like data collection, forecast formulation and its dissemination during 2010 covered various river basins and States. A total of 7519 forecast were issued during 2010. The performance of flood forecasting (Basinwise and Riverwise), Statewise, Divisionwise and for the period 2000 to 2010 are given from **Annex-IV to VI.**

3.4 RIVERWISE DETAILS OF FLOOD FORECASTING ACTIVITES & ACCURACY OF FORECAST

3.4.1 Brahmaputra Basin

During the flood season 2010, analysis of the flood forecasts issued reveals that out of 7519 forecasts, 3277 forecasts (43.59% of 7519forecast) were issued for 24 sites located on the main Brahmaputra and tributaries. Out of these, 3257 (99.39%) were found within permissible limit of accuracy.

3.4.2 Barak and Meghna Basin

During the flood season 2010, 445 forecasts (5.91% of 7519) were issued for five sites. Out of these, 437 forecasts (98.20 %) were found within permissible limit of accuracy.

The highlight of this year is the **unprecedented flood situation at Karimgunj in Assam on river Kushiyara during June 2010**.

3.4.3 Ganga Basin

During the flood season 2010, 2377 forecasts (31.61% of 7519) were issued for 55 sites, out of total 87 sites located on the main Ganga and its tributaries. No forecast was issued for the remaining 33 sites. Out of these, 2331 forecasts (98.11%) were found within permissible limit of accuracy.

The highlight of this year is the unprecedented flood situation in Upper Ganga Basin and in Kosi sub –basin of the Ganga Basin. The river Ganga crossed its previous HFL at Haridwar Flood Forecasting Stations in Uttarakhand, Kannauj, Ankinghat and Kanpur in Uttar Pradesh, the river Ramganga a tributary of Ganga at Moradabad in Uttar Pradesh during the period 20th September to 2nd October 2010 and the river Kosi a tributary of Ganga at Basua in Bihar during August 2010.

3.4.4 Eastern Rivers Basins including Mahanadi

During the flood season 2010, 60 forecasts (0.80% of 7519) were issued for three sites on Eastern Rivers (excluding Mahanadi Basin) and 60 (100%) forecasts were found within permissible limit of accuracy. No forecasts were issued for the remaining six stations. Also 71 forecasts (0.94 % of 7519) were issued for two sites located on the Mahanadi river basin, of which 70 forecasts (98.59 %) were found within permissible limit of accuracy. No forecasts were issued for two sites under Mahanadi Basin.

3.4.5 Godavari Basin

During the flood season 2010, 483 forecasts (6.42 % of 7519) were issued for 12 forecasting sites, of which 451 forecasts were found with 93.37% accuracy.

3.4.6 Krishna Basin

During the flood season 2010, 614 forecasts (8.17% of 7519) were issued for seven forecasting sites and 581 forecasts (94.63 %) were found within permissible limit of accuracy.

3.4.7 West Flowing Rivers

During the flood season 2010, for the West-flowing Rivers which comprises of the Narmada, the Tapi etc, 60 forecasts (1.5% of 4010) were issued for 4 sites, out of fifteen sites. 57 forecasts (95 %) were found within permissible limit of accuracy.

The Basinwise – Riverwise flood forecasting information in India during flood season 2010 is given in **Annex-II.**

3.5 STATEWISE FLOOD FORECASTING PERFORMANCE

There are 15 states, one Union Territory of the Dadra & Nagar Haveli, and National Capital Territory of Delhi so far covered under the Flood Forecast and Warning Network of the Central Water Commission. The Statewise flood forecasting information in India during the flood season 2010, is given in **Annex –III.** Their salient features are as under:

3.5.1 Andhra Pradesh

During the flood season 2010 out of 9 level forecasting sites and 7 inflow forecasting sites, no forecast was required at one level forecast station viz., Nellore Anicut on river North Pennar.

It is revealed that 368 level forecasts and 446 inflow forecasts were issued for 15 locations, out of which 346 level forecasts (94.02 %) and 418 inflow forecasts (93.72%) were found within limits respectively.

3.5.2 Assam

In the state of Assam, there were 24 forecasting sites and all of them were level forecasting sites. Forecasts were issued for 23 sites, excluding Naharkatia. It is seen that during 2010 season, 3429 forecasts were issued out of which 3409 forecasts (99.42 %) were found within limit of accuracy. River Kushiyara at Karimgunj crossed its previous HFL and attained a new

HFL of 16.57 m on 10th June 2010. River Beki at Road Bridge and river Kopili at Kampur also flowed within 0.5 m of its previous HFL during the year 2010.

3.5.3 Bihar

In the state of Bihar, there were 32 level forecasting sites. Forecasts were issued for 26 sites during the year 2010. Out of 1162 forecasts issued during the flood season 2010, all the 1162 forecasts (100 %) were found within limit of accuracy. River Kosi at Basua crossed previous HFL and attained a new HFL of 49.17 m on 25.08.2010 and river Bagmati at Benibad flowed within 0.5 m of its previous HFL in the year 2010.

3.5.4 Chhattisgarh

In the state of Chhattisgarh there was only one level flood forecasting site (i.e. Jagdalpur) on the Indravati River (a tributary of the Godavari River). 57 flood forecast were issued for this station during the flood season 2010 out of which 51 (89.47%) were within the limits of accuracy.

3.5.5 Gujarat

There were 11 flood forecasting sites in the state of Gujarat including five inflow forecasting sites. However, the forecasts were issued for only three inflow forecasting sites. Out of 81 forecasts issued, all 81 forecasts (100%) were found within limits of accuracy during the flood season 2010.

3.5.6 Haryana

Neither any hydrological data was collected nor was any forecast issued for the lone site Tajewala weir on the river Yamuna in the state of Haryana during the flood season 2010 also. Instead data from an upstream site, namely, Hathni Kund Barrage were collected. The Hathni Kund Barrage received enormous inflows during September 2010 in two spells on 8th September and 20th September. However, no inflow forecasts were issued due to very little travel time available from base station.

3.5.7 Jharkhand

In the state of Jharkhand, there were four inflow and one level flood forecasting sites. Flood forecasts were issued for all of them. During the flood season 2010, Out of 86 (52 level and 34 inflow) forecasts issued, all 86 forecasts (100 %) were found within limit of accuracy.

3.5.8 Karnataka

There were four flood forecasting sites in the state of Karnataka which includes three inflow forecasting sites and one level forecasting site, namely, Deongaon on the river Bhima, tributary of the Krishna. During the flood

season 2010, out of 224 inflow forecasts issued for 3 stations, 216 inflow (96.43%) were found within limit of accuracy. No level forecast was issued for Deongaon Bridge on river Bhima.

3.5.9 Madhya Pradesh

In the state of Madhya Pradesh, there were two level forecasting sites on the river Narmada and 1 inflow forecast site at Gandhisagar on river Chambal. During the flood season 2010, no level and inflow forecasts were issued to any of the three flood forecasting stations in Madhya Pradesh.

3.5.10 Maharashtra

There were nine forecasting sites including two inflow forecasting sites, in the state of Maharashtra. During the flood season 2010, forecasts were issued for one level forecasting sites viz., Balharsha on river Wardha. Inflow forecasts were issued for 1 inflow forecast station. It is seen that out of 9 level forecasts, 8 level forecasts (88.89 %) were found within limit of accuracy. 111 inflow forecasts were issued for Hatnur Dam and 110 (99.10%) were within limits of accuracy.

3.5.11 Odisha (Orissa)

In the state of Odisha, there were eleven level flood forecasting sites and one inflow forecasting site i.e. Hirakud Dam on the main river Mahanadi. During the flood season 2010, 65 level forecasts were issued for 4 level forecast stations out of which all 65 level forecasts (100%) were found within limit of accuracy. For inflow forecasting site 59 forecasts were issued out of which 58 (98.31%) forecasts were found within limit of accuracy.

3.5.12 Tripura

There were two level forecasting sites in the state of Tripura namely, Kailashahar on river Manu and Sonamura on river Gumti. Forecasts were issued for both the stations. During the flood season 2010, 7 forecasts were issued out of which 2 (28.57 %) forecasts were within limit of accuracy.

3.5.13 Uttarakhand

There were three level forecasting sites in the state of Uttarakhand, namely, Srinagar on the Alaknanda, Rishikesh and Haridwar on the main river Ganga. Forecasts were issued for Haridwar and Rishikesh in 2010. 86 forecasts were issued out of which 61 (70.93 %) were within limit of accuracy. The river Ganga at Haridwar crossed the previous HFL and attained a new HFL of 296.30 m on 20th September 2010. During this period, the river also flowed in High Flood Situation at Rishikesh.

3.5.14 Uttar Pradesh

There were 35 flood forecasting sites in the state of Uttar Pradesh, which includes one inflow forecasting site at Narora barrage (U/S) on the river Ganga. During the flood season 2010, forecasts were issued for 19 stations. Out of 825 level forecasts, 812 forecasts (98.42%) were found within limit of accuracy. Further out of 72 inflow forecasts, 70 (97.22 %) were found within limit of accuracy. New HFLs were attained at Kannauj on river Ganga (126.78 m on 27.09.2010), Ankinghat on river Ganga (124.49 m on 28.09.2010) and Kanpur on river Ganga (114.08 m on 29.09.2010), Moradabad on river Ramganga (192.88 m on 21.09.2010). The river Ramganga at Bareilly, The River Ganga at Dalmau, the river Yamuna at Mawi also flowed in High Flood Situation during the above periods.

3.5.15 West Bengal

In the state of West Bengal, there were 14 flood forecasting sites, which include three inflow forecasting sites. During the flood season 2010, forecasts were issued for 8 sites (7 level and one inflow stations). Out of 385 level forecasts, 380 forecasts (98.70 %) were found within limit of accuracy. Out of one inflow forecasts, one (100 %) was found within limit of accuracy.

3.5.16 Dadra & Nagar Haveli

In the Union Territory of Dadra & Nagar Haveli, there was only one flood forecasting site at Daman on river Damanganga. No flood forecast was issued for the site during the flood season 2010.

3.5.17 NCT of Delhi

There are two flood forecasting sites in the National Capital Territory of Delhi (NCT of Delhi), namely, Delhi Railway Bridge on the Yamuna River and Dhansa Regulator at Delhi and Haryana border on the Sahibi river, a tributary of Yamuna river which is commonly known by name of Najafgarh drain within Delhi town. Both the sites are level forecasting sites. Forecast was issued for Delhi Railway Bridge only. During the flood season 2010, Out of 46 forecasts, 42 forecasts (91.30 %) were within limits of accuracy. The river Yamuna at Delhi Railway Bridge was flowing in High Flood Situation during September 2010.

The performance of flood forecasting Stations (Divisionwise) in India during flood season 2010 is given in **Annex-IV.**

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

3.6 AN OVERVIEW OF FLOOD FORECASTING PERFORMANCE

During the flood season 2010, an average number of flood forecasts issued per forecasting site were 42.96. The number of forecasting sites where the performance accuracy of the issued forecasts was found above 98.12 % (National average for flood season 2010) was 82 sites (72.57 %) which includes 74 sites (65.48%) where flood forecasting stations having 100 % accurate forecast. The number of forecasting sites where the performance accuracy was found greater than 96% as fixed in the Results Framework Document (RFD) of Ministry of Water Resources is 91 (80.53%).

The flood forecasting performance of the level forecasting as well as inflow forecasting sites from 1986 to 2010 is given in **Annex-VII** and from 2000 to 2010 as **Fig 3.1.**

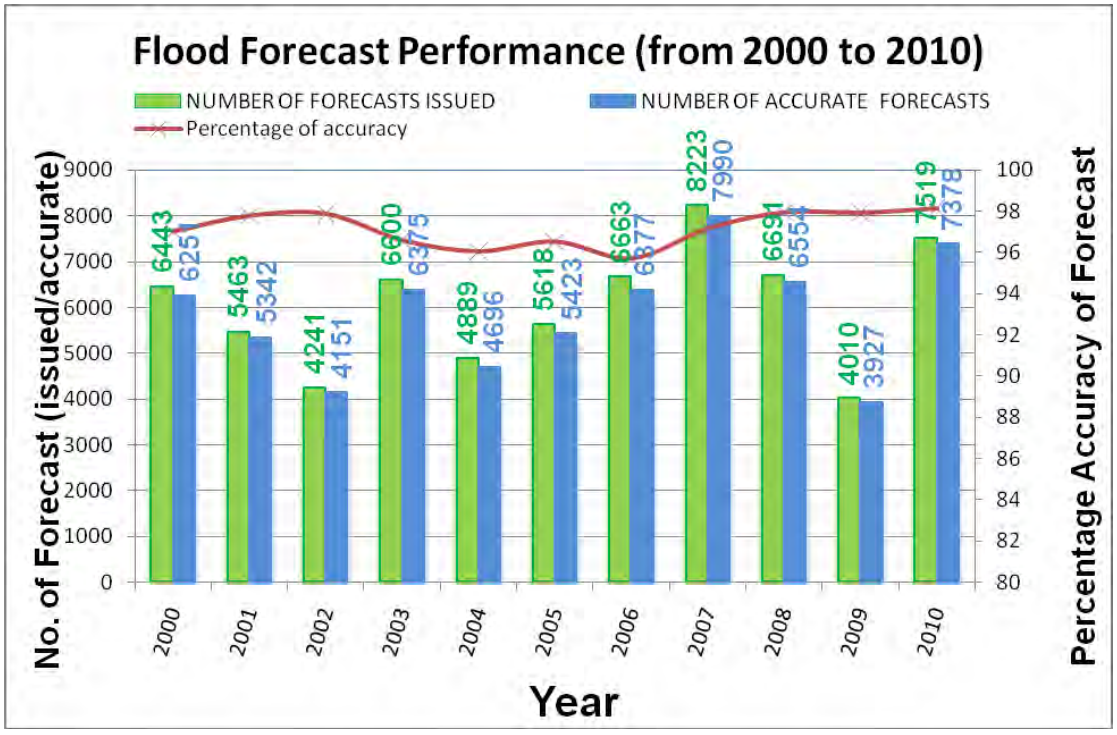


Fig -3.1 Flood Forecast Performance from 2000 to 2010

3.6.1 Overall Performance

Thus, in the nine major river systems in the country where "Flood Forecasting & Warning Network" of the Central Water Commission exists, and floods are being monitored, the accuracy of the forecasting performance during 2010 season varies from a maximum of 100% for Eastern Rivers Basin and its tributaries to a minimum of 93.37% for the Godavari basin. The overall accuracy performance was of the order of 98.12% for the country as a whole.

Sitewise "Forecast Performance" out of 175 operational sites in flood season 2010 is shown in **Table 3.1**.

Table 3.1 Site wise "Forecast Performance" of flood forecasting sites of CWC in Flood Season, 2010

Sl. No.	Details of sites within different range of permissible limit of accuracy (±15cm,±20%cumec)	Flood Season 2010	
		No. of Sites	% age
1	Sites with performance accuracy between 0.0 % to 25.0%	1	0.88%
2	Sites with performance accuracy between 25.1 % to 50.0%	1	0.88%
3	Sites with performance accuracy between 50.1 % to 75.0%	1	0.88%
4	Sites with performance accuracy between 75.1 % to 99.99%	36	31.86%
5	Sites with 100% performance accuracy i.e. where all forecasts issued were within permissible limit of accuracy	74	65.48%
6	Total sites where forecasts were issued	113	

CHAPTER – 4

RIVERWISE APPRAISAL OF FLOOD EVENTS

4.1 GENERAL

All the 175 flood forecasting sites including 28 inflow forecasting sites were operational i.e. where desired hydrological data was observed / collected, during the flood season 2010. Out of 147 level forecasting sites, water levels at sites equaled or exceeded their warning levels at 93 sites and at 49 sites, the flood level exceeded the danger levels. Unprecedented floods, exceeding previous highest flood levels (HFL), were experienced at 7 sites, and the levels were recorded within 0.5 m of their respective H.F.L at 11 more sites exclusively (total 18 on or above High Flood). All these forecasts were within prescribed limit of accuracy.

Details of unprecedented and high flood events in the various river systems covered under the Flood Forecasting & Warning Network are given in **Annex- VIII** and **Annex-IX** respectively**.** Moderate and low flood events were observed at 32 and 50 sites respectively as listed at **Annex-X to XII,** for the year. River wise flood events are described in the following paragraphs.

4.2 GANGA BASIN

The Ganga basin comprises of the main stream Ganga and its tributaries / sub- tributaries which were covered under the CWC's Flood Forecasting Network. During the flood season 2010, there were 87 flood forecasting sites in the whole Ganga Basin, which included 77 stage and 10 inflow forecasting sites. The details are given below.

During the flood season 2010, the unprecedented flood occurred at Haridwar, Kannauj, Ankinghat and Kanpur on main Ganga and at Moradabad on river Ramganga a tributary of Ganga during September 2010. Unprecedented flood situation was also witnessed at Basua on river Kosi in August 2010 Refer **Annex-VIII.** High flood events occurred at Rishikesh, Haridwar, Kannauj, Ankinghat, Kanpur and Dalmau on main Ganga, Moradabad and Bareilly on river Ramganga, Mawi and Delhi Railway Bridge on river Yamuna during September 2010. High flood situation was also witnessed at Basua on river Kosi and Benibad on river Bagmati during August 2010 all under Ganga Basin. Refer **Annex-IX.** The occurrence of Moderate and low flood events is given in **Annex-X**. Apart from FF sites, the previous HFL were exceeded at Kalagarh, Fathegarh Gauge site under Middle Ganga Division – II, Lucknow, Kalanur under Upper Yamuna Division, New Delhi and two stations under Himalayan Ganga Division, Dehradun. Tehri Dam also attained its FRL for the first time. Heavy discharges were also released from Narora Barrage.

4.3 BRAHMAPUTRA BASIN

The Flood Forecasting and Warning Network of the Central Water Commission carried on the main river Brahmaputra and its 16 tributaries / sub- tributaries during the flood season 2010. The details are shown below.

During the flood season 2010, no stations under Brahmaputra basin witnessed Unprecedented Flood Situation. However, River Beki at Road Bridge flowed above High Flood Situation, River Sankosh at Golokganj and river Kopili at Kampur flowed in High Flood Situation in 2010 **(Annex-IX)** and many of the other stations flowed in moderate and low flood situation during the season and these are shown in **Annex-XI**.

4.4 BARAK AND MEGHNA SYSTEM

The Barak and Meghna River System under the Flood Forecasting and Warning Network of the Central Water Commission covers five rivers, namely the Barak, the Katakhal, the Kushiyara, the Manu and the Gumti rivers. The river system enters into Bangladesh in the downstream of Silchar in Assam.

There were five level flood forecasting sites in the Barak & Meghna basins system, namely Annapurna Ghat, Matizuri, Karimganj, Kailashahar and Sonamura respectively one each on Barak, Katakhal, Kushiyara, Manu and Gumti rivers. The sites AP Ghat, Matizuri and Karimganj are in Assam and the Kailashahar and Sonamura are in Tripura. River Kushiyara at Karimgunj witnessed unprecedented flood situation during June 2010. Forecasts were issued for all sites during the flood season 2010. The occurrence of Unprecedented, High and Moderate & low floods is given in **Annex – VIII, IX, XI** respectively.

4.5 EASTERN RIVERS SYSTEM

The Eastern Rivers under the Flood Forecasting and Warning Network of Central water Commission are the Subarnarekha, the Burhabalang, the Baitarani, the Brahmani, the Rushikulia and the Vamsadhara.

There are nine flood forecasting sites including one inflow forecasting site at Gotta Barrage located in the state of Andhra Pradesh. Remaining all the 8 level forecasting sites are in the state of Odisha. During the flood season 2010, flood forecasts were issued for all forecasting sites. There was no Unprecedented and High Flood situation. The occurrence of Moderate and low floods is given in **Annex-XII**.

4.6 MAHANADI BASIN

In the Mahanadi basin, Central Water Commission has so far covered only the main stream Mahanadi under its Flood Forecasting and Warning

Network setup. There were four flood forecasting sites, one being the inflow forecasting site at Hirakud Dam in Odisha. During the flood season 2010, all the sites were operational in Mahanadi River. Forecasts were issued for all operational sites, whenever level/ inflow value crossed the respective forecast criteria. Level/ inflow forecasts were issued at all the four stations in the Basin. It is seen that the no "Unprecedented" and "High" flood occurred. However, the moderate and low flood events observed are given in **Annex-XII**.

4.7 GODAVARI BASIN

The Flood Forecasting and Warning Network of Central Water Commission, covers of the main river Godavari and four of its main tributaries, namely, the Wardha, Wainganga, the Manjira and the Indravathi rivers. There were 18 flood forecasting sites which were operational during the flood seasons 2010. Out of these, 12 sites were on the main Godavari River including two inflow forecasting sites, Jaikwadi dam and Sriramsagar (Pochampad), one in Wardha river, two each on the Manjira and Wainganga rivers, and one in the Indravathi river. Two sites on Manjira, namely, Singur dam & Nizamsagar Dam were also inflow forecasting sites.

During 2010 season no unprecedented or high flood events were recorded in this Basin. The details of moderate and low events are shown in **Annex-XII**.

4.8 KRISHNA BASIN

Flood Forecasting and Warning Network of Central Water Commission, covers of the main river Krishna, two of its main tributaries, namely, the Tungabhadra, and the Bhima. There were eight flood forecasting sites on these rivers, which were operational during the flood season, 2010. Out of these sites, five sites (all inflow forecasting sites) are on the main river Krishna, two on the Tungabhadra (one level & other inflow forecasting site) and one on the Bhima. During the flood season 2010, no unprecedented or high flood occurred. The details of moderate and low events are shown in **Annex-XII**.

4.9 WEST FLOWING RIVERS

The important west flowing rivers include the Banas, the Sabarmati, the Mahi, the Narmada, the Tapi and the Damanganga. The Flood forecasting and Warning Network of Central Water Commission covers all the above rivers. There were fifteen flood forecasting sites on the above rivers, including six inflow forecasting sites. One site on the Banas at Dantiwada Dam is an inflow forecasting. One level forecasting and one inflow forecasting sites exist on each of rivers, the Sabarmati and the Mahi. There are four sites (all stage forecasting sites) on the Narmada. Two inflows and one level forecasting site are located on the Tapi and one inflow and two level forecasting sites are on

the Damanganga. During 2010, only inflow forecasts were issued at Hatnur Dam and Ukai Dam on river Tapi and at Madhuban dam on Damanganga.

During the flood season, 2010, there were no major flood events in West flowing river system.

4.10 SOUTHERN RIVER SYSTEM

There was one forecasting site at Nellore on the Pennar River. During 2010, no forecast was necessary, as the river did not cross warning level.

4.11 AN OVERVIEW OF FORECAST EVENTS

The unprecedented events were experienced at 7 sites in the year 2010 in the rivers Ganga, Ramganga, Kosi, and Kushiyara as given under.

4.11.1. Kushiyara at Karimgunj in Assam

The river Kushiyara at Karimgunj crossed the previous HFL during the period 1600 hours of 10th June 2010 to 1400 hours of 11th June 2010. It attained a peak level of 16.57 m on 10th June 2010 at 2300 hours which was 2 cm above the previous HFL of 16.55 m observed on 9th September 2007. Afterwards, it fell below the unprecedented flood situation.

4.11.2 Kosi at Basua in Bihar

The river Kosi at Basua in Supaul district of Bihar crossed the previous HFL on 3 occasions on 20th, 21st and 24th August 2010. It attained a peak level of 48.89 m on 20th and 21st August 2010. However on 25th August 2010 at 0700 hours, the river attained a peak level of 49.17 m between 0600 and 0900 hours which was 30 cm above its previous HFL of 48.87 m attained on 11th July 2004.

4.11.3 Ganga at Haridwar

The river Ganga at Haridwar in Haridwar district of Uttarakhand crossed the previous HFL on one occasion on 19th September 2010 between 8 and 10 hours. It attained a peak level of 296.30m between 08 to 10 hours of 19th October 2010 and then fell below the previous HFL. The peak attained at Haridwar was 7 cm above the previous HFL of 296.23 m attained on 02.09.1978.

4.11.4 Ramganga at Moradabad

The river Ramganga at Moradabad in Moradabad District of Uttar Pradesh crossed the previous HFL of 192.68 m recorded on 03.09.1978 by 2300 hours of 20th September 2010 and attained a peak level of 192.88 m

between 02 and 03 hours of 21st September 2010 and then fell. It fell below previous HFL by 0600 hrs of 21st September 2010.

4.11.5 Ganga at Kannauj

The river Ganga at Kannauj in Kannauj district of Uttar Pradesh crossed the previous HFL of 126.24 m attained on 29th August 1998 by 1400 hours on 23rd September 2010. It attained a peak level of 126.78 m between 0700 and 1200 hours of 27th September 2010. It fell below the previous HFL by 1000 hours on 30th September 2010. The peak attained in this flood was 0.54 m above the previously recorded HFL.

4.11.6 Ganga at Ankinghat

The river Ganga at Ankinghat in Kanpur district of Uttar Pradesh crossed the previous HFL of 124.31 m recorded on 9th September 1978 by 0500 hrs of 26th September 2010. It attained a Peak level of 124.49 m between 05 and 06 hours of 28th September 2010 and fell below the previous HFL by 24 hours of 28th September 2010. The peak attained in this flood was 0.18 m above the previously recorded HFL.

4.11.7 Ganga at Kanpur

The river Ganga at Kanpur in Kanpur District of Uttar Pradesh crossed the previous HFL of 113.48 m recorded on 2nd September 1967 by 0700 hrs of 25th September 2010. It attained a peak level of 114.075 m between 14 and 18 hours of 29th September 2010 and then started falling. It fell below the previous HFL by 16 hours of 2nd October 2010. The peak attained in this flood was 0.595 m above the previously recorded HFL.

High flood events occurred at 11 sites namely Rishikesh, Dalmau on main Ganga, Bareilly on river Ramganga, Mawi and Delhi Railway Bridge on river Yamuna, Elgin Bridge and Ayodhya on river Ghaghra, Benibad on river Bagmati, River Beki at Road Bridge, River Sankosh at Golokganj and river Kopili at Kampur in 2010.

No forecasts were issued at 62 sites (54 level forecast sites and 8 inflow forecast sites)

CHAPTER 5

RESPONSE FROM USER AGENCIES

5.1 General

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

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

5.2 Appreciation letters received during flood season 2010

Abstract of some of the messages received by our field unit during the flood season 2010 are given below:

5.2.1 Engineer-in-Chief, Water Resources, Govt. of Orissa, Bhubaneswar.

Lr. no: FC-II-CWC-28/08/16594 dated 15.12.2010

"For the flood-2010 we have received the forecasts for different rivers of the State. The same has been distributed to all concerned authorities in time. I feel great to mention here the availability of such facilities in form of supply of hydrometeorological information and situation forecast etc round the clock from pioneer organisations like CWC and IMD have made it possible time and again to overcome successfully the flood exigencies in time and with better preparedness. As an active user of online data and forecast of CWC, I do express my deep thanks and gratitude to CWC organisation..."

5.2.2 NCT Delhi

During the first workshop on Flood Forecasting organised by CWC in January 2011, the representatives from Irrigation and Flood Control Dept., Government of NCT, Delhi expressed their gratitude that the flood forecast issued by CWC was very helpful in handling the High Flood Situation in Delhi during September 2010.

Basinwise -Riverwise- Flood Forecasting Information in India during Flood Season 2010												
Sl.No.	Name of the river	Name of FF site	Name of State	Warning Level (m)	Danger level (m)	Highest Flood Level		Maximum Level -2010				
						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
	Ganga Basin											
1	Alaknanda	Srinagar	Uttarakhand	539.00	540.00	536.85	05/09/1995	536.00	19-09-2010 01:00	0	0	
2	Ganga	Rishikesh	Uttarakhand	339.50	340.50	341.72	03/09/1978	341.50	19-09-2010 05:00	35	27	77.14
3	Ganga	Haridwar	Uttarakhand	293.00	294.00	296.23	02/09/1978	296.30	19-09-2010 08:00	51	34	66.67
4	Ganga	Narora Barrage	Uttar Pradesh			180.18	06/09/1978	180.61	23/09/2010;10:00	72	70	97.22
5	Ganga	Kannauj	Uttar Pradesh	124.97	125.97	126.24	29/08/1998	126.78	27/09/2010;07:00	44	44	100.00
6	Ganga	Ankinghat	Uttar Pradesh	123.00	124.00	124.31	09/09/1978	124.49	28/09/2010;05:00	44	44	100.00
7	Ganga	Kanpur	Uttar Pradesh	113.00	114.00	113.47	02/09/1967	114.08	29/09/2010;14:00	53	51	96.23
8	Ganga	Dalmau	Uttar Pradesh	98.36	99.36	99.84	03/08/1973	99.63	30/09/2010;19:00	37	37	100.00
9	Ganga	Phphamau	Uttar Pradesh	83.73	84.73	87.98	08/09/1978	81.36	02/10/2010:17	0	0	
10	Ganga	Allahabad Chhatnag	Uttar Pradesh	83.73	84.73	88.03	08/09/1978	79.54	02/10/2010:12	0	0	
11	Ganga	Mirzapur	Uttar Pradesh	76.72	77.72	80.34	09/09/1978	72.76	03/10/2010:08	0	0	
12	Ganga	Varanasi	Uttar Pradesh	70.26	71.26	73.90	09/09/1978	67.58	03/10/2010:17	0	0	
13	Ganga	Ghazipur	Uttar Pradesh	62.11	63.11	65.22	09/09/1978	61.33	03/10/2010:16	0	0	
14	Ganga	Buxar	Bihar	59.32	60.32	62.09	1948	58.42	03/10/2010 (17-24) hrs	0	0	
15	Ganga	Ballia	Uttar Pradesh	56.62	57.62	60.25	14/09/2003	57.60	26/09/2010:01	33	33	100.00
16	Ganga	Patna Dighaghat	Bihar	49.45	50.45	52.52	23/08/1975	49.77	25/0/9/2010 20 hrs	28	28	100.00
17	Ganga	Patna Gandhighat	Bihar	47.60	48.60	50.27	14/08/1994	48.77	20/09/2010 20 hrs	46	46	100.00
18	Ganga	Hathidah	Bihar	40.76	41.76	43.15	07/08/1971	41.78	21/09/2010 08 hrs	44	44	100.00
19	Ganga	Munger	Bihar	38.33	39.33	40.99	19/09/1976	38.14	02/09/2010 14 hrs	0	0	
20	Ganga	Bhagalpur	Bihar	32.68	33.68	34.20	17/09/2003	33.26	03/09/2010 17 hrs	35	35	100.00
21	Ganga	Kahalgaon	Bihar	30.09	31.09	32.87	17/09/2003	31.59	03/09/2010 11 hrs	45	45	100.00
22	Ganga	Sahibgunj	Jharkhand	26.25	27.25	30.91	1998	27.96	03/09/2010 03 hrs	52	52	100.00
23	Ganga	Farakka	West Bengal	21.25	22.25	25.14	07/09/1998	23.13	03/09/2010 23 hrs	99	97	97.98
24	Ramganga	Moradabad	Uttar Pradesh	189.60	190.60	192.68	03/09/1978	192.88	21/09/2010;02:00	39	37	94.87
25	Ramganga	Bareilly	Uttar Pradesh	162.70	163.70	162.88	06/08/1978	162.82	22/09/2010;21:00	5	5	100.00
26	Yamuna	Tajewala Weir	Haryana			328.27	03/09/1978	338.10	20.09.10	0	0	
27	Yamuna	Mawi	Uttar Pradesh	230.00	230.85	232.45	26/09/1988	232.33	21.09.10	47	44	93.62
28	Yamuna	Delhi Rly Bridge	NCT Delhi	204.00	204.83	207.49	06/09/1978	207.11	22.09.10	46	42	91.30
29	Yamuna	Mathura	Uttar Pradesh	164.20	165.20	169.73	08/09/1978	167.34	26.09.10	65	65	100.00
30	Yamuna	Agra	Uttar Pradesh	151.40	152.40	154.76	09/09/1978	152.08	27-Sep-10 00	12	12	100.00
31	Yamuna	Etawa	Uttar Pradesh	120.92	121.92	126.13	11/09/1978	122.41	29-Sep-10 00	17	16	94.12
32	Yamuna	Auraiya	Uttar Pradesh	112.00	113.00	118.19	25/08/1996	105.13	30-Sep-10 00	0	0	
33	Yamuna	Kalpi	Uttar Pradesh	107.00	108.00	112.98	25/08/1996	100.09	23/09/2010 01	0	0	
34	Yamuna	Hamirpur	Uttar Pradesh	102.63	103.63	108.59	12/09/1983	94.43	23/09/2010 18	0	0	
35	Yamuna	Chilaghat	Uttar Pradesh	99.00	100.00	105.16	06/09/1978	91.99	05/09/2010 15	0	0	
36	Yamuna	Naini	Uttar Pradesh	83.74	84.74	87.99	08/09/1978	80.14	02/10/2010 18	0	0	
37	Sahibi	Dhansa	NCT Delhi	211.44	212.44	213.58	06/08/1977	210.38	23.09.10	0	0	
38	Chambal	Gandhisagar Dam	Madhya Pradesh							0	0	

Basinwise -Riverwise- Flood Forecasting Information in India during Flood Season 2010												
Sl.No.	Name of the river	Name of FF site	Name of State	Warning Level (m)	Danger level (m)	Highest Flood Level		Maximum Level -2010				
						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
39	Betwa	Mohana	Uttar Pradesh	121.66	122.66	133.35	11/09/1983	113.79	27/07/2010 19	0	0	
40	Betwa	Sahjina	Uttar Pradesh	103.54	104.54	108.67	12/09/1983	93.87	23/09/2010 17	0	0	
41	Ken	Banda	Uttar Pradesh	103.00	104.00	113.29	07-07-2005	102.30	27/07/2010 20	0	0	
42	Gomati	Lucknow	Uttar Pradesh	108.50	109.50	110.85	11-09-1971	106.32	28/09/2010;20:00	0	0	
43	Gomati	Jaunpur	Uttar Pradesh	73.07	74.07	77.74	22/09/1971	70.06	30/09/2010:18	0	0	
44	SAI	Raibareli	Uttar Pradesh	100.00	101.00	104.81	17/09/1982	98.25	03/08/2010;13:00	0	0	
45	Ghaghra	Elgin Bridge	Uttar Pradesh	105.07	106.07	107.56	10-10-2009	107.16	26/08/2010 05	73	71	97.26
46	Ghaghra	Ayodhya	Uttar Pradesh	91.73	92.73	94.01	11-10-2009	93.91	27/08/2010 21	77	75	97.40
47	Ghaghra	Turtipar	Uttar Pradesh	63.01	64.01	66.00	28/08/1998	64.80	29/08/2010 21	76	75	98.68
48	Ghaghra	Darauli	Bihar	59.82	60.82	61.74	29/08/1998	61.05	29/08/2010 14 hrs	50	50	100.00
49	Ghaghra	Gangpur Siswan	Bihar	56.04	57.04	58.01	18/09/1983	57.41	31/08/2010 09 hrs	41	41	100.00
50	Ghaghra	Chhapra	Bihar	52.68	53.68	54.59	03/09/1982	50.88	26/09/2010 07hrs	0	0	
51	Rapti	Balrampur	Uttar Pradesh	103.62	104.62	105.25	11/09/2000	104.47	25/08/2010 22	21	21	100.00
52	Rapti	Bansi	Uttar Pradesh	83.90	84.90	85.82	21/08/1998	84.89	29/08/2010 22	29	29	100.00
53	Rapti	Gorakpur Birdghat	Uttar Pradesh	73.98	74.98	77.54	23/08/1998	75.98	29/08/2010 22	44	44	100.00
54	Sone	Inderpuri	Bihar	107.20	108.20	108.85	23/08/1975	104.10	14/07/2010 08 hrs	0	0	
55	Sone	Koelwar	Bihar	54.52	55.52	58.88	20/07/1971	52.01	25/09/2010 18 hrs	0	0	
56	Sone	Maner	Bihar	51.00	52.00	53.79	10/09/1976	51.31	25/09/2010 21 hrs	20	20	100.00
57	PunPun	Sripalpur	Bihar	49.60	50.60	53.91	18/09/1976	50.23	20/09/2010 06 hrs	6	6	100.00
58	Gandak	Khadda	Uttar Pradesh	95.00	96.00	97.50	23/07/2002	96.30	24/08/2010 15 hrs	109	109	100.00
59	Gandak	Chatia	Bihar	68.15	69.15	70.04	26/07/2002	69.45	2708/2010 04 hrs	12	12	100.00
60	Gandak	Rewaghat	Bihar	53.41	54.41	55.41	17/09/1986	54.54	28/08/2010 10 hrs	28	28	100.00
61	Gandak	Hazipur	Bihar	49.32	50.32	50.93	1948	49.16	29/08/2010 06 hrs	0	0	
62	Burhi Gandak	Lalbeghiaghat	Bihar	62.20	63.20	67.09	30/07/1975	62.92	31/08/2010 13 hrs	9	9	100.00
63	Burhi Gandak	Muzaffarpur	Bihar	51.53	52.53	54.29	15/08/1987	51.65	04/09/2010 04 hrs	4	4	100.00
64	Burhi Gandak	Samastipur	Bihar	45.02	46.02	49.38	15/08/1987	45.56	05/09/2010 07 hrs	8	8	100.00
65	Burhi Gandak	Rosera	Bihar	41.63	42.63	46.35	16/08/1987	42.34	05/09/2010 12 hrs	10	10	100.00
66	Burhi Gandak	Khagaria	Bihar	35.58	36.58	39.22	1976	36.95	06/09/2010 01 hr	41	41	100.00
67	Bagmati	Benibad	Bihar	47.68	48.68	50.01	12/07/2004	49.71	27/08/2010 18 hrs	93	93	100.00
68	Bagmati	Hayaghat	Bihar	44.72	45.72	48.96	14/08/1987	45.15	01/09/2010 17 hrs	5	5	100.00
69	Adhwara Group	Kamtaul	Bihar	49.00	50.00	52.99	12/08/1987	50.03	29/08/2010 05hrs	13	13	100.00
70	Adhwara Group	Ekmighat	Bihar	45.94	46.94	49.52	12/07/2004	46.30	30/08/2010 21 hrs	7	7	100.00
71	Kamla Balan	Jhanjharpur	Bihar	49.00	50.00	53.01	10/07/2004	51.69	25/08/2010 15 hrs	37	37	100.00
72	Kosi	Basua	Bihar	46.75	47.75	48.87	11/07/2004	49.17	25/08/2010 06 hrs	232	232	100.00
73	Kosi	Baltara	Bihar	32.85	33.85	36.40	15/08/1987	35.05	29/08/2010 19 hrs	88	88	100.00
74	Kosi	Kursela	Bihar	29.00	30.00	32.04	06/09/1998	30.66	03/09/2010 23 hrs	45	45	100.00
75	Mahananda	Dhengraghat	Bihar	34.65	35.65	38.09	1968	36.81	22/07/2010 14 hrs	76	76	100.00
76	Mahananda	Jhawa	Bihar	30.40	31.40	33.51	14/08/1987	32.05	23/07/2010 18 hrs	139	139	100.00

Basinwise -Riverwise- Flood Forecasting Information in India during Flood Season 2010												
Sl.No.	Name of the river	Name of FF site	Name of State	Warning Level (m)	Danger level (m)	Highest Flood Level		Maximum Level -2010				
						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
77	Mayurakshi	Massanjore Dam	Jharkhand	121.31		122.87	25/09/1999	115.47	15/10/2010 16 hrs	0	0	
78	Mayurakshi	Tilpara Barrage	West Bengal	62.79		67.05	27/09/1978	62.79	12/10/2010 11 hrs	0	0	
79	Mayurakshi	Narayanpur	West Bengal	26.99	27.99	29.69	27/09/1995	23.91	26/08/2010 21 hrs	0	0	
80	Ajoy	Gheropara	West Bengal	38.42	39.42	43.94	27/09/1978	37.65	26/08/2010 19 hrs	0	0	
81	Damodar	Tenughat Dam	Jharkhand	268.83		265.56	17/09/1985	260.16	20/09/2010 11 hrs	4	4	100.00
82	Damodar	Panchet Dam	Jharkhand	132.59		132.89	02/10/1959	126.03	28/09/2010 21 hrs	16	16	100.00
83	Damodar	Durgapur Barrage	West Bengal	64.47		64.47	31/10/2002	64.47	15/07/2010 01 hr	1	1	100.00
84	Barakar	Maithon Dam	Jharkhand	150.88		151.79	02/10/1959	146.70	29/09/2010 03 hrs	14	14	100.00
85	Mundeshwari	Harinkhola	West Bengal	11.80	12.80	14.58	29/09/1978	7.42	25/08/2010 18 hrs	0	0	
86	Kangsabati	Kangsabati Dam	West Bengal	134.11		134.71	02/09/1978	125.61	10/10/2010 06 hrs	0	0	
87	Kangsabati	Mohanpur	West Bengal	24.73	25.73	29.87	02/09/1978	20.26	01/07/2010 11 hrs	0	0	
	Brahmaputra Basin											
88	Brahmaputra	Dibrugrah	Assam	103.24	104.24	106.48	03/09/1998	105.97	09/09/2010(18-21)	307	307	100.00
89	Brahmaputra	Neamatighat	Assam	84.04	85.04	87.37	11/07/1991	86.38	10/09/2010(13-15)	143	143	100.00
90	Brahmaputra	Tezpur	Assam	64.23	65.23	66.59	27/08/1988	65.69	11-12/9/2010(23-12)	95	95	100.00
91	Brahmaputra	Guwahati	Assam	48.68	49.68	51.46	21/07/2004	49.93	13/09/10 (10-18)hrs	59	59	100.00
92	Brahmaputra	Goalpara	Assam	35.27	36.27	37.43	31/07/1954	36.37	13/09/10(19-24)hrs	86	86	100.00
93	Brahmaputra	Dhubri	Assam	27.62	28.62	30.36	28/08/1988	29.30	29/06/2010 24 hr	252	252	100.00
94	Burhidihing	Naharkatia	Assam	119.40	120.40	122.69	17/06/1973	118.57	31/07/2010(18-19)	0	0	
95	Burhidihing	Khowang	Assam	101.11	102.11	103.92	25/08/1988	102.52	23/07/2010(09-17)	50	50	100.00
96	Desang	Nanglamoraghat	Assam	93.46	94.46	96.49	06/09/1998	95.88	22/07/2010(06-09)	84	84	100.00
97	Dikhow	Shivsagar	Assam	91.40	92.40	95.62	08/07/1974	93.81	27-28/06/10(23-03)	101	100	99.01
98	Subansiri	Badatighat	Assam	81.53	82.53	86.84	28/06/1972	82.35	10/09/2010(21-24)	41	41	100.00
99	Dhansiri (S)	Golaghat	Assam	88.50	89.50	91.30	11/10/1986	89.98	09/10/2010(2400)	117	117	100.00
100	Dhansiri (S)	Numaligarh	Assam	76.42	77.42	79.87	24/09/1985	78.88	22/08/2010(13-15)	258	256	99.22
101	Jiabharali	Jiabharali_NTX	Assam	76.00	77.00	78.50	26/07/2007	77.75	23/08/2010(08-12)	355	352	99.15
102	Kopilli	Kampur	Assam	59.50	60.50	61.86	16/06/1973	61.52	10/10/2010(16-18)	12	12	100.00
103	Kopilli	Dharmatul	Assam	55.00	56.00	58.09	21/07/2004	55.65	12/10/2010(09-24)	31	31	100.00
104	Puthimari	Puthimari _NHX	Assam	50.81	51.81	55.08	31/08/2008	54.22	28/06/10(18-19)hrs	307	297	96.74
105	Pagladiya	Pagladia_NTX	Assam	51.75	52.75	55.45	08/07/2004	52.51	28/06/10(18-19)hrs	18	18	100.00
106	Beki	Beki Rd Bridge	Assam	44.10	45.10	46.20	04/08/2000	45.80	28/06/2010 (05-06) hrs	471	471	100.00
107	Manas	Manas NHX	Assam	47.81	48.42	50.08	15/09/1984	48.79	28/06/2010 (12-13)hrs	34	34	100.00
108	Sankosh	Golakganj	Assam	28.94	29.94	30.95	08/09/2007	30.45	12/07/2010 (04-06) hrs	170	169	99.41
109	Raidak-I	Tufanganj	West Bengal	34.22	35.30	36.36	21/07/1993	34.84	12/07/2010 (07-11) hrs	18	16	88.89
110	Torsa	Ghughumari	West Bengal	39.80	40.41	41.46	03/08/2000	40.58	21/07/2010 (19-21) hrs	58	57	98.28
111	Jaldhaka	NH-31	West Bengal	80.00	80.90	81.33	28/08/1972	80.30	09/7/2010 (14) hr	45	45	100.00
112	Jaldhaka	Mathabhanga	West Bengal	47.70	48.20	49.85	07/09/2007	48.00	21/07/2010 (16-17)hrs	5	5	100.00
113	Tista	Domohani	West Bengal	85.65	85.95	89.30	04/10/1968	86.09	24/08/2010 (02-03) hrs	115	115	100.00
114	Tista	Mekhliganj	West Bengal	65.45	65.95	66.45	13/07/1996	65.91	23/08/2010 (24)hr	45	45	100.00

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Sl.No.	Name of the river	Name of FF site	Name of State	Warning Level (m)	Danger level (m)	Highest Flood Level		Maximum Level -2010				
						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
	Barak & Meghna Basins											
115	Barak	APGhat	Assam	18.83	19.83	21.84	01/08/1989	20.72	10/06/10(21-24)hrs	118	115	97.46
116	Katakhal	Matizuri	Assam	19.27	20.27	22.73	10/09/2007	21.13	06/06/10(06-07)	79	79	100.00
117	Kushiyara	Karimganj	Assam	13.94	14.94	16.55	09/09/2007	16.57	10/06/10(23-24)hrs	241	241	100.00
118	Manu	Kailashar	Tripura	24.34	25.34	25.79	07/06/1993	24.99	09/10/10(15-16)hrs	5	1	20.00
119	Gumti	Sonamura	Tripura	11.50	12.50	14.42	23/07/1993	11.77	09/10/10(08-09)hrs	2	1	50.00
	Eastern Rivers (Excluding Mahanadi)											
120	Subernarekna	Rajghat	Odisha	9.45	10.36	12.69	19/06/2008	7.11	20/09/2010 17 hrs	0	0	
121	Burhabalang	NH_5 _Road Bridge	Odisha	7.21	8.13	9.50	12/10/1973	7.34	19/09/2010 14 hrs	1	1	100.00
122	Baitarni	Anandpur	Odisha	37.44	38.36	41.20	19/08/1975	35.53	20/09/2010 06 hrs	0	0	
123	Baitarni	Akhuapada	Odisha		17.83	21.95	16/08/1960	17.40	25/07/2010 06 hrs	0	0	
124	Brahmani	Jenapur	Odisha	22.00	23.00	24.78	20/08/1975	19.72	07/08/2010 15 hrs	0	0	
125	Rushikuluya	Purushottampur	Odisha	15.83	16.83	19.65	04/11/1990	15.28	08/09/2010 15 hrs	0	0	
126	Vamsadhara	Gunupur	Odisha	83.00	84.00	88.75	17/09/1980	82.67	06/08/2010 06 hrs	0	0	
127	Vamsadhara	Kashinagar	Odisha	53.60	54.60	58.93	18/09/1980	55.00	05/08/2010 04 hrs	52	52	100.00
128	Vamsadhara	Gotta Barrage	Andhra Pradesh	34.84	34.84	39.92	07/10/1999	34.84	01/07/2010 01 hr	7	7	100.00
	Mahanadi Basin											
129	Mahanadi	Hirakud Dam	Odisha	192.02		192.30	30/01/1998	192.02	25/09/2010 18 hrs	59	58	98.31
130	Mahanadi	Naraj	Odisha	25.41	26.41	27.61	31/08/1982	26.76	25/09/2010 24 hrs	12	12	100.00
131	Mahanadi	Alipingal Devi	Odisha	10.85	11.76	13.05	20/09/2008	8.50	21/09/2010 08 hrs	0	0	
132	Mahanadi	Nimapara	Odisha	9.85	10.76	11.60	31/08/1982	6.86	08/08/2010 24 hrs	0	0	
	Godavari Basin											
133	Godavari	Kopergaon	Maharashtra	490.90	493.68	499.17	1969	489.85	04/08/2010 19 hrs	0	0	
134	Godavari	Jaikwadi Dam	Maharashtra	463.91		464.69	12/10/1990	461.31	11/10/2010 13 hrs	0	0	
135	Godavari	Gangakhed	Maharashtra	374.00	375.00	377.57	1947	369.91	13/08/2010 19 hrs	0	0	
136	Godavari	Nanded	Maharashtra	353.00	354.00	357.10	06/08/2006	346.30	07/08/2010 14 hrs	0	0	
137	Godavari	Sriram Sagar	Andhra Pradesh	332.54		332.72	13/10/1990	332.54	12/09/2010 19 hrs	29	27	93.10
138	Godavari	Kaleswaram	Andhra Pradesh	103.50	104.75	107.05	15-08-1986	103.81	09/09/2010 07 hrs	3	3	100.00
139	Godavari	Eturunagaram	Andhra Pradesh	73.29	75.79	77.66	24-08-1990	75.93	07/08/2010 24 hrs	61	56	91.80
140	Godavari	Dummagudam	Andhra Pradesh	53.00	55.00	60.25	16/08/1986	56.23	08/08/2010 07 hrs	51	47	92.16
141	Godavari	Bhadrachalam	Andhra Pradesh	45.72	48.77	55.66	16/08/1986	50.81	08/08/2010 14 hrs	72	68	94.44
142	Godavari	Kunavaram	Andhra Pradesh	37.74	39.24	51.30	16/08/1986	42.00	09/08/2010 03 hrs	62	56	90.32
143	Godavari	Rajamundry	Andhra Pradesh	17.68	19.51	20.48	16/08/1986	18.37	09/08/2010 07 hrs	25	22	88.00
144	Godavari	Dowalaiswaram	Andhra Pradesh	14.25	16.08	18.36	16-08-1986	16.14	09/08/2010 09 hrs	80	80	100.00
145	Wardha	Balharsha	Maharashtra	171.50	174.00	176.00	15-08-1986	172.25	08/08/2010 08 hrs	9	8	88.89
146	Wainganga	Bhandara	Maharashtra	244.00	244.50	250.90	16-09-2005	243.95	08/09/2010 22 hrs	0	0	
147	Wainganga	Pauni	Maharashtra	226.73	227.73	232.35	07/09/1994	226.38	09/09/2010 06 hrs	0	0	
148	Manjira	Singur Dam	Andhra Pradesh	523.60		523.60	15-10-1999	523.60	12/09/2010 08 hrs	21	20	95.24
149	Manjira	Nizamsagar Dam	Andhra Pradesh	428.24		428.24	15-10-1999	428.24	02/09/2010 24 hrs	13	13	100.00
150	Indravati	Jagdalpur	Chhatisgarh	539.50	540.80	544.68	09-07-1973	544.08	06/08/2010 19 hrs	57	51	89.47
	Krishna Basin											
151	Krishna	Arjunwad	Maharashtra	542.07	543.29	543.69	05/08/2005			0	0	
152	Krishna	Alamati Dam	Karnataka	519.60		519.60	18/09/2002	519.60	30/8/2010 06 hrs	31	30	96.77

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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
153	Krishna	Narayanpur Dam	Karnataka	492.25		492.22	26-09-2008	492.03	21/10/2010 15 hrs	43	41	95.35
154	Krishna	Priyadarshini	Andhra Pradesh	318.52		316.50	21/10/1993	318.20	28/06/2010 09 hrs	133	127	95.49
155	Krishna	Srisailam Dam	Andhra Pradesh	269.75		273.25	03-10-2009	269.75	30/08/2010 01 hr	133	124	93.23
156	Krishna	Prakasham Barrage	Andhra Pradesh	18.30		21.50	07-10-1903	17.39	15/06/2010 01 hr	110	100	90.91
157	Bhima	Deongaon	Karnataka	402.00	404.50	407.34	13/08/2006	400.05	23/08/2010 17 hrs	0	0	
158	Tungbhadra	Tungabhadra Dam	Karnataka	497.74		497.74	05/10/1992	497.74	21/08/2010 16 hrs	150	145	96.67
159	Tungbhadra	Mantralayam	Andhra Pradesh	310.00	312.00	318.77	02-10-2009	312.69	25/08/2010 08 hrs	14	14	100.00
	Southern River System:											
160	Pennar	Nellore	Andhra Pradesh	15.91	17.28	18.70	30/11/1882	13.60	28/08/2010 08 hrs	0	0	
	Western River Systems:											
161	Banas	Dantiwada Dam	Gujarat	182.88	185.06	186.04	01/09/1973	173.23	22/09/2010 11 hrs	0	0	
162	Sabarmati	Dharoi Dam	Gujarat	187.45	192.25	189.63	03/09/1990	186.77	08/10/2010 08 hrs	1	1	100.00
163	Sabarmati	Ahmedabad	Gujarat	44.09	45.34	47.45	19-08-2006	41.84	15/10/2010 19 hrs	0	0	
164	Mahi	Kadana Dam	Gujarat	126.19	127.71	127.74	09/09/1989	125.96	25/09/2010 04 hrs	0	0	
165	Mahi	Wanakbori	Gujarat	71.00	72.54	76.10	12-08-2006	67.59	10/09/2010 09 hrs	0	0	
166	Naramada	Mandla	Madhya Pradesh	437.20	437.80	439.41	18/08/1974	436.22	26/07/2010 10 hrs	0	0	
167	Naramada	Hoshangabad	Madhya Pradesh	292.83	293.83	300.90	30/08/1973	290.05	05/09/2010 14 hrs	0	0	
168	Naramada	Garudeswar	Gujarat	30.48	31.09	41.65	06/09/1970	18.93	10/09/2010 06 hrs	0	0	
169	Naramada	Bharuch	Gujarat	6.71	7.31	12.65	07-09-1970	6.10	11/09/2010 06 hrs	0	0	
170	Tapi	Hatnur Dam	Maharashtra	212.00	214.00	214.00	12/10/1989	214.00	01/10/201008 hrs	111	110	99.10
171	Tapi	Ukai Dam	Gujarat	102.41	105.16	105.51	08/10/1990	103.81	19/09/2010 15 hrs	79	79	100.00
172	Tapi	Surat	Gujarat	8.50	9.50	12.50	09-08-2006	6.80	11/09/2010 07 hrs	0	0	
173	Damanganga	Madhuban Dam	Gujarat	79.86	82.40	80.60	27/09/1993	80.00	07/10/2010 06 hrs	1	1	100.00
174	Damanganga	Vapi Town	Gujarat	18.20	19.20	23.76	03-08-2004	16.10	09/09/2010 11 hrs	0	0	
175	Damanganga	Daman	Dadra & Nagar Haveli	2.60	3.40	4.00	03/08/2004	1.90	26/06/2010 16 hrs	0	0	
								Total Forecasts		***7519***	***7378***	**98.12**
								Level Forecasts		**6491**	**6390**	**98.44**
								Inflow Forecast		**1028**	**988**	**96.11**

Statewise Flood Forecasting Information In India during Flood Season 2010

Sl.No.	Name of the river	Name of FF site	Warning Level (m)	Danger level (m)	Highest Flood Level		Maximum Level -2010				
					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	5	6	7	8	9	10	11	12	13
	Andhra Pradesh										
1	Vamsadhara	Gotta Barrage	FRL34.84	MWL47.4	39.92	07/10/1999	34.84	01/07/2010 01 hr	7	7	100.00
2	Godavari	Sriram Sagar	332.54		332.72	13/10/1990	332.54	12/09/2010 19 hrs	29	27	93.10
3	Godavari	Kaleswaram	103.50	104.75	107.05	15-08-1986	103.81	09/09/2010 07 hrs	3	3	100.00
4	Godavari	Eturunagaram	73.29	75.79	77.66	24-08-1990	75.93	07/08/2010 24 hrs	61	56	91.80
5	Godavari	Dummagudam	53.00	55.00	60.25	16/08/1986	56.23	08/08/2010 07 hrs	51	47	92.16
6	Godavari	Bhadrachalam	45.72	48.77	55.66	16/08/1986	50.81	08/08/2010 14 hrs	72	68	94.44
7	Godavari	Kunavaram	37.74	39.24	51.30	16/08/1986	42.00	09/08/2010 03 hrs	62	56	90.32
8	Godavari	Rajamundri	17.68	19.51	20.48	16/08/1986	18.37	09/08/2010 07 hrs	25	22	88.00
9	Godavari	Dowalaiswaram	14.25	16.08	18.36	16/08/1986	16.14	09/08/2010 09 hrs	80	80	100.00
10	Manjira	Singur Dam	523.60	FRL=523.60	523.60	15-10-1999	523.60	12/09/2010 08 hrs	21	20	95.24
11	Manjira	Nizamsagar Dam	428.24	FRL=428.24	428.24	15-10-1999	428.24	02/09/2010 24 hrs	13	13	100.00
12	Krishna	Priyadarshini	318.52	FRL=318.52	318.40	02-10-2009	318.20	28/06/2010 09 hrs	133	127	95.49
13	Krishna	Srisailam Dam	269.75	FRL=269.75	273.25	03-10-2009	269.75	30/08/2010 01 hr	133	124	93.23
14	Krishna	Prakasham Barrage	18.30	FRL=18.30	21.50	07-10-1903	17.39	15/06/2010 01 hr	110	100	90.91
15	Tungbhadra	Mantralayam	310.00	312.00	318.77	02-10-2009	312.69	25/08/2010 08 hrs	14	14	100.00
16	Pennar	Nellore	15.91	17.28	18.70	30/11/1882	13.60	28/08/2010 08 hrs	0	0	
	Assam										
17	Brahmaputra	Dibrugrah	103.24	104.24	106.48	03/09/1998	105.97	09/09/2010(18-21)	307	307	100.00
18	Brahmaputra	Neamatighat	84.04	85.04	87.37	11/07/1991	86.38	10/09/2010(13-15)	143	143	100.00
19	Brahmaputra	Tezpur	64.23	65.23	66.59	27/08/1988	65.69	11-12/9/2010(23-12)	95	95	100.00
20	Brahmaputra	Guwahati	48.68	49.68	51.46	21/07/2004	49.93	13/09/10 (10-18)hrs	59	59	100.00
21	Brahmaputra	Goalpara	35.27	36.27	37.43	31/07/1954	36.37	13/09/10(19-24)hrs	86	86	100.00
22	Brahmaputra	Dhubri	27.62	28.62	30.36	28/08/1988	29.30	29/06/2010 24 hr	252	252	100.00
23	Burhidihing	Naharkatia	119.40	120.40	122.69	17/06/1973	118.57	31/07/2010(18-19)	0	0	
24	Burhidihing	Khowang	101.11	102.11	103.92	25/08/1988	102.52	23/07/2010(09-17)	50	50	100.00
25	Desang	Nanglamoraghat	93.46	94.46	96.49	06/09/1998	95.88	22/07/2010(06-09)	84	84	100.00
26	Dikhow	Shivsagar	91.40	92.40	95.62	08/07/1974	93.81	27-28/06/10(23-03)	101	100	99.01
27	Subansiri	Badatighat	81.53	82.53	86.84	28/06/1972	82.35	10/09/2010(21-24)	41	41	100.00
28	Dhansiri (S)	Golaghat	88.50	89.50	91.30	11/10/1986	89.98	09/10/2010(2400)	117	117	100.00
29	Dhansiri (S)	Numaligarh	76.42	77.42	79.87	24/09/1985	78.88	22/08/2010(13-15)	258	256	99.22
30	Jiabharali	Jiabharali_NTX	76.00	77.00	78.50	26/07/2007	77.75	23/08/2010(08-12)	355	352	99.15
31	Kopilli	Kampur	59.50	60.50	61.86	16/06/1973	61.52	10/10/2010(16-18)	12	12	100.00
32	Kopilli	Dharmatul	55.00	56.00	58.09	21/07/2004	55.65	12/10/2010(09-24)	31	31	100.00
33	Puthimari	Puthimari _NHX	50.81	51.81	55.08	31-08-2008	54.22	28/06/10(18-19)hrs	307	297	96.74
34	Pagladiya	Pagladia_NTX	51.75	52.75	55.45	08/07/2004	52.51	28/06/10(18-19)hrs	18	18	100.00
35	Beki	Beki NHX	44.10	45.10	46.20	04/08/2000	45.80	28/06/2010 (05-06) hrs	471	471	100.00
36	Manas	Manas NHX	47.81	48.42	50.08	15/09/1984	48.79	28/06/2010 (12-13)hrs	34	34	100.00
37	Sankosh	Golakganj	28.94	29.94	30.95	08/09/2007	30.45	12/07/2010 (04-06) hrs	170	169	99.41
38	Barak	APGhat	18.83	19.83	21.84	01/08/1989	20.72	10/06/10(21-24)hrs	118	115	97.46
39	Katakhal	Matizuri	19.27	20.27	22.73	10/09/2007	21.13	06/06/10(06-07)	79	79	100.00
40	Kushiyara	Karimganj	13.94	14.94	16.55	09/09/2007	16.57	10/06/10(23-24)hrs	241	241	100.00

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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	5	6	7	8	9	10	11	12	13
	Bihar										
41	Ganga	Buxar	59.32	60.32	62.09	1948	58.42	03/10/2010 (17-24) hrs	0	0	
42	Ganga	Patna	49.45	50.45	52.52	23/08/1975	49.77	25/0/9/2010 20 hrs	28	28	100.00
43	Ganga	Patna Dighaghat	47.60	48.60	50.27	14/08/1994	48.77	20/09/2010 20 hrs	46	46	100.00
44	Ganga	Hathidah	40.76	41.76	43.15	07/08/1971	41.78	21/09/2010 08 hrs	44	44	100.00
45	Ganga	Munger	38.33	39.33	40.99	19/09/1976	38.14	02/09/2010 14 hrs	0	0	
46	Ganga	Bhagalpur	32.68	33.68	34.20	17/09/2003	33.26	03/09/2010 17 hrs	35	35	100.00
47	Ganga	Kahalgaon	30.09	31.09	32.87	17/09/2003	31.59	03/09/2010 11 hrs	45	45	100.00
48	Ghaghra	Darauli	59.82	60.82	61.74	29/08/1998	61.05	29/08/2010 14 hrs	50	50	100.00
49	Ghaghra	Gangpur Siswan	56.04	57.04	58.01	18/09/1983	57.41	31/08/2010 09 hrs	41	41	100.00
50	Ghaghra	Chhapra	52.68	53.68	54.59	03/09/1982	50.88	26/09/2010 07hrs	0	0	
51	Sone	Inderpuri	107.20	108.20	108.85	23/08/1975	104.10	14/07/2010 08 hrs	0	0	
52	Sone	Koelwar	54.52	55.52	58.88	20/07/1971	52.01	25/09/2010 18 hrs	0	0	
53	Sone	Maner	51.00	52.00	53.79	10/09/1976	51.31	25/09/2010 21 hrs	20	20	100.00
54	PunPun	Sripalpur	49.60	50.60	53.91	18/09/1976	50.23	20/09/2010 06 hrs	6	6	100.00
55	Gandak	Chatia	68.15	69.15	70.04	26/07/2002	69.45	2708/2010 04 hrs	12	12	100.00
56	Gandak	Rewaghat	53.41	54.41	55.41	17/09/1986	54.54	28/08/2010 10 hrs	28	28	100.00
57	Gandak	Hazipur	49.32	50.32	50.93	1948	49.16	29/08/2010 06 hrs	0	0	
58	Burhi Gandak	Lalbeghiaghat	62.20	63.20	67.09	30/07/1975	62.92	31/08/2010 13 hrs	9	9	100.00
59	Burhi Gandak	Muzaffarpur	51.53	52.53	54.29	15/08/1987	51.65	04/09/2010 04 hrs	4	4	100.00
60	Burhi Gandak	Samastipur	45.02	46.02	49.38	15/08/1987	45.56	05/09/2010 07 hrs	8	8	100.00
61	Burhi Gandak	Rosera	41.63	42.63	46.35	16/08/1987	42.34	05/09/2010 12 hrs	10	10	100.00
62	Burhi Gandak	Khagaria	35.58	36.58	39.22	1976	36.95	06/09/2010 01 hr	41	41	100.00
63	Bagmati	Benibad	47.68	48.68	50.01	12/07/2004	49.71	27/08/2010 18 hrs	93	93	100.00
64	Bagmati	Hayaghat	44.72	45.72	48.96	14/08/1987	45.15	01/09/2010 17 hrs	5	5	100.00
65	Adhwara Group	Kamtaul	49.00	50.00	52.99	12/08/1987	50.03	29/08/2010 05hrs	13	13	100.00
66	Adhwara Group	Ekmighat	45.94	46.94	49.52	12/07/2004	46.30	30/08/2010 21 hrs	7	7	100.00
67	Kamla Balan	Jhanjharpur	49.00	50.00	53.01	10/07/2004	51.69	25/08/2010 15 hrs	37	37	100.00
68	Kosi	Basua	46.75	47.75	48.87	11/07/2004	49.17	25/08/2010 06 hrs	232	232	100.00
69	Kosi	Baltara	32.85	33.85	36.40	15/08/1987	35.05	29/08/2010 19 hrs	88	88	100.00
70	Kosi	Kursela	29.00	30.00	32.04	06/09/1998	30.66	03/09/2010 23 hrs	45	45	100.00
71	Mahananda	Dhengraghat	34.65	35.65	38.09	1968	36.81	22/07/2010 14 hrs	76	76	100.00
72	Mahananda	Jhawa	30.40	31.40	33.51	14/08/1987	32.05	23/07/2010 18 hrs	139	139	100.00
	Chhatisgarh										
73	Indravati	Jagdalpur	539.50	540.80	544.68	09-07-1973	544.08	06/08/2010 19 hrs	57	51	89.47
	Dadra & Nagar Haveli										
74	Damanganga	Daman	2.60	3.40	4.00	03/08/2004	1.90	26/06/2010 16 hrs	0	0	
	Gujarat										
75	Banas	Dantiwada Dam	182.88	185.06	186.04	01/09/1973	173.23	22/09/2010 11 hrs	0	0	
76	Sabarmati	Dharoi Dam	187.45	192.25	189.63	03/09/1990	186.77	08/10/2010 08 hrs	1	1	100.00
77	Sabarmati	Ahmedabad	44.09	45.34	47.45	19-08-2006	41.84	15/10/2010 19 hrs	0	0	
78	Mahi	Kadana Dam	126.19	127.71	127.74	09/09/1989	125.96	25/09/2010 04 hrs	0	0	
79	Mahi	Wanakbori	71.00	72.54	76.10	12-08-2006	67.59	10/09/2010 09 hrs	0	0	
80	Naramada	Garudeswar	30.48	31.09	41.65	06/09/1970	18.93	10/09/2010 06 hrs	0	0	
81	Naramada	Bharuch	6.71	7.31	12.65	07/09/1970	6.10	11/09/2010 06 hrs	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	5	6	7	8	9	10	11	12	13
82	Tapi	Ukai Dam	102.41	105.16	105.51	08/10/1990	103.81	19/09/2010 15 hrs	79	79	100.00
83	Tapi	Surat	8.50	9.50	12.50	09-08-2006	6.80	11/09/2010 07 hrs	0	0	
84	Damanganga	Madhuban Dam	79.86	82.40	80.60	27/09/1993	80.00	07/10/2010 06 hrs	1	1	100.00
85	Damanganga	Vapi Town	18.20	19.20	23.76	03-08-2004	16.10	09/09/2010 11 hrs	0	0	
	Haryana										
86	Yamuna	Tajewala Weir	PL=323.70		328.27	03/09/1978	338.10	20.09.10	0	0	
	Jharkhand										
87	Ganga	Sahibgunj	26.25	27.25	30.91	1998	27.96	03/09/2010 03 hrs	52	52	100.00
88	Mayurakshi	Massanjore Dam	FRL = 121.31		122.87	25/09/1999	115.47	15/10/2010 16 hrs	0	0	
89	Damodar	Tenughat Dam	FRL = 268.83		265.56	17/09/1985	260.16	20/09/2010 11 hrs	4	4	100.00
90	Damodar	Panchet Dam	FRL = 132.59		132.89	02/10/1959	126.03	28/09/2010 21 hrs	16	16	100.00
91	Barakar	Maithon Dam	FRL= 150.88		151.79	02/10/1959	146.70	29/09/2010 03 hrs	14	14	100.00
	Karnataka										
92	Krishna	Alamati Dam	FRL=519.60		519.60	18/09/2002	519.60	30/8/2010 06 hrs	31	30	96.77
93	Krishna	Narayanpur Dam	FRL=492.25		492.22	26-09-2008	492.03	21/10/2010 15 hrs	43	41	95.35
94	Bhima	Deongaon	402.00	404.50	407.34	13/08/2006	400.05	23/08/2010 17 hrs	0	0	
95	Tungbhadra	Tungabhadra Dam	FRL=497.74		497.74	05/10/1992	497.74	21/08/2010 16 hrs	150	145	96.67
	Madhya Pradesh										
96	Chambal	Gandhisagar Dam							0	0	
97	Naramada	Mandla	437.20	437.80	439.41	18/08/1974	436.22	26/07/2010 10 hrs	0	0	
98	Naramada	Hoshangabad	292.83	293.83	300.90	30/08/1973	290.05	05/09/2010 14 hrs	0	0	
	Maharashtra										
99	Godavari	Kopergaon	490.90	493.68	499.17	1969	489.85	04/08/2010 19 hrs	0	0	
100	Godavari	Jaikwadi Dam	FRL=463.91		464.69	12/10/1990	461.31	11/10/2010 13 hrs	0	0	
101	Godavari	Gangakhed	374.00	375.00	377.57	1947	369.91	13/08/2010 19 hrs	0	0	
102	Godavari	Nanded	353.00	354.00	357.10	06-08-2006	346.30	07/08/2010 14 hrs	0	0	
103	Wardha	Balharsha	171.50	174.00	176.00	15-08-1986	172.25	08/08/2010 08 hrs	9	8	88.89
104	Wainganga	Bhandara	244.00	244.50	250.90	16/09/2005	243.95	08/09/2010 22 hrs	0	0	
105	Wainganga	Pauni	226.73	227.73	232.35	07/09/1994	226.38	09/09/2010 06 hrs	0	0	
106	Krishna	Arjunward	542.07	543.29	543.69	05/08/2005			0	0	
107	Tapi	Hatnur Dam	212.02	214.00	214.00	12/10/1989	214.00	01/10/201008 hrs	111	110	99.10
	NCT Delhi										
108	Yamuna	Delhi Rly Bridge	204.00	204.83	207.49	06/09/1978	207.11	22.09.10	46	42	91.30
109	Sahibi	Dhansa	211.44	212.44	213.58	06/08/1977	210.38	23.09.10	0	0	
	Odisha										
110	Subernarekna	Rajghat	9.45	10.36	12.69	19-06-2008	7.11	20/09/2010 17 hrs	0	0	
111	Burhabalang	NH_5 _Road Bridge	7.21	8.13	9.50	12/10/1973	7.34	19/09/2010 14 hrs	1	1	100.00
112	Baitarni	Anandpur	37.44	38.36	41.20	19/08/1975	35.53	20/09/2010 06 hrs	0	0	
113	Baitarni	Akhuapada	17.83	17.83	21.95	16/08/1960	17.40	25/07/2010 06 hrs	0	0	
114	Brahmani	Jenapur	22.00	23.00	24.78	20/08/1975	19.72	07/08/2010 15 hrs	0	0	
115	Rushikuluya	Purushottampur	15.83	16.83	19.65	04/11/1990	15.28	08/09/2010 15 hrs	0	0	
116	Vamsadhara	Gunupur	83.00	84.00	88.75	17/09/1980	82.67	06/08/2010 06 hrs	0	0	
117	Vamsadhara	Kashinagar	53.60	54.60	58.93	18/09/1980	55.00	05/08/2010 04 hrs	52	52	100.00
118	Mahanadi	Hirakud Dam	FRL=192.02		192.30	30/01/1998	192.02	25/09/2010 18 hrs	59	58	98.31
119	Mahanadi	Naraj	25.41	26.41	27.61	31/08/1982	26.76	25/09/2010 24 hrs	12	12	100.00
120	Mahanadi	Alipingal Devi	10.85	11.76	13.05	20/09/2008	8.50	21/09/2010 08 hrs	0	0	

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1	2	3	5	6	7	8	9	10	11	12	13
121	Mahanadi	Nimapara	9.85	10.76	11.60	31/08/1982	6.86	08/08/2010 24 hrs	0	0	
	Tripura										
122	Manu	Kailashar	24.34	25.34	25.79	07/06/1993	24.99	09/10/10(15-16)hrs	5	1	20.00
123	Gumti	Sonamura	11.50	12.50	14.42	23/07/1993	11.77	09/10/10(08-09)hrs	2	1	50.00
	Uttar Pradesh										
124	Ganga	Narora Barrage	PL= 180.79 at D/S		180.18	06/09/1978	180.61	23/09/2010;10:00	72	70	97.22
125	Ganga	Kannauj	124.97	125.97	126.24	29/08/1998	126.78	27/09/2010;07:00	44	44	100.00
126	Ganga	Ankinghat	123.00	124.00	124.31	09/09/1978	124.49	28/09/2010;05:00	44	44	100.00
127	Ganga	Kanpur	113.00	114.00	113.47	02/09/1967	114.08	29/09/2010;14:00	53	51	96.23
128	Ganga	Dalmau	98.36	99.36	99.84	03/08/1973	99.63	30/09/2010;19:00	37	37	100.00
129	Ganga	Phphamau	83.73	84.73	87.98	08/09/1978	81.36	02/10/2010:17	0	0	
130	Ganga	Allahabad	83.73	84.73	88.03	08/09/1978	79.54	02/10/2010:12	0	0	
131	Ganga	Mirzapur	76.72	77.72	80.34	09/09/1978	72.76	03/10/2010:08	0	0	
132	Ganga	Varanasi	70.26	71.26	73.90	09/09/1978	67.58	03/10/2010:17	0	0	
133	Ganga	Ghazipur	62.11	63.11	65.22	09/09/1978	61.33	03/10/2010:16	0	0	
134	Ganga	Ballia	56.62	57.62	60.25	14/09/2003	57.60	26/09/2010:01	33	33	100.00
135	Ramganga	Moradabad	189.60	190.60	192.68	03/09/1978	192.88	21/09/2010;02:00	39	37	94.87
136	Ramganga	Bareilly	162.70	163.70	162.88	06/08/1978	162.82	22/09/2010;21:00	5	5	100.00
137	Yamuna	Mawi	230.00	230.85	232.45	26/09/1988	232.33	21.09.10	47	44	93.62
138	Yamuna	Mathura	164.20	165.20	169.73	08/09/1978	167.34	26.09.10	65	65	100.00
139	Yamuna	Agra	151.40	152.40	154.76	09/09/1978	152.08	27-Sep-10 00	12	12	100.00
140	Yamuna	Etawa	120.92	121.92	126.13	11/09/1978	122.41	29-Sep-10 00	17	16	94.12
141	Yamuna	Auraiya	112.00	113.00	118.19	25/08/1996	105.13	30-Sep-10 00	0	0	
142	Yamuna	Kalpi	107.00	108.00	112.98	25/08/1996	100.09	23/09/2010 01	0	0	
143	Yamuna	Hamirpur	102.63	103.63	108.59	12/09/1983	94.43	23/09/2010 18	0	0	
144	Yamuna	Chilaghat	99.00	100.00	105.16	06/09/1978	91.99	05/09/2010 15	0	0	
145	Yamuna	Naini	83.74	84.74	87.99	08/09/1978	80.14	02/10/2010 18	0	0	
146	Betwa	Mohana	121.66	122.66	133.35	11/09/1983	113.79	27/07/2010 19	0	0	
158	Betwa	Sahjina	103.54	104.54	108.67	12/09/1983	93.87	23/09/2010 17	0	0	
147	Ken	Banda	103.00	104.00	113.29	07-07-2005	102.30	27/07/2010 20	0	0	
148	Gomati	Lucknow	108.50	109.50	110.85	11-09-1971	106.32	28/09/2010;20:00	0	0	
149	Gomati	Jaunpur	73.07	74.07	77.74	22/09/1971	70.06	30/09/2010:18	0	0	
150	SAI	Raibareli	100.00	101.00	104.81	17/09/1982	98.25	03/08/2010;13:00	0	0	
151	Ghaghra	Elgin Bridge	105.07	106.07	107.56	10-10-2009	107.16	26/08/2010 05	73	71	97.26
152	Ghaghra	Ayodhya	91.73	92.73	94.01	11-10-2009	93.91	27/08/2010 21	77	75	97.40
153	Ghaghra	Turtipar	63.01	64.01	66.00	28/08/1998	64.80	29/08/2010 21	76	75	98.68
154	Rapti	Balrampur	103.62	104.62	105.25	11/09/2000	104.47	25/08/2010 22	21	21	100.00
155	Rapti	Bansi	83.90	84.90	85.82	21/08/1998	84.89	29/08/2010 22	29	29	100.00
156	Rapti	Gorakpur Birdghat	73.98	74.98	77.54	23/08/1998	75.98	29/08/2010 22	44	44	100.00
157	Gandak	Khadda	95.00	96.00	97.50	23/07/2002	96.30	24/08/2010 15 hrs	109	109	100.00

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1	2	3	5	6	7	8	9	10	11	12	13
	Uttaranchal										
159	Alaknanda	Srinagar	539.00	540.00	536.85	05/09/1995	536.00	19-09-2010 01:00	0	0	
160	Ganga	Rishikesh	339.50	340.50	341.72	03/09/1978	341.50	19-09-2010 05:00	35	27	77.14
161	Ganga	Haridwar	293.00	294.00	296.23	02/09/1978	296.30	19-09-2010 08:00	51	34	66.67
	West Bengal										
162	Ganga	Farakka	21.25	22.25	25.14	07/09/1998	23.13	03/09/2010 23 hrs	99	97	97.98
163	Mayurakshi	Tilpara Barrage	PL= 62.79		67.05	27/09/1978	62.79	12/10/2010 11 hrs	0	0	
164	Mayurakshi	Narayanpur	26.99	27.99	29.69	27/09/1995	23.91	26/08/2010 21 hrs	0	0	
165	Ajoy	Gheropara	38.42	39.42	43.94	27/09/1978	37.65	26/08/2010 19 hrs	0	0	
166	Damodar	Durgapur Barrage	PL = 64.47		64.47	31/10/2002	64.47	15/07/2010 01 hr	1	1	100.00
167	Mundeshwari	Harinkhola	11.80	12.80	14.58	29/09/1978	7.42	25/08/2010 18 hrs	0	0	
168	Kangsabati	Kangsabati Dam	FRL=134.11		134.71	02/09/1978	125.61	10/10/2010 06 hrs	0	0	
169	Kangsabati	Mohanpur	24.73	25.73	29.87	02/09/1978	20.26	01/07/2010 11 hrs	0	0	
170	Raidak-I	Tufanganj	34.22	35.30	36.36	21/07/1993	34.84	12/07/2010 (07-11) hrs	18	16	88.89
171	Torsa	Ghughumari	39.80	40.41	41.46	03/08/2000	40.58	21/07/2010 (19-21) hrs	58	57	98.28
172	Jaldhaka	NH-31	80.00	80.90	81.33	28-08-1972	80.30	09/7/2010 (14) hr	45	45	100.00
173	Jaldhaka	Mathabhanga	47.70	48.20	49.85	07/09/2007	48.00	21/07/2010 (16-17)hrs	5	5	100.00
174	Tista	Domohani	85.65	85.95	89.30	04/10/1968	86.09	24/08/2010 (02-03) hrs	115	115	100.00
175	Tista	Mekhliganj	65.45	65.95	66.45	13/07/1996	65.91	23/08/2010 (24)hr	45	45	100.00
							Total Forecasts		***7519***	***7378***	**98.12**
							Level Forecasts		**6491**	**6390**	**98.44**
							Inflow Forecast		**1028**	**988**	**96.11**

List of Wireless Stations in Ganga Basin

Sl No	CWC Division	Station	Sl No	CWC Division	Station	Sl No	CWC Division	Station	Sl No	CWC Division	Station	Sl No	CWC Division	Station
1	HGD,Dehradun	Hardwar	41	MGD-2, Lucknow	Ankinghat	81	MGD-4, Patna	Basua	121	DD, Asansol	Maithon Dam	161	UYD, New Delhi	Mawi
2	HGD,Dehradun	Rishikesh	42	MGD-2, Lucknow	Dalmau	82	MGD-4, Patna	Baltara	122	DD, Asansol	Pupunki	162	UYD, New Delhi	Baghpat
3	HGD,Dehradun	Marora	43	MGD-2, Lucknow	Bani	83	MGD-4, Patna	Kursela	123	DD, Asansol	Putki	163	UYD, New Delhi	Delhi Rly.Bridge
4	HGD,Dehradun	Deoprayag	44	MGD-2, Lucknow	Raibarreli	84	MGD-4, Patna	Taibpur	124	DD, Asansol	Panchet Dam	164	UYD, New Delhi	Mohna
5	HGD,Dehradun	Tehri	45	MGD-2, Lucknow	Kalagarh	85	MGD-4, Patna	Dhengraghat	125	DD, Asansol	Asansol	165	UYD, New Delhi	Mathura
6	HGD,Dehradun	Uttarkashi	46	MGD-2, Lucknow	Gumtia	86	MGD-4, Patna	Jhawa	126	DD, Asansol	Sikatia	166	UYD, New Delhi	Dehradun (*)
7	HGD,Dehradun	Srinagar	47	MGD-2, Lucknow	Neemsar	87	MGD-4, Patna	Chargharia	127	DD, Asansol	Jamtara	167	UYD, New Delhi	Dadri
8	HGD,Dehradun	Rudraprayag	48	MGD-2, Lucknow	Bhatpurwa	88	MGD-4, Patna	Galgalia	128	DD, Asansol	Gheropara	168	UYD, New Delhi	Masani
9	HGD,Dehradun	Karanprayag	49	MGD-3, Varanasi	Division Varanasi	89	MGD-4, Patna	Patna- Divn 4	129	DD, Asansol	Durgapur Barrage	169	LYD, Agra	Agra
10	HGD,Dehradun	Joshimath	50	MGD-3, Varanasi	Ghazipur	90	MGD-4, Patna	Purnea	130	DD, Asansol	Harinkhola	170	LYD, Agra	Etawah
11	HGD,Dehradun	Dehradun	51	MGD-3, Varanasi	Ballia	91	MGD-4, Patna	Darbhanga	131	DD, Asansol	Khusiary	171	LYD, Agra	Auraiya
12	MGD-I, Lucknow	MGD-1, Lucknow	52	MGD-3, Varanasi	Jaunpur	92	MGD-4, Patna	Muzaffarpur (Sikandarp	132	DD, Asansol	Maharo	172	LYD, Agra	Kalpi
13	MGD-I, Lucknow	SD Haldwani	53	MGD-3, Varanasi	SD Allahabad	93	MGD-4, Patna	Begusarai	133	DD, Asansol	Massanjore Dam	173	LYD, Agra	Hamirpur
14	MGD-I, Lucknow	Banbasa	54	MGD-3, Varanasi	Allahabad Site	94	MGD-5, Patna	Buxar	134	DD, Asansol	Tantloi	174	LYD, Agra	Chillaghat
15	MGD-I, Lucknow	Paliakalan	55	MGD-3, Varanasi	Sultanpur	95	MGD-5, Patna	Hathidah	135	DD, Asansol	Tilpara Barrage	175	LYD, Agra	Madla
16	MGD-I, Lucknow	Shardanagar	56	MGD-3, Varanasi	Mirzapur	96	MGD-5, Patna	Munger	136	DD, Asansol	Narayanpur	176	LYD, Agra	Banda
17	MGD-I, Lucknow	B.K.Ghat	**57**	MGD-3, Varanasi	Kldahbridge	97	MGD-5, Patna	Bhagalpur	137	DD, Asansol	Suri	177	LYD, Agra	Dholpur
18	MGD-I, Lucknow	Elginbridge	58	MGD-3, Varanasi	Chopan	98	MGD-5, Patna	(Colgong) Kahelgaon	138	DD, Asansol	Simulia	178	LYD, Agra	Jhansi
19	MGD-I, Lucknow	Ayodhya	**59**	MGD-3, Varanasi	Kharra	99	MGD-5, Patna	Farakka	139	DD, Asansol	Tusuma	179	LYD, Agra	Mohana
20	MGD-I, Lucknow	Turtipar	60	MGD-3, Varanasi	Rewa	100	MGD-5, Patna	Japla	140	DD, Asansol	Purihansa	180	LYD, Agra	Kaimaha
21	MGD-I, Lucknow	Kakardhari	61	MGD-3, Varanasi	Sitamadhi (Seasonal)	101	MGD-5, Patna	Indrapuri	141	DD, Asansol	Kharidwar	181	LYD, Agra	Garrauli
22	MGD-I, Lucknow	Bhinga	**62**	MGD-3, Varanasi	Azamgarh (Seasonal)	102	MGD-5, Patna	Koelwar	142	DD, Asansol	Phulberia	182	CD, Jaipur	Jaipur
23	MGD-I, Lucknow	Balrampur	63	MGD-4, Patna	Triveni	103	MGD-5, Patna	Maner	143	DD, Asansol	Kangsabati Dam	183	CD, Jaipur	Kota
24	MGD-I, Lucknow	Bansi	64	MGD-4, Patna	Khadda	104	MGD-5, Patna	Daltanganj	144	DD, Asansol	D.P.Ghat	184	CD, Jaipur	Pali
25	MGD-I, Lucknow	Regauli	65	MGD-4, Patna	Chatia	105	MGD-5, Patna	Palmerganj	145	DD, Asansol	Mohanpur	185	CD, Jaipur	Baranwada
26	MGD-I, Lucknow	Kakrahi	66	MGD-4, Patna	Chanpatia	106	MGD-5, Patna	Kinjer	146	DD, Asansol	Midnapore	186	CD, Jaipur	Barod
27	MGD-I, Lucknow	Uskabazar	67	MGD-4, Patna	Lalbegiaghat	107	MGD-5, Patna	Sripalpur	147	DD, Asansol	Bankura	187	CD, Jaipur	Khatoli
28	MGD-I, Lucknow	Trimohinighat	68	MGD-4, Patna	Ahirwalia	108	MGD-5, Patna	Darauli	148	DD, Asansol	Kolkata	188	CD, Jaipur	Manderial
29	MGD-I, Lucknow	Chandradeepghat	69	MGD-4, Patna	Samsatipur	109	MGD-5, Patna	Gangpur Siswan	149	DD, Asansol	Kolkata			
30	MGD-I, Lucknow	Basti	70	MGD-4, Patna	Russera	110	MGD-5, Patna	Chapra	150	UYD, New Delhi	UYD , New Delhi			
31	MGD-I, Lucknow	Mukhlispur	71	MGD-4, Patna	Khagaria	111	MGD-5, Patna	Rewa Ghat	151	UYD, New Delhi	Naugaon			
32	MGD-I, Lucknow	SD Gonda	72	MGD-4, Patna	Runisaidpur	112	MGD-5, Patna	Hajipur	152	UYD, New Delhi	Hathihari (Bausan)			
33	MGD-I, Lucknow	SD Gorakhpur/ Birdghat	73	MGD-4, Patna	Benibad	113	MGD-5, Patna	MGDS-5, Patna	153	UYD, New Delhi	Tuini_Tons			
34	MGD-2, Lucknow	Moradabad	**74**	MGD-4, Patna	Hayaghat	114	DD, Asansol	Heindgir	154	UYD, New Delhi	Haripur			
35	MGD-2, Lucknow	Narora	75	MGD-4, Patna	Sonebarsha	115	DD, Asansol	Ramgarh	155	UYD, New Delhi	Paonta			
36	MGD-2, Lucknow	Barrelly	76	MGD-4, Patna	Kamtaul	116	DD, Asansol	Konar	156	UYD, New Delhi	Jataon barrage			
37	MGD-2, Lucknow	Dabri	77	MGD-4, Patna	Saulighat	117	DD, Asansol	Tenughat Dam	157	UYD, New Delhi	Yashwant nagar			
38	MGD-2, Lucknow	Fatehgarh	78	MGD-4, Patna	Jainagar	118	DD, Asansol	Tilaiya	158	UYD, New Delhi	Tajewala/ Hathnikund			
39	MGD-2, Lucknow	Division	79	MGD-4, Patna	Jhanjharpur	119	DD, Asansol	Barkisurya	159	UYD, New Delhi	Kalanaur			
40	MGD-2, Lucknow	Kanpur	80	MGD-4, Patna	Birpur	120	DD, Asansol	Nandadih	160	UYD, New Delhi	Karnal			

List of Wireless Stations in Brahmaputra Basin								
Sl No	**CWC Division**	**Station**	**Sl No**	**CWC Division**	**Station**	**Sl No**	**CWC Division**	**Station**
1	UBD, Dibrugarh	Tezu	41	MBD, Guwahati	Suklai	81	LBD, Jalpaiguri	Raidak -II
2	UBD, Dibrugarh	Dholla Bazar	42	MBD, Guwahati	BSD , Silchar	82	LBD, Jalpaiguri	Sankosh LRP
3	UBD, Dibrugarh	Dibrugarh_Div (*)	43	MBD, Guwahati	Annapurna Ghat	83	LBD, Jalpaiguri	Golokgang
4	UBD, Dibrugarh	Miao	44	MBD, Guwahati	Lakhipur	84	LBD, Jalpaiguri	Ghughumari
5	UBD, Dibrugarh	Namsai	45	MBD, Guwahati	Dholai	85	LBD, Jalpaiguri	T.R.S. Sub -Division
6	UBD, Dibrugarh	Margherita	46	MBD, Guwahati	Amra ghat	86	LBD, Jalpaiguri	Dhubri
7	UBD, Dibrugarh	Naharkatia	47	MBD, Guwahati	Matizuri	87	LBD, Jalpaiguri	Baki Rd.Bridge
8	UBD, Dibrugarh	Dillighat	48	MBD, Guwahati	Gharmura	88	LBD, Jalpaiguri	Manas N-H Xing
9	UBD, Dibrugarh	Chenimari (Khowang)	49	MBD, Guwahati	Badarpur ghat	89	LBD, Jalpaiguri	Aie
10	UBD, Dibrugarh	Sivasagar	50	MBD, Guwahati	Karim ganj	90	LBD, Jalpaiguri	Mathanguri
11	UBD, Dibrugarh	Desangpani	51	MBD, Guwahati	Kailaswar	91	LBD, Jalpaiguri	Bohalpur
12	UBD, Dibrugarh	Nanglamoraghat	52	MBD, Guwahati	Manu Ghat	92	LBD, Jalpaiguri	Saralpara
13	UBD, Dibrugarh	Bihubar	53	MBD, Guwahati	Sonamura	93	LBD, Jalpaiguri	MBSD, Barpeta Rd
14	UBD, Dibrugarh	Neamatighat	54	MBD, Guwahati	Amarpur			
15	UBD, Dibrugarh	Numaligarh	55	MBD, Guwahati	Barkhola			
16	UBD, Dibrugarh	Golaghat	56	MBD, Guwahati	Harangajao			
17	UBD, Dibrugarh	Gelabil	57	MBD, Guwahati	Chhota bekra			
18	UBD, Dibrugarh	Bokajan	58	LBD, Jalpaiguri	L.B.Division			
19	UBD, Dibrugarh	Tezpur	59	LBD, Jalpaiguri	Sankalan			
20	UBD, Dibrugarh	N.T.Rd.Xing_Jiabharali	60	LBD, Jalpaiguri	Khanitar			
21	UBD, Dibrugarh	Bhalukpong	61	LBD, Jalpaiguri	Rangpo			
22	UBD, Dibrugarh	Seppa	62	LBD, Jalpaiguri	Tistabazar			
23	UBD, Dibrugarh	Chouldhowaghat	63	LBD, Jalpaiguri	Mazitar			
24	UBD, Dibrugarh	Badatighat	64	LBD, Jalpaiguri	Singlabazar			
25	UBD, Dibrugarh	Passighat	65	LBD, Jalpaiguri	Coronation			
26	UBD, Dibrugarh	Kheronighat	66	LBD, Jalpaiguri	Sevoke			
27	UBD, Dibrugarh	Kampur	67	LBD, Jalpaiguri	U.T.U.M Sub-Division			
28	UBD, Dibrugarh	Dharamtul	68	LBD, Jalpaiguri	Gazoldoba			
29	UBD, Dibrugarh	Tuting	69	LBD, Jalpaiguri	Domohani			
30	UBD, Dibrugarh	Leneking	70	LBD, Jalpaiguri	Makhligang R/B			
31	UBD, Dibrugarh	Kibithu	71	LBD, Jalpaiguri	Ghish			
32	UBD, Dibrugarh	Hayuliang	72	LBD, Jalpaiguri	Chel			
33	UBD, Dibrugarh	Motipur(Seasonal)	73	LBD, Jalpaiguri	Neora			
34	MBD, Guwahati	MBD,Guwahati	74	LBD, Jalpaiguri	Murti			
35	MBD, Guwahati	Goalpara	75	LBD, Jalpaiguri	Nagrakata			
36	MBD, Guwahati	PPSD, Nalbari	76	LBD, Jalpaiguri	Diana			
37	MBD, Guwahati	Pagladiya	77	LBD, Jalpaiguri	NH - 31			
38	MBD, Guwahati	Puthimari	78	LBD, Jalpaiguri	Mathabhanga			
39	MBD, Guwahati	Mela Bazar	79	LBD, Jalpaiguri	Hasimara			
40	MBD, Guwahati	Daranga Reserve Forest	80	LBD, Jalpaiguri	Raidak -I			

List of Wireless Stations in other than Ganga & Brahmaputra Basins														
Sl No	**CWC Division**	**Station**	**Sl No**	**CWC Division**	**Station**	**Sl No**	**CWC Division**	**Station**	**Sl No**	**CWC Division**	**Station**	**Sl No**	**CWC Division**	**Station**
1	ERD, Bhubaneshwar	Eastern Rivers Division, Bhubaneswar	41	ERD, Bhubaneshwar	Rengali (Seasonal Site)	81	ND, Bhopal	Manot	121	Mahi Div, Gandhinagar	BLSD, Palanpur	161	TD, Surat	Surat
2	ERD, Bhubaneshwar	Naraj	42	ERD, Bhubaneshwar	Thakurmunda (Seasonal Site)	82	ND, Bhopal	Mukki	122	Mahi Div, Gandhinagar	Mount Abu	162	WGD, Nagpur	Hivra
3	ERD, Bhubaneshwar	Jamshedpur	43	ERD, Bhubaneshwar	Pubansha (Seasonal Site)	83	ND, Bhopal	Mawai	123	Mahi Div, Gandhinagar	Ambaji	163	WGD, Nagpur	Nandgaon
4	ERD, Bhubaneshwar	Sub SD, Balasore	44	ERD, Bhubaneshwar	Indupur (Seasonal Site)	84	ND, Bhopal	Mandla	124	Mahi Div, Gandhinagar	Swaroopganj	164	WGD, Nagpur	Ghugus
5	ERD, Bhubaneshwar	Baripada	45	ERD, Bhubaneshwar	Kanas (Seasonal Site)	85	ND, Bhopal	Bargi	125	Mahi Div, Gandhinagar	Abu Road	165	WGD, Nagpur	P.G.Bridge
6	ERD, Bhubaneshwar	Akhuapada	46	ERD, Bhubaneshwar	Marshaghai (Seasonal Site)	86	ND, Bhopal	Barman	126	Mahi Div, Gandhinagar	Sarotry	166	WGD, Nagpur	Ballarshah
7	ERD, Bhubaneshwar	Anandapur	47	MD, Burla	Burla	87	ND, Bhopal	Tawa	127	Mahi Div, Gandhinagar	Chitrasani	167	WGD, Nagpur	Keolari
8	ERD, Bhubaneshwar	Jamsolaghat	48	MD, Burla	Sundergarh	88	ND, Bhopal	Pachmarhi	128	Mahi Div, Gandhinagar	Dantiwada Dam	168	WGD, Nagpur	Sitakesa
9	ERD, Bhubaneshwar	Panposh	49	MD, Burla	Paramanpur	89	ND, Bhopal	Hoshangabad	129	Mahi Div, Gandhinagar	Bakudar (Sipu Dam)	169	WGD, Nagpur	Balaghat/Kumhari
10	ERD, Bhubaneshwar	Swampatna	50	MD, Burla	Dharamjaygarh	90	ND, Bhopal	Mortakka	130	TD, Surat	Teska (Seasonal)	170	WGD, Nagpur	Rajegaon
11	ERD, Bhubaneshwar	Rajghat	51	MD, Burla	Kelo	91	ND, Bhopal	Bhopal	131	TD, Surat	Chikaldara	171	WGD, Nagpur	Bhandara
12	ERD, Bhubaneshwar	Talcher	52	MD, Burla	Deogaon	92	Mahi Div, Gandhinagar	MDiv, Gandhinagar	132	TD, Surat	Dedtalai	172	WGD, Nagpur	Ramakona
13	ERD, Bhubaneshwar	Jenapur	53	MD, Burla	Phulbani	93	Mahi Div, Gandhinagar	MASD, Kadana	133	TD, Surat	Burhanpur	173	WGD, Nagpur	K.R.Bridge
14	ERD, Bhubaneshwar	VSD, Berhampur	54	MD, Burla	Salebhata	94	Mahi Div, Gandhinagar	Mataji	134	TD, Surat	Yerli	174	WGD, Nagpur	Pauni
15	ERD, Bhubaneshwar	Gunupur	55	MD, Burla	Thettatatnger	95	Mahi Div, Gandhinagar	Dhariawad	135	TD, Surat	Gopalkheda	175	WGD, Nagpur	Ashti
16	ERD, Bhubaneshwar	Gudari	56	MD, Burla	Khairmal	96	Mahi Div, Gandhinagar	Mahi Bajaj Sagar Dam	136	TD, Surat	Lakhpuri	176	WGD, Nagpur	Bhatpalli
17	ERD, Bhubaneshwar	Gotta Barrage	57	MD, Burla	Kesinga	97	Mahi Div, Gandhinagar	Somkamla Amba Dam	137	TD, Surat	Hatnur	177	WGD, Nagpur	Tekra
18	ERD, Bhubaneshwar	Sorada	58	MD, Burla	Kantamal	98	Mahi Div, Gandhinagar	Paderdibadi	138	TD, Surat	Bhusawal	178	WGD, Nagpur	Chandrapur
19	ERD, Bhubaneshwar	Madhabarida	59	MD, Burla	Kurubhata	99	Mahi Div, Gandhinagar	Chakaliya	139	TD, Surat	Dahigaon	179	WGD, Nagpur	Nagpur
20	ERD, Bhubaneshwar	Purushottampur	60	MD, Burla	Surajgarh	100	Mahi Div, Gandhinagar	Anas Ph-2	140	TD, Surat	Girna Dam	180	UGD, Hyderabad	Nasik
21	ERD, Bhubaneshwar	Fekoghat	61	MD, Burla	Jamdar pali	101	Mahi Div, Gandhinagar	Panam Dam	141	TD, Surat	Savkheda	181	UGD, Hyderabad	Palkhed Dam
22	ERD, Bhubaneshwar	Chandanpur	62	MD, Burla	Raipur (*)	102	Mahi Div, Gandhinagar	Wanakbori Weir	142	TD, Surat	Morane	182	UGD, Hyderabad	NMD Weir
23	ERD, Bhubaneshwar	Balimundali	63	MD, Burla	Baronda	103	Mahi Div, Gandhinagar	Khanpur	143	TD, Surat	Gidhade	183	UGD, Hyderabad	Kopergaon
24	ERD, Bhubaneshwar	NH-5 (Govindpur)	64	MD, Burla	Rajim	104	Mahi Div, Gandhinagar	NWSD, Himmatnagar	144	TD, Surat	Sarangkheda	184	UGD, Hyderabad	Pachegaon
25	ERD, Bhubaneshwar	Jaypur	65	MD, Burla	Sankara	105	Mahi Div, Gandhinagar	Sei Dam	145	TD, Surat	Ukai Dam	185	UGD, Hyderabad	Lasur
26	ERD, Bhubaneshwar	Champua	66	MD, Burla	Rampur	106	Mahi Div, Gandhinagar	Jotasan	146	TD, Surat	Ghala	186	UGD, Hyderabad	Jaikwadi Dam
27	ERD, Bhubaneshwar	Keonjhar	67	MD, Burla	Simga	107	Mahi Div, Gandhinagar	Kheroj	147	TD, Surat	Garudeshwar	187	UGD, Hyderabad	Dhalegaon
28	ERD, Bhubaneshwar	Mahendragarh	68	MD, Burla	Andhiyakore	108	Mahi Div, Gandhinagar	Harnav Weir	148	TD, Surat	Bodeli	188	UGD, Hyderabad	Aurangabad
29	ERD, Bhubaneshwar	Mohana	69	MD, Burla	Jondra	109	Mahi Div, Gandhinagar	Dharoi Dam	149	TD, Surat	Rajpipla	189	UGD, Hyderabad	Gangakhed
30	ERD, Bhubaneshwar	Kutragarh	70	MD, Burla	Ghatora	110	Mahi Div, Gandhinagar	Derol Bridge	150	TD, Surat	Bharuch	190	UGD, Hyderabad	Zari
31	ERD, Bhubaneshwar	Kashinagar	71	MD, Burla	Bamnidhi	111	Mahi Div, Gandhinagar	Hathamati Weir	151	TD, Surat	Dhandore	191	UGD, Hyderabad	Purna
32	ERD, Bhubaneshwar	Altuma	72	MD, Burla	Basantpur	112	Mahi Div, Gandhinagar	Subhash Bridge, Ahme	152	TD, Surat	Harsul	192	UGD, Hyderabad	Nanded
33	ERD, Bhubaneshwar	Ghatsila	73	MD, Burla	Seorinarayan	113	Mahi Div, Gandhinagar	Watrak Dam	153	TD, Surat	Nanipalsan	193	UGD, Hyderabad	Saigaon
34	ERD, Bhubaneshwar	Arampur	74	MD, Burla	Korba	114	Mahi Div, Gandhinagar	Ratanpur	154	TD, Surat	Mokheda	194	UGD, Hyderabad	Singur
35	ERD, Bhubaneshwar	Tikarapara	75	MD, Burla	Bango Dam	115	Mahi Div, Gandhinagar	Kheda	155	TD, Surat	Ozerkheda	195	UGD, Hyderabad	Nizamsagar
36	ERD, Bhubaneshwar	Padmavati	76	MD, Burla	Pendra road	116	Mahi Div, Gandhinagar	Rerska Weir	156	TD, Surat	Madhuban Dam	196	UGD, Hyderabad	Degloor
37	ERD, Bhubaneshwar	Khandapara	77	MD, Burla	Manedragarh	117	Mahi Div, Gandhinagar	Vautha	157	TD, Surat	Solachar	197	UGD, Hyderabad	Bhainsa
38	ERD, Bhubaneshwar	Alipingal	78	MD, Burla	Baikunthpur	118	Mahi Div, Gandhinagar	Nadiad	158	TD, Surat	Silvasa	198	UGD, Hyderabad	Sriramsagar
39	ERD, Bhubaneshwar	Nimapara	79	ND, Bhopal	Dindori	119	Mahi Div, Gandhinagar	Ganod	159	TD, Surat	Vapi	199	UGD, Hyderabad	Mancherial
40	ERD, Bhubaneshwar	BSD, Rourkela	80	ND, Bhopal	Mohgaon	120	Mahi Div, Gandhinagar	Lowara	160	TD, Surat	Daman	200	UGD, Hyderabad	Hyderabad

List of Wireless Stations in other than Ganga Brahmaputra Basins						List of Telemetry Stations installed in IX Plan					
Sl No	**CWC Division**	**Station**	**Sl No**	**CWC Division**	**Station**	**Sl No.**	**Name of site**	**Type of Sensors**	**Sl No.**	**Name of site**	**Type of Sensors**
201	LGD, Hyderabad	Hyderabad	241	LKD, Hyderabad	Wadenapalli	**Mahanadi Basin (IX Plan)**			**Chambal Sub Basin Basin (IX Plan)**		
202	LGD, Hyderabad	LGSD-I, Bhadrachalam	242	LKD, Hyderabad	PaleruBridge	1	Simga	B	1	Gandhi Sagar Dam	D
203	LGD, Hyderabad	Kaleswaram	243	LKD, Hyderabad	Madhira	2	Jondhra	B	2	Barkheda	B
204	LGD, Hyderabad	Eturunagaram	244	LKD, Hyderabad	Vijayawada	3	Raipur	A	3	Ratlam	A
205	LGD, Hyderabad	Sangam	245	LKD, Hyderabad	Polampalli	4	Andhiyar Kore	B	4	Tal	D
206	LGD, Hyderabad	Konta	246	LKD, Hyderabad	Narayanpur Dam	5	Ghatora	B	5	Nagda	A
207	LGD, Hyderabad	Sukma	247	LKD, Hyderabad	Kurnool	6	Sankara	B	6	Dharreri	B
208	LGD, Hyderabad	Dummagudem	248	LKD, Hyderabad	K.Agraharam	7	Baikunthpur	A	7	Badnagar	B
209	LGD, Hyderabad	Perur	249	LKD, Hyderabad	Honnali (Seasonal)	8	Manendragarh	A	8	Dhar	A
210	LGD, Hyderabad	LGSD-II Rajahmundry	250	LKD, Hyderabad	Hyderabad_LKD	9	Pendra Road	A	9	Kalaklledi	B
211	LGD, Hyderabad	Koida	251	Hydrology Div, Chennai	NELLORE	10	Bango Dam	D	10	Malidpur	D
212	LGD, Hyderabad	Kunavaram	252	Hydrology Div, Chennai	NANDIPALLI	11	Korba	B	11	Ujjain	B
213	LGD, Hyderabad	Polavaram	253	Hydrology Div, Chennai	CHENNUR	12	Bamnidhi	B	12	Indore	A
214	LGD, Hyderabad	Saradaput	254	Hydrology Div, Chennai	SOMSILLA PROJECT	13	Dharamjaygarh	B	13	Chaumala	B
215	LGD, Hyderabad	ISD, Jagdalpur	255	Hydrology Div, Chennai	ANNAMAIAH PROJECT (Seasonal)	14	Kurubhata	B	14	Pat	B
216	LGD, Hyderabad	Nowrangpur	256	Cauvery Div, Bengaluru	UCSD,Bangalore	15	Thethetanagar	B	15	Dewas	A
217	LGD, Hyderabad	Tumnar	257	Cauvery Div, Bengaluru	Biligundulu	16	Sundargarh	B	16	Mandasaer	B
218	LGD, Hyderabad	Kosagumda	258	Cauvery Div, Bengaluru	Kollegal	17	Paramanpur	B	17	Rana Pratap Sagar	B
219	LGD, Hyderabad	Pathagudem	259	Cauvery Div, Bengaluru	T.Narasipura	18	Kelo at Raigarh	B	18	Jawahar Sagar Dam	D
220	LGD, Hyderabad	Chindnar	260	Cauvery Div, Bengaluru	Kudige	19	Rajim	B	19	Kota Barrage	B
221	LKD, Hyderabad	Kurundwad	261	SHD, Simla	SHD Shimla	20	Seorinarayan	D	20	Chaldu	B
222	LKD, Hyderabad	Gokak	262	SHD, Simla	Titang	21	Basantpur	B			
223	LKD, Hyderabad	Almatti Dam	263	SHD, Simla	Rampur	22	Surajgarh	B			
224	LKD, Hyderabad	Cholachiguda				23	Jamdarpalli	B			
225	LKD, Hyderabad	Takli				24	Burla	D			
226	LKD, Hyderabad	Wadakbal				25	Ravishankar Sagar Dam	B			
227	LKD, Hyderabad	DeongaonBridge				26	Salehhata	A			
228	LKD, Hyderabad	Yadgir				27	Kesinga	A			
229	LKD, Hyderabad	Huvinhedgi				28	Dhudhawa	A			
230	LKD, Hyderabad	Deosugur				29	Murumsilli	A			
231	LKD, Hyderabad	PDJurala Project				30	Sarangpal	A			
232	LKD, Hyderabad	Oollenur				31	Tikarapara	B			
233	LKD, Hyderabad	T.Ramapuram				32	Phulbani	A			
234	LKD, Hyderabad	Mantralayam				33	Naraj	D			
235	LKD, Hyderabad	Srisailam Project				34	Kantamal	B			
236	LKD, Hyderabad	NSDam				35	Khairmal	B			
237	LKD, Hyderabad	Shimoga									
238	LKD, Hyderabad	Harlahalli									
239	LKD, Hyderabad	Marol									
240	LKD, Hyderabad	TBDam									

List of telemetry sites Installations Under X Plan

Sl No	Station	Type of sensor	Sl No	Station	Type of sensor	Sl No	Station	Type of sensor	Sl No	Station	Type of sensor	Sl No	Station	Type of sensor
Godavari Basin			41	Sardaput	B	81	Jewangi	A	121	Bille	A	160	Agra	B
1	Nasik	B	42	Potteru	B	82	Malkhed	A	122	Basudevthan	A	**Mahanadi Basin**		
2	N.M.Weir	B	43	Bhandara	B	83	Deogaon Bridge	B	123	Kanghu Basti	A	161	Gopalpur	A
3	Kopergaon	B	44	Pauni	B	84	Yadgir	B	124	Desangpani	D	162	Mahulpali	B
4	Dhalegaon	B	45	Bamni (Trail)	B	85	Deosugar	B	125	Ranganadi N T Road Crossing	B	163	Deogam	B
5	Pachegaon	B	46	Rajoli	B	86	Krishna Agraharam	B		**Damodar Basin**		164	Khandapara Bridg	A
6	G.R.Bridge	B	47	Ramakona	B	87	Bennur Barrage	B	126	Maithon	C	165	Padmavati	B
7	Gangakhed	B	48	Keolari	B	88	Mantralayam	B	127	Nandadih	B	166	Arampur	A
8	Nanded	B	49	Saleburdi	B	89	T. Ramapuram	B	128	Palganj	B	167	Nimapara	B
9	Yelli	B	50	Wairagarh	B	90	Bawapuram	B	129	Giridih (near Goratanr)	B	168	Alipingal	B
10	Zari	B	51	Kanhargaon	B	91	Koilsagar	A	130	Jamuwa	A			
11	Purna	B	52	Mangrul	B	92	Wadenpalli	B	131	Barkisaraiya	B			
12	Mancherial	B	53	Kumhari	B	93	Paleru bridge	B	132	Tilaiya	C			
13	Nizamabad	A	54	Rajegaon	B	94	Keesra	B	133	Tandwa	A			
14	Bhainsa	B	55	Sitakesa	B	95	Pondugala	A	134	Hendgir	A			
15	Degloor	B	56	K.R.Bridge	B	96	Damercharla	A	135	Ramgarh	B			
16	Betmogra	B	57	Hivra	B	97	Polampalli	B	136	Tenughat	D			
17	Saigaon	B	58	Nandgaon	B	98	Madhira	B	137	Konar	C			
18	Nowrangpur	A	59	Ghugus	B	99	Shimoga	B	138	Phusro	B			
19	Kosagumda	B	60	P.G.Bridge	B	100	Honnali	B	139	Pupunki	B			
20	Murthandi	B	61	Ashti	B	101	Hagari Bommanahalli	A	140	Putki	A			
21	Jagdalpur	B	62	Bhatpalli	B	102	Byladahalli	A	141	Panchet	C			
22	Amabal	B	63	Tekra	B	103	Harlahalli	B	142	Asansol	A			
23	Cherribeda	B	**Krishna Basin**			104	Marol	B	143	Durgapur	C			
24	Chindnar	B	64	Karad	A	**Brahmaputra Basin**			144	Jamalpur	B			
25	Tumnar	B	65	Samdoli	A	105	Kambang (Kabu)	A	145	Harinkhola	B			
26	Pathagudem	B	66	Kurundwad	B	106	Passighat	B	**Yamuna Basin**					
27	Sukma	B	67	Sadalga	B	107	Tuting	D	146	Naugaon	B			
28	Konta	B	68	Gokak	A	108	Yingkiang	B	147	Bausan (Hathiari)	B			
29	Somanpalli	B	69	Mudhol	B	109	Ningguing	A	148	Tuini (Tons)	B			
30	Kaleswaram	B	70	Pandegaon	A	110	Gette	A	149	Tuini (Pabar)	B			
31	Perur	B	71	Navalgund	A	111	Roing	A	150	Haripur	B			
32	Eturunagaram	B	72	Cholachguda	B	112	Lameking	B	151	Yashwant Nagar	B			
33	Dummagudem	B	73	Talikot	A	113	Ghilamora	B	152	Paonta	B			
34	Bhadrachalam	B	74	Kustagi	A	114	Bambdo	A	153	Kalanaur	B			
35	Sangam	B	75	Huvinhedgj	B	115	Rotung	A	154	Mawi	D			
36	Taliperu	B	76	Narsingpur	A	116	Kane (Magegaon)	A	155	Baghpat	B			
37	Koida	B	77	Takli	B	117	Kibitu	B	156	Delhi Rly. Bridge	B			
38	Polavaram	B	78	Sholapur	A	118	Jiagaon	B	157	Galeta	B			
39	Rajahmundry	B	79	Wadakbal	B	119	Jiadholmukh	B	158	Mohna	B			
40	Dowlaiswaram	B	80	Borimerga	A	120	Kolen Basti	B	159	Mathura	B			

List of Telemetry sites Installations Under XI Plan															
Sl No.	**Name of site**	**Type of Sensor**	**Sl No.**	**Name of site**	**Type of Sensor**	**Sl No.**	**Name of site**	**Type of Sensor**	**Sl No.**	**Name of site**	**Type of Sensor**	160	Baranwada	B
NTBO, Gandhinagar			41	Bodeli	B	**LGBO, Patna**			120	Rishikesh	B	161	Pali	B
1	Mataji	B	42	Bharuch (Seasonal)	B	81	Benibad	B	121	Haridwar	B	162	Basai	B
2	Mahi Dam	C	43	Nanipalsan	B	82	Dheng Bridge	B	122	Srinagar	B	163	Barod	B
3	Dhariawad	B	44	Madhuban Dam	C	83	Ekmighat	B	123	Narora	B	164	Rampura	A
4	Somkamla Amba Dam	C	45	Vapi	B	84	Gandhi ghat	B	124	Colonelganj	A	165	Garoth	A
5	Rangeli	B	46	Harsul	A	85	Hathidah	B	125	Gaighat	A	166	Suwasara	A
6	Paderdibadi	B	47	Mokheda	A	86	Hayaghat	B	126	Garhmukteshwar	A	167	Jaora	A
7	Anas Ph- II (Seasonal)	B	48	Dhandore	A	87	Kahal gaon	B	127	Neemsar	A	168	Jhansi	A
8	Chakaliya	D	49	Ozerkheda	B	88	Kamtaul	B	128	Shahjadpur	A	**MERO,Bhubneshwar**		
9	Kadana- Dam	C	50	Solachar	B	89	Maharo	B	129	Azamgarh	A	169	Lower Indra Proje	B
10	Panam Dam	C	51	Silvassa	B	90	Messanjore	C	130	Uttarkashi	A	170	Pilasalki Dam	B
11	Wanakbori	C	52	Daman	B	91	Runisaid pur	B	131	Tehri	B	171	Champua	B
12	Khanpur	B	53	Teska (Seasonal)	B	92	Tilpara Barrage	C	132	Rudraprayag	B	172	Keonjhar	B
13	Jhabua	A	54	Dedtalai	B	93	Tantoloi	B	133	Marora	B	173	Swampatana	B
14	Sei Dam	C	55	Burhanpur	B	94	Sonebarsha	B	134	Joshimath	B	174	Anandpur	D
15	Jotasan	B	56	Chikaldara	A	95	Saulighat	B	135	Nandkeshri	B	175	Thakurmunda (Se	A
16	Kheroj	B	57	Lakhpuri	B	96	Buxer	B	136	B.K.Ghat	B	176	Akhuapada	B
17	Harnav Weir	C	58	Gopalkheda	B	97	Munger	B	137	Shardanagar	B	177	Jamshedpur	B
18	Dharoi Dam	C	59	Yerli	B	98	Bhagalpur	B	138	Kakardhari	B	178	Jamsolaghat	B
19	Derol Bridge	B	60	Hathnur	B	**UGBO , Lucknow**			139	Fatehgarh	B	179	Fekoghat	B
20	Hathmati Weir	C	61	Bhusawal	D	99	Elginbridge	B	140	Dabri	B	180	Rajghat	B
21	Subhash Bridge	D	62	Girna Dam	C	100	Ayodhya	B	141	Kalagarh	B	181	Chandanpur	B
22	Watrak Dam	C	63	Dahigaon Weir	C	101	Turtipar	B	142	Bhatpurwaghat	B	182	Baripada	B
23	Ratanpur	B	64	Savkheda	B	102	Balrampur	B	143	Sultanpur	B	183	Jaypur	B
24	Raska Weir	C	65	Morane	B	103	Bansi	B	**YBO , Delhi**			184	Govindpur	D
25	Kheda	B	66	Gidhade	B	104	Birdghat	B	144	Etawah	B	185	Sorada	B
26	Vautha	B	67	Sarangkheda	B	105	Gumtia	B	145	Auraiya	B	186	Madhabarida	B
27	Lachhai	A	68	Ukai	C	106	Ankinghat	B	146	Hamirpur	B	187	Purusottampur	D
28	Jharol	A	69	Ghala	B	107	Kanpur	B	147	Banda	B	188	Kutragada	B
29	Borij	A	70	Surat (Seasonal)	B	108	Dalmau	B	148	Kalpi	B	189	Gudari	B
30	Swaroopganj (Seasonal)	B	71	Nandurbar	A	109	Moradabad	B	149	Sahijina	B	190	Mohana	B
31	Mount Abu (Seasonal)	A	72	Sagbara	A	110	Bareilly	B	150	Chillaghat	B	191	Mahendragarh	B
32	Ambaji (Seasonal)	A	73	Khetia	A	111	Raibereli	B	151	Naini	B	192	Gunupur	B
33	Abu Road	B	74	Nizampur	A	112	Lucknow	B	152	Mohana(Betwa)	B	193	Kashinagar	D
34	Sarotry	B	75	Chiklod	A	113	Phaphamau	B	153	Madla	B	194	Gotta Barrage	C
35	Chitrasani	B	76	Shegoan	A	114	Allahabad	B	154	Dholpur	B	195	Chandildam	B
36	Dantiwada Dam	C	**IBO, Chandigarh**			115	Mirzapur	B	155	Nautghat	B	196	Tilga	B
37	Bhakudar (Sipu Dam)	C	77	Titang(Khab)	B	116	Varanasi	B	156	Garrauli	B	197	Jaraikela	B
38	Lowara	B	78	Powari	B	117	Ghazipur	B	157	Seondha	B	198	Pamposh	B
39	Garudeshwar	B	79	Nathpa	B	118	Ballia	B	158	Manderial	B	199	Gomlai	B
40	Rajpipla	B	80	Rampur	B	119	Jaunpur	B	159	Khatoli	B	200	Rengali (season	C

List of Telemetry stations Installations Under XI Plan			
Sl No.	**Name of site**	**Type of Sensor**	**Legend:**
201	Talcher	B	**Type A** Only Rainfall
202	Altuma	B	**Type B** Water Level and Rainfall
203	Jenapur	D	**Type C** Reservoir Level and Rainfall
204	Muri	B	**Type D** Water Level, Rainfall and other Meteorological Parameters
B&BBO, Shillong			
205	Dibrugarh	B	
206	Nematighat	B	
207	Tezpur	B	
208	Guwahati	B	
209	NH RD Xing	B	
210	NT RD Xing	A	
211	Goalpara	A	
212	Dhubri	B	
213	Golokganj	B	
214	Barabisa	B	
215	Sankosh LRP	B	
216	Mathanguri	A	
217	D.R.F.	A	
218	Melabazar	A	
MON-C , NAGPUR			
219	Yeotmal	A	
220	Lanji	A	
221	Sirpur	B	
222	Chandrapur	A	

Performance of Flood Forecasting Stations (Divisionwise) in India during Flood Season 2010

Sl. No	Division	Level Forecasts only					Inflow Forecasts only					Total Forecast Stations				
		Stns.	F/c issued for	Total	Within Limit	Accu-racy	Stns.	F/c issued for	Total	Within Limit	Accu-racy	Stns.	F/c issued for	Total	Within Limit	Accuracy
1	Himalayan Ganga Divn, Dehradun	3	2	86	61	70.93	0	0	0	0		3	2	86	61	70.93
2	Middle Ganga Division 1, Lucknow	6	6	320	315	98.44	0	0	0	0		6	6	320	315	98.44
3	Middle Ganga Division 2, Lucknow	8	6	222	218	98.20	1	1	72	70	97.22	9	7	294	288	97.96
4	Middle Ganga Division 3, Varanasi	7	1	33	33	100.00	0	0	0	0		7	1	33	33	100.00
5	Middle Ganga Division 4, Patna	17	17	928	928	100.00	0	0	0	0		17	17	928	928	100.00
6	Middle Ganga Division 5, Patna	18	12	494	492	99.60	0	0	0	0		18	12	494	492	99.60
7	Upper Yamuna Divn, Delhi	4	3	158	151	95.57	1	0	0	0		5	3	158	151	95.57
8	Chambal Division, Jaipur	0	0	0	0		1	0	0	0		1	0	0	0	
9	Lower Yamuna Divn, Agra	10	2	29	28	96.55	0	0	0	0		10	2	29	28	96.55
10	Damodar Divn, Asansol	4	0	0	0		7	4	35	35	100.00	11	4	35	35	100.00
11	Upper Brahmaputra Divn, Dibrugarh	13	12	1594	1588	99.62	0	0	0	0		13	12	1594	1588	99.62
12	Middle Brahmaputra Divn, Guwahati	9	9	915	897	98.03	0	0	0	0		9	9	915	897	98.03
13	Lower Brahmaputra Divn, Jalpaiguri	10	10	1213	1209	99.67	0	0	0	0		10	10	1213	1209	99.67
14	Eastern Rivers Divn, Bhubaneswar	11	3	65	65	100.00	1	1	7	7	100.00	12	4	72	72	100.00
15	Mahanadi Divn, Burla	0	0	0	0		1	1	59	58	98.31	1	1	59	58	98.31
16	Lower Godavari Divn, Hyderabad	14	9	420	391	93.10	4	3	63	60	95.24	18	12	483	451	93.37
17	Lower Krishna Divn, Hyderabad	4	1	14	14	100.00	6	6	600	567	94.50	10	7	614	581	94.63
18	Mahi Divn, Ahmedabad	2	0	0	0		3	1	1	1	100.00	5	1	1	1	100.00
19	Tapi Divn,Surat	5	0	0	0		3	3	191	190	99.48	8	3	191	190	99.48
20	Narmada Divn, Bhopal	2	0	0	0		0	0	0	0		2	0	0	0	
	Total	**147**	**93**	**6491**	**6390**	98.44	**28**	**20**	**1028**	**988**	96.11	**175**	113	**7519**	**7378**	**98.12**

Performance of Flood Forecasting Stations (Major Basinwise) in India during Flood Season 2010

Sl. No	Name of the Major River basin	Total no.of FF sites			No.of FF sites where no forecast was required			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	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Ganga and its tributaries	87	77	10	33	28	5	2270	2226	98.06	107	105	98.13	2377	2331	98.06
2	Brahamputra and its tributaries	27	27	0	1	1	0	3277	3257	99.39	0	0		3277	3257	99.39
3	Barak and its tributaries	5	5	0	0	0	0	445	437	98.20	0	0		445	437	98.20
4	Eastern Rivers	9	8	1	6	6	0	53	53	100.00	7	7	100.00	60	60	100.00
5	Mahanadi and its tributaries	4	3	1	2	2	0	12	12	100.00	59	58	98.31	71	70	98.59
6	Godavari and its tributaries	18	14	4	6	5	1	420	391	93.10	63	60	95.24	483	451	93.37
7	Krishna and its tributaries	9	3	6	2	2	0	14	14	100.00	600	567	94.50	614	581	94.63
8	West Flowing rivers	15	9	6	11	9	2	0	0		192	191	99.48	192	191	99.48
9	Southern rivers	1	1	0	1	1	0	0	0		0	0		0	0	
	Total	175	147	28	62	54	8	6491	6390	98.44	1028	988	96.11	7519	7378	98.12

Performance of Flood Forecasting Stations (Statewise) in India during Flood Season 2010

Sl. No	Name of the Major River basin	Total no.of FF sites			No.of FF sites where no forecast was required			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	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Andhra Pradesh	16	9	7	1	1	0	368	346	94.02	446	418	93.72	814	764	93.86
2	Assam	24	24	0	1	1	0	3429	3409	99.42	0	0		3429	3409	99.42
3	Bihar	32	32	0	6	6	0	1162	1162	100.00	0	0		1162	1162	100.00
4	Chattisgarh	1	1	0	0	0	0	57	51	89.47	0	0		57	51	89.47
5	Gujarat	11	6	5	8	6	2	0	0		81	81	100.00	81	81	100.00
6	Haryana	1	0	1	1	0	1	0	0		0	0		0	0	
7	Jharkhand	5	1	4	1	0	1	52	52	100.00	34	34	100.00	86	86	100.00
8	Karnataka	4	1	3	1	1	0	0	0		224	216	96.43	224	216	96.43
9	Madhya Pradesh	3	2	1	3	2	1	0	0		0	0		0	0	
10	Maharashtra	9	7	2	7	6	1	9	8	88.89	111	110	99.10	120	118	98.33
11	Odisha	12	11	1	8	8	0	65	65	100.00	59	58	98.31	124	123	99.19
12	Tripura	2	2	0	0	0	0	7	2	28.57	0	0		7	2	28.57
13	Uttar Pradesh	35	34	1	16	16	0	825	812	98.42	72	70	97.22	897	882	98.33
14	Uttarakhand	3	3	0	1	1	0	86	61	70.93	0	0		86	61	70.93
15	West Bengal	14	11	3	6	4	2	385	380	98.70	1	1	100.00	386	381	98.70
16	NCT, DELHI	2	2	0	1	1	0	46	42	91.30	0	0		46	42	91.30
17	D,NH	1	1	0	1	1	0	0	0		0	0		0	0	
	Total	175	147	28	62	54	8	6491	6390	98.44	1028	988	96.11	7519	7378	98.12

FLOOD FORECASTING PERFORMANCE FROM 1986 TO 2010									
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 (%)
1986	**3956**	**3635**	**91.89**	**831**	**744**	**89.53**	**4787**	**4379**	**91.48**
1987	**4793**	**4560**	**95.14**	**1021**	**965**	**94.52**	**5814**	**5525**	**95.03**
1988	**5472**	**5131**	**93.77**	**1510**	**1425**	**94.37**	**6982**	**6556**	**93.90**
1989	**4323**	**4081**	**94.40**	**1213**	**1181**	**97.36**	**5536**	**5262**	**95.05**
1990	**6578**	**6124**	**93.10**	**1988**	**1947**	**97.94**	**8566**	**8071**	**94.22**
1991	**5234**	**4890**	**93.43**	**1369**	**1335**	**97.52**	**6603**	**6225**	**94.28**
1992	**3588**	**3418**	**95.26**	**1176**	**1149**	**97.70**	**4764**	**4567**	**95.86**
1993	**5226**	**5066**	**96.94**	**1417**	**1372**	**96.82**	**6643**	**6438**	**96.91**
1994	**5472**	**5158**	**94.26**	**2004**	**1929**	**96.26**	**7476**	**7087**	**94.80**
1995	**5393**	**5201**	**96.44**	**1024**	**988**	**96.48**	**6417**	**6189**	**96.45**
1996	**5104**	**4945**	**96.88**	**1363**	**1321**	**96.92**	**6467**	**6266**	**96.89**
1997	**4059**	**3895**	**95.96**	**1406**	**1368**	**97.30**	**5465**	**5263**	**96.30**
1998	**6401**	**5264**	**82.24**	**1542**	**1511**	**97.99**	**7943**	**6775**	**85.30**
1999	**5550**	**5428**	**97.80**	**1505**	**1398**	**92.89**	**7055**	**6826**	**96.75**
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**
Average	**5063**	**4831**	**95.42**	**1212**	**1165**	**96.12**	**6275**	**5996**	**95.55**

Unprecedented flood events in India under CWC FF & W Network - 2010 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 in metres	Date of occurrence	From	To
1	Ganga	Haridwar	U.K.	294.00	296.23	02/09/1978	296.3	19-09-2010	19/09/2010 08.00	19.09.2010 10.00
2	Ganga	Kannauj	U.P.	125.97	126.24	29/08/1998	126.78	27/09/2010	23/09/2010; 14:00	30/09/2010; 10:00
3	Ganga	Ankinghat	U.P.	124.00	124.305	09-09-1978	124.49	28/09/2010	26/09/2010; 05:00	28/09/2010; 24:00
4	Ganga	Kanpur	U.P.	114.00	113.47	09-02-1967	114.08	29/09/2010	25/09/2010; 07:00	02/10/2010; 16:00
5	Ramganga	Moradabad	U.P.	190.60	192.68	09-03-1978	192.88	21/09/2010	20/09/2010; 23:00	21/09/2010; 05:00
6	Kosi	Basua	Bihar	47.75	48.87	11.07.2004	49.17	25-Aug-10 00	21/08/2010 07:00 24/08/2010 09:00	21/08/2010 20:00 26/08/2010 07:00
7	Kushiyara	Karimgunj	Assam	14.94	16.55	09/09/07& 11/09/07	16.57	10/06/2010& 11/06/2010	10/06/2010 (2300)	11/06/10 (1000)

High Flood Events during Flood Season - 2010

Sl. No	River	Station	State	District	Danger level in metres	Existing HFL		Duration of High Flood	
						Level in metres	Date of occurrence	From	To
1	Ganga	Rishikesh	Uttarakhand	Haridwar	340.50	341.72	05.09.1995	19.09.2010 01:00	19.09.2010 13:00
2	Ganga	Haridwar	Uttarakhand	Haridwar	294.00	296.23	02.09.1978	19.09.2010 02:00	19.09.2010 16:00
3	Ganga	Kannauj	U.P.	Kannauj	125.97	126.24	29/08/1998	27.08.2010 02:00 18.09.2010 12:00	02.09.2010 24:00 01.10.2010 17:00
4	Ganga	Ankinghat	U.P.	Kanpur Dehat	124	124.305	09-09-1978	22.09.2010 14:00	01.10.2010 12:00
5	Ganga	Kanpur	U.P.	Kanpur Dehat	114	113.47	09-02-1967	27.08.2010 04:00 19.09.2010 03:00	03.09.2010 22:00 03.10.2010 19:00
6	Ganga	Dalmau	U.P.	Raebareilly	99.36	99.84	08-03-1973	28.09.2010 17:00	02.10.2010 17:00
7	Ramganga	Moradabad	U.P.	Moradabad	190.60	192.68	09-03-1978	20.09.2010 17:00	21.09.2010 14:00
8	Ramganga	Bareilly	U.P.	Bareilly	163.07	162.881	08-06-1978	20.09.2010 22:00	24.09.2010 02:00
9	Yamuna	Mawi	U.P	Muzaffar Nagar	230.85	232.45	26.09.88	10.09.2010 07:00 21.09.2010 02:00	10.09.2010 13:00 22.09.2010 08:00
10	Yamuna	Delhi Railway Bridge	Delhi	Delhi	204.83	207.49	06.09.78	22.09.2010 13:00	23.09.2010 08:00
11	Ghagra	Elgin Bridge	U.P.	Barabanki	106.07	107.556	10.10.2009	25-08-2010 00:00	28-08-2010 03:00
12	Ghagra	Ayodhya	U.P.	Faizabad	92.73	94.01	11.10.2009	24-08-2010 21:00	05-09-2010 07:00
13	Bagmathi	Benibad	Bihar	Muzzafarpur	48.68	50.01	12.07.2004	26-08-2010 02:00	28-08-2010 21:00
14	Kosi	Basua	Bihar	Supaul	47.75	48.87	11.07.2004	17-08-2010 23:00	27-08-2010 08:00
15	Sankosh	Golokganj	Assam	Dhubri	29.94	30.95	08.09.2007	12-07-2010 04:00	12-07-2010 06:00
16	Beki	Road Bridge	Assam	Barpeta	45.10	46.20	04.08.2000	27/06/2010 2200 11/07/2010 2400 18/07/2010 1800 21/07/2010 1600	28/06/2010 1300 12/07/2010 0300 19/07/2010 0200 22/07/2010 0200
17	Kopili	Kampur	Assam	Nagaon	60.5	61.86	16/06/1973	10/10/2010 1000	11/10/2010 0400
18	Kushiyara	Karimgunj	Assam	Karimgunj	14.94	16.55	09/09/07& 11/09/07	08/06/10(22) 15/06/10(01) 20/09/10(12)	12/06/10(17) 22/06/10(10) 22/09/10(17)

High Flood Level= HFL-0.50 M

Low and Moderate flood events on main Ganga and its tributaries- 2010 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	HFL		Flood period above warning level			Flood period above danger level		
						Level in metres	From	From	To	No.of days	From	To	No.of days
1	Ganga	Rishikesh	Uttranchal	339.50	340.50	341.5	19-09-2010	31-07-2010 13:00	01-08-2010 00:00	1			
								22-08-2010 07:00	23-08-2010 14:00	2			
								08-09-2010 13:00	10-09-2010 00:00	3			
								18-09-2010 17:00	18-09-2010 20:00	1	18-09-2010 21:00	20-09-2010 22:00	1
								20-09-2010 23:00	25-09-2010 17:00	6			
2	Ganga	Haridwar	Uttranchal	293.00	294.00	296.3	17/09/2010 24	31-07-2010 10:00	31-07-2010 23:00	1			
								16-08-2010 13:00	16-08-2010 23:00	1			
								17-08-2010 09:00	17-08-2010 12:00	1			
								18-08-2010 09:00	18-08-2010 17:00	1			
								19-08-2010 01:00	19-08-2010 22:00	1			
								20-08-2010 03:00	22-08-2010 09:00	3			
								23-08-2010 00:00	26-08-2010 15:00	4	22-08-2010 10:00	22-08-2010 23:00	1
								26-08-2010 22:00	27-08-2010 00:00	2			
								31-08-2010 19:00	31-08-2010 19:00	1			
								01-09-2010 15:00	01-09-2010 22:00	1			
								03-09-2010 05:00	03-09-2010 11:00	1	03-09-2010 12:00	03-09-2010 14:00	1
								03-09-2010 15:00	04-09-2010 22:00	2			
								05-09-2010 07:00	05-09-2010 22:00	1			
								08-09-2010 10:00	08-09-2010 14:00	1	08-09-2010 15:00	09-09-2010 08:00	2
								09-09-2010 09:00	10-09-2010 14:00	2			
								12-09-2010 11:00	12-09-2010 12:00	1			
								13-09-2010 09:00	13-09-2010 09:00	1			
								17-09-2010 00:00	18-09-2010 19:00	2	18-09-2010 20:00	21-09-2010 00:00	4
								18-09-2010 00:00	18-09-2010 19:00	1			
								21-09-2010 01:00	24-09-2010 09:00	3			
3	Ganga	Kannauj	U.P.	124.97	125.97	126.78	27/09/2010	08.08.2010 07:00 21.08.2010 17:00	08.08.2010 12:00 03.10.2010 04:00	45	31.08.2010 16:00 21.09.2010 08:00	01.09.2010 14:00 01.10.2010 08:00	13
4	Ganga	Ankinghat	U.P.	123.00	124.00	124.49	28/09/2010	22.08.2010 02:00	04.10.2010 21:00	44	24.09.2010 09:00	30.09.2010 24:00	7
5	Ganga	Kanpur	U.P.	112.00	114.00	114.08	29/09/2010	27/07/2010; 09:00 06/08/2010; 08:00 21/08/2010; 06:00	28/07/2010; 24:00 10/08/2010; 12:00 05/10/2010; 11:00	53	29/09/2010; 06:00	30/09/2010; 01:00	2
6	Ganga	Dalmau	U.P.	98.36	99.36	99.63	30/09/2010	24/08/2010; 14:00 10/09/2010; 10:00 10/09/2010; 22:00	05/09/2010; 22:00 10/09/2010; 15:00 04/10/2010; 04:00	39	28/09/2010; 19:00	02/10/2010; 16:00	5

Low and Moderate flood events on main Ganga and its tributaries- 2010 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	HFL		Flood period above warning level			Flood period above danger level		
						Level in metres	From	From	To	No.of days	From	To	No.of days
7	Ganga	Ballia	Uttar Pradesh	56.62	57.62	57.60	26/09/2010	31-08-2010 17:00 16-09-2010 21:00	12-09-2010 02:00 06-10-2010 17:00	13 21	-	-	-
8	Ganga	Patna (Dighaghat)	Bihar	49.45	50.45	52.52	23/08/1975	27/08/2010 23:00 08/09/2010 08:00 18/09/2010 13:00	07/09/2010 12:00 11/09/2010 19:00 30/09/2010 03:00	12 4 13	-	-	-
9	Ganga	Patna (Gandhighat)	Bihar	47.60	48.60	50.27	14/08/1994	22-08-2010 17:00	06-10-2010 22:00	46	28/08/2010 09:00 08/09/2010 18:00 18/09/2010 20:00	06/09/2010 11:00 11/09/2010 08:00 28/09/2010 12:00	10 4 11
10	Ganga	Hatidah	Bihar	40.76	41.76	43.15	07/08/1971	24-08-2010 14:00	06-10-2010 13:00	44	21-09-2010 00:00	28-09-2010 00:00	8
11	Ganga	Bhagalpur	Bihar	32.68	33.68	34.20	17/09/2003	28-08-2010 12:00	01-10-2010 09:00	35	-	-	-
12	Ganga	Kahalgaon	Bihar	30.03	31.09	32.87	17/09/2003	24-08-2010 06:00	08-10-2010 00:00	45	28-08-2010 22:00	17-09-2010 06:00	21
13	Ganga	Sahebganj	Jharkand	26.25	27.25	30.91	1998	20-08-2010 15:00	11-10-2010 01:00	52	26-08-2010 11:00	03-10-2010 06:00	39
14	Ganga	Farakka	West Bengal	21.25	22.25	25.14	07/09/1998	21-08-2010 20:00	09-10-2010 09:00	50	26-08-2010 11:00	03-10-2010 21:00	39
15	Ramganga	Moradabad	U.P.	189.60	190.60	192.88	21/09/2010	07/07/2010; 08:00 21/07/2010; 04:00 01/08/2010; 08:00 20/08/2010; 08:00 22/08/2010; 20:00 05/09/2010; 20:00 12/09/2010; 22:00	09/07/2010; 07:00 26/07/2010; 01:00 04/08/2010; 09:00 22/08/2010; 14:00 28/08/2010; 16:00 09/09/2010; 09:00 27/09/2010; 20:00	44	19/09/2010; 14:00	22/09/2010; 23:00	4
16	Ramganga	Bareilly	U.P.	162.07	163.07	162.82	22/09/2010	19/09/2010; 22:00	24/09/2010; 22:00	6	-	-	-
17	Yamuna	Mawi	U.P.	230	230.85	**232.33**	21/09/2010	01.08.2010 06:00 17.08.2010 16:00 19.08.2010 18:00	02.08.2010 01:00 17.08.2010 22:00 30.09.2010 03:00	2 1 43	23.08.2010 09:00 09.09.2010 04:00 12.09.2010 22:00 14.09.2010 01:00 19.09.2010 14:00 22.09.2010 09:00	28.08.2010 18:00 11.09.2010 22:00 13.09.2010 20:00 15.09.2010 22:00 21.09.2010 01:00 25.09.2010 19:00	6 3 2 2 3 4
18	Yamuna	Delhi Railway Bridge	NCT Delhi	204	204.83	207.49	06/09/1978	01.08.2010 22:00 20.08.2010 07:00	02.08.2010 21:00 29.09.2010 08:00	2 41	20.08.2010 22:00 09.09.2010 16:00 18.09.2010 22:00 19.09.2010 09:00	30.08.2010 06:00 17.09.2010 16:00 19.09.2010 04:00 26.09.2010 22:00	11 9 2 7
19	Yamuna	Mathura	Uttar Pradesh	164.2	165.2	169.73	08/09/1978	01.08.2010 03:00 08.08.2010 09:00 10.08.2010 07:00 13.08.2010 02:00 17.08.2010 01:00 18.08.2010 04:00	06.08.2010 02:00 08.08.2010 13:00 12.08.2010 02:00 14.08.2010 16:00 17.08.2010 10:00 11.10.2010 18:00	6 1 2 2 1 55	24.08.2010 16:00	02-10-2010 11:00	40
20	Yamuna	Agra	Uttar Pradesh	151.4	152.4	154.76	09/09/1978	24.09.2010 19:00	29-09-2010 23:00	6	-	-	-
21	Yamuna	Etawah	Uttar Pradesh	120.92	121.92	126.13	11/09/1978	16.09.2010 23:00 24.09.2010 19:00	22.09.2010 09:00 02.10.2010 05:00	7 9	27.09.2010 13:00	01.10.2010 08:00	5
22	Ghagra	Elgin Bridge	Uttar Pradesh	105.07	106.07	107.556	10/10/2009	20-07-2010 01:00	30-09-2010 09:00	73	20/07/2010 19:00 07/08/2010 01:00 19/08/2010 11:00	23/07/2010 12:00 07/08/2010 12:00 26/09/2010 01:00	4 1 39
23	Ghagra	Ayodhya	Uttar Pradesh	91.73	92.73	94.01	11/10/2009	20-07-2010 09:00	04-10-2010 09:00	77	21/07/2010 19:00 20/08/2010 07:00	24/07/2010 06:00 27/09/2010 14:00	4 39
24	Ghagra	Turtipar	Uttar Pradesh	63.01	64.01	66.00	28/08/1998	21-07-2010 16:00	04-10-2010 19:00	76	21-08-2010 15:00	28-09-2010 14:00	39

Low and Moderate flood events on main Ganga and its tributaries- 2010 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	HFL		Flood period above warning level			Flood period above danger level		
						Level in metres	From	From	To	No.of days	From	To	No.of days
25	Ghagra	Darauli	Bihar	59.82	60.82	61.74	29/08/1998	22/07/2010 12:00 02/08/2010 09:00 08/08/2010 21:00 15/08/2010 10:00 19/08/2010 20:00	26/07/2010 16:00 06/08/2010 02:00 11/08/2010 17:00 18/08/2010 07:00 02/10/2010 18:00	5 5 4 4 45	27-08-2010 05:00	02-09-2010 10:00	7
26	Ghagra	Gangpur Siswan	Bihar	56.04	57.04	58.01	18/09/1983	23/07/2010 23:00 21/08/2010 18:00	25/07/2010 14:00 30/09/2010 24:00	3 41	27-08-2010 14:00	06-09-2010 12:00	11
27	Rapti	Balrampur	Uttar Pradesh	103.62	104.62	105.25	11/09/2000	21/07/2010 20:00 23/08/2010 01:00 31/08/2010 17:00 13/09/2010 16:00 16.09.2010 09:00	25/07/2010 12:00 30/08/2010 10:00 01/09/2010 16:00 14/09/2010 16:00 20/09/2010 21:00	5 8 2 2 5	-	-	-
28	Rapti	Bansi	Uttar Pradesh	83.90	84.90	85.82	21/08/1998	24/07/2010 17:00 23/08/2010 10:00 04/09/2010 17:00 09/09/2010 17:00 14/09/2010 02:00 16/09/2010 19:00	26/07/2010 03:00 04/09/2010 05:00 08/09/2010 13:00 10/09/2010 20:00 16/09/2010 01:00 25/09/2010 15:00	3 13 5 2 3 10	-	-	-
29	Rapti	Birdghat (Gorakhpur)	Uttar Pradesh	73.98	74.98	77.54	23/09/1998	23/07/2010 04:00 22/08/2010 03:00	27/07/2010 13:00 30/09/2010 05:00	5 40	24-08-2010 11:00	27-09-2010 11:00	35
30	Sone	Maner	Bihar	51.00	52.00	53.79	10/09/1976	29/08/2010 01:00 19/09/2010 19:00	06/09/2010 16:00 29/09/2010 21:00	9 11	-	-	-
31	Punpun	Sripalpaur	Bihar	49.60	50.60	53.91	18/09/1976	19/09/2010 01:00 23/09/2010 11:00	22/09/2010 02:00 24/09/2010 11:00	4 2	-	-	-
32	Gandak	Khadda	Uttar Pradesh	95.00	96.00	97.5	23/07/2002	06/07/2010 19:00 11/07/2010 01:00 19/07/2010 12:00 11/08/2010 13:00 15/08/2010 01:00 12/09/2010 12:00	07/07/2010 04:00 13/07/2010 04:00 07/08/2010 08:00 13/08/2010 04:00 10/09/2010 07:00 24/09/2010 22:00	2 3 20 3 27 13	24-08-2010 07:00	26-08-2010 01:00	3
33	Gandak	Chatia	Bihar	68.15	69.15	70.04	26/07/2002	22/08/2010 18:00 18/09/2010 20:00	01/09/2010 24:00 20/09/2010 24:00	11 3	26-08-2010 10:00	28-08-2010 07:00	3
34	Gandak	Rewaghat	Bihar	53.41	54.41	55.41	17/09/1986	22/08/2010 22:00 15/09/2010 08:00 17/09/2010 15:00	12/09/2010 04:00 15/09/2010 22:00 24/09/2010 07:00	22 1 8	27-08-2010 23:00	29-08-2010 13:00	3
35	Burhi Gandak	Lalbeghiagaht	Bihar	62.20	63.20	67.09	30/07/1975	28-08-2010 04:00	01-09-2010 14:00	5			
36	Burhi Gandak	Muzaffarpur (Sikandarpur)	Bihar	51.53	52.53	54.29	15/08/1987	01-09-2010 21:00	06-09-2010 01:00	6			
37	Burhi Gandak	Samastipur	Bihar	45.02	46.02	49.38	15/08/1987	31-08-2010 22:00	09-09-2010 04:00	10			
38	Burhi Gandak	Rosera	Bihar	41.63	42.63	46.35	16/08/1987	31-08-2010 13:00	10-09-2010 18:00	11			
39	Burhi Gandak	Khagaria	Bihar	35.58	36.58	39.22	1976	25-08-2010 07:00	04-10-2010 13:00	41	29/08/2010 24:00 08/09/2010 01:00 22/09/2010 01:00	31/08/2010 24:00 15/09/2010 08:00 28/09/2010 19:00	18

Low and Moderate flood events on main Ganga and its tributaries- 2010 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	HFL		Flood period above warning level			Flood period above danger level		
						Level in metres	From	From	To	No.of days	From	To	No.of days
40	Bagmati	Benibad	Bihar	47.68	48.68	50.01	12/07/2004	30/06/2010 12:00 12/07/2010 02:00 12/08/2010 07:00 10/10/2010 02:00	03/07/2010 22:00 09/08/2010 18:00 02/10/2010 22:00 14/10/2010 10:00	90	20/08/2010 08:00 23/09/2010 12:00	23/09/2010 04:00 29/09/2010 10:00	41
41	Bagmati	Hayaghat	Bihar	44.72	45.72	48.96	14/08/1987	30-08-2010 15:00	05-09-2010 05:00	7			
42	Adhwara	Kamtaul	Bihar	49.00	50.00	52.99	12/08/1987	13/07/2010 09:00 23/07/2010 13:00	15/07/2010 03:00 03/09/2010 06:00	46	28/08/2010 24:00:00	29-08-2010 10:00	2
43	Adhwara	Ekmighat	Bihar	45.94	46.94	49.52	12/07/2004	28-08-2010 10:00	04-09-2010 02:00	8			
44	Kamlabalan	Jhanjarpur	Bihar	49.00	50.00	53.01	10/07/2004	23/06/2010 02:00 01/07/2010 08:00 12/07/2010 12:00 19/07/2010 13:00 21/07/2010 14:00 23/07/2010 11:00 14/08/2010 02:00 17/08/2010 12:00 18/08/2010 23:00 23/08/2010 01:00 04/09/2010 22:00 06/09/2010 19:00 11/09/2010 22:00 17/09/2010 22:00 18/09/2010 21:00 22/09/2010 22:00 25/09/2010 14:00 30/09/2010 20:00 11/10/2010 22:00	23/06/2010 19:00 01/07/2010 13:00 14/07/2010 05:00 19/07/2010 20:00 23/07/2010 04:00 24/07/2010 23:00 15/08/2010 23:00 18/08/2010 08:00 19/08/2010 18:00 29/08/2010 23:00 05/09/2010 07:00 08/09/2010 07:00 12/09/2010 22:00 18/09/2010 16:00 19/09/2010 08:00 23/09/2010 07:00 26/09/2010 17:00 01/10/2010 07:00 12/10/2010 07:00	41	12/07/2010 15:00 21/07/2010 17:00 23/07/2010 14:00 14/08/2010 16:00 23/08/2010 23:00 27/08/2010 23:00 23/09/2010 04:00 30/09/2010 01:00 01/10/2010 01:00	13/07/2010 03:00 22/07/2010 17:00 24/07/2010 08:00 15/08/2010 08:00 26//08/2010 19:00 28/08/2010 07:00 23/09/2010 11:00 30/09/2010 01:00 01/10/2010 04:0	17
45	Kosi	Basua	Bihar	46.75	47.75	48.87	11/07/2004	20-06-2010 03:00	07-10-2010 07:00	110	30-06-2010 04:00	25-09-2010 13:00	88
46	Kosi	Baltara	Bihar	32.85	33.85	36.40	15/08/1987	13/07/2010 16:00 18/07/2010 00:00	17/07/2010 04:00 08/10/2010 00:00	88	20-08-2010 12:00	30-09-2010 08:00	42
47	Kosi	Kursela	Bihar	29.00	30.00	32.04	06/09/1998	22-08-2010 19:00	07-10-2010 06:00	47	27-08-2010 06:00	02-10-2010 00	36
48	Mahananda	Dhengraghat	Bihar	34.65	35.65	38.09	1968	20/06/2010 04:00 27/06/2010 21:00 31/07/2010 04:00 14/08/2010 22:00 11/09/2010 07:00 19/09/2010 22:00 22/09/2010 01:00	26/06/2010 15:00 29/07/2010 11:00 03/08/2010 01:00 09/09/2010 19:00 18/09/2010 17:00 21/09/2010 07:00 24/09/2010 20:00	85	23/06/2010 02:00 28/06/2010 05:00 03/07/2010 10:00 07/07/2010 05:00 11/07/2010 04:00 19/07/2010 00:00 19/08/2010 07:00 22/08/2010 05:00	23/06/2010 24:00 28/06/2010 23:00 03/07/2010 14:00 08/07/2010 11:00 15/07/2010 16:00 26/07/2010 04:00 21/08/2010 07:00 30/08/2010 19:00	30
49	Mahananda	Jhawa	Bihar	30.40	31.40	33.51	14/08/1987	21/06/2010 00:00 23/06/2010 01:00 28/06/2010 01:00 03/07/2010 03:00 15/08/2010 15:00 12/09/2010 00:00 22/09/2010 19:00	22/06/2010 00:00 26/06/2010 07:00 30/06/2010 05:00 03/08/2010 10:00 09/09/2010 18:00 18/09/2010 14:00 24/09/2010 13:00	78	23/06/2010 07:00 28/06/2010 15:00 07/07/2010 14:00 11/07/2010 17:00 19/07/2010 06:00 23/08/2010 05:00	24/06/2010 05:00 28/06/2010 21:00 08/07/2010 18:00 15/07/2010 16:00 26/07/2010 12:00 30/08/2010 07:00	26

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Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2010		Flood period above warning level			Flood period above danger level		
						Level in metres	From	From	To	No.of days	From	To	No.of days
1	Brahmaputra	Dibrugrah	Assam	103.24	104.24	105.97	09/09/10(18-21)	15.05.2010/01	15.10.2010/24	154	15.05.2010/01	02.10.2010/21	**141**
											10.10.2010/21	12.10.2010/23	**3**
									Total	**154**		Total	**144**
2	Brahmaputra	Neamatighat	Assam	84.04	85.04	86.38	10/09/10(13-15)	15.05.2010/01	30.05.2010/14	16	15.05.2010/01	18.05.2010/02	4
								01.06.2010/24	04.10.2010/19	126	21.05.2010/19	24.05.2010/02	4
								09.10.2010/20	13.10.2010/04	5	07.06.2010/03	10.06.2010/08	4
											22.06.2010/01	29.07.2010/12	8
											31.07.2010/15	02.08.2010/10	3
											22.08.2010/22	17.09.2010/04	27
											29.09.2010/08	30.09.2010/07	2
											10.10.2010/21	12.10.2010/23	3
									Total	**147**		Total	**55**
3	Brahmaputra	Tezpur	Assam	64.23	65.23	65.69	11/09/10(23-24)	15.05.2010/01	18.05.2010/24	4	29.06.2010/17	03.07.2010/02	5
							12/09/10(0112)	08.06.2010/01	11.06.2010/19	4	08.09.2010/10	14.09.2010/14	7
								13.06.2010/15	14.06.2010/04	2			
								20.06.2010/17	21.06.2010/01	2			
								21.06.2010/13	04.08.2010/05	43			
								05.08.2010/05	07.08.2010/08	3			
								21.08.2010/17	24.09.2010/05	33			
								29.09.2010/23	01.10.2010/21	3			
									Total	**94**		Total	**12**
4	Guwahati	Brahmaputra	Assam	48.68	49.68	49.93	13/09/10(10-18)	09/06(17)	10/06(23)	2	11/09(18)	15/09(04)	5
								27/06(13)	04/07(21)	8			
								12/07(13)	17/07(13)	6			
								19/07(24)	30/07(21)	12			
								24/08(15)	24/09(16)	32			
									Total	60		Total	5
5	Goalpara	Brahmaputra	Assam	35.27	36.27	36.37	13/09/10(19-24)	09/06(19)	12/06(21)	4	12/09(10)	15/09(13)	4
							14/09/10(01-18)	24/06(16)	09/08(18)	47			
								22/08(09)	26/09(05)	36			
									Total	87		Total	4
6	Dhubri	Brahmaputra	Assam	27.62	28.62	29.30	30-06-2010 00:00	03-07-2010 08:00	18-07-2010 00:00	15	17-08-2010 10:00	29-08-2010 06:00	13
								30-07-2010 04:00	04-09-2010 16:00	37			
									Total	52		Total	13
7	Buridehing	Chenimari	Assam	101.11	102.11	102.52	23/07/10(09-17)	15.05.2010/01	19.05.2010/05	5	15.05.2010/01	15.05.2010/22	1
								04.06.2010/12	06.06.2010/08	3	29.06.2010/05	29.06.2010/22	1
								15.06.2010/13	16.06.2010/08	2	20.07.2010/10	25.07.2010/23	6
								23.06.2010/11	01.07.2010/14	9	01.08.2010/01	02.08.2010/01	2
								05.07.2010/19	14.07.2010/09	10	04.08.2010/11	04.08.2010/21	1
								17.07.2010/24	27.07.2010/07	11			
								31.07.2010/09	07.08.2010/03	8			
								21.08.2010/22	26.08.2010/06	6			
								11.09.2010/10	13.09.2010/13	3			
									Total	**57**		Total	**11**

Low and Moderate flood events on main Brahamaputra and its tributaries- 2010 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2010		Flood period above warning level			Flood period above danger level		
						Level in metres	From	From	To	No.of days	From	To	No.of days
8	Subansiri	Badatighat	Assam	81.53	82.53	82.35	10/09/10(21-24)	08.06.2010/13	09.06.2010/02	2	Nil		-
								24.06.2010/04	25.06.2010/18	2			
								25.06.2010/22	01.07.2010/24	7			
								24.08.2010/10	27.08.2010/07	4			
								28.08.2010/07	29.08.2010/16	2			
								07.09.2010/08	14.09.2010/07	8			
									Total	**25**		Total	0
9	Dikhow	Sivasagar	Assam	91.40	92.40	93.81	27/06/10(23-24)	16.06.2010/14	30.06.2010/08	15	17.06.2010/03	17.06.2010/12	1
							28/06/10(01-03)	04.07.2010/14	05.07.2010/17	2	18.06.2010/12	20.06.2010/09	3
								06.07.2010/15	08.07.2010/09	3	21.06.2010/14	23.06.2010/01	3
								13.07.2010/06	16.07.2010/23	4	26.06.2010/14	29.06.2010/10	6
								24.07.2010/15	25.07.2010/21	2	13.07.2010/11	15.07.2010/21	3
								26.07.2010/09	26.07.2010/11	1	29.07.2010/17	30.07.2010/03	2
								29.07.2010/17	30.07.2010/03	2	04.08.2010/10	05.08.2010/13	2
								03.08.2010/10	06.08.2010/09	4	15.08.2010/13	17.08.2010/18	3
								15.08.2010/01	18.08.2010/11	4			
								21.08.2010/09	22.08.2010/06	2			
								10.09.2010/12	10.09.2010/13	1			
								14.09.2010/20	15.09.2010/04	2			
								15.09.2010/11	15.09.2010/15	1			
									Total	**43**		Total	**23**
10	Desang	Nanglamoraghat	Assam	93.46	94.46	95.88	22/07/10(06-09)	03.06.2010/19	06.06.2010/09	4	25.06.2010/12	26.06.2010/01	2
								15.06.2010/11	15.06.2010/21	1	26.06.2010/18	29.06.2010/19	4
								18.06.2010/03	20.06.2010/12	3	19.07.2010/18	27.07.2010/09	9
								21.06.2010/11	30.06.2010/17	10	17.08.2010/03	17.08.2010/08	1
								05.07.2010/03	10.07.2010/07	6			
								13.07.2010/21	15.07.2010/16	3			
								17.07.2010/12	28.07.2010/02	12			
								15.08.2010/14	18.08.2010/20	4			
								10.09.2010/15	13.09.2010/02	4			
								15.09.2010/18	16.09.2010/14	2			
								20.09.2010/05	21.09.2010/13	2			
									Total	**51**		Total	**16**
11	Dhansiri(S)	Golaghat	Assam	88.50	89.50	89.98	09/10/10(2400)	19.06.2010/06	19.06.2010/20	1	07.07.2010/13	08.07.2010/04	2
								04.07.2010/16	09.07.2010/06	6	30.07.2010/08	31.07.2010/17	2
								22.07.2010/11	01.08.2010/21	11	03.08.2010/18	05.08.2010/13	3
								03.08.2010/06	07.08.2010/16	5	20.08.2010/01	20.08.2010/14	1
								13.08.2010/21	05.09.2010/21	24	21.08.2010/04	22.08.2010/12	2
								15.09.2010/10	16.09.2010/03	2	30.08.2010/06	30.08.2010/21	1
								16.09.2010/24	23.09.2010/19	8	09.10.2010/20	10.10.2010/23	2
								25.09.2010/06	27.09.2010/11	3			
								09.10.2010/12	13.10.2010/09	5			
									Total	**65**		Total	**13**

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Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2010		Flood period above warning level			Flood period above danger level		
						Level in metres	From	From	To	No.of days	From	To	No.of days
12	Dhansiri(S)	Numaligarh	Assam	76.42	77.42	78.88	22/08/10(13-15)	15.05.2010/18	16.05.2010/16	1	10.06.2010/03	10.06.2010/22	1
								17.05.2010/03	18.05.2010/03	2	19.06.2010/08	20.06.2010/24	2
								08.06.2010/01	12.06.2010/12	5	26.06.2010/14	28.06.2010/06	3
								14.06.2010/21	14.06.2010/24	1	30.06.2010/04	10.07.2010/16	11
								15.06.2010/01	16.06.2010/01	2	13.07.2010/05	15.07.2010/15	3
								16.06.2010/09	15.10.2010/24	122	16.07.2010/03	16.07.2010/13	1
											17.07.2010/12	09.08.2010/04	24
											09.08.2010/16	10.08.2010/17	2
											12.08.2010/21	13.09.2010/12	2
											14.09.2010/10	28.09.2010/17	15
											09.10.2010/10	14.10.2010/10	6
									Total	**133**		Total	**70**
13	Kopili	Kampur	Assam	59.50	60.50	61.52	10/10/10(16-18)	09.06.2010/07	12.06.2010/01	4	18.06.2010/10	18.06.2010/19	1
								17.06.2010/13	20.06.2010/02	4	09.10.2010/24	12.10.2010/12	4
								09.10.2010/18	13.10.2010/18	5			
									Total	**13**		Total	**5**
14	Kopili	Dharamtul	Assam	55.00	56.00	55.65	12/10/10(09-24)	28.08.2010/11	06.09.2010/10	10	Nil	-	-
								10.10.2010/02	15.10.2010/24	6			
									Total	**16**		Total	0
15	Jiabharali	N.T.Road X-ing	Assam	76.00	77.00	77.75	23/08/10(08-12)	16.05.2010/09	16.05.2010/18	1	06.06.2010/06	06.06.2010/09	1
								21.05.2010/06	23.05.2010/02	3	20.06.2010/10	20.06.2010/19	1
								01.06.2010/11	03.06.2010/01	3	21.06.2010/08	22.06.2010/20	2
								03.06.2010/15	03.06.2010/18	1	25.06.2010/12	25.06.2010/19	1
								05.06.2010/22	08.06.2010/07	4	27.06.2010/04	30.06.2010/06	4
								08.06.2010/15	09.06.2010/01	2	06.07.2010/23	07.07.2010/03	2
								11.06.2010/14	11.06.2010/24	1	10.07.2010/14	11.07.2010/12	2
								12.06.2010/10	19.06.2010/04	8	12.07.2010/01	12.07.2010/20	1
								20.06.2010/01	08.08.2010/02	50	16.07.2010/06	17.07.2010/15	2
								17.08.2010/03	07.10.2010/17	52	18.07.2010/18	19.07.2010/08	2
								09.10.2010/08	10.10.2010/04	2	20.07.2010/07	22.07.2010/21	3
								10.10.2010/13	12.10.2010/17	3	23.07.2010/15	23.07.2010/19	1
											24.07.2010/18	24.07.2010/19	1
											26.07.2010/14	27.07.2010/04	2
											20.08.2010/15	20.08.2010/20	1
											21.08.2010/03	26.08.2010/01	6
											27.08.2010/04	31.08.2010/04	5
											01.09.2010/11	01.09.2010/15	1
											02.09.2010/04	03.09.2010/09	2
											04.09.2010/05	07.09.2010/07	4
											08.09.2010/12	08.09.2010/22	1
											09.09.2010/04	10.09.2010/06	2
											10.09.2010/12	10.09.2010/17	1
											20.09.2010/18	22.09.2010/10	3
											27.09.2010/03	27.09.2010/13	1
											28.09.2010/08	28.09.2010/20	1
									Total	**130**		Total	**53**

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Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2010		Flood period above warning level			Flood period above danger level		
						Level in metres	From	From	To	No.of days	From	To	No.of days
16	N. H.Road Xing	Puthimari	Assam	50.81	51.81	54.22	28/06/10(18-19)	15/05(01)	15/10(24)	154	20/05(13)	20/05(21)	1
											21/05(09)	21/05(10)	1
											06/06(11)	07/06(18)	2
											27/06(16)	03/07(23)	7
											04/07(08)	04/07(14)	1
											09/07(17)	10/07(09)	2
											12/07(03)	12/07(16)	1
											12/07(24)	14/07(24)	2
											18/07(23)	24/07(04)	7
											25/07(07)	25/07(15)	1
											26/07(11)	28/07(19)	3
											23/08(08)	24/08(12)	2
											25/08(13)	25/08(13)	1
											02/09(06)	02/09(16)	1
											03/09(06)	03/09(07)	1
									Total	154		Total	33
17	N.T.Road Xing	Pagladiya	Assam	51.75	52.75	52.51	28/06/10(18-19)	06/06(16)	07/06(17)	2			
								19/06(12)	19/06(19)	1			
								28/06(01)	30/06(17)	3			
								09/07(05)	10/07(17)	2			
								21/07(01)	22/07(05)	2			
								22/07(18)	23/07(04)	1			
								26/07(12)	27/07(15)	2			
									Total	13		Total	0
18	Road Bridge	Beki	Assam	44.1	45.1	45.8	28/06/2010 (05-06)	26.05.10	29.05.10	4	27.06.10	29.06.10	3
								29.06.10	14.07.10	16	03.07.10	05.07.10	3
								27.07.10	01.09.10	37	09.07.10	14.07.10	6
								02.09.10	07.09.10	6	16.07.10	31.07.10	16
								11.09.10	14.09.10	4	17.08.10	18.08.10	2
								18.09.10	23.09.10	6	21.08.10	26.08.10	6
								08.10.10	12.10.10	5	27.08.10	05.09.10	10
											07.09.10	09.09.10	3
											11.09.10	12.09.10	2
											18.09.10	19.09.10	2
											21.09.10	22.09.10	2
									Total	78		Total	55
19	N.H. Xing	Manas	Assam	47.81	48.42	48.79	28/06/2010 (12-13)hrs	18.06.10	18.06.10	1	28.06.10	29.06.10	2
								27.06.10	29.06.10	3	11.09.10	12.09.10	2
								09.07.10	10.07.10	2			
								22.08.10	24.08.10	3			
								11.09.10	12.09.10	1			
									Total	10		Total	4
20	Golokganj	Sankosh	Assam	28.94	29.94	30.45	12/07/2010 (04-06) hrs	19.06.10	23.06.10	5	28.06.10	28.06.10	1
								27.06.10	13.08.10	48	11.07.10	12.07.10	2
								17.08.10	09.09.10	24	18.07.10	23.07.10	6
								11.09.10	18.09.10	8	22.08.10	22.08.10	1
								21.09.10	24.09.10	4	23.08.10	24.08.10	2
									Total	89		Total	12

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Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2010		Flood period above warning level			Flood period above danger level		
						Level in metres	From	From	To	No.of days	From	To	No.of days
21	Annapurnagha	Barak	Assam	18.83	19.83	20.72	10/06/10(21-24)	07/06(13)	24/06(04)	18	08/06(23)	12/06(06)	5
								05/07(04)	06/07(04)	2	16/06(12)	21/06(15)	6
								30/07(02)	06/08(10)	8	16/09(17)	18/09(11)	3
								14/08(03)	16/08(12)	3	19/09(05)	23/09(04)	5
								16/08(21)	19/08(02)	3	10/10(10)	12/10(05)	3
								20/08(21)	24/08(05)	5			
								27/08(13)	28/08(10)	2			
								31/08(16)	02/09(14)	3			
								04/09(02)	11/09(14)	8			
								15/09(13)	27/09(22)	13			
								09/10(17)	12/10(15)	4			
									Total	69		Total	22
22	Matijuri	Katakhal	Assam	19.27	20.27	21.13	06/06/10(06-07)	27/05(18)	28/05(13)	2	04/06(22)	07/06(09)	4
								01/06(23)	11/06(19)	11	08/06(10)	10/06(05)	3
								13/06(24)	20/06(24)	8	14/06(23)	17/06(21)	4
								30/07(14)	01/08(11)	3	05/08(18)	05/08(19)	1
								04/08(23)	08/08(06)	5	13/08(18)	15/08(17)	3
								12/08(12)	17/08(04)	6	10/10(06)	12/10(05)	3
								27/08(14)	29/08(03)	3			
								08/09(17)	11/09(05)	4			
								20/09(10)	23/09(23)	4			
								09/10(24)	13/10(03)	5			
									Total	51		Total	18
23	Karimganj	Kushiyara	Assam	13.94	14.94	16.57	10/06/10(23-24)	26/05(15)	31/05(05)	6	27/05(15)	29/05(04)	3
							11/06/10(01-10)	01/06(20)	10/07(20)	40	04/06(11)	27/06(22)	24
								21/07(08)	10/08(23)	21	30/07(06)	07/08(09)	9
								13/08(04)	03/10(12)	52	14/08(08)	19/08(17)	6
								10/10(04)	14/10(09)	5	21/08(03)	24/08(19)	4
											27/08(03)	31/08(13)	5
											01/09(02)	03/09(12)	3
											04/09(01)	12/09(16)	9
											15/09(21)	30/09(10)	16
											10/10(14)	13/10(08)	4
									Total	124		Total	83
24	Kailashahar	Manu	Tripura	24.34	25.34	24.99	09/10/10(15-16)	29/05(24)	30/05(11)	2	-	-	
								30/05(19)	31/05(09)	1			
								26/08(18)	27/08(04)	2			
								09/10(06)	10/10(09)	2			
									Total	7		Total	0
25	Sonamura	Gumti	Tripura	11.50	12.50	11.77	09/10/10(08-09)	09/10(02)	09/10(22)	1	-	-	-
									Total	1		Total	0

Low and Moderate flood events on main Brahamaputra and its tributaries- 2010 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2010		Flood period above warning level			Flood period above danger level		
						Level in metres	From	From	To	No.of days	From	To	No.of days
26	Tista	Domohani	West Bengal	85.65	85.95	86.09	24.08.10	05.06.10	05.06.10	1	18.08.10	20.08.10	3
								06.06.10	06.06.10	1	23.08.10	24.08.10	2
								07.06.10	07.06.10	1	27.08.10	27.08.10	1
								17.06.10	17.06.10	1			
								19.06.10	19.06.10	1			
								22.06.10	22.06.10	1			
								27.06.10	27.06.10	1			
								30.06.10	30.06.10	1			
								02.07.10	02.07.10	1			
								06.07.10	07.07.10	2			
								08.07.10	14.07.10	7			
								16.07.10	18.07.10	3			
								20.07.10	22.07.10	3			
								26.07.10	27.07.10	2			
								29.07.10	29.07.10	19			
								02.09.10	02.09.10	1			
								05.09.10	05.09.10	1			
								07.09.10	07.09.10	1			
								10.09.10	10.09.10	1			
								11.09.10	11.09.10	1			
								12.09.10	12.09.10	1			
								15.09.10	18.09.10	4			
									Total	55		Total	6
27	Tista	Mekhliganj	West Bengal	65.45	65.95	65.91	23/08/2010 (24)hr	17.06.10	18.06.10	2			
								27.06.10	28.06.10	2			
								18.07.10	19.07.10	2			
								19.07.10	19.07.10	-			
								20.07.10	20.07.10	1			
								21.07.10	22.07.10	2			
								27.07.10	27.07.10	1			
								18.08.10	18.08.10	1			
								19.08.10	19.08.10	1			
								21.08.10	21.08.10	1			
									Total	13		Total	0

Low and Moderate flood events on main Brahamaputra and its tributaries- 2010 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2010		Flood period above warning level			Flood period above danger level		
						Level in metres	From	From	To	No.of days	From	To	No.of days
28	Jaldhaka	NH 31	West Bengal	80.00	80.90	80.30	09/7/2010 (14) hr	27.06.10	28.06.10	2			
								30.06.10	30.06.10	1			
								04.07.10	04.07.10	1			
								07.07.10	07.07.10	1			
								08.07.10	08.07.10	1			
								09.07.10	10.07.10	2			
								11.07.10	12.07.10	2			
								13.07.10	13.07.10	1			
								16.07.10	16.07.10	1			
								18.07.10	19.07.10	2			
								21.07.10	22.07.10	2			
								01.08.10	01.08.10	1			
								23.08.10	23.08.10	1			
								24.08.10	24.08.10	1			
								26.08.10	26.08.10	1			
								27.08.10	27.08.10	1			
								11.09.10	11.09.10	1			
									Total	22		Total	0
29	Jaldhaka	Mathabanga	West Bengal	47.70	48.20	48.00	21/07/2010 (16-17)hrs	21.07.10	21.07.10	1			
								18.07.10	19.07.10	2			
									Total	3		Total	0
30	Torsa	Ghugumari	West bengal	39.80	40.41	40.58	21/07/2010 (19-21) hrs	17.06.10	17.06.10	1	27.06.10	28.06.10	2
								19.06.10	19.06.10	1	11.07.10	12.07.10	2
								27.06.10	28.06.10	2	18.07.10	18.07.10	1
								04.07.10	04.07.10	1	21.07.10	22.07.10	2
								11.07.10	12.07.10	2	31.07.10	31.07.10	1
								16.07.10	19.07.10	4			
								21.07.10	01.08.10	12			
								18.08.10	24.08.10	7			
								27.08.10	28.08.10	2			
									Total	32		Total	8
31	Raidak -I	Tufanganj	West Bengal	34.22	35.30	34.84	12/07/2010 (07-11) hrs	28.06.10	29.06.10	2			
								11.07.10	14.07.10	4			
								22.07.10	24.07.10	3			
								22.08.10	23.08.10	2			
								23.08.10	24.08.10	1			
									Total	12		Total	0

Low and Moderate flood events on various river systems (excluding Ganga and Brahmaputra basins)- 2010 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2010		Flood period => warning level			Flood period => danger level		
						Level in metres	Date	From	To	No. of days	From	To	No. of days
1	Burhabalang	NH 5 Road Bridge	Orissa	7.21	8.13	7.34	19/09/2010 14 hrs	19.09.10	19.09.10	2			0
									Total	2		Total	0
2	Vamsadhara	Kashinagar	Orissa	53.60	54.60	55.00	05/08/2010 04 hrs	25.07.10	26.07.10	2	25.07.10	25.07.10	1
								04.08.10	07.08.10	4	05.08.10	06.08.10	2
								05.09.10	07.09.10	3	05.09.10	07.09.10	2
								08.09.10	09.09.10	2			
								14.09.10	14.09.10	1			
								17.09.10	21.09.10	5			
								23.09.10	23.09.10	1			
								16.10.10	19.10.10	4			
									Total	22		Total	5
3	Mahanadi	Naraj	Orissa	25.41	26.41	26.26	08/08/2010 08 hrs	07.08.10	08.08.10	2			0
								20.09.10	21.09.10	2			
								23.09.10	24.09.10	2			
									Total	6		Total	0
4	Godavari	Kaleswaram	Andhra Pradesh	103.50	104.75	103.81	09-09-10: 07	09-09-10: 04	09-09-10: 13	1	--	--	0
									Total	1		Total	0
5	Godavari	Eturunagaram	Andhra Pradesh	73.29	75.79	75.93	08-08-10: 00	06-08-10: 11	09-08-10: 18	4	07-08-10: 14	08-08-10: 08	2
								05-09-10: 05	06-09-10: 17	3	--	--	0
								08-09-10: 20	11-09-10: 16	4	--	--	0
									Total	11		Total	2
6	Godavari	Dummagudam	Andhra Pradesh	53.00	55.00	56.23	08-08-10: 07	07-08-10: 00	09-08-10: 18	4	07-08-10: 13	09-08-10: 03	3
								05-09-10: 14	06-09-10: 20	2	-	-	0
								09-09-10: 09	11-09-10: 15	3	09-09-10: 22	10-09-10: 14	2
									Total	9		Total	5

Low and Moderate flood events on various river systems (excluding Ganga and Brahmaputra basins)- 2010 flood season

Sl. No.	River	Station	State	Warning level in metres	Danger level in metres	Peak level in 2010		Flood period => warning level			Flood period => danger level		
						Level in metres	Date	From	To	No. of days	From	To	No. of days
7	Godavari	Bhadrachalam	Andhra Pradesh	45.72	48.77	50.81	08-08-10: 14	06-08-10: 23	10-08-10: 13	5	07-08-10: 12	09-08-10: 14	2
								05-09-10: 10	07-09-10: 16	3	--	--	0
								08-09-10: 05	08-09-10: 12	1	--	--	0
								09-09-10: 03	12-09-10: 09	4	09-09-10: 20	11-09-10: 03	3
									Total	13		Total	5
8	Godavari	Kunavaram	Andhra Pradesh	37.74	39.24	42.00	09-08-10: 03	07-08-10: 12	10-08-10: 17	4	07-08-10: 20	10-08-10: 09	4
								06-09-10: 02	07-09-10: 14	3	--	--	0
								09-09-10: 17	12-09-10: 12	4	10-09-10: 03	12-09-10: 00	3
									Total	11		Total	7
9	Godavari	Rajahmundri	Andhra Pradesh	17.68	19.51	18.37	09-08-10: 07	08-08-10: 10	10-08-10: 10	3	--	--	0
								10-09-10: 16	11-09-10: 22	2	--	--	0
									Total	5		Total	0
10	Godavari	Dowalaiswaram	Andhra Pradesh	14.25	16.08	16.14	09-08-10: 09	07-08-10: 16	11-08-10: 08	5	09-08-10: 07	09-08-10: 21	2
								06-09-10: 02	13-09-10: 04	8	--	--	0
									Total	13		Total	2
11	Wardha	Balharsha	Maharashtra	171.50	174.00	172.25	08-08-10: 08	07-08-10: 18	08-08-10: 19	2	--	--	0
									Total	2		Total	0
12	Indravati	Jagdalpur	Chhatisgarh	539.50	540.80	544.08	06-08-10: 19	05-08-10: 11	08-08-10: 19	4	05-08-10: 15	08-08-10: 13	4
								07-09-10: 22	09-09-10: 18	3	08-09-10: 17	09-09-10: 05	2
								18-09-10: 12	20-09-10: 03	3	--	--	0
									Total	10		Total	6
13	Tungabhadra	Mantralayam	Andhra Pradesh	310.00	312.00	312.69	25/08/2010 08	24/08/10 11	28/08/10 10	4	24/08/10 23	25/08/10 16	2
								08/10/10 01	08/10/10 08	1	-	-	-
									Total	5		Total	2