



**Government of India**  
**Ministry of Water Resources, River**  
**Development & Ganga Rejuvenation**  
**Ganga Flood Control Commission,**  
**Patna**

# **ANNUAL REPORT 2015-16**



**Kosi Barrage**

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## From Chairman's Desk



The Ganga River basin covers the eleven States of India comprising Bihar, Jharkhand, Uttar Pradesh, Uttarakhand, West Bengal, Haryana, Rajasthan, Madhya Pradesh, Chhattisgarh, Himachal Pradesh, and Delhi. The occurrence of floods in one part or the other in Ganga River basin is an annual feature during the monsoon period. Since the Ganga is an inter-state river, it is necessary to prepare integrated flood management plans to tackle the flood and related problems of the basin and to ensure their implementation in a co-ordinated and phased manner.

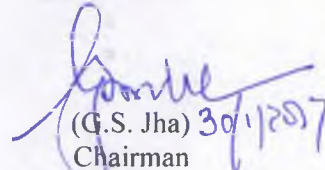
Ganga Flood Control Board (GFCB) was set up in 1972 inter-alia to lay down broad policies, decide priorities in the implementation of such schemes and issue directions to Ganga Flood Control Commission (GFCC). GFCC was created in 1972 as a subordinate office of Ministry of Water Resources to provide secretarial assistance to GFCB. Since its inception, GFCC has played a vital role in assisting the Ganga basin States to manage the floods. As a part of its mandate, GFCC has prepared comprehensive plans for flood management of all the 23 river systems of the Ganga basin, updated 22 comprehensive plans once, five comprehensive plans twice and has sent the reports to the State Governments for taking follow up actions on the recommendations made therein. GFCC has also prepared the reports for adequacy of waterways under road & rail bridges for all the 23 river systems except for main Ganga for the Buxor to Haridwar and Haridwar to Gangotri reaches and Tidal rivers, which are under preparation.

GFCC has carried out its assigned functions as described in detail in this report in an efficient and effective manner during the year 2015-16 in spite of many constraints, especially shortage of technical officers and secretarial staff. Particular mention is to be made about the proactive role played by GFCC in implementation of the schemes of Flood Management Programme (FMP) in the Ganga basin, a Programme of national importance initiated by the Government of India during the 11<sup>th</sup> Five Year Plan and continuing in 12<sup>th</sup> Plan. The FMP has made good progress and a financial assistance to the tune of Rs. 48.99 crore has been provided to the Ganga basin States during the year 2015-16.

Actions on modernization of GFCC which includes procurement of computers and software for technical support for efficient management of the works handled in GFCC have been initiated. Special efforts have been made to keep the GFCC premises clean by way of weeding out of old records and auction of unserviceable T&P materials.

GFCC officers have also played important role in tackling international issues with the Government of Nepal and Bangladesh in matters relating to flood and drainage management. The implementation of schemes on extension of the embankment on the international rivers Lalbakeya, Bagmati and Kamla in Nepal has achieved good progress.

The Annual Report of GFCC for the year 2015-16 is before you and I am sure that this report will give a comprehensive overview of the role of GFCC and its contribution in the field of flood management and other associated works in the Ganga basin during the year.

  
(G.S. Jha) 30/1/2017  
Chairman

Ganga Flood Control Commission

# Highlights of the Year 2015-16

1. Techno-economic appraisal of 63 Flood Management schemes of various Ganga Basin States was carried (including 33 schemes carried forward from previous years), out of which 22 schemes were techno-economically cleared by GFCC/AC-MoWR and 8 schemes were dropped by GFCC, whereas 33 schemes were examined and comments / observations were conveyed to the concerned State Governments.
2. Inspection/Monitoring of various Flood Management/Anti Erosion Schemes under FMP pertaining to Ganga Basin States was carried out and Central Assistance recommended.
3. GFCC monitors the progress of construction of embankments on Kamla, Bagmati and Lalbakeya rivers in Nepal being funded by Government of India. For this purpose, meetings of India-Nepal Joint Committee on Inundation & Flood Management (JCIFM) and Indian-Nepal Joint Committee on Kosi&Gandak Projects (JCKGP) were held at Kathmandu, Nepal and Patna in December, 2015 and February 2016 respectively. An amount of 77.252 crore in Nepalese rupees was released to Govt. of Nepal in 2015-16.
4. Recommendations for taking up flood management works on river Kosi and right bank of river Gandak before the flood of 2016 were made by Kosi High Level Committee (KHLC) and Gandak High Level Standing Committee (GHLSC) respectively after inspection of sites. Both these Committee are chaired by Chairman, GFCC. Govt. of Bihar and Govt. of Uttarpradesh. received Rs 47.8424 cr and Rs. 26.64 crore respectively.
5. Updating of two Comprehensive Plans for Flood Management viz. Kosi and Rupnarain-Haldi-Rasulpur river system was taken up.
6. The 17<sup>th</sup> Ganga Flood Control Board (GFCB) was held Patna on 28<sup>th</sup> May, 2016. The 47<sup>th</sup> and 48<sup>th</sup> meetings of the Ganga Flood Control Commission was held on 21<sup>st</sup> May, 2015 and 9<sup>th</sup> November, 2015 at Dehradun and New Delhi respectively in which various issues related to floods and its management in Ganga basin States were discussed and various decisions were taken for follow up action.
7. GFCC participated negotiation meetings at New Delhi among the co-basin States, in accordance with Section-4 of the Inter-State River Water Dispute Act, 1956, on the request of Govt. of Bihar to the Ministry of Water Resources, River Development and Ganga Rejuvenation for constitution of a Tribunal for adjudication of Sone River Water dispute. After meeting all co-basin States agreed to resolve matter by discussion among themselves.
8. Chairman, GFCC took two meetings of the Expert Committee and finalized interim guidelines for use of geo-textiles, geo-bags and geo-tubes in construction of flood management works and guidelines are in advance stage of finalization.
9. Actions on modernization of GFCC which includes procurement of computers, software for technical support for efficient management of the works handled in GFCC and refurbishing of the Committee room have been initiated
10. Special efforts have been made to keep the GFCC premises clean by way of weeding out of old records and auction of unserviceable T&P materials as a part of 'Swachh Bharat Mission'.

# 1. Introduction

## 1.1 Ganga River Basin

Two holy rivers originating from the glacial peaks of the Himalayas at an altitude of about 7000 meter, the Alaknanda and the Bhagirathi unite near Devprayag and form river Ganga which traverses its course of 2525 Km (1450 Km in Uttarakhand and Uttar Pradesh, 110 Km along Uttar Pradesh-Bihar border, 445 km in Bihar and Jharkhand and 520 km in West Bengal) before its outfall into the Bay of Bengal. The important tributaries which join the Ganga in its course are the Ramganga, Gomati, Ghaghra, Gandak, Burhi Gandak, Kosi, Kamla, Bagmati and Mahananda on the left and Yamuna, Tons, Sone, Kiul, Ajoy, Damodar, Punpun and Rupnarayan on the right. A line diagram of river Ganga is placed in Plate-1.1 at the end of this chapter. The Ganga river drains a total catchment area of 10.68 lakh Sq. Km, out of which 8.61 lakh Sq. Km lies in India. All the major left bank rivers draining into the Ganga are of the Himalayan origin. On the other hand, out of the major right bank rivers only the Yamuna is of Himalayan origin whereas the rest of the major right bank rivers originate either from the Vindhyas or the plateau between the Ganga and the Vindhyas.

Ganga basin is spread over 11 States namely, (i) Uttarakhand, (ii) Himachal Pradesh, (iii) Haryana, (iv) Delhi, (v) Uttar Pradesh, (vi) Rajasthan, (vii) Madhya Pradesh, (viii) Chhattisgarh, (ix) Bihar, (x) Jharkhand and (xi) West Bengal. The basin spreads over 239 parliamentary constituencies (2009) and 2,86,557 villages fall in the Ganga basin. Average population density in the Ganga basin is 520 persons per Sq.km as against 312 for the entire country (2001 census). The cities in the basin have large and growing populations and a rapidly expanding industrial base. According to India-WRIS the basin has 386249 settlement extents. The basin has a good network of road and rail with a total length 1087488.76 Sq.km and 24687.34 Sq.km respectively.

The Ganga basin has vast water resources in form of Surface Water and Ground Water resources. In the basin there are 276947 surface water bodies in form of Lakes/Pond, Reservoir, Tanks etc. There are 784 dams situated in the Ganga basin, out of which 158 dams are included in National Register of Large Dam (NRLD) and 66 barrages, 92 weir and 45 lift schemes are also constructed the basin. The water resource assets especially dams in Ganga basin are used for varied purpose like Irrigation, Water Supply, Hydro-Electric, and Drinking Water where 92.83% of total assets are used for irrigation purpose. The Ganga basin also contains one Inland National Waterways (NW-1) and 12 Inter Basin Transfer Links are proposed by National Waterways Development Authority of India.

In the Ganga basin, there are several major systems of canals which cater to almost 28 percent of the net irrigated area. There are 478 major and medium irrigation projects that represent a command area of about 36.12 percent of the basin. The 39 hydro-electric projects and 56 powerhouse of Ganga basin are a testament to the regions importance to India's overall hydroelectricity portfolio. In

Ganga basin groundwater is a worthy source and easily accessible especially from the aquifers in the alluvial zone. The groundwater usage for irrigation in the states falling under Ganga basin accounted for nearly 50 percent of the groundwater irrigated area of the entire country.

The Ganga basin has been divided into 23 river systems. The river systems of the basin are (i) Gomati, (ii) Adhwara Group, (iii) Ghaghra, (iv) Mahananda, (v) Kamla Balan, (vi) Burhi Gandak, (vii) Bagmati, (viii) Punpun, (ix) Kosi, (x) Gandak, (xi) Ajoy, (xii) Kiul-Harohar, (xiii) Damodar, (xiv) Mayurakshi, (xv) Yamuna, (xvi) Ramganga, (xvii) Tons, (xviii) Badhua-Chandan, (xix) Rupnarain-Haldi-Rasulpur, (xx) Jalangi, (xxi) Sone, (xxii) Tidal rivers and (xxiii) Main Ganga Stem. Most of these rivers are inter-state though a few are within one state.

## 1.2 Flood Problem in Ganga Basin

Among the various Ganga basin States, the State of Bihar (particularly its northern part), Uttar Pradesh (particularly its eastern part) and West Bengal are the worst flood affected. The flood problems in the other Ganga basin States are not so severe. The main reasons of flood in the Ganga basin are as under:

- i. Heavy precipitation for long duration in the catchment.
- ii. Impediment of flow in tributaries and catchment drains by the river Ganga due to its high stage in monsoon season.
- iii. Bank erosion by the river during the monsoon season.
- iv. Meandering of river causing loss of land, property and life.
- v. Inadequate bank full capacity.
- vi. Poor maintenance of flood control structures resulting in their damage during the monsoon period.
- vii. Inundation of villages situated within the flood plains of the rivers.

As regards erosion problems, longitudinal bed slopes of the river Ganga and its tributaries are steep in the upper reaches, become flatter in middle reaches and are almost level in the lower reaches. The upper courses are noted predominantly for deep erosion i.e., bed retrogression. The scoured material is carried downstream by the flow and the middle courses have evidence of both erosion and aggradation. The lower reaches where the bed slope is flatter and velocities are low, accumulation process i.e., sedimentation and accretion of the river bed is predominant. At the same time due to meandering, erosion and sedimentation take place simultaneously.

As per XII Plan Working Group Report, total flood affected area in the country as a whole is about 50 million Ha, out of which 24 million Ha lies in Ganga Basin States i.e. nearly 50% of flood affected area in the country lies in Ganga Basin States.

A total area of 24.00 million hectares (about 50% of total flood prone area in the country) is prone to floods in these States and recurring floods cause huge loss to life and property every year.

The State-wise details of flood prone area in the Ganga basin are given in the table 1.1 below and Figure 1.1:

**Table 1.1**

Sl. No.	State	Flood Prone Area (in Lakh Ha.)	
		As assessed by RBA	As reported by States to 12 <sup>th</sup> Plan Working Group
1	Himachal Pradesh	2.30	2.31
2	Haryana	23.50	23.50
3	NCT of Delhi	0.50	0.70
4	Uttar Pradesh (including Uttarakhand)	73.36	73.40
5	Rajasthan	32.60	32.60
6	Madhya Pradesh (including Chhattisgarh)	2.60	3.37
7	Bihar (including Jharkhand)	42.60	68.80
8	West Bengal	26.50	37.66
	<b>Total</b>	<b>203.96</b>	<b>242.34</b>

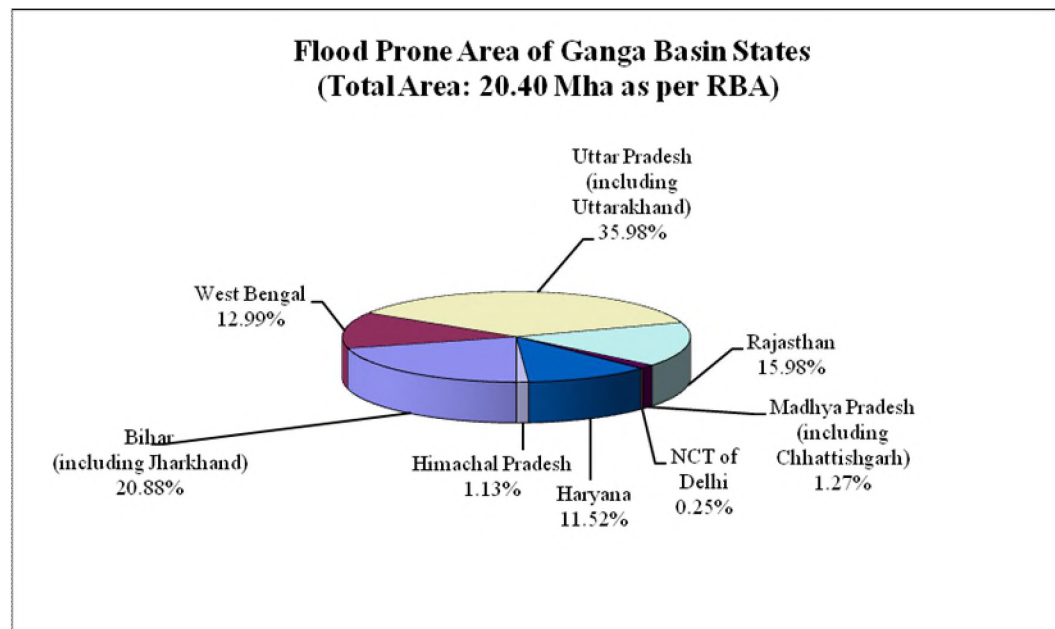


Figure-1.1

## 1.2 Ganga Flood Control Board

With the objective to effectively tackle the critical and chronic flood problems of the Ganga basin and to minimize the associated damages, it was considered necessary to have an integrated plan of flood management, erosion control, etc. and facilitate quick drainage and its implementation in a comprehensive and coordinated manner. To achieve this objective, Ganga Flood Control Board (GFCB) was set up by the Government of India vide Resolution No. FC-47(2)/72 dated 18.4.1972, headed by the Hon`ble Union Minister of Water Resources.

### Functions:

- To lay down the broad policies and decide priorities in the implementation of various schemes.
- To issue necessary directions to Ganga Flood Control Commission in respect of formulation of a comprehensive plan of flood control in the Ganga Basin and approval of the schemes so formulated.

### 1.2.1 Composition of Ganga Flood Control Board

The composition of Ganga Flood Control Board as notified by the Ministry of Water Resources vide Resolution no.22/3/99-ER/2586 dated 28.06.2001 is given below

1.	Union Minister of Water Resources	Chairman
2.	Union Minister of State for Water Resources	Member #
3.	Union Minister of Finance or his representative	Member
4.	Union Minister of Railways or his representative	Member
5.	Union Minister of Road Transport and Highways or his representative	Member
6.	Union Minister of Agriculture or his representative	Member
7.	Chief Minister of Bihar or his representative	Member
8.	Chief Minister of West Bengal or his representative	Member
9.	Chief Minister of Uttar Pradesh or his representative	Member
10.	Chief Minister of Haryana or his representative	Member
11.	Chief Minister of Rajasthan or his representative	Member
12.	Chief Minister of Madhya Pradesh or his representative	Member



13.	Chief Minister of Himachal Pradesh or his representative	Member
14.	Chief Minister of Jharkhand or his representative	Member
15.	Chief Minister of Uttarakhand or his representative	Member
16.	Chief Minister of Chhattisgarh or his representative	Member
17.	Member, Planning Commission	Member
18.	Chief Minister, NCT of Delhi or his representative	Member
19.	Chairman, Ganga Flood Control Commission	Member-Secretary
	# (Chairman in absence of Union Minister of Water Resources)	

Up to March, 2016, 17 meetings of the Ganga Flood Control Board have been held. The 17<sup>th</sup> meeting of GFCB was held on 28.05.2015 at Patna in which various issues relating to floods and its management in Ganga basin States were discussed and necessary decisions were taken for implementation.

### 1.3 Ganga Flood Control Commission (GFCC)

To deal with floods and its management in the Ganga basin States, Ganga Flood Control Commission was created in the year 1972 vide Government of India Resolution No. F.C.47(3)/72 dated 18.4.1972 as a subordinate office of Ministry of Water Resources and as the Secretariat and executive limb of Ganga Flood Control Board with its headquarters at Patna.

#### 1.3.1 Composition of Ganga Flood Control Commission

The composition of Ganga Flood Control Commission (GFCC) is given below:

Chairman, GFCC	Chairman
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#### **Full Time Members**

1.	Member (Planning), GFCC	Member
2.	Member (Co-ordination), GFCC	Member

#### **Part Time Members**

1.	Member (River Management), Central Water Commission, Government of India, New Delhi	Member
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2.	Chief Engineer, Incharge of Flood Control, Water Resources Department, Government of Bihar.	Member
3.	Chief Engineer, Incharge of Flood Control, Water Resources Department, Government of Jharkhand.	Member
4.	Chief Engineer, Incharge of Flood Control, Irrigation Department, Government of Uttar Pradesh.	Member
5.	Chief Engineer, Incharge of Flood Control, Irrigation Department, Government of Uttarakhand	Member
6.	Chief Engineer, Incharge of Flood Control, Irrigation and Waterways Department, Government of West Bengal.	Member
7.	Engineer-in-Chief, Water Resources Department, Government of Madhya Pradesh.	Member
8.	Engineer-in-Chief, Water Resources Department, Government of Chhattisgarh.	Member
9.	Director, Central Water and Power Research Station, Government of India, Pune.	Member
10.	Chief Engineer (Lower Ganga Basin), Central Water Commission, Government of India, Patna	Member
11.	Chief Engineer (Planning), Roads Wing, Ministry of Road Transport and Highways, Government of India.	Member
12.	Director (Civil Engineering Wing), Railway Board, Government of India.	Member

#### **Permanent Invitees of the Commission**

1. Chief Engineer, Incharge of Flood Control, Government of Haryana.
2. Chief Engineer, Incharge of Flood Control, Government of Himachal Pradesh.
3. Chief Engineer, Incharge of Flood Control, Government of Rajasthan.
4. Chief Engineer, Incharge of Flood Control, Government of NCT of Delhi.
5. Director (B&S), R.D.S.O., Ministry of Railways, Lucknow.

### 1.3.2 Functions of GFCC

The main functions of GFCC as originally envisaged are as under.

- (a) Preparation of comprehensive plan for flood control in the Ganga Basin.
- (b) To chalk out a phased and coordinated programme of implementation of the works included in the basin wise flood control plans by the States concerned.
- (c) Formulate and ensure proper standards for works and their regular maintenance.

In due course of time, some additional works were entrusted to GFCC by Ministry of Water Resources and today its broad functions are as under:

- (a) To prepare and update a Comprehensive Plan of flood management in the Ganga basin comprising 23 river sub-basins. The field investigation and collection of data for the purpose are carried out by the concerned State Governments as directed by the Ganga Flood Control Board.
- (b) To draw out a phased and co-ordinated programme of implementation of works included in the sub-basin wise comprehensive flood management plans.
- (c) To advise the States concerned to follow guidelines in respect of quality control, material specifications and maintenance in order to ensure the implementation of works and the maintenance thereof to proper standards.
- (d) To prepare the annual programme of works and recommend allocation of funds, wherever required for consideration of the Board.
- (e) To make an assessment of the existing waterways under the road and rail bridges and to determine additional waterways to be provided for reducing the drainage congestion to reasonable limits and their periodic updation.
- (f) To monitor the execution of the important flood control schemes particularly those receiving central assistance or being executed under the central sector.
- (g) To examine all major and medium flood control, drainage, anti-waterlogging and anti-erosion schemes of Ganga basin States except for schemes of the States of Haryana, Uttar Pradesh and Delhi on the river Yamuna in the reach from Tajewala to Okhla barrage.

- (h) Processing the proposals received from Ganga Basin States for central funding under Flood Management Programme and monitoring of such schemes.
- (i) Documentation and dissemination of findings emerging out of special studies or investigations conducted in participation with scientific organizations for appropriate use by basin States.
- (j) To evaluate the performance of major flood control measures executed by the States including all the inter-State flood control schemes.
- (k) To participate in various National and International Committees set up by the Government of India and the Ganga basin States pertaining to the subject of flood management.

GFCC apart from being engaged in the preparation and periodic updation of comprehensive master plans for flood management in the Ganga basin is also responsible for carrying out techno-economic appraisal of flood management and anti-erosion schemes in the Ganga basin. It has also been given the task of coordinating several activities concerning flood management with Nepal and Bangladesh.

### **1.3.3 Annual Meetings of Ganga Flood Control Commission**

A total of 48 meetings of the GFCC have been held so far and its 48<sup>th</sup> meeting was held on 9.11.2015 at New Delhi under the Chairmanship of Chairman, GFCC. In the meetings, various issues pertaining to the Ganga Basin such as floods management and anti-erosion works, progress made in implementation of recommendations of Rashtriya Barh Ayog, preparation of flood plain zoning/flood risk maps, implementation of sub-basin wise comprehensive plans for flood control, monitoring and evaluation of flood management schemes, use of remote sensing techniques/satellite imageries for delineation of flood plain areas, use of model studies before formulation and execution of flood management and anti-erosion schemes, preparation of annual catalogue of flood management schemes etc. were discussed and decisions taken thereon for follow up action by the Ganga basin States / Central organisations concerned.

### **1.3.4 Organisational Structure of GFCC**

Ganga Flood Control Commission has sanctioned strength of 97 officers and supporting staff. Out of the total sanctioned strength of 97, seventy three posts were allowed to be continued during the year 2015-16 as other posts had gone into deemed abolished category and their revival is required. The filled staff strength of GFCC as on 31.3.2016 is 51. The category-wise details of the posts are given below.

**Table 1.2**

S. No.	Group	Sanctioned	Continuation of Posts conveyed by MoWR for 2015-16		
			Total	Filled	Vacant
1	A	23	23	16	7
2	B (Gazetted)	13	12	5	8
3	B (Non-Gazetted)	12	11	6	6
4	C	49	27	24	25
	<b>Total</b>	<b>97</b>	<b>73</b>	<b>51</b>	<b>46</b>

Organisation Chart of GFCC is in Figure-1.2.

In addition, 23 work-charged staff comprising of 3 Motor Vehicle drivers (1 vacant), 4 Work Sarkar and 16 Skilled Work Assistant (6 vacant) are also on the strength of GFCC for carrying out various field activities.

All the Engineering cadre posts from Chairman and up to the level of Assistance Director-II in GFCC are from the Central Water Engineering Services Group 'A' & 'B' Services.

#### **1.4 Vigilance and Disciplinary Cases**

No vigilance or disciplinary case concerning any officer or staff was pending or contemplated in the Commission during the year 2015-16.

#### **1.5 Parliament Questions and VIP References**

- (i) 21 Parliament questions were received by GFCC during 2015-16. The material for reply to these questions was prepared and sent to the Ministry of Water Resources.
- (ii) 28 VIP references on various matters were received by GFCC during 2015-16. The material for reply to these references was prepared and sent to the Ministry of Water Resources.

# GANGA FLOOD CONTROL COMMISSION

## ORGANISATION CHART

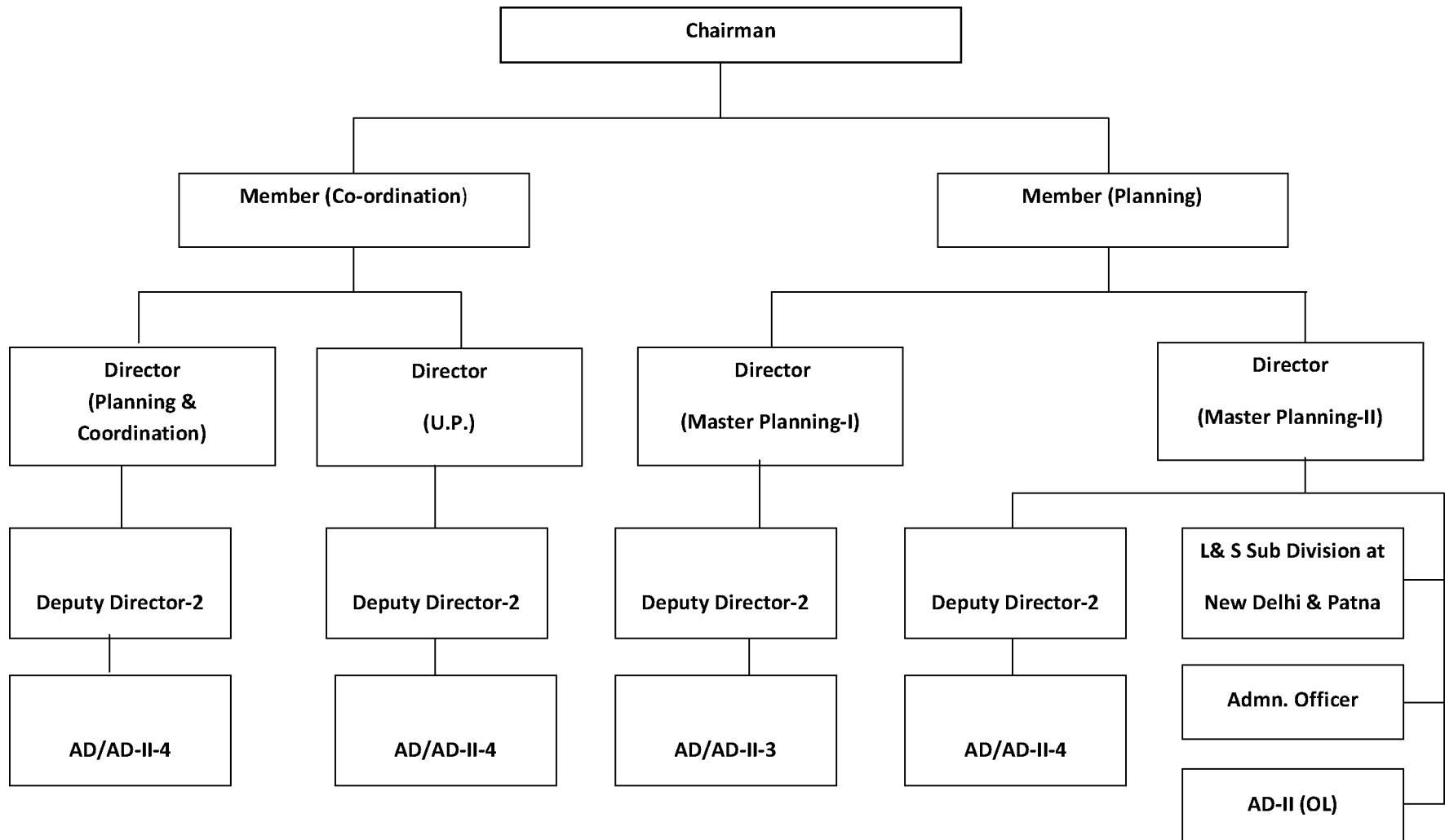


Figure -1.2

## 1.6 Implementation of RTI Act, 2005

The Ganga Flood Control Commission has designated the following officers as Appellate Authority, Central Public Information Officer (CPIO) and Assistant Public Information Officer (APIO) to provide information to the applicants in compliance of RTI Act, 2005.

1	Sh. A.K. Sinha, Member (Planning)	Appellate Authority
2	Sh. Manoj Kumar, Director(MP-I)	Central Public Information Officer
3	Sh. Harsh Vardhan, Deputy Director	Asstt. Public Information Officer

Ganga Flood Control Commission has implemented the directions as indicated in the RTI Act, 2005. The Commission has compiled and published manuals under clause 4(1)(b) of the Act and displayed them on its Website (<http://gfcc.bih.nic.in>).

During the year 2015-16, fifty one (51) requests for supply of information under RTI Act, 2005 were received in GFCC. The necessary information was provided to applicants in compliance of said Act.

## 1.7 Financial Aspect

An expenditure of Rs. 565.36 lakh was incurred by GFCC during the year 2015-16. A statement showing sub-head-wise final estimate and actual expenditure during 2015-16 is given below:

**Table 1.3**

**(Amount in Rs.)**

S.No.	Head of account	Final Estimate 2015-16	Expenditure 2015-16
1	Salary	5,08,90,000	4,29,32,946
2.	Medical	5,20,000	2,94,767
3	Domestic Travel Expenses	32,93,000	30,86,929
4	Foreign Travel Expenses	10,00,000	1,46,944
5	Office Expenses	12,50,000	12,00,445
6	Minor Works	73,32,000	72,18,625
7	Machinery & Equipment	17,57,000	16,49,870
8	Over Time Allowances	10,000	5,599
	<b>TOTAL</b>	<b>6,60,52,000</b>	<b>5,65,36,125</b>

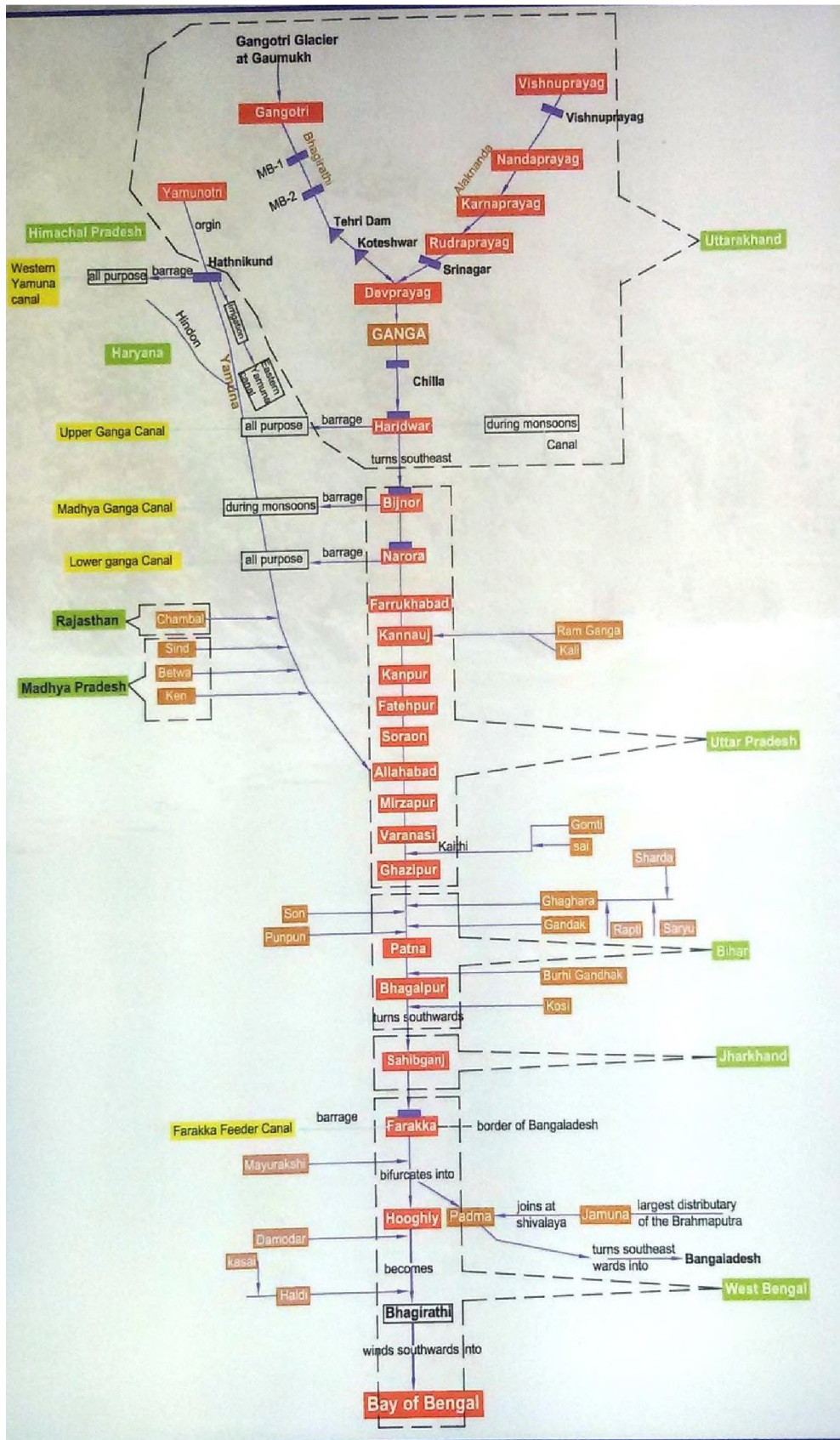


Plate-1.1: Line Diagram of River Ganga

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## GLIMPSES



**17<sup>th</sup> meeting of Ganga Flood Control Board held on 28.05.2015 at Patna**



**47<sup>th</sup> meeting of Ganga Flood Control Commission held on 21.05.2015 at Dehradun**



**47<sup>th</sup> meeting of Ganga Flood Control Commission chaired by Shri G.S Jha, Chairman, GFCC held on 21.5.2015 at Dehradun**



**48<sup>th</sup> meeting of Ganga Flood Control Commission chaired by Shri G.S Jha, Chairman, GFCC held on 09.11.2015 at New Delhi**

## **2. Comprehensive Plans for Flood Management**

### **2.1 Preparation of Comprehensive Plans for Flood Management**

In the Ganga basin, covering eleven States, floods in some part or the other are an annual feature. On account of the inadequacy of the protection works carried out so far, the large scale damage due to floods often occur every year. It was therefore felt necessary to prepare an integrated plan to tackle floods, erosion and drainage problems in the basin and implement it in a coordinated manner. It was with this in view that GFCC was set up to prepare Comprehensive Plans for flood management for the Ganga basin. The Ganga basin is broadly divided into 23 river systems and comprehensive plans for flood management of these 23 river systems were prepared by GFCC between 1975 and 1990. These comprehensive plans were then circulated to the State Governments concerned for preparing specific schemes for implementation as per recommendations given therein.

### **2.2 Updating of Comprehensive Plans for Flood Management**

Due to changes in the behaviour of the rivers in the Ganga basin over a period of time and for other associated changes, it was considered necessary to update the Comprehensive Plans for flood management of all the river systems periodically. This work was started in 1986 and till March 2016, GFCC has updated comprehensive plans for twenty two river systems once and five comprehensive plan twice.

The updated comprehensive plans were also circulated to the State Governments concerned for further follow-up action.

During the year 2015-16, the work of updating of Comprehensive plans of the Kosi and Rupnarain-Haldi-Rasulpur river system were taken up.

### **2.3 Monitoring of Floods and Preparation of Flood Reports**

The flood situation in the year 2015 in Ganga Basin States was monitored and 18 weekly reports were sent to the Ministry of Water Resources.

The state-wise summary of flood situation during 2015 in Ganga Basin States is as under:

### 2.3.1 Rainfall

Rainfall situation for the cumulative period June to September 2015 indicates mildly wet condition over West Bengal and Delhi, moderately dry condition over Bihar and severely dry condition over Uttar Pradesh. The Monsoon of 2015 has ended with a rain shortfall of 14 percent, the worst since 2009. The rains were normal in around 55 percent of the country. From June 1 to September 30, the country got 760.6 mm of rainfall, as against a normal average of 887.5 mm. There were signs of a revival towards the season's end in some parts. Despite the late resurgence, almost 40 % of the country had sufficient rain in the entire season. Northwest India had a deficiency of 17% followed by 16% in Central India and 8% in East and North East India. June shows 16% excess rain but July had a deficiency of 16%. This grew to 22 and 24% for August and September respectively. Year 2015 was the first back to back drought for India in three decades and only the fourth in more than a century.

### 2.3.2 Flood situation in rivers in Ganga Basin

According to data received from Central Water Commission, the State-wise flood situation in rivers during 2015-16 was as under:

- (i) **Uttar Pradesh:** The River Ganga at Ballia; River Ghaghra at Elgin Bridge, Ayodhya, and Turtipar and River Sharda at Palia Kala were reported to flow beyond Danger Level during the monsoon season.
- (ii) **Bihar:** The River Ganga at Gandhighat, Sahebganj and Kahalgaon; River Kosi at Baltara and Kursela; River Bagmati at Benibad; River Burhi Gandak at Khagaria, Samastipur, Rosera and Lalbeghiaghat; River Mahananda at Dhengraghat and Jhawa; and River Kamla Balan at Jhanjharpur were reported to flow above the Danger Level during the monsoon months.
- (iii) **West Bengal:** River Ganga at Farakka was reported to flow above the Danger Level during the monsoon months.

There was no report of rivers flowing above danger level from other Ganga basin States.

### 2.3.3 Flood Damage

As per the report of Disaster Management Division, Ministry of Home Affairs more than 131.44 lakh people were affected by the flood during 2015 in the Ganga Basin States. A total loss of 638 human lives and 59547 cattle was reported in the region. A total no. of 787034 houses were also reported to be damaged. The crops in an area of about 899429.78 ha. were also reported damaged in West Bengal alone. The total loss due to flood is reported to be Rs. 121168.1 Lakhs

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### 3. Assessment of Adequacy of Waterways Under Road and Rail Bridges

3.1 This exercise is aimed at determining additional waterways required for reducing drainage congestion to a reasonable limit. This activity which commenced during the latter half of the eighties has been completed except for some stretches of the Ganga main stem.

3.2 These reports have been circulated to the Ganga basin States and departments of Central and State Governments concerned for follow up action. The list of river basins along with the year of completion of reports on adequacy of water ways is given in Table 3.1.

**Table 3.1**

**List of Adequacy of Waterways under Road & Rail Bridges**

Sl. No.	Name of Basin	Year of Completion
1	Punpun	1986
2	Ajoy	1987
3	Burhi Gandak	1987
4	Mayurakshi	1988
5	Bagmati	1988
6	Mahananda	1989
7	Damodar	1990
8	Yamuna	1990
9	Jalangi	1991
10	Gandak	1991
11	Gomati	1991
12	Ghaghra	1992
13	Ramganga	1992
14	Rupnarayan Haldi Rasulpur	1993
15	Tons	1994
16	Kamla Balan	1994
17	Adhwara Group	1996
18	Kiul-Harohar	1996
19	Badua Chandan	1997
20	Sone	1999
21	Kosi	2002

22	Damodar (updating)	2003
23	(a) Ganga (Buxar to Sahabaganj)	2005
	(b) Ganga (Sahabganj to outfall)	2011
	(c) Ganga (Haridwar to Gangotari)	<ul style="list-style-type: none"> <li>• <input type="checkbox"/> Survey from Haridwar to Harsil (via Devprayag, Tehri, Chamba and Uttarkasi) completed.</li> <li>• <input type="checkbox"/> Survey from Harsil to Gangotri to be done.</li> <li>• <input type="checkbox"/> Survey from Devprayag to Joshimath (via Rudraprayag-Karanprayag-Gopeshwar) to be done.</li> <li>• <input type="checkbox"/> Drawing works from Haridwar to Harsil under progress.</li> </ul>
	(d) Ganga (Buxar to Haridwar)	Survey completed.

The balance works at (b) and (c) are proposed to be taken up next year i.e. 2016-17.

3.3 GFCC has often been called upon to examine the adequacy or otherwise of the waterways under existing rail and road bridges by the Ministry of Railways and also by the Ministry of Road Transport and Highways.

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# 4. Flood Management Programme

## 4.1 Background

Due to unprecedented floods in Bihar, Assam and West Bengal and consequent large scale damages in these States in the year 2004, Government of India under the direction of Hon'ble Prime Minister of India, keeping in view the seriousness of the flood problem and consequently the grave situation created on the ground, constituted a Task Force for Flood Management/Erosion Control headed by the Chairman, Central Water Commission, New Delhi to look into the problem of recurring floods in Assam and neighbouring States as well as Bihar, West Bengal and Eastern Uttar Pradesh in August 2004. The Task Force deliberated upon various issues relating to floods in these States and taking into account the prevailing situation on the ground, suggested various measures for controlling flood/erosion. The report of the Task Force was submitted to the Ministry of Water Resources in December, 2004.

## 4.2 Flood Management Programme

Keeping in view the recommendations of Task Force and other similar committees, a Plan Scheme titled 'Flood Management Programme' with a budget of Rs.8000 crore under the State sector was drawn up by MoWR for implementation during the XI Plan period. This scheme continued in XII plan with a budget of Rs.10000 crore. This plan scheme covers the works of flood management, river bank-erosion, sea erosion, drainage development and flood proofing. The financial approval of the individual schemes is given by an Empowered Committee headed by the Secretary (Expenditure), Ministry of Finance, Government of India after taking into consideration the critical and emergent situation and availability of annual budget/plan outlay and provision of State share and Central share by the respective State Govts. Besides Ministry of Finance, the Committee has representatives from the Ministry of Water Resources, Ministry of Development for North Eastern Region (DONER), Ministry of Environment & Forests and erstwhile Planning Commission.

The detailed schemes for flood management are formulated and submitted by the implementing States to the concerned appraising agency for techno-economic appraisal as per the prevailing guidelines laid down by the erstwhile Planning Commission.

The central assistance is provided to the State Govts. on the following funding pattern in XII Plan:

- (i) For special category States – 70%.

(The special category States cover the North Eastern States, Sikkim, Himachal Pradesh, Jammu & Kashmir and Uttarakhand)

- (ii) For non-special category States – 50%.
- (iii) For restoration of damaged flood management works and funding pattern for such works will be applicable to respective category of State. Central Assistance will not be provided for regular maintenance of flood management works but only for restoration of flood management works damaged under force majeure like conditions. It would be ensured that such works are not covered under CRF (SDRF)/NCCF (NDRF).

The schemes which got Investment clearance from erstwhile Planning Commission before 30.7.2013 continued to get central assistance as per the pattern of XI Plan. The central assistance was provided to the State Governments on the following funding pattern in XI Plan:

- (i) For special category States – 90%.  
(The special category States cover the North Eastern States, Sikkim, Himachal Pradesh, Jammu & Kashmir and Uttarakhand)
- (ii) For non-special category States – 75%.

Financial and physical management, quality control, timely completion of the work etc. are the responsibility of the State Government/ implementing agency.

### **4.3 Monitoring of schemes under Flood Management Programme**

The schemes under Flood Management Programme are to be monitored by the Central Water Commission (CWC), Ganga Flood Control Commission (GFCC) and Brahmaputra Board (BB) in their respective jurisdictions. The Department of Space / NRSC are also associated in monitoring of physical progress of the works through remote sensing techniques.

After the completion of work, performance evaluation studies are conducted by independent agencies in consultation with CWC/GFCC/Brahmaputra Board as the case may be.

### **4.4 Schemes taken up during XI Plan for execution with their status (State-wise):**

The details of the FMP schemes taken up (State-wise) and their progress during the XI Plan are given below in Table 4.1:



**Table 4.1**

Sl. No	State	No. of schemes approved	No. of schemes completed	No. of schemes under progress during 2015-16 (spillover schemes)
1	Bihar	46	40	3 <sup>#</sup>
2	Jharkhand	3	2	1
3	West Bengal	11	6	4 <sup>*</sup>
4	Uttar Pradesh	24	11	13
5	Uttarakhand	12	11	1
6	Himachal Pradesh	1	-	1
	<b>Total</b>	<b>97</b>	<b>67</b>	<b>26</b>

# Two schemes of Bihar dropped by EC- FMP and one scheme foreclosed

\* One scheme of West Bengal withdrawn by the State Government

#### 4.5 Schemes taken up during XII Plan and their status (State-wise)

The details of the FMP schemes taken up (State-wise) and their progress during the XII Plan are given below:

**Table 4.2**

Sl. No	State	No. of schemes approved	No. of schemes completed	No. of schemes under progress during 2015-16
1	Bihar	4	1	3
2	Jharkhand	-	-	-
3	West Bengal	1	-	1
4	Uttar Pradesh	2	-	2
5	Uttarakhand	9	-	9
6	Himachal Pradesh	1	-	1
	<b>Total</b>	<b>17</b>	<b>1</b>	<b>16</b>

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## GLIMPSES



**Anti Flood Sluice, Mohanpur UP**



**Bund on river Ganga**

# **5. Appraisal of Flood Management and Anti-Erosion Schemes**

## **5.1 Appraisal of schemes by GFCC- Scope**

Techno-economic appraisal of flood management and anti-erosion schemes received from the Ganga basin States is an important activity of GFCC. As per revised guidelines issued by the Planning Commission on 29<sup>th</sup> June 2012, schemes estimated to cost between Rs. 12.5 crore (earlier Rs. 7.5 crore) and Rs. 25 crore (earlier Rs. 15 crore) are examined by GFCC for their techno-economic viability and, if found acceptable, are cleared by GFCC itself and recommended to the Planning Commission for investment clearance.

Schemes costing less than Rs. 12.5 crore are cleared at the State level by the State Flood Control Boards.

Schemes costing above Rs. 25 crore, if found acceptable after appraising them for their techno-economic viability, are recommended by GFCC to the Advisory Committee of the Ministry of Water Resources for Irrigation, Flood Control and Multi Purpose Projects for clearance.

Normally, GFCC does not examine schemes costing less than Rs. 12.5 crore. However, in special cases, such as schemes on emergent flood protection works in the Eastern Sector on common / border rivers with Bangladesh, Ministry of Water Resources, Government of India issued an instruction that GFCC would scrutinize such schemes on the common / border rivers with Bangladesh and make recommendations to MoWR for release of funds. In addition, all Central sector schemes in Ganga Basin irrespective of cost are, however, examined from techno-economic aspect in GFCC.

## **5.2 Appraisal of schemes during 2015-16**

The details of schemes appraised during 2015-16 and their status are given below in Table 5.1:-

**Table 5.1**

<b>S. No</b>	<b>Name of Scheme</b>	<b>Estimated Cost in Rs. Crore</b>	<b>Status</b>
	<b>Bihar</b>		
1	Extension of left Kamla Balan embankment from km 102.38 to km 105.35(up to Western Kosi embankment) with provision of 3 Nos Anti-flood sluice and protection work of the new embankment	24.920	Cleared by GFCC on 29.10.2015
2	Bagmati Flood Management Scheme Phase- III (b)	720.840	Cleared by GFCC on 23.02.2016.
3	Costruction of Left and Right embankment on river Rato (Rato river flood management scheme)	109.840	Cleared by GFCC on 02.2.2016.
4	Revised Project Estimate for construction of Bituminour road and Restoration of structure of Eastern Kosi Embankment (Km. 1.00 to Km. 125.00) & Western Kosi Embankment.	535.490	Scheme found viable by GFCC and cleared on 11.4. 2016.
5	A E work for Protection of Left bank of Gandak river in u/s of Gandak barrage in West Champaran district	42.500	Scheme dropped for non - compliance by state govt in one year
6	Construction of Earthen Bund from Ashraulidan (UP) Bund to Guide Bund of Bettiah-Gopalganj bridge under Fc dnThakaraha Camp, Gopalganj	50.700	Scheme under examination
7	Protection work for village patther Tola to Kamla Kani near U/S of spur no. 12.	58.252	Scheme under examination
8	Anti erosion work from Hardeo Tola to Khatti	65.667	Scheme under examination
9	A.E. Work in b/w km 0.00 km to 7.80 km of left bank of river Ganga near Mathar Diara (Munger Ghat to Tikarampur)	56.056	Scheme under examination

S. No	Name of Scheme	Estimated Cost in Rs. Crore	Status
10	Revised Detailed Project Report for Raising, Strengthening & Extension of Existing left/right embankment in Chandan River System in Bhagalpur & Banka district.	366.676	Scheme examined & observations sent to State Government.
11	River bank development work on the left bank of the Mahananda River near Agriculture College, Kisanganj (Mahanda Phase IIIA)	59.439	Scheme examined & observations sent to State Government.
12	Bagaha town protection Work phase-IV	23.961	Scheme examined & observations sent to State Government.
13	Anti erosion work from Khattito Janjali Tola (up to west Bengal Border)	28.026	Scheme examined & observations sent to State Government.
	<b>Jharkhand</b>		
1	Anti-erosion Work on the right bank of river Ganga from Rafatola to Srighar 10 no.s in Sahibganj Disstt.	52.000	Scheme found viable by GFCC and cleared on July 2015.
	<b>West Bengal</b>		
1.	Master Plan and DPR for Ghatal and adjoining area	1192.43	Scheme cleared by GFCC and AC-MoWR in May 2015.
2	Detailed project report to alleviate flood water logging and erosion problem in the districts of Howrah and Hooghly of lower Damodar region	2280.00	Scheme examined & observations sent to State Government in February 2016.
	<b>Uttar Pradesh</b>		
1	Revised Scheme for increasing drainage capacity of Bakulahi river in the districts of Pratap Garh and Chhatrapati Shahuji Maharaj Nagar	21.950	Cleared by GFCC on 19/05/2015.

S. No	Name of Scheme	Estimated Cost in Rs. Crore	Status
2	Project estimate for construction of 7 nos. Spurs at km. 12.500, 13.200, 14.200, 15.100, 15.750, 16.200, 16.600 of Kalwari-Rampur bund of left bank of river Ghaghara in District-Basti.	29.600	Cleared by GFCC on 21.07.2015.
3	Project estimate for protection of Gaura-Saifabad embankment between Km. 3.000 to 4.400 on left bank of river Ghaghra in Tehsil-Harraiya, Distt-Basti	33.989	Schemes cleared by GFCC on 21.07.2015
4	Project estimate for protection of Chandpur-Gaura embankment between Km. 0.000 to 1.000 on left bank of river Ghaghra in Tehsil Harraiya District-Basti	24.426	Scheme cleared by GFCC on 7.7.2015
5	Project estimate for anti-erosion work for protection of group of Chandrawati village, historical shwetambar and Digambar Jain temple on left bank of river Ganga, District-Varanasi.	18.871	Scheme cleared by GFCC on 22.07.2015.
6	Project estimate for protection work between km. 1.150 to km. 2.350 in d/s of Zamania Pump at right bank of Ganga river in Zamania, Distt-Ghazipur	24.767	Scheme cleared by GFCC on 20.7.2015.
7	Project estimate for protection of Haha Nala bund, chainpur Gulaura Pump canal & shiv mandir at village chainpur Gulaura Between Km. 0.800 to Km. 2.400 of Hahanala bund, protection of village group Sangapur, Gorauli, Kakarghatta between Km. 39.800 to Km. 41.600 of Turtipar-Shrinagar bund & protection of Bakulaha Sansar Tola bund and village Group of Ibrahimabad Naubrar between Km. 4.800 to Km. 5.175 of B.S.T. bund on right bank of river Ghaghra in Distt-Ballia.	47.388	Scheme is cleared by GFCC on 4/9/2015
8	Project estimate for protection of Katariya Chandpur embankment between Km. 4.400 to 5.400 on left bank of river Ghaghra in Tehsil-Harraiya, Distt-Basti	15.367	Scheme cleared by GFCC on 7.7.2015
9	Project Estimate for construction of Bairiya Sarya bund on right bank of river Rapti in Distt-Gorakhpur	75.822	Scheme cleared by GFCC on 30/9/2015

S. No	Name of Scheme	Estimated Cost in Rs. Crore	Status
10	Project for protection work of Afflux bund and Guide bund at Kundari bridge in river Rapti at District Balrampur for safety of PWD Bridge & approach road	17.77	Scheme cleared by GFCC on 12/10/2015.
11	Revised Project Estimate for Construction of Lalpur Roohela Bund (Phase-III) from Km. 8.700 to NH-24 (Km. 18.650) for protection from Flood of village Pranpur, Bejaina, Ghatampur and Mansurpur at left bank of river in Distt-Rampur.	16.927	Scheme examined & observations sent to State Government.
12	Scheme for construction of Marginal Bundh on Left Bank of River Ganga from Jajmau Bridge to Shuklaganj old Bridge from Km. 0.000 to Km. 5.000.	145.492	Scheme under examination
13	Scheme for constructing Bathing Ghat at Village Dongri, Gurdh, Deli, Kot and Lakara on Pahuj river and correcting section of Pahuj river in district Jhansi	47.580	Scheme examined & observations sent to State Government.
14	Project of proposed Parallel left Marginal Bund and Associated works for Modern City Project (To be developed by K.D.A.) through land Reclamation	303.81	Scheme examined & observations sent to State Government.
15	Project for construction of proposed spur no. 03, 04, 05, 06 from km. 2.075 to Km. 2.720 & repairing of existing spur no. 02 at Km. 1.900 of Khara power channel.	25.344	Scheme examined & observations sent to State Government.
16	Scheme for estimate for extension of flood protection work of Hirdyapur-Ludhia and milak at right bank of River Ramganga in district Moradabad (UP)	14.719	Scheme examined & observations sent to State Government.
17	"Construction of R.C.C. Truff to drain out rain Water & Singhpur Drain Escaped water from Singhpur Tiraha to Delhi Public School, Azad Nagar, Kanpur from Km. 2.500 to 8.500."	24.986	Scheme examined & observations sent to State Government.

S. No	Name of Scheme	Estimated Cost in Rs. Crore	Status
18	Project Estimate for Construction of Bundh for protection of Abadi, Residential Area & Agricultural Land from Flood on Right Bank of River Ganga from Kalyanpur-Bithoor Road to Ganga Barrage (Along Noon River)	204.153	Scheme under examination
19	Project estimate for constructing spurs for protection of village kunda Kala district-Chandauli, Uttar Pradesh	23.506	Scheme examined & observations sent to State Government.
20	Techno-Economic Appraisal of Project estimate for protection of Elegen Bridge-Charsari Bund by laying Geo tube between km 10.000 to Km. 13.100 in Distt-Ganda/Barabanki U.P.	38.247	Scheme examined & observations sent to State Government.
21	Techno-Economic Appraisal of Project estimate for raising and strengthening of Kharagpur-Shagpur-Sopai Bund on the left bank of river Ghaghra and Right bank of river Kuwano in Distt-Gorakhpur (U.P.)- Reg.	37.496	Scheme examined & observations sent to State Government.
<b>Uttarakhand</b>			
1	Tiwari Mohalla and New Bus Stand in Shrinagar flood protection scheme from River Alaknanda in Distt. Pawri Garhwal	24.96	Scheme cleared by GFCC on 22.12.2015
2	Flood Protection works on both sides of River Yamuna from Janki Chatee to Damta in Distt. Uttarkashi under Block Naugaon	24.69	Scheme cleared by GFCC on 22.12.2015
3	Flood Protection Scheme of Khoh River from Grastanganj Bridge to Lalpani in Block Dugadda, District Pauri Garhwal	15.44	Scheme cleared by GFCC on 24.07.2015
4	Flood Protection Works for villages Ukrauli, Nakulia, khairana, Kaudha, Ashraf and Kaundha Ratan on river Kailash in Tehsil Sitarganj, District Udham Singh nagar	13.12	Scheme cleared by GFCC on 30.07.2015
5	Flood Protection Works in Hewal River in VikasKhand Chamba of Distt- Tehr Garhwal, Uttarakhand	17.83	Scheme cleared by GFCC 19.04.2016



S. No	Name of Scheme	Estimated Cost in Rs. Crore	Status
6	Flood Protection Scheme of Malan river in Block Dugadda , District Pauri Garhwal	24.10	Scheme cleared by GFCC on 08.03.2016
7	Flood Protection Scheme of Sukhro river in Block Dugadda , District Pauri Garhwal	22.12	Scheme cleared by GFCC on 08.03.2016
8	Flood Protection scheme Kumola Khadd, Chhara Khadd, Malgar Khadd in Distt. Uttarakashi, Block-Purola under C,M Proclamation No. 255/2013 (Priority No. 17)	12.99	Scheme cleared by GFCC on 29.07.2016
9	Flood Protection Scheme for protection of Banswada, Siyalso G.M.V.N., Chandrapuri Augustmuni, Silli from Mandakiniriver & Dukasrari village from Kusum Gaad in Rudra Augustmuni, Silli from Mandakiniriver & Dukasrari village from Kusum Gaad in Rudra Prayag	21.45	Scheme cleared by GFCC 19.04.2016
10	Project for flood protection and anti erosion work along both banks of Dhela, Phika and Levra rivers (tributaries of Ramganga river) in Ramnagar, Kashipur, Jaspur, and Bazpur blocks, District-Nainital and Udham Singh Nagar	88.56	Scheme examined & observations sent to State Government.
11	Shri Kot Phase-I in Shrinagar, Distt. Pawri flood protection scheme from river Alaknanda	24.95	Scheme examined & observations sent to State Government.
12	Shri Kot Phase-2 in Shrinagar, Distt. Pawri flood protection scheme from river Alaknanda	21.24	Scheme examined & observations sent to State Government.
13	Flood Protection scheme Uttarakhand State Reconstruction Distt. Almora, Block-Chaukhutia and Syalde from River Ramganga and tributaries	23.45	Scheme examined & observations sent to State Government.

S. No	Name of Scheme	Estimated Cost in Rs. Crore	Status
14	Flood Protection Scheme for Dabli, Ghildiyal and Jakhani villages in Block Kirtinagar, District Tehri Garhwal	13.78	Scheme examined & observations sent to State Government.
15	Flood protection scheme to protect villages of Malghan, Chaur area from Dhela river in block Ramnagar of Distt Nainital	16.12	Under examination
16	Flood Protection Work for villages Mehravan nagar, Ulani, Sunpahar, Mohammadpur Bhuria, Mohammadganj and Khamaria on Dehva river in Tehsil Khatima and Sitarganj in District UdhamasinghnagarUkauli, Nakulia, Khairana, Kaudha, Ashraf and Kaundha Ratan on river Kailash in tehsil Sitarganj, District Udhamasinghnagar	24.87	Scheme examined & observations sent to State Government.
17	Project for flood protection works on left bank of Ganga river for protection of Ganga Bhogpur and Kunao villages of Distt Pauri Garwal	17.56	Scheme examined & observations sent to State Government.
	<b>Rajasthan</b>		
1	Flood Protection Scheme for Baran City	56.16	Scheme examined & observations sent to State Government.
2	Flood Protection Scheme for Bharatpur district under Flood Management Programme 2012-17	67.68	Scheme examined & observations sent to State Government.

### 5.3 Summary of status of Appraisal of Schemes (State-wise)

State-wise status of appraisal of schemes is given in table below:

**Table 5.2**

<b>State</b>	<b>Scheme received</b>	<b>Schemes cleared</b>	<b>Observations sent to State Government</b>	<b>Schemes under examination</b>	<b>Schemes Dropped</b>
Bihar	15	3	10	-	2
Jharkhand	1	1	-	-	-
West Bengal	2	1	1	-	-
Uttar Pradesh	24	9	9	-	6
Uttarakhand	18	7	11	-	-
Himanchal Pradesh	1	1	-	-	-
Rajasthan	2	-	2	-	-
<b>Total</b>	<b>63</b>	<b>22</b>	<b>33</b>	<b>-</b>	<b>8</b>

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# GLIMPSES



**Porcupines with Jhankis**



**Bed bar from Geo Bags on river Kosi**

# 6. Monitoring of Ongoing Flood Management and Anti-Erosion Schemes

## 6.1 Monitoring of Schemes by GFCC - Scope

GFCC monitors flood management and anti-erosion schemes under Central funding for their physical and financial progress and monitoring reports are sent to the Ministry of Water Resources, RD &GR regularly.

## 6.2 Monitoring of Schemes during 2015-16

During the year 2015-16, FMP schemes as per the details given below were recommended by GFCC to release central assistance under FMP :

**Table 6.1**

Sl. No.	Scheme Code	Name of Scheme	Amount released in cr
<b>Bihar</b>			
1	BR-52	Bagmati Flood management phase IV (a)- construction of sluice, tagging bundh and edge protection work at Belwa on Bagmati river in Sheohar Distt.	10.8325
2	BR-50	Raising & Strengthening and extension of existing left and right bank embankments in Chandan river system	5.8325
<b>Uttar Pradesh</b>			
1.	UP-23	Project for flood protection/anti erosion works along right bank of river Sharda in u/s & d/s of Sharda Barrage at Banbasa	1.0
2.	UP-24	Scheme for flood protection works on right/left bank of river Gurra in district Deoria	2.0

Sl. No.	Scheme Code	Name of Scheme	Amount released in cr
3.	UP-27	Construction of Marginal Embankment upstream of Elgin Bridge along right bank of river Ghaghra in district Barabanki, Uttar Pradesh	4.0
4.	UP-28	Scheme for flood protection works along left bank of river Ghaghra in the district of Basti, Uttar Pradesh	4.0
<b>Uttarakhand</b>			
1.	UK-18	Project for construction of Studs and marginal bund for protection of population and agricultural land of villages situated at banks of river Ganga in District Haridwar	9.7555
2.	UK-19	Project for Anti Erosion Scheme of nearby village at Right bank of Sukhi river in Block Haldwani, District Nainital	4.26
3.	UK-20	Anti Erosion Scheme for villages Jogipura, Gobra and Bainthkeri along left bank of river Kosi and its tributaries Dabka in Distt. Udham Singh Nagar of Uttarakhand	3.6635
4	UK-21	Flood Protection scheme for protection of Ramnagar city alongwith Pucchari village in Distt. Nainital	3.6455

### 6.3 Release of Funds during 2015-16 under Flood Management Programme

Based on the monitoring reports and recommendation of GFCC, the Ministry of Water Resources released a total amount of Rs. 48.99 crore to the State Governments of Bihar, Uttar Pradesh and Uttarakhand during 2015-16. The total fund released up to 2015-16 under the Flood Management Programme is Rs. 2181.88 crore. The break up is given below:

**Table 6.2**

(Amount in Rs Crore)

Sl. No	State	Approved Central Share	Amount Released in 2015-16	Total amount released up to March 2016
1.	Bihar	1392.40	16.67	856.30
2.	Uttarakhand	247.03	21.32	126.0882

Sl. No	State	Approved Central Share	Amount Released in 2015-16	Total amount released up to March 2016
3.	Uttar Pradesh	624.70	11.00	348.49
4.	West Bengal	1679.01	-	775.61
5.	Jharkhand	29.48	-	21.34
6.	Himachal Pradesh	41.27	-	18.6157
7	X Plan Spill over	-	-	35.43
	<b>TOTAL</b>	<b>4013.89</b>	<b>48.99</b>	<b>2181.8739</b>

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# GLIMPSES



**Measurement of a Launching Apron during Monitoring Visit**



**Monitoring Visit of FMP Scheme in Bihar**



# 7. River Management Activities and Works related to Border Areas

## 7.1 Background

During the XI Plan period, Ministry of Water Resources has undertaken a plan scheme titled “River Management Activities and Works related to Border Areas” for water resources development and flood management activities. The scheme includes provision for taking up maintenance of flood protection works of Kosi and Gandak projects and bank protection works on common/border rivers between India and Bangladesh.

## 7.2 Maintenance of Flood Protection Works on Kosi and Gandak Projects

### 7.2.1 Kosi High Level Committee & Protection Works on Kosi

The Kosi High Level Committee (KHLC) was constituted by the then Irrigation Department, Government of Bihar in the year 1978 under the Chairmanship of Chairman, GFCC to review/examine the protection works already executed on the river and recommend protection measures to be taken up and completed before the next flood season. Since then, the Committee is inspecting every year the protection works on the river and is making recommendations regarding protection work to be executed on the river before the next flood season. The State Government executes the schemes on the basis of the recommendations of the Committee.

The present Composition of the Committee is given below:

- |  |          |
|--|----------|
| 1. Chairman, GFCC, Patna.  | Chairman |
| 2. Member (River Management), Central Water Commission, New Delhi or his representative        | Member   |
| 3. Director, CWPRS, Pune or his representative.  | Member   |
| 4. Engineer-in-Chief (North), Water Resources Deptt., Government of Bihar.                     | Member   |
| 5. Chief Engineer, Water Resources Deptt., Government of Bihar, Darbhanga.                     | Member   |
| 6. Chief Engineer (Research), Water Resources Deptt., Government of Bihar, Khagaul.            | Member   |
| 7. Chief Engineer (Hydrology & Project Planning), Water Resources Deptt., Government of Bihar. | Member   |

- |     |  |                  |
|-----|--|------------------|
| 8.  | Director, Eastern Region, Water Resources Deptt., Government of Nepal, Biratnagar. | Member           |
| 9.  | Dy. Director General, Water Resources Deptt. ,Government of Nepal, Kathmandu.      | Member           |
| 10  | Member (Coord), GFCC, Patna  | Member           |
| 11. | Chief Engineer, Water Resources Deptt., Government of Bihar, Birpur.               | Member-Secretary |

Like previous years, the KHLC inspected the protection works from 30<sup>th</sup> October, 2015 to 2<sup>nd</sup> Nov, 2015 and recommended works to be carried out before the floods of 2016.

### 7.2.2 Protection work in Nepal Portion

The expenditure incurred by Government of Bihar on protection works in Nepal, is reimbursed in full by Government of India under a central scheme. The reimbursement is made based on the expenditure statement received from the Government of Bihar for the amount spent on carrying out protection works on river Kosi in the Nepal portion. Following amount was released by Ministry to Govt. of Bihar.

Sl. No.	Name of Scheme/State	Amount Released (Rs. In lakh)	Remarks
1.	Expenditure on flood protection works executed on river Kosi (Nepal Portion) before the flood of 2013	1293.55	Vide letter No. 5/13/2012-Ganga/Part-II/3662-82 dated 08 <sup>th</sup> September, 2015.
2.	Expenditure on flood protection works executed on river Kosi (Nepal Portion) before the flood of 2014.	297.69	-do-
3.	Expenditure on flood protection works executed on river Kosi (Nepal Portion ) before the flood of 2013	2523.041	Vide letter No. 5/13/2012-Ganga/Part-II/1076-95 dated 31 <sup>st</sup> March, 2016.
4.	Expenditure on flood protection works executed on river Kosi (Nepal Portion ) before the flood of 2014	669.959	Vide letter No. 5/13/2012-Ganga/Part-II/1076-95 dated 31 <sup>st</sup> March, 2016.
	<b>Total</b>	<b>4784.24</b>	

### 7.3 Gandak High Level Standing Committee & Protection Works on Gandak

A Committee for the river Gandak namely Gandak High Level Committee (GHLC) was initially constituted by the then Ministry of Irrigation, Government of India vide office memorandum No.10/12/80-FC dated 12<sup>th</sup> November, 1981 to evaluate the performance of flood protection works on the right bank of the river Gandak in the States of Uttar Pradesh and Bihar during the floods of 1981, to guide and advise construction activities in the two States and to suggest programme of works for the year 1981-82. The term of the committee was extended from time to time. This Committee has now been renamed as Gandak High Level Standing Committee (GHLSC) vide Ministry of Water Resources letter No. 5/15/2002-ER/Ganga /1219-27 dated 21.03.2006.

The terms of reference of the Committee are:

- To review the flood control and anti-erosion works so far executed by the State Governments of U.P and Bihar and evaluate their performance during the floods.
- To recommend a programme of works, which could be executed by the two States in a coordinated manner.
- To guide the construction activities in the States and advise on the steps to be taken to get over any difficulties that may arise with a view to ensure that all the necessary works are completed by the States latest by June each year.

The Chairman, GFCC is the Chairman of the Committee. The composition of the GHLSC is given below:

1. Chairman, GFCC, Patna	Chairman
2. Engineer-in-Chief, Water Resources Deptt., Government of Bihar.	Member
3. Engineer-in-Chief, Irrigation Department, Government of U.P.	Member
4. A Representative from Central Water and Power Research Station, Pune.	Member
5. Chief Engineer (Research), Irrigation Research Institute, Government of Bihar, Patna.	Member
6. Director, Irrigation Research Institute, Government of Uttarakhand (Roorkee).	Member
7. Director (Co-ordination), GFCC, Patna.	Member-Secretary

Since its constitution, 48 meetings of the GHLSC have been held up to 2015-16 and recommendations were made for protection works to be executed before the next floods. The respective State Govts. executed the works as per recommendations of the Committee.

### 7.3.1 Inspection during 2015-16

During the year 2015-16, the meeting / site inspection by the Committee was held in between 19<sup>th</sup> to 22<sup>nd</sup> November, 2015 and recommendations were made for the works to be carried out before the floods of 2016.

### 7.3.2 Protection Works in Nepal Portion

The expenditure incurred by Government of U.P.in Nepal portion for maintaining the flood protection works on the right bank of the river Gandak is reimbursed by the Government of India. Following amount was released by Ministry to Govt. of Uttar Pradesh.

Sl. No.	Name of Scheme/State	Amount Released (Rs. In lakh)	Remarks
1.	Expenditure on flood protection works executed on right bank of river Gandak (Nepal Portion) before the flood of 2013	1974.32	Vide letter No. 5/05/2011-Ganga/3603-3703 dated 08 <sup>th</sup> September, 2015.
2.	Flood Protection Works before the flood of 2014 on right bank of river Gandak (Nepal Portion)	265.559	Vide letter No. 5/05/2011-Ganga/252-71 dated 31 <sup>st</sup> March, 2016.
3.	Flood Protection Works before the flood of 2011 on right bank of river Gandak (Nepal Portion)	424.211	Vide letter No. 5/05/2011-Ganga/252-71 dated 31 <sup>st</sup> March, 2016.
	<b>Total</b>	<b>2664.09</b>	

### 7.4 Schemes on Common/Border rivers in West Bengal

India shares 54 rivers with Bangladesh. At many places, these rivers have a tendency to shift their course by eroding the banks on either side. Sites of active erosion are identified by both the countries and the bank protection works for such sites are finalized by consultation among the two countries.

Twenty four (24) such sites have been identified in Ganga Basin, which lie on seven rivers, namely, Mahananda, Nagar, Punarbhaba, Atrai, Kulik, Karatowa and Tangon. Irrigation and Waterways Department, Government West Bengal is taking up bank protection work for such sites under the above plan scheme.

A total of 13 schemes for bank protection works at the above 24 sites on common/border rivers have been taken up by the State Government with funding under the Central Plan scheme "River Management Activities and work related to Border rivers". All aforementioned 13 schemes have been completed in 2012-13

In addition, a scheme for de-silting of river Ichamati along the Indo-Bangladesh Border has also been taken up and completed.

However, in the technical level meeting of Joint River Commission between India and Bangladesh which was held at Kolkata on 10th February 2012, some bank protection works (Indian side) were identified to be executed during XII Plan. The Government of West Bengal has submitted twenty five nos. of schemes to GFCC for their techno-economic appraisal. Out of 25 nos. of schemes, GFCC has cleared 19 and rest 6 are under examination, as per list shown below:

The Government of West Bengal has started execution work on 19 Bank protection schemes cleared by GFCC.

**Table 7.1**

**Status of Appraisal of schemes for common border rivers in West Bengal during XII Plan**

S. No.	Name of scheme	Estimated cost (Rs in lakh)	Remarks
1	Protection to the left bank of river Atrai at downstream of Samjhia B.O.P. camp in P.S. Kumarganj, District- Dakshin Dinajpur (Phase-II) (Length- 240 m)	143.54	Cleared

S. No.	Name of scheme	Estimated cost (Rs in lakh)	Remarks
2	Protection to the left bank of river Atrai near Rasulpur B.O.P. camp in P.S. Kumarganj, District- Dakshin Dinajpur (Length- 1295 m)	873.19	Cleared
3	Protection to the left bank of river Tulai near Purbasil B.O.P. camp in P.S. Kushmandi, District Dakshin Dinajpur (Length- 550 m)	218.63	Cleared
4	Protection to the right bank of river Punarbhava near Mallickpur, B.O.P. camp in P.S. Gangarampur, District Dakshin Dinajpur (Length- 525m)	265.67	Cleared
5	Protection to the left bank of river Tangon upstream and downstream of Iron bridge No. 1 near Kholtor B.O.P. camp in P.S. Kushmandi, district Dakshin Dinajpur (Length- 320 m)	153.81	Cleared
6	Bank protection work along the right bank of river Mahananda from 445/10-S to 448/3-S under Phansidewa B.O.P. camp (Indian side) in P.S. Phansidewa, District Darjeeling (Length-450 m)	194.52	Cleared
7	Bank protection work along the right bank of river Mahananda from 443/1-S to 445/10-S under Murikhewa B.O.P. camp (Indian side) in P.S. Phansidewa, District- Darjeeling (Length- 1250 m)	749.24	Cleared
8	Bank protection work along the right bank of river Mahananda from 448/12-S to 730/M under Phansidewa B.O.P. camp (Indian side) in P.S. Phansidewa, District- Darjeeling (Length- 750 m)	321.62	Cleared
9	Bank protection work along the right bank of river Mahananda from 731/M to 731/24-R Laldasjote B.O.P. camp in P.S. Phansidewa, District- Darjeeling (Length- 2200 m)	1061.03	Cleared

S. No.	Name of scheme	Estimated cost (Rs in lakh)	Remarks
10	Bank protection work along the left bank of river Mahananda at village Asrafpur in Mouza-Asrafpur in block and P.S. Habibpur, District-Malda (Length- 1100 m)	1095.61	Cleared
11	Bank protection work along the left bank of river Mahananda at village Asrafpur in Mouza-Asrafpur (from Plot No. 609 to 777, near Border Gate No. 43) in block and P.S. Habibpur, District-Malda (Length- 950 m)	957.46	Cleared
12	Bank protection work along the right bank of river Punarbhaba at Mouza-mahadebpur in B.O.P. Battali in block and P.S. Bamangola, District-Malda (Length- 300 m)	323.29	Cleared
13	Bank protection work along the left bank of river Mahananda at village Jadavnagar and Chandra Para in B.O.P. Sukhnagar in block and P.S. Habibpur, District- Malda (Length- 250 m)	263.22	Cleared
14	Bank protection work along the right bank of river Punarbhaba at Mouza-Nasratpur Pathar Mahadevpati within block and P.S. Habibpur, District- Malda under Anuradhapur B.O.P. (Length- 100 m)	710.75	Cleared
15	Bank protection work along the left bank of river Mahananda in B.O.P. Asrafpur in Mouza-Asrafpur (from plot no. 785 to 1015) in block and P.S. Habibpur, district Malda (Length- 950 m)	968.60	Cleared
16	Bank protection work along the right bank of river Punarbhaba at Mouza-Pathar Nasratpur and Dhaka Pathar within block and P.S. Habibpur, district Malda under Kaliabari B.O.P. (Length 1000 m)	709.27	Cleared
17	Bank protection work along the left bank of river Punarbhaba at village- Kalibari within Mouza-Anuradhapur (Ananda Pathar) in block and P.S. Habibpur, district Malda under Kalibari B.O.P. (Length- 400 m)	283.11	Cleared

S. No.	Name of scheme	Estimated cost (Rs in lakh)	Remarks
18	Protection to the right bank of river Nagar from erosion near Khunti B.O.P. camp and border fencing along the Indo-Bangladesh border in P.S. Jamalpur, district- Uttar Dinajpur (Length- 575 m)	220.84	Under examination
19	Protection to the left bank of river Kulik from erosion near Makorhat B.O.P. camp in P.S. Hemtabad, district- Uttar Dinajpur (Length- 350 m)	149.39	Cleared
20	Protection to the right bank of river Nagar from erosion near Morageti B.O.P. camp and border fencing along the Indo- Bangladesh border in P.S. Islampur, district- Uttar Dinajpur (Length- 520 m)	200.81	Under examination
21	Protection to the right bank of river Nagar from erosion near Hatkhola B.O.P. camp and border fencing along the Indo- Bangladesh border in P.S. Islampur, district- Uttar Dinajpur (Length- 480 m)	212.34	Under examination
22	Protection to the right bank of river Nagar from erosion near Fatepur B.O.P. camp and border fencing along the Indo- Bangladesh border in P.S. Islampur, district- Uttar Dinajpur (Length- 450 m)	200.567	Under examination
23	Protection to the right bank of river Nagar from erosion near Sonamati B.O.P. camp and border fencing along the Indo- Bangladesh border in P.S. Islampur, district- Uttar Dinajpur (Length- 500 m)	202.87	Under examination
24	Protection to the left bank of river Tangon from erosion near Padmakumari and Chandgaon B.O.P. in P.S. Kalianganj, district- Uttar Dinajpur (Length- 900 m)	415.07	Under Examination



S. No.	Name of scheme	Estimated cost (Rs in lakh)	Remarks
25	Protection to the right bank of river Korotoya from erosion near Barmanbasti B.O.P. camp and border fencing along the Indo-Bangladesh border in P.S. Chopra, district Uttar Dinajpur (Length-460 m)	224.02	Cleared

The year-wise status of funding under the above mentioned Plan scheme to West Bengal is as under:

**Table 7.2**

(Rs. in crore)

Sl. No.	State	Amount Released							Total
		09-10	10-11	11-12	12-13	13-14	14-15	15-16	
1	West Bengal	17.51	71.32	39.66	NIL	1.60	NIL	25.35	155.26

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# 8. Cooperation with Neighboring Countries

## 8.1 India-Nepal Cooperation

Several rivers like the Gandak, the Bagmati, the Kamla, the Kosi etc. originate in Nepal and flow through the hilly tracts of Nepal before entering the plains of India. Heavy rains in the upper reaches not only bring floods of large magnitude but also carry huge quantities of sediment to the plain reaches of India. Hence any measures to be taken up to alleviate the flood and silting problems are to be done in an integrated manner with proper co-ordination between the two countries. GFCC is playing a vital role in this context by providing all the technical know-how and guidance.

As floods in Bihar and part of U.P are generally caused by the rivers coming from Nepal, long term solution to the problem of flood lies in the construction of multi-purpose projects with flood cushion in the upper reaches to achieve flood moderation. Since suitable sites to locate reservoir/dams to control the floods lie in Nepal, the construction of these dams/reservoirs on these rivers is subject to agreement with Government of Nepal.

### 8.1.1 India Nepal Joint Ministerial Committee on Water Resources (JMCWR)

Government of India is having continuous dialogue with the Government of Nepal to mitigate the devastation caused by the flood from the rivers coming from Nepal. In order to have interaction at highest level pertaining to the cooperation in the field of water resources, an India-Nepal Joint Ministerial Committee on Water Resources (JMCWR) with Indian side headed by Hon'ble Union Minister of Water Resources has been constituted. So far only one meeting of JMCWR has taken place. The first meeting of JMCWR was held on 15.2.2012.

For implementation of existing arrangement and better understanding, India-Nepal Joint Committee on Water Resources (JCWR) headed by the Water Resources Secretaries of both the countries is functioning with the mandate to act as umbrella committee for all other sub-committees and groups under it. So far seven meetings of the JCWR have been held which covered the entire gamut of bilateral cooperation in the water resources sector including flood management aspects and issues regarding multi-purpose projects on rivers coming from Nepal like the Sapta Kosi, the Sun Kosi, the Pancheshwar multi-purpose projects and other related matters. The last meeting of JCWR was held in January 2013.

### 8.1.2 Joint Standing Technical Committee (JSTC)

This Committee was constituted during the 3<sup>rd</sup> meeting of India-Nepal Joint Committee on Water Resources (JCWR) held from 29.09.08 to 01.10.08 at Kathmandu (Nepal). The function of JSTC is to coordinate the work of existing committees and sub-

committees under the JCWR. The Constitution (Indian side) and terms of reference of the Committee are as under:

Sl. No.	Composition-Indian side	
1	Chairman, GFCC, Patna	Team Leader
2	Commissioner (Ganga), MOWR	Member
3	Joint Secretary (Hydro), Ministry of Power	Member
4	Chief Engineer (UGBO), CWC, Lucknow	Member
5	Chief Engineer (HP & I), CEA	Member
6	Director (North), MEA, New Delhi	Member
7	Representative from Embassy of India, Kathmandu	Member
8	Engineer-in-Chief (North), WRD, Government of Bihar	Member
9	Representative of Government of U.P	Member
10	Representative from Government of West Bengal	Member
11	Representative from Government of Uttarakhand	Member
12	Sr.Joint Commissioner, MOWR	Member-Secretary

#### **Terms of Reference of JSTC**

- (i) To coordinate all existing Committees and Sub Committees under the JCWR

So far four meetings of JSTC have been held. The last meeting was held in New Delhi on 12-13 September, 2013 in which various issues of bilateral concern were discussed and decisions taken.

#### **8.1.3 Joint Committee on Inundation and Flood Management (JCIFM)**

This Committee was constituted in the 4<sup>th</sup> meeting of India-Nepal Joint Committee on Water Resources (JCWR) held on 12-13, March, 2009 in New Delhi. This Committee replaces the earlier bilateral committees namely SCIP, HLTC, JCFM, SCEC and SCFF. The Constitution (Indian side) and terms of reference of the committee are as under:

Sl. No.	Composition-Indian side	
1	Member (Coordination), GFCC, Patna	Team Leader
2	Chief Engineer, CWC	Member
3	Chief Engineer (WRD), Government of Bihar/Chief Engineer, Irrigation Department, Government of Uttar Pradesh / Chairman, North Bengal Flood Control Commission, Government of West Bengal	Member

4	Director (North), MEA, New Delhi	Member
5	Sr. Joint Commissioner, MOWR	Member
6	Representative of EOI, Kathmandu	Member
7	Director (MP-II), GFCC, Patna	Member-Secretary
8	Director (Finance), MEA/MOWR, New Delhi	Invitee

### Terms of Reference of JCIFM

- (i) The JCIFM shall be an umbrella Committee to implement the decisions of JSTC on inundation and flood management issues.
- (ii) The JCIFM shall address the issues related to flood management and inundation and can form Task Group(s), if required.
- (iii) The JCIFM shall monitor the progress of works and provide guidance to task group(s) and report to JSTC.

So far ten meetings of JCIFM have been held. The last inspection / meeting was held on 6-11 December, 2015 in Kathmandu, Nepal in which various issues relating to inundation and flood management were discussed and decisions were taken on the works to be executed in 2016 on the rivers namely Kamala, Bagmati and Lalbakeya.

### 8.1.4 Extension of Embankment on River Bagmati, Kamla, and Lalbakeya rivers

In order to prevent spilling of flood water from the Bagmati, the Kamla, and the Lalbakeya rivers from Nepal side in the protected area in Bihar, both sides have agreed to extend the embankments along these rivers from the India-Nepal border to high grounds in Nepal with corresponding strengthening of embankments on the Indian side. The amount released to Nepalese side is given in Table 8.1:

**Table 8.1**

<b>Year</b>	<b>Released Amount (NPR Crore)</b>
Before 2007-08	18.200
2008-09	16.500
2009-10	53.151
2010-11	59.978

Year	Released Amount (NPR Crore)
2011-12	89.108
2012-13	9.771
2013-14	63.163
2014-15	36.672
2015-16	77.252
<b>Total</b>	<b>423.795</b>

The work relating to this aspect is under various stages of implementation. The progress of work till march 2016 is given in following Table 8.2:

**Table 8.2**

S.N.	Description of Works	Unit	As per DPR			Completed		
			Right	Left	Total	Right	Left	Total
<b>1</b>	<b>Bagmati River Training Project</b>							
i	Embankment	km	8.45	31.55	40.00	8.45	31.55	40.00
ii	Emb Strengthening	km	31.78	5.10	36.88	31.78	5.10	36.88
iii	Spur	nos.	8.00	8.00	16.00	8.00	8.00	16.00
iv	Stud	nos.	75.00	25.00	100.00	45.00	14.00	59.00
v	Revetment	m	600.00	900.00	1500.00	600.00	900.00	1500.00
vi	AFS	nos.	8.00	9.00	17.00	6.00	6.00	12.00
vii	Irrigation Outlet	nos.	3.00	3.00	6.00	3.00	3.00	6.00
viii	Gravelling Work	km	41.00	46.20	87.20	27.65	30.85	58.50
ix	Bridge	nos.	2.00	1.00	3.00			

S.N.	Description of Works	Unit	As per DPR			Completed		
			Right	Left	Total	Right	Left	Total
<b>2</b>	<b>Lalakeya River Training Project</b>							
i	Embankment	km	34.80	30.11	64.91	31.20	30.11	61.31
ii	Spur	nos.	8.00		8.00			
iii	Stud	nos.	103.00	104.00	207.00	87.00	54.00	141.00
iv	Revetment	m	3036.00	1350.00	4386.00	2936.00	1350.00	4286.00
v	AFS	nos.	16.00	15.00	31.00	15.00	13.00	28.00
vi	Irrigation Outlet	nos.		1.00	1.00			
vii	Gravelling Work	km	37.00	31.96	68.96	23.00	21.00	44.00
viii	Bridge	nos.		1.00	1.00			
<b>3</b>	<b>Kamala River Training Project</b>							
i	Embankment	km	33.60	34.65	68.25	33.60	34.35	67.95
ii	Spur/ Stud	nos.			187.00			118.00
iii	Revetment	m			17.858			14.720
iv	AFS	nos.			36.00			26.00
v	Gravelling Work	km	33.60	34.65	68.25	30.43	27.00	57.43
vi	Bridge	nos.			4.00			

## 8.2 India-Bangladesh Cooperation

### 8.2.1 Indo-Bangladesh Joint River Commission

The Indo-Bangladesh Joint Rivers Commission (JRC) was set up in November 1972 to discuss and sort out the issues related to common/border rivers between India and Bangladesh. The setup provides a platform for resolution of common problems related to developments works on common/border rivers, causing no harm to either side.

Under the aegis of above Commission, meetings are held at regular interval at various levels to discuss related issues. The decisions taken in such meetings are finally ratified by the Commission.

Various issues related to management of floods in common/border rivers have been discussed. The issues in respect of Ganga Basin under deliberations are summarized as under:

### **8.2.2 Bank Protection Works**

Most of common/border rivers between India and Bangladesh traverse through alluvial plains and they keep on changing their course due to meandering and erode banks on either side. Bank protection works are thus required to arrest erosion at vulnerable points.

The matter was discussed in the 36<sup>th</sup> meeting of JRC held in 2005 and at various subsequent occasions. Later in the Secretary (Water Resources) level meeting between India and Bangladesh held in August 2007, it was decided that bank protection works on identified sites could be taken up simultaneously on both sides within a time frame of three successive working sessions with similar specifications of works. The specifications of works to be undertaken were finalized in a technical level meeting held in December, 2009. As per the list exchanged between the countries, the bank protection works were proposed on 41 sites in India and 28 sites in Bangladesh. It was also agreed to add more sites as per requirement.

In 2015-16, thirteen Bank Protection Schemes in India were completed and nineteen Bank Protection Schemes are being implemented by Government of West Bengal.

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# GLIMPSES



**10<sup>th</sup> Meeting of JCIFM, Kathmandu, 6<sup>th</sup> to 10<sup>th</sup> Dec, 2015**



**10<sup>th</sup> Meeting of JCIFM, Kathmandu, 6<sup>th</sup> to 10<sup>th</sup> Dec, 2015**



# 9. Promotion of use of Hindi

## 9.1 Progressive Use of Hindi

An Official Language Implementation Committee headed by the Chairman, GFCC is functioning in Ganga Flood Control Commission. Both Members of GFCC and various Directors, Deputy Directors, Administrative Officer, P.S. to Chairman, Assistant Director (Gr.-II), Hindi Translator and Branch heads from GFCC besides Dy. Director (Implementation), Official Language, Ministry of Home Affairs and one officer from Hindi Teaching Scheme are its members. Assistant Director (Gr.-II) of the Commission is Member-Secretary of this Committee.

The said Committee holds its meetings once in every quarter. In these meetings, detailed discussions are held on the quarterly progress reports and emphasis is given on achieving the targets laid down in the annual programme. The Committee makes an assessment of actual position of progressive use of Hindi in day to day work of the Commission and suggests measures for removing the difficulties experienced at the working levels. During the year 2015-16, four meetings of the Committee were held.

Chairman, GFCC is a Member of Hindi Salahkar Samiti, Ministry of Water Resources and “Nagar Rajbhasa Karyanvayan Samiti”, Patna. Chairman or a senior officer of the Commission participates in the meetings of above Committee regularly.

## 9.2 Achievements

### 9.2.1 Achievements during 2015-16

During the year 2015-16 generally all office orders were issued in both languages i.e. Hindi and English. During the year 2015-16, out of 6428 letters issued by GFCC, 5089 were in Hindi. The region-wise break up is given below.

**Table 9.1**

S. No.	Region	Total letters issued	Letters issued in Hindi
1	A	6360	5046
2	B	20	20
3	C	48	23
	<b>Total</b>	<b>6428</b>	<b>5089</b>

To increase the awareness of use of Hindi language, Hindi fortnight was organized from 14.9.2015 to 28.9.2015. Competition for Hindi Essay, Noting/ Drafting and General Hindi/ Knowledge was also organized among officials of the commission during this period. After evaluation, prizes were distributed among the winners.

The following officials of the Commission were awarded prizes:

**Table 9.2**

<b>(a) Hindi Essay Competition</b>		
<b>S. No.</b>	<b>Name/Post</b>	<b>Prizes</b>
1	Shri Piyush Kumar, A.D.	First
2	Shri Vardan Anand, A.D.	Second
3	Shri Radha Mohan Singh, A.D.-II	Third
4	Shri Tapas Kumar Das, Steno. Gr.-I	Consolation

<b>(b) Hindi Noting &amp; Drafting Competition</b>		
<b>S. No.</b>	<b>Name/Post</b>	<b>Prizes</b>
1	Shri Kumar Kushal, A.D	First
2	Shri Sachindra Kumar Sharma, Sr. Computer	Second
3	Shri Jitendra Kumar, Head Clerk	Third

<b>(d) General Hindi / Speech Competition ( For “Grade- D” Staff only )</b>		
<b>S. No.</b>	<b>Name/Post</b>	<b>Prizes</b>
1	Shri Jitendra Kumar, Head Clerk	First
2	Shri Satish Kumar, L.D.C.	Second
3	Shri Sachindra Kumar Sharma, Sr. Computer	Third

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## 10. Participation in Trainings, Workshops and Seminars

During the year 2015-16, officers and staff of GFCC participated in various training programmes, workshops and seminars as per the details given below:

**Table 10.1**

Sl. No.	Training Course/ Workshop/ Seminar	Dates	Name of Officers
1.	“Flood Management with GIS” at NWA, Pune	26.10.2015 to 30.10.2015	1. Sh. Manoj Kumar, Director (MP-I)
2.	Water Innovative Submit by CII at Hotel Leela, New Delhi	16.11.2015	Sh. Anil Jain, Director
3.	“Right to Information for Appellate Authorities” at New Delhi	30.11.2015	Sh. Manoj Kumar, Director (MP-I)
4.	Use of HEC-HMS, GIS in Flood Management Works by NWA at GFCC Patna	09.02.2016 to 12.02.2016	Sh. A.K.Sinha, Member Sh Anil Jain, Director Sh A. K Jha, Director Sh. Manoj Kumar, Director And All Dy. Directors and Assistant Directors,
5.	“E-procurement” at NWA, Pune	03.03.2016 to 04.03.2016	Sh. Harshvardan, D.D Sh. Kumar Kushal, A.D.

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# 11. Representation of Ganga Flood Control Commission in Various Committees

Chairman and other senior officers of GFCC represent GFCC on various technical committees either as Chairman, Member-Secretary or as Members. The list of such Committees is as under

**Table 11.1**

Sl. No.	Name of Committee/ Board/ Experts/ Technical Group etc.	Representation of GFCC	
		Officer	Position
1	Ganga Flood Control Board	Chairman, GFCC	Member-Secretary
2	Ganga Flood Control Commission	Chairman, GFCC	Chairman
3	Gandak High Level Standing Committee	Chairman, GFCC	Chairman
4	Kosi High Level Committee	Chairman, GFCC	Chairman
5	India-Nepal Joint Ministerial Commission on Water Resources (JMCWR)	Chairman, GFCC	Member
6	India-Nepal Joint Committee on Water Resources (JCWR)	Chairman, GFCC	Member
7	India-Nepal Joint Standing Technical Committee	Chairman, GFCC	Indian Team Leader
8	National Institute of Hydrology Society	Chairman, GFCC	Member
9	NNRMS Standing Committee on Water Resources (SC-WR)	Chairman, GFCC	Member
10	Technical Advisory Committee of Farakka Barrage Project	Chairman, GFCC Alternate: Member (P), GFCC	Member
11	Water Resources Division Council of Bureau of Indian Standards	Chairman, GFCC Alternate Member-Member (C), GFCC	Member
12	Farakka Barrage Project Advisory Committee	Member (P), GFCC	Member
13	Tender Committee of Farakka Barrage Project	Member (P), GFCC	Member
14	Yamuna Standing Committee	Member(P), GFCC	Member

Sl. No.	Name of Committee/ Board/ Experts/ Technical Group etc.	Representation of GFCC	
		Officer	Position
15	Coastal Protection And Development Advisory Committee	Member (P), GFCC	Member
16	India Nepal Joint Committee on Inundation & Flood Management (JCIFM)	Member (C), GFCC	Team Leader
17	Indian-Nepal Joint Committee on Kosi & Gandak Projects	Member, GFCC	Member
18	U.P. State Committee of Engineers	Director, GFCC	Member
19	Bihar State Committee of Engineers	Director, GFCC	Member
20	West Bengal State Committee of Engineers	Director, GFCC	Member
21	M.P. State Committee of Engineers	Director, GFCC	Member
22	T.A.C. of Bihar	Director, GFCC	Member
23	T.A.C. of Uttar Pradesh	Director, GFCC	Member
24	T.A.C. of Himachal Pradesh	Director, GFCC	Member
25	T.A.C. of Haryana	Director, GFCC	Member
26	T.A.C. of Rajasthan	Director, GFCC	Member
27	Technical Committee of West Bengal State Flood Control Board	Director, GFCC	Member
28	TAC of Jharkhand	Director, GFCC	Member
29	TAC of Uttarakhand	Director, GFCC	Member
30	TAC of Chhattisgarh	Director, GFCC	Member
31	T.A.C. of Madhya Pradesh	Director, GFCC	Member
32	NIH Regional Coordination Committee for Ganga Plain North Regional Centre	Director, GFCC	Member
33	River Training & Diversion Works Sectional Committee (WRD-22) of Bureau of Indian Standards	Director (MP-II), GFCC Alternate Member-Director (P), GFCC	Member

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