02

STANDING COMMITTEE ON WATER RESOURCES

(2024-25)

EIGHTEENTH LOK SABHA

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

DEMANDS FOR GRANTS (2024-25)

SECOND REPORT

LOK SABHA SECRETARIAT

NEW DELHI

February, 2025 / Magha,1946 (Saka)

SECOND REPORT

STANDING COMMITTEE ON WATER RESOURCES (2024-25)

(EIGHTEENTH LOK SABHA)

MINISTRY OF JAL SHAKTI

DEPARTMENT OF WATER RESOURCES, RIVER DEVELOPMENT & GANGA REJUVENATION

DEMANDS FOR GRANTS (2024-25)

Presented to Lok Sabha on 10.02.2025

Laid on the Table of Rajya Sabha on 10.02.2025

LOK SABHA SECRETARIAT
NEW DELHI

February, 2025 / Magha,1946 (Saka)

W. R. C. No. 85

Price : Rs.

Published under Rule 382 of the Rules of Procedure and Conduct of Business in Lok Sabha (Sixteenth Edition) and Printed by

CONTENTS

Appendices

*Minutes not attached.

COMPOSITON OF THE STANDING COMMITTEE ON WATER RESOURCES (2024-25)

Shri Rajiv Pratap Rudy - Chairperson

LOK SABHA

2. Shri Narayandas Ahirwar
3. Shri Joyanta Basumatary
4. Chh. Udayanraje Pratapsinha Maharaj Bhonsle
5. Shri Isha Khan Choudhury
6. Shri Sher Singh Ghubaya
7. Shri Bapi Haldar
8. Md. Rakibul Hussain
9. Smt. Sanjna Jatav
10. Shri Sarabjeet Singh Khalsa
11. Shri Sagar Eshwar Khandre
12. Shri Rodmal Nagar
13. Shri Dhaval Laxmanbhai Patel
14. Shri Vishaldada Prakashbapu Patil
15. Shri Mohite Patil Dhairyasheel Rajsinh
16. Shri Dilip Saikia
17. Shri Pratap Chandra Sarangi
18. Shri Dushyant Singh
19. Thiru. Tamilselvan Thanga
20. Shri Ashok Kumar Yadav
21. Vacant

RAJYA SABHA

22. Dr. Faiyaz Ahmad
23. Shri Ashokrao Shankarrao Chavan
24. Smt. Dharmshila Gupta
25. Smt. Jebi Mather Hisham
26. Shri Khiru Mahto
27. Smt. Mausam Noor
28. Shri Balyogi Umeshnath
29. Shri SanjayKumar Jha
30. Shri Dhairyashil Mohan Patil
31. Smt. Seema Dwivedi

SECRETARIAT

1.	Shri Chander Mohan	-	Joint Secretary
2.	Shri Ajay Kumar Sood	-	Director
2.	Shri P. Ashok	-	Deputy Secretary
3.	Shri Nitin Kumar Nim	-	Assistant Committee Officer

INTRODUCTION

I, the Chairperson, Standing Committee on Water Resources (2024-25) having been authorized by the Committee to submit the Report on their behalf, present the Second Report on Demands for Grants (2024-25) 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 16.10.2024.

4. The Report was considered and adopted by the Committee at their sitting held on 06.02.2025.

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
06 February, 2025
17 Magha,1946 (Saka)

Rajiv Pratap Rudy,
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 Polyethyene
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
NCDS		National Committee on Dam Safety
NDSA	:	National Dam Safety Authority
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 is essential for sustenance of life and sustainable development. Growing population, rapid industrialisation, increasing urbanisation and climate change have made water availability an important issue. Hence, managing water resources in an efficient manner is of immense importance for ensuring water security, environmental sustenance and sustainable economic development.

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 mainly 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 (2024-25) with regard to Water Resources Sector

1.3 On being asked about the salient features of the Union Budget (2024-25) with regard to Water Resources Sector, the Department, in their written reply stated as under:-

"Budget Estimate (Net) for Financial Year 2023-24 is Rs.20054.67 crore and the proposed Budget Estimate(Net) for the FY 2024-25 is Rs.21323.10 crore an hike of Rs. 1,268.43 crore.

(i) Under Central Sector Scheme, funds of Rs. 6573.73 crore is being proposed for BE 2024-25, which is nearly Rs. 300 crore over and above BE allocation for FY 2023-24 i.e. Rs.6258.11 crore.

(ii) Being penultimate year of the scheme, under the ATAL JAL a substantial increase in the fund allocation is being proposed. Against BE allocation of Rs. 1000 crore in 2023-24 and BE allocation for FY 2024-25 is proposed Rs.1778 crore, a hike of 77.8% against BE 2023-24.

(iii) Similarly, under Central Sponsored Scheme, against BE allocation of Rs.12,387.23crore during 2023-24, funds of Rs. 13431.48 crore is being proposed for BE 2024-25, which is nearly Rs. 1050 crore over and above against BE allocation of 2023-24.

(iv) In FY 2023-24, Rs. 118.19 crore was allocated for cost sharing for launching RISAT-1B, to be paid to Department of Space. The 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. In FY 2024-25, Rs.101.34 crore has been kept for the payment to Department of Space.

(v) In 2023-24, 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. In FY 2024-25, Rs.25 crore has been kept for NDSA."

Budgetary Allocations for FY 2024-25

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 30 July, 2024. A total budgetary Provision of Rs.21323.10 crore has been made for the fiscal year 2024-25. The following table shows the total allocation of Budget for the DoWR, RD & GR for the year 2024-25:

Total Budgetary Allocations (2024-25)

(Rs. in crore)

Revenue	20921.15
Capital	401.95
Total	**21323.10**

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 2024-25*vis-a-vis* 2023-24:

(Rs. in crore)

Year	Revenue (BE)	Capital (BE)	Total
2023-24	19694.19	360.48	20054.67

2024-25	20921.15	401.95	21323.10

1.6 Further, the Department in a written reply informed the Committee that it sought Rs. 22553.85 crore for FY 2024-25, however, it has been allocated only Rs. 21323.10 crore.

Comparative Statement of Budgetary Allocation of the Department of Water Resources River Development and Ganga Rejuvenation for the fiscal year 2024-25 *vis-a-vis* 2023-24

(Rs. in crore)

Sl. No.	Item(s)	2023-24		2024-25	% increase in 2024-25 (BE) over 2023-24 (RE)
		BE	RE	BE	
1.	Establishment Expenditure of the DoWR, RD & GR	1409.33	1329.85	1317.89	(-0.89)
Central Sector Schemes/Projects					
2.	Farakka Barrage Project	55.98	70.92	80.00	12.80
3.	Dam Rehabilitation and Improvement Programme (DRIP)	50.00	54.05	46.98	(-13.08)
4.	National Ganga Plan (Namami Gange Mission-II)	4000.00	2400.00	3345.70	39.40
5.	River Basin Management	110.00	94.00	154.79	64.67
6.	Development of Water Resources Information System	162.13	171.00	115.00	(-32.74)
7.	Ground Water Management and Regulation	330.00	280.00	325.00	16.07
8.	National Hydrology Project	500.00	426.00	661.20	55.21
9.	Research & Development and National Water Mission	50.00	50.00	67.06	34.12
10.	Atal Bhujal Yojana (Atal Jal)	1000.00	1778.00	1778.00	00%
	Centrally Sponsored Schemes				
11.	PMKSY - Har Khet Ko Pani	4175.00	4374.41	4349.80	(-0.56)
12.	PMKSY-Command Area Development and Water Management	400.00	236.69	1400.00	491.49
13.	PMKSY- Accelerated Irrigation Benefit Programme and National / Special Projects	3122.33	1500.00	2500.00	66.66
14.	Flood Management and Border Areas Programme (FMBAP)	450.00	200.00	449.57	124.78
15.	Irrigation Census	40.00	20.00	40.00	100.00
16.	Special Package for Maharashtra	400.00	700.00	600.00	(-14.28)

17.	National River Conservation Plan – Other Basins	300.00	432.00	592.11	37.06
18.	Interlinking of Rivers	3500.00	1400.00	4000.00	185.71
	Total Budget	**20054.67**	**19516.92**	**21323.10**	**9.25%**

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)

Year	BE	RE	Actual
2020-21	8960.39	7262.09	7232.09
2021-22	9022.57	18008.70	17258.21
2022-23	18967.88	14000.00	11962.08
2023-24	20054.67	19516.92	19081.62
2024-25	21323.10		2870.50*

* till 31 July, 2024.

Borrowings from the National Bank for Agriculture and Rural Development (NABARD)

1.8 In connection with the borrowings from National Bank for Agriculture and Rural Development (NABARD), the Department informed as under:-

"The borrowings for central assistance through Long Term Irrigation Fund of NABARD have been discontinued since 2021-22. Only State can avail loan for ongoing projects for which central government is providing interest subvention up to 2% per annum. Accordingly, Department has not borrowed any funds from NABARD during the FY 2023-24 or FY 2024-25.

No borrowings are proposed during FY 24-25 from NABARD by the department. Provision has been made for the repayment of previous borrowings and interest subvention as tabulated below: -

(in Rs. Crores)

B.E. 2023-24	***R.E. 2023-24***	***BE 2024-25***
3875.00	***3774.41***	***3749.80***

1.9 Further, regarding decreasing the committed liability and repayment of loan the Department stated that since borrowings from NABARD have completely stopped and

the earlier liabilities are being paid through budgetary payments, decrease in expenditure on loan shall be visible after few years.

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 2024-25 viz.-a-viz. FY 2023-24 along with the reasons for such increase, the Department furnished the data as under:-

(Rs in crore)

Name of the Scheme	BE 2023-24	BE 2024-25	% increase	Reasons
National Hydrology Project	500	661.20	32%	This scheme has been taken up with World Bank Assistance. The National Hydrology Project (NHP) for FY 2024-25 requires sustained financial support to continue advancing its critical water resource management initiatives. Key activities under the project include the maintenance of the National Water Informatics Centre (NWIC) as a central repository for water data, the expansion of Real Time Data Acquisition Systems (RTDAS) across India, and the deployment of Supervisory Control and Data Acquisition systems (SCADA) for optimized water infrastructure management. Significant progress has been made, with thousands of surface and groundwater stations transmitting real-time data, upgraded water quality labs, and the construction of piezometers for groundwater monitoring. Furthermore, the project supports the creation of State Water Informatics Centers (SWIC) to enhance data interoperability and the completion of sedimentation surveys and glacial lake inventories critical for flood mitigation and climate impact studies. Additional efforts include the development of high-resolution DEMs, Geoid models, and analytical tools for water management. Continued funding is essential to complete these initiatives, validate emerging technologies, and ensure that water resource professionals and decision-

				makers can leverage these advancements for sustainable water management and disaster preparedness. Moreover, as this is the final year of the National Hydrology Project, it is crucial to ensure the timely completion of all payments for the activities undertaken as part of the NHP. This will help facilitate smooth project closure and ensure that all financial commitments are fulfilled in accordance with the project's objectives and timelines.
R&D and NWM	50	67.06	34%	Extra requirement of Rs. 8 crore has been projected in the BE-2024-25 as compared to BE 2023-24 due to additional requirement by CWC for various studies (Sedimentation Assessment Study of reservoirs in India through Remote Sensing Technique, Assessment of Water-logging and Salt/alkaline affected area in Major & Medium Irrigation Projects Commands in India, Morphological Study of River Kosi, Baghmati and Yamuna, new morphological studies of 8 rivers) and extra requirements of funds by CWPRS and CSMRS for institutional strengthening and other research related activities.
ATAL JAL	1000	1778	78%	BE allocation of Atal Bhujal Yojana was Rs. 1000 crore in 2023-24 whereas BE 2024-25 is Rs. 1778 crore as the Scheme is into the second last year of implementation in FY 2024-25 and focus is on disbursement of incentives funds to the implementing States based upon their achievements in pre-defined targets.
Special Package for Maha-rashtra	400	600	50%	Extra allocation was made as 2024-25 is the last year for implementation of the scheme. Any expenditure made during 2024-25 shall be eligible for central assistance, for which BE has been demanded for FY 2025-26.

NRCP-OB	300	592.11	97%	The budgetary allocation of FY 2023-24 was Rs.300 crore. The budgetary allocation for FY 2024-25 increased to Rs.592.11 crore, mainly to cater to meet the expenditure on ongoing and few new pollution abatement projects under NRCP-OB Scheme.
River Basin Management	110	154.79	41%	Since, the Scheme is progressing for completion, it is expected that more expenditure will be observed.

1.11 On being asked to state the details of the Schemes where allocations have been reduced by more than 20%for FY 2024-25 viz.-a-viz., FY 2023-24 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 2023-24	BE allocation 2024-25	% decrease	Reasons
DWRIS	162.13	115	-29%	Based on the trend of expenditure BE allocation for the year 2024-25 proposed for reduction.

Water Resources Scenario

1.12 In the Annual Report 2023-24, the Department states that as per "Reassessment of water availability in basins using space inputs" Report, the total water availability of India received through precipitation is about 3,880 Billion Cubic Meter (BCM). Due to geological and other factors, the utilizable water availability is limited to 1,139 BCM per annum. Out of this, the water potential utilized is about 691 BCM. The total requirement of the county for different uses for high demand scenario for the years 2025 and 2050 has been assessed as 843 BCM, and 1,180 BCM, respectively. Presently, in 2024 the water potential utilized is about 691 BCM, which is almost 152 BCM short, as per requirement for 2025.

1.13 On being asked about the steps taken/proposed to be taken by the Ministry to enhance the water potential to meet the requirement, and prepared any action plan in long term perspective in view of the high demand scenario of the total requirement of the country, as assessed for the year 2050 i.e. 1180 BCM, the Department stated as under:-

"CWC has recently carried out 'Assessment of Water Resources of India' for the year 1985-2023 as per which the Average Annual Water Resources Availability of

India has been assessed as 2115.95 BCM while the annual precipitation is 3728.78 BCM.

Ministry of Jal Shakti & related Organisations have undertaken various Studies/ Measures which have been effective in bridging the gaps between water demand and supply.

In this regard, a National Commission on Integrated Water Resources Development (NCIWRD) was constituted by Ministry which gave its comprehensive report on various facets of water sector in the year 1999. A detailed note on the summary of recommendations on various aspects of water resources by the NCIWRD and the actions taken Ministry & related Organisations is enclosed as ***Annexure-I****. Further, constitution of another task force i.e. National Task Force on Integrated Water Resources Development & Management is also under consideration in Ministry of Jal Shakti.*

DoWR, RD & GR, MoJS has taken various initiatives to enhance the water availability to meet the requirement like Atal Bhujal Yojana; Pradhan Mantri Krishi Sichai Yojna (PMKSY), Accelerated Irrigation Benefit Programme (AIBP), Repair, Renovation & Restoration (RRR) of Water Bodies; Inter-linking of rivers 'Sahi Fasal' campaign; Jal Shakti Abhiyan: Catch the Rain (JSA: CTR); implementation of new projects/National projects like Pollavaram Project etc. With the advent of technological upgradation in the area of improving water use efficiency in all major sectors of water demand and with the progressive stabilization of national population scenario by that time, we may be able to comfortably meet our national water demand.

The water availability can further be ensured by increasing the water storage capacity by construction of dams, artificial recharge of ground water, inter-basin water transfers, rain-water harvesting, recycle-reuse of water, check dams, revival of traditional water bodies, etc."

Interlinking of Rivers

1.14 As per the information furnished by DoWR, RD & GR, National Water Development Agency (NWDA) has been entrusted with work of Interlinking of Rivers (ILR) under National Perspective Plan (NPP) formulated by Government of India in the year 1980. Under NPP, a total of 30 link projects have been identified (16 link projects under Peninsular Component and 14 link projects under Himalayan Component). The main purpose of interlinking of rivers is to envisage inter basin transfer of water from surplus basin to deficit ones and improve water availability in drought prone and rain-fed areas. It is estimated that implementation of NPP would provide benefits of about 35 Mha of irrigation covering 25 Mha from surface waters, 10 Mha by increased use of ground waters, raising the ultimate irrigation potential from 140 Mha to 175 Mha in the country and generation of about 34000 MW of power, apart from the incidental benefits of flood

control, drought mitigation, navigation, water supply, fisheries, salinity and pollution control etc.

1.15 The Department further informed that Government of India has accorded top priority to Interlinking of Rivers (ILR) Programme. Out of 30 identified link projects under NPP, Pre-Feasibility Reports (PFRs) of all the 30 links have been completed, Feasibility Reports (FRs) of 24 links and Detailed Project Reports (DPRs) of 11 links have been completed. Five links namely Ken-Betwa Link Project, Godavari-Cauvery link (comprising of three links) and Modified Parbati-Kalisindh-Chambal are being pursued for implementation on priority. One link namely Ken-Betwa Link Project is under implementation. The project is planned to be completed in period of 8 years i.e. by March, 2030.

1.16 The Latest status of links under NPP (Himalayan & Peninsular Component) is as given below in Table-I & II:

Table-I: Himalayan Component

S. No.	Name of the Link	Country/ States benefited	Status
1.	Kosi-Mechi link	Bihar & Nepal	PFR completed
2.	Kosi-Ghaghra link	Bihar & U.P & Nepal	FR completed
3.	Gandak-Ganga link	U.P & Nepal	FR completed and circulated
4.	Ghaghra-Yamuna link	U.P & Nepal	FR completed and modified
5.	Sarda-Yamuna link	U.P & Uttarakhand	FR completed
6.	Yamuna-Rajasthan link	Haryana & Rajasthan	FR completed
7.	Rajasthan-Sabarmati link	Rajasthan & Gujarat	FR completed
8.	Chunar-Sone Barrage link	Bihar &U.P	Draft FR completed
9.	Sone Dam-Southern Tributaries of Ganga link	Bihar & Jharkhand	Draft FR completed

10.	Manas-Sankosh-Tista-Ganga (M-S-T-G) link	Assam, W.B & Bihar	FR completed
11.	Jogighopa-Tista-Farakka link (Alternative to M-S-T-G)	Assam, W.B & Bihar	PFR completed (The proposal has been dropped)
12.	Farakka-Sundarbans link	W.B	FR completed
13.	Ganga (Farakka) - Damodar-Subarnarekha link	W.B., Odisha & Jharkhand	FR completed
14.	Subarnarekha-Mahanadi link	W.B. &Odisha	FR completed

Table-II: Peninsular Component

S. No.	Name of the Link	Country/ States benefited	Status
1.	a) Mahanadi (Manibhadra)-Godavari (Dowlaiswaram) link	AP & Odisha	FR completed
	b) Alternate Mahanadi (Barmul)-Rushikulya-Godavari (Dowlaiswaram) link	AP & Odisha	FR completed
2.	Godavari (Polavaram) - Krishna (Vijayawada) link	AP	FR completed
3.	a)Godavari (Inchampalli) - Krishna (Nagarjunasagar) link	Telangana	FR completed
	b) Alternate Godavari (Inchampalli)-Krishna (Nagarjunasagar) link *	Telangana	DPR completed
4.	Godavari (Inchampalli/ SSMPP) - Krishna (Pulichintala) link	Telangana & AP	DPR completed
5.	a)Krishna (Nagarjunasagar)-Pennar (Somasila) link	AP	FR completed

	b)Alternate Krishna (Nagarjunasagar)-Pennar (Somasila) link *	AP	DPR completed
6.	Krishna (Srisailam)-Pennar link	AP	Draft DPR completed
7.	Krishna (Almatti) – Pennar link	AP & Karnataka	Draft DPR completed
8.	a) Pennar (Somasila) - Cauvery (Grand Anicut) link	AP, Tamil Nadu & Puducherry	FR completed
	b) Alternate Pennar (Somasila) - Cauvery (Grand Anicut) link *	AP, Tamil Nadu & Puducherry	DPR completed
9.	Cauvery (Kattalai)-Vaigai-Gundar link	Tamil Nadu	DPR completed
10.	a) Parbati-Kalisindh-Chambal link	Madhya Pradesh & Rajasthan	FR completed
	b) Modified Parbati-Kalisindh-Chambal link (duly integrated with ERCP)	Madhya Pradesh & Rajasthan	Draft PFR completed
11.	Damanganga-Pinjal link (As per DPR)	Maharashtra (only water supply to Mumbai)	DPR completed
12.	Par-Tapi-Narmada link (As per DPR)	Gujarat & Maharashtra	DPR completed
13.	Ken-Betwa link	Uttar Pradesh & Madhya Pradesh	DPR completed & project is under implementation
14.	Pamba-Achankovil-Vaippar link	Tamil Nadu & Kerala	FR completed
15.	Bedti-Varda link	Karnataka	DPR completed
16.	Netravati-Hemavati link***	Karnataka	PFR completed

***Benefit from Six Projects of Govt. of Odisha*

*Alt I- Linking with Gandhisagar Dam, Alt. II- Linking with Rana Pratapsagar Dam*

** Due to pending consensus on Manibhadra and Inchampalli dams, alternate study to divert unutilized waters of Godavari river was carried out and DPR of Godavari (Inchampalli)-Krishna (Nagarjunasagar)-Pennar (Somasila)-Cauvery (Grand Anicut) link projects was completed. Godavari-Cauvery (Grand Anicut) link project has been prepared comprising of Godavari (Inchampalli)-Krishna (Nagarjunasagar), Krishna (Nagarjunasagar)-Pennar (Somasila) and Pennar (Somasila)-Cauvery (Grand Anicut) link projects.*

*** *Further studies are not taken up since after implementation of Yettinahole project by Govt. of Karnataka, no surplus water is available in Netravati basin for diversion through this link."*

1.17 Against the query whether any study on interlinking of rivers in terms of ecological & environmental, socio-economical has been carried out, the Department informed that Wildlife Institute of India, Dehradun had carried out the detailed study titled *"Integrated Landscape Management Plan- Greater Panna Landscape – At A Glance"* in respect of Ken Betwa Link Project. The said report can be accessed online at the following weblink: *https://wii.gov.in/images/images/documents/publications/rr_2022_integrated_landscape_management_plan.pdf*

1.18 When being asked about the major problems/hindrances in implementation of interlinking of rivers and steps taken by the Ministry to resolve it, the Department stated as under:-

"Consensus between the States is the major issue. Number of meetings are being convened with the stakeholders for understanding the issues and bringing them on board."

Ground Water Management & Regulation(GWM&R)

1.19 As per the information furnished by the DoWR, RD & GR, Ground Water Management and Regulation (GWM&R) Scheme is a continuing Central Sector Scheme of the Department which 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.

(GWM&R) - Allocation and Expenditure

(Rs. In Crore)

FY	BE	RE	Actual
2020-21	275.00	125.81	132.62
2021-22	290.00	180.24	180.20
2022-23	390.00	330.00	204.76
2023-24	350.00	280.00	202.31
2024-25	325.00		25.82*

*Till 13th August 2024

1.20 The budgetary allocation for FY 2023-24was Rs. 350crore. However, the same has been reduced to Rs.280 crore at RE stage and against this the actual expenditure was only 202.31 crore which shows that more than 40% amount allocated to the scheme has not been utilized during the said fiscal year. On being asked to furnish the reasons

as to why the Department has witnessed meager utilization of their budgetary allocations in fiscal year 2023-24, the Department stated as under:

> *"The Ground Water Management & Regulation (GWM &R) features regular/recurring activities for mapping and monitoring ground water on one hand and on the other projects for strengthening the overall ground water related infrastructure are taken up.*
>
> *In the direction of strengthening and automating the overall ground water mapping and monitoring infrastructure, approval for a major project with an outlay of Rs. 805 crore was obtained from the Public Investment Board (PIB). Under this construction of new Piezometers fitted with Digital Water Level Recorders (DWLRs), Exploratory and Observation Wells and heliborne surveys for high resolution aquifer mapping were to be carried out during 2023-24 to 2025-26. The budget allocation of Rs 350 crorefor the year 2023-24 included allocations both for regular activities mentioned above as well activities proposed under the PIB approved project. A provision of nearly 125 crore was projected to meet expenditure towards PIB approved project. Accordingly, tender packages for carrying out these activities were designed followed by floating & evaluation of tenders and award of work. Delays occurred in various stages of this tendering work and final award of work could take place only during March 2024 due to which the earmarked Rs 125 crore could not be utilized during 2023-24 leading to underutilization of funds."*

1.21 When asked about the reasons as to why the Department is not able to utilize its allocated budget for the Scheme in consecutive years, the Department replied as under:

> *"During 2020-21, due to COVID related restrictions some of the activities were delayed. 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 GWMR scheme was reduced.*
>
> *The BE for the year 2022-23 and 2023-24 had been projected in anticipation of the approval of the PIB project on Aquifer Mapping and Management Programme. Provision of nearly Rs 125 crore each has been projected to meet expenditure towards activities proposed under the PIB approved project for the years 2022-23 and 2023-24. However, the PIB for the project was approved only in the month of December 2022 and the approvals for awarding of first set of bids were completed by mid-March 2024. Accordingly, the earmarked funds could not be utilized during 2022-23 and 2023-24 leading to underutilization of funds.*

However, it is to submit that as of now almost all tenders have been awarded. And it is expected that the overall physical and financial targets of the scheme will be achieved within the committed time frame."

1.22 When asked to furnish details of various Projects / Works undertaken (State-wise) under the Ground Water Management and Regulation Scheme, the Department in a written submission informed the Committee as under:

"The activities undertaken under the Ground Water Management and regulation Scheme in different States can be broadly divided into two sets.

i) Activities of continuous nature like ground water level monitoring, groundwater quality nonrioting, inhouse drilling activities, ground water resource assessment, ground water regulation, demonstrative artificial recharge projects, outreach activities etc. Such activities are being implemented throughout the country.

ii) State wise summary of ground water infrastructure strengthening activities and construction of artificial recharge structures in last 5 years is provided below:

Sl No.	***Activity***	***States***
1.	*National Aquifer Mapping &Monitoring Programme (NAQUIM)*	*NAQUIM programmeis implemented with the objective of delineating and characterizing the aquifers of the country. Thus far the entire mappable area of the country, which is around 25 lakh sq. km has been covered under the programme and district-wise aquifer maps and management plans have been shared with the concerned State & District authorities for suitable interventions.*
2.	*Construction of piezometers and installation of DWLRs with telemetry systems*	***Parts of 27 States and UTs**: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Nagaland, Odisha, Punjab, Rajasthan, Tamil Nadu, Telangana, Tripura, UT of J&K, UT of Ladakh, Uttar Pradesh, Uttarakhand, West Bengal*
3.	*Construction of Exploratory Wells for generation of data for aquifer mapping*	***Parts of 11 States:** Andhra Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Karnataka, Madhya Pradesh, Odisha, Rajasthan, Uttar Pradesh, West Bengal*
4.	*Construction of artificial recharge structures*	*Construction of artificial ground water recharge structures was taken up in Rajasthan and Maharashtra*
5.	*High resolution*	*Has been carried out in parts of 03 States viz*

	aquifer mapping using heli-borne survey in water scarce areas.	*Rajasthan, Haryana, and Gujarat covering an area of approximately 1 lakh sq. km.*

Flood Management and Border Areas Programme (FMBAP)

1.23 As per the information furnished by the DoWR, RD & GR, Government of India launched "Flood Management Programme (FMP)" during XI Plan period for providing central assistance to the State Governments for taking up works related to river management, flood control, anti-erosion, drainage development, flood proofing works, restoration of damaged flood management works and anti-sea erosion works which was continued during XII Plan. Subsequent to XII Plan a scheme viz. "Flood Management and Border Areas Programme (FMBAP)" is taken up for the period 2017-18 to 2019-20, which is extended up to 2020-21 & further continued for the period 2021-26, i.e., co-terminus with the period of 15th Finance Commission with the minimal outlay for inclusion of new projects for funding under the scheme. There are two components in the FMBAP scheme:-

-Flood Management Programme (FMP)
-River Management & Border Areas (RMBA)

Under FMP component, Grant-in-aid is provided to State/UTs for structural measures related flood management, anti-erosion, river management, anti-sea erosion on certain fund sharing pattern with the State.

In addition to this, expenditure is incurred on Component for following:-

- Hydrological observations and flood forecasting on common border rivers with the neighboring countries.
- Investigation of Water Resources Projects in Neighboring countries.
- Pre-construction activities for Water Resources projects on common border rivers – Pancheshwar Development Authority (PDA).
- Grant-in-Aid to States/UTs for flood management/anti–sea erosion.
- Continuation of activities of Ganga Flood Control Commission

Flood Management and Border Areas Programme- Allocation and Expenditure

(Rs. in crore)

Year	BE	RE	Actual
2020-21	750.00	115.85	97.108
2021-22	342.99	225.00	261.80
2022-23	450.00	450.00	433.204
2023-24	450.00	200.00	198.078
2024-25	449.57		

1.24 Committee observed drastic shortfall in the budget at RE stage during the FY 2023-24 and as appraised by the Department, the same was due to non-receipt of funding proposal from the States. When enquired about the reasons for reduction of demand of funds under the Scheme and its adverse effects on the progress of ongoing projects under the Scheme, the Department informed as under:-

"It is to submit that more than 90% of the expenditure incurred under FMBAP is from Grant in Aid component to the States/UTs. While assessing BE/RE, monitoring agencies under M/o Jal Shakti (CWC/ GFCC/ Brahmaputra Board) are asked to submit a tentative figure for expected funding proposals as informed by State/UTs. Some of the States could not submit funding proposals of committed value. In that scenario, it became necessary to drop the budget requirement at RE level. In FY 2023-24, non-receipt of funding proposals from the States lead to slashing of Budget heavily due to this reason."

1.25 Floods are a regular annual feature in the States of Assam, Bihar and other parts of India. This year too, floods have caused extensive devastation in these States particularly in Bihar as well as other parts of India. In this regard the Department was asked to furnish the arrangements made to combat the menace of recurring floods. In response, the Department stated as under:-

"Flood management projects are planned, formulated and implemented by the State. Union Government funds the projects of the States/UTs included for Central Funding. Recently in Feb., 2024, Union Cabinet has approved the continuation of FMBAP for the period FY 2021-26. One project each from Bihar and Assam has been included for funding under FMBAP scheme. Budget has been kept to include more projects in future.

Since XI plan, 142 projects of Assam have been included for funding under FMP component of FMBAP scheme. Out of which, 111 projects completed, 30 projects foreclosed (completed with curtailed scope of work). These projects have provided protection to 7.365 lakh ha of land and population of 1.75 crore in Assam. Since XI Plan, Central Assistance of Rs.1557.04 crore has been released to Government of Assam under FMP/ FMBAP Scheme.

Since XI plan, 48 projects of Bihar have been included for funding under FMP component of FMBAP scheme. Out of which, 42 projects completed. These projects have provided protection to 28.67 lakh ha of land and population of 2.23 crore in Bihar. Since XI Plan, Central Assistance of Rs.1624.04 crore has been released to Government of Bihar under FMP/ FMBAP Scheme.

Major rivers which cause flood in Bihar in the Ganga Basin are trans boundary in nature. The upper catchments of these rivers lie in Nepal. In this regard, Govt of India has established cooperative mechanisms with the neighboring countries.

Government of India is having continuous dialogue with the Government of Nepal at various levels to mitigate devastation caused by the floods from the rivers coming from Nepal. The related issues are discussed in the existing Indo-Nepal bilateral four tier mechanisms comprising of (i) Joint Ministerial Level Committee on Water Resources (JMCWR), (ii) Joint Committee on Water Resources (JCWR) and (iii) Joint Standing Technical Committee (JSTC) (iv) Joint Committee on Inundation and Flood Management (JCIFM).

Further, it is also mentioned that there are two Committees namely Gandak High Level Standing Committee (GHLSC) and Kosi High Level Committee (KHLC) which have been recommending and monitoring the various maintenance/ anti-erosion works on river Gandak and Kosi respectively, every year before the incoming monsoon. 100% reimbursement is provided to Government of Bihar & Uttar Pradesh under RMBA component of FMBAP Scheme for the works executed in Nepal territory in accordance with the bilateral agreement with Nepal Government."

1.26 The Committee also sought an explanation from the Ministry as to why, despite adequate arrangements, this year (2024-25) too, these States are again facing the fury of floods? The Ministry was asked whether the arrangements made in this regard have been inadequate and ineffective in predicting and managing the floods? While responding to this, the Department stated as under:-

"Despite numerous efforts and initiatives by the Ministry to mitigate floods, several States continue to face severe flooding challenges due to combination of various challenges. These are unpredictable weather patterns, coupled with the increasing frequency and intensity of extreme precipitation events with wide variations in rainfall both in time and space, landslides, snowmelt, cloud burst and glacial lake out bursts etc., Inadequate urban drainage systems and the rampant encroachment on natural waterways exacerbate the situation, as floodplains originally designed to absorb excess water are compromised by unregulated construction activities. The flood control measures have undoubtedly played a role in mitigating the severity of floods, the effectiveness of these measures is often undermined by the aforementioned challenges. The challenges also make it difficult to forecast despite advancements in flood prediction technologies. Sometimes, fragmented approach of project authorities in planning along with lacuna in inter-State collaboration, further impedes the effective implementation of comprehensive flood management strategies.

Major rivers in Bihar and Uttar Pradesh come from Nepal which brings huge amount of concentrated discharge and silt. For achieving the flood moderation there is a need of flood cushion arrangement in upper catchment of rivers coming from Nepal in form of reservoirs/dams. As far as non-structural measures are concerned, adequate arrangements are there for predicting the flood coming from

Nepal side. CWC in collaboration of IMD issuing the flood forecasting to the State departments. Further, State govt. have also been strengthened under NHP for establishing the non-structural measures of flood management. However, there is still requirement of seamless supply of real time metrological data from the upper catchment (Nepal) for improving the effectiveness of prediction of flood forecasting."

1.27 On being asked about the role of rivers originating in Nepal causing floods in the States of Bihar and Uttar Pradesh and remedial measures taken by the Ministry in this regard, the Department stated as under:-

"Several rivers like the Sarda, Ghaghra, Rapti, Gandak, Burhi Gandak, Bagmati, Kamla, Kosi, etc., originate in Nepal and flow through the hilly tracts of Nepal before entering the plains of India. Heavy rains in the upper reaches,not only bring floods of large magnitude but also carry huge quantities of sediment to the plain reaches of India. India has been consistently cooperating with Nepal for deriving mutual benefits like drinking water, power, irrigation and flood control from these rivers through various bilateral agreement on these trans boundary rivers. Any further measures to be taken up to alleviate the flood and silting problems are to be done in an integrated manner with proper co-ordination between the two countries. These issues are discussed in the existing Indo-Nepal bilateral four tier mechanisms comprising of (i) Joint Ministerial Level Committee on Water Resources (JMCWR), (ii) Joint Committee on Water Resources (JCWR) and (iii) Joint Standing Technical Committee (JSTC) (iv) Joint Committee on Inundation and Flood Management (JCIFM).

As floods in Bihar and part of Uttar Pradesh are generally caused by the rivers coming from Nepal, long term solution to the problem of flood lies in the construction of multi-purpose projects, with flood cushion in the upper reaches to achieve flood moderation.

Further, an understanding has been reached between Government of India (GoI) and Government of Nepal (GoN) to jointly prepare the 'Detailed Project Report (DPR) of Sapta Kosi Dam Multipurpose Project' with objectives of flood control, irrigation and power generation. The preparation of DPR of Sun Kosi Storage-cum-Diversion Scheme in Nepal is also being jointly taken up by both the Governments. The India-Nepal Joint Project Office (JPO) started functioning in August 2004 with the mandate of carrying out jointly field investigations and preparation of DPR for SaptaKosi High Dam Multi-purpose Project (SKHDMP) and Sun Kosi Storage-cum- Diversion Scheme (SSDS).

The Pancheshwar Multipurpose Project (PMP) has been envisaged on Mahakali River (known as Sarada in India), where the river forms the international boundary between India and Nepal. A 300 m high rock fill dam across the Mahakali River,

with two power houses - each having six units of 400 MW units, is proposed at 2.5 km downstream of Pancheshwar temple. A 95 m high concrete gravity re-regulating dam has also been proposed at 27 km downstream to store the releases from Pancheshwar power houses during peak hours and regulate them to meet irrigation water demand in the downstream. A joint entity of India and Nepal namely, Pancheshwar Development Authority (PDA) has been set up with approval of both the Governments in September, 2014 for the Project. DPR of Pancheshwar Multipurpose Project has been prepared and efforts are being made to arrive at mutual consent on project parameters/benefits/cost apportionment through a joint Team of Officials/ Experts (ToE) constituted by both the countries.

At present, flood management works are being executed in Nepal Territory by Government of Bihar and Uttar Pradesh as per recommendation of two committees KHLC (Kosi in Bihar) and GHLSC (Gandak in Uttar Pradesh) formed in accordance with the bilateral agreement with Nepal Government. Reimbursements are made to these respective States for works executed under River Management & Border Areas (RMBA) component of FMBAP Scheme. Since XI Plan, reimbursements of Rs. 699.63 crore and Rs. 222.56 crore have been made to Bihar & Uttar Pradesh respectively in this regard."

Safety of Dams

1.28 On being asked to provide an overview about the Bodies responsible for safety of dams, their maintenance and management in the country, the Department replied as under:

*"The responsibility for the safety, upkeep, and maintenance of dams in India lies primarily with the **dam owners**, which may include State Governments, public sector undertakings, or other dam-owning entities. Each dam owner is mandated to conduct annual inspections, both pre- and post-monsoon, through their respective Dam Safety Units (DSUs). These inspections are critical for identifying any potential issues and ensuring that the dam infrastructure is maintained in optimal condition.*

*The **Dam Safety Act of 2021** formalizes the institutional framework responsible for ensuring dam safety at both the national and State levels. The key bodies involved include:*

- ***National Committee on Dam Safety** (NCDS): Responsible for formulating policies, standards, and guidelines aimed at preventing dam failure-related disasters and ensuring that dam safety standards are maintained across the country.*

- ***National Dam Safety Authority*** *(NDSA): Tasked with implementing the policies, guidelines, and standards developed by the NCDS. NDSA also oversees the surveillance, inspection, and maintenance of all specified dams, ensuring compliance with dam safety protocols across the country.*

- ***State Committees on Dam Safety*** *(SCDS): Tasked to ensure the implementation of dam safety measures, preventing disasters in accordance with national standards and guidelines.*

- ***State Dam Safety Organizations*** *(SDSO): Tasked to keep perpetual surveillance, carry out inspection and monitor the operation and maintenance of all specified dams falling under their jurisdiction to ensure continued safety of such specified dams and take such measures as may be necessary to address safety concerns that are noticed with a view to achieve satisfactory level of dam safety assurance as per such guidelines, standards and other directions on dam safety as may be specified by the regulations."*

1.29 Further, the Department has informed that as per the National Register of Large (Specified) Dams, 2023 compiled by the National Dam Safety Authority based on the data provided by the various dam owners, there are 6138 completed and operational specified dams and 143 are under construction stage. List of State wise number of specified dams as per NRLD 2023 is appended at **Annexure-II.**

1.30 In response to the query whether the Government has carried out any assessment about the safety standards of Dams in the country, the Department stated as under:-

"A tool has been developed to determine Hazard & Vulnerability of dams. It takes into account technical characteristics and existing condition of dam, Safety plans, documentation, enviro-social impact and population at Risk. State have been requested to carry out this risk exercise for all specified dams under their jurisdiction. To ensure effective implementation, multiple training programs on the use and application of the Assessment Tool have been organised. Additionally, advanced risk analysis including semi-quantitative and quantitate assessments would be conducted for high priority dams.

Moreover, a Dam Break Rapid Risk Assessment exercise is underway in collaboration with the Centre for Development of Advanced Computing (C-DAC). This assessment, covering more than 6000 specified dams, aims to quickly evaluate the potential impact of dam failures on downstream populations, providing a critical tool for managing the risks associated with dam infrastructure in India."

1.31 Furthermore, when asked about the contingency measures/plans put in place by the Government to prepare for any eventuality of dam failure/breach catastrophe in the country, the Department informed as follows:-

"As per the DSA 2021, Every owner of a specified dam, in respect of each specified dam need to establish well designed hydro-meteorological network and an inflow forecasting system, an emergency flood warning system for the probable flood affected areas downstream of the dam and prepare emergency action plan. Necessary directions have been given to all dam owners for compliance. So far, Emergency Action Plans have been prepared by the States for 459 dams."

1.32 On being asked about the mandate of the National Dam Safety Authority (NDSA), challenges faced by it, in its functioning and sanctioned/actual strength, the Department stated as under:-

"NDSA shall discharge such functions as specified in the Second Schedule of DSA 2021, as may be necessary to implement the policy, guidelines and standards evolved by the National Committee for proper surveillance, inspection and maintenance of specified dams and for such purposes, it shall have the power to enforce the attendance of any person and call for any information as may be necessary.

NDSA is headed by a Chairman and five members of various disciplines. Besides that, 79 Posts have been sanctioned in various grades. These includes 65 Posts in Technical Cadre and 14 Posts in non-technical grades. As on date, against 65 Posts in Technical Cadre, 07 officers have been appointed on deputation basis and 10 officers are working on loan basis. In Non-Technical Cadre, 07 officers have been posted against the sanctioned strength of 14 posts. In addition, 10 Young Professionals and 07 consultants have been engaged in NDSA on contract basis for fulfilling the mandate against the contractual strength of 91 approved by the DoWR, RD & GR."

Challenges

- *All dam-owning States have constituted their SDSOs. However, there are issues with staffing as the regular posts have not been filled yet. In many cases, the posts are being managed through additional charges.*

- *NDSA is also facing issues due to inadequate staffing as many regular posts have not been filled yet.*

- *Many States have not yet created separate budget head for the O&M of dams. This is crucial for ensuring the sustainability and safety of dam infrastructure.*

- *SDSOs and Dam owners are lacking expertise in preparing of Emergency Action Plan, Dam Break Analysis, Operation and Maintenance Manual, risk assessment studies. To support the States, NDSA has organised multiple training programs for carrying out risk assessment studies of the dams in the State of Uttar Pradesh, Gujarat, Tamil Nadu, Assam, Madya Pradesh, Maharashtra. Such trainings are also scheduled in coming months in the State of Rajasthan, Chhatisgarh, Bihar.*

Atal Bhujal Yojana

1.33 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 80 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.

1.34 During the course of examination of DFG 2023-24 the Committee on Water Resources had recommended and urged the Department to 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. In this regard, in their 'Action Taken Reply'the Department has stated that the expansion of ATAL JAL is under consideration and the suggestions made by Hon'ble Committee will be taken into account at the time of expansion.In this connection, when being asked to provide the present status regarding expansion of the Atal Bhujal Yojana in other water stressed areas/States and details of requests received from the States for inclusion in the said Scheme, the Department stated as under:-

"Vide OM dated 05.08.2024, 'in-principle' approval of DoE has been received for expansion of Atal BhujalYojana with an outlay of Rs 8,200 crore to be implemented in 05 additional States, viz., Andhra Pradesh, Bihar, Punjab, Tamil Nadu and Telangana, with the condition that the scheme may be restructured as a Centrally sponsored scheme (CSS).

All 5 States have been requested to provide their consent to the scheme being converted from Central Sector Scheme vide letters dated 12.08.2024. Willingness of Punjab has been received vide letter dated 22.08.2024, and is awaited from other States.

Requests have been received from certain States viz. Punjab, Tamil Nadu, Andhra Pradesh, Telangana for extending the scheme to their States. Further, a number of Parliament questions have been received in which the Hon'ble Members of Parliament have asked the reasons for not including their States in the Scheme."

1.35 When asked about the contribution of the Atal Bhujal Yojana to groundwater conservation and recharge and whether there has been any measurable improvement in groundwater levels in the areas covered by the Scheme, the Department stated as under:-

"One of the core objectives of Atal Bhujal Yojana is sustainable management of groundwater in the scheme area. This is being done through adoption of various water efficient practices in agriculture such as micro-irrigation, crop diversification and pipelines.

Further, groundwater recharge measures have been undertaken through interventions such as check dams, ponds, percolation tanks and recharge shafts etc.

To bring behavioural changes in the community at Gram Panchayat level from the prevailing attitude of consumption to conservation & smart groundwater management, various outreach programs have been initiated through which communities have been sensitized towards water conservation, rainwater harvesting, preparation of water budget and Water Security Plans (WSPs).

813-Gram panchayats and 47 blocks in 26 Districts have shown a rise in water levels."

1.36 When asked about availability of any online platform or dashboard for public access to the data being gathered under the scheme, the Department informed as under:-

"Yes, data being gathered under the scheme is available on Atal Jal website. Besides, Atal Bhujal Yojana has developed the Android and iOS based mobile application called ***"ATAL JAL"*** *for collection and dissemination of hydrogeological data at Gram Panchayat level which can be utilized by policy makers, stakeholders and common public for awareness and informed decision making."*

1.37 On being asked as to whether any Third-Party Evaluation has been carried out of the Scheme since its implementation, the Department informed as under:-

"An impartial and independent mid-term assessment was carried out by the Council on Energy, Environment and Water (CEEW) to study the overall impact of the Atal BhujalYojana in Rajasthan.

Overall, it is observed that working of all DLIs is improving both qualitatively and in terms of numbers with the progress of the Scheme. The State, line departments and community as a whole is understanding the Scheme better as it is moving further and each player has a better understanding of his role."

Pradhan Mantri Krishi Sinchayee Yojana - Command Area Development & Water Management (PMKSY- CAD&WM)

1.38 As per the information provided by 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.

CAD&WM - Allocation and Expenditure

(Rs. in crore)

Year	BE	RE	Actual
2022-23	1044.00	140.00	99.07
2023-24	400.00	236.69	174.39
2024-25	1400.00	-	-

1.39 As per the details furnished by the Department in the table above while the BE provision for CAD&WM, for FY 2023-24 was Rs. 400 crore, this was reduced by more than 40% to Rs. 236.69 crore at RE stage and further reduced to Rs.174.39 at Actual. For FY 2024-25, it has again been raised to Rs.1400 crore (BE). When asked to furnish reasons and justification as to why in FY 2024-25, the BE allocation (Rs.1400 crore) has

been drastically increased (591% over RE allocation of Rs. 236.69 crore for FY 2023-24), the Department replied as under:

> *"Extra allocation was made on account of 'Modified Command Area Development Programme'(MCAD), which was under consideration with proposed central assistance of Rs.3,275 crore."*

1.40 It was observed that the Scheme has witnessed underutilization of funds in consecutive financial years i.e. actual expenditure of Rs. 99.07 crore vis-à-vis BE of Rs. 1044 crore in FY 2022-23 and actual expenditure of Rs. 174.39 crore vis-à-vis BE of Rs. 400 crore in FY 2023-24. When asked to furnish reasons in this regard, the Department stated as under:

> *"Reason for slow pace in Command Area Development scheme is limited working season, unwilling farmers to part with their land, especially in upper reaches where they are getting sufficient water. Further, pari-passu implementation of PMKSY-AIBP with CAD&WM is a challenge. Restricting CADWM works only to the ongoing AIBP projects debarred many potential CADWM projects. To overcome these issues, this Department has formulated modified command area development scheme which has been recommended by EFC for implementation during 2024-25 and 2025-26."*

1.41 As per the Annual Report 2023-24 of the Department, under '*Irrigation Reforms: Smart Irrigation through Modernization of CADWM works (MCAD)*',the Ministry is in the process of bringing about irrigation reforms, by modernization of CADWM component of PMKSY to make it more relevant in the current context. When asked to provide an overview about the implementation of Smart Irrigation through Modernization of CADWM works (MCAD) and details of financial implication in this regard, the Department stated as under:-

> *"The MCAD scheme envisages transforming the existing command (whether rain fed or gravity based) to a Pressurized Piped Irrigation Command (**PPIC**) by providing pressurized irrigation water from Established source to Farm Gate below Minor (Tertiary) Level Network. This will make the entire command area micro-irrigation ready with robust back-end infrastructure using Surface Water. The focus is to shift Micro-Irrigation which is presently on Groundwater based to Surface Water based and bring Water Use Efficiency. The scheme also envisages strengthening of Irrigation Management Transfer (IMT) through empowerment of WUA's and their evolution as economic entities. The results are quick as the life cycle of the project is only 2 years. An ideal size of the command area will be divided into clusters ranging from 50 Ha to up to 5000 Ha.*
>
> *The major pillars of reforms under the MCAD scheme are:*

1. *<u>Institutional Changes</u> by creating Water User Society (WUS), Irrigation system Management Transfer (IMT) to WUS by Water Resources Department (WRD) of State, development of the WUS as Economic Entity, maintenance of irrigation system by WUS, and orientation of WRD as service delivery organizations.*

2. *<u>Technology Changes</u> by use of pressurized pipes network to supply canal water to each farm, Internet of Things (IOT) based Smart irrigation on tertiary distribution system, use of Artificial Intelligence, Secured Web based SCADA for water management and accounting.*

3. *<u>Water Use Efficiency</u> by monitoring of water use by each farm using ET based technologies, service level benchmarking, water management through AI and linking with Digital Agriculture."*

1.42 The Department also informed that "EFC for MCAD Scheme (FY 2024-26) approved by Hon'ble Minister (Jal Shakti) with proposed central assistance of Rs.3,275 crore was submitted to Ministry of Finance for appraisal."

<u>Flood Forecasting</u>

1.43 The work of flood forecasting and warning in India is entrusted with the Central Water Commission (CWC). The Department in its written submission provided a detailed overview about the present mechanism / strategies / planning / techniques which are being used in Flood Forecasting in the country as under:-

"Central Water Commission (CWC) plays a crucial role in this context by overseeing a comprehensive flood forecasting network that operates across the country. CWC disseminates two types of forecasts viz. Level Forecast and 2. Inflow Forecast.

The level forecasts are issued once the water level in a river reaches or is expected to reach a pre-defined warning level (usually one meter below the danger level, but depends on the threat perception of the particular location).The level forecasts help local administration and other agencies to decide on mitigating measures, such as evacuating people and their movable property to safer locations. The inflow forecast is issued for various reservoirs and dams once inflow exceeds a certain threshold value. This is used by authorities for the optimum operation of reservoirs to ensure safe passage of floodwaters downstream and to ensure adequate storage in the reservoirs for meeting demand during the non-monsoon period. The Basin - wise and State - wise distribution of CWC Flood Forecasting Network is at ***Annexure III & IV*** *respectively.*

The level and inflow forecasts are issued for two different time scales: one is Short-Range Forecast, varying up to 24 hours, formulated using conventional methods of flood forecasting. The other is the 7-day (168-hour) flood advisory products, generated by CWC Headquarters using numerical flood forecasting models. The short-range forecast formulation and dissemination are done at the Divisional/Sub-Divisional Level offices of CWC located under field organizations, while monitoring of short-range forecasts is managed from the Central Flood Control Room situated at CWC HQ in New Delhi. CWC Headquarters generates 168-hour lead-time flood advisories, which are disseminated through the dedicated website https://aff.india-water.gov.in/, and short forecast information, real-time water levels, 24-hour rainfall, and CWC network information are available through https://ffs.india-water.gov.in/.

The CWC set up of flood forecasting network comprises of-

- ***200 Level Forecast Stations**: CWC provides short range level forecasts at 200 locations in the country. The basic activity of data collection, its transmission and dissemination of flood forecasts to the local administration is carried out by the field Divisions of CWC. The hydro-meteorological data collected at 1543 stations are utilised for formulation of short range forecast (24-48 hrs advance).*

- ***140 Inflow Forecast Stations**: Inflow Forecasts are issued for 140 dams/reservoirs/barrages in various river basins in the country. The project authorities have identified the threshold inflow limits for issuance of forecast considering various factors such as safety of the dam, status of reservoir, downstream channel/ canal requirements. The inflow in volume during the given duration indirectly indicates the possibility of accommodating the given volume or otherwise into the reservoir.*

- ***Flood Control Rooms:**To monitor the flood situation during every monsoon, CWC operates 36 Divisional Flood Control Rooms (DFCRs) located in the various field Divisions of CWC and a Central Flood Control Room (CFCR) at CWC (HQ), New Delhi for providing flood related information to the local administration and user agencies. The Divisions serves as operational units which are responsible for a specific basin area and its associated flood forecasting activities. DFCR also issues daily flood bulletins on a daily basis indicating the Water Level (0800 hrs) and Rainfall (0830 hrs) at all Hydrological Observation Stations and Water Level, Rainfall and Flood Forecasts (if issued) at Flood Forecast Stations on daily basis at around 1100 hours.*

- ***Central Flood Control Room (CFCR)** at New Delhi monitors flood situation throughout the country by monitoring the data entry/FF formulation and issue of flood forecasts from all DFCRs through WIMS. CFCR also generates Daily Flood Bulletins and disseminates them to various stake holders*

including NDMA, MHA, Railway Board, IMD, NRSC and the organizations of DoWR, RD&GR (MoJS), etc. In addition, CFCR also generates Special Bulletins called 'Orange' bulletin for Severe Flood Situations and 'Red' Bulletins for Extreme Flood Situations.

Category	***Description***	***Stage***
III	*Above Normal Flood (Water level between Warning leveland Danger level)*	*Yellow*
II	*Severe Flood (Water level at or above Danger Level but below Highest Flood Level (HFL)).*	*Orange*
I	*Extreme Flood (Water Level at or above HFL)*	*Red*

1.44 On being asked about the average lead time provided by flood forecasting systems before a flood event occurs, the Department stated as under:-

"The level and inflow forecasts are issued for two different time scales: one is Short-Range Forecast, varying from 6 to 24 hours, formulated using conventional methods of flood forecasting. The other is the 7-day (168-hour) flood advisory products, generated by CWC Headquarters using numerical flood forecasting models. The short-range forecast formulation and dissemination are done at the Divisional/Sub-Divisional Level offices of CWC located under field organizations, while monitoring of short-range forecasts is managed from the Central Flood Control Room situated at CWC HQ in New Delhi. CWC Headquarters generates 168-hour lead-time flood advisories, which are disseminated through the dedicated website https://aff.india-water.gov.in/, and short forecast information, real-time water levels, 24-hour rainfall, and CWC network information are available through https://ffs.india-water.gov.in/#/."

1.45 As observed by the Committee, despite current technological advances and expenditure on Early Warning System (EWS), economic and social losses in the form of human lives and assets still occur. In this regard, when asked to explain the shortcoming of the present forecast system and remedial action that can be considered, the Department replied as under:-

"CWC is issuing short range flood forecast with an average accuracy (2011-2024) of more than 90%. Central water Commission is continuously improving its flood forecasting through expansion of network, upgrading of technology using mathematical modelling, upgradation of computational resources, exhaustive data collection from various sources, adopting ensemble forecasting, etc. This has led to better accuracy and increased lead time. It is a continuous ongoing effort of CWC. The flood forecasting network of CWC covers the 20 river basins spread across 25 States/UTs.

With advanced technology and near real-time data, Flood Advisory with adequate lead-time upto 7 days are made available to alert the disaster managers to be in readiness and take prompt action based on accurate short-range forecast to minimize lives lost."

1.46 During the oral evidence held on 16.10.2024, the representative of the Department of Water Resources, River Development and Ganga Rejuvenation, submitted before the Committee as follows:-

"……...Sir, the forecasting of CWC is of two kinds. One is on daily basis which is 97 per cent accurate.उसमें पीछे से एक स्टेशन में जो पानी आ रहा होता है, वहां पर मेजर करके हम लोग आगे वाले स्टेशन को एडवांस में बता देते हैं कि इतना टाइम लगेगा, इस लेवल पर पानी पहुंचेगा।

….. So, the advisory is issued which is based on IMD data. The meteorological data, the rainfall, the accuracy of next five days, or any data which is being used by CWC, is based on the meteorological data which is collected by IMD. Based on that, certain forecasts are made. The models for that still need improvement. So, there I think effort is going on. Recently the Government has approved something."

Namami Gange Mission-II

1.47 As per the information provided by the Department, the Namami Gange Programme (NGP) was launched in 2014-15 for rejuvenation of river Ganga and its tributaries with a budgetary outlay of Rs. 20,000 crore, for five years, up to March 2021 and has been further extended to March, 2026 with a budgetary outlay of Rs. 22,500 crore. Under the Namami Gange Programme, a diverse and holistic set of interventions for cleaning and rejuvenation of river Ganga have been taken up, that includes wastewater treatment, solid waste management, riverfront management (Ghats and crematoria), ensuring e-flow, rural sanitation, afforestation, biodiversity conservation, public participation, etc.

1.48 The BE provision for Namami Gange Mission-II for FY 2023-24 was Rs. 4000 crore which was reduced to just Rs. 2400 crore (reduction of 40%) at RE stage. For FY 2024-25, it has been raised to Rs. 3,345.70 crore (BE). In this regard, when asked to furnish the reason for reduction of almost 40% in budgetary provisions at RE Stage for FY 2023-24, the Department stated as under:

"The Budget Estimate for FY 2023-24 was Rs. 4,000 crore and the Revised Estimate (RE) was Rs.2,400 crore. The Budget Estimates (BE) were based on broad projections by State Missions for Clean Ganga and Executing Agencies. Allocation was sought to meet the fund requirements for new projects as well as for the on-going projects. At the time of projection of BE, many new projects were under different stages of tendering and it was anticipated that funds would be required during the year to meet mobilization advance as well as construction period payments. However, all contracts could not be awarded due to various reasons, requiring reduction at RE stage."

1.49 Under the National Mission for Clean Ganga (NMCG) till February 2024, a total of 201 sewerage infrastructure projects have been sanctioned in the Ganga Basin for creation of 6,196.19 MLD sewage treatment capacity, out of which 116 sewerage projects have been completed resulting in the creation and rehabilitation of 3,110.55 MLD of sewage treatment capacity.Sewage infrastructure projects are one of the important components of the NMCG in abatement of pollution in the river. However, only 116 out of 201 Sewage Infrastructure projects have been completed. On being asked about the reasons that led such an important component lagging behind in execution and what are the challenges being faced by the Ministry in completing sewage infrastructure projects, the Department stated as under:

"Under the Namami Gange Programme, as of 31st August 2024, a total of 205 sewerage infrastructure projects have been sanctioned for the creation and rehabilitation of 6,270 Million Litres per Day (MLD) of Sewage Treatment Plant (STP) capacity and the laying of 5,246 km of sewerage networks. Out of these, 123 projects have already been completed and made operational, resulting in the creation and rehabilitation of 3,327 MLD of sewage treatment capacity and the laying of 4,530 km of sewerage network. Currently, 51 projects are under progress, while only 30 projects are in the tendering stage. The projects are progressing satisfactorily, with efforts being made to ensure their completion within the scheduled timelines.

The implementation of the project encountered slight delays in its initial stages. Key challenges included delays in project awards due to setting up the organization & establishing procedures and land acquisition issues. Additional

obstacles were faced in obtaining necessary permissions from agencies such as the National Highways Authority of India (NHAI), Railways, the Forest Department, and other State government agencies. The Covid-19 pandemic further slowed progress. However, through continuous persuasion, regular review meetings with all stakeholders, and timely action, the pace of implementation improved, leading to the project being completed on schedule."

1.50 As per Annual Report 2023-24 of the Department, NMCG under the Namami Gange Programme, is implementing a forestry intervention project in the Gange River basin as per the DPR on "Forestry Interventions for Ganga" prepared by Forest Research Institute (FRI), Dehradun from the year 2016-17 onwards which provides for site-specific plantation along the banks of river Ganga in a total area of 1,34,104 hectares in five States of Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal with an estimate cost of Rs.2,293.73 crores. Till date, 30,071 hectare plantation has so far been carried out for which an expenditure of Rs.368 crore has been incurred by the State Forest Departments of the said five States.When asked to explain with reasons as to why only 30,071 hectare plantation (22.42%) has been carried out till date, which is far behind the target of 1,34,104 hectares, and what is the expected timeline by which the target of plantation in the said total area will be achieved, the Department replied as follows:-

"Under the NamamiGange program, NMCG through the State Forest Departments has been implementing 'Forestry Interventions in Ganga' as per the DPR prepared by the Forest Research Institute (FRI), Dehradun. The DPR envisages site-specific afforestation models along the banks of river Ganga in a total area of 1,34,104 ha. in the 5 States of Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal at an estimated cost of Rs. 2,293 crore.

NMCG allocated funds to the tune of Rs. 398.50 crores for partial implementation of the plantation & maintenance activities till FY 2023-24, in the selected landscapes from the DPR for the implementation of the afforestation activities along the ***main stem*** *of Ganga resulting no/less interventions on Agriculture and Urban landscape undertaken.*

*Further, for the complete implementation of the DPR and its replications in the **tributaries** of Ganga and scaling up the planned efforts in additional Sites/States it was decided that afforestation along river Ganga & its tributaries need to be carried out through the available CAMPA funds, and MoEF & CC would lead this effort. This was agreed by MoEF & CC and accordingly directions were given to the range States to implement all the components of the DPR prepared by FRI and replication of the scheme across other tributaries."*

PART – II
OBSERVATIONS/RECOMMENDATIONS

Analysis of Demands for Grants

2.1 The Committee observe that for the fiscal year 2024-25, the total budgetary allocation for the Department of Water Resources, River Development and Ganga Rejuvenation is Rs. 21,323.10 crore, out of which Rs. 20,921.15 crore has been allocated under the 'Revenue Section' and Rs. 401.95 crore has been allocated under the 'Capital Section'. The budget is almost identical in comparison to BE allocations of Rs. 20,054.67 crore for FY 2023-24. The overall budgetary allocation for Financial Year 2024-25 has shown a hike of Rs. 1,268.43 crore which is 6.32% increase as compared to the BE of FY 2023-24.

2.2 The Committee further observe that under Central Sector Scheme Rs. 6,573.73 crore has been allocated for BE 2024-25 which is nearly Rs.300 crore over and above against the BE allocation for FY 2023-24 i.e. Rs. 6,258.11 crore. Regarding the Central Sponsored Scheme, a provision of Rs.13,431.48 has been made at BE level for FY 2024-25 which is nearly Rs.1,050 crore over and above against BE allocation for FY 2023-24 i.e. Rs. 12,387.23 crore. The major Schemes/Programmes in which the total budget allocation of the Department have been made include Pradhan Mantri Krishi Sinchayee Yojana- Har Khet Ko Pani (PMKSY-KKKP), Interlinking of Rivers, National Ganga Plan (Namami Gange Mission-II) and Atal Bhujal Yojana (Atal Jal). The Committee also observe that some of the important Schemes viz. Interlinking of Rivers, Atal Bhujal Yojana, Special Package for Maharashtra, National Hydrology Project and Research & Development and National Water Mission have been allocated more funds in the current fiscal year 2024-25.

2.3 Further, with regard to borrowings from the National Bank for Agriculture and Rural Development (NABARD) the Committee note that the same have been discontinued since 2021-22. However, a provision of Rs. 3,749.80 has been made in the budget allocation in current fiscal year 2024-25 for repayment of previous borrowings and interest subvention. The Committee express their concern that still a significant portion of the total budget allocation, approximately 20%, is

being utilized for the repayment of loans to NABARD, including both interest and principal amounts and which will, therefore, adversely impact the Schemes/Programmes of the Government in the long run. The Committee, therefore, recommend that a proposal regarding provision for early repayment of loan to NABARD may be made by the Department for consideration of Ministry of Finance so that committed liability may be settled within a shorter time frame. Consequently, early repayment of loan would enable the Department with greater financial flexibility to support its key schemes and programs in future perspective. The Committee would like to be categorically apprised of the steps taken in this regard within three months of presentation of this Report.

(Recommendation No. 1)

Water Resources Scenario

2.4 The Committee observe that as per the "Reassessment of water availability in basins using space inputs" Report, the utilizable water availability to the country is limited to 1,139 BCM per annum and out of which, the water potential utilized is about 691 BCM. Further, the total requirement of the country for different uses for high demand scenario for the years 2025 and 2050 has been assessed as 843 BCM and 1,183 BCM, respectively. The Committee express its concern about the gap between total water availability and its demand. Notwithstanding these facts, the Ministry appraised the Committee about the recently carried out 'Assessment of Water Resources of India' for the year 1985-2023 by the Central Water Commission (CWC) assessing the Average Annual Water Resources Availability of India as 2115.95 BCM while the annual precipitation is 3728.78 BCM and various Studies/ Measures undertaken, which have been effective in bridging the gaps between water demand and supply. Further, for the purpose, constitution of a National Task Force on Integrated Water Resources Development & Management is also under consideration. The Committee further, observe that the Department has taken various initiatives to augment the water availability viz., Atal Bhujal Yojana; Pradhan Mantri Krishi Sichai Yojna (PMKSY), Accelerated Irrigation Benefit Programme (AIBP), Repair, Renovation & Restoration (RRR) of Water Bodies; Inter-linking of rivers 'Sahi Fasal' campaign; Jal Shakti Abhiyan: Catch the Rain (JSA: CTR); implementation of new projects/National projects like Pollavaram Project etc. In this regard, the

Committee are of the view that, water is a fundamental prerequisite for the sustenance of life and sustainable development. Increasing population, rapid industrialization and accelerating urbanization, compounded by the impacts of climate change, have collectively rendered water availability as one of the most pressing issues of survival and sustainable development. The demand for water is projected to increase significantly, rendering it a critical factor in the Nation's economic progress. While taking cognisance of all the efforts made to increase water availability, the Committee urge the Department to take all appropriate measures to expedite the process for constitution of the National Task Force on Integrated Water Resources Development & Management as well as to ensure timely implementation of all the schemes and programmes initiated for the purpose so that an effective system be prepared to meet the water demand in future effectively.

(Recommendation No. 2)

<u>Interlinking of Rivers</u>

2.5 The Committee observe that a total of 30 link projects have been identified under the Programme including 16 link projects under Peninsular Component and 14 link projects under Himalayan Component and out of which, Pre-Feasibility Reports (PFRs) of all the 30 links, Feasibility Reports (FRs) of 24 links and Detailed Projects Reports (DPRs) of 11 links, have been completed. Five links namely Ken-Betwa Link Project, Godavari-Cauvery link (comprising of three links) and Modified Parbati-Kalisindh-Chambal are being pursued for implementation on priority. The Committee also notice that, only one link namely Ken-Betwa Link Project is under implementation which is planned to be completed within a period of 8 years i.e. by March, 2030. Further, budgetary allocation of Rs. 4,000 crore in year 2024-25 has been made for this programme concentrated on land acquisition, R&R activities for Daudhan Dam, Link Canal and reimbursement to / release of fund to States. Further, the Committee observe that, despite conducting numerous meetings with stakeholders to address concerns and foster cooperation, consensus among States, remains a persistent obstacle in the implementation of the Interlinking of Rivers program.

2.6 Regarding the study on interlinking of rivers in terms of ecological & environmental, socio-economical perspective, the Committee observe that a detailed study in respect of Ken Betwa Link Project had been carried out by Wildlife Institute of India, Dehradun. The Committee are of the opinion that interlinking of rivers would provide the country a viable solution to addressing water scarcity, drought mitigation, and flood control and such studies would also facilitate consensus-building among States. The Committee therefore urge the Department to conduct more such studies evaluating the benefits of the project, thereby enhancing awareness amongst the States concerned and expediting its implementation.

(Recommendation No. 3)

Ground Water Management and Regulation Scheme

2.7 The Committee observe that the Ground Water Management and Regulation (GWM&R) Scheme is a Central Sector Scheme under the Department of Water Resources, River Development, and Ganga Rejuvenation and has the approval for continuation up to 2026. The scheme comprises of two primary components viz. Component-I encompasses monitoring, assessment, management, and regulation of groundwater resources and Component-II focuses on Strengthening Infrastructure for Technological Upgradation (Machinery & Equipment). Additionally, the Public Investment Board (PIB) has approved a "National Aquifer Mapping and Management (NAQUIM)" project for implementation under this scheme. The Committee also observe that the Scheme has witnessed meager utilization of their budgetary allocations in fiscal year 2023-24 as the same was Rs. 350 crore at BE stage, then reduced to Rs. 280 crore at RE stage and at the end the actual expenditure was only 202.31 crore which is almost 40% less of its BE allocation. As per the Department's submission, it was due to delays in tendering of work and final award to work could take place only in the last month of the fiscal year. The Committee have expressed concern that the Department is not utilizing its allocated budget effectively for the Scheme, a trend that has continued for consecutive years. This concern was also raised by the Committee in its earlier Report on DFG 2023-24. The Committee are of the view that the Ground Water Management and Regulation (GWM&R) is significantly important Scheme tasked

to carry out scientific surveys, exploration, monitoring of development, management and regulation of our vast groundwater resources for irrigation, drinking, domestic and industrial needs. The Committee feels that the underutilization of funds allocated for the scheme is an issue of significant concern, as it would impact the Scheme's ability to achieve its objectives. The Committee, therefore recommend that required approvals may be obtained within a fixed timeline, factors contributing to delay be identified and addressed promptly so that the allocated budget is utilized efficiently and available resources are optimized with maximum capacity.

(Recommendation No. 4)

Flood Management and Border Areas Programme(FMBAP)

2.8 The Committee observe that in pursuant to the XII Plan, the "Flood Management and Border Areas Programme (FMBAP)" was initiated for the period 2017-18 to 2019-20 which was extended until 2020-21 and further to be continued upto 2026. The FMBAP comprises two key components including Flood Management Programme (FMP) Component and River Management and Border Areas (RMBA) Component. Under FMP component, the Government provides Grant-in-Aid to States/Union Territories for implementing structural measures aimed at flood management, anti-erosion, river management, and anti-sea erosion. Further, under RMBA component flood control and anti-erosion work on common border rivers with neighbouring countries, including hydrological observations and flood forecasting, and investigation & pre-construction activities of joint water resources projects (with neighbouring countries) on common border rivers are being taken up with 100% central assistance. The Committee has noticed a drastic shortfall (-55.5%) in the budget of the Programme at RE stage during the FY 2023-24. In this regard, the Department apprised the Committee that the shortfall was due to non-receipt of funding proposal from the States. The Committee noted with concern, that notwithstanding the Nation's efforts to address the impending challenges of floods, under-utilization of the allocated budget for this comprehensive scheme would undermine the programme's objectives. In this regard, the Committee are of the considered view that, the Ministry should take a proactive hand hold approach with State Governments and ensure maximum utilization of available funds allocated under Flood Management & Border Areas

Programme along with completion of projects, within a stipulated time frame, so that menace of flood in the country be dealt with more effectively and efficiently.

(Recommendation No. 5)

2.9 The Committee express its concern that despite numerous efforts and initiatives by the Government to mitigate floods, several States continue to face severe flooding challenges. In this regard, the Ministry listed various challenges including unpredictable weather patterns, coupled with the increasing frequency and intensity of extreme precipitation events with wide variations in rainfall both in time and space, landslides, snowmelt, cloud burst and glacial lake out bursts etc., Inadequate urban drainage systems and the rampant encroachment on natural waterways exacerbate the situation, as floodplains—originally designed to absorb excess water—are compromised by unregulated construction activities. A fragmented approach to planning and lack of inter-state collaboration further hinder the implementation of comprehensive flood management strategies. From the points narrated by the Ministry, the Committee are of the view that climate change is significantly increasing the frequency and intensity of floods, primarily due to an increase in extreme rainfall events, particularly during the monsoon season, leading to more frequent and severe flooding across regions, causing substantial damage to infrastructure, livelihoods, and human life.

2.9.1 The Committee, therefore, recommend that the Ministry review its present flood management system to factor in with extreme precipitation events, unpredictable weather and climate change which are seen to be global events and upgrade the present flood management systems with the best available/emerging global practices to mitigate the socio-economic losses caused.

2.9.2 The Committee also recommend that the Ministry in collaboration with State Governments take all appropriate measures to stop unregulated construction activities in the flood plains. The Committee may be apprised of the steps taken in this regard.

(Recommendation Nos. 6 & 7)

2.10 The Committee observe that the recurrent floods in Bihar and parts of Uttar Pradesh are primarily attributed to the rivers originating from Nepal, which has been a longstanding concern. A sustainable solution to mitigate this issue lies in the development of multi-purpose projects, incorporating flood control mechanisms in the upper reaches of Nepal, thereby achieving effective flood moderation. In this regard, the Committee note that Government of India has been regularly interacting with the Government of Nepal for construction of Dams viz. Sapta Kosi High Dam Multi-purpose Project (SKHDMP), Sun Kosi Storage-cum-Diversion Scheme (SSDS) and the Pancheshwar Multipurpose Project (PMP) on these rivers with objectives of flood control, irrigation and power generation. However, the Committee observe that slow progress in this direction is a matter of concern. The Committee previously expressed concern in its DFG Report 2020-21 regarding the delayed completion of these projects and urged the Ministry to play a more proactive role in facilitating their timely completion. Given the gravity and necessity of the situation, the Committee reiterates its desire for the Ministry to expedite its efforts, to ensure the timely completion of these projects and thereby mitigate the long-standing issue of flooding in the States of Bihar and Uttar Pradesh. The Committee may be apprised of the steps taken in this regard.

(Recommendation No. 8)

<u>Safety of Dams</u>

2.11 The Committee note that the responsibility for the safety, upkeep, and maintenance of dams in India lies primarily with the dam owners, which may include State Governments, public sector undertakings, or other dam-owning entities. Further, regarding the Dam Safety Act of 2021 the Department apprised the Committee that the Act formalizes the institutional framework responsible for ensuring dam safety at both the National and State levels. The key bodies involved include National Committee on Dam Safety (NCDS), National Dam Safety Authority (NDSA), State Committees on Dam Safety (SCDS) and State Dam Safety Organizations (SDSO). The Committee further observe that as per the National Register of Large (Specified) Dams, 2023, there are 6,138 completed and operational specified dams and 143 are under construction stage. The Department further apprised the Committee that a comprehensive tool has been developed to

assess dam hazard and vulnerability, considering technical, safety, environmental, and social factors. Apart from this, a Dam Break Rapid Risk Assessment exercise is underway which aims to quickly evaluate the potential impact of dam failures on downstream populations, providing a critical tool for managing the risks associated with dam infrastructure in India. However, the Committee notes with serious concern that out of more than 6000 dams existing in the country, only 459 dams have been equipped with Emergency Action Plans by the States. While appreciating all the efforts of the Government regarding the safety of Dams in the country, the Committee are of the view that serious efforts needs to be taken to cover the maximum number of large dams with Emergency Action Plan. The Committee, therefore, urge to take up this serious issue with the State Governments concerned at the highest levels, to ensure that all necessary measures in this regard are in place to strengthen the present system. The Committee may be apprised of the steps taken in this regard.

(Recommendation No. 9)

2.12 The Committee observe that National Dam Safety Authority (NDSA) has been sanctioned 79 Posts in various grades including 65 Posts in Technical Cadre and 14 Posts in non-technical grades and against 65 posts in Technical Cadre, presently only 17 officers are working on deputation/ loan basis and against 14 posts of non-technical grades only 07 persons are in position. Further, against the total contractual sanctioned post of 91, only 17 persons have been engaged. Further, State Dam Safety Organizations (SDSOs) constituted by the dam-owning States are also facing the same problem. The Committee recognise that NDSA have a huge mandate with high responsibility of ensuring the safety of dams across the country by establishing and enforcing uniform safety standards, overseeing inspections, maintenance, providing technical assistance to states and inadequate staff certainly affect the functioning of the Authority. The Committee strongly recommend that the Department must take prompt action to fill the existing vacancies without further delay to enable the Authority to execute its responsibilities efficiently and effectively with optimal results.

(Recommendation No. 10)

Atal Bhujal Yojana (ATAL JAL)

2.13 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 with an aim to improve the management of groundwater resources in the water stressed areas in these 7 States through community participation by way of promoting community led ground water management and behavioural changes with primary focus on demand side Management. These selected States account for about 37% of the total number of water stressed (over-exploited, critical and semi-critical) blocks in India. Further, the Department appraised the Committee that 'in-principle' approval has been accorded for expansion of Atal Bhujal Yojana with an outlay of Rs. 8,200 crore to be implemented in 05 additional States, viz., Andhra Pradesh, Bihar, Punjab, Tamil Nadu and Telangana, with the condition that the scheme may be restructured as a Centrally sponsored scheme (CSS). The Committee are of the opinion that this conversion to a Centrally Sponsored Scheme will entail shared financial liability between the Central Government and the States consequently reduce the financial burden on Central Government. It will also provide the scope for Central Government to include more water stressed States/UTs. While, the Committee appreciate the efforts of the Government to include 5 more States under the Atal Bhujal Yojana, in view of the fact that being a Centrally Sponsored Scheme (CSS), financial liability will now also be shared by the State Governments, as urged by the Committee in its earlier Report on DFG-2021-22, the Committee reiterates that the Department should consider expanding the Yojana to include all the States/UTs to cover maximum water scarce regions/districts of the country including those having large number of over-exploited blocks, so that water scarcity can be addressed on broader scale and benefits of the Scheme can be disbursed throughout the Country.

(Recommendation No. 11)

2.14 The Committee observe that Third Party Evaluation on the appraisal / continuation of various Schemes run by the Department, have been conducted. In this context, regarding the Atal Bhujal Yojana, the Department appraised the Committee that a mid-term assessment was carried out by the Council on Energy,

Environment and Water (CEEW) to study the overall impact of the Scheme in Rajasthan and as claimed by the Department, the scheme is progressing effectively. In this regard, the Committee are of the view that presently the Scheme is under implementation in seven States including Rajasthan and assessment of only one State would not depict the overall effectiveness of the Scheme. Further, to comprehensively evaluate the socio-economic impact of the schemes on the targeted sectors/areas, its implementation, outcome, achievement of goals set, usefulness in future perspective sustainability and to ensure that public resources are used efficiently and effectively, a third-party evaluation of the Scheme is essential. The Committee, therefore, recommend that a Third-Party Evaluation may be carried out of Atal Bhujal Yojana, by an independent body/ agency having sufficient expertise in the sector on priority. The Committee would like to be apprised of the action taken in this regard by the Department within three months of presentation of this Report.

(Recommendation No. 12)

<u>Command Area Development & Water Management (CAD&WM)</u>

2.15 The Committee observe that the Command Area Development & Water Management, is a Centrally Sponsored Scheme with the objective to bridge the gap between irrigation potential created and utilized. The activities covered under CADWM component of a Project are broadly categorized as 'Structural' and 'Non-Structural'. Structural Intervention includes survey, planning, design and execution of On-Farm Development (OFD) works, construction of field, intermediate & link drains, correction of system deficiencies and Reclamation of water logged areas. Non-Structural intervention includes activities directed at strengthening of Participatory Irrigation Management (PIM). The Committee further note that the Program has been brought under the Pradhan Mantri Krishi Sinchayee Yojna (PMKSY) from 2015-16 onwards. With the new scheme of Prioritized AIBP Projects approved by Cabinet in July 2016, CADWM works have been restricted to 99 prioritized AIBP projects.

2.16 The Committee observe that the Scheme has witnessed underutilization of funds in consecutive financial years i.e. actual expenditure of Rs. 99.07 crore vis-à-vis BE of Rs. 1044 crore in FY 2022-23 and actual expenditure of Rs. 174.39 crore

vis-à-vis BE of Rs. 400 crore in FY 2023-24. In this regard, the Department has apprised the Committee of various challenges, including a limited working season and reluctance among farmers to relinquish their land, particularly in upper reaches where water supply is sufficient. Furthermore, the concurrent implementation of PMKSY-AIBP and CAD&WM restricted CADWM initiatives to ongoing AIBP projects resulting precluded numerous potential CADWM projects from being undertaken. The Committee observe that to confront these challenges, the Department has devised a modified Command Area Development Scheme for implementation during the financial years 2024-2025 and 2025-2026. The Committee hope that with the modified Command Area Development Scheme the Department would be able to ensure better and prudent utilization of budget allocation and implementation of the Scheme in more efficient manner. However, the Committee believe that when formulating a new scheme, it is essential to consider and assess its potential impact on existing schemes, to ensure seamless integration and minimal disruption. The Committee may be apprised in this regard.

(Recommendation No. 13)

Flood Forecasting

2.17 The Committee observe that Central Water Commission (CWC) plays a crucial role in Flood Forecasting by overseeing a comprehensive flood forecasting network that operates across the country. The CWC set up of flood forecasting network comprises of short range level forecasts at 200 locations in the country and Inflow Forecasts for 140 dams/reservoirs/barrages in various river basins. Further, to monitor the flood situation during every monsoon, CWC operates 36 Divisional Flood Control Rooms (DFCRs) located in the various field Divisions of CWC and a Central Flood Control Room (CFCR) at CWC (HQ), New Delhi for providing flood related information to the local administration and user agencies. Central Flood Control Room (CFCR) at New Delhi monitors flood situation throughout the country by monitoring the data entry/FF formulation and issue of flood forecasts from all DFCRs through Water Information Management System (WIMS).

2.18 The Committee note that despite significant technological advancements and substantial investments in Early Warning Systems (EWS), socio-economic losses in the form of human lives and assets, continue to occur. In this regard, the Department appraised the Committee that Central Water Commission is enhancing its flood forecasting capabilities through various measures, including through expanding its network, upgrading of technology with mathematical modeling, enhancing computational resources, exhaustive data collection from various sources, adopting ensemble forecasting, etc. In this regard, the Committee are of the view that though various efforts have been made by the Department for better flood forecasting, the present system for the purpose have on occasions, been found inadequate. During oral evidence, the Ministry also accepted the fact that the present models used for processing of meteorological data for flood forecasting need improvement. Hence, in light of the increasing severity of flood situations due to climate change, the Committee recommend that the Ministry upgrade its present system accordingly with best available advanced technology, capable of addressing the current challenges in the area of flood forecasting due to climate change phenomena.

(Recommendation No. 14)

<u>Namami Gange Mission-II</u>

2.19 The Committee note that the Government launched the Namami Gange Programme (NGP) in 2014-15 for the rejuvenation of river Ganga and its tributaries for five years, up to March 2021 and has been further extended to March, 2026. Under the Programme, a diverse and holistic set of interventions for cleaning and rejuvenation of river Ganga have been taken up, that included waste water treatment, solid waste management, river front management (ghats and crematoria), ensuring e-flow, rural sanitation, afforestation, biodiversity conservation, public participation, etc. The Committee observe that in FY 2023-24, Rs. 4000 crore was allocated for Namami Gange Missiion-II at BE stage and the same was reduced to just Rs.2400 crore (reduction of 40%) at RE stage. In this regard, the Department explained that at the time of projection of BE, many new projects were under different stages of tendering and it was anticipated that funds would be required during the year to meet mobilization advance as well as construction period payments. However, all contracts could not be awarded due to

various reasons, requiring reduction at RE stage. The Committee are of the view that the Namami Gange Programme is an ambitious and comprehensive initiative which aims to address the pollution and degradation of the river Ganga and its tributaries by implementing a multifaceted approach that ensures its conservation and rejuvenation and to achieve this goal, substantial physical and financial resources are being deployed by the Government. However, delay in projects under the Mission invariably increase the estimated cost and affect the budget adversely. The Committee, therefore, urge the Department to identify the reasons behind these delays and strongly recommend that the Ministry in handhold collaboration with all stakeholder take all possible measures to eliminate such delays, so that the allocated budget is utilized effectively and the Programme of rejuvenation and conservation of the Ganga and its tributaries can be completed within the stipulated timeframe.

(Recommendation No. 15)

2.20 The Committee further observe that the Detailed Project Report (DPR) on "Forestry Interventions for Ganga" prepared by Forest Research Institute (FRI), Dehradun envisages for site-specific plantation along the banks of river Ganga in a total area of 1,34,104 hectares in five States of Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal with an estimated cost of Rs. 2,293.73 crores. However, only 30,071 hectare plantation has, so far, been carried out for which an expenditure of Rs. 368 crore has been incurred by the State Forest Departments of the said five States. In this regard, the Department informed the Committee that the National Mission for Clean Ganga (NMCG) has allocated Rs. 398.50 crores for partial implementation of the plantation & maintenance activities till FY 2023-24 which focuses on selected landscapes from the DPR for afforestation along the main stem of Ganga river resulting no/less interventions on Agriculture and Urban landscape undertaken. Further, for the complete implementation of the DPR it was decided that afforestation along river Ganga & its tributaries would be undertaken through the available Compensatory Afforestation Fund Management and Planning Authority (CAMPA) funds, operating under the aegis of the Ministry of Environment, Forest & Climate Change (MoEF&CC) which endorsed the proposed initiative. In this connection, the Committee has observed that the country is grappling with the challenges of climate change which is manifesting in frequent

floods, droughts, and unprecedented hot weather across various regions. Changing rainfall patterns, over-exploitation of groundwater, soil erosion, and increasing pollution have further aggravated these issues and afforestation may seem to be a remedy to mitigate these adversities and there is a need to undertake serious measures towards this aspect. The Committee therefore strongly recommends that the Department, in coordination with M/o EF&CC and State Governments, take necessary steps to complete afforestation work and ensure the implementation of the DPR within a stipulated time frame, thereby facilitating the successful execution of the Namami Gange Programme in totality.

(Recommendation No. 16)

NEW DELHI
06 February, 2025
17 Magha,1946 (Saka)

Rajiv Pratap Rudy
Chairperson,
Standing Committee on Water Resources

Annexure-I

Summary of recommendations on various aspects of water resources by the NCIWRD and the actions taken thereon

NCIWRD has given wide ranging recommendations on several aspects of water resources concerning various stakeholders in water sector e.g. State Govts., Central agencies, private players, academia etc. The summary of its various recommendations and major activities/achievements thereon are as given below:

Water Availability and requirements

Recommendations

1) CWC should take up the work of further refining the assessment of Water Resources.

2) CWC should carry out studies to revise estimates of utilizable flows in basin/sub-basin.

3) CGWB to carry out study for verification & estimation of parameters used in assessment of groundwater.-Pertains to CGWB

Action Taken

- A pilot study on assessment of water availability was initiated in October 2010 by CWC in association with NRSC for Brahamani Baitarni Basin and Godavari Basin.
- Based on the results obtained, CWC took up the study entitled Reassessment of Water Availability in India using Space Input in 2015. As per this study, the average annual water resource of the 20 basins of the country for the study period of 30 years (1985-2015) was assessed as 1999.20 BCM.
- Fully science based state-of-the art modeling tools and satellite data were used in the study. The most distinguishing features of the study are incorporation of rainfall, land use, land cover, proper estimation of demand, evapotranspiration, soil moisture and development of basin and sub-basin wise models. The Study was conducted through field organizations of CWC which involved huge capacity building effort.
- Further, CWC has recently carried out 'Assessment of Water Resources of India' for the year 1985-2023 as per which the Average Annual Water Resources Availability of India has been assessed as 2115.95 BCM while the annual precipitation is 3728.78 BCM.
- Normally the concept of utilizable water is not used in other countries and only water availability data is reported as the same can be put to beneficial use. Accordingly in view of technological advancements over the period of time , the concept of utilizable flows is under review in CWC.

Irrigation:

Recommendations

1) IPC and IPU gap should be reduced to minimum.
2) Periodic reappraisal of potential of irrigations projects and figures of actual irrigation.

3) Cost effective method to be devised for removal of silts from reservoirs

4) State-wise assessment of waterlogged and salt affected areas in the irrigation command on uniform criteria.

5) Need for a paradigm shift in emphasis towards improving the performance of existing irrigated structure.

6) Gradually reduce subsidy on power for agriculture.

7) Performance review after modernization of project.

8) Promotion of Canal Automation and Re-use of water on case-to-case basis.

Action Taken

- PMKSY: Pradhan Mantri Krishi Sinchai Yojna (PMKSY) has been formulated with the vision of extending the coverage of irrigation 'Har Khet ko pani' and improving water use efficiency 'More Crop per drop' in a focused manner with end-to-end solution on source creation, distribution, management, field application and extension activities. The Cabinet Committee on Economic Affairs chaired by Hon'ble Prime Minister has accorded approval of Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) in its meeting held on 1st July, 2015.
- CADWM: The main objective of CAD&WM Programme is to enhance utilisation of irrigation potential created and improve agriculture productivity and production on a sustainable basis through integrated and coordinated approach involving multidisciplinary team. The scheme has been implemented as a State Sector Scheme during the XI Five Year Plan (2008-09 to 2011-12). During XII Plan, the CADWM programme has been implemented pari-passu with Accelerated Irrigation Benefits Programme (AIBP). From 2016-17, CADWM Program has been restricted to 99 Prioritized AIBP Projects.
- Piped Irrigation: Piped Irrigation System if implemented properly can curtail irrigation water demand without compromising with net irrigation requirement (NIR) but by improving the water use efficiency. The estimated overall efficiency with piped irrigation network is of the order of 70-80%. Accordingly, the guideline on PIN were prepared by CWC and released in July 2017.
- Limitation for Non availability of data from states regarding Periodic reappraisal of potential of irrigations projects and figures of actual irrigation.
- However 7th MI census completed and proposal for 1st MMI census is under finalization.
- Catchment area treatment: The catchment area treatment involves the understanding of the erosion characteristics of the terrain and identifying/ suggesting

remedial measures to reduce the erosion rate. For this reason, the catchment area responsible for directly draining rivers, streams, tributaries, etc. are treated and the cost is included in the project cost.

- Also DPRs have been prepared for rejuvenation of 13 rivers spread across 24 states and 2 UTs through forestry interventions. The DPRs focus on protection, afforestation, catchment treatment, ecological restoration, moisture conservation, livelihood improvement, income generation, eco-tourism by developing river fronts, eco-parks and bringing awareness amongst the masses.
- Sediment Sluices

  The objective of sediment sluicing is to maintain the sediments in suspension when they enter the reservoir and convey them out via sluicing gates.
- National Framework for Sediment Management: DoWR,RD&GR, Ministry of Jal Shakti has formulated a 'National Framework on Sediment Management' released in October 2022, for comprehensive and holistic management of sediments in river, reservoirs and water bodies. It lays down the basic principles & relevant guidelines to be followed for carrying out desilting/ dredging work.
- Study has also been undertaken in association with RRSC: The first "Assessment of Waterlogging and Salt Affected Areas in Major and Medium Irrigation Commands in the Country Using Satellite Remote Sensing" study in India was done by CWC through Regional Remote Sensing Service Center (RRSC), ISRO Jodhpur for the year 2003- 2005 and the report was published in 2009, in which 1701 commands of all major and medium irrigation projects of the country were studied. CWC in consultation with ICAR & NRSC is processing the proposal of "Re-assessment of waterlogging and salt affected areas in Major and Medium Irrigation Commands in the Country" which would be taken up soon.
- Performance Evaluation Studies of Irrigation Projects have been taken up. So far Performance Evaluation Studies of 137 major and medium irrigation projects from various regions/states of the country have been successfully accomplished.
- SCADA being promoted.

- Asia's largest drip irrigation programme has been launched under Stage II of **Ramthal (Marol) Lift Irrigation Project** in 2017. The project is based on the unique concept of integrated micro irrigation. It improves water use efficiency saves power, ensures high efficiency in the use of fertilizers and no soil erosion, and maintains soil health.
- Narayanpur left bank canal with modern irrigation system is also one such example.

Flood Control and Flood Management

Recommendations

1) Need to adopt non structural measures for efficient management of floods.

2) Performance review of flood embankments, beneficiaries to be involved in the upkeep & surveillance of embankments.

3) The network of flood forecasting and warning to be extended to entire flood-prone areas.

Action Taken

- Central Water Commission (CWC) has been identified as nodal line department for flood forecasting activities & early flood warnings in the country and is carrying out the activity of Flood Forecasting (FF) since 1958. The flood forecasting network has since been expanded to 333 flood forecasting stations at present covering 22 States and 3 Union Territories. Further expansion is also under planning stage.
- Non structural measures of Flood Control also include Flood Plain Management, Flood Proofing including Disaster Preparedness, Response Planning and Flood Forecasting and Warning.
- In order to provide more lead time to the local authorities to plan evacuation of people & take other remedial measures, Central Water Commission (CWC) has developed basin wise flood forecasting model based on rainfall-runoff mathematical modelling for 5 days advance flood forecast advisory at its forecasting stations.
- On an average, over 8000 forecasts are being issued every year by Central Water Commission during the flood season. The flood forecast & water level information were made available to common public through the website //ffs.india-water.gov.in on near real time basis.
- To strengthen the structural measures for flood management in the country , Flood Management Programme (FMP), a State Sector scheme amounting to Rs.8,000 crore under Central Plan proposed by erstwhile MoWR,RD&GR w as approved by Government of India during XI Plan (Nov. 2007).
- In continuation of flood management programme a comprehensive scheme titled “Flood Management and Border Areas Programme (FMBAP) with merged components from the existing Flood Management Programme (FMP) and River Management in Border Areas (RMBA) schemes has also been approved.

Domestic Uses

Recommendations

1) The norms adopted for satisfying the basic human needs of communities (both for urban & rural) may be reviewed after every 10 years.

2) Water supply programmes should be taken up simultaneously with liquid waste management.

3) Autonomous system with economic viability to achieve 100% coverage in water supply

4) To reduce gap between demand-supply, emphasis on water Conservation and recycle & re-use of treated water for non-domestic uses specially in water-scarce areas..

5) Appropriate operation and maintenance to reduce pilferage & wastage of treated water.

6) Tariff (differential pricing) in urban areas to be revised so that it covers full O&M and also a part of capital cost.

7) Public awareness for reducing water consumption.

8) Artificial recharge and rainwater harvesting should be promoted.

9) Participation of women to be encouraged to maximum as they are major users.

10) Participation of private, NGO, Community to be encouraged.

Action Taken

- **Jal Jeevan Mission**: Jal Jeevan Mission(JJM), is envisioned to provide safe and adequate drinking water through individual household tap connections by 2024 to all households in rural India. The programme will also implement source sustainability measures as mandatory elements, such as recharge and reuse through grey water management, water conservation, rain water harvesting. The Jal Jeevan Mission is based on a community approach to water and includes extensive Information, Education and communication as a key component of the mission.
- **NWM**: The Government of India has established National Water Mission as one of the eight National Missions under the National Action Plan on Climate Change in April 2011. The main objective of NWM is “conservation of water, minimizing wastage and ensuring its more equitable distribution both across and within States through integrated water resources development and management”.
- **NMCG:** A key policy priority of the Government towards achieving the SDG 6 (Ensure availability and sustainable management of water and sanitation for all has been the cleanliness of mighty River Ganga through Namami Gange programme. The programme was launched in May 2015 as a Central Sector Scheme for the period 2015-2020. The programme is being implemented through National Mission for Clean Ganga, an integrated conservation mission with basin approach covering all the tributaries of river Ganga.

Industrial:

Recommendations

1) Tariff is to be prescribed such that the industries feel compelled to look into technological intervention leading to reduced water use.

2) Industrial zoning to be done according to the types of industries, quantity of water consumed/discharged.

3) Hazardous water treatment and disposal needs to be planned.

4) Minimum National Standards (MINAS) evolved by CPCB based on minimum treatment concept have to be strictly followed while clearing the proposal for industries.

5) Mandatory clearance from all concerned ministries dealing with discharging effluents in the drainage system.

Action Taken

- **NWM**: The Government of India has established National Water Mission as oneof the eight National Missions under the National Action Plan on Cl imate Change in April 2011. The main objective of NWM is “conservation of water, minimizing wastage and ensuring its more equitable distribution both across and within States through integrated water resources development and management”.
- **BWUE:** In order to fulfill one of the Goals to improve the water use efficiency by 20 %, a Bureau of Water Use Efficiency (BWUE) has been set up under the scheme of National Water Mission for promotion, regulation and control of efficient use of water in irrigation, industrial and domestic sectors.

Local Water Resources Development and Management: Recommendations

1) In a basin, there is scope for whole range of structure – small to large

2) Renovation and modernization of tanks and other local water resources on a watershed basis.

3) Optimum use of local water sources even in canal-irrigated area.

4) Due importance to local water planning through water harvests, conservations measures and watershed development.

5) Stakeholder participation at every stage of planning and a District Planning Committee (DPC) should ensure this.

6) State Govt should establish technical bodies at local level.

7) Special consideration for landless labourers and disadvantageous groups.

8) Integrating different programs of other ministries into one ‘Integrated Rural Area Program (IRAP)’.

Action Taken

- **Water Shed Programme DoLR**: The Department of Land Resources, Ministry of Rural Development has been implementing an area development programme i.e. Integrated Watershed Management Programme (IWMP) w.e.f. February 2009 principally for development of rainfed portions of net cultivated area and culturable wastelands. After approval of PMKSY, IWMP was subsumed as one of its components known as watershed Development Component (WDC) of PMKSY.
- **Jal Shakti Abhiyan** : The JSA aims at making water conservation a Jan Andolan through asset creation and extensive communication. The focus of the campaign is on water stressed districts and blocks. Ministry of Jal Shakti (MoJS) has identified 255 Districts and 1,597 Blocks across the country as water stressed, and total 756 Urban Local Bodies (ULBs) have been identified as water stressed.

- **PMKSY**: Pradhan Mantri Sinchai Yojna (PMKSY) has been formulated with the vision of extending the coverage of irrigation 'Har Khet ko pani' and improving water use efficiency 'More Crop per drop' in a focused manner with end-to-end solution on source creation, distribution, management, field application and extension activities.
- **NREGA:** The Government of India passed the Mahatma Gandhi National Rural Employment Guarantee Act, 2005 in September, 2005. The Act gives legal guarantee of a hundred days of wage employment in a financial year to adult members of a rural household who demand employment and are willing to do unskilled manual work. The Act will be applicable to areas notified by the Central Government. The objective of the Act is to enhance the livelihood security of the people in the rural areas by generating wage employment through works that develop the infrastructure base of that area.
- Repair, Renovation & Restoration (RRR) of Water Bodies under PMKSY-HKKP (Har Khet Ko Pani) deals with works related to ground water recharge as one of its objectives. The main objective being comprehensive improvement and restoration of water bodies, including protection works to avoid encroachment thereby increasing tank storage capacity. Out of 3275 water bodies included under RRR of Water Bodies, 1798 water bodies have been completed till December 2022.

Inter-basin transfers:

Recommendations

1) Surplus water may be transferred to deficit basin after meeting all essential demands of surplus basin.
2) Extensive studies to be done using computer simulation models sub-basin-wise taking both surface & groundwater into account.
3) Studies on social, economic and environmental impact of these projects.
4) Studies showed that no need of large scale inter basin transfer in east flowing peninsular rivers (namely Mahanadi, Krishna, Godavari, Pennar, Cauvery & Vagai).
5) A detailed study using system analysis technique to be conducted for Himalayan components.
6) Actual implementation is unlikely in the immediate coming decades.

Action Taken

- CWC has been at the forefront for such project formulation for Inter basin Transfer in all aspects viz. Design, hydrological studies, Inter state matters, irrigation etc.
- National Water Development Agency (NWDA) was set up on 17th July 1982 by Government of India to study the feasibility of the links National Perspective Plan. The National Perspective Plan comprises of two components, namely i) Peninsular Rivers Development and ii) Himalayan Rivers Development. NWDA has identified 30 links (16 under peninsular rivers component & 14 under Himalayan rivers component) for preparation of Feasibility Reports (FRs). Out of the 30 links, FR of 14 links under Peninsular Component and FRs of 10 links (3 Indian portion & 2 drafts) under Himalayan Component have been completed. CWC has been at the

forefront for such project formulation for Inter basin Transfer in all aspects viz. Design, hydrological studies, Inter-state matters, irrigation etc.

- **Ken Betwa Link :** KBLP envisaged transfer of surplus water from Ken basin to Betwa basin to provide water to water short areas of Betwa basin by substitution, keeping the needs of the in-basin requirements of Ken basin involving both the States of UP and MP in view and ensuring equity, optimization of water use and cost effectiveness. KBLP mainly envisages to provide irrigation and domestic water supply facilities to drought prone areas namely Chhatarpur, Tikamgarh, Panna, Damoh, Vidisha, Sagar, Shivpuri, Datia & Raisen districts of MP and Mahoba, Banda, Jhansi & Lalitpur districts of UP.

Legal Framework: Recommendations

1) It may not be feasible to amend constitution to include 'water' in Union or Concurrent List.

2) Under the constitution, Union is empowered to pass laws on inter-state rivers, which may be effectively utilized.

3) Urgent need for enactment of Inter State River and River Valley Act (in place of River Boards Act) for constitution of River Basin Organisations.

4) Amendment of ISWD Act for giving awards within reasonable time.

5) Participatory process in ground water management and immediate regulation of ground water in dark and over-exploited zones.

6) National Water Code with an integrated set of water laws may be prepared.

Action Taken

- **ISWRD Act 1956**: The Parliament has enacted Inter-State River Water Disputes (ISRWD) Act, 1956 for adjudication of disputes relating to waters of inter-State rivers and river valley thereof. When any request under the said Act is received from any State Government in respect of any water dispute on the inter-State rivers and the Central Government is of the opinion that the water dispute cannot be settled by negotiations, the Central Government constitutes a Water Disputes Tribunal for the adjudication of the water dispute. In order to further streamline the adjudication of inter-State river water disputes, the Inter-State River Water Disputes (Amendment) Bill, 2019 has been passed in Lok Sabha by amending the existing ISRWD Act, 1956. The Bill envisages to constitute a standalone Tribunal with permanent establishment and permanent office space and infrastructure so as to obviate with the need to set up a separate Tribunal for each water dispute which is invariably a time consuming process. MoJS is seized of the matter.

Institutional Framework:

Recommendations

1) CWC should be restructured into a statutory high powered inter disciplinary commission, with maximum autonomy.

2) Water Districts may be formed representing all type of water users and local governments.

3) RBO need to be set up for all inter-state rivers representing State Govt., local govt. and water users. The Chairman of RBO may also be the member of National Water Resource Council.

Action Taken

- MoJS is seized of the matter on evolution of CWC along with Cadre Review of CWES GR-A officers.
- Recognizing the need for sound legal framework for Participator Irrigation Management (PIM) in the country, the Ministry of Jal Shakti brought out a model act to be adopted by the State Legislatures for enacting new irrigation acts/amending the existing irrigation acts for facilitating PIM. In accordance with the model act, ten State Gover-n1m5ents, namely, Andhra Pradesh, Madhya Pradesh, Orissa, Rajasthan, Tamil Nadu, Chhattisgarh, Gujarat, Madhya Pradesh, Uttar Pradesh and Kerala have enacted new acts. Several States have enacted the Participatory Irrigation Management Act.
- River Basin management Bill has been submitted to the MOJS for formation of River Basin Authority.

Economic and Financial Management:

Recommendations

1) Detailed review and evaluation of ongoing projects to avoid Cost escalation and delay.

2) Private Sector participation in supply for industrial and urban water.

3) Community involvement to generate funds for minor works.

4) Urgent measures for operation and maintenance of existing irrigation systems.

5) Measures should be taken to increase revenue from water rates.

6) Principle of 'User Pays, Polluter Pays' to be applied in case of industrial water supply.

7) Water Pricing Authority may be constituted in each state, on the analogy of energy pricing authorities.

Action Taken

- CWC advocates but local policy governs regarding Pricing and O&M.
- With Publication on Water Pricing and Financial Aspects of Projects CWC persuades concerned states to follow cost effective practices.

- Central Ground Water Authority has been constituted under Section 3 (3) of the Environment (Protection) Act, 1986 to regulate and control development and management of ground water resources in the country.

Project Planning and Prioritization:

Recommendations

1) Changes are needed in approach to project planning, particularly in respect of allocation of water among various uses.

2) An Improved procedures of benefit-cost analysis is required consisting of all relevant aspects. Concept proposed

3) States should prioritize major projects and release of funds based on prioritization.

4) Constitute Joint Cooperation (centre and states) for selected projects with a MoU and an agreement of joint management.

5) Substantial changes in contractual procedures for speedy completion of projects.

Action Taken

- A Report on the 'Reviewing the Calculation of Benefit Cost Ratio and Procedure for Revised Cost Estimation for Major and Medium Irrigation, Flood Control and Multipurpose Projects' has been prepared by the Working Group of CWC Officials and is under consideration of ministry.

International Dimensions:

Recommendations

1. Individual Recommendations on augmentation of lean season flows, flood moderation, storage, silt flushing, water transfer, hydropower potential, disposal of saline water for various trans-boundary basins are given by the commission.

2. Flood forecasting and flooding is a matter of common concern, which can be dealt jointly with other countries.

3. Cross border water monitoring and establishment of common regional standards.

4. Transparency, public awareness and stakeholder participation in respect of trans boundary projects.

Action Taken

- The three major river systems of India, namely, Ganga, Brahmaputra and Indus cross international borders. Ministry of Jal Shakti, Department of Water Resources, River Development and Ganga Rejuvenation is responsible for strengthening international cooperation on matters relating to these rivers by way of discussions

with neighbouring countries concerning river waters, water resources development projects and operation of related international treaties.

- Cooperation with Nepal

o Most of the rivers, which cause floods in the States of Utter Pradesh and Bihar, originate from Nepal. In order to make flood forecasting and advance warning in the flood plains of the above rivers, a scheme namely, "Flood Forecasting and Warning system on rivers common to India and Nepal" which includes 46 meteorological / hydrometric sites in Nepal and 18 hydrological sites in India, has been in operation since 1989. The hydro-meteorological data of 46 stations located in Nepal on upper reaches of rivers flowing into India is collected by Nepalese personnel and transmitted to India during monsoon; which is used in flood forecasting and issue of warnings in the lower catchment. There are 21 Hydro-Meteorological stations and 25 Meteorological stations situated in Nepal, which are under Indo-Nepal FF Scheme.

o A Treaty on Integrated Development of Mahakali (Sharda) River including Sharda Barrage, Tanakpur Barrage and Pancheshwar Multipurpose Project, namely “Mahakali Treaty” was signed between Government of India and Government of Nepal in February 1996, and it came into force in June, 1997. *The Treaty is valid for 75 years*.

o Government of India is having continuous dialogue with the Government of Nepal at various levels to mit[1]ig[7]ate floods caused by rivers coming from Nepal. The related issues are discussed in the existing Indo-Nepal bilateral three tier mechanisms comprising of three tier mechanisms comprising of:

I. Joint Ministerial Level Commission on Water Resources (JMCWR),

II. Joint Committee on Water Resources (JCWR) : headed by the respective Water Resources Secretary of the two countries

III. Joint Standing Technical Committee (JSTC): headed by Chairman, GFCC

o In addition, there are few important Bilateral Committees India and Nepal:

a. India-Nepal Joint Committee on Inundation and Flood Management (JCIFM): headed by Member, GFCC

b. Joint Team of Experts (JTE) : Member (RM), CWC as Team Leader from India side

c. Joint Committee on Kosi&Gandak Project (JCKGP) : India side is led by Principal Secretary / Secretary (WRD), Govt of Bihar

- **Cooperation with Bhutan**
  - A scheme titled "Comprehensive Scheme for Establishment of Hydro-meteorological and Flood Forecasting Network on rivers common to India and Bhutan" is in operation since 1979. The network consists of 35 hydro-meteorological/ meteorological stations located in Bhutan maintained by Royal Government of Bhutan (RGoB), out of which 27 nos. are being funded by Government of India. Central Water

Commission utilizes the data received from these stations for formulating the flood forecast.

- A Joint Experts Team (JET) consisting of officials from the Governments of India and Royal Government of Bhutan was constituted in 1985 to formulate programme for the Five- Year Plan for continuation of / improvement in the ongoing scheme under operation and to review the progress of work vis-à-vis the programme laid down. It is also mandated to recommend the releases to be made to the Royal Govt. of Bhutan on the basis of progress achieved/likely to be achieved after discussion/random general checks and to look into any other specific point related to the scheme which may crop up from time to time.

- A Joint Group of Experts (JGE) on Flood Management has been constituted in August 2004, between India and Bhutan to discuss and assess the probable causes and effects of recurring floods and erosion in the southern foothills of Bhutan and adjoining plains in India and to recommend appropriate and mutually acceptable remedial measures to both Governments. In accordance with the decision taken during the first meeting of JGE, a Joint Technical Team (JTT) on Flood Management between the two Countries was constituted.

- CWC is providing technical assistance for development of hydropower potential in Bhutan. Bhutan Investigation Division (BID), CWC, Phuentsholing is coordinating with RGoB and carrying out necessary field works in this respect.

- **Cooperation with China**

  - The Government of India had entered into a Memorandum of Understanding (MOU) with China in January, 2002 for sharing of hydrological information on Yaluzangbu/Brahmaputra River. In accordance with the provisions contained in the MOU, the Chinese side is providing hydrological information (Water level, discharge and rainfall) in respect of three stations, namely Nugesha, Yangcun and Nuxia located on main river Yaluzangbu/Brahmaputra from 15th May to 15th October every year, which is utilized in the formulation of flood forecasts by Central Water Commission.
  - Another MOU, was signed on 11th April,2005 for supply of hydrological information (Water level, discharge and rainfall: twice daily) in respect of one station, namely Tsada by China to India on river Langquin Zangbo/ Sutlej river in flood season. Accordingly, the Chinese side is providing hydrological information to India from 1st June to 15th October every year since 2006.
  - Further in accordance with India-China Joint Declaration of November, 2006, both sides have agreed for set up an Expert Level Mechanism (ELM) to discuss interaction and cooperation on the provision of flood season hydrological data, emergency management and other issues regarding trans-border rivers.

- **Cooperation with Bangladesh**

  - In order to ensure the most effective joint effort in maximizing the benefits from common river systems an Indo-Bangladesh Joint Rivers Commission (JRC) is functioning since 1972, which is headed by Water Resource Ministers of both the countries. JRC is responsible for 54 identified border rivers between India & Bangladesh . JRC holds data on trans-boundary rivers, much of which is considered as restricted information.
  - Treaty for sharing of Ganga river water signed on 12/12/1996-to remain in force for 30 years. For monitoring implementation of the treaty, joint committee formed which meets three times in a year and observes joint measurements on Ganga at Farakka (India) and Ganges at Hardinge Bridge (Bangladesh) during lean season.
  - During the water Resources Secretary Level Meeting held in Dhaka in August, 2019, it was decided to conduct a comprehensive feasibility study for the Ganges-Padma Barrage jointly by the experts from Bangladesh and India. The purpose of the joint study would be conducted to harness the combined benefit from the barrage and mitigate the adverse impacts for both countries. In this backdrop, a twenty member, India-Bangladesh Joint Technical committee (JTC) was constituted by the two countries, in 2019.

  - Under bilateral arrangements, India provides the flood data of the various sites in NER during monsoon to Government of Bangladesh for use of their flood forecasting and warning arrangements. The transmission of flood forecasting information from India during the monsoon which is being supplied free of cost has enabled the Civil and Military authorities in Bangladesh to take precautionary measures and shift the population affected by flood to safer places.

  - In addition several MOUs have been signed with various countries on different aspects of Development and Management of water resources. The table below shows a few such MOUs:

MoU with various Countries

S.No	Country	Broad Areas of Cooperation in MoUs
1	AUSTRALIA	• Integrated water resources management; • Climate change mitigation and adaptation. • Flood and drought management; • Sustainable development and management of ground water resources including recharge augmentation; • Pollution abatement for Rivers • modem technology and scientific knowledge for efficient use of water • Water quality monitoring and management • Waste water treatment including circular economy for recycling/re-use of waste water • Sludge management.
2	EUROPEAN UNION	
3	HUNGARY	
4	ISRAEL	
5	JAPAN *(Ministry of Environment)*	
6	JAPAN (Water and Disaster Management Bureau)	
7	MOROCCO	
8	NETHERLANDS	
9	USGS, UNITED STATES	
10	DENMARK	
11	BAHRAIN	
12	CAMBODIA	
13	FIJI	
14	IRAQ	
15	RWANDA	
16	TANZANIA	

Water Quality and Environmental Aspects: Recommendations

1. Water projects should be planned in a way that they cause least social and environmental disturbances.

2. Catchment treatment programme for degraded catchment areas and restoring ecological balance should be part of project.

3. Integrated Watershed projects should be planned for water and soil conservation.

4. Improvement of Infrastructure, Training Material for increasing the efficiency to deal with environmental issues.

5. Application of ‘polluter pays’.

6. Cost effective water quality monitoring systems.

Action Taken

- Central Water Commission is monitoring water quality at 652 key hydrological observation stations covering all the important river basins of India.

- Also, water quality samples are being collected from 112 Water Quality Sampling stations.

- CWC is maintaining a three tier laboratory system for analysis of the physio-chemical parameters of the water.

- The Level-I laboratories are located at 378 field water quality monitoring stations on major rivers of India where physical parameters such as temperature, colour, odour, electrical conductivity, pH and dissolved oxygen of river water are observed.

- There are 18 Level–II laboratories located at selected division offices throughout India to analyses 25 nos. of physio-chemical characteristics and bacteriological parameters of water.

- 5 Level-III laboratories are functioning at Varanasi, Delhi, Hyderabad, Coimbatore and Guwahati where 41 parameters including heavy metals / toxic parameters and pesticides are analysed.

- As on April 2022, out of 23 laboratories in CWC, 17 laboratories got accredited by National Accreditation Board for Testing and Calibration Laboratories (NABL).

- The water quality data generated is computerized in Database system and disseminated in the form of Water Quality Year Books, Status Reports and Bulletins. The data being so collected are put to various uses viz. planning and development of water resources projects, climate change studies, water availability studies, inter- State issues, research related activities etc.

- CWC is also involved in Post Project Environment (including Social) Impact Assessment (EIA) Study of completed water resources projects and monitoring of implementation of environmental safeguards stipulated at the time of granting the environmental clearance to water resources projects.

- Senior Officers from CWC also partake in National Environmental Monitoring Committee for River Valley Projects (NEMCRVP) to monitor the implementation of environmental safeguards of irrigation, multipurpose and flood control projects. The Committee is entrusted with the work to review the mechanism established by the State Governments and project authorities to monitor the implementation of environmental safeguards and to suggest additional compensatory measures in respect of water resource projects.

- Compendium on “Sedimentation of Reservoirs in India” based on studies of 369 reservoirs, issued during 2020.

Research and Development Needs:

Recommendations

1. Data and Information system for dissemination should be built.

2. Estimation of water availability including return flows and water demand for planning purpose.
3. Provide guidance to farmers based on research.

4. Research on cost effective water supply, sewage treatment and re-use of water

5. Impact of high dams and large scale inter-basin water transfer.

6. Climate change and its impact on water resources.

7. Regular trainings may be conducted.

8. Provision of study leave. Person with higher qualifications and exceptional performance should get faster promotion.

Action Taken

- **WRIS:** CWC in association with NRSC has established India-WRIS which provides a single window solution for all water resources data and information in a standardized national GIS framework. It allows users to Search, Access, Visualize, Understand and Analyze comprehensive and contextual water data for the assessment, monitoring, planning and development of water resources in the context of Integrated Water Resources Management (IWRM).
- **NWIC**: India WRIS is managed by the National Water Informatics Centre (NWIC), a unit of the Ministry of Jal Shakti which has been created u pon Cabinet approval by the Ministry of Water Resources, River Development and Ganga Rejuvenation (now Jal Shakti) vide notification of March 28th, 2018 to be a repository of nation-wide water resources data, providing a ‘Single Window’ source of updated data on water resources & allied themes. NWIC’s mandate also is to provide value added products and services to all stake holders for its management and sustainable development.
- **Indian National Committee on Surface Water (INCSW)**: Indian National Committee on Surface Water (INCSW) has been constituted by MoJS during the year 2012 by merging erstwhile INCID, INCOH, INCH and INCGECM. It has been envisaged as an apex body to coordinate the R&D

activities in surface water in general and R&D programme of MoJS in particular.

INCSW comprises of members representing DoWR, RD & GR/CWC, CSMRS, CWPRS, NIH, DST, Ministry of Agriculture, WALMIs, IITs, and NGOs etc. It identifies and recommends research in subject domain / priority areas identified by the Department for funding under the scheme. The research proposals funded under the scheme are to be formulated, submitted and implemented as per the “Guidelines for Implementation of R & D Programme (Sponsoring & Coordinating Research in Water Sector” issued by the department.

*****

Annexure-II

Sl. No	States/UT	Total No. of Specified Dams (As per NRLD, 2023)
1	Andhra Pradesh	164(Commissioned-140,U/C-24)
2	Arunachal Pradesh	4(Commissioned-1,U/C-3)
3	Assam	5(Commissioned-3,U/C-2)
4	Bihar	28(Commissioned-27,U/C-1)
5	Chhattisgarh	346(Commissioned-339,U/C-7)
6	Goa	5(Commissioned-5,U/C-0)
7	Gujarat	491(Commissioned-487,U/C-4)
8	Haryana	1(Commissioned-1,U/C-0)
9	Himachal Pradesh	29(Commissioned-23,U/C-6)
10	Jharkhand	79(Commissioned-55,U/C-24)
11	Karnataka	231(Commissioned-231,U/C-0)
12	Kerala	61(Commissioned-61,U/C-0)
13	Madhya Pradesh	1354(Commissioned-1354,U/C-0)
14	Maharashtra	2374(Commissioned-2333,U/C-41)
15	Manipur	4(Commissioned-3,U/C-1)
16	Meghalaya	9(Commissioned-8,U/C-1)
17	Mizoram	1(Commissioned-1,U/C-0)
18	Nagaland	1(Commissioned-1,U/C-0)
19	Odisha	210(Commissioned-210,U/C-0)
20	Punjab	19(Commissioned-18,U/C-1)
21	Rajasthan	314(Commissioned-310,U/C-4)
22	Sikkim	2(Commissioned-2,U/C-0)
23	Tamil Nadu	127(Commissioned-127,U/C-0)
24	Telangana	174(Commissioned-161,U/C-13)
25	Tripura	1(Commissioned-1,U/C-0)
26	Uttar Pradesh	155(Commissioned-151,U/C-4)
27	Uttarakhand	37(Commissioned-32,U/C-5)
28	West Bengal	36(Commissioned-36,U/C-0)
29	Andaman and Nicobar Island (UT)	2(Commissioned-2,U/C-0)
30	Jammu and Kashmir (UT)	15(Commissioned-13,U/C-2)
31	Ladakh (UT)	2(Commissioned-2,U/C-0)
	Total	**6281(Commissioned-6138,U/C-143)**

U/C: Under Construction

****

Annexure-III

Basin-wise list of flood forecasting network

Sr. No.	Major Interstate River Systems	FF stations as on Date		
		Level	**Inflow**	**Total**
1	Indus and its tributaries	3	0	**3**
2	Ganga & its tributaries	96	43	**139**
3	Brahmaputra & its tributaries	39	6	**45**
4	Barak System	6	0	**6**
5	Subarnarekha (i/c Burhabalang)	4	3	**7**
6	Brahmani&Baitarni	3	2	**5**
7	East Flowing (Mahanadi to Pennar)	4	4	**8**
8	Narmada	4	6	**10**
9	Tapi	1	2	**3**
10	Mahi	1	4	**5**
11	Sabarmati	1	1	**2**
12	Mahanadi	3	3	**6**
13	Godavari	18	26	**44**
14	Krishna	5	19	**24**
15	West Flowing Rivers (Kutch &Saurashtra)	1	2	**3**
16	West Flowing Rivers (Tapi to Tadri))	2	1	**3**
17	Cauvery and its tributaries	4	9	**13**
18	Pennar	1	1	**2**
19	East Flowing Rivers (Pennar to Kanyakumari)	1	6	**7**
20	West Flowing River (Tadri to Kanyakumari)	3	2	**5**
	Total	**200**	**140**	**340**

******

Annexure-IV

State-wise list of flood forecasting network

Sl. No.	Name of State/UT	Number of flood forecasting Stations		
		Level	**Inflow**	**Total**
1	Andhra Pradesh	10	10	**20**
2	Arunachal Pradesh	3	1	**4**
3	Assam	30	0	**30**
4	Bihar	40	3	**43**
5	Chhattisgarh	1	2	**3**
6	Gujarat	6	8	**14**
7	Haryana	1	1	**2**
8	Himachal Pradesh	1	0	**1**
9	Jammu & Kashmir	3	0	**3**
10	Jharkhand	2	15	**17**
11	Karnataka	1	14	**15**
12	Kerala	4	2	**6**
13	Madhya Pradesh	2	12	**14**
14	Maharashtra	8	14	**22**
15	Odisha	12	7	**19**
16	Rajasthan	4	11	**15**
17	Sikkim	3	5	**8**
18	Tamil Nadu	4	11	**15**
19	Telangana	5	10	**15**
20	Tripura	2	0	**2**
21	Uttar Pradesh	39	5	**44**
22	Uttarakhand	4	5	**9**
23	West Bengal	12	4	**16**
24	Daman & Diu	1	0	**1**
25	NCT of Delhi	2	0	**2**
Total		**200**	**140**	**340**

*****

Appendices-I

MINUTES OF THE SECOND SITTING OF THE STANDING COMMITTEE ON WATER RESOURCES (2024-25) HELD ON WEDNESDAY, 16 OCTOBER, 2024

The Committee sat from 1500 hours to 1715 hours in Committee Room 'B', Ground Floor, Parliament House Annexe, New Delhi on 16 October, 2024.

PRESENT

Shri Rajiv Pratap Rudy – Chairperson

MEMBERS

LOK SABHA

2. Shri Narayandas Ahirwar
3. Shri Joyanta Basumatary
4. Shri Sher Singh Ghubaya
5. Smt. Sanjna Jatav
6. Shri Sagar Eshwar Khandre
7. Shri Rodmal Nagar
8. Shri Dhaval Laxmanbhai Patel
9. Shri Vishaldada Prakashbapu Patil
10. Shri Dilip Saikia
11. Shri Pratap Chandra Sarangi
12. Thiru. Tamilselvan Thanga
13. Shri Ashok Kumar Yadav

RAJYA SABHA

14. Smt. Dharmshila Gupta
15. Ms. Jebi Mather Hisham
16. Shri Sanjay Kumar Jha
17. Shri Dhairyashil Mohan Patil
18. Smt. Seema Dwivedi

SECRETARIAT

1.	Smt. Suman Arora	-	Additional Secretary
2.	Shri Ajay Kumar Sood	-	Director
3.	Shri P. Ashok	-	Deputy Secretary

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.	Ms. Debashree Mukherjee	Secretary
2.	Shri Rakesh Kumar Verma	Additional Secretary & Chairman, CWC
3.	Ms. Archan Varma	MD (NWM)
4.	Shri Subodh Yadav	AS(Admin, IC&GW) and CVO
5.	Smt. Richa Misra	JS&FA
6.	Shri Anand Mohan	JS (RD&P Pand NRCD)
7.	Shri Pradeep Kumar Agarwal	JS (NRCD)
8.	Shri Praveen Kumar	Commissioner (FM)
9.	Shri Sharat Chandra	Commissioner (FM)
10.	Shri Anuj Kanwal	Commissioner (CADWM)
11.	Shri Suyash Kamal Sinha	Commissioner (B&B)

National Water Development Agency (NWDA)

12.	Shri Baleshar Thakur	DG

Central Ground Water Board (CGWB)

13.	Shri Sunil Kumar Ambast	Chairman

National Dam Safety Authority (NDSA)

14.	Shri Anil Jain	Chairman

Central Water Commission (CWC)

15.	Shri A.S. Goel	Member

National Mission for Clean Ganga (NMCG)

16. Shri Rajeev Kumar Mital — Director General (NMCG)

17. Shri Anup Kumar Srivastava — ED (Technical) (NMCG)

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 (2024-25).

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 2024-25. 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 (2024-25) 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 various issues as mentioned below:-

(i) Water pollution from the rivers coming from neighbouring countries;

(ii) Issues of inter-linking of rivers in the country including Ken-Betwa project;

(iii) Issues regarding District Ganga Council constituted in Ganga Basin;

(iv) Flood management and anti-erosion works in border areas on trans-boundary rivers in the country including North Eastern States;

(v) Flood forecasting in the country and need to review the present system;

(vi) Silt management and implementation of silt policy in the country;

(vii) Water management in the Forest areas, Tigers reserves and Sanctuaries;

(viii) Measures taken for Safety and upkeeps of Dams and to spread public awareness about implementation of Dam Safety Act, 2021;

(ix) Depletion of ground water level in the various States and measures taken to recharge it;

(x) Implementation of Atal Bhujal Yojana;

(xi) Need to make provisions of financial support/grant to the States for promoting rain water harvesting in the country.

(xii) Pollution of the river Yamuna in Delhi stretch;

(xiii) Role of the Ministry of Environment and Central Pollution Control Board regarding water pollution in rivers;

(xiv) Reduction in annual budget of Central Water Commission.

(xv) Need to make a National-level plan of using of pipelines for irrigation in the country;

(xvi) Slow progress of work in completion of STPs projects under Namami Gange Programme;

(xvii) International partnership/treats on river water management;

(xviii) Implementation of Pradhan Mantri Krishi Sinchayee Yojana – CADWM and AIBP.

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.

***