No. 3/66/2017-FFM/ 456 – 829

भारत सरकार
Government of India
केन्द्रीय जल आयोग
Central Water Commission
बाढ़ पूर्वानुमान प्रबोधन निदेशालय
Flood Forecast Monitoring Directorate

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Dated the 10 April 2018

To
The Chief Engineer
IBO/YBO/UGBO/LGBO/BBBO/TBO/MERO/NBO/NTBO/MCO/KGBO/Mon-S/CSRO,
Central Water Commission,
Chandigarh/New Delhi/ Lucknow/Patna/ Shillong/Siliguri/ Bhubaneshwar/ Bhopal/ Gandhinagar/ Nagpur /Hyderabad / Bengaluru/ Coimbatore

Subject: Standard Operating Procedure (SOP) for Flood Forecasting, April 2018 - regarding.

महोदय,

Kindly find enclosed the SOP for various Flood Forecasting activities to be carried out during the flood season 2018. The various activities include preparedness, interaction with beneficiaries, updating of contact list, preparation of various reports, SOP for maintenance and upkeep of telemetry system and data backup, preparation of various reports alongwith timelines for each of the activity, notifications for flood season as well as media briefings and the responsibility matrix for all these activities etc. This may kindly be followed for smooth functioning of the flood forecasting activity.

Encl: As above.

भवदीय
10/4/2018
(विष्णु देव राय / Vishnu Deo Roy)
निदेशक (एफ एफ एम) / Director (FFM)

Copy for favour of kind information to:

1. PPS to Member (River Management), CWC, New Delhi.
2. Chief Engineer (FM), CWC, New Delhi.
3. Chief Engineer (P&D), CWC, New Delhi.
4. Director, RMCD, CWC, New Delhi.
5. Director, RDC-1, CWC, New Delhi.
6. Director, RDC-2, CWC, New Delhi.
7. Director (FCA-1), CWC, New Delhi.
8. Director (FCA-2), CWC, New Delhi.
9. Director (SMD), CWC, New Delhi for uploading in CWC website.

अनु./Sec./निदे./Dte.
डा. सं./Dy. No. 123
दिनांक/Date 19/4/18

AD(AKA) uploaded 19/4/18

A. Copy forwarded for favour of information and necessary action to the Superintending Engineers/ Directors of the following circles with a request that the field Divisions under their control may please be instructed to ensure completion of various activities mentioned in the SOP for Flood Forecasting, April 2018.

I. Director (Monitoring), CWC, Jammu.
II. Director (M&A), CWC, Shimla
III. Hydrological Observation Circle, CWC, Noida.
IV. Hydrological Observation Circle, CWC, Dehradun.
V. Hydrological Observation Circle, CWC, Varanasi.
VI. Director (M&A Directorate), CWC, Patna.
VII. Hydrological Observation Circle, CWC, Maithon.
VIII. Hydrological Observation Circle, CWC, Guwahati.
IX. NEIC, CWC, Silchar.
X. MC, CWC, Silchar.
XI. SE (IC), CWC, Gangtok.
XII. Hydrological Observation Circle, CWC, Bhubaneshwar.
XIII. S.E (Coordination), CWC, Bhopal.
XIV. Hydrological Observation Circle, CWC, Gandhinagar
XV. SE (Coordination), CWC, Nagpur.
XVI. Godavari Circle, CWC, Hyderabad.
XVII. Krishna and Coordination Circle, CWC, Hyderabad.
XVIII. Cauvery & Southern Rivers Circle, CWC, Bengaluru

B. Copy forwarded for favour of information and necessary action to the Executive Engineers of the following divisions for further necessary action and follow up actions as mentioned in the SOP for Flood Forecasting, April 2018.

Executive Engineer, CD/SHD/UYD/CD/LYD/HGD/MGD-I/MGD-II/MGD-III/LGD-I/LGD-II/LGD-III/ DD/ LBD/ MBD/ UBD/ MD/MID/NEID-I/NEID-II/NEID-III/SID/ ERD/ MD/ ND / MD/ TD/ WGD/ UGD/ LGD/ UKD/ LKD/ CD/HD/SRD/SWRD/, CWC, Jammu/ Shimla/ New Delhi/ Jaipur/ Agra/ Dehradun/ Lucknow/ Varanasi/ Patna/ Behrampur/ Asansol/ Jalpaiguri/ Guwahati/ Dibrugarh/ Silchar/Shillong/Aizwal/Itanagar/Gangtok/Bhubaneswar/ Burla/ Gandhinagar/ Surat/ Nagpur/ Hyderabad/ Pune/ Bengaluru/ Chennai/ Coimbatore/Kochi

Government of India

Ministry of Water Resources, River Development & Ganga Rejuvenation

Central Water Commission

सत्यमेव जयते

Standard Operating Procedure

For

Flood Forecasting

April 2018

Standard Operating Procedure (SOP) for Flood Forecasting **CONTENTS**

List of Annexures

1.0 Introduction

1.1 Flood Forecasting Network of CWC

1.1.1 Presently, a network of Hydrological and Hydro-meteorological sites is being operated by CWC across the country covering 20 river basins for gauge, discharge, sediment & water quality observations. The formulation of a forecast requires effective means of real time data communication network between the forecasting stations and the flood monitoring stations. Annually, about 10,000 flood forecasts are likely to be issued by CWC during floods. Three day advisory is likely to be continued on experimental basis from 2017 monsoon.

1.1.2 Presently, Flood forecasts are issued by CWC at 226 stations (60 Inflow Forecast Stations + 166 Level Forecast Stations). The basin-wise of existing flood forecasting stations and State-wise distribution to be expanded during 2018 are given in **Table-1** and **Table-2**.

Table-1: Basin-wise Flood Forecasting Stations as on date

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

Table-2: State-wise Flood Forecasting Stations to be operated in 2018

Sl. No.	Name of State/UT	Number of flood forecasting Stations		
		Level	Inflow	Total
1	Andhra Pradesh	10	10	20
2	Arunachal Pradesh	2	0	2
3	Assam	29	1	30
4	Bihar	34	0	34
5	Chhattisgarh	1	0	1
6	Gujarat	6	7	13
7	Haryana	1	1	2
8	Himachal Pradesh	1	0	1
9	Jammu & Kashmir	3	0	3
10	Jharkhand	2	15	17
11	Karnataka	1	9	10
12	Madhya Pradesh	2	2	4
13	Maharashtra	7	3	10
14	Odisha	12	3	15
15	Rajasthan	2	10	12
16	Sikkim	3	5	8
17	Tamil Nadu	3	11	14
18	Telangana	5	7	12
19	Tripura	2	0	2
20	Uttar Pradesh	38	3	41
21	Uttarakhand	4	2	6
22	West Bengal	11	4	15
23	Daman & Diu	1	0	1
24	NCT of Delhi	2	0	2
	Total	182	93	275

List of Flood Forecasting Stations is at **Annex-1.1**

1.2 The flood shall be monitored through a network of hydrological stations across the country. Meteorological data collected from CWC owned telemetry network as well as IMD AWS/ ARG network shall provide necessary inputs in formulation of flood forecasts. The transmission of data is done with the help of wireless as well as the satellite based telemetry and VSAT systems apart from mobile/ phone as back-up/ supplementary mode of communication.

1.3 Flood Control Rooms of CWC

1.3.1 In order to monitor flood situation during every monsoon, CWC operates 29 Divisional Flood Control Rooms (DFCRs) located in various field Divisions of CWC and a Central Flood Control Room (CFCR) at CWC (HQ), New Delhi for providing flood related information to the local administration and user agencies. The contact details of Executive Engineers (EE), Superintending Engineers (SE) and Chief Engineers (CE) in the field is given **Annex 1.2.** This is also available in CWC website which is updated on quarterly basis.

1.3.2 The Central Flood Control Room (CFCR) of CWC is located in West Block-II, R.K. Puram, New Delhi. The CFCR, jointly managed by Director (Flood Forecast Monitoring), Director (Flood Control Applications 1 and 2), & Director (Flood Management-II), CWC functions round the clock during every monsoon under the supervision of Chief Engineer (Flood Management), CWC and under control of Member (River Management), CWC, New Delhi. It monitors flood situation throughout the country. The CFCR issues daily flood bulletins to the user agencies to keep them informed about the flood situation in the country. The CFCR is equipped with Broad band Internet facility, Telephones, Facsimile, VSAT system and necessary computers. A video conference facility is also installed in the CFCR for emergency communication/conference on flood matters with NDMA, State and other Authorities linked up with NIC's conference network. The contact details of nodal officers at Headquarters level is given in **Annex 1.2.**

1.3.3 The flood control rooms become operational just before the onset of flood season (which varies from 1st May for NE region of India to 1st June for rest of India) and remain operational till end of flood season (i.e. 31st October for regions experiencing SW monsoon spells and 31st December for regions experiencing NE monsoon spells). Sometimes control room operations may commence earlier than stipulated dates based on IMD's forecast for pre-monsoon rainfall and may remain operational beyond 31stOctober if situations demands. The notification in this regard is given in **Annex-1.3** .

1.3.4 In order to provide effective flood forecasting, step-by-step specific SOPs for both Central and Divisional Flood Control Rooms of CWC is in place, which include timelines for forecast dissemination, particulars of nodal officers of central and State, and notification charts indicating flow of information. These notification charts identifies the hierarchy of flow of information in crisis situation indicating who is to be informed, by whom and in what priority. A typical notification chart for dissemination of flood forecast by CWC is given at **Annex-1.4.**

1.4 Modernization of Flood Forecasting Network of CWC

1.4.1 A telemetry system has been installed at 510 stations in various basins for collection of flood data (water level and rainfall) through sensor based equipment. Besides, three Earth Receiving Stations (ERS) one each at Burla (Orissa), Jaipur (Rajasthan) and New Delhi and 29 Modelling Centres have been set up for transmission of flood data through Satellite and expeditious flood forecast formulation using rainfall based hydraulic model. There are a total of 510 telemetry station is in operation and another 458 is likely to be operationalised during 2018 taking the total to around 968 stations.

1.4.2 In view of requirement of comprehensive flood forecasting network in the country, CWC held consultations with the State Governments and concerned agencies for further extension and modernization of its flood forecasting network.

1.4.3 Based on consultations with State Governments, installation of another about 475 telemetry stations is under progress.

1.4.4 SOP for maintenance and upkeep of Telemetry Stations have also been circulated to all concerned and the same is given at **Annex-1.5**

2 Flood Forecasting Processes

2.1 The activity of flood forecasting comprises Level Forecasting and Inflow Forecasting. The forecasts are issued once the water level in a river touches pre-defined warning level (usually one meter below the danger level but dependent on threat perception of the particular location). The level forecasts help the local administration and other agencies in deciding mitigating measures like evacuation of people and their movable property to safer locations. The Inflow Forecasting is used

by various reservoir/dam authorities in optimum operation of reservoirs for safe passage of flood downstream as well as to ensure adequate storage in the reservoirs for meeting the demand during the non-monsoon period.

2.2. The process of flood forecasting consists of following stages:

(i) **Data Collection** – Central Water Commission collects hydro-meteorological data at its sites round the year. During non-monsoon season, the gauge data is collected thrice a day and discharge data is collected daily. However, during monsoon period, the river water levels (gauges) are collected hourly, manually as well as through sensor based equipment. The concerned Project authority shall be responsible for observation of reservoir related data.

(ii) **Transmission of Data to the Flood Forecasting Division / Flood Forecasting Centre** – The data collected from field stations is transmitted from the site to the concerned Flood Forecasting Centre/Modelling Centre also called as Divisional Flood Control Room (DFCR) of CWC through wireless and/or telephone/ mobile and satellite based telemetry system & VSAT. Under modernized network, the data is transmitted to the Earth Receiving Station through Satellite and then to various Modelling Centres through VSAT Systems. The nodal officer of the Dam/ reservoir shall share reservoir related data with CWC through uploading on eSWIS or sending through e-mail/SMS/Phone/Wireless etc.

(iii) **Data entry** - The hydro-meteorological data collected at the DFCR are entered on an hourly basis in the e-Surface Water Information System (eSWIS), data entry utility as and when received in the DFCR. The entry system has provision to check for primary validation of data entered. Primarily the dam/ reservoir data is expected to be updated by the Project specific nodal officer in e-SWIS.

(iv) **Formulation of Flood Forecasts** – Under the conventional set up, the flood data received at the DFCR is analysed and flood forecasts are formulated, if required for the flood forecasting Stations. The methodology used is generally either the basin persistence based mathematical techniques, co-axial graphs

or mathematical models using rainfall data received from IMD or the rainfall data collected by CWC. The Level forecasts are issued whenever the water levels at CWC Flood Forecasting Station exceeds the Warning Level (which is usually 1.0 m below the Danger Level but depends on the threat perception of the location) specified for the Flood Forecasting Station. Besides, Inflow Forecasts are also formulated by CWC for 91 Dams / Reservoirs for regulation of outflows whenever the flows into the reservoir are above threshold limit. Medium range forecast (upto 72 hours) on experimental basis shall be generated by Regional offices/ HQ using rainfall based hydraulic model taking hourly hydrological & meteorological observed data as well as rainfall forecast from IMD and other agencies. Based on such results and other conventional techniques, the flood forecasting centres shall formulate the short range forecast (upto 24 hours).

(v) **Dissemination of Flood Forecasts to the Local Administration / user Agency** – The flood forecasts formulated by DFCR is disseminated to all stake holders through updating of Flood Forecasting Website/ FAX/ E-mail/Telephone/ SMS. Every care is taken for expeditious dissemination of flood forecasts to the local administration / user agencies. The flood forecast data are also uploaded in the Flood Forecasting Website http://india-water.gov.in/ffs. The link to this web site is also available in CWC website http://cwc.gov.in. This website has provisions for sending e-mails as well as SMS for flood alerts. CWC is using MTNL based Bulk SMS with Telecom Regulatory Authority of India approved user ID of MD-CWCFFS for using the Bulk SMS utility offered by MTNL, Delhi.

(vi) DFCR also issues Daily Flood Bulletins on a daily basis indicating the Water Level (0800 hrs) and Rainfall (0830 hrs) at all Hydrological Observation Stations and Water Level, Rainfall and Flood Forecasts (if issued) at Flood Forecast Stations on daily basis at around 1100 hours.

(vii) The Central Flood Control Room (CFCR) is located in CWC headquarter, R.K. Puram, New Delhi. The CFCR monitors the flood situation throughout the country by monitoring the data entry/FF formulation and issue of flood

forecasts from all DFCRs through the eSWIS. The CFCR also generates Daily Flood Bulletins and disseminates them to various stake holders including NDMA, MHA, Railway Board, IMD, NRSC and the organizations of MOWR, RD&GR etc. In addition, CFCR also generates special bulletins in case of High Flood Situation known as "Orange" bulletin and Unprecedented Flood Situation known as "Red" Bulletins. As per Standard Operating Procedure (SOP), the Orange bulletins are issued twice daily and Red Bulletins are issued every three hours.

(viii) Google Alert: CWC in collaboration with M/s Google Inc have started issuing alerts through Common Alerting Protocol (CAP) regarding flood situation in various categories of flood at all the existing flood forecast stations. The alert messages will be available on Google platform in the alert website of http://publicalerts.google.org. This alerts will also be visible in GPRS enabled smart phones when they approach the area of flooding. The Google alert will be uploaded from CFCR for all the FF stations whenever the flood forecasts are issued and updated.

(ix) CAP Alert through C-DOT in association with NDMA: CAP alerts are being planned to be generated through an application developed by Centre for Development of Telematics (C-Dot) in association with NDMA during the year 2018. These alerts will be initially dispatched through mobiles for the first beneficiary who will in turn make understandable warnings to warn the general public. CWC HQ will be uploading the alerts from CFCR to the concerned application for both level and inflow forecast stations through reports generated by eSWIS in MS Excel format.

3 Standard Operating Procedure (SOP) for Flood Forecasting & Warning

3.1 The basic activity of flood forecasting activity involves preparedness, data collection, its transmission, flood forecast formulation and dissemination of flood forecasts. The activity consists of several sub-activities at various levels starting from remote sites, sub-divisional/divisional offices, regional offices (Circle/Organisation) and headquarters within CWC. Activity also involves interaction with various external

agencies and media. is carried out from the Hydrological Observation/FF Sites onwards to Headquarters. The activities are performed as per existing Flood Forecasting Manual which contains the following critical activities as the general SOPs.

3.2 Preparedness for Flood Forecasting Activity

3.2.1 Site Level preparedness: include upkeep and maintenance of instruments for observation of water level and rainfall, upkeep and maintenance of automatic telemetry systems including contact details of vendor for taking up repair works, upkeep and maintenance for keeping in working condition of communication equipment and updation of contact details to whom the data have to be passed.

3.2.2 Sub-Divisional/Divisional preparedness: include updation of contact details with all stake holders, upkeep maintenance of communication equipments, computers and other hardwares associated with flood forecasting activity, provision of men and materials to all sites under their jurisdiction before start of activity. Completion of inspection visits by vendors to all telemetry sites for keeping the equipments in working condition. Attending coordination meetings called by DDMA/District Revenue authorities, Coordinating with neighbouring countries from where hydrological data are being exchanged such as China, Nepal, Bhutan and Bangladesh including updated contact list and nodal officers.

3.2.2.a Review of Warning and Danger Levels of Level Forecast Stations, threshold limits of inflow forecast stations with States. Updating of reviewed values in eSWIS alongwith updation of HFLs if exceeded in the previous years for all the stations including base stations/monitoring stations. New Stations have also to be created in eSWIS before start of the flood season and should be ready for data feeding from the start of the season.

3.2.3 Circle and Regional Level preparedness include attending coordination meetings called by State Governments, Updating of Contact Details and attending coordination meeting of Flood Crisis Management Teams (FCMT) for Integrated Reservoir Operation (IRO), coordinating with local FMOs for provision of rainfall forecasts and rainfall products during the season in addition to attending

coordination meeting being called for from Headquarters. Preparation and review of Decision Support System (DSS) for various systems of reservoirs for IRO for flood management. (Draft composition of FCMT being taken up for issue of direction from MHA under DM Act, 2005 is at **Annex. 3.1**)

3.2.4 Headquarter level preparedness include updation of all contact details of stake holders including the resident commissioners of State Governments based in New Delhi, Coordinating with IMD Headquarters for seamless exchange of data and products, upkeep and maintenance of all hardware and software systems, providing men and material for smooth running of Control rooms. Collecting reports regarding completion of preparedness activity from regional offices. Appraising the representatives of various state governments regarding preparedness in the Annual Relief Commissioners Conference called by MHA. Keeping ready the models for run during flood season after required calibration.

3.3 Data Collection

3.3.1 Site Level Data Collection: CWC collects data from stations maintained by CWC, data from stations maintained by project authorities as well as data collected from other agencies. Further the observations are taken manually as well as automatically through sensors.

3.3.1.1.a Data Observation in CWC maintained Sites: Hourly Water Level Observation, Three-hourly rainfall observation and wherever discharge, sediment and water quality are observed it is to be followed as per prevailing practice of either once daily/once weekly/once fortnightly or once in a month etc in case of manual observation.

3.3.1.1.b In case of automated observation, the upkeep and maintenance and general cleanliness of sensors, solar panel, Data Collection Unit (DCU) are done by the CWC site officials and major maintenance and repairs are carried out by the vendors who maintain the site.

3.3.1.2 Data from stations maintained by project authorities/other agencies such as Reservoir Level, Daily/Hourly Inflows and Outflows through spillway and

canals, Daily rainfall etc are collected from project authorities/ other agencies as observed by them in such duration as given by the agencies. Projects where telemetry is installed, the hourly data is taken from telemetry directly. In some cases project specific data is uploaded on project/State Government website.

3.3.1.3 The site in charge is responsible for data collection from sites/projects.

3.3.2 Sub-Division/Division Level Data Collection: Data which are communicated by other means such as e-mail/website from various agencies are collected from Sub-Division/Division Offices. These include rainfall data/ reservoir details/ water level data from State Government operated Gauging Stations or rainfall or gridded rainfall products from IMD or Flood Meteorological Offices of IMD. Data is also collected using telemetry from sites wherever installed with redundancy of manual observation in case of failure of telemetry. Collection of hydro-meteorological data from neighbouring countries like Nepal (MGD-1, Lucknow and LGD-1, Patna), Bhutan (LBD, Jalpaiguri) and China (UBD, Dibrugarh) through wireless/e-mail/website. Transmission of Hydro-meteorological data to Bangladesh for Ganga (LGD-2, Patna) and Brahmaputra &Barak (LBD & MBD, Guwahati) as well as point to point wireless communication to Bangladesh by respective wireless stations.

3.3.3 Circle/ Regional level Data Collection: The additional data pertaining to IRO for functioning of FCMT for IRO have to be collected at Circle and Regional Office Level also.

3.3.4 Headquarter Level Data Collection: Gridded rainfall Products from IMD/ Downloading of Tropical Rainfall Measuring Mission (TRMM) /Global Precipitation Mission (GPM)/Hydro Estimator (HE) rainfall products as well as Rainfall forecast products through File Transfer Protocol (FTP) from respective download locations. Downloading of eSWIS data for real –time hydrometeorological (HM) data, Digital Elevation Model data (DEM).

3.4 Data Transmission

3.4.1 Data Transmission from Site: HM data from site is transmitted to Sub-Division/ Division through wireless or mobile in case of manual readings and through Satellite/ GSM/GPRS in case of automated stations

3.4.2 Data Transmission from Sub-Division/Division: HM data collected from Sub-Division/Division is transmitted through e-mail or by updating in website. The automatic telemetry data is received through the modelling centres installed at many of these locations through VSAT or GSM/GPRS communication. Some of the data are also sent through SMS utility of CWC.

3.4.3 Data Transmission form Circle/Regional Offices: HM data is transmitted through e-mail/SMS/Website/FTP

3.4.4. Data Transmission from Headquarters: HM data is transmitted through updating of website/ SMS/e-mail/FTP

3.5 Flood Forecast Formulation: Flood Forecasts are formulated at Divisional/Sub-Divisional Level for short range forecasts varying from 6 to 24 hours and medium range ~~forecast~~ advisories for 72 hours from headquarters.

3.5.1 Flood Forecast Formulation at Divisional/Sub-Divisional Level: Short Range forecast varying from 6 to 24 hours lead time are generated in Divisional/Sub-Divisional Level for which the statistical methods such as correlation curves and unit hydrographs are used. The 72 hour products generated by Headquarters are also consulted for preparing these short range forecast at the Divisional/ Sub-Divisional Level.

3.5.2 Flood Forecast formulation at National Level: CWC headquarters generates 72 hour lead time ~~experimental~~ flood ~~forecast~~ advisories using rainfall runoff mathematical models and are disseminated to various CWC offices for their internal use as well as to some disaster managers/FCMT for IRO etc for taking quick decisions.

3.5.3 Decision Support Systems (DSS) for FCMT for IRO: The flood forecast formulated by Divisional/Sub-Divisional/National Level is input for DSS for Flood Crisis management Team (FCMT) for IRO for flood management and based on these inputs, release advisories are to be issued to various stake holders by the FCMTs to system of reservoirs under their jurisdiction.

3.5.4 Dissemination of Forecast: The formulated forecast does not serve their purpose, if it is not disseminated immediately by the quickest possible means of communication to all stakeholders. This is also being done at various levels as detailed below:

3.5.4.1 Dissemination at Flood Forecast Station Level: The formulated forecasts are sent to Flood Forecast Stations by Divisional/Sub-Divisional modelling centres through wireless/mobile/SMS and these are sent to local administration at the flood forecasting station level by the site –in-charges of these flood forecasting stations with due acknowledgements.

3.5.4.2 Dissemination at Sub-Divisional/Divisional Level: The short range forecasts are sent to various stakeholders directly by uploading in CWC's flood forecasting website (http://india-water.gov.in/ffs), by e-mail/fax/SMS to all stake holders including CWC headquarters. The flood forecast bulletins are also sent to various stakeholders, flood news bulletins are also generated and sent to various user agencies as well as to Radio and Television for wide publicity to flood affected populace.

3.5.4.3 Dissemination at National Level: The experimental medium range 72 hour forecasts are sent to CWC field units for consulting the same for generation of short range forecasts. Further the flood forecasts are also disseminated to certain specific users who will utilise the same for their specific purposes through FTP/email. The SOP for Communication of Flood Alerts to higher officers of Government of India has been reviewed and updated from the year 2018. The reviewed and updated SOP for floods are given as **Annex-3.2**. The Severe (Orange) and Extreme (Red) bulletins are to be issued every 3 hourly/ hourly respectively by headquarters to all

stake holders through e-mail/SMS. Daily consolidated Flood Bulletins are also issued by Headquarters for the country as a whole to various stakeholders for their utility.

3.5.5 Media Management: Information to Press/Electronic media about impending flood situation is one of the very important activities for taking the flood warnings to last mile connectivity. CWC's media management policy is given vide its yearly notifications which is given in **Annex-3.3.**

4.0 Report: Reports regarding the activities covered under SOP have to be generated by various offices as detailed below and sent to higher authorities for their information and further onward transmission to all stake holders:

4.1 Divisional and Sub-Divisional Level: Activitywise compliance report on

a) Preparedness

b) Site maintenance and readiness

c) Working of telemetry sites.

d) Attending of coordination meeting in district level

e) Preparation of Daily Flood Bulletins and Weekly Flood Bulletins

f) Annual Flood Appraisal Reports

4.2 Circle/Organisational Level: Activitywise compliance report on

a) Meeting with Stakeholders

b) Meeting with State Governments

c) Meeting with Project Authorities

d) Meeting with Media

e) Meeting with IMD

f) Report on Severe events

4.3 National Level: Activitywise compliance report on

a) Coordination meeting with MHA, NDMA, IMD etc.

b) Monthly Country report on flood situation

c) Severe events and special reports

d) Preparation of Daily Flood Bulletins/Red/Orange Bulletins

e) Annual Appraisal Report for Country as a whole.

5.0 Responsibility Matrix: The responsibility matrix of various activities is given in **Annex 5.1.**

Annex-1.1

Statewise- Flood Forecasting Information in India during Flood Season 2018 (Level Foecasting)									
Sl. No.	Name of the river	Name of FF site	Name of State	District	Warning Level (m)	Danger level (m)	Highest Flood Level		Concerned Nodal CWC Division
							Level (m)	Date/ Month/ Year	
1	2	3	4	5		6	7	8	9
1	Sabari	Chinturu	Andhra Pradesh	East Godavari					LGD, Hyderabad
2	Godavari	Kunavaram	Andhra Pradesh	East Godavari	37.74	39.24	51.3	16-08-1986	LGD, Hyderabad
3	Godavari	Rajahmundry	Andhra Pradesh	East Godavari	17.68	19.51	20.48	16-08-1986	LGD, Hyderabad
4	Godavari	Dowlaiswaram	Andhra Pradesh	East Godavari	14.25	16.08	18.36	16-08-1986	LGD, Hyderabad
5	Tungabhadra	Mantralayam	Andhra Pradesh	Kurnool	310	312	318.77	02-10-2009	LKD, Hyderabad
6	Pennar	Nellore	Andhra Pradesh	Nellore	15.91	17.28	18.7	30-11-1882	HD, Chennai
7	Godavari	Atreyapuram	Andhra Pradesh	East Godavari					LGD, Hyderabad
8	Tungabhadra	Kurnool	Andhra Pradesh	Kurnool	276	278	285.23	02-10-2009	LKD, Hyderabad
9	Krishna	Avanigadda	Andhra Pradesh	Krishna					LKD, Hyderabad
10	Nagavali	Srikakulam	Andhra Pradesh	Srikakulam					ERD, Bhubaneshwar
11	Noa-Dehing	Namsai	Arunachal Pradesh	Lohit	140.6	141.1	145.03	31-08-1974	UBD, Dibrugarh
12	Siang	Passighat	Arunachal Pradesh	East Siang	152.96	153.96	157.54	11-06-2000	UBD, Dibrugarh
13	Brahmaputra	Dibrugarh	Assam	Dibrugarh	103.24	104.24	106.48	03-09-1998	UBD, Dibrugarh
14	Brahmaputra	Neamatighat	Assam	Jorhat	84.04	85.04	87.37	11-07-1991	UBD, Dibrugarh
15	Brahmaputra	Tezpur	Assam	Sonitpur	64.23	65.23	66.59	27-08-1988	UBD, Dibrugarh
16	Brahmaputra	Guwahati	Assam	Kamrup	48.68	49.68	51.46	21-07-2004	MBD, Guwahati
17	Brahmaputra	Goalpara	Assam	Goalpara	35.27	36.27	37.43	31-07-1954	LBD, Jalpaiguri
18	Brahmaputra	Dhubri	Assam	Dhubri	27.62	28.62	30.36	28-08-1988	LBD, Jalpaiguri
19	Buridehing	Naharkatia	Assam	Dibrugarh	119.4	120.4	122.69	17-06-1973	UBD, Dibrugarh
20	Buridehing	Khowang	Assam	Dibrugarh	101.11	102.11	104.16	02-09-2015	UBD, Dibrugarh

21	Desang	Nanglamoraghat	Assam	Shivsagar	93.46	94.46	96.49	06-09-1998	UBD, Dibrugarh
22	Dikhow	Shivsagar	Assam	Shivsagar	91.4	92.4	95.62	08-07-1974	UBD, Dibrugarh
23	Subansiri	Badatighat	Assam	Lakhimpur	81.53	82.53	86.84	28-06-1972	UBD, Dibrugarh
24	Dhansiri (S)	Golaghat	Assam	Golaghat	88.5	89.5	91.3	11-10-1986	UBD, Dibrugarh
25	Dhansiri (S)	Numaligarh	Assam	Golaghat	76.42	77.42	79.87	24-09-1985	UBD, Dibrugarh
26	Jiabharali	Jia-Bharali NT Road Crossing	Assam	Sonitpur	76	77	78.5	26-07-2007	UBD, Dibrugarh
27	Kopili	Kampur	Assam	Nagaon	59.5	60.5	61.86	16-06-1973	UBD, Dibrugarh
28	Kopili	Dharamtul	Assam	Morigaon	55	56	58.09	21-07-2004	UBD, Dibrugarh
29	Puthimari	Puthimari NH Crossing	Assam	Kamrup	50.81	51.81	55.08	31-08-2008	MBD, Guwahati
30	Pagladiya	Pagladiya NT Road Crossing	Assam	Nalbari	51.75	52.75	55.45	08-07-2004	MBD, Guwahati
31	Beki	Beki NH Crossing	Assam	Barpeta	44.1	45.1	46.2	04-08-2000	LBD, Jalpaiguri
32	Manas	Manas NH Crossing	Assam	Barpeta	47.81	48.42	50.08	15-09-1984	LBD, Jalpaiguri
33	Sankosh	Golokganj	Assam	Dhubri	28.94	29.94	30.95	08-09-2007	LBD, Jalpaiguri
34	Barak	AP Ghat	Assam	Cachar	18.83	19.83	21.84	01-08-1989	MBD, Guwahati
35	Katakhal	Matizuri	Assam	Hailakhandi	19.27	20.27	22.73	10-09-2007	MBD, Guwahati
36	Kushiyara	Karimganj	Assam	Karimgunj	13.94	14.94	16.57	10-06-2010	MBD, Guwahati
37	Barak	Badarpurghat	Assam	Cachar	15.85	16.85	18.48	11-09-2007	MBD, Guwahati
38	Subansiri	Choldhowaghat	Assam	Lakhimpur	99.02	100.02	101.31	27-07-1972	UBD, Dibrugarh
39	Ranganadi	N H Crossing Ranganadi	Assam	Lakhimpur	93.81	94.81	94.96	13-08-2009	UBD, Dibrugarh
40	Lohit	Dholla Bazaar	Assam	Tinsukia	127.27	128.27	130.07	22-09-2012	MBD, Guwahati
41	Gaurang	Kokrajhar	Assam	Kokrajhar	41.85	42.85	43.6	20-08-2015	LBD, Jalpaiguri
42	Ganga	Buxar	Bihar	Buxar	59.32	60.32	62.09	1948	LGD-2, Patna
43	Ganga	Patna Dighaghat	Bihar	Patna	49.45	50.45	52.52	23-08-1975	LGD-2, Patna
44	Ganga	Patna Gandhighat	Bihar	Patna	47.6	48.6	50.52	20-08-2016	LGD-2, Patna

45	Ganga	Hathidah	Bihar	Patna	40.76	41.76	43.17	21-08-2016	LGD-2, Patna
46	Ganga	Munger	Bihar	Munger	38.33	39.33	40.99	19-09-1976	LGD-2, Patna
47	Ganga	Bhagalpur	Bihar	Bhagalpur	32.68	33.68	34.72	26-08-2016	LGD-2, Patna
48	Ganga	Kahalgaon	Bihar	Bhagalpur	30.09	31.09	32.87	17-09-2003	LGD-2, Patna
49	Ghaghra	Darauli	Bihar	Siwan	59.82	60.82	61.74	29-08-1998	LGD-2, Patna
50	Ghaghra	Gangpur Siswan	Bihar	Siwan	56.04	57.04	58.01	18-09-1983	LGD-2, Patna
51	Ghaghra	Chhappra	Bihar	Chhappra	52.68	53.68	54.59	03-09-1982	LGD-2, Patna
52	Gandak	Chatia	Bihar	West Champaran	68.15	69.15	70.04	26-07-2002	LGD-1, Patna
53	Gandak	Rewaghat	Bihar	Muzzafarpur	53.41	54.41	55.41	17-09-1986	LGD-2, Patna
54	Gandak	Hazipur	Bihar	Vaishali	49.32	50.32	50.93	1948	LGD-2, Patna
55	Burhi Gandak	Lalbeghiaghat	Bihar	Motihari	62.2	63.2	67.09	30-07-1975	LGD-1, Patna
56	Burhi Gandak	Muzzafarpur Sikandarpur	Bihar	Muzzafarpur	51.53	52.53	54.29	15-08-1987	LGD-1, Patna
57	Burhi Gandak	Samastipur	Bihar	Samastipur	45.02	46.02	49.38	15-08-1987	LGD-1, Patna
58	Burhi Gandak	Rosera	Bihar	Samastipur	41.63	42.63	46.35	16-08-1987	LGD-1, Patna
59	Burhi Gandak	Khagaria	Bihar	Khagaria	35.58	36.58	39.22	1976	LGD-1, Patna
60	Bagmati	Benibad	Bihar	Muzzafarpur	47.68	48.68	50.01	12-07-2004	LGD-1, Patna
61	Bagmati	Hayaghat	Bihar	Darbhanga	44.72	45.72	48.96	14-08-1987	LGD-1, Patna
62	Adhwara Group	Kamtaul	Bihar	Darbhanga	49	50	52.99	12-08-1987	LGD-1, Patna
63	Adhwara Group	Ekmighat	Bihar	Darbhanga	45.94	46.94	49.52	12-07-2004	LGD-1, Patna
64	Kamla Balan	Jhanjarpur	Bihar	Madhubani	49	50	53.01	10-07-2004	LGD-1, Patna
65	Kosi	Basua	Bihar	Supaul	46.75	47.75	49.17	25-08-2010	LGD-1, Patna
66	Kosi	Baltara	Bihar	Khagaria	32.85	33.85	36.4	15-08-1987	LGD-1, Patna
67	Kosi	Kursela	Bihar	Katihar	29	30	32.04	06-09-1998	LGD-1, Patna
68	Mahananda	Dhengraghat	Bihar	Purnea	34.65	35.65	38.09	1968	LGD-1, Patna
69	Mahananda	Jhawa	Bihar	Katihar	30.4	31.4	33.51	14-08-1987	LGD-1, Patna
70	Gandak	Dumariaghat	Bihar	Gopalganj	61.22	62.22	63.6	18-08-2014	LGD-1, Patna

71	Burhigandak	Ahirwalia	Bihar	Muzzafarpur	58.62	59.62	61.17		LGD-1, Patna
72	Sone	Inderpuri	Bihar	Rohtas	107.2	108.2	108.85	23-08-1975	LGD-2, Patna
73	Sone	Koelwar	Bihar	Bhojpur	54.52	55.52	58.88	20-07-1971	LGD-2, Patna
74	Sone	Maner	Bihar	Patna	51	52	53.79	10-09-1976	LGD-2, Patna
75	PunPun	Sripalpur	Bihar	Patna	49.6	50.6	53.91	18-09-1976	LGD-2, Patna
76	Indravathi	Jagdalpur	Chhattisgarh	Bastar	539.5	540.8	544.68	09-07-1973	LGD, Hyderabad
77	Damanganga	Daman	Daman & Diu	Daman	2.6	3.4	4	03-08-2004	TD, Surat
78	Sabarmati	Ahmedabad Shubhash Bridge	Gujarat	Ahmedabad	44.09	45.34	47.45	19-08-2006	MD, Gandhinagar
79	Mahi	Wanakbori	Gujarat	Kheda	71	72.54	76.1	12-08-2006	MD, Gandhinagar
80	Narmada	Garudeswar	Gujarat	Bharuch	30.48	31.09	41.65	06-09-1970	TD, Surat
81	Narmada	Bharuch	Gujarat	Bharuch	6.71	7.31	12.65	07-09-1970	TD, Surat
82	Tapi	Surat	Gujarat	Surat	8.5	9.5	12.5	09-08-2006	TD, Surat
83	Damanganga	Vapi Town	Gujarat	Valsad	18.2	19.2	23.76	03-08-2004	TD, Surat
84	Yamuna	Karnal Bridge	Haryana	Karnal			250.01	19-09-2010	UYD, New Delhi
85	Yamuna	Paonta Sahib	Himachal Pradesh	Sirmaur			384.6	05-09-1995	UYD, New Delhi
86	Jhelum	Rammunshibagh	Jammu & Kashmir	Srinagar	1585.53	1586.45	1589.65	08-09-2014	Chenab D, Jammu
87	Jhelum	Sangam	Jammu & Kashmir	Anantnag					Chenab D Jammu
88	Jhelum	Safapora	Jammu & Kashmir	Bandipora					
89	Ganga	Sahibganj	Jharkhand	Sahibganj	26.25	27.25	30.91	1998	LGD-2, Patna
90	Subarnarekha	Jamshedpur	Jharkhand	Purba Singhbhum	122.5	123.5	129.82	12-10-1973	ERD, Bhubaneshwar
91	Bhima	Deongaon	Karnataka	Kalaburagi	402	404.5	407.34	13-08-2006	LKD, Hyderabad
92	Narmada	Mandla	Madhya Pradesh	Mandla	437.2	437.8	439.41	18-08-1974	ND, Bhopal
93	Narmada	Hoshangabad	Madhya Pradesh	Hoshangabad	292.83	293.83	300.9	30-08-1973	ND, Bhopal
94	Godavari	Kopergaon	Maharashtra	Ahmednagar	490.9	493.68	499.17	1969	UGD, Hyderabad
95	Godavari	Gangakhed	Maharashtra	Parbhani	374	375	377.57	1947	UGD, Hyderabad

96	Godavari	Nanded	Maharashtra	Nanded	353	354	357.1	06-08-2006	UGD, Hyderabad
97	Wainganga	Bhandara	Maharashtra	Bhandara	244	244.5	250.9	16-09-2005	WGD, Nagpur
98	Wainganga	Pauni	Maharashtra	Bhandara	226.73	227.73	232.35	07-09-1994	WGD, Nagpur
99	Wardha	Balharsha	Maharashtra	Chandrapur	171.5	174	176	15-08-1986	WGD, Nagpur
100	Krishna	Arjunwad	Maharashtra	Satara	542.07	543.29	543.69	05-08-2005	UKD, Pune
101	Yamuna	Delhi Rly Bridge	NCT Delhi	North	204	204.83	207.49	06-09-1978	UYD, New Delhi
102	Sahibi	Dhansa	NCT Delhi	South-West	211.44	212.44	213.58	06-08-1977	UYD, New Delhi
103	Subarnarekha	Rajghat	Odisha	Balasore	9.45	10.36	12.69	19-06-2008	ERD, Bhubaneshwar
104	Burhabalang	NH_5 _Road Bridge	Odisha	Balasore	7.21	8.13	9.5	12-10-1973	ERD, Bhubaneshwar
105	Baitarni	Anandpur	Odisha	Keonjar	37.44	38.36	41.35	23-09-2011	ERD, Bhubaneshwar
106	Baitarni	Akhuapada	Odisha	Bhadrak		17.83	21.95	16-08-1960	ERD, Bhubaneshwar
107	Brahmani	Jenapur	Odisha	Jajpur	22	23	24.78	20-08-1975	ERD, Bhubaneshwar
108	Rishikulya	Purushottampur	Odisha	Ganjam	15.83	16.83	19.65	04-11-1990	ERD, Bhubaneshwar
109	Vamsadhara	Gunupur	Odisha	Rayagada	83	84	88.75	17-09-1980	ERD, Bhubaneshwar
110	Vamsadhara	Kashinagar	Odisha	Gajapati	53.6	54.6	58.93	18-09-1980	ERD, Bhubaneshwar
111	Mahanadi	Naraj	Odisha	Cuttack	25.41	26.41	27.61	31-08-1982	Mahanadi D Burla
112	Mahanadi	Alipingal Devi	Odisha	Jagatsinghpur	10.85	11.76	13.11	11-09-2011	Mahanadi D Burla
113	Mahanadi	Nimapara	Odisha	Puri	9.85	10.76	11.6	31-08-1982	Mahanadi D Burla
114	Jalaka	Mathani Road Bridge	Odisha	Balasore	4.5	5.5			
115	Banas	Abu Road	Rajasthan	Sirohi			265.4	31-08-1973	MD, Gandhinagar

116	Chambal	Kota City	Rajasthan	Kota					Chambal D Jaipur
117	Teesta	Malli Bazaar	Sikkim	South Sikkim					SID, Gangtok
118	Teesta	Joretahang	Sikkim	South Sikkim					SID, Gangtok
119	Teesta	Singtam	Sikkim	East Sikkim					SID, Gangtok
120	Cauvery	Srirangam	Tamilnadu	Tiruchirapalli					SRD, Coimbatore
121	Cauvery	Erode	Tamilnadu	Erode					SRD, Coimbatore
122	Bhavani	Bhavani	Tamilnadu	Erode					SRD, Coimbatore
123	Godavari	Kaleswaram	Telangana	Jayashankar	103.5	104.75	107.05	15-08-1986	LGD, Hyderabad
124	Godavari	Eturunagaram	Telangana	Jayashankar	73.29	75.79	77.66	24-08-1990	LGD, Hyderabad
125	Godavari	Dummagudem	Telangana	Kothagudem	53	55	60.25	16-08-1986	LGD, Hyderabad
126	Godavari	Bhadrachalam	Telangana	Kothagudem	45.72	48.77	55.66	16-08-1986	LGD, Hyderabad
127	Wardha	Sirpur Town	Telangana	Adilabad					WGD, Nagpur
128	Manu	Kailashahar	Tripura	North Tripura	24.34	25.34	25.79	07-06-1993	MBD, Guwahati
129	Gumti	Sonamura	Tripura	West Tripura	11.5	12.5	14.42	23-07-1993	MBD, Guwahati
130	Ganga	Kannauj	Uttar Pradesh	Kannauj	124.97	125.97	126.78	27-09-2010	MGD-2, Lucknow
131	Ganga	Ankinghat	Uttar Pradesh	Kanpur	123	124	124.49	28-09-2010	MGD-2, Lucknow
132	Ganga	Kanpur	Uttar Pradesh	Kanpur	113	114	114.08	29-09-2010	MGD-2, Lucknow
133	Ganga	Dalmau	Uttar Pradesh	Rae-Bareilly	98.36	99.36	99.84	03-08-1973	MGD-2, Lucknow
134	Ganga	Phaphamau	Uttar Pradesh	Allahabad	83.73	84.73	87.98	08-09-1978	MGD-3, Varanasi
135	Ganga	Allahabad Chhatnag	Uttar Pradesh	Allahabad	83.73	84.73	88.03	08-09-1978	MGD-3, Varanasi
136	Ganga	Mirzapur	Uttar Pradesh	Mirzapur	76.72	77.72	80.34	09-09-1978	MGD-3, Varanasi
137	Ganga	Varanasi	Uttar Pradesh	Varanasi	70.26	71.26	73.9	09-09-1978	MGD-3, Varanasi
138	Ganga	Ghazipur	Uttar Pradesh	Ghazipur	62.11	63.11	65.22	09-09-1978	MGD-3, Varanasi

139	Ganga	Ballia	Uttar Pradesh	Ballia	56.62	57.62	60.39	25-08-2016	MGD-3, Varanasi
140	Ramganga	Moradabad	Uttar Pradesh	Moradabad	189.6	190.6	192.88	21-09-2010	MGD-2, Lucknow
141	Ramganga	Bareilly	Uttar Pradesh	Bareilly	162.7	163.7	162.88	06-08-1978	MGD-2, Lucknow
142	Yamuna	Mawi	Uttar Pradesh	Muzzafarnagar	230	230.85	232.45	26-09-1988	UYD, New Delhi
143	Yamuna	Mathura	Uttar Pradesh	Mathura	164.2	165.2	169.73	08-09-1978	UYD, New Delhi
144	Yamuna	Agra	Uttar Pradesh	Agra	151.4	152.4	154.76	09-09-1978	LYD, Agra
145	Yamuna	Etawah	Uttar Pradesh	Etawah	120.92	121.92	126.13	11-09-1978	LYD, Agra
146	Yamuna	Auraiya	Uttar Pradesh	Auraiya	112	113	118.19	25-08-1996	LYD, Agra
147	Yamuna	Kalpi	Uttar Pradesh	Jalaun	107	108	112.98	25-08-1996	LYD, Agra
148	Yamuna	Hamirpur	Uttar Pradesh	Hamirpur	102.63	103.63	108.59	12-09-1983	LYD, Agra
149	Yamuna	Chillaghat	Uttar Pradesh	Banda	99	100	105.16	06-09-1978	LYD, Agra
150	Yamuna	Naini	Uttar Pradesh	Allahabad	83.74	84.74	87.99	08-09-1978	LYD, Agra
151	Betwa	Mohana	Uttar Pradesh	Jhansi	121.66	122.66	133.69	11-09-1983	LYD, Agra
152	Ken	Banda	Uttar Pradesh	Banda	103	104	113.29	07/0720/05	LYD, Agra
153	Gomati	Lucknow HanumanSetu	Uttar Pradesh	Lucknow	108.5	109.5	110.85	10-09-1971	MGD-2, Lucknow
154	Gomati	Jaunpur	Uttar Pradesh	Jaunpur	73.07	74.07	77.74	22-09-1971	MGD-3, Varanasi
155	SAI	Rae-Bareli	Uttar Pradesh	Rae-Bareli	100	101	104.81	17-09-1982	MGD-2, Lucknow
156	Ghaghra	Elgin Bridge	Uttar Pradesh	Barabanki	105.07	106.07	107.56	10-10-2009	MGD-1, Lucknow
157	Ghaghra	Ayodhya	Uttar Pradesh	Faizabad	91.73	92.73	94.01	11-10-2009	MGD-1, Lucknow
158	Ghaghra	Turtipar	Uttar Pradesh	Ballia	63.01	64.01	66	28-08-1998	MGD-1, Lucknow
159	Rapti	Balrampur	Uttar Pradesh	Balrampur	103.62	104.62	105.51	16-08-2014	MGD-1, Lucknow
160	Rapti	Bansi	Uttar Pradesh	Siddarthnagar	83.9	84.9	85.82	21-08-1998	MGD-1, Lucknow
161	Rapti	Gorakhpur Birdghat	Uttar Pradesh	Gorakhpur	73.98	74.98	77.54	23-08-1998	MGD-1, Lucknow

162	Gandak	Khadda	Uttar Pradesh	Kushinagar	95	96	97.5	23-07-2002	LGD-1, Patna
163	Ganga	Fathegarh	Uttar Pradesh	Farukkabad	136.6	137.6	138.14	26-09-2010	MGD-2, Lucknow
164	Ganga	Dabri	Uttar Pradesh	Shahjahanpur	136.3	137.3	139.695	28-09-1983	MGD-2, Lucknow
165	Ganga	Garhmuktheswar	Uttar Pradesh	Ghaziabad					MGD-2, Lucknow
166	Ganga	Kachla Bridge	Uttar Pradesh	Badaun	161	162	162.79	24-09-2010	MGD-2, Lucknow
167	Betwa	Shahjina	Uttar Pradesh	Hamirpur	103.54	104.54	108.67	12-09-1983	LYD, Agra
168	Mandakini	Ganganagar	Uttarakhand	Rudraprayag					HGD, Dehradun
169	Alaknanda	Srinagar	Uttarakhand	Pauri Garhwal	535	536	537.9	17-06-2013	HGD, Dehradun
170	Ganga	Rishikesh	Uttarakhand	Dehradun	339.5	340.5	341.72	05-09-1995	HGD, Dehradun
171	Ganga	Haridwar	Uttarakhand	Haridwar	293	294	296.3	19-09-2010	HGD, Dehradun
172	Ganga	Farakka	West Bengal	Murshidabad	21.25	22.25	25.14	07-09-1998	LGD-2, Patna
173	Mayurakshi	Narayanpur	West Bengal	Murshidabad	26.99	27.99	29.69	27-09-1995	DD, Asansol
174	Ajoy	Gheropara	West Bengal	Birbhum	38.42	39.42	43.94	27-09-1978	DD, Asansol
175	Mundeswari	Harinkhola	West Bengal	Hooghly	11.8	12.8	14.58	29-09-1978	DD, Asansol
176	Kangsabati	Mohanpur	West Bengal	Medhinipur	24.73	25.73	29.87	02-09-1978	DD, Asansol
177	Raidak-I	Tufanganj	West Bengal	Coochbehar	34.22	35.3	36.36	21-07-1993	LBD, Jalpaiguri
178	Torsa	Ghugumari	West Bengal	Coochbehar	39.8	40.41	41.46	03-08-2000	LBD, Jalpaiguri
179	Jaldhaka	NH-31	West Bengal	Jalpaiguri	80	80.9	81.33	28-08-1972	LBD, Jalpaiguri
180	Jaldhaka	Mathabanga	West Bengal	Coochbehar	47.7	48.2	49.85	07-09-2007	LBD, Jalpaiguri
181	Tista	Domohani	West Bengal	Jalpaiguri	85.65	85.95	89.3	14-10-1968	LBD, Jalpaiguri
182	Tista	Mekhliganj	West Bengal	Coochbehar	65.45	65.95	66.45	13-07-1996	LBD, Jalpaiguri

List of Inflow Stations

S. No	River	Site	State	District	FRL/PL in metre	MWL in metre	Concerned nodal CWC division
1	Vamsadhara	Gotta Barrage	Andhra Pradesh	Srikakulam	34.84		ERD, Bhubaneshwar
2	Krishna	Srisailam Dam	Andhra Pradesh	Kurnool	269.75		LKD, Hyderabad
3	Krishna	Prakasam Barrage (Vijayawada)	Andhra Pradesh	Krishna	18.3		LKD, Hyderabad
4	North Pennar	Somasila Dam	Andhra Pradesh	Nellore			HD, Chennai
5	Krishna	Dr K L R S Pulichintala Dam	Andhra Pradesh	Guntur			LKD, Hyderabad
6	Tungabhadra	Sunkesula Barrage	Andhra Pradesh	Kurnool			LKD, Hyderabad
7	Nagavali	Thottapalli Reservoir Scheme	Andhra Pradesh	Vizianagaram			ERD, Bhubaneshwar
8	Nagavali	Narayanapuram Anicut	Andhra Pradesh	Srikakulam			
9	Suwarnamukhi	Madduvalasa Reservoir	Andhra Pradesh	Srikakulam			
10	Godavari	Indirasagar Polavaram Project	Andhra Pradesh	West Godavari			LGD, Hyderabad
11	Subansiri	Lower Subansiri	Assam	Dhemaji			UBD, Dibrugarh
12	Banas	Dantiwada Dam	Gujarat	Banaskanta	182.88	185.06	Mahi D Gandhinagar
13	Sabarmati	Dharoi Dam	Gujarat	Mehsana	187.45	192.25	Mahi D Gandhinagar
14	Mahi	Kadana Dam	Gujarat	Mahisagar	126.19	127.71	Mahi D Gandhinagar
15	Tapi	Ukai Dam	Gujarat	Tapi	102.41	105.16	TD, Surat
16	Damanganga	Madhuban Dam	Gujarat	Valsad	79.86	82.4	TD, Surat
17	Panam	Panam Dam	Gujarat	Panchmahal			Mahi D Gandhinagar
18	Narmada	Sardar Sarovar Dam	Gujarat				TD, Surat
19	Yamuna	Tajewala Weir (Hathnikund)	Haryana	Yamunanagar	323.7		UYD, New Delhi
20	Mayurakshi	Massanjore Dam	Jharkhand	Dumka	121.31		DD, Asansol
21	Damodar	Tenughat Dam	Jharkhand	Bokaro	268.83		DD, Asansol
22	Damodar	Panchet Dam	Jharkhand	Dhanbad	132.59		DD, Asansol
23	Barakar	Maithon Dam	Jharkhand	Dhanbad	150.88		DD, Asansol

24	Subarnarekha	Chandil Dam	Jharkhand	Seraikela Kharswan			ERD, Bhubaneshwar
25	Barakar	Tilaiya Dam	Jharkhand	Koderma			DD, Asansol
26	Anjanwa	Sundar Dam	Jharkhand	Hazaribagh			DD, Asansol
27	Baranadi	Amanat Barage	Jharkhand	Dumka			DD, Asansol
28	Khoranadi	Annaraj Dam	Jharkhand	Hazaribagh			DD, Asansol
29	Goda Nala	Bhairwa Dam	Jharkhand	Hazaribagh			DD, Asansol
30	Jamunia	Batane Dam	Jharkhand	Giridih			DD, Asansol
31	Ashra nadi	Sikatia Barrage	Jharkhand	Dumka			DD, Asansol
32	Konar	Konar Dam	Jharkhand	Hazaribagh			DD, Asansol
33	Subarnarekha	Galudih Barrage	Jharkhand	Saraikela Kharaswan			ERD, Bhubaneshwar
34	Subarnarekha	Getlasud Dam	Jharkhand	Ranchi			ERD, Bhubaneshwar
35	Krishna	Almatti Dam	Karnataka	Vijayapura	519.6		LKD, Hyderabad
36	Krishna	Narayanpur Dam	Karnataka	Vijayapura	492.25		LKD, Hyderabad
37	Tungabhadra	Tungabhadra Dam	Karnataka	Ballari	497.74		LKD, Hyderabad
38	Harangi	Harangi Dam	Karnataka	Kodagu			Cauvery D Bengaluru
39	Hemavathy	Hemavathy Dam	Karnataka	Hassan			Cauvery D Bengaluru
40	Cauvery	Krishnarajasagar	Karnataka	Mandya			Cauvery D Bengaluru
41	Kabini	Kabini Dam	Karnataka	Mysuru			Cauvery D Bengaluru
42	Tunga	Upper Tunga	Karnataka	Shivamogga			Cauvery D Bengaluru
43	Bhadra	Bhadra Dam	Karnataka	Chikmagaluru			Cauvery D Bengaluru
44	Chambal	Gandhisagar Dam	Madhya Pradesh	Mandsaur	399.9	399.9	Chambal D Jaipur
45	Sone	Bansagar Dam	Madhya Pradesh	Shahdol			MGD-III, Varanasi
46	Godavari	Jaikwadi Dam	Maharashtra	Aurangabad	463.91		UGD, Hyderabad
47	Tapi	Hathnur Dam	Maharashtra	Jalgaon	212.02	214	TD, Surat
48	Wainganga	Gosikhurd Dam	Maharashtra	Bhandara			WGD, Nagpur
49	Salandi	Salandi Dam	Odisha	Bhadrak			ERD, Bhubaneshwar
50	Brahmani	Rengali Dam	Odisha	Angul			ERD, Bhubaneshwar

51	Mahanadi	Hirakud Dam	Odisha	Sambalpur	192.02		Mahanadi D Burla
52	Banas	Bisalpur Dam	Rajasthan	Tonk			Chambal D Jaipur
53	Mahi	Mahi Bajajsagar Dam	Rajasthan	Banswara			Mahi D Gandhinagar
54	Som Kamla	Som Kamla Amba Dam	Rajasthan	Udaipur			Mahi D Gandhinagar
55	Kalisindh	Kalisindh Dam	Rajasthan	Jhalawar			Chambal D Jaipur
56	Parwan	Parwan Dam	Rajasthan	Baran			Chambal D Jaipur
57	Gambhiri	Gambhiri Dam	Rajasthan	Chittorgarh			Chambal D Jaipur
58	Gambhiri	Panchana Dam	Rajasthan	Karauli			Chambal D Jaipur
59	Mej	Gudha Dam	Rajasthan	Bundi			Chambal D Jaipur
60	Parwati	Parwati Dam	Rajasthan	Dholpur			Chambal D Jaipur
61	Chambal	Kota Barrage	Rajasthan	Kota			Chambal D Jaipur
62	Teesta	Teesta-III HEP Dam Chungtang	Sikkim	North Sikkim			SID, Gangtok
63	Teesta	Teesta V HEP Dam Singtam	Sikkim	East Sikkim			SID, Gangtok
64	Rongpo	Rongpo Dam	Sikkim	East Sikkim			SID, Gangtok
65	Rongli	Rongli Dam	Sikkim	East Sikkim			SID, Gangtok
66	Rangit	Rangit-III HEP Dam	Sikkim	South Sikkim			SID, Gangtok
67	Cauvery	Mettur Dam	Tamilnadu	Salem			SRD, Coimbatore
68	Bhavani	Bhavanisagar Dam	Tamilnadu	Erode			SRD, Coimbatore
69	Cauvery	Grand Anicut	Tamilnadu	Thanjavur			SRD, Coimbatore
70	Cauvery	Upper Anicut	Tamilnadu	Tiruchirapalli			SRD, Coimbatore
71	Vaigai	Vaigai Dam	Tamilnadu	Theni			SRD, Coimbatore
72	Kosasthaliyar	Poondi Satyamurthy reservoir	Tamilnadu	Thiruvallur			HD, Chennai
73	Kodaganar	Kodaganar Dam	Tamilnadu	Dindugul			SRD, Coimbatore
74	Gomukanadi	Gomukhi Dam	Tamilnadu	Villupuram			HD, Chennai
75	Periyar Odai	Wellington Dam	Tamilnadu	Cuddalore			HD, Chennai
76	South Pennar	Sathanur Dam	Tamilnadu	Thiruvannamalai			HD, Chennai
77	Adyar	Chembarampakkam Lake	Tamilnadu	Kanchipuram			HD, Chennai
78	Godavari	Sriramasagar	Telangana	Nizamabad	332.54		UGD, Hyderabad

79	Manjira	Singur Dam	Telangana	Sangareddy	523.6		UGD, Hyderabad
80	Manjira	Nizamsagar Dam	Telangana	Kamareddy	428.24		UGD, Hyderabad
81	Krishna	Priyadarshini Jurala Project	Telangana	Wanaparthy	318.52		LKD, Hyderabad
82	Kaddamvagu	Kaddam Dam	Telangana	Nirmal			UGD, Hyderabad
83	Godavari	Sripada Yellampally Dam	Telangana	Komaram Bheem			UGD, Hyderabad
84	Godavari	PVNR Kanthapally Project	Telangana	Jayashankar			LGD, Hyderabad
85	Ganga	Narora Barrage (U/S)	Uttar Pradesh	Bulandshahar			MGD-2, Lucknow
86	Rihand	Rihand Dam	Uttar Pradesh	Sonebhadra			MGD-III, Varanasi
87	Ganga	Dharmanagri Barrage	Uttar Pradesh	Bijnor			HGD, Dehradun
88	Ramganga	Kalagarh Dam	Uttarakhand	Pauri Garhwal			MGD-2, Lucknow
89	Sharda	Banbasa Barrage	Uttarakhand	Champawat			MGD-1, Lucknow
90	Mayurakshi	Tilpara Barrage	West Bengal	Birbhum	62.79		DD, Asansol
91	Damodar	Durgapur Barrage	West Bengal	Burdwan	64.47		DD, Asansol
92	Kangsabati	Kangsabati Dam	West Bengal	Bankura	134.11		DD, Asansol
93	Kangsabati	Hinglow Dam	West Bengal	Bankura			DD, Asansol

ANNEX-1.2

LIST OF CWC FLOOD FORECASTING CONTROL ROOMS & NODAL OFFICERS

Sr. No.	River Basin Jursidiction	Nodal Officer (Designation-wise) Name & Contact Details		
		Executive Engineer/ Deputy Director	Superintending Engineer/ Director	Chief Engineer
A	**Central Flood Control Room**			
	All over India	Sh S. Lakshminarayanan Deputy Director, Flood Forecast Monitoring Dte., & Central Flood Control Room (CFCR), CWC, 5th Floor, Sewa Bhawan, R K Puram, Sector -1, New Delhi 110066 Tele-(011)26105274 Fax-(011)26106523 Mobile- 8800677536 Email-slakshminarayanan8162@gmail.com	Sh, V D Roy Director, Flood Forecast Monitoring Dte., 5th Floor, CWC, Sewa Bhawan, R K Puram, Sector -1, New Delhi 110066 Tele-(011)26182836 Fax-(011)26106523 Mobile-9650804451 Email-vdroy@yahoo.com	Sh M. S. Dhillon CE, Flood Management Organisation, VI Floor CWC, Sewa Bhawan, R K Puram, Sector -1, New Delhi 110066 Tele-(011)26102112 Fax-(011)26102112 Mobile-8750271347 Email-cefmgmt@nic.in
		Sh Deputy Director, Flood Control Application –I Directorate, CWC, West Block –II, Wing -7, I floor, R K Puram, New Delhi -110066 Tel: 26102186 Mob: Email-	Sh Sanjay Kr Singh, Director Flood Control Application –I Directorate, CWC, West Block –II, Wing -7, I floor, R K Puram, New Delhi -110066 Tel: 26102186 Mobile-9650072606 E-mail: pnddte-cwc@nic.in	
		Sh Syed Faiz Ahmed Deputy Director Flood Control Application –II Directorate, CWC, West Block –II, Wing -7, I floor, R K Puram, New Delhi -110066 Tel: 29583497 Mob: 8506006693 Email-dirfca-cwc@nic.in	Sh Ritesh Khattar, Director Flood Control Application –II Directorate, CWC, West Block –II, Wing -7, I floor, R K Puram, New Delhi -110066 Tel: 29583497 E-mail: rk-cwc@yahoo.co.in	

B	Divisional Flood Control Room			
1	Alaknanda, Pinder, Mandakini, Bhagirathi, Nayar, Ganga (Deoprayag to Dharamnagari)	Sh. Ashish K Singhal Executive Engineer, Himalayan Ganga Division, CWC, 7-B, SewakAsram Road, Dehradun – 248001 Mobile -9555986777 Tele- (0135)2745882 Fax – (0135)2742148 Email –hgdcwc@gmail.com	Sh Sudhir Kumar SE (HOC), CWC, VasantVihar, 156, Dehradun Tele- (0135)2761562 Fax-(0135)2760631 Mobile-9412054507 Email-ceugbolucknow@yahoo.com	Sh Bhopal Singh, Chief Engineer, UGBO, CWC, Lucknow Tele-(0522)2715832 Fax-(0522)2715834 Mobile-9910301746 Email-ceugbolucknow@yahoo.com
2	Ganga (Garhmukteshwar to Dalmau), Ramganga, Gangan, Kali, Gomati (Neemsar to Lucknow), Sai (Bani&Raebareli)	Sh S F H Abidi Executive Engineer, Middle Ganga Division No-2, CWC, Kendriya Bhawan, 2nd Floor, Aliganj, Lucknow – 226024 Tele – (0522)2332524 Fax- (0522)2325526 Mobile – 9650957004 Email-eemgd2lko@yahoo.co.in		
3	Sarju, Sharda, Suheli, Dhauliganga, Gauriganga, Ghaghra (Upto Turtipar), Rapti,BurhiRapti, Rohin,Kunhra, Kwano	Sh. Sushil Khajuria Executive Engineer, Middle Ganga Division No-1, CWC, Jaltarang Bhawan, Pratap Bagh, Aliganj, Lucknow – 226024 Office-(0522)2322181/2334935 Fax – (0522)2325028 Mobile – 9889125070 Email – mgdlko2005@yahoo.co.in	Sh Rabindra Singh Superintending Engineer (HOC), CWC, Varanasi Tele-(0542)2282302 Fax-(0542)2282309 Mobile-9968436336 Email-hoc_cwc_varanasi@yahoo.co.in	
4	Ganga (Shahzadpur to Ballia), Yamuna (Naini), Tons,Kanhar, Sai (Pratapgarh&Jalapur), Gomti (Sultanpur to Maighat), ChhotiSarju, Karamnasa, Sone (GovardheyGhat to Chopan), Gopad,Rihand	Sh R K Gautam, Executive Engineer, Middle Ganga Division No-3, CWC, Akashdeep,2nd Floor, Panna Lal Park, Varanasi – 221002 Tele – (0542)2282303 Fax – (0542)2282303 Mobile – 8004930461 Email - mgd3cwcvaranasi@yahoo.co.in		
5	Gandak (Triveni-Dumariaghat), Burhi Gandak, Bagmati, Adhwara, KamlaBalan, Kosi,Parwan, West Kankai, Mechi, Mahananda	Sh. A K Mishra Executive Engineer, Lower Ganga Division No-1, CWC, Rajendra Nagar, Patna – 800016 Tele- (0612)2671541 Fax- (0612)2686952 Mobile – 9472950485 Email - mgd4cwcpat@gmail.com	Sh Mukesh Kr Singh, Dir (M&A) LGBO, CWC, Patna Tele-(0612)2541065 Fax – (0612)2541865 Mobile-9973049058 Email-celgbo-cwc@nic.in	Sh A K Nayak Chief Engineer, LGBO, CWC, Patna Tele-(0612)2541087 Fax-(0612)2541865 Mobile-

6	Ganga (Buxar-Sahebganj), Gahghra(Darauli-Chhapra), Gandak (Rewaghat-Hazipur),Sone (Japla-Maner), North Koel, Punpun,Sakri, Kiul,Harohar, Phalgu Baya	Sh. Narendra Nath Shankar Executive Engineer, Lower Ganga Division No-2, CWC, 148-Anandpuri, West Boring Canal Road, Patna – 800001 Tele – (0612)2558249 Fax – (0612)2557084 Mobile – 9431069299 Email - mgd5cwcpatna@gmail.com		9437483984 Email-celgbo-cwc@nic.in
7	Damodar, Konar, Barakar, Mundeswari, Ajoy, Tepra, Mayurakshi, Siddheswari, Kangsabati, Kimari,Pheni, Totka&Jumani, Bhairabanki&Tara	Sh P. K. Patnaik Executive Engineer, Damodar Division, CWC, Apcar Garden(West), G.T. Road, Asansol – 713304 Tele- (0341)2254265 Fax-(0341)2254265 Mobile- 9437768402 Email - eecwcasansol@gmail.com		
8	Yamuna, Kamal, Pabar, Tons, Bata, Giri, Somb, Hondon, Sahibi	Shobit Ch Mishra Executive Engineer, Upper Yamuna Division, B-5 Tara Crescent Road, Qutab Institutional Area, New Delhi 110 016 Tele-01126858452 Fax-01126565579 Mobile- 9958676527 Email-uydybo.cwc@gmail.com	Sh Ajay Kumar SE (HOC), Sector-56, Noida UP Tele- (0120)2581224 Fax-(0120)2584330 Mobile-9560453946 Email-sehoc_noidacwc@rediffmail.com	Sh Ashok Goel, CE, YBO, Kalindi Bhawan, New Delhi Tele-(011)26526865 Fax-(011)26526857 Mobile-8130988322 Email-Ceybo-cwc@nic.in
9	Yamuna(Delhi-Naini), Chambal (Dholpur d/s), Khari, Sengar, Betwa, Sind, Sonar, Bearma,, Ken, Urmil, Shyamri, Sonar, Chandrawal, Dhasan, Kunwari	Sh Vipin Kumar Singh, Executive Engineer, Lower Yamuna Division, CWC, Sector 12, Qtr No C - 404-409, AwasVikash colony, Agra – 282007 Tele – (0562)2604424 Fax- (0562)2604424 Mobile- 9899791710 Email-lyd_agra@rediffmail.com		
10	Chambal (Before Dholpur), Shipra, Chhoti Kali Sindh, Siwana, Retam, Parwati, Banas, Kali Sindh	ShNarendra Singh Shekhawat Executive Engineer, Chambal Division, CWC, Sector-86/93-96, Ajay Marg, Pratap Nagar Housing Board Colony, Sanganer, Jaipur – 303906 Tele-(0141)2790065 Fax- (0141)2791826 Mobile- 9899519573 Email - chambalcwc@yahoo.co.in		

11	Brahmaputra (upto Tezpur), Siang, Lohit, Subansiri, Buridehing, Noa-Dehing, Dikhow, Dhansiri (S), Kopili, Kameng, Siyum, Desang, Jia-bhareli, Ranganadi, Debang, Jiadhal	Sh B P Sonowal Executive Engineer, Upper Brahmaputra Division, CWC, Jiban Phukan Nagar, PO-CR Building, Dibrugarh – 786003 Tele-(0373)2314398/905 Fax – (0373)2314398 Mobile-8826788504 Email- ubd-cwc-asm@nic.in ubddbrcwc@gmail.com	Sh ravi Ranjan SE (HOC), Guwahati Tele-(0361)2674191/297 Fax-(0361)2674268 Mobile-9810884756 Email-hocguwahati@yahoo.com	Sh P.M. Scott CE, B&BBO, Shillong Tele-(0364)2220489 Fax- (0364)2220644 Mobile- 9436165176 Email- cebbo-cwc@nic.in
12	Brahmaputra(-Goalpara), Pagladiya, Puthimari, Matunga, Suklai,Sonai, Rukani, Katakhal, Manu, Gumti, Kushiyara	Sh A Chakraborty Executive Engineer, Middle Brahmaputra Division, CWC, CWC Complex, Behind Adabari Bus Stand, PO-Guwahati University, Guwahati – 781014 Tele-(0361)2674267 Fax- (0361)2674267 Mobile- 9435593062 Email- mbdcwc@gmail.com		
13	Brahmaputra (upto Dhubri) Teesta, Rangit, Ghish, Chel, Neora, Jaldhaka, Diana, Murti, Torsa, Raidak-I, Raidak-II, Sankosh, Mahananda, Aie, Burisuti,	Sh Sudipta Sarkar Executive Engineer, Lower Brahmaputra Division, CWC, Hakimpara, Jalpaiguri – 735101 Tele- (03561)230677 Fax- (03561)230677 Mobile- 9474844647 Email- cwcjal@gmail.com		
14	Subarnarekha, Burhabalang, Baitarani, Brahmani, Rushikulya, Vamsadhara, Nagavali, Sarda	Sh. N.C. Nanda Executive Engineer, Eastern Rivers Division, CWC, Plot No A-13 & 14, Bhoi Nagar, Bhubaneshwar – 751022 Tele-(0674)2540086 Fax-(0674)2540316 Mobile-9437968273 Email-eeerdcwc@yahoo.co.in	Sh D. K. Jena SE (HOC), Bhubaneswar Tele- (0674)2545536 Fax- (0674)2545537 Mobile-8895772192 Email-hocbbsr@yahoo.com	Sh. Ambrish Nayak CE, MERO, Plot No A-13/14, Bhoinagar, CWC, Bhubaneswar Tele- (0674)2545536 Fax- (0674)2545537 Mobile- 9437105268 Email-cemero-cwc@nic.in
15	Mahanadi, Seonath, Tandula, Hamp, Apra, Pairi, Jonk, Hasdeo, Mand, Ib, Kelo, Bheden, Tel, Ong, Sridhijar, Kusumi, Daya, Vargabi, Kushabhadra, Kaukhai, Kathajori, Devi	Sh N Srinivas Executive Engineer, Mahanadi Division, Burla, CWC, Qtr No SD-7/1&2 , Officers Colony, Burla, District – Sambalpur – 768017 Tele- (0633)2430238 Fax- (0633)2431809 Mobile – 9618694218 Email - eemdcwcburla@yahoo.co.in		

16	Godavari (upto Sriramsagar), Dharna,Pravara, Shiv, Dudhna, Manjira,Lendi, Siddhavagu,	Sh E Venkateshwarlu Executive Engineer, Upper Godavari Division, CWC, Krishna Godavari Bhawan, H No-11-4-648, AC Guards, Hyderabad – 500004 Tele-(040)29704541 Fax-(040)29704542 Mobile-9985126280 Email- eeugdhyd@gmail.com	Sh O. R. K. Reddy SE, Godavari Circle, CWC, Hyderabad Tele- (040)29808749 Fax- (040)29808754 Mobile- 9395599451 Email- segchyderbad-cwc@nic.in	Sh D Ranga Reddy CE, KGBO, CWC, Krishna Godavari Bhawan, Hyderbad Tele-(040)29808740 Fax-(040)29808742 Mobile- 9900823440 Email- cekgbo-cwc@nic.in, hyd_cecwc@yahoo.com
17	Godavari(From Kunavaram till mouth), Indravati, Pranhita, Bhaskal, Dantewada, Kinnersani, Sabari	Sh P. S. Mohan Kumar Executive Engineer, Lower Godavari Division, CWC, Krishna Godavari Bhawan, H No-11-4-648, AC Guards, Hyderabad – 500004 Tele- (040)29808749 Fax-(040)29808752 Mobile- 9717764978 Email- eelgd@yahoo.com		
18	Krishna (Before Almatti Dam), Koyana, Warna, Panchganga, Dudhganga, Ghatprabha, Agrini, Don, Malprabha	Sh Harish Girish Umbarje Executive Engineer, Upper Krishna Division, CWC, National Water Academy Complex, Sinhagad Road, Khadakwasla, Pune – 411024 Tele-(020)24380073 Fax-(020)24381086 Mobile- 9947243510 Email- eeukdcwc@yahoo.com	Sh Rajeev Singhal SE (C), Krishna Coordination Circle, KGBO, Krishna Godavari Bhawan, H No-11-4-648, AC Guards, Hyderabad – 500004 Tele- Fax- Mobile- 8600998070 Email-	
19	Krishna (From Almatti upto mouth), Ujani, Nira, Bhima, Borinala, Kagna, Haridra, Hagari, Vedavathi, Halia, Musi, Palleru, Munneru	Smt M N R Mehervani Executive Engineer, Lower Krishna Division, CWC, Krishna Godavari Bhawan, H No-11-4-648, AC Guards, Hyderabad – 500004 Tele- (040)29809650 Fax-(040)29809647 Mobile-9866239563 Email- eelkd2010@yahoo.in		
20	Penganga, Peddavagu, Wardha, Pranhita, Wainganga, Bagh, Bawanthadi, Kanhan	Sh Ajay Kumar Bonade Wainganga Division, CWC, 2nd Floor, Block-C, CGO Complex, Seminary Hills, Nagpur-440 006 Tele-(0712)2510156 Fax-(0712)2510756 Mobile- 9422339698 Email- wgdivision@yahoo.co.in	ShMilindPanpatil SE(C), Monitoring (C), CWC, Seminary Hills, Nagpur-440 006 Tele- (0712)2510475 Fax- Mobile-9763031746 Email- semc_cwc2010@rediffmail.com	Sh Shiv Nandan Kumar CE, Monitoring (C), CWC, Seminary Hills, Nagpur-440 006 Tele- (0712)2510464 Fax-(0712)2510475 Mobile-9868918952 Email- cemonc-cwc@nic.in, cecwcnagpur@yahoo.com

21	Mahi, Som, Anas, Jakham, Panam, Erau,Sabamati, Sei, Wakal, Harnav,Hathmati, Watrak,Meshow, Banas, Balram, Sipu, Luni, Shetrunji, Bhadar, Machu, Rupen, Machhundri	Sh Vishnu Sharma Executive Engineer, Mahi Division, CWC, 3rd Floor,Narmada Tapi Bhawan, Sector-10 A, Gandhinagar Tele-(079)23239509 Fax-(079)23239509 Mobile- 9971478416 Email- mahi_cwc@yahoo.co.in eemdgnt-cwc@gov.in	Sh. Vimal Kumar SE (HOC), Narmada Tapi Bhawan, 2nd Floor, Room No 202, Sector-10A, Gandhinagar Tele- (079)23245194 Fax-(079)23245194 Mobile-9711216982 Email- hoc_gandhinagar@yahoo.co.in	Sh M. P. Singh CE, NTBO, CWC, Narmada Tapi Bhawan, 1st Floor, Room No 103, Sector-10A, Gandhinagar Tele-(079)23245427 Fax-(079)23246115 Mobile- 9868211191 Email- centbo-cwc@nic.in, cwc_ntbo@rediffmail.com
22	Tapi, Narmada (From Garudeswar), Purna, Girna, Damanganga, Wagh	Dr U. P. Gupta Executive Engineer, Tapi Division, CWC, Opp Kshetrapal Health Centre, Sagrampura, Surat – 395002 Tele- (0261)2478569 Fax- (0261)2478569 Mobile- 9891989746 Email- tapi_exern@yahoo.com ee.tapi-cwc@gov.in		
23	Narmada (upto Hoshangabad), Banjar, Burhner, Tawa	Sh Manish Kumar Executive Engineer, Narmada Division, CWC, Block-3, Paryawas Bhawan, Mother Teresa Marg, Arera hills, Bhopal – 462011 Tele-(0755)2573630 Fax-(0755)2552217 Mobile- 8889900620	Sh Manoj Tiwari (AC) SE(C) CWC Block-3, Ground Floor, Paryawas Bhawan, Mother Teresa Marg, Arera hills, Bhopal – 462011 Tele- (0755)2558264 Fax- (0755)2550253 Mobile- 9425608846 Email: rakeshtoteja@gmail.com Secobhopal-cwc@nic.in	Sh S. K. Haldar CE, NBO, CWC, Block-3, Ground Floor, Paryawas Bhawan, Mother Teresa Marg, Arera hills, Bhopal – 462011 Tele- (0755)2574513 Fax- (0755)2550253 Mobile- 9425693072 Email- cenbo-cwc@nic.in
24	Pennar (From Tadipatri till mouth), Chitravathi, Papagni, Kunderu, Cheyyuru, Sagileru, Kosasthaliyar, Adyar, Cooum, Vellar	Sh R Giridhar Executive Engineer, Hydrology Division, CWC, "NEERVALAM" No.81, TNHB Colony, West Velachery Chennai – 600042 Tele- (044)22554250 Fax- (044)22554250 Mobile- 8130277739 Email- eecwcchennai@yahoo.co.in	Sh V. Mohanmurali SE (C), CWC, Jal Saudha, 2nd floor, HMT Post, Bengaluru – 560 031 Tele- (080)29723050 Fax- (080)29723060 Mobile- 8447131041 Email- csrccwc@yahoo.co.in	Sh N.M. Krishnanunni CE (CSRO), Sangamam, Gandhimanagar, Coimbatore – 641 004 Tele-(0422)2512242 Fax-(0422)2512243 Mobile- 9482592113 Email- cecsro-cwc@nic.in
25	Cauvery, Bhavani, Ponnaiyar, Vaigai	Sh R Saravanan Executive Engineer, Southern Rivers Div, Coimbatore Tele-(0422)2512250 Fax-(0422)2512250 Mobile-9013702544 Email-srdcwc@rediffmail.com		

26	Harangi, Hemavathi, Kabini, Cauvery, Tungabhadra	Sh Ashok Kumar V Executive Engineer Cauvery Division, CWC, Bengaluru Tele- (080)29724010 Fax-(080)29724010 Mobile- 9811978538 Email- eecdcwcblore@rediffmail.com		
27	Kabini	Sh V Rajesh Executive Engineer, South Wstern Rivers Division, CWC, Jaldhara, D No 27/1927 A, Kasturba Nagar, Kadavanthra, Kochi – 682020 Tele-(0484)2314229 Fax-(0484)2314229 Mobile- 8921985868 Email- eeswrd@yahoo.com		
28	Jhelum (upto Rammunshibagh)	Sh Hardesh Kumar Executive Engineer, Chenab Division, CWC, Rajinder Nagar Housing Colony, Phase-1, Bantalab, Jammu Tele- (0191)2597688 Fax-(0191)2597668 Mobile- 9971416750 Email- exenjammu@gmail.com	Sh. P G Dorje SE (C), CWC, Kendriya Sadan, Chandigarh – 160017 Tele-(0172)2748334, Fax-(0172)2742465, Mobile- 9418007170 Email- dirmashimla-cwc@nic.in, dorjecwc@yahoo.com	Sh Atul Jain CE, IBO, CWC, Kendriya Sadan, Chandigarh- 160017 Tele-(0172)2746794 Fax-(0172)2741766 Mobile-9968652152 Email-ceibo-cwc@nic.in
29	Teesta	Sh Neelam Narolia Executive Engineer, Sikkim investigation Division, CWC, Tadong, Gangtok, Sikkim – 737 102 Tele-(03592)231887/271059 Fax-(03592)231887 Mobile – 9990808371 Email – sidgangtok_cwc@yahoo.in	Sh Baleshwar Thakur SE (Sikkim Investigation Circle), CWC, Tadong, Gangtok, Sikkim – 737 102 Tele-(03592)227061 Fax-(03592)231128 Mobile-9015404275 Email-Seicgangtok-cwc@nic.in	Sh Amarendra Kr Singh CE (Teesta Basin Organisation), CWC, Sevoke Road, 2nd Mile, Siliguri– 734401 Tele-(0353)2540686 Fax-(0353)2540262 Mobile-9434043620 Email-cetbocwc@yahoo.in

Annex-1.3

3/120/2013-FFM/2638-2717

भारत सरकार

Government of India

केन्द्रीय जल आयोग

Central Water Commission
बाढ पूर्वानुमान प्रबोधन निदेशालय

Flood Forecast Monitoring Directorate

दूरभाष /Telephone: 011-26106523
फैक्स/ Fax: 011-26106523
ईमेल /e-mail: fmdte@nic.in

कमरा संख्या-208 (द) सेवा भवन
Room No. 208(S), Sewa Bhawan,
रामकृष्ण पुरम नई दिल्ली–110066
R.K. Puram, New Delhi-110066.

Dated 18th December 2013

NOTIFICATION

The Central Water Commission presently operates its flood forecasting services in various basins every year during the period as shown in Table below.

S.No.	Basin	Existing Period
1.	Brahmaputra Basin	15th May to 15th October
2.	All other Basins other than Yamuna	15th June to 15th October
3.	Yamuna Basin	1st July to 30th September

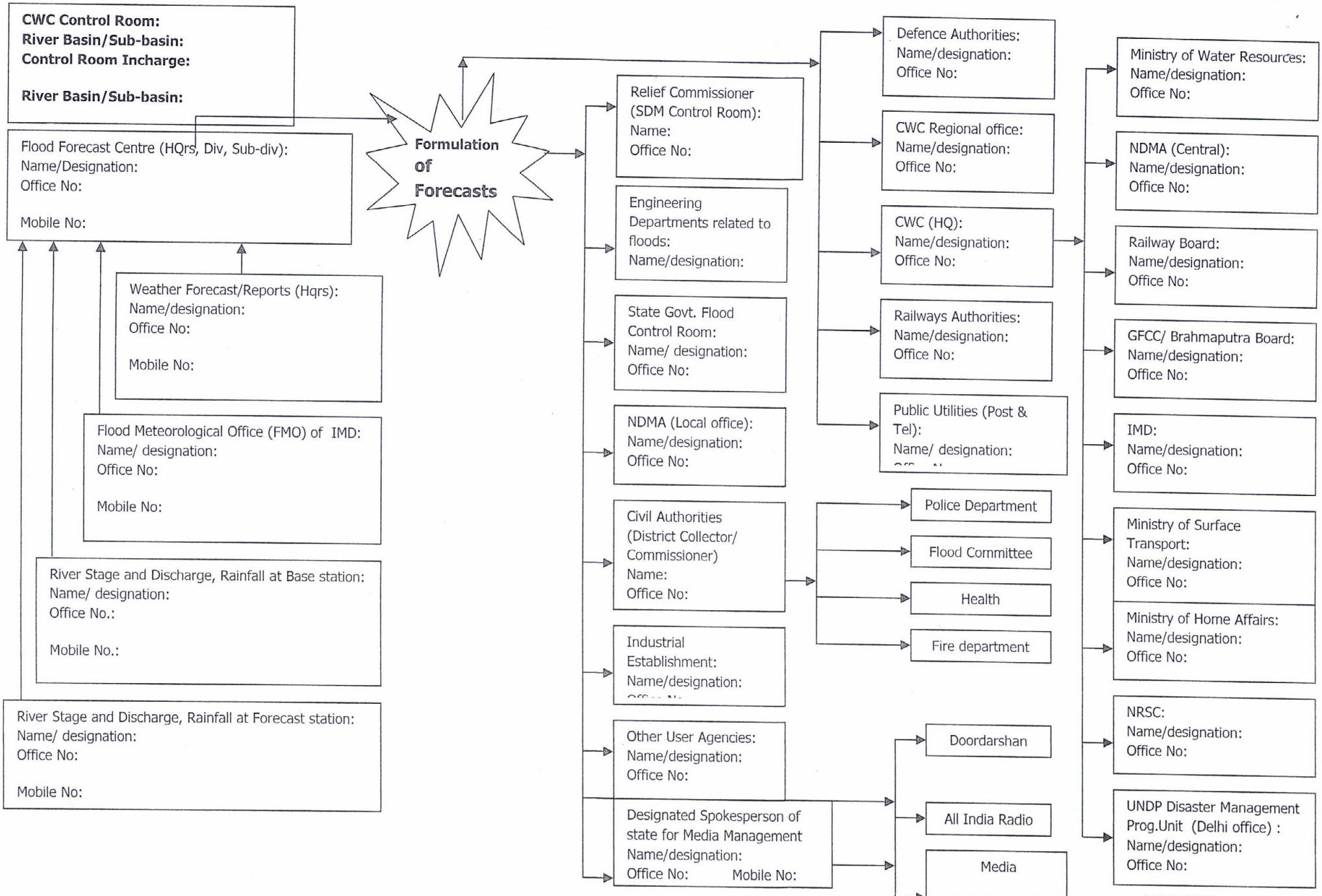
However, in view of the early setting in and late withdrawal of Southwest Monsoon during the past several years, it has now been decided with the approval of competent authority to modify the designated flood period for various basins including those organisations where flood forecasting system is likely to start during the XII Plan Period as follows:

S.No.	Basin	Modified Period
1.	Brahmaputra Basin	1st May to 31st October
2.	All other Basins upto Krishna Basin	1st June to 31st October
3.	Basins South of Krishna Basin (Pennar, Cauvery and Southern Rivers)	1st June to 31st December

In case of floods in any basin beyond the above designated flood period due to unexpected rain/releases from dams or other reasons, the flood forecasting activity shall be resumed in affected basins by the concerned organisation/division till the water level falls below warning level/inflow falls below threshold limit at all FF/IF stations and necessary bulletins shall be disseminated as usual to all users as well as CFCR.

The modifications will come into force from the date of issue of this notification.

Sd/-
(विष्णु देव राय / Vishnu Deo Roy)
निदेशक (एफ एफ एम) / Director (FFM)



Typical notification chart for dissemination of flood forecast by CWC Control Rooms

ANNEX-1.4

Annex-1.5

Standard Operating Procedure for upkeep of Telemetry System of Central Water Commission and keeping them functional

Stations In-Charge	Name:			Contact Number:	
	Activity	Person concerned	Periodicity	Return to be sent to Divn/Modelling Centre/Cirlce/ Organisation/Headquarter	Remarks
Telemetry Sites with Regular Staff	Physical inspection reagrding security arrangements, cleaniness, connectivity among components, data display, etc	JE/AE/AEE concerned	Monthly or date of site visit or disruption in data tansmission to Div which ever is earlier.	Monthly to Division	
	Cleaning of Solar Panels, Tipping Bucket Raingauge, battery leads, debris/silt from Termination blocks, ensuring connectivity, etc.	Site staff under supervision of JE/AE/AEE	Monthly or after every heavy rainfall or dust storm or cyclonic storm or flood or disruption in data transmission.	Monthly to Division	
	Verification of data from DCP/DCU display on test check basis using gauge installed along the water level sensor and measured volume of water for raifall sensors for few hours say 3 to 5 hours.	JE/AE/AEE concerned	Monthly or date of site visit or disruption in data tansmission to Div which ever is earlier.	Monthly to Division	
	Registering complaint with the vendor for correcting the fault beyond the control of site staff/in charge under intimation to Division office and duly recorded in the site register.	JE/AE/AEE concerned	Immediately after disruption of data as first information under intimation to Divisional Office. Immediately after nature of complaints has been identified after field inspection under intimation to Divisional office.	Monthly to Division	
Telemetry Sites without Regular Staff	Physical inspection reagrding security arrangements, cleaniness, connectivity among components, data display, etc	JE/AE/AEE concerned	Monthly or date of site visit or disruption in data tansmission to Div which ever is earlier.	Monthly to Division	
	Cleaning of Solar Panels, Tipping Bucket Raingauge, battery leads, debris/silt from Termination blocks, ensuring connectivity, etc.	Local labour or site staff on tour from othe site under the supervision of JE/AE/AEE	Monthly or after every heavy rainfall or dust storm or cyclonic storm or flood or disruption of data.	Monthly to Division	
	Verification of data on test check basis using gause installed along the water level sensor and measured volume of water for raifall sensors for few hours say 3 to 5 hours.	JE/AE/AEE concerned	Monthly or date of site visit or disruption in data tansmission to Div which ever is earlier.	Monthly to Division	
	Registering complaint with the vendor for correcting the fault beyond the control of site staff/in charge under intimation to Division office and duly recorded in the site register.	JE/AE/AEE concerned	Immediately after disruption of data as first information under intimation to Divisional Office. Immediately after nature of complaints has been identified after field inspection under intimation to Divisional office.	Monthly to Division	

Division Office/Modelling Centre	Monitoring of Data Reception from site throiugh GPRS/GSM directly and Satellite through ERS/VSAT and data from other agencies as agreed in advance.	Duty Officer	Daily during non-monsoon and three hourly during monsoon	Fortnightly to Circles/ Organisation/ CWC HQ (FMO)	
	Physical verification of equipments installed like Server/ UPS/ VSAT/Earthing, etc and working of data management software installed in the server.	AE/AEE/EE	Weekly or disruption.	Fortnightly to Circles/ Organisation	
	Registering complaint with the vendor for correcting the fault beyond the control of site staff/in charge/Duty officer of control room under intimation to the Executive/ Superintending Engineer and duly recorded in the register. Ensuring availability of responsible officer/staff during complaint redessal visit of service engineer	Duty Officer	Immediately after disruption of data or receipt of similar information from site as first information as second line of monitoring. Immediately after nature of complaints has been identified after field inspection or receipt of similar information from site as second line of complaint redressal.	Fortnightly to Division Concerned in case of one MC for more divisions as well as to Circle , Organisations Concerned	
	Review of licences and payment of fees to MOCIT	EE	Annual	Annual to CWC HQ(FMO)	
	Usage of data/sharing data with other as agreed in advance.	Duty Officer	Daily during non-monsoon and three hourly during monsoon	Fortnightly to CWC HQ (FMO)	
Earth Receiving Station	Verification of Raw Data Reception at DDRGS	Officer in Charge through service	Daily during non-monsoon and three hourly during monsoon		
	Physical verification of equipments installed like Server/ UPS/ VSAT/Earthing, etc and working of data management software installed in the server.	Officer in Charge through service engineer of vendor	Weekly or disruption.		
	Registering complaint with the vendor for correcting the fault. Ensuring availability of responsible officer/staff during complaint redessal visit of service engineer	Officer in Charge	Immediately after disruption of data as first information. Immediately after nature of complaints has been identified after field inspection.		

SOP for Telemetry Data Backup and validation

	Activity	Person concerned	Periodicity	Return to be sent to Divn/Modelling Centre/Cirlce/ Organisation/Headquarter	Remarks
Site Level	The data backed up using Pendrive should be sent to concerned MC/Division for filling the gap due to transmission losses in their system and then deleted from the Pendrive to keep ready for future use	JE/AE/AEE concerned	Monthly or during site visit		
Division/ MC Level	Use mirror server for data back up. Primary and secondary data validation similar to manually observed data. Storage of validated data alonwith raw data in separate folders. Uploading of the validated telemetry data in eSWIS after creation of facility for the same.	AE/AEE/EE	Monthly	Monthly to Circles/ Organisation/CWC(HQ(FMO)	

Annex-3.1

Basinwise System of Reservoirs for Integrated Operation through Flood Crisis Management Teams (FCMT)for Flood Moderation										
Sl. No.	Basin	System	Name of Reservoirs		Location(State)	Details of FCMT				
						Name	Headquarter	Chairman	Member Secretary	Members
1	Ganga	System 1	1.1	Tehri	Uttarakhand	Upper Ganga & Ramganga	Dehradun	CE,UGBO, CWC, Lucknow	SE (HOC), CWC, Dehradun	Representatives of Govt of Uttarakhand, THDC, UP Irrigation
			1.2	Kalagarh	Uttarakhand					
		System 2	2.1	Gandhisagar	Madhya Pradesh	Chambal	Jaipur	CE (YBO), CWC, New Delhi	SE (HOC), CWC, Noida	Representatives of Govt of Madhya Pradesh & Rajsthan(including Electricity Board)
			2.2	Rana Pratap Sagar	Rajasthan					
			2.3	Kota Barrage	Rajasthan					
			2.4	Bisalpur Dam	Rajasthan					
		System 3	3.1	Rajghat	Madhya Pradesh	Ken Betwa	Agra	CE (YBO), CWC, New Delhi	SE (HOC), CWC, Noida	Representatives of Govt of Madhya Pradesh, Uttar Pradesh, Betwa Board
				Matatila	Uttar Pradesh					
			3.2							
		System 4	4.1	Bansagar dam	Madhya Pradesh	Sone	Varanasi	CE,UGBO, CWC, Lucknow	SE (HOC), CWC, Varanasi	Representatives of Govt of Madhya Pradesh, Chhatisgarh, Bihar and Bansagar Control Board
			4.2	Rihand Dam	Uttar Pradesh					
			4.3	Indrapuri Barrage	Bihar					
		System 5		Whole Ganga	Uttarakhand	Ganga	Patna	Chairman, GFCC, Patna	CE(LGBO), CWC, Patna	Representatives of Ganga Basin States, Chairmans of System 1 to 4.
					Uttar Pradesh					
					Madhya Pradesh					
					Chattisgarh					
					Rajasthan					
					Haryana & Delhi					
					Bihar					
					Jharkhand					
					West Bengal					

2	Godavari	System1	1.1	N M Weir	Maharashtra	Upper Godavari	Hyderabad	Chief Engineer (KGBO), CWC, Hyderabad	SE(Godavari), CWC, Hyderabad	Representative of Govt of Maharashtra
			1.2	Mula Dam						
			1.3	Jaikwadi Dam						
			1.4	Manjlegaon						
			1.5	Yeldari						
		System2	2.1	Karanja	Karnataka	Middle Godavari	Hyderabad	Chief Engineer (KGBO), CWC, Hyderabad	SE(Godavari), CWC, Hyderabad	Representatives of Govt of Karnataka & Telangana
			2.2	Singur	Telangana					
			2.3	Nizamsagar	Telangana					
			2.4	Sriramasagar Dam	Telangana					
			2.5	Kaddam Dam	Telangana					
			2.6	Sripada Yellampalli Dam	Telangana					
		System3	3.1	Upper Wardha	Maharashtra	Wardha	Nagpur	Chief Engineer (MCO), CWC, Nagpur	SE(Coord), MCO, CWC, Nagpur	Representative Govt of Madhya Pradesh & Maharashtra
			3.2	Issapur/Upper Penganga Dam	Maharashtra					
			3.3	Upper Wainganga Project	Madhya Pradesh	Wainganaga	Nagpur			
			3.4	Totladoh	Madhya Pradesh					
			3.5	Gosikhurd Dam	Maharashtra					
		System 4	4.1	Upper Indravathy Project	Odisha	Indravathy Sabari	Hyderabad	Chief Engineer (KGBO), CWC, Hyderabad	SE(Godavari), CWC, Hyderabad	Representative of Govt of Odisha, Chhatisgarh, Telangana & Andhra Pradesh
			4.2	Kolab						
			4.3	Machkund						
			4.4	Balimela						
		System 5	5.1	P V Narasimha Rao Kanthapally project	Telangana	Lower Godavari	Hyderabad	Chief Engineer (KGBO), CWC, Hyderabad	SE(Godavari), CWC, Hyderabad	Representatives of Govt of Telangana & Andhra Pradesh
			5.2	Polavaram	Andhra Pradesh					
			5.3	Dowlaiswaram Barrage	Andhra Pradesh					
		System 6		Whole Godavari	Maharashtra, Karnataka, Madhya Pradesh, Chhattisgarh, Odisha, Telangana and Andhra Pradesh	Godavari	Hyderabad	Chairman, GRMB as Chairman	Chief Engineer (KGBO), CWC, Hyderabad	Representative of Basin States

3	Krishna	System 1	1.1	**Koyna Dam**	Maharashtra	Upper Krishna	Pune	Chief Engineer (KGBO), CWC, Hyderabad	SE(KCC), CWC, Hyderabad	Representatives of Maharashtra & Karnataka
			1.2	**Varna Dam**	Maharashtra					
			1.3	**Hippargi Barrage**	Karnataka					
			1.4	**Almatti Dam**	Karnataka					
			1.5	**Hidkal Dam**	Karnataka					
			1.6	**Malaprabha Dam**	Karnataka					
			1.7	**Narayanpur Dam**	Karnataka					
		System 2	2.1	**Ujni Dam**	Maharashtra	Upper Bhima	Pune	Chief Engineer (KGBO), CWC, Hyderabad	SE(KCC), CWC, Hyderabad	Representative of Maharashtra & Karnataka
			2.2	**Nira Dam**	Maharashtra					
		System 3	3.1	**Upper Tunga**	Karnataka	Middle Krishna	Hyderabad	Chief Engineer (KGBO), CWC, Hyderabad	SE(KCC), CWC, Hyderabad	Representative of Karnataka, Telangana and Andhra Pradesh
			3.2	**Bhadra Dam**	Karnataka					
			3.3	**Tungabhadra Dam**	Karnataka					
			3.4	**Sunkesula Barrage**	Andhra Pradesh					
			3.5	**P D Jurala Project**	Telangana					
			3.6	**Srisailam Dam**	Andhra Pradesh					
			3.7	**Nagarjunasagar Dam**	Telangana					
		System 4	4.1	**Musi Project**	Telangana	Lower Krishna	Hyderabad	Chief Engineer (KGBO), CWC, Hyderabad	SE(KCC), CWC, Hyderabad	Representative of Govt of Andhra Pradesh
			4.2	**Dr K L R S Pulichintala Project**	Andhra Pradesh					
			4.3	**Prakasham Barrage**	Andhra Pradesh					
		System 5		**Whole Krishna**	Maharashtra, Karnataka, Telangana and Andhra Pradesh	Krishna	Hyderabad	Chairman, KRMB	Chief Engineer (KGB), CWC, Hyderabad	Representative of Basin States

4	Cauvery	System1	1.1	Harangi Dam	Karnataka	Upper Cauvery	Bengaluru	Chief Engineer (CSRO), CWC, Coimbatore	SE(CSRC), CWC, Bengaluru	Representatives from Karnataka & Kerala
			1.2	Hemavathy Dam	Karnataka					
			1.3	Krishnarajasagar	Karnataka					
			1.4	Kabini Dam	Karnataka and Kerala					
		System2	2.1	Mettur Dam	Tamilnadu	Middle Cauvery	Coimabtore	Chief Engineer (CSRO), CWC, Coimbatore	SE(CSRC), CWC, Bengaluru	Representative from Tamilnadu and Tamilnadu Electricity Board/UT of Puducherry
			2.2	Bhavanisagar Dam	Tamilnadu					
			2.3	Kodaganar Dam	Tamilnadu					
		System 3	3.1	Upper Anicut	Tamilnadu	Lower Cauvery	Coimbatore	Chief Engineer (CSRO), CWC, Coimbatore	SE(CSRC), CWC, Bengaluru	Representative from Tamilnadu /UT of Puducherry
			3.2	Grand Anicut	Tamilnadu and Puducherry					
		System 4		Whole Cauvery	Karnataka, Kerala, Tamilnadu, UT of Puducherry	Cauvery	Coimbatore	Member (RM), CWC, New Delhi	Chief Engineer (CSRO), CWC, Coimbatore	Representative of Cauvery Basin State
5	Mahanadi	System1	1.1	Ravi Shankar dam	Chhattisgarh	Upper Mahanadi	Burla	Chief Engineer (MERO), CWC, Bhubaneshwar	SE (HOC), CWC, Bhubaneshwar	Representatives of Govt of Chhattisgarh
			1.2	Bango Dam	Chhattisgarh					
		System 2	2.1	Hirakud	Odisha	Lower Mahanadi	Burla	Chief Engineer (MERO), CWC, Bhubaneshwar	SE (HOC), CWC, Bhubaneshwar	Representative of Govt of Odisha
		System 3		Whole Mahanadi	Chhattisgarh	Mahanadi	Bhubaneshwar	Member (RM), CWC, New Delhi	Chief Engineer (MERO), CWC, Bhubaneshwar	Representatives of Basin States, i e, Chhattisgarh & Odisha
					Odisha					

6	**Tapi**	**System 1**	**1.1**	**Hatnur Dam**	Maharashtra	Tapi	Surat	Chief Engineer (NTBO), CWC, Gandhinagar	SE(HOC), CWC, Gandhinagar	Representatives of Maharashtra and Gujarat
			1.2	**Ukai Dam**	Gujarat					
7	**Mahi**	**System 1**	**1.1**	**Mahi Bajaj Sagar Dam**	Rajasthan	Mahi	Gandhinagar	Chief Engineer (NTBO), CWC, Gandhinagar	SE(HOC), CWC, Gandhinagar	Representatives of Government of Rajasthan & Gujarat
			1.2	**Som Kamla Amba Dam**	Rajasthan					
			1.3	**Kadana Dam**	Gujarat					
			1.4	**Panam Dam**	Gujarat					
8	**Subarnarekha**	**System 1**	**1.1**	**Getsuld Dam**	Jharkhand	Subarnarekha	Bhubaneshwar	Chief Engineer (MERO), CWC, Bhubaneshwar	SE (HOC), CWC, Bhubaneshwar	Representatives of Government of Jharkhand, West Bengal & Odisha
			1.2	**Chandil Dam**	Jharkhand					
			1.3	**Galudih Barrage**	Jharkhand					

Annex 3.2

40-3/2015-DM-I (A)
Government of India
Ministry of Home Affairs (Disaster Management Division)
New Delhi

Dated the 1 5th December, 2017

Subject: Revision of Standard operating procedure (sop) for issuing alerts and electronic messaging in the event of Disaster Situation.

The undersigned is directed to refer to the subject mentioned above and to forward a copy of revised SOP for issuing alerts and electronic messaging in the event of Disaster Management for your information, please

Encl: As above

(Pradeep Kumar)
Deputy Secretary (DM-t)
Telefax: 23438154

1. Shri R.K Jain, Member, NDMA, NDMA Bhawan, A-1, Safdarjung Enclave, New Delhi. ,
2. Secretary, National Centre for Seismology, Ministry of Earth Sciences, Room-No. 108, Prithvi Bhawan, Opp. Indian Habitat-Centre, Lodi Road, New Delhi.
3. Secretary, Ministry of Environment & Forest, Paryavaran Bhawan, Jorbagh Road, New Delhi.
4. Director General, India Meteorological Department, Mausam Bhawan, Lodi Road, New Delhi.
5. Director General, NDRF, 9th floor, Paryavaran Bhawan, B-2 Wing, CGO Compete, Lodi Road. New Delhi
6. Directorate General, Geological Survey of India, Jawaharlal Nehru Road, Kolkata.
7. Chairman, Railway Board, Ministry of Railway, Rail Bhawan, New Delhi
8. Chairman, Central Water Commission, Sewa-Bhawan, R.K. Puram , New Delhi.
9. Director, Indian National centre for ocean Information services, Pragarthi Nagar, (BO) Nizempet (SO) Hyderabad_ 500090.
10. Director, Snow & Avalanche study Establishment, Him parisar, Near Bhaskar Chowk, Sector 37A, Chandigarh. 160036.
11. Integrated Operation Centre, North Block, MHA, New Delhi.
12. National Emergency Response centre (NERC), 8th Floor, NDCC-II Building, Jai Singh Road, Connaught place, New Delhi.

Flood

Early Warning and Forecasting Department: Central Water Commission

Alert Categorisation
Above Normal: Yellow
Severe: Orange
Extreme: Red

Category	Description	Stage	Alerts to be transmitted to
Above Normal	Water Level between Warning and Danger Level	Yellow	1. JS(DM) & AS (DM) 2. Nodal officers of NDMA & NDRF 3. On instruction of JS (DM) be transmitted to HS
Severe	Water Level between Danger Level to HFL attained at that location	Orange	1. HS/AS (DM)/JS(DM)/PS to HM/PS to MOS 2. Nodal officers of NDMA & NDRF 3. All designated officers in PMO/Cabinet Secretariat 4. Concerned State/Union Territory Governments
Extreme	Water Level higher than the HFL at that location	Red	1. HS/AS (DM)/JS(DM)/PS to HM/PS to MOS 2. Nodal officers of NDMA & NDRF 3. All designated officers in PMO/Cabinet Secretariat 4. ESF ministries 5. Concerned State/Union Territory Governments

Highest Flood level- The highest flood level of the river ever recorded at the place.
Alert messages will be followed by Situation Reports (SITREP) to be sent twice a day or more frequently depending on unfolding events
Alerts falling in Orange stage will be communicated with 3 hourly updates.
Alerts falling in Red Stage will be communicated with 1 hourly updates or at more frequent intervals as warranted by the situation.

Annex-3.3

3/66/2017-FFM/

भारत सरकार

Government of India

केन्द्रीय जल आयोग

Central Water Commission
बाढ पूर्वानुमान प्रबोधन निदेशालय

Flood Forecast Monitoring Directorate

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रामकृष्ण पुरम् नई दिल्ली–110066
R.K. Puram, New Delhi-110066.

Dated April 2017

MEMORANDUM

Flood Forecasts formulated by Central Water Commission is a very important non-structural flood management strategy for minimising the loss due to floods in various parts of the country. Press/Electronic media plays a very vital role in taking the flood forecast to last mile connectivity to the affected populace. In order to make an effective media management, Chairman, CWC hereby notifies the following media management policy from Divisional Control Room to Headquarter Level for taking the flood forecasts to flood affected populace through Press/Electronic Media.

S. No.	CWC Location	Items to be given for reporting/publishing	Responsible Officer	Remarks
1.	Divisional Control Room	1. Flood News report whenever flood forecasts are issued related to their jurisdiction alongwith current situation	Executive Engineer	No additional briefing
2.	Circle/Regional Level	1. Special Flood Reports for High/ Unprecedented Flood Situation	Chief Engineer/ Superintending Engineer	CE/SE can call press conference and brief the press regarding the impending severe flood situation in various rivers
3.	Headquarter Level	1. Special Flood Reports for High/ Unprecedented Flood Situation	Chairman/Member (RM)/ Chief Engineer (FM)	Chairman/Member (RM)/ Chief Engineer (FM) can call press conference and brief the press regarding the impending severe flood situation in various rivers

The notification is valid from the date of this notification and accordingly the interaction with Press/Electronic media can be initiated as indicated above. This notification will be reviewed/ modified every year before commencement of flood season with approval of competent authority.

- Sd -

(विष्णु देव राय / Vishnu Deo Roy)
निदेशक (एफ एफ एम) / Director (FFM)

Responsibility Matrix

S. No.	Activity	Frequency/Time Frame	Responsible Officer	Remarks
1.	**Preparedness**			
1.1	**Site Level**			
	Site Maintenance, Telemetry Maintenance, Equipment maintenance, Men and Material	By 30th April or 31st May	Site-in-Charge/ Sub Divisional Engineer/ Executive Engineer/ Vendors of systems and equipments	
1.2	**Sub-Divisional/Divisional Level**			
	Attending Coordination meetings at District Level	As required	Executive Engineer	
	Readiness of all infrastructural facility for DFCR	By 30th April or 31st May		
	Updation of Contact list			
1.3	**Regional Office**			
	Updation of Contact List of FCMT	By 30th April or 31st May	Designated Officers for the purpose	
	Attending Coordination meeting States/ Stake Holders/IMD	As required	Chief Engineer/ Superintending Engineer	
	Report on Coordination meetings and preparedness	By 30th April or 31st May	Designated Officers for the purpose	
1.4	**Headquarter Level**			
	Updation of Contact Details	By 30th April	Designated Officers for the purpose	
	Attending Coordination meetings with Stakeholders/MHA/NDMA/IMD	As required	Member (RM)/Chief Engineer (FM)	
	Report on Coordination meetings and preparedness	By 30th April or 31st May	Designated Officers for the purpose	

S. No.	Activity	Frequency/Time Frame	Responsible Officer	Remarks
1.	**Data Collection**			
1.1	**Site Level**			
	Water Level	Hourly	Site-in-Charge	
	Rainfall	Three Hourly		
	Discharge/Sediment /Water Quality	As per Protocol		
	Collection of Data from other agency	Hourly		
1.2	**Sub-Divisional/Divisional Level**			
	Data Collection through Modelling Centre for telemetered data	Hourly	Sub Divisional Engineer/ Executive Engineer/ Designated Duty Officers	
	Data Collection through e-mail/Website/FTP/Telemetry	As frequently as possible		
	International Data Collection	As per protocol		
1.3	**Regional Office**			
	Additional Data Collection through e-mail/Website/FTP	As frequently as possible	Designated Officers for the purpose	
1.4	**Headquarter Level**			
	Data Collection through Modelling Centre for telemetered data	Hourly	Designated Officers for the purpose	
	Data Collection through e-mail/Website/FTP	As frequently as possible		

S. No.	Activity	Frequency/Time Frame	Responsible Officer	Remarks
1.	**Data Transmission/Data Entry**			
1.1	**Site Level**			
	Water Level	Within 20 min of Observation through Wireless/Mobile	Site-in-Charge	
	Rainfall			
	Discharge/Sediment /Water Quality			
	Collection of Data from other agency			
1.2	**Sub-Divisional/Divisional Level**			
	Data Collection through Modelling Centre for telemetered data	At the earliest within an hour of reception of data	Sub Divisional Engineer/ Executive Engineer/ Designated Duty Officers	
	Data Collection through e-mail/Website/FTP/Telemetry			
	International Data Collection			
1.3	**Regional Office**			
	Additional Data Collection through e-mail/Website/FTP	At the earliest within an hour of reception of data	Designated Officers for the purpose	
1.4	**Headquarter Level**			
	Data Collection through Modelling Centre for telemetered data	At the earliest within an hour of reception of data	Designated Officers for the purpose	
	Data Collection through e-mail/Website/FTP			

S. No.	Activity	Frequency/Time Frame	Responsible Officer	Remarks
1.	**Flood Forecast Formulation**			
1.2	**Sub-Divisional/Divisional Level**			
	Flood Forecast Formulation	As and when level is expected to rise and touch warning level and as frequently as possible depending and travel time within 1 hour of receipt of all data and medium range forecast from HQ	Sub Divisional Engineer/ Executive Engineer/ Designated Duty Officers	
1.4	**Headquarter Level**			
	Flood Forecast Formulation	To be run on schedule timings through automated system after downloading all input data from FTP/Website/e-mail etc within 1 hour from receipt of data	Designated Officers for the purpose	

S. No.	Activity	Frequency/Time Frame	Responsible Officer	Remarks
1.	**Flood Forecast Dissemination**			
1.1	**Site Level**			
	Dissemination to local authorities	Immediately after receipt of Flood Forecast	Site-in-Charge	
1.2	**Sub-Divisional/Divisional Level**			
	Dissemination to District/ State Authorities/ Updation in website	Immediately after formulation by e-mail/Fax/Mobile/SMS	Sub Divisional Engineer/ Executive Engineer/ Designated Duty Officers	
1.4	**Headquarter Level**			
	Dissemination to Field Offices and Designated Beneficiaries	Immediately after formulation by FTP	Designated Duty Officers for the purpose	

S. No.	Activity	Frequency/Time Frame	Responsible Officer	Remarks
1.	**Preparation of Reports**			
1.1	**Divisional Level/Circle/Regional**			
	Daily Flood Report (Daily)/ Weekly Flood Report (1st, 8th, 15th and 22nd)	Daily Weekly	Executive Engineer/ Designated Duty Officers	
	Annual Appraisal Report (31st January)	Annual		
	Preparedness Report after meeting all stake holders (25th April or 20th May)	Annual		
1.2	**Headquarter Level**			
	Daily Flood Bulletin (Daily) Flood Situation Summary Country	Daily Monthly	Designated Duty Officers for the purpose	
	Annual Appraisal report (31st March)	Annual		
	Preparedness Report (31st May)	Annual		