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**STANDING COMMITTEE ON WATER RESOURCES  
(2022-23)**

**SEVENTEENTH LOK SABHA**

**MINISTRY OF JAL SHAKTI  
DEPARTMENT OF WATER RESOURCES, RIVER DEVELOPMENT & GANGA  
REJUVENATION**

**DEMANDS FOR GRANTS (2023-24)**

**TWENTIETH REPORT**



**LOK SABHA SECRETARIAT**

**NEW DELHI**

March, 2023 / Phalguna, 1944 (Saka)

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**DEPARTMENT OF WATER RESOURCES, RIVER DEVELOPMENT & GANGA**  
**REJUVENATION**

**DEMANDS FOR GRANTS**  
**(2023-24)**

*Presented to Lok Sabha on 20.03.2023*  
*Laid on the Table of Rajya Sabha on 17.03.2023*



**LOK SABHA SECRETARIAT**  
**NEW DELHI**

March, 2023 / Phalguna, 1944 (Saka)

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**COMPOSITON OF THE STANDING COMMITTEE ON WATER RESOURCES  
(2022-23)**

**Shri Parbatbhai Savabhai Patel - Chairperson**

**LOK SABHA**

2. Shri Vijay Baghel
3. Shri Nihal Chand Chauhan
4. Shri Bhagirath Choudhary
5. Shri Chandra Prakash Choudhary
6. Shri Guman Singh Damor
7. Dr. Heena Vijaykumar Gavit
8. Dr. K. Jayakumar
9. Shri Dhanush M. Kumar
10. Shri Sunil Kumar
11. Shri Mohammad Akbar Lone
12. Shri Kuruva Gorantla Madhav
13. Shri Hasmukhbhai Somabhai Patel
14. Shri Sanjay (Kaka) Ramchandra Patil
15. Shri P. Ravindhranath
16. Ms. Nusrat Jahan Ruhi
17. Smt. Agatha K. Sangma
18. Shri Pratap Chandra Sarangi
19. Shri Chandan Singh
20. Shri D.K. Suresh
21. Shri Shivkumar C. Udasi

**RAJYA SABHA**

22. Shri H.D. Devegowda
23. Shri Aneel Prasad Hegde
24. Dr. Kirodi Lal Meena
25. Smt. Mausam Noor
26. Shri Sharad Pawar
27. Shri V. Vijayendra Prasad
28. Shri Arun Singh
29. Sant Balbir Singh
30. Shri Pramod Tiwari
31. Vacant

## **SECRETARIAT**

1. Shri Chander Mohan - Joint Secretary
2. Shri Ajay Kumar Sood - Director
2. Shri Ram Lal Yadav - Additional Director
3. Shri Gaurav Jain - Assistant Committee Officer

## **INTRODUCTION**

I, the Chairperson, Standing Committee on Water Resources (2022-23) having been authorized by the Committee to submit the Report on their behalf, present the Twentieth Report on Demands for Grants (2023-24) of the Ministry of Jal Shakti - Department of Water Resources, River Development & Ganga Rejuvenation.

2. The Demands for Grants have been examined by the Committee under Rule 331E(1)(a) of the Rules of Procedure and Conduct of Business in Lok Sabha.

3. The Committee took evidence of the representatives of the Ministry of Jal Shakti - Department of Water Resources, River Development & Ganga Rejuvenation on 21.2.2023.

4. The Report was considered and adopted by the Committee at their sitting held on 14.3.2023.

5. The Committee wish to express their thanks to the representatives of the Ministry of Jal Shakti - Department of Water Resources, River Development & Ganga Rejuvenation for providing them the requisite written material and for making oral depositions before the Committee in connection with the examination of the subject.

6. The Committee would also like to place on record their sense of deep appreciation for the assistance rendered to them by the officials of the Lok Sabha Secretariat attached to the Committee.

**NEW DELHI**  
**14 March, 2023**  
**23 Phalgun, 1944 (Saka)**

**Parbatbhai Savabhai Patel**  
*Chairperson,*  
***Standing Committee on Water Resources***

## ABBREVIATIONS

Atal Jal	:	Atal Bhujal Yojana
AIBP	:	Accelerated Irrigation Benefit Programme
AIIB	:	Asian Infrastructure Investment Bank
AMRUT	:	Atal Mission for Rejuvenation and Urban Transformation
Appx.	:	Approximately
BBMB	:	Bhakra Beas Management Board
BCM	:	Billion Cubic Meter
BE	:	Budget Estimate
BOD	:	Biochemical Oxygen Demand
CA	:	Central Assistance
CAD	:	Command Area Development
CAMPA	:	Compensatory Afforestation Fund Management and Planning Authority
CADWM	:	Command Area Development and Water Management Programme
CCA	:	Cultivable Command Area
CCEA	:	Cabinet Committee on Economic Affairs
CEDAR	:	Centre for Ecology Development & Research
CEE	:	Committee on Establishment Expenditure
CoE	:	Centre of Excellence
CGF	:	Clean Ganga Fund
CGWB	:	Central Ground Water Board
CM	:	Chief Minister
CNA	:	Central Nodal Account
COD	:	Chemical Oxygen Demand
CPCB	:	Central Pollution Control Board
CPMU	:	Central Project Management Unit
CSMRS	:	Central Soil and Materials Research Station
CSR	:	Corporate Social Responsibility
CSS	:	Centrally Sponsored Schemes
CWC	:	Central Water Commission
CWRDM	:	Centre for Water Resources Development and Management
CWPRS	:	Central Water and Power Research Station
DDP	:	Desert Development Programme
DoDWS	:	Department of Drinking Water and Sanitation
DFG	:	Demands for Grants
DA&FW	:	Department of Agriculture & Farmers Welfare
DO	:	Dissolved Oxygen
DoWR, RD & GR	:	Department of Water Resources, River Development & Ganga Rejuvenation
DPR	:	Detailed Project Report
DRIP	:	Dam Rehabilitation and Improvement Programme
DVC	:	Damodar Valley Corporation
DWRIS	:	Development of Water Resources Information System
EAP	:	Externally Aided Project Component
EAP	:	Emergency Action Plan



EBR	:	Extra Budgetary Resources
EC	:	Electrical Conductivity
EFC	:	Expenditure Finance Committee
EPC	:	Engineering, Procurement and Construction
FRs	:	Feasibility Reports
FSSM	:	Fecal Sludge and Septage Management
FMBAP	:	Flood Management and Border Areas Programme
FMP	:	Flood Management Programme
FY	:	Financial Year
FR	:	Feasibility Report
GD	:	Gauge & Discharge
GLOF	:	Glacial Lake Outburst Flood
GST	:	Goods and Services Tax
GWM&R	:	Ground Water Management and Regulation
GOI	:	Government of India
Ha	:	Hectare
HDPE	:	High Density Polyethylene
HFL	:	Highest Flood Level
HKKP	:	Har Khet Ko Pani
HO	:	Hydrological Observation
HRD	:	Human Resource Development
IAs	:	Implementing Agencies
ICAR	:	Indian Council of Agricultural Research
IEBR	:	Internal External Budgetary Resources
IIT	:	Indian Institute of Technology
IIHL	:	Individual Household Latrines
ILR	:	Interlinking of Rivers
IOCL	:	Indian Oil Corporation Limited
I.P.	:	Irrigation Potential
ISRWD	:	Inter-State River Water Disputes
ISO	:	International Standards of Organization
IUCN	:	The International Union for Conservation of Nature
JJM	:	Jal Jeevan Mission
JSA	:	Jal Shakti Abhiyan
KLD	:	Kilo Litres Per Day
LA	:	Land Acquisition
LS	:	Lok Sabha
LTIF	:	Long Term Irrigation Fund
MGNREGS	:	Mahatma Gandhi National Rural Employment Guarantee Scheme
MIDH	:	Mission on Integrated Development of Horticulture
MI	:	Minor Irrigation
MLD	:	Million Litres Per Day
MMI	:	Major / Medium Irrigation
MoDW&S	:	Ministry of Drinking Water and Sanitation
MoEF&CC	:	Ministry of Environment, Forest and Climate Change
MoJS	:	Ministry of Jal Shakti
MoWR	:	Ministry of Water Resources
MoWR, RD & GR	:	Ministry of Water Resources River Development and Ganga Rejuvenation

MoU	:	Memorandum of Understanding
NABARD	:	National Bank for Agricultural and Rural Development
NAPCC	:	National Action Plan on Climate Change
NAQUIM	:	National Aquifer Mapping & Management Programme
NBWUE	:	National Bureau of Water Use Efficiency
NCIWRD	:	National Commission on Integrated Water Resources Development
NEWMA	:	North East Water Management Authority
NPV	:	Net Present Value
NGP	:	National Ganga Plan
NGRBA	:	National Ganga River Basin Authority
NHAI	:	National Highways Authority of India
NHP	:	National Hydrology Project
NITI Ayog	:	National Institution for Transforming India Ayog
NMCG	:	National Mission for Clean Ganga
NMSHE	:	National Mission for Sustainable Himalayan Ecosystem
NP	:	National Project
NPP	:	National Perspective Plan
NPMU	:	National Project Monitoring Unit
NRCD	:	National River Conservation Directorate
NRCP	:	National River Conservation Plan
NRIs	:	Non Resident Indians (NRIs),
NWDA	:	National Water Development Agency
NWIC	:	National Water informatics Centre
NWM	:	National Water Mission
NWMP	:	National Water Quality Monitoring Programme
OFD	:	On-Farm Development
ODF	:	Open Defecation Free
O&M	:	Operation and Maintenance
PCCs	:	Pollution Control Committee
PDMC	:	Per Drop More Crop
PIM	:	Participatory Irrigation Management
PIO	:	Persons of Indian Origin
PIP	:	Public Interaction Programmes
PL	:	Price List
PMKSY	:	Pradhan Mantri Krishi Sinchayee Yojana
PMO	:	Prime Minister Office
PPP	:	Public-Private Partnership
PSU	:	Public Sector Undertakings
PWD	:	Public Works Department
RBC	:	Right Bank Canal
RBM	:	River Basin Management
RE	:	Revised Estimate
RISAT	:	Radar Imaging Satellite
RMBA	:	River Management Activities & Works related to Border Areas
RMIS	:	Rationalization of Minor Irrigation Statistics
RRR	:	Repair, Renovation and Restoration
R&D	:	Research and Development
RTDAS	:	Real Time Data Acquisition System
SAR	:	Synthetic Aperture Radar
SCADA	:	Supervisory Control and Data Acquisition
SFC	:	Standing Finance Committee
SNA	:	Single Nodal Account

SMI	:	Surface Minor Irrigation
SPCBs	:	State Pollution Control Boards
SPMU	:	State Project Monitoring Unit
STPs	:	Sewage Treatment Plants
SWM	:	Solid Waste Management
TAMC	:	Technical Assistance and Management Consultancy
TC	:	Technical Committee / Total Coliform
TDS	:	Total Dissolved Solids
TPGVA	:	Third Party Government Verification Agency
UGPL	:	Underground Pipeline
ULBs	:	Urban Local Bodies
UTs	:	Union Territories
UYRB	:	Upper Yamuna River Board
WSPs	:	Water Security Plans
World Bank	:	World Bank
WRD	:	Water Resources Department
WQ	:	Water Quality Stations
WUAs	:	Water User Associations

**REPORT**  
**PART - I**  
**NARRATION ANALYSIS**

Our country is endowed with a rich and vast diversity of natural resources, water being the most precious of them. Water security, water management and its development is of immense importance in all walks of human life and also for all living beings. Integrated water management is essential for environmental sustenance, sustainable economic development of the country and for bettering human life through poverty reduction.

1.2 The Department of Water Resources, River Development and Ganga Rejuvenation (DoWR, RD & GR) comes under the jurisdiction of the Ministry of Jal Shakti and is responsible for laying down policy guidelines and programmes for the development, conservation and management of water as a national resource. It is also responsible for an overall national perspective of water planning and coordination in relation to diverse uses of water; water laws and legislations; addressing inter-State and trans-boundary water issues; bilateral and multi-lateral cooperation; and general policy guidelines and programmes for assessment, development and regulation of the country's water resources. This Department is also responsible for water quality assessment; rejuvenation of River Ganga and its tributaries and also conservation and abatement of pollution in other rivers. It is also allocated the subjects pertaining to regulation and development of inter-State rivers; implementation of awards of Tribunals; technical guidance, scrutiny, clearance and monitoring of the irrigation, flood control and multi-purpose projects; ground water management; flood proofing; water logging; sea erosion and dam safety.

**Salient features of the Union Budget (2023-24) with regard to Water Resources Sector**

1.3 On being asked about the salient features of the Union Budget (2023-24) with regard to Water Resources Sector, the Department, in their written reply stated as under:-

*I. Union Budget 2023-24 features Upper Bhadra multi-purpose project aiming to augment water availability for the drought prone regions of Karnataka. The relevant Para of the Budget speech 2023-24 is as follows:-*

*"In the drought prone central region of Karnataka, central assistance of Rs. 5,300 crore will be given to the Upper Bhadra Project to sustain micro irrigation and filling up of surface tanks for drinking water".*

*II. In FY 2023-24, Rs. 118.19 Cr. has been allocated for cost sharing for launching RISAT-1B, which is to be paid to Department of Space. Some objectives of the RISAT mission are to use the all-weather as well as the day and night SAR (Synthetic Aperture Radar) observation capability in*

applications such as agriculture, forestry, soil moisture, geology, sea ice, coastal monitoring, object identifications and flood monitoring.

III. Rs. 12.68 crore has also been allocated to the newly created National Dam Safety Authority which is mandated to look into various aspects of safety of the dams in the country including providing necessary direction, advice and support to the dam owners.

The budgetary allocation of the Department of Water Resources, River Development and Ganga Rejuvenation for financial year 2023-24 is Rs. 20,054.67 crore as compared to BE of Rs. 18,967.88 crore and RE of Rs.14,000 crore during 2022-23”.

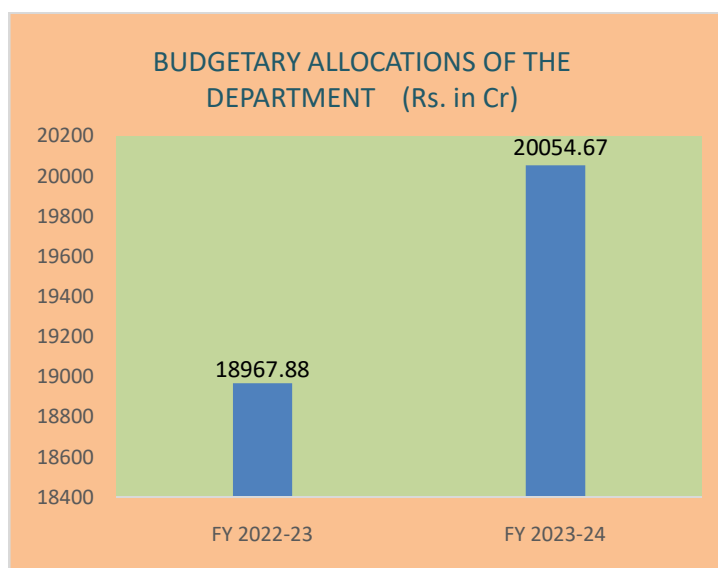
**Budgetary Allocations for FY 2023-24**

1.4 The Department has informed that the detailed Demands for Grants in Demand No. 62 of the DoWR, RD & GR were laid on the Table of Lok Sabha on 09 February, 2023. A total budgetary Provision of Rs. 20054.67 crore has been made for the fiscal year 2023-24. The following table shows the total allocation of Budget for the DoWR, RD & GR for the year 2023-24:

**Total Budgetary Allocations (2023-24)**

(Rs. in crore)

Revenue	19694.19
Capital	360.48
<b>Total</b>	<b>20054.67</b>



1.5 As per the information furnished by the Department, the following table shows the comparative analysis of the Demands for Grants (BE) for fiscal year 2023-24 vis-a-vis 2022-23:

*(Rs. in crore)*

Year	Revenue (BE)	Capital (BE)	Total
2022-23	18548.05	419.83	18967.88
2023-24	19694.19	360.48	20054.67

1.6 Further, the Department in a written reply informed the Committee that it sought Rs. 22673.53 crore for FY 2023-24, however, it obtained only Rs. 20054.67 crore.

**Comparative Statement of Budgetary Allocation of the Department of Water Resources River Development and Ganga Rejuvenation for the fiscal year 2023-24 vis-a-vis 2022-23**

*(Rs. in crore)*

Sl. No.	Item(s)	2022-23		2023-24	% increase in 2023-24 (BE) over 2022-23 (RE)
		BE	RE	BE	
1.	<b>Establishment Expenditure of the DoWR, RD &amp; GR</b>	1141.90	1140.37	1409.33	23.58
<b>I. Central Sector Schemes/Projects</b>					
2.	Farakka Barrage Project	110.98	45.98	55.98	21.74
3.	Dam Rehabilitation and Improvement Programme	100.00	25.00	50.00	100
4.	National Ganga Plan (Namami Gange Mission II)	2800.00	2500.00	4000.00	60
5.	River Basin Management	97.00	101.64	110.00	8.22
6.	Development of Water Resources Information System	185.00	140.00	162.13	15.80
7.	Ground Water Management & Regulation	375.00	315.00	330.00	4.76
8.	National Hydrology Project	800.00	512.51	500.00	(- 2.44)
9.	Research & Development and National Water Mission	52.88	35.00	50.00	42.85
10.	Atal Bhujal Yojana	700.00	700.00	1000.00	42.85
<b>II. Centrally Sponsored Schemes</b>					
11.	Har Khet Ko Pani	5369.97	4424.50	4175.00	(-5.63)
12.	Command Area Development and Water Management	1044.00	140.00	400.00	185.71

13.	Accelerated Irrigation Benefit Programme and National/special Projects	3237.69	1800.00	3122.23	73.45
14.	Flood Management and Border Areas Programme	450.00	450.00	450.00	-
15.	Irrigation Census	52.78	30.00	40.00	33.33
16.	Special package for Maharashtra	800.00	240.00	400.00	66.66
17.	National River Conservation Plan - Other basins	250.68	300.00	300.00	-
18.	Interlinking of Rivers	1400.00	1100.00	3500.00	218.18
19.	<b>Grand Total</b>	<b>18967.88</b>	<b>14000.00</b>	<b>20054.67</b>	<b>43.24</b>

### **Utilization of Budgetary Allocations of the Department**

1.7 Regarding the budgetary allocations and expenditure of the Department of Water Resources, River Development and Ganga Rejuvenation for the last few years, the Department submitted the following information:

#### **DoWR, RD & GR - Allocation and Expenditure**

(Rs. in crore)

<b>Year</b>	<b>BE</b>	<b>RE</b>	<b>Actual</b>
2019-20	8245.25	7518.21	7418.60
2020-21	8960.39	7262.09	7232.09
2021-22	9022.57	18008.70	17215.16
2022-23	18967.88	14000.00	7671.21*
2023-24	20054.67	-	-

\* till 31 December 2022.

1.8 On being asked about the reasons for reductions of budgetary allocations at RE stage, and meagre utilization of budgetary allocations in first three quarters of FY 2022-23, the Department in a written reply stated:

*“To ensure better utilization and to avoid parking of funds, Ministry of Finance has introduced revised procedure for flow of funds for the projects/programmes under the Central sector as well as the State Sector schemes. Under the new procedure, funds for the Central Sector schemes are to be routed through Central Nodal Account (CNA) and those for the State Sector schemes through Single Nodal Account (SNA). After initial implementation issues release of funds under the CNA is being done without much difficulty and the activities under the Central Sector schemes are relatively unaffected. Under the SNA, being initial years of implementation, State Governments were not equipped to adapt to the new fund flow mechanism resulting in teething problems. After the department pursued with them, the State Governments have implemented SNA for the schemes and the releases have*

*resumed. However, under SNA, releases to States are required to be made in 4 instalments and it is observed that most States have not been able to submit proposals for release of more than 2 instalments so far. In addition to the delay in implementation of SNA, the State Governments were not able to spend the funds already released, resulting in lesser release”.*

1.9 Further, on the issue of underutilization of budgetary provisions, the representative of the Department of Water Resources, River Development and Ganga Rejuvenation (DoWR, RD &GR) during the sitting held on 21.02.2023 in connection with the examination of the DFG (2023-24) of the Department, deposed before the Committee as follows:

“सर, एक बड़ा चिंता का विषय है, जिसे माननीय सदस्यों ने इंगित किया है। हमारा इस साल का जो बजट ऐस्टिमेट था, उसके कम्पेरिजन में हमारा जो रिवाइज्ड एलोकेशन है, वह बहुत कम हो गया है। करीब 5 हजार करोड़ की कमी आई है, इसमें 26 परसेंट की गिरावट है। इससे हम लोग भी बहुत चिंतित हैं, क्योंकि मेरे स्तर पर भी बहुत सारे रिव्यूज हुए हैं, लेकिन उसके बावजूद यह स्थिति है कि हम लोग पूरे एलोकेशन का इस्तेमाल नहीं कर पा रहे हैं। जब हमने इसकी जांच की तो हमने पाया कि इसमें एक मेजर मुद्दा है, जो नया फाइनेंशियल सिस्टम शुरू किया गया है – सिंगल नोडल एकाउंट सिस्टम, इसमें एक प्रावधान है कि पहले पैसा दो किस्तों में स्टेट्स को जाता था, अब चार किस्तों में देने का प्रावधान किया गया है। हमारी जो स्कीम्स हैं, इरिगेशन की स्कीम्स में आप देखेंगे कि मैक्सिमम इफेक्ट हुआ है, हमारा 33 प्रतिशत बजट रिड्यूस हुआ है, पीएमकेएसवाई और स्पेशल पैकेज ऑफ महाराष्ट्र में। हमारे जो पीएमकेएसवाई के प्रोजेक्ट्स होते हैं, उनके लिए जो काम करने की विंडो है, वह लिमिटेड होती है। अक्टूबर से मई-जून तक काम हो पाता है। जो कैड के प्रोजेक्ट्स हैं, उनमें यह विंडो और भी लिमिटेड है। जनवरी टू मार्च काम हो पाता है। इसलिए हमारी स्कीम्स का नेचर ऐसा है कि ये दो किस्तों वाले सिस्टम में तो ठीक से चलेंगी, लेकिन चार किस्तों वाले में, मेरे खयाल से इसमें काफी समस्या आने वाली है। मेरा अनुरोध होगा कि इस पर अगर माननीय सदस्य विचार करें और कुछ अनुशंसा करें, हम लोग भी इसको मिनिस्ट्री ऑफ फाइनेंस से टेक-अप करेंगे। अपनी समस्याएं उनको अवगत कराएंगे, लेकिन यह एक ऐसी बात थी, जो मैं आपके समक्ष रखना चाहता था”।

### **Implementation of Schemes/Programmes**

1.10 When asked to furnish the details of the Schemes/Projects where allocation have been increased by more than 20% for FY 2023-24 viz.-a-viz. FY 2022-23 along with the reasons for such increase, the Department furnished the data as under:

*“The information is furnished below:*



(Rs in crore)

Name of the Scheme	BE allocation 2022-23	BE allocation 2023-24	% increase	Reasons
Namami Gange	2,800	4,000	43%	During the current year (FY 2022-23) upto December 2022, 19 Projects with estimated cost of Rs. 2,397.23 crore have been approved, out of which capital cost is estimated to be Rs. 1,319.65 crore. Most of these projects will be awarded during the next year, and a substantial outgo towards their implementation is expected during the next year. Further, 66 DPRs are in the advanced stage of appraisal, and are likely to be approved during the next few months. This will further add to the expected demand for FY 2023-24. All these are in addition to the demand for on-going projects, and O&M requirements for completed projects. The enhanced BE provision of Rs. 4,000 crore for FY 2023-24 has been proposed keeping in view the position above.
ATAL JAL	700	1,000	43%	The allocation of Atal Jal has increased from Rs. 700 crore in FY 2022-23 to Rs. 1,000 crore in FY 2023-24 (increase of approx. 43%). The scheme will enter into second last year of implementation in FY 2023-24 and major focus will now be on disbursement of incentives funds to the implementing States based upon their achievements in pre-defined targets.
Interlinking of Rivers	1,400	3,500	150%	The increase is mainly to cater to the expenditure on land acquisition for Phase-I components which is likely to be completed in FY 2023-24 and also funding for civil works of three projects of Phase-II.”

1.11 On being asked to state the details of the Schemes where allocations have been reduced by more than 20% for FY 2023-24 viz.-a-viz. FY 2022-23 along with the reasons for such decrease, the Department stated as follows:

“The information is furnished below:

(Rs in crore)

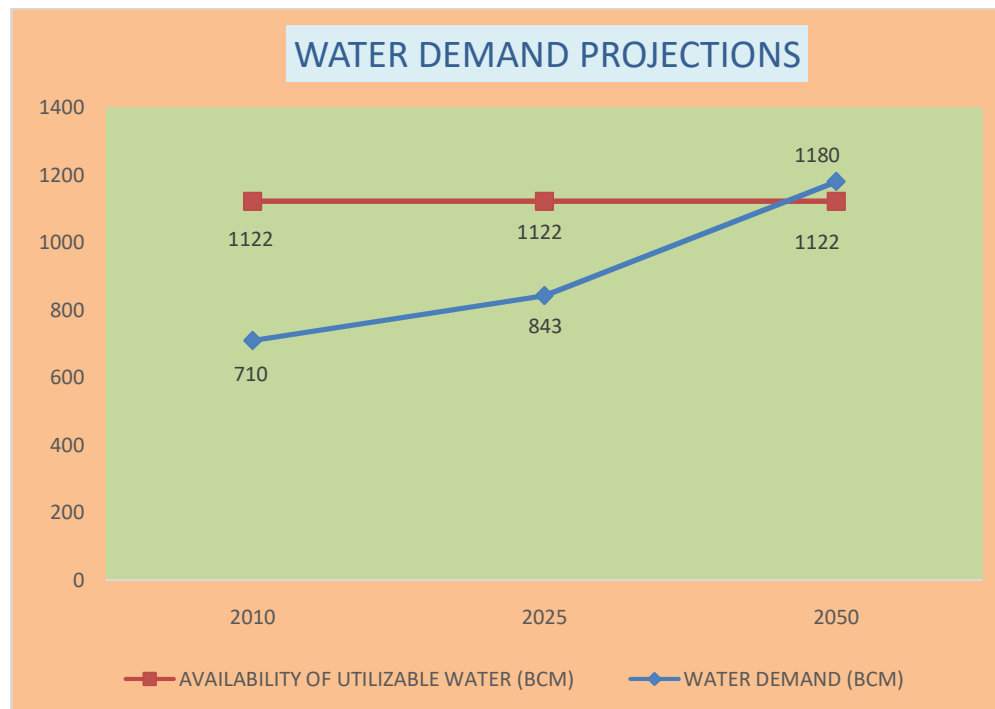
Name of the Scheme	BE allocation 2022-23	BE allocation 2023-24	% decrease	Reasons
Farakka Barrage Project	155	100	-35.5%	BE allocated for the FY 2022-23 was Rs. 155 crore. Considering the pace of expenditure the same was reduced to 90.00 crore at RE stage. It is expected that FBP would be able to spend similar amount during 2023-24. Hence BE 2023-24 has been kept at 100 crore.
Dam Rehabilitation and Improvement Project	100	50	-50%	During FY 2022-23, the allocated BE was Rs 100 crore, which was having the provisions for payment of the consultancy cost along with payment toward Centre of Excellence. There has been some delay in appointment of the consultant. MoU with IIT Roorkee has been signed on 14.02.2023.  Delay in appointment of consultant resulted in reduction of BE 2023-24 vis a vis BE 2022-23.
National Hydrology Project	800	500	-37.5%	The budget allocation for financial year 2023-24 is Rs. 500 crore (less than RE allocation for 2022-23). It is expected that the requirement of funds during next financial year would be more than allocated fund in order to makeup delays in installation of RTDAS and SCADA. Implementing agencies/States are being persuaded in this regard. Less requirement of fund is on account of non-availability of microprocessor chips which are part of Real Time Data Acquisition System (RTDAS) and Supervisory Control and Data Acquisition (SCADA) systems being installed under NHP as a result of which the commissioning of the system is delayed and, therefore, payments to vendors cannot be released.
Special Package for Maharashtra	800	400	-50%	The scheme has been approved for implementation till 2022-23 only. Therefore, provision for central assistance for expenditure made during 2022-23 has considered while making the demand.

## Challenges in Water Sector

1.12 Regarding the information about the Water Demand Projections of the country, the Department submitted as follows:

<b>Water Demand Projections</b>			
<b>Particulars</b>	<b>Water Demand in Km<sup>3</sup> or BCM</b>		
	<b>2010</b>	<b>2025</b>	<b>2050</b>
Water Demand from all Sectors	710	843	1180
Irrigation	557	611	807
Drinking Water	43	62	111
Industry	37	67	81
Energy	19	33	70
Others	54	70	111
Availability of Utilisable Water	1122	1122	1122
<b>Excess/Shortfall</b>	<b>412</b>	<b>279</b>	<b>-58</b>

(Source: National Commission on Integrated Water Management, 1999)



1.13 During the oral evidence held on 23.02.2023, the representative of the Department of Water Resources, River Development and Ganga Rejuvenation, submitted before the Committee as follows:

*“...हिन्दुस्तान में पूरे विश्व की 18 प्रतिशत आबादी है और 18 प्रतिशत कैटल पापुलेशन भी है। Four percent of the world’s freshwater resources are with us. So, it is definitely a challenge. जो यूटिलाइजेबल वाटर है, ग्राउंडवाटर और सर्फेस वाटर को मिलाकर 1,122 बिलियन क्यूबिक मीटर्स है। Our water demand is increasing mainly because we are developing. जैसे-जैसे हम डेवलेप करते हैं, वैसे-वैसे वाटर डिमांड इंक्रीज होती है। जैसे-जैसे आबादी गो करती है, वैसे-वैसे वाटर डिमांड गो करता है। So, the gap between demand and supply is expected to grow. हम क्लाइमेट चेंज के साथ देख रहे हैं, जबकि प्रिडक्शन ये है कि टोटल पानी की उपलब्धता नहीं घटेगी, लेकिन किस वक्त कितना पानी मिलेगा, that becomes more uncertain. So, what we are saying is spatial variability and temporal variability. We will see more extreme precipitation event...”*

1.14 Further elaborating on the issue of water demand projection, the representative deposed before the Committee as under:

*“...मैं वाटर डिमांड प्रोजेक्शन पर एक ही बात कहना चाहती हूँ। अगर आप देखेंगे, तो अवेलिबिलिटी ऑफ यूटिलाइजेबल वाटर को हमने एक ही रखा है, क्योंकि उसमें बहुत ज्यादा फर्क नहीं पड़ने वाला है। Today, when we talk about 2025, we are saying overall in India we have 279 BCM excess. This does not mean much because much of our utilizable water is in the Brahmaputra-Barak Basin. So, there is huge spatial variation and there are areas that suffer. आज की तारीख में हम 279 एक्सेस कह रहे हैं। Even that, in 2050 with business as usual, we are looking at minus 58 at the national level. मैं बस यही कहना चाहूंगी...”*

### **North-East Water Management Authority**

1.15 On being asked about the salient features / importance of the North-East Water Management Authority and the progress made with regard to formation of this Authority, the Department, in a written reply, stated as under:

*“a. Authority to provide equitable, integrated, coordinated development and management of water resources of the Brahmaputra and Barak river basin.*

- b. *The authority will manage water resources of Brahmaputra and Barak basin in an integrated manner with due regard to relationship between surface and ground water resources, keeping in view environmental aspects of such management.*
- c. *Interest of the State Governments of the basin will be taken care of by inclusion of Chief Ministers of all member States of the basin in Governing Council of the authority which will be chaired by Union Minister of Jal Shakti.*
- d. *To further emphasize the spirit of cooperation between basin States and the Central Government, a Chief Minister from each of the basin States by rotation in alphabetical order will be Vice-Chairman of the Governing Council for one year each.*
- e. *The day to day functioning of the Authority will be vested in the CEO of Authority who will be assisted by five Members namely-Member (Power), Member (Flood& Erosion Management), Member (Water and Environment), Member (Finance), and Member (Administration) of the Authority.*
- f. *The authority will be a multi-disciplinary body, unlike its predecessor organization, Brahmaputra Board, which was basically a single discipline body for flood control.*
- g. *States of the basin will have more say in the affairs of the NEWMA through the structure of the Governing Council. The authority will also look after other water bodies viz - lakes etc. and their relationship with Brahmaputra and Barak basin as an integrated unit.*
- h. *The Department has prepared a Bill, titled, North East Water Management Authority Bill, 2023, in consultation with the Ministry of Law and Justice. The draft Cabinet Note for introduction of the Bill is currently under consideration of the Government.*
- i. *The Authority will come into existence, once the NEWMA Bill is approved by the Parliament and is made into an Act”.*

### **Mission Amrit Sarovar**

1.16 As per the information furnished by the Department, Hon'ble Prime Minister launched Amrit Sarovar Mission on 24th April 2022. The Mission is aimed at developing and rejuvenating 75 water bodies in each district of the country as a part of celebration of Azadi ka Amrit Mahotsav.

1.17 On being asked about the progress made in connection with the Mission Amrit Sarovar and time period fixed for creation and rejuvenation of these water bodies, the Department, in its written reply, stated as follows:

“Amrit Sarovar Mission has been launched by Hon’ble Prime Minister in addition to the existing Repair, Renovation and Restoration (RRR) schemes. Those water bodies included under the RRR scheme which were/ are likely to be completed by August 2023, have identified in consultation with the State Governments concerned, to be included as Amrit Sarovars. A total of 608 water bodies under RRR of water bodies scheme were identified for implementation as Amrit Sarovars. Out of these, so far, renovation of 211 water bodies have been completed”.

1.18 On being asked about the financing of Mission Amrit Sarovar and proposal of creating of any separate dedicated fund for this purpose, the Department stated as under:

“No separate dedicated funds is proposed under Amrit Sarovar initiative. It is to mention that Repair, Renovation and Restoration (RRR) of Water Bodies schemes are funded under PMKSY-HKKP scheme.

The State-wise details of such scheme are as under:

(Status as on 08.02.2023)

Sl. No.	State	No of WBs to be completed		Total WBs	Remarks
		by Aug, 2022	by Aug, 2023		
1	Andhra Pradesh	49	48	97	Details have been added on Amrit Sarovar Portal. As per information received as on 23.08.2022, out of total 97 WBs: 0 to 25% - 48 25% to 50% - 8 50% to 75% - 5 75% to 100% - 36 ( <b>28 completed</b> )
2	Manipur	0	3	3	Details to be added on Amrit Sarovar portal are awaited.
3	Odisha	0	201	201	Proposal for inclusion is under consideration for 574 RRR out of which 201 WBs are to be taken up under Amrit Sarovar.
4	Rajasthan	0	30	30	Details have been added on Amrit Sarovar Portal. As per the information received from M&A, Jaipur, State Govt officials intimated that, due to non-release of CA, works could not be taken up. Requested for early release of CA in CFY.

5	Tamil Nadu	0	92	92	Details have been added on Amrit Sarovar Portal. Out of 92 WBs, 83 WBs physically completed as reported by State on 25.08.2022.
6	Telangana	185	0	185	Details have been added on Amrit Sarovar Portal. As per information received on 18.08.2022, 107 WBs completed.
	<b>Grand Total</b>	<b>234</b>	<b>374</b>	<b>608</b>	

### **Atal Bhujal Yojana**

1.19 The Department in a written submission informed the Committee that the Atal Bhujal Yojana (ATAL JAL) is being implemented since April, 2020 in 8,774 water stressed Gram Panchayats of 222 administrative blocks/ Talukas in 81 districts of seven States, viz. Haryana, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Uttar Pradesh for five years. The selected States account for about 37% of the total number of water-stressed (over-exploited, critical and semi-critical) blocks in India.

1.20 Further, the Department has stated that the goal of Atal Bhujal Yojana is to demonstrate community-led sustainable ground water management which can be taken to scale. The scheme has been designed as a pilot with the principal objective of strengthening the institutional framework for participatory ground water management. It also aims at bringing about behavioral change at the community level through awareness programs and capacity building for fostering sustainable ground water management in the participating States.

### **Atal Bhujal Yojana (ATAL JAL) - Allocation and Expenditure**

(Rs. In Crore)

FY	BE	RE	Actual
2020-21	200.00	125.00	123.03
2021-22	330	330	327.48
2022-23	700.00	700.00	504.57*
2023-24	1000.00	-	-

\* Till 31 December 2022

1.21 When asked about the reasons for a considerable hike in budgetary allocations for this Scheme in FY 2023-24, the Department replied as under:

*“As regards extending the Atal Bhujal Yojana to other States, the Committee were apprised during the examination of DDG 2022-23 that a mid-term review of the scheme would be done and on that basis, a view would be taken for expansion of the scheme.*

*The scheme will enter into second last year of implementation in FY 2023-24 and major focus will now be on disbursement of incentives funds to the implementing States based upon their achievements in pre-defined targets”.*

1.22 Regarding extending the Atal Bhujal Yojana to other States, the Committee during the course of examination of DFG 2022-23, were informed by the Department that a mid-term review of the scheme would be done and on that basis, a view would be taken for expansion of the scheme. When asked on the mid-term review and its outcome, the Department, in its written reply, stated as follows:

*“Midterm review of the scheme by the World Bank has just concluded and as per the findings, the program is on track and shall achieve its objectives by the closing date i.e. (31<sup>st</sup> March, 2025) as there has been substantial progress in the last 12 months. The final report from World Bank is yet to be received. Proposals of inclusion of more water stressed areas in Atal Bhujal Yojana may be considered in future, depending upon the outcomes of the scheme and its implementation status”.*

### **Ground Water Management & Regulation(GWM&R)**

1.23 As per the information furnished by the Department of Water Resources, River Development and Ganga Rejuvenation, Ground Water Management and Regulation (GWM&R) Scheme is a continuing Central Sector Scheme of Department of Water Resources, River Development & Ganga Rejuvenation, Ministry of Jal Shakti. The scheme has recently been approved for continuation for the period 2021-26. The components of the scheme include i) Component I: Monitoring, Assessment, Management and Regulation and ii) Component II: Strengthening of Infrastructure For Technological Upgradation (Machinery & Equipment). In addition to this a project named “National Aquifer Mapping and Management (NAQUUIM)” has been approved by the PIB for implementation under the scheme. Aim of the scheme is to provide scientific inputs for sustainable development and management of ground water resources in the country. Aligned with the stated aim, the ground water management and regulation plan scheme has been devised with the following objectives:

- Periodic monitoring of ground water levels and ground water quality.
- Periodic assessment of ground water resources in association with State governments.
- Regulation and control of ground water development/extraction.
- Preparation of ground water management plans.
- Implementing demonstrative projects on aquifer rejuvenation and springshed mapping in identified areas.
- Capacity building of ground water professionals of CGWB.
- Upgradation of technological capabilities and infrastructure of the Central Ground Water Board to meet the upcoming challenges in ground water field
- Generation of data for aquifer mapping
- High resolution aquifer mapping using
- Automation of Water Level Monitoring



**(GWM&R) - Allocation and Expenditure**

(Rs. In Crore)

<b>FY</b>	<b>BE</b>	<b>RE</b>	<b>Actual</b>
2019-20	260.00	243.18	239.32
2020-21	275.00	125.00	132.97
2021-22	275.00	170.00	168.99
2022-23	375.00	315.00	124.84*
2023-24	330.00	-	-

\*Till 31 December 2022

1.24 On being asked about the reasons for reducing the BE allocation of such an important Scheme at RE stage, the Department in a written reply stated as under:

*“During 2019-20 and 2020-21, due to COVID related restrictions some of the activities were delayed, and hence less expenditure was incurred. For the year 2021-22, BE was planned as per the activities proposed in the EFC memo. However, the EFC in its meeting held on 31st August 2021 recommended that most of the activities under Aquifer Mapping and Management Programme (Component I) of the scheme which are for generation of data including exploratory drilling should be undertaken as a Project. Accordingly, these activities were proposed to be taken up separately under PIB and the RE under GWM&R scheme has been reduced. The BE for the year 2022-23 has been increased in anticipation of the approval of the PIB project on Aquifer Mapping and Management Programme. As the project got approved recently (29th Nov 2022), the expenditure under PIB is yet to start and all possible efforts are being made to meet the expenditure target”.*

1.25 The Department had circulated Ground Water (Regulation and Control of Development and Management) Bill, 2005, which was a Model Bill, to all states/UTs for regulation and development of ground water.

1.26 When asked about the States which have enacted / not enacted this Model Bill, the Department informed as under:

**STATUS OF ENACTMENT OF MODEL BILL BY STATES**

**A. States/ UTs where Model Bill has been Enacted and Implemented (15 States and 6 UTs)**

<b>SL. NO.</b>	<b>STATES</b>
1	Andhra Pradesh
2	Assam
3	Bihar
4	Goa
5	Haryana
6	Himachal Pradesh

7	Karnataka
8	Kerala
9	Maharashtra
10	Nagaland
11	Odisha
12	Punjab
13	Telangana
14	Uttar Pradesh
15	West Bengal
	<b>Union Territories</b>
1	Chandigarh (Regulations & Byelaws)
2	Dadra and Nagar Haveli, Daman & Diu
3	Jammu and Kashmir
4	Ladakh
5	Lakshadweep
6	Pondicherry

**B. States/ UTs where Initiatives taken for Enactment of Model Bill (10 States and 1 UT)**

Sl. No.	STATES
1	Chhattisgarh
2	Gujarat
3	Jharkhand
4	Madhya Pradesh
5	Meghalaya
6	Mizoram
7	NCT Delhi (Regulation is being done through Govt. Orders)
8	Rajasthan
9	Tamil Nadu (Regulation is being done through Govt. Orders)
10	Uttarakhand
	<b>Union Territories</b>
1	Andaman & Nicobar

**C. States which feel it is not necessary to Enact Legislation (4 States)**

Sl. No.	States
1	Arunachal Pradesh
2	Manipur
3	Sikkim
4	Tripura

1.27 When asked about the steps taken by the Department for enactment of the Model Bill by the States, the Department in its written reply submitted as under:

*“The DoWR, MoJS has written DO to all these States in August, 2022, urging to enact the Model Bill and adopt MoJS Guidelines. Reminder letter to concerned States issued on 06 Feb 2023”.*

1.28 About the initiatives taken by the Central Government to augment the water resources of the country, the Department has stated as under:

*“(i) Central Government launched Accelerated Irrigation Benefits Programme (AIBP) in the year 1996-97 to provide Central Assistance to States for the major/medium irrigation projects in the country. Further, during the year 2015-16, Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) was launched with the aim to enhance physical access of water on farm and expand cultivable area under assured irrigation, improve on farm water-use efficiency, introduce sustainable water conservation practices etc., and Accelerated Irrigation Benefits Programme (AIBP) was co-opted in it. Major and Medium Irrigation Projects through surface water sources at various places have been taken up under this scheme.*

*(ii) Repair, Renovation & Restoration (RRR) of Water Bodies and Surface Minor Irrigation (SMI) schemes are being implemented by this Ministry as part of PMKSY with an aim to comprehensively improve & restore the water bodies, to promote conjunctive use of surface & ground water, ground water recharge/conservation and to undertake minor irrigation projects using surface water etc.*

*(iii) Guidelines (with pan India applicability) for regulation and control of ground water extraction in the country was notified by the Ministry on 24.09.2020. Water being a State subject, the guidelines advocate a participatory approach for sustainable ground water management in agriculture sector including working towards crop rotation, diversification & other initiatives to reduce over-dependence on groundwater.*

*(iv) Atal Bhujal Yojana (Atal Jal), a Rs. 6,000 crore Central Sector Scheme, is being implemented by the Ministry for sustainable management of ground water resources which include activities like preparation of water security plan at Gram Panchayat level in participatory mode by involving communities to use available groundwater and surface water in an efficient manner. The scheme is being taken up in select areas that include 80 districts, 229 administrative blocks and 8,220 water stressed Gram Panchayats of seven States, viz. Haryana, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Uttar Pradesh from 01.04.2020 for a period of 5 years.*

*(v) Department of Agriculture & Farmers Welfare (DA&FW) is implementing Per Drop More Crop component of Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)*

which is operational from 2015-16. The PMKSY-Per Drop More Crop mainly focuses on water use efficiency at farm level through micro irrigation (drip and sprinkler irrigation system) to reduce the extraction of groundwater.

(vi) Central government generally supports water harvesting/conservation efforts through pan India schemes like MGNREGS, PMKSY-Watershed development etc. During 2019 Jal Shakti Abhiyan (JSA) was launched by the Central Government with an aim to closely monitor the progress towards harvesting the monsoon rainfall through creation of artificial recharge structures, watershed management, renovation of recharge and reuse structures, intensive afforestation etc. in convergence with various Central/State government schemes. During 2021, JSA was launched by the Hon'ble Prime Minister. In 2022, the campaign was launched by Hon'ble President of India.

(vii) With an aim to delineate and characterize the aquifer system of the entire country and to suggest effective management plan, Central Ground Water Board (CGWB) is implementing National Aquifer Mapping program (NAQUIM). Out of the identified 25 lakh sq km area for coverage under NAQUIM studies, so far, an area of 24.50 lakh sq km (as on 30 Dec 2022) has already been covered. The entire 25 lakh sq km is targeted to be covered by March 2023. The NAQUIM reports are shared with States/UTs for use.

(viii) Master Plan for Artificial Recharge to Groundwater -2020 has been jointly prepared by CGWB and States. The master plan envisages creation of 141.75 Lakh water harvesting/conservation structures for both rural and urban areas at an estimated cost of Rs 1.34 lakh crore. The Master Plan has been shared with States/UTs for suitable interventions through relevant Central/State schemes.

(ix) Hon'ble Prime Minister launched Amrit Sarovar Mission on 24th April 2022. The Mission is aimed at developing and rejuvenating 75 water bodies in each district of the country as a part of celebration of Azadi ka Amrit Mahotsav.

(x) The Department had circulated Ground Water (Regulation and Control of Development and Management) Bill, 2005, which was a Model Bill, to all States/UTs for regulation and development of ground water”.

### **Safety of Dams**

1.29 In responding to a query as to how many large dams are in India which are 100 years old and still functional, the Department stated as under:

*“As per the National Register of Large Dams-2019, there are 234 functional large dams in India which are 100 years old”.*

The list of these dams is enclosed as Annexure- I.

1.30 When asked to enumerate the major instances where failure or leakage from such old damshas wreaked havoc in terms of loss of lives as well as economic losses, the Department replied as below:

*“As per the records available in this office, the following is the list of reported failures from such old large dams:*

Sl. No	State	Name of Project	Type	Year of Completion	Year of Failure	Cause of failure
1	Madhya Pradesh	Tigra	Masonry	1917	1917	Overtopping followed by slide
2	Maharashtra	Ashti	Earth	1883	1933	Slope failure
3	Maharashtra	Khadakwasla	Masonry	1880	1961	Overtopping
4	Madhya Pradesh	Jamunia	Earth	1921	2002	Piping leading to breaching
5	Rajasthan	Jaswant Sagar	Earth	1889	2007	Piping leading to breaching

1.31 On being asked about the mechanism put in place in India to assess the viable lifespan and performance of dams and projects which has a direct bearing upon the consideration for dam decommissioning from an environmental perspective, the Department, in its written submission, stated as under:

*“Dams in India are normally designed for approximately 100 years of useful age. The functional life of the dams gets decreased with progressive reservoir sedimentation concurrently reducing project benefits. There is no mechanism to assess the viable lifespan and performance of dams. Regular maintenance of dams is undertaken for their health assessment and their safety. As a part of maintenance activity, regular pre & post monsoon inspections, and the maintenance/rehabilitation works of the dams are carried out. These dams are mostly owned by State Govts. /PSUs/Pvt. Agencies which carry out the O&M works of the dams in their jurisdiction. However, no information/recommendation from the dam owners has been submitted for de-commissioning of any of their dams.*

*Realizing the importance of dam safety, a Dam Safety Act has been notified in the year 2021 to provide for surveillance, inspection, operation and maintenance of the specified dam for prevention of dam failure related disasters and to provide for institutional mechanism to ensure their safe functioning and for matters connected therewith or incidental thereto”.*

1.32 On a query as to how many dams which are more than 100 years old have been decommissioned in India, the Department furnished its written reply which is as follows:

*“As per the information available in CWC, no such dam has been decommissioned in India”.*

### **Projects on Tributaries of Ganga**

1.33 In response to a query regarding the sanctioning, commissioning and implementation of the various projects undertaken on the tributaries of river Ganga in tabular form since inception of the ‘Namami Gange Programme’, the Department, in its written reply stated as under:

*“53 sewerage projects and 5 projects for construction of ghats and crematoria have been sanctioned on the tributaries of Ganga, out of which, 19 sewerage projects and 1 project for construction of ghats have been completed.”*

The details of which have been annexed in Annexure-II and III.

1.34 During the examination of the DFG (2023-24) of the Department, the representative of the Department on the issue of projects on the tributaries of river Ganga informed the Committee as follows:

*“...अब हमारा जो गंगा मेन स्टैम है, उस पर हमारे प्रोजेक्ट्स सेचुरेशन पर पहुंच रहे हैं। उत्तराखंड में लगभग सभी काम हो चुका है। यूपी में जो काम हो रहा है, वह अब समाप्ति की ओर है। बिहार के प्रोजेक्ट्स में इस साल बहुत बड़ी प्रगति हुई है। कई सारे प्रोजेक्ट्स कमीशन हो रहे हैं। खाली वेस्ट बंगाल अब ऐसा राज्य बचा है, जिसमें अपने प्रोजेक्ट्स कम्पलीट करने में करीब दो साल लगेंगे। हम समझते हैं कि गंगा मेन स्टैम जो है, उसकी समस्याओं में जो मेजर पॉल्यूशन है, उसको अगले कुछ महीनों में बिहार तक, उसके बाद वेस्ट बंगाल में सफलतापूर्वक कंट्रोल कर लिया जाएगा। अब हमारा ध्यान गंगा की ट्रिब्यूटरीज की तरफ जा रहा है, जो वर्ष 2021-26 का पीरियड है, इस पर हम कॉन्सन्ट्रेंट करेंगे। एनएमसीजी डीपीआर इनवाइट कर रहा है और उन पर ध्यान दे रहा है...”।*

1.35 On being asked as to whether overrun in terms of cost and time has been noticed in execution of projects on the Tributaries of river Ganga under ‘Namami Gange’, the Department replied as under:

*“Due to various impediments such as delays in obtaining permissions for road cutting, railway/NH crossings, land procurement, forest clearances, change of sites, abnormal floods etc. overrun has been observed in execution of projects. To complete the project on time and within stipulated cost, various steps have been taken like regular progress review meetings of the different projects under the chairmanship of the Secretary (DoWR, RD & GR), review meetings of the performance of the State Project Management Groups under the chairmanship of the Director General of National Mission for Clean Ganga (NMCG) and conducting capacity building sessions of the District Ganga Councils by the officials of the*

*NMCG. These corrective measures have resulted in a positive change and project completion has gained momentum”.*

### **Cleaning of River Yamuna**

1.36 When asked about the total stretch of the river Yamuna flowing in the State of Delhi which contributes to total pollution load of the river, the Department replied as under:

*“Yamuna flows from Palla to Okhla at a stretch of 22 kms in Delhi receiving discharge from 18 major drains”.*

1.37 Earlier, during a briefing meeting held on 16.12.2021 in connection with the examination of the subject ‘Review of Upper Yamuna River Cleaning Project up to Delhi and River bed management in Delhi’, the Committee were apprised by the Department that though the stretch of river Yamuna in Delhi is very small just 22 kms., however it is responsible for causing 75 to 80 percent of pollution in the river.

1.38 The representative of the Department of Water Resources, River Development and Ganga Rejuvenation (DoWR, RD &GR) during the sitting held on 21.02.2023 in connection with the examination of the DFG (2023-24) of the Department apprised the Committee on the issue of pollution of river Yamuna and the efforts made by them to control it, which is as follows:

“...सर, यमुना के बारे में बात हुई कि यमुना में पॉल्यूशन बहुत ज्यादा है और यह दिल्ली के 22 किलोमीटर के स्ट्रेच में होता है तथा इसके बारे में सरकार का क्या विचार है। यमुना के बारे में हम लोग अधिकाधिक प्रयास कर रहे हैं। इस करंट ईयर में एक बड़े एसटीपी के लिए एनएमसीजी ने फंड दिये हैं और वह चालू हुआ है। जून के अंत तक भारत का सबसे बड़ा एसटीपी, जो कि एनएमसीजी फंड कर रहा है, उसकी कमीशनिंग होगी। यह ओखला में होगा। दो बड़े-बड़े एसटीपीज़ हैं – रिठाला और कौंडली, जिनका अपग्रेडेशन चल रहा है। हमारा मत है कि मार्च या जून तक ये सारे कमीशन हो जाएंगे। उसके बाद यमुना का जो पॉल्यूशन है, उसमें सिग्निफिकेंट कमी आएगी, लेकिन इसमें राज्य सरकार को भी बहुत सारे कदम उठाने हैं। हम लोग साथ मिलकर चलने की कोशिश कर रहे हैं। बड़े-बड़े प्रोजेक्ट सैंक्शन करके केन्द्र सरकार से पूरी सहायता राज्य सरकार को दी जा रही है ताकि यमुना के पॉल्यूशन को कंट्रोल किया जाए....”।

1.39 On being enquired whether the river Yamuna is fit for bathing particularly in the State of Delhi, the Department, in its written submission stated as follows:

*“Water quality of river Yamuna is monitored by the Central Pollution Control Board (CPCB) under National Water Quality Monitoring Programme (NWMP) in association with State Pollution Control Boards (SPCBs)/ Pollution Control*

Committees (PCCs) of Uttarakhand, Himachal Pradesh, Haryana, Delhi and Uttar Pradesh at 33 locations.

The analysis of water quality data of river Yamuna based on concentration of BOD during 2019- 2021 revealed that highest concentration of BOD is observed in river Yamuna in Delhi during all the three years (i.e., from 2019-2021) followed by downstream Uttar Pradesh locations. Maximum concentration observed is 114 mg/L during 2020. The details are as under:

State	Year	BOD	
		Min	Max
<b>Primary Water Quality Criteria for Outdoor Bathing</b>		<b>&lt;3mg/L</b>	
HARYANA	2019	1.0	14.0
	2020	1.0	9.1
	2021	1.2	21.0
DELHI	2019	1.7	63.0
	2020	1.4	114.0
	2021	2.5	83.0
UTTAR PRADESH	2019	1.9	47.0
	2020	1.8	59.0
	2021	1.9	36.0”

The details in this regard are given as Annexure-IV.

1.40 When further asked about the main issues that impede cleaning of the river Yamuna especially in the State of Delhi, the Department stated as under:

*“Major issues impeding cleaning of river Yamuna are as follows:*

1. *Less flow at Wazirabad during dry period.*
2. *Illegal discharge of sewage and industrial effluent.*
3. *Disposal of solid waste in drains.*
4. *Improper functioning of CETPs.*
5. *Insufficient sewage treatment capacity”.*

1.41 When asked about the definition and benefits of e-flow for any river and whether the Department is planning to introduce e-flow requirement for the river Yamuna, which is one of the main tributaries of river Ganga, the Department stated as follows:

*“The International Union for Conservation of Nature (IUCN) (2003) defines “E-flows as the water regime provided within a river, wetland or coastal zone to maintain ecosystems and their benefits where there are competing water uses and where flows are regulated”.The environmental flow requirement is the "acceptable flow regime required to maintain the river in reasonable condition or predetermined state". As per the National Water Policy (2012), the ecological needs of the river should be determined, through scientific study, duly accommodating development needs.*



*Para 5 of the MoU of 12th May 1994 stipulates the following:*

*'A minimum flow in proportion of completion of upstream storages going upto 10 cumec shall be maintained downstream of Tajewala and downstream of Okhla Headworks throughout the year from ecological considerations, as upstream storages are built up progressively in a phased manner'.*

*The said storages are yet to be built. However, Hon'ble NGT Principle Bench, New Delhi vide order dated 11.06.2015 directed that "State of Haryana shall release 10 Cumec water directly into main stream of river Yamuna from Hathinikund Barrage and maintain e-flow of river till Wazirabad".*

*As per the water released data from Hathinikund Barrage and Okhla Barrage the minimum 10 Cumec (352 cusec) as stipulated in the MoU is being released d/s of Hathinikund Barrage and d/s of Okhla Barrage throughout the year."*

1.42 In response to a query regarding mandate and functioning of Upper Yamuna River Board (UYRB) along with the steps taken to cleaning of River Yamuna in cooperation with the respective States, the Department has stated as under:

*"Upper Yamuna River Board is a subordinate office under the Department of Water Resources, River Development & Ganga Rejuvenation, Ministry of Jal Shakti, Government of India. A memorandum of Understanding (MoU) was signed by the Chief Ministers of Himachal Pradesh, Haryana, Uttar Pradesh, Rajasthan, and National Capital Territory of Delhi on 12<sup>th</sup> May, 1994 regarding allocation of utilizable surface flow of river Yamuna upto Okhla Barrage (Upper Yamuna) among the co-basin States. In order to implement the said MoU, Upper Yamuna River Board (UYRB) was constituted by Resolution No. 10(66)/71-IT dated 11<sup>th</sup> March 1995 of MoWR, RD & GR, Government of India in accordance with the provision of the MoU. After the creation of Uttaranchal State in 2000, the resolution was modified to include Uttaranchal (now Uttarakhand) also in the Board in 2001.*

*The main function of the Upper Yamuna River Board is to regulate the allocation of available flows amongst the beneficiary States and also maintenance of minimum flow, maintaining hydro-meteorological data for the basin; overseeing plans for watershed management; monitoring and reviewing the progress of all projects upto and including Okhla barrage.*

*Cleaning of drains and sewer system meeting the river Yamuna are undertaken by the respective States. However, the inter-State disputes regarding sharing / allocation of Yamuna water in general and some times issues related to ammonial level and other pollutants as raised by Delhi are deliberated in the UYRB Board meetings time to time to resolve the same amicably".*

### **Command Area Development & Water Management (CAD&WM)**

1.43 As per the Annual Report (2021-22) of the Department of Water Resources, River Development and Ganga Rejuvenation, the activities covered under CAD&WM component of a project are broadly categorized as 'structural' and 'non-structural' interventions, as detailed below:

(a) Structural Intervention: includes survey, planning, design and execution of: (i) On-Farm Development (OFD) works; (ii) Construction of field, intermediate & link drains; (iii) Correction of system deficiencies; and (iv) Reclamation of waterlogged areas.

(b) Non-Structural Intervention: includes activities directed at strengthening of Participatory Irrigation Management (PIM): (i) One time Functional Grant to the registered Water Users Associations (WUAs); (ii) One time Infrastructure Grant to the registered WUAs; (iii) Trainings, demonstration and adaptive trials for water use efficiency, increased productivity and sustainable irrigation participatory environment.

Further, to promote water use efficiency in irrigation, financial assistance is provided to the States for development of infrastructure for micro-irrigation to facilitate use of sprinkler / drip irrigation as an alternative to construction of field channels. Under the scheme, at least 10% of Cultivable Command Area (CCA) of each project is required to be covered under micro-irrigation. Micro-irrigation infrastructure includes components of sump, pump, HDPE pipelines, and pertinent devices needed for bringing efficiency in water conveyance and field applications (through sprinklers, rain guns, pivots etc). However, the devices such as sprinkler/ rain gun/ drip sets etc. needed to be installed by individual farmers below farm outlets, are not part of the micro-irrigation infrastructure.

1.44 The Ministry through its written submission has informed the Committee that the BE provisions for CAD&WM for FY 2022-23 was Rs. 1044 crore which was reduced to just Rs. 140 crore (reduction of more than 86%) at RE stage. For FY 2023-24, it has again been raised to Rs. 400 crore (BE).

1.45 When asked about the reasons for massive reduction at RE stage under this Scheme for FY 2022-23, the Department stated as under:

*“With the paradigm shift in implementation of PMKSY-AIBP in 2016, implementation of CAD&WM was restricted to pari passu implementation of the 99 priority projects. However, it has now emerged that pari passu implementation of CAD&WM has its bottleneck. Farmers do not donate land, or allow work in their farms, unless they are able to see the water in a nearby canal. In anticipation of completion of headworks or canals at far away locations, they do not permit CAD&WM works, especially in absence of firm timelines of completion of irrigation works. As a result, the work in CAD&WM has not been able to meet the expectations. Further, in the BE 2022-23, it was envisaged that the approval for modification in the present CAD&WM scheme shall be obtained by mid of the present financial year, whereby more projects can be included under CAD&WM*

programme. An amount of Rs. 600 crore was anticipated to be spent as grants for these new projects. However, in view of observations from Department of Expenditure, the said approvals have not yet become available. In view of the above reasons, there is a reduction in the outlay for CAD&WM at RE Stage”.

### **Accelerated Irrigation Benefits Programme**

1.46 Regarding the Accelerated Irrigation Benefits Programme, the Department in its written submission informed the Committee that Ninety-Nine (99) ongoing Major/Medium Irrigation projects (and 7 phases) spread in 18 States were identified during 2016-17, in consultation with States, to be completed in phases. Central Assistance to these projects are being provided through budgetary resources whereas State Share for these projects is being provided from National Bank for Agriculture and Rural Development (NABARD) under Long Term Irrigation Fund (LTIF). 2% interest subvention is being provided for ongoing projects. Out of these 99 projects and 7 phases (Total- 106), 50 projects have been reported by States to be completed so far. Further, out of balance projects, 23 projects have progress of more than 90 % and 14 projects have progress between 80 to 90 %.Ultimate Irrigation Potential of these 99 projects is 76.03 Lakh Ha. out of which 41.39 Lakh Ha. had been created upto 31.03.2016. During 2016-2022, additional potential of 24.35 La.ha. has been created through these projects. (2016-17: 5.15 La.ha.; 2017-18: 7.03 La.ha.; 2018-19: 6.10 La.ha.; 2019-20: 3.17 La. ha.; 2020-21: 1.29 La.ha.; 2021-22 :1.60 lakh ha)

### **Accelerated Irrigation Benefit Programme (AIBP) and National/Special Projects - Allocation and Expenditure**

(Rs. in crore)

Year	BE	RE	Actual
2022-23	3237.69	1800.00	-*
2023-24	3122.23	-	-

\* Till 31 December 2022

1.47 The above Table shows that the budgetary allocation for Accelerated Irrigation Benefit Programme and National/special Projects for 2022-23 was Rs. 3237.69 crore (BE) which was reduced to Rs. 1800 crore at RE stage for FY 2022-23. However, till 31 December, 2022, no expenditure has been spent under this Programme. When asked to state the reasons for not spending even a penny under such an important scheme during the first three quarters of FY 2022-23, the Department in its written submission stated as follows:

*“The expenditure as on 06.02.2023 under PMKSY-AIBP is Rs. 342 crore. Creation of 13.88 lakh hectare irrigation potential under AIBP has been envisaged during 2021-22 to 2025-26. This Ministry has also been mandated to include more projects for funding under AIBP. In addition, funding of two National projects, namely Lakhwar and Renuka projects, has also been approved”.*

## **Development of Water Resources Information System (DWRIS)**

1.48 The Department has stated that the scheme of the Development of Water Resources Information System aims for standardized national water information system with a network of data banks and data bases, improving data quality and processing capabilities through country wide network of Hydro meteorological sites. In addition, it endeavours towards early flood warning system as an important non-structural measure for flood management through existing network of flood forecasting stations towards effective flood warning and issuing flood advisories with lead time of 120 hours. Besides, scheme intends to create an integrated data bank to tackle coastal erosion in a scientific manner keeping in view long term perspective and challenges of climate change. For these diverse activities, strengthening and modernization of the existing software and computer networking system in Central Water Commission envisaged under DWRIS Scheme. The scheme of Flood Forecasting has been merged with this scheme from FY 2018-19.

1.49 When enquired about the total staff strength of DWRIS (both technical and non technical groups) and whether the total manpower in DWRIS is adequate to handle its activities properly and the measures taken to fill up the vacancies, if any, the Department, in its written reply, stated as under:

*“Central Water Commission is having well established field offices in most of river basins of the country apart from its head quarter stationed at New Delhi. DWRIS along with other flagship schemes of DoWR, RD & GR such as PMKSY, RBM, FMBAP, RRR of Water Bodies, etc. is being managed by field offices with the total staff strength as on 31.12.2022 (both technical and non -technical groups) as given below:*

S. No	Category of staff	Sanctioned strength	Filled strength
1.	Group A Gazetted	260	169
2.	Group B Gazetted	345	275
3.	Group B Non-Gazetted	768	454
4.	Group C	729	516
5.	Work-charged staff	4,863*	1,803

*\*3044 Post of work-charge staff has been abolished as per DoWR, RD & GR letter No.A.11019/6(Part-1)/2017-E-I dated 06.06.2022.*

*Lately, there had been severe shortage of manpower (both technical and non-technical) at field set-up especially at sites for implementing the various activities of DWRIS. However, situation in recent year has improved with mandate received for outsourcing of support & supervisory services at HO sites. Approval also received for hiring for other non-technical services at those sites & offices”.*

1.50 On being enquired about shortage of human resources in technical categories in DWRIS and its HO sites, the Department apprised the Committee as below:

*“Yes, the work-charged strength for managing the HO sites located in remote locations is reducing day by day and getting abolished with retirements/death of staffs as per DoWR, RD & GR letter No.A.11019/6 (Part-1)/2017-E-I dated 06.06.2022. However, situation in recent year has improved with mandate received for outsourcing of support & supervisory services at HO sites”.*

## PART – II

### OBSERVATIONS/RECOMMENDATIONS

The Demands for Grants for the year 2023-24 of the Ministry of Jal Shakti – Department of Water Resources, River Development and Ganga Rejuvenation were tabled in the House on 09 February, 2023. The Committee thoroughly examined the Demands for Grants (2023-24) of the Ministry of Jal Shakti – Department of Water Resources, River Development and Ganga Rejuvenation. During the course of examination of the Demands for Grants, the Committee held deliberations with the representatives of the Department and went through written replies submitted by the Department which enabled the Committee to comprehend the working of the Department as well as challenges faced by it. In this backdrop, the Committee will now examine some of the specific elements of the Department's Demands for Grants for 2023–2024.

#### Analysis of Demands for Grants

2.1 The Committee note that for the year 2023-24, the Department have laid Detailed Demands for Grants of Rs. 20054.67 crore consisting of Rs. 19694.19 crore under Revenue Section and Rs. 360.48 crore under Capital Section. The Committee note that for FY 2023-24, the Department sought Rs. 22673.53 crore, and a budgetary allocation of Rs. 20054.67 crore (BE) has been proposed. In comparison to Budget Estimate (BE) allocations i.e. Rs. 18967.88 crore for FY 2022-23, the BE allocation of Rs. 20054.67 crore for FY 2023-24 has shown a hike of 5.72% appx. The revenue provision (BE) for FY 2023-24 has been increased by Rs. 1146.14 crore vis-a-vis BE of Rs.18548.05 crore for FY 2022-23, whereas under the Capital Section, the allocation has been reduced by Rs. 59.35 crore in FY 2023-24 vis-à-vis BE of Rs. 419.83 crore for FY 2022-23. The Committee observe that the BE provision of Rs. 18967.88 crore for Fiscal Year 2022-23 was reduced drastically and kept at Rs. 14000 crore at Revised Estimate (RE) stage (a decline of 26.19% of BE allocations of Rs. 18967.88 crore). The Committee note that even this reduced amount was not utilized in full and only Rs. 7671.21 crore has been spent during the first three quarters of FY 2022-23 i.e. till 31 December, 2022. The Committee are of the opinion that the rest of the amount i.e. Rs. 6328.79 crore

(45.20 % of RE of Rs. 14000 crore) would hardly be spent in the last quarter of FY2022-23. The representative of the Department admitted while deposing before the Committee about the underutilization of funds which resulted into reduction of budgetary allocations at RE stage and attributed it to the new financial system of Single Nodal Account wherein the funds to the States would be released in four instalments instead of two instalments as provided earlier. The Committee further note that most of the Schemes of the Department, particularly irrigation schemes like PMKSY where works are done from October to May-June and Command Area Development (CAD) where works are carried out from January to March, have been impacted due to the new system introduced by the Ministry of Finance as these schemes are in nature-wise more compliant to 2 instalments system rather than 4 instalments. The Committee take note that under the revised procedure of Ministry of Finance, funds for the Central Sector schemes are to be routed through the Central Nodal Account (CNA) while the State Sector schemes through Single Nodal Account (SNA). The Department has informed that the funds under the CNA is being done without much difficulty and the activities under the Central Sector schemes are relatively unaffected. Under the SNA, being initial year of implementation, State Governments are not equipped to adapt to the new fund flow mechanism. The Committee observe that since most of the States have not been able to submit proposals for release of more than 2 instalments and therefore desire that the Department to take up the matter with the Ministry of Finance and apprise them the practical difficulties in implementing the new system under SNA, particularly in irrigation schemes and seek exemption for these Schemes so that the budgetary resources may be optimally utilized and implementation of such Schemes are not adversely affected. The Committee would like to be categorically apprised of the steps taken in this regard within three months of presentation of this Report.

(Recommendation 1)

### Implementation of the Schemes

2.2 Though the Committee are happy to note that the budgetary allocations of some of the important Schemes of the Department like Namami Gange, Atal Jal and Interlinking of Rivers have witnessed substantial increase up to 43%, 43% and 150% respectively for Fiscal Year 2023-24 in comparison to their budgetary

provisions of FY 2022-23, yet, they find that some of the Programmes like Dam Rehabilitation and Improved Project (DRIP), Farakka Barrage Project, National Hydrology Project and Special Package for Maharashtra have seen noticeable decline of 50%, 35.5%, 37.5% and 50% respectively in their BE provisions for FY 2023-24 vis-à-vis budgetary allocations of FY 2022-23. The Department has enumerated various reasons for decline in budgetary provisions which inter alia include delay in appointment of consultant in DRIP and less requirement of funds in National Hydrology Project due to non-availability of microprocessor chips etc. The Committee while taking note of the various problems as furnished by the Department which have caused reduction in budgetary allocations, desire that the Department to take all preparedness to formulate the plan judiciously and realistically so that such vital Schemes could not be hampered on this account.

(Recommendation 2)

### Challenges in Water Sector

2.3 The Committee note that the country has 18% of the world's population as well as 18% cattle population. However, it has only 4% of world's freshwater resources. The water table in certain parts of the country has seen depletion due to over exploitation of groundwater and the climate change has further exacerbated the pressure on water resources. The Committee observe that with the growing population, rapid industrialization, increasing urbanization, the gap between demand and supply of water will further deteriorate the situation. Besides, as per the information furnished by the Department, the Committee observe that though the availability of utilizable water quantity as per projection will be 1122 BCM in the year 2025 while the water demand from all sectors (Irrigation, Drinking Water, Industry, Energy, others) will be 843 BCM resulting in excess of 279 BCM, however, even this excess of water may not be considered much due to the fact that much of the utilizable water in the country is in the Brahmaputra-Barak basin due to huge spatial variation. Further, as per water demand projection, there will be shortfall of 58 BCM in the year 2050 when availability of utilizable water is projected to be same as in the year 2025 i.e. 1122 BCM, however, water demand from all sectors is projected to rise to 1180 BCM.



Taking Cognizance of the challenges of the water sector, the Committee are of the view that, it is the high time to adopt a holistic approach to conserve the water resources while catering to the increasing requirements of water in various sectors. It requires multi-pronged strategy such as strengthening of legal and institutional framework for water conservation, crop diversification, growing of crops requiring less water, revive dry springs, floodwater harvesting and ensure better percolation of rainwater etc. Further, the Union and State Governments should work in close cooperation in order to find a viable and lasting solution to the water woes of the country. Besides, the Committee believe that public participation and social awareness are essential to make programme a success on this count. The Committee are aware that the Union government has initiated numerous steps like launching Accelerated Irrigation Benefits Programme (AIBP), Atal Bhujal Yojana, Jal Shakti Abhiyan, Pradhan Mantri Krishi Sinchayee Yojana etc. to augment the water resources of the country. They feel that it is high time that the common people be aware of their duties of importance of conservation of our limited water resources. The Committee, therefore, would like to suggest the Department to create a dedicated fund for public awareness in order to give impetus to the public awareness programmes with stringent monitoring to make it a success. The Committee may be apprised of the steps taken in this regard.

(Recommendation 3)

#### North-East Water Management Authority

2.4 The Committee are happy to note that the Department has prepared a draft Bill, titled, 'North East Water Management Authority (NEWMA) Bill, 2023', in consultation with the Ministry of Law and Justice. The draft Cabinet Note for introduction of the Bill is currently under consideration of the Government. The Committee feel that once the Bill is enacted, the Authority will come into existence and will manage water resources of Brahmaputra and Barak basin in an integrated manner with due regard to relationship between surface and ground water resources, keeping in view the environmental aspects. The Chief Ministers of all member States of the basin will be part of the Governing Council of the authority under the chairmanship of Union Minister of Jal Shakti. The States of the basin will have more say in the affairs of the NEWMA through the structure of the Governing Council. Unlike its predecessor organization i.e. Brahmaputra Board, which was basically a single discipline body for flood control, the NEWMA will be a multi-

disciplinary body which will also look after other water bodies viz - lakes etc. and their relationship with Brahmaputra and Barak basin as an integrated unit. The Committee laud this initiative of the Government and urge upon the Department to take all out efforts for passage of the NEWMA Bill by the Parliament, so as to pave way for formation of the Authority for better management of water resources in the North –Eastern region in a holistic manner.

(Recommendation 4)

#### **Mission Amrit Sarovar**

2.5 The Committee observe that the Amrit Sarovar Mission has been launched by Hon'ble Prime Minister in addition to the existing Repair, Renovation and Restoration (RRR) schemes. The Department has informed that the water bodies which are included under the RRR scheme and are likely to be completed by August, 2023, have been identified to be included as Amrit Sarovars in consultation with the State Governments concerned. The Committee note that a total of 608 water bodies under RRR scheme have been identified for implementation as Amrit Sarovars. Out of these, 211 water bodies have so far been renovated. The Committee take note that no separate dedicated fund has been proposed under Amrit Sarovar initiative. The Repair, Renovation and Restoration (RRR) of Water Bodies schemes are funded under PMKSY-HKPP scheme. The Committee note that the details on the work relating to Amrit Sarovar in the State of Manipur are yet to be added on Amrit Sarovar portal. Keeping in view the better monitoring for fruitful results, the Committee urge upon the Department to coordinate not only with Manipur but also with all the States where Mission Amrit Sarovar has been undertaken to provide/update all relevant information in a time bound manner on the portal of Amrit Sarovar.

(Recommendation 5)

#### **Atal BhujalYojana (ATAL JAL)**

2.6 The Committee note that the Atal Bhujal Yojana (ATAL JAL) is being implemented since April, 2020 in 8,774 water stressed Gram Panchayats of 222 administrative blocks/ Talukas in 81 districts of seven States, viz. Haryana, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Uttar Pradesh for five years. The Department has informed that the World Bank has undertaken the midterm review of the Scheme and as per its findings, the programme is on

track and would achieve its objectives by the closing date of 31<sup>st</sup> March, 2025. The Department has further informed the Committee that the proposals of inclusion of more water stressed areas in this Programme would be considered in future, depending upon the outcome of the scheme and its implementation status. Keeping in view the fact that the Scheme as of now has covered the above-mentioned States which account for about 37% of the total number of water-stressed (over-exploited, critical and semi-critical) blocks in India, the Committee feel that the Department should make concerted efforts to cover the remaining areas/States under this Scheme so as to cover the remaining 63% water stressed blocks of the country. The Committee also note that in the States where Atal Bhujal Yojana has been undertaken, some of the water stressed blocks have been selected while some have been left out, they, therefore, desire the Department to take proactive action and revise the guidelines of Atal Bhujal Yojana accordingly to bring all the water stressed blocks in the Selected States, where the Scheme is in operation, under this Scheme.

(Recommendation 6)

#### **Ground Water Management and Regulation Scheme**

2.7 The Committee observe that the Ground Water Management and Regulation (GWM&R) Scheme is a continuing Central Sector Scheme of the Department of Water Resources, River Development & Ganga Rejuvenation. The Committee note that the scheme has recently been approved for continuation for the period 2021-26. The components of the scheme include (i) Component I: Monitoring, Assessment, Management and Regulation and (ii) Component II: Strengthening of Infrastructure for Technological Upgradation (Machinery & Equipment). In addition to this, a project namely “National Aquifer Mapping and Management (NAQUIM)” has also been approved by the Public Investment Board (PIB) for implementation under the scheme. The Committee note that the BE allocation for such an important Scheme has been reduced drastically at RE stage year by year. To illustrate, in FY 2021-22, the BE was Rs. 275 crore which was reduced to Rs. 170 crore at RE stage. Similarly, for FY 2022-23, the BE of Rs. 375 crore was lowered to Rs. 315 crore at RE stage. While, the actual expenditure for FY 2022-23 till 31 December, 2022 is Rs. 124.84 crore (39.63% appx of RE allocation of Rs. 315 crore). The Committee note that the remaining amount i.e. Rs. 190.16 crore of the RE of Rs. 315 crore would scarcely be spent in the last quarter of the

**FY 2022-23. The Department has reasoned that COVID related restrictions during 2019-20 and 2020-21 have resulted in frequent reduction of budgetary provisions at RE stage. The Committee note that BE for the year 2021-22 was planned in accordance with the activities proposed in the Expenditure Finance Committee(EFC) memo. The EFC in its meeting held on 31st August 2021 recommended that most of the activities under Aquifer Mapping and Management Programme (Component I) should be undertaken as a Project, these activities were proposed to be taken up separately under PIB and the RE under GWM&R scheme has been reduced. Though, the BE for the year 2022-23 has been increased in anticipation of the approval of the PIB project on Aquifer Mapping and Management Programme, yet the expenditure under PIB is to be started as the project got approved recently. Having taken note of the fact that the above-said project has got approved as well as the impact of COVID has declined the Committee therefore desire the Department to formulate the plan and allocate the budget prudently and as far as possible realistically so that the aim of such an important Scheme which is to provide scientific inputs for sustainable development and management of ground water resources in the country may not be affected.**

**(Recommendation 7)**

**2.8 The Committee observe that the Department had circulated Ground Water (Regulation and Control of Development and Management) Bill, 2005, which was a Model Bill, to all states/UTs for regulation and development of ground water. The Committee note that so far only 15 States and 6 UTs have enacted and implemented the Model Bill. The Committee note that though the Department is regularly pursuing the matter with the State Governments urging them to enact the Model Bill and adopt the guidelines stipulated by the Ministry of Jal Shakti (MoJS), however number of States are yet to enact the Model Bill. Taking cognizance of the aforesaid facts, the Committee recommend that the Department may suitably modify the Model Bill taking into account the apprehensions and socio-political and economic realities of the States thus paving the way for enactment of the Model Bill by rest of the States.**

**(Recommendation 8)**

## **Safety of Dams**

**2.9** The Committee note that as per the National Register of Large Dams-2019, there are 234 functional large dams in India which are more than 100 years old. The Committee take note of list as furnished by the Department, of failures from such old large dams which are as follows: Togra Project in Madhya Pradesh (completion in the year 1917 and failure in the year 1917 itself), Ashti Project in Maharashtra (completion in 1883 and failure in 1933), Khadakwasla Project in Maharashtra (completion in 1880 and failure in 1961), Jamunia Project in Madhya Pradesh (completion in 1921 and failure in 2002) and Jaswant Nagar Project in Rajasthan (completion in 1889 and failure in 2007). The Committee observe that some of them, as per the National Register of Large Dams – 2019, are more than 300 years old and so far none of these dams have been decommissioned, however, the Department has stated that the dams are normally designed for 100 years of useful age and their functional life also gets decreased with progressive reservoir sedimentation concurrently reducing project benefits. The Department further states that there is no mechanism to assess the viable lifespan and performance of the dams and these dams are mostly owned by State Governments /Public Sector Undertakings/Private Agencies which carry out the Operation and Maintenance (O&M) works of the dams in their jurisdiction. Furthermore, realizing the importance of dam safety, a Dam Safety Act has been notified in the year 2021 to provide for surveillance, inspection, operation and maintenance of the specified dam for prevention of dam failure related disasters and to provide for institutional mechanism to ensure their safe functioning and for matters connected therewith or incidental thereto. In view of the foregoing, the Committee recommend the Department to take suitable measures for evolving a viable mechanism to assess the lives and operations of the dams and also persuade the States to decommission those dams which have outlived their lifespan and may pose a severe threat to life and infrastructure in case of any failure. The Committee would like to be apprised of the steps taken by the Department in this regard within three months from presentation of this Report.

**(Recommendation 9)**

### **Projects on Tributaries of Ganga**

**2.10** Though, the Committee are happy to note that the major work on main stem of river Ganga has been done, yet they find that some projects are left in the State of West Bengal which will be completed within 2 years and now the focus of the Department will be on the tributaries of river Ganga. The Committee note that 53 sewerage projects and 5 projects for construction of ghats and crematoria have been sanctioned on the tributaries of river Ganga, out of which, 19 sewerage projects and 1 project for construction of ghats have been completed. From the information furnished by the Department, the Committee find overrun in execution of the projects due to various impediments such as delays in obtaining permissions for road cutting, railway/National Highway crossings, land procurement, forest clearances, change of sites, abnormal floods etc. The Committee are of the view that Namami Gange Programme is a commendable effort of the Government, however, rejuvenation of the river is possible only if it is viewed in totality including health and ecosystem of other tributaries of river Ganga are maintained. The Committee, therefore, recommend that the Department should focus on the tributaries of river Ganga and make concerted efforts with the States where these Projects are being executed so as to remove the obstacles coming in the way for faster completion for Ganga rejuvenation.

(Recommendation 10)

### **Cleaning of the River Yamuna**

**2.11** In connection with the cleaning of river Ganga, the Committee would like to recall the briefing meeting held on 16.12.2021 in connection with the examination of the subject 'Review of Upper Yamuna River Cleaning Project up to Delhi and River bed management in Delhi'. During the aforesaid meeting, they were apprised by the Department that though the stretch of river Yamuna in Delhi is very small just 22 kms., however it is responsible for causing 75 to 80 percent of pollution in the river. The Committee note that the bathing quality of river Yamuna particularly in the State of Delhi, as per parameters stipulated by the Central Pollution Control Board (CPCB) for Outdoor Bathing (organized), falls into class-B category. One of the parameters is Biochemical Oxygen Demand (BOD) which should be less than 3.0 mg/l for bathing purpose. The Committee find very high presence of BOD in the river Yamuna in Delhi during 2019- 2021. Maximum concentration observed is

114 mg/L during 2020 which is very much high as per the prescribed limit of less than 3 mg/l BOD for bathing purpose in river Yamuna. In this regard, the representative of the Department has informed the Committee that a number of STPs in Delhi will be commissioned soon, which will be of great help in reducing the pollution level in the river Yamuna. He has further emphasized the role and the steps required to be taken by the State Government in curbing the pollution in river Yamuna. The Committee further note that the major impediments for cleaning of river Yamuna are less flow at Wazirabad during dry period, illegal discharge of sewage and industrial effluent, disposal of solid waste in drains, improper functioning of CETPs and insufficient sewage treatment capacity. Considering the role of Delhi stretch of river Yamuna which is responsible for major pollution load of the entire Yamuna river, the Committee are of the opinion that both the Union Government and the State Government should work in close collaboration and make all endeavours by taking remedial measures to overcome all the obstacles as mentioned above so that the rejuvenation of river Yamuna may become a reality.

(Recommendation 11)

#### E-flow for river Yamuna

2.12 The Committee observe that a Memorandum of Understanding (MoU) was signed by the Chief Ministers of Himachal Pradesh, Haryana, Uttar Pradesh, Rajasthan, and National Capital Territory of Delhi on 12<sup>th</sup> May, 1994 regarding allocation of utilizable surface flow of river Yamuna upto Okhla Barrage (Upper Yamuna) among the co-basin States. The MoU stipulates that 'A minimum flow in proportion of completion of upstream storages going upto 10 cumec shall be maintained downstream of Tajewala and Okhla Headworks throughout the year from ecological considerations, as upstream storages are built up progressively in a phased manner'. Further, the Principal Bench of the National Green Tribunal (NGT) directed that the State of Haryana shall release 10 Cumec water directly into main stream of river Yamuna from Hathinikund Barrage and maintain e-flow of river till Wazirabad. The Committee note that as per the water released data, the minimum 10 Cumec (352 cusec) as stipulated in the MoU is being released downstreams of Hathinikund Barrage and Okhla Barrage throughout the year.

The Committee observe that storage as stipulated by the 1994 MoU among the States for maintaining minimum flow in the river Yamuna throughout the year

has not been built so far. Even the Department has reasoned that less flow at Wazirabad during dry period is one of the major issues that impedes cleaning of river Yamuna. The Committee, therefore, recommend the Department to make all out efforts in cooperation with the concerned States to build the storage capacity. Further, the Committee also urge upon the Department to consider defining e-flow for the river Yamuna on the line of the river Ganga in order to maintain the health of the river and also its ecosystem.

(Recommendation 12)

### **Command Area Development & Water Management (CAD&WM)**

2.13 The Committee observe that the BE provision for CAD&WM for FY 2022-23 was Rs. 1044 crore which was reduced to just Rs. 140 crore (reduction of more than 86%) at RE stage. However, for FY 2023-24, it has again been raised to Rs. 400 crore (BE). On the issue of huge decline of budgetary allocations at the RE stage, the Department has informed the Committee that with the paradigm shift in implementation of PMKSY-AIBP in 2016, implementation of CAD&WM was restricted to pari passu implementation of the 99 priority projects. However, work in CAD&WM has not been able to meet the expectations due to its bottlenecks as the farmers do not donate land or allow work in their farms unless they are able to see the water in a nearby canal. Further, the Committee find that the approval for modification in the CAD&WM which was anticipated to be obtained by mid of FY 2022-23 for inclusion of more projects under the Programme has not been received so far. Taking note of the importance of CAD&WM for achieving the objectives of water use efficiency, increased productivity and sustainable irrigation participatory environment, the Committee recommend that the Department should take up the matter with the Ministry of Finance to obtain approval of Rs. 600 crore for new projects and also suitably raise allocation at the Revised Estimates (RE) stage so that the execution of such an important Scheme in the FY 2023-24 is not adversely affected. The Committee also urge the Department to work in collaboration with the Ministry of Agriculture and Farmers Welfare so that farmers may be made aware of the benefits of CAD&WM and accept the Scheme whole heartedly. For this purpose, if possible, the changes in



CAD&WM may be considered to encourage the farmers. The Committee would categorically like to be apprised of the steps taken by the Department.

(Recommendation 13)

**Accelerated Irrigation Benefits Programme (AIBP)**

2.14 The Committee note that Ninety-Nine (99) ongoing Major/Medium Irrigation projects (and 7 phases) spread in 18 States were identified during 2016-17, in consultation with the States, to be completed in phases. Central Assistance to these projects are being provided through budgetary resources whereas State Share for these projects is being provided from NABARD under LTIF. Out of these 99 projects and 7 phases (Total- 106), 50 projects have been reported to be completed so far. Further, out of balance projects, 23 projects have seen progress of more than 90 % and 14 projects between 80 to 90 %. Ultimate Irrigation Potential of these 99 projects is 76.03 Lakh Ha. out of which 41.39 Lakh Ha. had been created upto 31.03.2016. During 2016-2022, additional potential of 24.35 Lakh ha. has been created through these projects. The Committee observe from the information furnished by the Department that the budgetary allocation for Accelerated Irrigation Benefit Programme and National/special Projects for FY 2022-23 was Rs. 3237.69 crore (BE) which was reduced to Rs. 1800 crore at RE stage for FY 2022-23. However, till 31 December, 2022, no expenditure has been spent under this Programme. The Committee note that the Department has not furnished specific reply to their query with regard to the reasons for not spending a single penny under such an important Scheme during first three quarters of FY 2022-23. Keeping in view the importance of AIBP for the agriculture sector of the country, the Committee, therefore, recommend the Department to act proactively and monitor the pace of actual expenditure and flow of funds under such an important Scheme in order to ensure optimum utilization of budgetary allocations. The Committee also urge the Department to identify the factors/reasons which restricted them from utilizing the funds and take suitable remedial action accordingly.

(Recommendation 14)

**Development of Water Resources Information System (DWRIS)**

2.15 The Committee note that the Development of Water Resources Information System scheme aims for standardized national water information system with a

network of data banks and data bases, improving data quality and processing capabilities through country wide network of Hydro meteorological sites. In addition, it endeavours towards early flood warning system as an important non-structural measure for flood management through existing network of flood forecasting stations towards effective flood warning and issuing flood advisories with lead time of 120 hours. Besides, the scheme intends to create an integrated data bank to tackle coastal erosion in a scientific manner keeping in view long term perspective and challenges of climate change. The Committee note that the scheme of Flood Forecasting has been merged with this scheme from FY 2018-19. They have been informed that DWRIS along with other flagship schemes of DoWR, RD & GR such as PMKSY, RBM, FMBAP, RRR of Water Bodies, etc. is being managed by field offices with the total sanctioned staff strength of 6965 as on 31.12.2022 (both technical and non -technical groups). Out of these 6965 post, 4863 post are work-charged staff. Further, out of these 4863 post of work-charge staff, 3044 posts have been abolished. As on 31.12.2022, only 3217 posts have been filled up. The Committee find that there had been severe shortage of manpower (both technical and non-technical) at field set-up especially at sites for implementing the various activities of DWRIS. However, situation in recent years has improved with mandate received for outsourcing of support & supervisory services at HO sites. Approval has also been received for hiring of other non-technical services at those sites & offices. Keeping in view the importance of the DWRIS in collecting and analyzing important data for developing a robust information system on water resources, the Committee recommend the Department to fill up the vacant post expeditiously for smooth functioning of the DWRIS Scheme. The Committee also recommend the Department to initiate recruitment process well in advance taking into account retirement of personnel and assessing the requirements of manpower so that works of the Scheme are not affected on this count.

(Recommendation 15)

NEW DELHI  
14 March, 2023  
23 Phalguna, 1944 (Saka)

Parbatbhai Savabhai Patel  
*Chairperson,*  
*Standing Committee on Water Resources*

**MINUTES OF THE FIFTH SITTING OF THE STANDING COMMITTEE ON WATER  
RESOURCES (2022-23) HELD ON TUESDAY, 21 FEBRUARY, 2023**

The Committee sat from 1130 hours to 1400 hours in Committee Room 'D', Ground Floor,  
Parliament House Annexe, New Delhi.

**PRESENT**

**Shri Parbatbhai Savabhai Patel – Chairperson**

**MEMBERS**

**LOK SABHA**

2. Shri Vijay Baghel
3. Shri Guman Singh Damor
4. Dr. Heena Vijaykumar Gavit
5. Shri Sunil Kumar
6. Shri Nihalchand
7. Shri Hasmukhbhai Somabhai Patel
8. Shri Pratap Chandra Sarangi
9. Shri Shivkumar C. Udasi

**RAJYA SABHA**

10. Sant Balbir Singh
11. Shri Pramod Tiwari

**SECRETARIAT**

- |    |                           |   |                     |
|----|---------------------------|---|---------------------|
| 1. | <b>Shri Chander Mohan</b> | - | Joint Secretary     |
| 2. | Shri Ajay Kumar Sood      | - | Director            |
| 3. | Shri R.L. Yadav           | - | Additional Director |

**WITNESSES**

**MINISTRY OF JAL SHAKTI (DEPARTMENT OF WATER RESOURCES, RIVER  
DEVELOPMENT & GANGA REJUVENATION)**

**Ministry of Jal Shakti (Department of Water Resources, River Development &  
Ganga Rejuvenation)**

- |    |                         |                   |
|----|-------------------------|-------------------|
| 1. | Shri Pankaj Kumar       | Secretary         |
| 2. | Ms. Debashree Mukherjee | Special Secretary |

3.	Smt. Richa Misra	JS&FA
4.	Shri Subodh Yadav	JS(Admin)
5.	Shri Anand Mohan	JS ( NRCD)
6.	Shri Ashok Sitaram Goel	Commissioner (SPR)
7.	Shri Atul Jain	Commissioner (FM)
8.	Shri Suyash Kamal Sinha	Commissioner (B&B)
9.	Shri Anuj Kanwal	Commissioner (CAD)
10.	Shri Sukh Ram Meena	ADG (Stat)
11.	Shri Ashish Kumar	Director (Ground Water)
12.	Shri Vijay Saran	Chief Engineer, Dam Safety Organization

#### **Central Water Commission (CWC)**

Shri Kushvinder Vohra                      Chairman

#### **Central Ground Water Board (CGWB)**

Shri Sunil Kumar                              Chairman

#### **National Water Mission (NWM)**

Ms. Archana Varma                          AS & MD

#### **National Mission for Clean Ganga (NMCG)**

1.	Shri G. Asok Kumar	Director General (NMCG)
2.	Shri Himanshu Badoni	ED (Project)
3.	Shri D. P. Mathuria	ED
4.	Shri Bhaskar Dasgupta	ED

2. At the outset, the Hon'ble Chairperson welcomed the Members and the representatives of the Department of Water Resources, River Development & Ganga Rejuvenation to the Sitting of the Committee which was convened to have oral evidence of the Ministry of Jal Shakti – Department of Water Resources, River Development & Ganga Rejuvenation in connection with examination of the Demands for Grants (2023-24).

3. Thereafter, Hon'ble Chairperson drew their attention to Direction 55(1) of the Directions by the Speaker regarding the confidentiality of the proceedings of the Committee and invited the representatives of the Department to make their submission/presentation on various Schemes, Programmes and allocation of funds for the fiscal year 2023-24. Thereafter, the representatives of the Department highlighted

the salient features of various Schemes, programmes being undertaken by them with reference to the Demands for Grants (2023-24) through a power point presentation.

4. After presentation by the representatives of Department of Water Resources, River Development & Ganga Rejuvenation, the Members sought clarifications on the following issues:-

- (i) Under utilization of budgetary allocations and reasons therefor;
- (ii) Huge reduction in budgetary allocations at RE stage in some of the Programmes during FY 2022-23;
- (iii) Delay in preparation of the Annual Report of the Department;
- (iv) Need to revise the Guidelines under Atal Bhujal Yojana;
- (v) Need to expand the scope of Atal Bhujal Yojana and coverage of over exploited blocks under Atal Bhujal Yojana;
- (vi) Need to store water during floods to be used in future;
- (vii) Pollution of the river Yamuna and share of pollution of Delhi stretch of Yamuna to the total pollution of the river;
- (viii) Issue of interlinking of rivers;
- (ix) Contamination of water bodies;
- (x) Crop diversification in order to increase water use efficiency in the agriculture sector;
- (xi) Need to spread public awareness about conservation of water;
- (xii) Namami Gange Programme and timeline fixed, if any, for its completion;
- (xiii) Need to curb illegal commercial activities which are polluting rivers;
- (xiv) Special Package for Maharashtra; and
- (xv) Implementation of Pradhan Mantri Krishi Sinchayee Yojana – Har Khet Ko Pani.

5. The Chairperson, thanked the representatives of the Department of Water Resources, River Development & Ganga Rejuvenation for the presentation made by them and also for replying to the queries raised by the Members. He directed the Secretary, Department of Water Resources, River Development & Ganga Rejuvenation to furnish written replies to those queries raised by the Members which could not be readily replied and which required detailed statistical replies to the Secretariat at the earliest.

6. The evidence was concluded.

***[The witnesses, then, withdrew]***

7. Verbatim record of the proceedings of the sitting of the Committee has been kept. The Committee, then, adjourned.

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**MINUTES OF THE SIXTH SITTING OF THE STANDING COMMITTEE ON WATER  
RESOURCES (2022-23) HELD ON TUESDAY, 14 MARCH 2023**

The Committee sat from 1500 hours to 1530 hours in Committee Room 'D',  
Ground Floor, Parliament House Annexe, New Delhi.

**PRESENT**

**Shri Parbatbhai Savabhai Patel - Chairperson**

**MEMBERS**

**LOK SABHA**

2. Shri Vijay Baghel
3. Shri Nihal Chand Chauhan
4. Shri Bhagirath Choudhary
5. Shri Guman Singh Damor
6. Dr. K. Jayakumar
7. Shri Dhanush M. Kumar
8. Shri Sunil Kumar
9. Shri Hasmukhbhai Somabhai Patel
10. Smt. Agatha K. Sangma
11. Shri Pratap Chandra Sarangi
12. Shri Chandan Singh
13. Shri Shivkumar C. Udasi

**RAJYA SABHA**

14. Shri Aneel Prasad Hegde
15. Smt. Mausam Noor
16. Shri Arun Singh
17. Sant Balbir Singh
18. Shri Pramod Tiwari

## SECRETARIAT

- |    |                      |   |                     |
|----|----------------------|---|---------------------|
| 1. | Shri Chander Mohan   | - | Joint Secretary     |
| 2. | Shri Ajay Kumar Sood | - | Director            |
| 3. | Shri R.L. Yadav      | - | Additional Director |

2. At the outset, the Chairperson welcomed the Members to the sitting of the Committee. Thereafter, the Committee took up for consideration (i) Draft Report on 'Demands for Grants (2023-24)' of the Ministry of Jal Shakti (Department of Water Resources, River Development & Ganga Rejuvenation); (ii) Draft Report on 'Demands for Grants (2023-24)' of the Ministry of Jal Shakti (Department of Drinking Water and Sanitation); and (iii) Draft Report on 'Groundwater: A Valuable but Diminishing Resource'. After due deliberation, the Committee adopted the aforesaid draft Reports, without any modification.

3. The Committee then authorized the Chairperson to present the Reports on their behalf to both the Houses of Parliament in the current Budget Session.

The Committee then adjourned

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**Annexure I****Large dams more than 100 years old (constructed in or before 1922) - as per  
NRLD, 2019***(As on 31<sup>st</sup> January, 2023)*

<b>SL. NO.</b>	<b>NAME OF DAM</b>	<b>YEAR OF COMPLETION</b>	<b>STATE</b>
1.	CUMBHUM	1500	ANDHRA PRADESH
2.	DONDAPADU TANK	1910	ANDHRA PRADESH
3.	MOPAD RESERVOIR	1921	ANDHRA PRADESH
4.	SEETHACHERU	1922	ANDHRA PRADESH
5.	SIDDAPURAM TANK	1919	ANDHRA PRADESH
6.	THOTAPALLY BARRAGE	1908	ANDHRA PRADESH
7.	KHARAGPUR LAKE	1876	BIHAR
8.	AMACHUWA TANK	1917	CHHATISGARH
9.	DARRITOLA	1910	CHHATISGARH
10.	DHANRAS	1911	CHHATISGARH
11.	KHAPRI TANK	1908	CHHATISGARH
12.	KURUD	1909	CHHATISGARH
13.	PINDRAWAN TANK	1909	CHHATISGARH
14.	TANDULA TANK	1921	CHHATISGARH
15.	ADHIA	1902	GUJARAT
16.	AJWA	1892	GUJARAT
17.	ALANSAGAR	1901	GUJARAT
18.	ANANDPAR	1907	GUJARAT
19.	BHADHAKA	1868	GUJARAT
20.	CHIMNABAI-LAKE	1906	GUJARAT
21.	DHAMELI	1914	GUJARAT
22.	DHANORA	1911	GUJARAT
23.	DOSWADA	1912	GUJARAT
24.	FAKIRWADI	1913	GUJARAT
25.	HANSHTHAL	1902	GUJARAT
26.	KHAMBHALA	1901	GUJARAT
27.	KUVADWA	1908	GUJARAT
28.	LIMLA	1912	GUJARAT
29.	MOLDI	1902	GUJARAT
30.	MOTA ANKADIA	1903	GUJARAT
31.	MOTA BANDHARIA	1911	GUJARAT
32.	MUVALIA	1911	GUJARAT
33.	PANELI	1906	GUJARAT
34.	PANELIA	1882	GUJARAT
35.	PICHHAVI	1916	GUJARAT



36.	RAJAVADALA	1902	GUJARAT
37.	RAMDHANI	1914	GUJARAT
38.	REVANIA	1882	GUJARAT
39.	SAVLI	1910	GUJARAT
40.	VADATALAV	1916	GUJARAT
41.	VANGROLI	1912	GUJARAT
42.	VERI	1900	GUJARAT
43.	VIJARKHI	1901	GUJARAT
44.	ZINZARI	1912	GUJARAT
45.	BORANAKANIVE TANK	1892	KARNATAKA
46.	DEEPAMBUDIKERE TANK	1906	KARNATAKA
47.	HESARAGHATTA RESERVOIR	1896	KARNATAKA
48.	KADABA TANK	1906	KARNATAKA
49.	KOTTUR TANK	1888	KARNATAKA
50.	KUNIGAL DODAKERE TANK	1906	KARNATAKA
51.	MADAGA TANK (OLD)	1908	KARNATAKA
52.	MADAGAMASUR TANK	1908	KARNATAKA
53.	MAIDAL AMANIKERE TANK	1895	KARNATAKA
54.	MAVATHUR TANK	1908	KARNATAKA
55.	NIDASALE TANK	1906	KARNATAKA
56.	NITTUR TANK	1906	KARNATAKA
57.	RANIKERE TANK	1907	KARNATAKA
58.	THONNUR TANK	1000	KARNATAKA
59.	VANIVILASA SAGAR DAM	1907	KARNATAKA
60.	PERIYAR	1895	KERALA
61.	ADNER	1911	MADHYA PRADESH
62.	AHMADPUR	1916	MADHYA PRADESH
63.	AMA NALLA (OLD)	1916	MADHYA PRADESH
64.	AMAHI	1917	MADHYA PRADESH
65.	AMETHA	1918	MADHYA PRADESH
66.	ANTALWASA	1908	MADHYA PRADESH
67.	BADERA	1920	MADHYA PRADESH
68.	BAISLY	1919	MADHYA PRADESH
69.	BASINKHAR	1909	MADHYA PRADESH
70.	BELGAON	1909	MADHYA PRADESH
71.	BHAROLI	1916	MADHYA PRADESH
72.	BIRPUR	1908	MADHYA PRADESH
73.	BITHLEE	1910	MADHYA PRADESH
74.	CHANDAPATHA	1918	MADHYA PRADESH
75.	CHHOTI DEORI	1919	MADHYA PRADESH
76.	CHIRAI PANI	1913	MADHYA PRADESH
77.	DHAPORA	1913	MADHYA PRADESH
78.	DHARWARA	1918	MADHYA PRADESH

79.	DINORA	1907	MADHYA PRADESH
80.	DONGER BODI	1911	MADHYA PRADESH
81.	GORKHA BANDHA	1912	MADHYA PRADESH
82.	GOVINDGARH	1917	MADHYA PRADESH
83.	HARDUAMUDAR	1917	MADHYA PRADESH
84.	HARSI	1917	MADHYA PRADESH
85.	JAGLA TANK	1916	MADHYA PRADESH
86.	JAGUWA	1921	MADHYA PRADESH
87.	JAMAKHERI	1915	MADHYA PRADESH
88.	JAMUNIA	1921	MADHYA PRADESH
89.	JAWAHARGARH	1899	MADHYA PRADESH
90.	JHALONI	1913	MADHYA PRADESH
91.	JUMNERA	1910	MADHYA PRADESH
92.	KAMERA	1910	MADHYA PRADESH
93.	KATANGJHARI	1922	MADHYA PRADESH
94.	KESHOPUR	1916	MADHYA PRADESH
95.	KHANKURIA	1915	MADHYA PRADESH
96.	KHANPURA	1907	MADHYA PRADESH
97.	KHERIA	1913	MADHYA PRADESH
98.	KOTA	1910	MADHYA PRADESH
99.	KOTWAL	1914	MADHYA PRADESH
100.	KUTARI NALLA	1916	MADHYA PRADESH
101.	LOKPAL SAGAR	1909	MADHYA PRADESH
102.	LOWER SAKARWARA	1919	MADHYA PRADESH
103.	MAJHGAWAN	1914	MADHYA PRADESH
104.	MAUSANDHA	1917	MADHYA PRADESH
105.	MOHARI	1916	MADHYA PRADESH
106.	MOMANPURA	1916	MADHYA PRADESH
107.	NAGDAGAJORA	1911	MADHYA PRADESH
108.	NAROLA	1916	MADHYA PRADESH
109.	PANAGAR	1912	MADHYA PRADESH
110.	PATHARHATTA	1918	MADHYA PRADESH
111.	PILLOWA	1914	MADHYA PRADESH
112.	PIPREHETA	1913	MADHYA PRADESH
113.	RAJGARH	1914	MADHYA PRADESH
114.	RAMGARHI	1915	MADHYA PRADESH
115.	RAMPUR	1917	MADHYA PRADESH
116.	RANJEET	1916	MADHYA PRADESH
117.	RECHHAI	1910	MADHYA PRADESH
118.	ROOMAL	1910	MADHYA PRADESH
119.	SAMARSINGHA	1917	MADHYA PRADESH
120.	SARRA	1896	MADHYA PRADESH
121.	SILODA	1916	MADHYA PRADESH
122.	TEKANPUR	1895	MADHYA PRADESH

123.	TIGRA	1917	MADHYA PRADESH
124.	AMBAZARI	1870	MAHARASTRA
125.	ASHTI	1883	MAHARASTRA
126.	ASOLAMENDHA	1918	MAHARASTRA
127.	BHATODI	1892	MAHARASTRA
128.	BODALKASA	1917	MAHARASTRA
129.	CHANDPUR	1915	MAHARASTRA
130.	CHANKAPUR	1911	MAHARASTRA
131.	DARNA	1916	MAHARASTRA
132.	DHAMAPUR	1600	MAHARASTRA
133.	EKRUKH	1871	MAHARASTRA
134.	GADMOSHI	1912	MAHARASTRA
135.	GOREWADA	1911	MAHARASTRA
136.	JANALA	1912	MAHARASTRA
137.	KALAPVIHIR	1800	MAHARASTRA
138.	KHADAKWASLA	1880	MAHARASTRA
139.	KHAIRBANDHA	1903	MAHARASTRA
140.	KHAIRI	1913	MAHARASTRA
141.	KHIRDISATHE	1904	MAHARASTRA
142.	KUMBHALI	1907	MAHARASTRA
143.	LONAVALA	1916	MAHARASTRA
144.	MAYANI	1872	MAHARASTRA
145.	MHASWA	1880	MAHARASTRA
146.	MHASWAD	1887	MAHARASTRA
147.	MUDANA	1800	MAHARASTRA
148.	MUKTI	1873	MAHARASTRA
149.	NALLESHWAR	1922	MAHARASTRA
150.	NHER	1889	MAHARASTRA
151.	PANGADI	1917	MAHARASTRA
152.	PARSUL	1884	MAHARASTRA
153.	PATHARI	1905	MAHARASTRA
154.	PAWANPAR	1909	MAHARASTRA
155.	RAMTEK	1913	MAHARASTRA
156.	RANKALA	1883	MAHARASTRA
157.	RUSHI	1800	MAHARASTRA
158.	SHANIMANDAL	1885	MAHARASTRA
159.	SHETFAL	1901	MAHARASTRA
160.	SHIRSUFAL	1879	MAHARASTRA
161.	SHIRVATA	1920	MAHARASTRA
162.	TANSA	1892	MAHARASTRA
163.	THOKARWADI	1922	MAHARASTRA
164.	TULSHI	1879	MAHARASTRA
165.	VIHAR	1860	MAHARASTRA
166.	WADSHIVANE	1902	MAHARASTRA

167.	WALWAN	1916	MAHARASTRA
168.	BHANJANAGAR	1894	ODISHA
169.	JAGANNATHASAGAR	1781	ODISHA
170.	SORODA	1896	ODISHA
171.	BANKALI	1906	RAJASTHAN
172.	BARETHA BUND	1897	RAJASTHAN
173.	BUCHARA	1889	RAJASTHAN
174.	CHAPARWARA	1894	RAJASTHAN
175.	DHEEL	1911	RAJASTHAN
176.	FATEH SAGAR	1889	RAJASTHAN
177.	HEMAWAS	1911	RAJASTHAN
178.	HINGONIA	1862	RAJASTHAN
179.	JAI SAMAND	1730	RAJASTHAN
180.	JAISAMAND	1910	RAJASTHAN
181.	JASWANT SAGAR	1889	RAJASTHAN
182.	KALAKH SAGAR	1883	RAJASTHAN
183.	KHARAD	1877	RAJASTHAN
184.	KUKAS	1901	RAJASTHAN
185.	MADHO SAGAR	1887	RAJASTHAN
186.	NAHAR SAGAR	1909	RAJASTHAN
187.	RAJSAMAND	1676	RAJASTHAN
188.	RAM GARH	1901	RAJASTHAN
189.	SAINTHAL SAGAR	1898	RAJASTHAN
190.	SARDAR SAMAND	1905	RAJASTHAN
191.	SHEEL KI DUNGRI	1900	RAJASTHAN
192.	SWAROOP SAGAR	1560	RAJASTHAN
193.	TORDI SAGAR	1887	RAJASTHAN
194.	UDAI SAGAR	1585	RAJASTHAN
195.	UMED SAGAR	1917	RAJASTHAN
196.	PECHIPPARAI	1906	TAMIL NADU
197.	BARWA SAGAR	1694	UTTAR PRADESH
198.	DHANDHRAUL	1917	UTTAR PRADESH
199.	DHEKWAN	1909	UTTAR PRADESH
200.	DONGIA	1918	UTTAR PRADESH
201.	GANGAU	1915	UTTAR PRADESH
202.	GHORI	1915	UTTAR PRADESH
203.	KHAPATIA	1916	UTTAR PRADESH
204.	KOTRA KHAMBHA	1915	UTTAR PRADESH
205.	LACHURA	1910	UTTAR PRADESH
206.	MAGAR PUR	1694	UTTAR PRADESH
207.	MAJHGAWAN	1917	UTTAR PRADESH
208.	PACHWARA LAKE	1694	UTTAR PRADESH
209.	PAHARI	1912	UTTAR PRADESH
210.	PAHUJ	1909	UTTAR PRADESH

211.	PARICHHA	1886	UTTAR PRADESH
212.	SIORI LAKE	1911	UTTAR PRADESH
213.	SUKHRA	1909	UTTAR PRADESH
214.	ALAIR RESERVOIR	1922	TELANGANA
215.	CHOUDARI CHERU, POLKAMPET	1908	TELANGANA
216.	LAKHNAVARAM TANK	1909	TELANGANA
217.	LARGE TANK, ADLOOR YELLAREDDY	1901	TELANGANA
218.	LARGE TANK, BIBIPET	1911	TELANGANA
219.	LARGE TANK, JANGAMPALLY	1898	TELANGANA
220.	LARGE TANK, KACHAPUR	1896	TELANGANA
221.	LARGE TANK, KAMAREDDY	1897	TELANGANA
222.	LARGE TANK, MALKAPUR	1898	TELANGANA
223.	LARGE TANK, PEDDAMALLAREDDY	1892	TELANGANA
224.	LARGE TANK, PULKAL	1918	TELANGANA
225.	LARGE TANK, UPPALWAI	1918	TELANGANA
226.	MALLAREDDY CHERU, BHIKNOOR	1905	TELANGANA
227.	OSMAN SAGAR	1920	TELANGANA
228.	PAKHAL LAKE	1902	TELANGANA
229.	PEDDA CHERU, VELLUTLA	1912	TELANGANA
230.	POCHARAM	1922	TELANGANA
231.	RAMAPPA LAKE	1919	TELANGANA
232.	SEETHAI CHERU, SEETHAIPALLY	1922	TELANGANA
233.	SHANIGRAM	1891	TELANGANA
234.	UDAYASAMUDRAM	1906	TELANGANA

**Annexure - II**

**Sewerage Projects under Namami Gange on the Tributaries of Ganga**

S. No.	Towns	Name of River	Approved Project cost TOTAL (in Crores)	Date of Sanction	Name/Nature of works	Physical Status -
<b>Uttarakhand</b>						
1	Dehradun (Rispana & Bindal River)	Rispana & Bindal River	63.75	20.12.2019	Interception & Diversion Works for Rispana & Bindal River in Dehradun (under Namami Gange Programme)	Under Progress
2	Ramnagar (Kosi River)	Kosi	55.06	03.12.2019	Interception & Diversion of Nallas Discharging in Kosi River at Ramnagar	Completed
3	Udham Singh Nagar (Dhela)	Dhela	199.36	17.09.2021	(I&D) and STP work of 06 nos. Polluted River Stretches to Rejuvenate River Bhela, Dhela, Kichha, Kosi, Nandhore, Pilakhar and Kashipur Sewerage (I&D) Scheme (Dhela River)	Under Progress
4	Dehradun	Suswa River	78.99	25.10.2022	I&D with STP works at Sapeera Basti, Dehradun	Under Tendering
<b>Himachal Pradesh</b>						
5	Paonta Sahib (District Sirmour) (Yamuna River)	Yamuna	11.57	31.12.2018	Sewerage scheme for Zone II & III of Paonta Town in Tehsil Paonta Sahib, District Sirmour, Himachal Pradesh	Completed
<b>Delhi</b>						
6	Delhi -YAP-III -Kondli zone (K1)	Yamuna	87.43	05.05.2016	Rehabilitation of Trunk Sewer No.4	Completed
7	Delhi -YAP-III -Kondli zone (K2)	Yamuna	83.4	06.05.2016	Rehabilitation of Trunk Sewer No.5	Completed
8	Delhi -YAP-III -Kondli zone (K3)	Yamuna	239.11	05.05.2016	Rehabilitation and upgradation of Kondli Phase-I STP (45 MLD), Phase-II STP (114 MLD) & Phase-III STP (45 MLD)	Under Progress
9	Delhi -YAP-III -Kondli zone (K4)	Yamuna	59.13	16.03.2017	Rehabilitation of Rising Mains	Completed
10	Delhi -YAP-III -Rithala zone (R1a)	Yamuna	43.92	05.05.2016	Rehabilitation of Trunk Sewers	Completed
11	Delhi -YAP-III -Rithala zone (R1b)	Yamuna	45.4	16.03.2017	Rehabilitation of Rising Mains	Completed
12	Delhi -YAP-III -Rithala zone (R2)	Yamuna	211.79	05.05.2016	Rehabilitation and up-gradation of Phase-I STP (182 MLD)	Under Progress

13	Delhi -YAP-III - Okhla zone (O)	Yamuna	665.78	16.03.2017	Construction of 564 MLD (124 MGD) Waste Water Treatment Plant (WWTP) with Effluent Standards of BOD – 10mg/l, TSS – 10 mg/l or better and Power Generation on DBO basis at Okhla on Turnkey Basis and Demolition of Existing 136 MLD (Phase-I), 55 MLD (Phase-II), 204 MLD (Phase-III) and 168 MLD (Phase-IV) WWTPs	Under Progress
14	Coronation Pillar, Delhi	Yamuna	515.07	03.12.2018	Construction of 318 MLD (70 MGD) WWTP with 10 years O & M on DBO basis at Coronation Pillar, Delhi	Completed
<b>Uttar Pradesh</b>						
15	Moradabad (Ramganga)	Ram Ganga	330.05	31 .07.2020	Sewerage system & STP works (Phase I )	Completed
16	Moradabad (Ramganga)	Ram Ganga	118.69	23.07.2018	Pollution Abatement Works for River Ram Ganga at Moradabad (Sewerage Zone-2) under Hybrid annuity based PPP model-Namami Gange Programme	Under Progress
17	Kannauj(Kali)	Kali	43.66	24.02.11	Sewerage system & STP works (Phase II)	Completed
18	Vrindavan	Yamuna	42.82	11.12.2019	Rehabilitation of Sewerage Infrastructure & Augmentation/ Upgradation of STP (4 MLD)	Completed
19	Mathura	Yamuna	460.45	13.12.2017	Rehabilitation/Renovation of Mathura sewerage scheme : Construction of 30 MLD STP at Masani (under Hybrid annuity based PPP model-Namami Gange Programme)	Completed
20	Mathura	Yamuna	292.56	07.09.2022	Sewerage Scheme (I&D and STP Works for balance drains) under Hybrid Annuity based PPP mode	Under Tendering
21	Ayodhya-Faizabad(Saryu-River)	Saryu	37.67	11.06.2018	Interception & Diversion (I&D) of drains at Ayodhya, District-Faizabad	Completed
22	F a i z a b a d (Saryu/Ghaghara River)	Saryu	221.66	06.05.2021	Pollution Abatement Works for River Saryu/Ghaghara at Faizabad town, District Ayodhya (Interception & Diversion with STP)	Under Progress
23	Sultanpur(Gomti River)	Gomti	70.18	04.12.2019	Interception & Diversion with STP at Sultanpur (Construction of New 7 mld & Upgradation of existing 5 mld to 10 mld)	Under Progress
24	Kasganj(Kali river)	Kali	76.73	24.12.2018	Interception & Diversion with STP at Kasganj	Completed
25	Agra(Yaumnariver)	Yamuna	842.25	06.05.2020	Interception & Diversion with Rehabilitation of sewerage scheme at Agra (under Hybrid annuity based PPP model-	Under Progress

					Namami Gange Programme)	
26	Muzaffarnagar (Hindon-River)	Hindon (kali)	234.03	13.01.2020	Interception & Diversion works and STP at Muzaffarnagar (under Hybrid annuity based PPP model-Namami Gange Programme)	Under Progress
27	Budhana	Kali	48.76	18.02.2019	Interception & Diversion works and STP at Budhana (under Hybrid annuity based PPP model-Namami Gange Programme)	Under Progress
28	Bareilly (Ram Ganga-River)	Ram Ganga	271.39	03.01.2019	Interception & Diversion works and STP at Bareilly	Under Progress
29	Jaunpur (River Gomti)	Gomti	206.05	12.02.2019	Interception & Diversion works and STP at Jaunpur	Under Progress
30	Meerut (River Kali)	Kali East	690.71	06.05.2020	Pollution Abatement Works for River Kalikat Meerut under Meerut Municipality (Interception & Diversion with STP) (under Hybrid annuity based PPP model-Namami Gange Programme)	Under Tendering
31	Baghpat (River Yamuna)	Yamuna	77.36	19.02.2019	Interception & Diversion and STP works of Baghpat Town	Completed
32	Firozabad (River Yamuna)	Yamuna	51.08	01.03.2019	Firozabad Sewerage Scheme (Interception & Diversion) works	Completed
33	Etawah	Yamuna	140.6	28.02.2019	Sewerage Scheme (Interception & Diversion) works	Completed
34	Lucknow (River Gomti)	Gomti	213.91	06.05.2020	Interception & Diversion and STP works at Lucknow	Under Progress
35	Kairana	Yamuna	78.42	07.12.2020	Interception & Diversion works for Kairana Town, Distt-Shamli, Uttar Pradesh State under Namami Gange Programme	Under Progress
36	Pratapgarh	Dhamola/Hindon	39.67	03.11.2021	Interception & Diversion (I & D) of Drains and Sewerage Treatment Plant	Under Tendering
37	Saharanpur	Dhamola/Hindon	577.23	11.06.2022	Interception & Diversion (I&D) and Sewage Treatment Plant works at Saharanpur, Uttar Pradesh (under Hybrid annuity based PPP model-Namami Gange Programme)	Under Tendering
38	Chhata	Yamuna	56.15	25.10.2022	I&D and STP Works	Under Tendering
39	Kosi	Yamuna	66.59	25.10.2022	I&D and STP Works	Under Tendering
40	Vrindavan	Yamuna	77.7	25.10.2022	I&D and STP Works	Under Tendering
<b>Haryana</b>						
41	Panipat	Yamuna	129.51	17.07.2012	Sewerage and Sewage Treatment Plant (STP)	Completed
42	Sonepat	Yamuna	88.36	17.07.2012	Sewerage and Sewage Treatment Plant (STP)	Completed
<b>Rajasthan</b>						
43	Kota	Chambal	258.48	25.02.2021	Environmental Improvement Plan for River Chambal at Kota	Under Progress
<b>Bihar</b>						



44	Naugachia	Kosi	60.79	01.08.2017	Interception, Diversion & Sewage Treatment Plant works under Namami Gange Programme	Under Progress
45	Dehri (Sone)	Sone	63.89	01.12.2021	Interception and Diversion and STP works at Dehri (under Namami Gange Programme)	Under Tendering
46	Ramnagar	Ramrekha	56.97	12.09.2022	I&D and STP Works, NGM-II	Under Tendering
47	Sapaul	Kosi	57.09	7.09.2022	I&D and STP Works, NGM-II	Under Tendering
48	Narkatiyaganj	Harbora/Poindai River	47.39	17.10.2022	I&D Project at Narkatiaganj	Under Tendering
<b>Jharkhand</b>						
49	Phusro	Damodar	61.05	15.12.2020	I & D and STP Project	Under Tendering
50	Ramgarh	Damodar	284.8	17.10.2022	I&D and STP scheme at Ramgarh	Under Tendering
<b>West Bengal</b>						
51	Burdwan	Damodar	6.46	20.06.2022	Faecal Sludge Management for abatement of pollution in River Ganga	Under Tendering
52	Durgapur	Damodar	287.53	03.01.2019	Interception and Diversion Network for Drains including Pumping Stations and STP under Durgapur Municipality	Under Tendering
53	Asansol & Kulti (River Damodar & Barakar)	Damodar & Barakar	384.96	12.02.2019	Interception and Diversion Sewerage System & STP for Asansol & Kulti towns	Under Tendering

**Annexure III**

**Ghat and Crematoria Projects on the Tributaries of Ganga**

<b>S. No</b>	<b>Name of Project</b>	<b>Scope- Ghats (G)/ Crematoria (C )</b>	<b>Physical Status</b>	<b>Cost of Project (in Rs Cr)</b>
<b>Bihar</b>				
1	Development Works of Ghats at Gopalganj	Ghats- 2	Completed	8.25
2	Development of Crematoria at Gopalganj	Crematoria- 2	Under Tendering	3.45
<b>Madhya Pradesh</b>				
3	Ghat Construction work at Mandakini River Bank Chitrakoot Dham District Satna, Madhya Pradesh under Namami Gange Programme	Ghat- 2	Under Tendering	31.88
4	Rejuvenation and Development of Morar River	RFD	Under Progress	39.24
5	Environmental Upgradation of Shivena River at Mandsaur in Madhya Pradesh	Ghats- 2 Crematorium- 1	Under Tendering	28.91

**Water Quality Parameters and River Yamuna**

CWC is measuring water quality on key river locations covering river basins across the country.

As per CPCB classification for “Designated Best Uses of Water”, the Outdoor Bathing (organized) classification falls into class-B category which is based on following parameters-

1. Water permissible limit of pH between - 6.5 to 8.5
2. Water permissible limit of DO is  $\geq 5.0$  mg/l
3. Water permissible limit of BOD is  $\leq 3.0$  mg/l
4. Water permissible limit of Total Coliform-  $\leq 500$ MPN/100ml

Further, CWC has published reports on “Water Quality Hot-Spots in Rivers of India”. The CWC in its 3<sup>rd</sup> publication on “Water Quality Hot-Spots in Rivers of India” which was published during November, 2021 has published 10 year average values of above mentioned parameters based on observed value during 2010-2020.

The details of parameters for main stem of river Yamuna up-to Pratappur are as follows,

**1. Dissolved Oxygen**

The hot spot average values of Dissolved Oxygen (DO) found in Yamuna River during period 2010-2020. The details have been given in Table 01.

Table: 01 Prescribed limits for Dissolved Oxygen (DO) parameter as CPCB in Class B is  $5 > \text{mg} / \text{L}$ .

S.No.	Parameter	Site	River	State	District	Monsoon Average	Non-Monsoon Average
1	DO	Agra(P.G)	Yamuna	Uttar Pradesh	Agra	1.61	1.38
2	DO	Delhi Rly Bridge	Yamuna	Delhi	North Delhi	2.00	1.3
3	DO	Jawahar Bridge	Yamuna	Uttar Pradesh	Agra	3.77	3.42
4	DO	Mathura	Yamuna	Uttar Pradesh	Mathura	2.95	2.49
5	DO	Mawi	Yamuna	Uttar Pradesh	Muzaffar Nagar	4.73	5.04
6	DO	Mohana	Yamuna	Haryana	Faridabad	2.31	1.6
7	DO	Palla	Yamuna	Delhi	North West Delhi	4.91	5.88
8	DO	Poanta	Yamuna	Himachal Pradesh	Sirmaur	4.12	4.74

**2. Biochemical Oxygen Demand**

The hot spot average values of Biochemical Oxygen Demand (BOD) found in Yamuna River during period 2010-2020. The details have been given in Table 02.

Table: 02 Prescribed limits for Biochemical Oxygen Demand (BOD) parameter as CPCB in Class B is 3 < mg / L

S. No.	Parameter	Site	River	State	District	Monsoon Average	Non-Monsoon Average
1	BOD	Agra (P.G)	Yamuna	Uttar Pradesh	Agra	19.71	18.27
2	BOD	Auraiya	Yamuna	Uttar Pradesh	Auraiya	8.81	12.86
3	BOD	Delhi Rly Bridge	Yamuna	Delhi	North Delhi	28.15	40.87
4	BOD	Etawah	Yamuna	Uttar Pradesh	Etawah	16.78	33.56
5	BOD	Hamirpur	Yamuna	Uttar Pradesh	Hamirpur	5.09	7.36
6	BOD	Mathura	Yamuna	Uttar Pradesh	Mathura	20.54	23.46
7	BOD	Mawi	Yamuna	Uttar Pradesh	Muzaffar Nagar	5.2	6.28
8	BOD	Mohana	Yamuna	Haryana	Faridabad	17.89	26.14
9	BOD	Palla	Yamuna	Delhi	North West Delhi	5.43	5.96
10	BOD	Pratappur	Yamuna	Uttar Pradesh	Allahabad	2.87	3.06
11	BOD	Rajapur	Yamuna	Uttar Pradesh	Chitrakoot	3.94	4.3

### 3. Total Coliform

The average values of Total Coliform (TC) exceeded the limits of Total Coliform in class-B of CPCB (Designated Best Uses of Water) in entire Yamuna River during period 2010-2020.

### 4. pH-

The pH values remain within limits for pH in class-B of CPCB (Designated Best Uses of Water) for duration 2010-2020 in both average Monsoon and average Non-monsoon season in entire Yamuna River.

**The above values for state Delhi are given below-**

### 1. Dissolved Oxygen

The hot spot average values of Dissolved Oxygen (DO) found in Yamuna River in Delhi state during period 2010-2020. The details have been given in Table 01.

Table: 01 Prescribed limits for Dissolved Oxygen (DO) parameter as CPCB in Class B is 5 > mg / L.

S. No.	Parameter	Site	River	State	District	Monsoon Average	Non-Monsoon Average
1	DO	Delhi Rly Bridge	Yamuna	Delhi	North Delhi	2.00	1.3
2	DO	Palla	Yamuna	Delhi	North West Delhi	4.91	5.88

## 2. Biochemical Oxygen Demand

The hot spot average values of Biochemical Oxygen Demand (BOD) found in Yamuna River in Delhi state during period 2010-2020. The details have been given in Table 02.

Table: 02 Prescribed limits for Biochemical Oxygen Demand (BOD) parameter as CPCB in Class B is 3 < mg / L

S. No.	Parameter	Site	River	State	District	Monsoon Average	Non-Monsoon Average
1	BOD	Delhi Rly Bridge	Yamuna	Delhi	North Delhi	28.15	40.87
2	BOD	Palla	Yamuna	Delhi	North West Delhi	5.43	5.96

## 3. Total Coliform

The average values of Total Coliform (TC) exceeded the limits of Total Coliform in class-B of CPCB (Designated Best Uses of Water) in entire Yamuna River in Delhi state during period 2010-2020.

## 4. pH-

The pH values remain within limits for pH in class-B of CPCB (Designated Best Uses of Water) for duration 2010-2020 in both average Monsoon and average Non-monsoon season in entire Yamuna River in Delhi state.