ANNEXURES

Annexure I

Response of the Management/Ministry to Audit Recommendations

(Paragraph reference: 1.7)

S.No.	Recommendation	Ministry's reply
1.	MoWR, RD&GR may release adequate funds/reimburse funds in timely manner as per FMP guidelines and may impress upon State Governments to release funds to executing agencies in time bound manner.	The Flood Management Programme (FMP) during XII Plan was approved late in October, 2013. The approval to FMP projects is granted by the Empowered Committee as and when its meeting is held. The delay in release of 1st installment can be attributed mainly to late approval of Flood Management Programme (FMP) during XII Plan, non-receipt of documents from the States/ UTs as per laid down procedures in FMP guidelines or on account of budgetary constraints. Regarding release of funds by the State Governments to Executing agencies, it would be sorted out by persuading State Governments for timely release of funds.
2.	MoWR, RD&GR may keep strict vigilance on utilisation of funds by State Government and executing agencies so as to avoid parking and diversion of funds.	Agreed to the recommendation. In the sanction order a condition would be put that the financial rules must be followed.
3.	MoWR, RD&GR may release/reimburse the funds to the State Governments only after ensuring receipt of audited statements of expenditure, Utilization Certificates and other requisite documents.	FMP guidelines are being followed. However, the cases mentioned in the report would be got examined.
4.	MoWR, RD&GR may approve the projects under FMP after ensuring that the projects are formulated in an integrated manner covering entire river/tributary or a major segment of rivers/tributaries.	The Working Group on "Flood Management and Region Specific issues" for XII Plan was constituted by the Planning Commission in October 2010. One of the recommendations of the Committee was Integrated Basin Management approach which is always emphasized by the Ministry. However, due to lack of resources with the States/ UTs and to take up the emergent works in critical areas, proposals are submitted by States/ UTs which are considered by MoWR,RD & GR.
5.	MoWR, RD&GR may approve the projects	BC ratio calculations are worked out as per

	under FMP after ensuring that the Benefit Cost Ratio is worked out correctly as per guidelines in this regard.	CWC/ MoWR, RD&GR guidelines and this aspect is further taken care of at the time of techno-economic appraisal and approval of project by Advisory Committee of MoWR,RD &GR. However, the cases mentioned in the report would be got examined.
6.	MoWR, RD&GR may advise the State Governments to make efforts for early completion of delayed projects and completion of new projects in stipulated time.	The delay in completion of projects is on account of various factors. The monitoring teams of CWC/ GFCC/ BB constantly advise the State Governments and even offer solutions for early completion of the delayed projects. State Governments have to act on the issues coming under their purview. Due to lesser budgetary allocation under FMP, the States are not getting the required funds, which also is leading to delays in completion.
7.	MoWR, RD&GR may take adequate steps to release the funds after ensuring acquisition of required land.	FMP guidelines are being followed. However, the cases mentioned in the report would be got examined.
8.	CWC may devise a time bound action plan to speed up the formulation of flood forecast on real time data communication network by making all the telemetry stations operational and take suitable steps to install all the targeted telemetry stations.	The river water level data acquisition system basically comprises of either bubbler system installed under water near the river bed or radar system installed above. While both the systems are robust, in case of bubbler system, sediment deposition on the sensors, breakage of pipes, theft of solar panels and other vital equipment parts by locals, shifting of river course, shortage of adequate manpower at sites etc. are some of the factors adversely affecting the performance of these data acquisition systems. CWC is seized of the issue and all out efforts are being made to make them functional.
9.	CWC may ensure that the warning and danger levels have been fixed at appropriate level so that flood forecasting could be made correctly and timely.	-

10.	MoWR, RD&GR may prepare a time bound action plan to accelerate the completion of all the long term RMABA projects to facilitate the long term solution to the flood problem of Assam, North Bihar and Eastern Uttar Pradesh from annual floods.	Large reservoirs are being contemplated on rivers in India/Nepal with adequate flood cushion to provide long term solution to flood problems. Master Plans have been prepared by Brahmaputra Board and GFCC. Interlinking of rivers would also help in beneficially diverting the flood waters. Inflow forecasting coupled with integrated operation of the reservoirs during monsoon/ floods can mitigate the flood damages to a very large extent. Water being a State subject, the cooperation of States is paramount in these efforts.
11.	MoWR, RD&GR may, in consultation with State Governments, devise a time bound action plan for preparation and implementation of Emergency Action Plans including preparation of inundation maps and hydrological studies for all the large dams in the country.	The observations of Audit will be forwarded to CWC/DRIP for remedial action.
12.	MoWR, RD&GR may advise the State Governments to prepare Standard Operating Procedures for dams and carry out the prescribed pre and post monsoon inspection of the dams.	The observations of Audit will be forwarded to CWC/DRIP for remedial action.
13.	MoWR, RD&GR may persuade the State Governments to prepare a time bound action plan to comply with the recommendations made by Rashtriya Barh Ayog, Task Force 2004, Parliamentary Standing Committee on Water Resources and National Water Policy 2002 and 2012, and factor these recommendations in the release of funds in the various schemes of Central Government.	Necessary follow-up actions on the recommendations of Rashtriya Barh Aayog and Parliamentary Standing Committee on Water Resources have already been taken up. The policies laid out in National Water Policy are being followed.
14.	MoWR, RD&GR may take up with the States to enact the Flood Plain Zoning Bill and implement it in a time bound manner.	A model bill for Flood Plain Zoning legislation was circulated by the Union Government in the year 1975 to all the States and Union Territories. The States of Manipur, Rajasthan and Uttarakhand have enacted legislations for the Bill and initial actions have been taken up. It is up to the States to enact the Flood Plain Zoning Bill.
15.	MoWR, RD&GR may conduct performance evaluation and concurrent evaluation of all	The para 9.1 of XII Plan FMP guidelines stipulates as under:

	FMP projects as per FMP guidelines.	The State Governments would commission concurrent evaluation studies for the projects during their execution through reputed independent organization(s) (not under the administrative control of MoWR, RD&GR or under the Irrigation/ Water Resources Department of the State Governments). This is normally carried out as per guidelines. If not, the same is insisted upon.
16.	MoWR, RD&GR may consider increasing the use of Remote Sensing Technology in the monitoring of FMP.	This is made use of for Flood Forecasting activities. For other activities, it can be considered subject to availability of adequate funds.
17.	CWC/GFCC may ensure quality tests on the quality of construction materials and works during field visits.	CWC stated that CWC/GFCC/BB do not have their own Quality control laboratories. It is the responsibility of the Project Authorities to ensure that the works are executed conforming to the prescribed standards. However, the monitoring team, as required, carries out random sample checks in the laboratories maintained by the project authority.
18.	MoWR, RD&GR may persuade the State Governments to immediately review the issues relating to damages/washing out of already constructed structures and take appropriate action for construction works not taken up.	This comes under the purview of the State Governments to address. Ministry does impress upon the State Governments suitably, wherever required.

Annexure II

State-wise Sampling

(Paragraph reference : 1.8)

A. Flood Management Programme

States	Works approved from 01.04.07 to 31.03.15	Sample projects for file scrutiny	Sample projects for site visit
1. Arunachal Pradesh	21	11	2
2. Assam	141	30	10
3. Bihar	47	24	4
4. Haryana	1	1	1
5. Himachal Pradesh	7	5	1
6. Jammu & Kashmir	42	21	4
7. Jharkhand	3	3	1
8. Kerala	4	4	1
9. Manipur	22	11	2
10. Odisha	68	30	7
11. Puducherry	1	1	1
12. Punjab	5	5	1
13. Sikkim	45	22	4
14. Tamil Nadu	5	5	1
15. Uttar Pradesh	29	14	3
16. Uttarakhand	21	10	2
17. West Bengal	18	9	2
Total	**480**	**206**	**47**

B. River Management and Works related to Border Areas

States	Total projects	Sample projects for file scrutiny	Sample projects for site visit
1. Assam (through BB)	13	4	1
2. Bihar	119	30	10
3. Jammu & Kashmir	3	2	1
4. Uttar Pradesh	32	8	3
5. West Bengal	17	5	2
Total		**49**	**17**

C. EAP for Dams

States	Number of Dams completed	Sample Dams for file verification	Sample Dams for site visit
1. Bihar	24	2	2
2. Himachal Pradesh	19	2	2
3. Jammu & Kashmir	14	2	2
4. Jharkhand	50	5	5
5. Kerala	61	6	6
6. Odisha	198	20	10
7. Punjab	14	2	2
8. Tamil Nadu	116	12	10
9. Uttar Pradesh	115	12	10
10. Uttarakhand	16	2	2
11. West Bengal	29	3	3
Total	**656**	**68**	**54**

D. Flood Forecasting (FF)

(in numbers)

States	Number of level FF stations	Number of inflow FF stations	Sample projects for file scrutiny of level FF stations	Sample projects for site visit of level FF stations	Sample projects for file scrutiny of inflow FF stations	Sample projects for site visit of inflow FF stations
1. Assam	24	0	6	2	0	0
2. Bihar	32	0	8	3	0	0
3. Haryana	0	1	0	0	1	1
4. Jharkhand	1	4	1	1	2	1
5. Odisha	11	1	3	1	1	1
6. Uttar Pradesh	34	1	9	3	1	1
7. Uttarakhand	3	0	1	1	0	0
8. West Bengal	11	3	3	1	2	1
Total	**116**	**10**	**31**	**12**	**7**	**5**

Note – Only eight States are included for Flood Forecasting because the stations are available only in these States out of the sample of 17 States/UT.

Annexure III

Statement showing the details of project files not furnished by the MoWR, RD&GR

(Paragraph reference: 1.8)

S. No.	States/UT	Total number Sampled projects	Number of Sampled projects for which record furnished	Project code number of Sampled projects for which records not furnished
1	**Arunachal Pradesh**	11	11	**0**
2	**Assam**	30	21	**9** AS-17, 26, 88, 102, 112, 122, 130, 135, 143
3	**Bihar**	24	14	**10** BR-3, 11, 12, 13, 14, 16, 22, 33, 38, 39
4	**Haryana**	1	1	0
5	**Himachal Pradesh**	5	3	**2** HP-5 & 9
6	**Jammu & Kashmir**	21	18	**3** JK-6, 9, 18
7	**Jharkhand**	3	3	0
8	**Kerala**	4	4	0
9	**Manipur**	11	11	0
10	**Odisha**	30	10	**20** OR-3, 12, 13, 15, 16, 17, 19, 21, 23, 25, 32, 35, 36, 44,46,50,54,56, 70, 74
11	**Puducherry**	1	1	**0**
12	**Punjab**	5	5	**0**
13	**Sikkim**	22	4	**18** SIK- 1,4,6,7,11,12,13,14,16,18, 21, 22, 24, 32,35,38,43, 45
14	**Tamil Nadu**	5	5	**0**
15	**Uttar Pradesh**	14	10	**4** UP-1,2,9, 10
16	**Uttarakhand**	10	8	**2** UK-4 & 19
17	**West Bengal**	9	7	**2** WB-3, 6
	Total	**206**	**136**	**70**

Annexure IV

Division wise details of the problems associated with the telemetry stations

(Paragraph reference: 4.4)

Divisions	Telemetry stations installed	Non-functional Telemetry stations	Non-functional period	Reasons
1. Upper Yamuna Division	14	8	Since 2008 in respect of two stations and 2015 in respect of three stations	In six sites telemetry stations were washed away/parts stolen/ part not working and in two stations site location was to be shifted.
2. Himalayan Ganga Division	9	7	Since June 2013	In six sites, telemetry stations were washed away/parts stolen/parts were not working and in one station constant/incorrect reading was received during flood season 2013 and 2014.
3. Middle Ganga Division-II, Lucknow	15	15	Since July 2013	Telemetry Data of all the stations was not matching with observed data, hence treated as all the stations were not working properly. In three sites i.e. Bareilly, Fatehgarh and Dabri, Systems were not working hence dismantled due to safety reason.
4. Middle Ganga Division-III, Varanasi	10	10	September 2011 to June 2012	The data received did not match with manually observed data. The data (both water level and rainfall) received were erratic and reported to be non-reliable since commissioning.
5. Middle Ganga Division-IV, Patna	8	8	June 2012 to December 2012	In four sites parts were stolen/parts were not working and in four stations real time data had never been received in these sites which was repeatedly reported for needful action.

Divisions	Telemetry stations installed	Non-functional Telemetry stations	Non-functional period	Reasons
6. Middle Ganga Division-V, Patna	6	6	January 2013	In all the six stations real time data had never been received in these sites as some part of the stations had been damaged/stolen which was repeatedly reported for needful action. Modelling Centre installed in Patna was non-functional from 20 June 14 to 06 April 2015. Presently, it was in start-up mode and displaying erroneous data. Real time data was not being received for any of the telemetry stations under the jurisdiction of MGD-IV and MGD-V since long.
7. Damodar Division	24	12	June 2007 to October 2013	In nine sites telemetry stations had not been switched on due to security reason/instrument not installed/equipment stolen/parts were not working and in three stations data was not received after installation of the system.
8. Middle Brahmaputra Division, Guwahati	6	2	March 2012 and July 2015	Solar panel and battery had been stolen and in other site date logger was not working.
9. Lower Brahmaputra Division, Jalpaiguri	5	5	April 2011 to March 2016	Non-receipt of any real time data since installation of the systems till March 2016. In all the five stations constant water level data was visible at their respective modelling centre since inception.
10. Krishna & Coordination Circle, Hyderabad	41	1	2009	Submerged during 2009 floods.
11. Lower Godavari	67	2	19 September 2008 and 02	One washed away during 2008 flood and solar panel

Divisions	Telemetry stations installed	Non-functional Telemetry stations	Non-functional period	Reasons
Division/Upper Godavari Division, Hyderabad			March 2015	etc. stolen of other telemetry station.
12. CWC, Chennai	5	1	November 2015	Equipment was not giving the reading since 2015.
13. Tapi Division, Surat	38	38	09 May 2011 to 29 August 2012	Out of 38 telemetry stations only four telemetry stations have found matched water level with manually observed water level and none of the telemetry stations have matched rainfall data with manually observed rainfall data from September 2012 to 31 October 2014. Tipping Bucket Rain Gauges (TPRGs) supplied by M/s ESTL did not perform as per specifications during the monsoon seasons 2012, 2013 and 2014 and have not been tested and certified by IMD. They showed wide variation when compared with the data of Standard Rain Gauge (SRG).

Divisions	Telemetry stations installed	Non-functional Telemetry stations	Non-functional period	Reasons
14. Mahi Division, Ahmedabad	38	38	March 2011 to July 2012	Out of 38 telemetry stations only seven telemetry stations have found matched water level with manually observed water level upto 26 November 2012. Nine telemetry stations remained non-functional from September 2012 to 16 February 2013. Two stations namely Somkamala Amba Dam and Paderibadi remained non-functional with effect from 02 August 2012 to 15 September 2012 and 19 September 2012 to 15 October 2012, respectively. Status after 16 February 2013 was not available. Tipping Bucket Rain Gauges (TPRGs) supplied by M/s ESTL have not performed as per specifications during the monsoon seasons 2012, 2013 and 2014 and have not been tested and certified by IMD. They have shown wide variation when compared with the data of Standard Rain Gauge (SRG). (Upto October 2014).
15. Mahanadi-Eastern River Division, Burla, Sambalpur, Odisha		2	03 November 2012 and 18 June 2012	Stations were not reporting to modelling centre at Burla since 03 November 2012 and 18 June 2012 respectively upto 22 August 2014.
16. Eastern River Division, Bhuvneshwar	34	34	March 2012	Data was not received from all the sites at Bhuvneshwar modelling centre from March 2012 to 22 November 2012. 17 stations were not reporting from June 2013 to September 2013 (position as on 26 October 2013).

Divisions	Telemetry stations installed	Non-functional Telemetry stations	Non-functional period	Reasons
17. Middle Ganga Division-I, Lucknow	11	11	August 2011 to March 2012	In all the stations telemetry data was not matching with Manual Data. Maintenance of the Telemetry stations was not satisfactory. (Upto January 2016).
18. Lower Yamuna Division	15	15	01 July 2011 to 20 December 2011	All the sites commissioned between 01 July 2011 to 20 December 2011 were non-functional/ transmitted erroneous data for 139 days between 12 January 2012 to 01 October 2012 and the contractor is liable to pay penalty of around ₹ one crore. Status after January 2013 was not available.
19. Lower Ganga Division	29	7	Not available	In two sites, battery and Solar plate had been stolen and reported to service provider which had not been provided till date. In other five sites nozzle/cable were damaged. This was reported to service provider, which had not been provided till date.
Total	**375**	**222**		

Abbreviations	
AA	Administrative Approval
BB	Brahmaputra Board
BCR	Benefit Cost Ratio
BoQ	Bill of Quantity
BT	Bitumen
CA	Central Assistance
CAT	Catchment Area Treatment
CE	Concurrent Evaluation
CE	Chief Engineer
CMP	Comprehensive Master Plan
CMP	Crisis Management Plan
CPWD	Central Public Works Department
cu m	Cubic Meter
CWC	Central Water Commission
DEM	Digital Elevation Model
DMP	Disaster Management Plan
DPR	Detailed Project Report
DSO	Dam Safety Organization
EA	Executing Agency
EAP	Emergency Action Plan
EC	Empowered Committee
EE	Executive Engineer
EFC	Expenditure Finance Committee
FF	Flood Forecasting
FFS	Flood Forecasting Station
FMP	Flood Management Programme
FPA	Flood Prone Area
FYP	Five Year Plan
GFCC	Ganga Flood Control Commission
GFR	General Financial Rules
GL/WB	Glacial Lake and Water Bodies
GoI	Government of India
ha	Hectare
IIT	Indian Institute of Technology
IMC	Inter- Ministerial Committee
IMD	India Meteorological Department
km	Kilometer
m	Meter
m ha	Million hectares
MoF	Ministry of Finance
MoWR, RD&GR	Ministry of Water Resources, River Development and Ganga Rejuvenation
NCDS	National Committee on Dam Safety
NDMA	National Disaster Management Authority
NIH	National Institute of Hydrology

NMCG	National Mission for Clean Ganga
NRSC	National Remote Sensing Centre
O&M	Operation and Maintenance
PPR	Preliminary Project Report
PSC	Parliamentary Standing Committee
PWD	Public Works Department
RBA	Rashtriya Barh Ayog
RCC	Reinforced Cement Concrete
RMABA	River Management Activities and works related to Border Areas
SBD	Standard Bidding Document
SFCB	State Flood Control Board
SOPs	Standard Operating Procedures
SoR	Schedule of Rate
STAC	State Technical Advisory Committee
UC	Utilisation Certificate
WBM	Water Bound Macadam
WRD	Water Resource Department
WRRDD	Water Resource and River Development Department