

Annual Report 2023-24



MINISTRY OF JAL SHAKTI
DEPARTMENT OF WATER RESOURCES,
RIVER DEVELOPMENT AND GANGA REJUVENATION
GOVERNMENT OF INDIA



सत्यमेव जयते

ANNUAL REPORT 2023-24

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ABBREVIATIONS

AAS	Atomic Absorption Spectrophotometer
ADB	Asian Development Bank
ADCP	Acoustic Doppler Current Profiler
AIBP	Accelerated Irrigation Benefits Programme
AICTE	All India Council for Technical Education
AIIA	All India Institute of Ayurveda
AIIB	Asian Infrastructure Investment Bank
AKAM	Azadi Ka Amrit Mahotsav
AMRUT	Atal Mission for Rejuvenation and Urban Transformation
ARS	Artificial Recharge Structure
ATNs	Action Taken Note
AYUSH	Ayurveda, Yoga & Naturopathy, Unani, Siddhaand Homoeopathy
B.E.	Budget Estimate
BB	Brahmaputra Board
BBMP	Bruhat Bengaluru Mahanagara Palike
BCB	Bansagar Control Board
BCM	Billion Cubic Meter
BOOT	Build Operate Own and Transfer
BOPs	Border Out-Posts
BRB	Betwa River Board
BSIP	Birbal Sahni Institute of PalaeoSciences
BWUE	Bureau of Water Use Efficiency
CA	Central Assistance
CAD&WM	Command Area Development and Water Management
CAU	Central Agricultural University
CCA	Cultivable Command Area
CEA	Central Electricity Authority
CEE	Centre for Environment Education
CEE	Committee on Establishment Expenditure
CGA	Controller General of Accounts

CGWA	Central Ground Water Authority
CGWB	Central Ground Water Board
CIFRI	Central Inland Fisheries Research Institute
CIMO	Central Irrigation Modernization Office
CMIS	Coastal Management Information Service
CoE	Center of Excellence
CORS	Continuously Operating Reference Stations
CPCB	Central Pollution Control Board
CPIOs	Central Public Information Officers
CSIR	Scientific and Industrial Research
CSMRS	Central Soil and Materials Research Station
CVC	Central Vigilance Commission
CVO	Chief Vigilance Officer
CWC	Central Water Commission
CWMA	Cauvery Water Management Authority
CWPRS	Central Water and Power Research Station
CWRC	Cauvery Water Regulation Committee
CWRDM	Centre for Water Resources Development & Management
D&R	Design and Research
DDP	Desert Development Programme
DGC	District Ganga Committees
DGPS	Digital Global Positioning System
DGQI	Data Governance Quality Index
DHARMA	Dam Health and Rehabilitation Monitoring Application
DIPs	District Implementation Partners
DLI	Disbursement Linked Indicator
DO	Dissolved Oxygen
DoDWS	Department of Drinking Water and Sanitation
DoPT	Department of Personnel and Training
DoWR, RD &GR	Department of Water Resources, River Development and Ganga Rejuvenation
DPAP	Drought Prone Area Programme

DPR	Detailed Project Report
DRIP	Dam Rehabilitation and Improvement Project
DSC	Data and Strategy Committee
DSO	Dam Safety Organisation
DSS	Decision Support System
DWRIS	Development of Water Resources Information System
EAP	Emergency Action Plans
EHP	Extended Hydrological Prediction
ELM	Expert Level Mechanism
EMDBS	Eklavya Model Day Boarding Schools
EMRS	Eklavya Model Residential School
EPA	Environment Protection Act
e-PAMS	A web-enabled Project Appraisal Management System
EPC	Engineering, Procurement and Construction
ERM	Extension Renovation Modernisation
ETF	Empowered Task Force
FBP	Farakka Barrage Project
FC	Faecal Coliform
FE&SA	Foundation Engineering & Special Analysis
FF	Flood Forecasting
FM	Flood Management
FMBAP	Flood Management and Border Areas Programme
FRI	Forest Research Institute
GAP	Ganga Action Plan
GB	Governing Body
GBS	Gender Budget Statement
GC	Governing Council
GFCC	Ganga Flood Control Commission
GGU	Guru Ghasidas University
GHLSC	Gandak High Level Stand- ing Committee
GLOF	Glacial Lake Outburst Flood
GMB	Ganga Management Board

GPIs	Grossly polluting Industries
GRMB	Godavari River Management Board
GWM & R	Ground Water Management & Regulation
GWQ	Ground Water Quality
H.E.	Hydro Electric
HEIs	Higher Education Institutions
HKKP	Har Khet Ko Paani
HPC	High Powered Committee
HPRB	High Power Review Board
HSO	Hydrological Studies Organization
IARI	Indian Agricultural Research Institute
IAs	Implementing Agencies
ICED	International Centre of Excellence for Dams
ICFRE	Indian Council of Forestry Research and Education
IEC	Information, Education & Communication
IGNP	Indira Gandhi Nahar Project
IHHL	Individual Household Latrines
IIM	Industrial Research and Indian Institute of Integrative Medicines
ILR	Inter- Linking of Rivers
IMPs	Irrigation Modernization Plans
IMT	Irrigation Management Transfer
INCCC	Indian National Committee on Climate Change
INCGW	Indian National Committee on Groundwater
INCs	Indian National Committees
INCSW	Indian National Committee on Surface Water
IRBM	Integrated River Basin Management
ISRWD	Inter-State River Water Disputes
IT	Information Technology
ITI	Industrial Training Institute
IWCIMS	Integrated Water and Crop Information and Management System
IWIS	India Water Impact Summit
IWRDS	Investigation of Water Resources Development Scheme

IWRM	Integrated Water Resources Management
IWW	India Water Week
JC	Joint Committee
JCIFM	Joint Committee on Inundation and Flood Management
JCKGP	Joint Committee Kosi and Gandak Projects
JCWR	Joint Committee in Water Resources
JET	Joint Expert Team
JGE	Joint Group of Experts
JICA	Japan International Cooperation Agency
JJM	Jal Jeevan Mission
JPO-SKSKI	Joint Project Office–Sapta Kosi & SunKosi Investigation
JRC	Joint Rivers Commission
JSA:CTR	Jal Shakti Abhiyan: Catch The Rain
JSKs	Jal Shakti Kendras
JSTC	Joint Standing Technical Comiittee
JTE	Joint Team of Experts
JTT	Joint Technical Team
JWG	Joint Working Group
KBK	Koraput, Balangir and Kalahandi
KBLPA	Ken-Betwa Link Project Authority
KHLC	Kosi High Level Committee
KRMB	Krishna River Management Board
KVS	Kendriya Vidyalaya Sangathan
KWDT	Krishna Water Dispute Tribunal
LIDAR DEM	Light Detection and Ranging Digital elevation models
LTIF	Long Term Irrigation Fund
MCum	Million Cubic Meters
Me PGCL	Meghalaya Energy Corporation Limited
MHA	Ministry of Home Affairs
MI	Minor Irrigation
MI	Micro-Irrigation
MMI	Major & Medium Irrigation

MMI	Major/ Medium Irrigation
MoA	Memorandum of Agreement
MoEF & CC	Ministry of Environment, Forest and Climate Change
MoU	Memorandum of Understanding
MTR	Mid Term Review
MWDT	Mahanadi Water Disputes Tribunal
MWDT	Mahadayi Water Disputes Tribunal
NABL	National Accreditation Board for Testing and Calibration Laboratories
NAPCC	National Action Plan on Climate Change
NAQUIM	National Aquifer Mapping and Management program
NBWUE	National Bureau of Water Use Efficiency
NCA	Narmada Control Authority
NCDS	National Committee on Dam Safety
NCR	National Capital Region
NCSDP	National Committee on Seismic Design Parameters
NDB	New Development Bank
NDSA	National Dam Safety Authority
NEHARI	North Eastern Hydraulic & Allied Research Institute
NEIAH	North Eastern Institute of Ayurveda and Homeopathy
NERIWALM	North Eastern Regional Institute of Water and Land Management
NGM	Namami Gange Mission
NGOs	Non-Governmental Organizations
NGRBA	National Ganga River Basin Authority
NGRI	National Geophysical Research Institute
NHP	National Hydrology Project
NIC	National Informatics Centre
NIELIT	National Institute of Electronics & Information Technology
NIH	National Institute of Health
NIH	National Institute of Hydrology
NIRA	National Interlinking of Rivers Authority
NMC	Narmada Main Canal
NMCG	National Mission for Clean Ganga

NOC	No Objection Certificate
NPCC	National Projects Construction Corporation Limited
NPP	National Perspective Plan
NRCD	National River Conservation Directorate
NRCP	National River Conservation Plan
NRIADD	National Research Institute of Ayurvedic Drug Development
NRLD	National Register of Large Dams
NWAs	National Water Awards
NWDA	National Water Development Agency
NWIC	National Water Informatics Centre
NWM	National Water Mission
NYKS	Nehru Yuva Kendra Sanghatan
O&M	Operational and Maintenance
ODF	Open Defecation Free
OFD	On-Farm Development
ONGC	Oil and Natural Gas Commission
PDA	Pancheshwar Development Authority
PDN	Piped Distribution Network
PDS	Purpose Driven Studies
PFR	Pre-Feasibility Report
PIC	Permanent Indus Commission
PIM	Participatory Irrigation Management
PIP	Polavaram Irrigation Project
PIPs	Public Interaction programs
PIRC	Project Implementation Review Committee
PKC	Parbati-Kalisindh-Chambal
PMAY	Pradhan Mantri Awas Yojana
PMC	Project Management Consultant
PMGSY	Pradhan Mantri Gram Sadak Yojana
PMKSY	Pradhan Mantri Krishi Sinchayee Yojana
PMO	Project Monitoring Organization
PMU	Project Monitoring Unit

PPA	Polavaram Project Authority
PPIC	Pressurized Piped Irrigation Command
PRAWAH	Progressive River Authority for Welfare and Harmony
PSs	Problem Statements
PVI	Preventive Vigilance Inspections
R&D	Research & Development
R.E.	Revised Estimates
RBM	River Basin Management
RBOs	River Basin Organizations
RBWT	Ravi-Beas Water Tribunal
RCC	Revised Cost Committee
RCNCA	Review Committee for Narmada Control Authority
RD & PP	River Development and Public Policy
RF	Rajasthan Feeder
RFD	River Front Development
RGNGWTRI	Rajiv Gandhi National Ground Water Training & Research Institute
RGoB	Royal Government of Bhutan
RMBA	River Management Activities& Works related to Border Areas
RMIS	Rationalization of Minor Irrigation Statistics
RRR	Repair Renovation & Restoration
RTDAS	Real Time Data Acquisition System
RTWQMS	Real-Time Water Quality Monitoring Stations
RWHS	Rain Water Harvesting Structures
SCDS	State Committee on Dam Safety
SDSO	State Dam Safety Organization
SF	Sirhind Feeder
SHAISYS	Seismic Hazard Assessment Information System
SIH	Smart India Hackathon
SIMP	Support for Irrigation Modernization Program
SITC	Supply, Installation, Testing & Commissioning
SLCR	Smart Laboratory for Clean River
SMI	Surface Minor Irrigation

SoI	Survey of India
SPCBs	State Pollution Control Boards
SPR	State Projects
SPV	Special Purpose Vehicle
SSCAC	Sardar Sarovar Construction Advisory Committee
SSDS	Sun Kosi Storage cum Diversion Scheme
SSP	Sardar Sarovar Project
STAC	Standing Technical Advisory Committee
STPI	Software Technology Parks of India
STPs	Sewage Treatment Plants
SWIC	State Water Informatics Centers
SWQ	Surface Water Quality
SYL	Sutlej-Yamuna Link
TA	Technical Assistance
TAC	Technical Advisory Committee
TARC	Technical Advisory and Review Committee
TB	Tungabhadra Board
TDA	Tarakeswar Development Authority
TEC	Techno-Economic Clearance
TEM	Transient Electro-magnetic
TMC	Thousand Million Cubic Feet
TPGVA	Third Party Government Verification Agency
TPP	Thermal Power Plants
TWW	Treated Waste Water
USO	United Schools Organization
UYRB	Upper Yamuna River Board
UYRC	Upper Yamuna Review Committee
VES	Vertical Electrical Sounding
VTC	Vocational Testing Center
VWDT	Vansadhara Water Dispute Tribunal
VWSCs	Village Water & Sanitation Committees
WALMI	Water and Land Management Institute

WAPCOS	Water and Power Consultancy Services Limited
WARIMS	Water and Allied Resources Information and Management System
WHIS	World Heritage Irrigation Structures
WII	Wildlife Institute of India
WIMS	Water Information Management System
WMCs	Water Management Committees
WRCD	Water Resources Division Council
WRI	World Resources Institute
WRIS	Water Resources Information System
WSPs	Water Security Plans
WUAs	Water Users' Associations
WUS	Water User Society

Chapter 1

Overview



1. Overview

1.1 INTRODUCTION

Water is fundamental to the sustenance of all forms of life on the earth. With the increasing population, socioeconomic shifts, and changes in consumption patterns, the demand for water continues to rise. This presents significant challenges for nations in effectively managing their water resources within the constraints of available supply. While it is crucial for nations to meet the water needs of their people and economy, they must also ensure that its water resources are managed efficiently and judiciously.

The Department of Water Resources, River Development and Ganga Rejuvenation (DoWR, RD & GR), Ministry of Jal Shakti 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. DoWR, RD & GR is also responsible for water quality assessment; rejuvenation of river Ganga and its tributaries and also conservation and abatement of pollution in other rivers.

The Department 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.

The Department performs its functions with the support of its following specialized agencies:

- **Two attached offices:** Central Water Commission and Central Soil & Materials Research Station;
- **Seven sub-ordinate offices:** Central Ground Water Board, Central Water and Power Research Station, Ganga Flood Control Commission, Bansagar Control Board, Upper Yamuna River Board, Farakka Barrage Project and National Water Informatics Centre;

- Sixteen Registered Societies, Autonomous Bodies or Statutory Bodies:** National Water Development Agency, National Water Mission, National Institute of Hydrology, North Eastern Regional Institute of Water and Land Management, National Mission for Clean Ganga, Narmada Control Authority, Brahmaputra Board, Betwa River Board, Tungabhadra Board, Polavaram Project Authority, Krishna River Management Board & Godavari River Management Board, Cauvery Water Management Authority, Ken Betwa Link Project Authority, Mahadayi Progressive River Authority for Welfare and Harmony and National Dam Safety Authority.
- Two public sector enterprises:** Water and Power Consultancy Services Limited (WAPCOS) and National Projects Construction Corporation Limited (NPCC).

The Ministry of Jal Shakti is headed by the Hon'ble Union Minister Shri Gajendra Singh Shekhawat, who assumed charge on 31st May, 2019.

Shri Bishweswar Tudu assumed charge of Hon'ble Ministers of State on 8th July, 2021. Shri Rajeev Chandrasekhar was assigned the charge of Hon'ble Ministers of State in Ministry of Jal Shakti on 7th December 2023. Ms. Debashree Mukherjee has taken charge as the Secretary of the Department on 3rd October, 2023. The organization chart of the Department is given at **Annexure-I**. The present staff strength of the Department (as on 31.03.2024) is given at **Annexure-II**. The list of names and addresses of senior officers and heads of organizations under the Department is given at **Annexure-III**.

There are 12 wings in the Department, viz; Administration, Brahmaputra & Barak, Command Area Development and Water Management, Economic Advisory, Flood Management, Finance, International Cooperation and Ground Water, Indus, Minor Irrigation Statistics, Ganga Rejuvenation, River Development & Public Policy and State Projects.

Box. 1: 8th INDIA WATER WEEK-2024

The Ministry of Jal Shakti, Government of India, conceptualized and organized India Water Week in 2012, and it has since grown into a significant event. Designed as a 5-day conference and exhibition, it stands as India's premier international water resources gathering. Since its inception, the event has been a testament to the government's commitment to addressing water-related challenges on a global scale.

Even with 70% of the earth's surface covered with water, for many people, accessing this precious resource is still a daily struggle. The demand for clean and accessible water resources will only escalate, exacerbated by population growth, urbanization, climate change impacts, and resource depletion. Addressing these challenges and ensuring equitable distribution of this valuable resource requires a collective approach that transcends individual capabilities or sectors. Such cooperation enables the development and implementation of inclusive strategies that consider diverse perspectives, local contexts, and sustainability measures.

In addition, these partnerships promote innovation, ensure efficient resource allocation, and build resilient water systems that can withstand evolving challenges, ultimately fostering long-term socio-economic and environmental well-being, forging a path towards a future where water development is not only sustainable but inclusive.

Hon'ble Union Minister of Jal Shakti has launched the 8th India Water Week 2024 from 17th to 21st, September, 2024 on 14th December, 2023 to emphasize **"Partnerships and Cooperation for Inclusive Water Development and Management."**

Box. 2: 2nd All India Secretaries Conference on Water Vision @ 2047

"All India Secretaries' Conference on Water Vision @ 2047 – Way Ahead" was held on 23rd - 24th January, 2024 at Mahabalipuram, Tamil Nadu by National Water Mission (NWM), Department of Water Resources, River Development and Ganga Rejuvenation. The progress made by State/ UT Governments on 22 recommendations during the "1st All India Annual State Ministers' Conference on Water" with the theme "Water Vision @ 2047" which was held on 5-6th January, 2023 at Bhopal were discussed and the best practices & review action taken on various water related issues were highlighted.

The conference was divided into five thematic sessions in the area of water management i.e. 'Climate Resilience & River Health', 'Water Governance', 'Water use efficiency', 'Water Storage & Management' and 'People's Participation /Jan Bhagidari'.

The best practices under 'Jal Shakti Abhiyan: Catch The Rain' was launched during the event in form of an eBook.

Hon'ble Minister of Jal Shakti flagged the dire needs of collaboration and innovation to ensure the sustainable management of water for the well-being of our communities and the environment. He also reaffirmed the commitment to strengthen the Centre-State partnership for achieving goals of water security in the country.

Box. 3: Launch of "Jal Shakti Abhiyan: Catch the Rain-2024" Campaign

National Water Mission (NWM), Department of Water Resources, River Development and Ganga Rejuvenation (DoWR), Ministry of Jal Shakti organized the event launch of "Jal Shakti Abhiyan: Catch the Rain-2024" Campaign with the theme "Nari Shakti Se Jal Shakti" in collaboration with Jal Jeevan Mission, Department of Drinking Water & Sanitation, Ministry of Jal Shakti on 9th March, 2024 at NDMC Convention Centre, New Delhi.

The event was graced by Shri Gajendra Singh Shekhawat, Hon'ble Minister of Jal Shakti. The Hon'ble Minister virtually launched two books namely "Jal Shakti Abhiyan 2019 to 2023- The Journey for Sustainable Water Future" and "101 glimpse of Women Power: Through the prism of Jal Jeevan Mission". Two short films "Jal Shakti Abhiyan 2019 to 2023 – A public led movement marching towards Water Security" and "Short films of Jal Jeevan Mission" and documentary of Ladakh were also screened during the event.

The event witnessed participation of women warriors from diverse backgrounds such as Sarpanchs, VWSC members, pump operators, etc. who shared their experiences, challenges and successes in championing water conservation efforts from the State Governments as their stories will serve as a source of inspiration, shedding light on the transformative impact women have in nurturing sustainable water practices.

Box 4: International Conference on Dam Safety 2023

The International Conference on Dam Safety 2023 organised by the Department of Water Resources, River Development & Ganga Rejuvenation, Ministry of Jal Shakti in Jaipur during 14-15th September 2023. It was inaugurated by Hon'ble Vice President of India, in presence of Hon'ble Union Minister of Jal Shakti and various other Dignitaries.

The conference brought together experts, technocrats, researchers, administrators and professionals from around the world to exchange ideas, share experiences and foster collaboration in the field of dam safety. Various technical sessions were organised during the two-day conference to enable foremost experts and leaders in the field to strengthen capacities for enhancing dam safety. About 800 delegates participated in this Conference, and 51 technical papers were presented by leading experts of various domains.

Government of India Initiatives on Dam Safety and Management were shared followed by other presentations covering the topics of the Dam Safety Status of Maharashtra, regulating Dam Safety within the Australian State of New South Wales (NSW) sharing valuable experiences from Australia. Collaboration between Denmark & India on Water Management elaborating on the various collaboration efforts between the two nations along with the collaboration between Australia & India on Water Management highlighting bilateral cooperation in water management and World Bank Initiatives on Dam Management providing insights into the World Bank's initiatives in the field were also presented in the conference.

Box 5: 5th National Water Awards

The 5th National Water Awards for year 2023 have been launched on 13th October, 2023 to create awareness among the people about the importance of water and attempts to motivate them to adopt the best water usage practices. The event will also provide an occasion for all people and organizations to further cement a strong partnership and people engagement in water resources conservation and management activities.

The National Water Awards (NWAs) were introduced to recognize and encourage exemplary work and efforts made by States, Districts, individuals, organizations, etc. across the country in accomplishing the government's vision 'Jal Samridh Bharat'. It aims to sensitize the public about the importance of water and motivates them to adopt the best water usage practices. The award winners in different categories will be presented with a citation, trophy, and cash prize. The objective of the National Water Awards is to encourage the stakeholders to adopt a holistic approach toward water resource management in the country as surface water and groundwater play a significant role in the water cycle.



The 10 categories under 5th NWA, 2023 are Best State, Best District, Best Village Panchayat, Best Urban Local Body, Best Institution (other than School/College), Best School or College, Best Civil Society, Best Water User Association, and Best Individual for Excellence and Best Industry.

1.2 MAJOR SCHEMES AND PROGRAMMES

Some of the activities and achievements of the Department under various schemes are summarized below (details are covered under Chapter-3 and Chapter-7).

PRADHAN MANTRI KRISHI SINCHAYEE YOJANA (PMKSY)

AIBP: PRIORITIZATION OF 99 PROJECTS:

- A large number of irrigation

projects taken up under Accelerated Irrigation Benefits Programme (AIBP) after its launch in 1996-97 were languishing due to inadequate provision of funds. Consequently, large amount of funds spent on these projects were locked up and the benefits envisaged could not be achieved.

- A committee under the Chairmanship of Hon'ble Minister (WR), Chhattisgarh was constituted vide MoWR, RD & GR order dated

- 02.03.2016 to look into the issues related to implementation of PMKSY. The committee in consultation with States identified ninety-nine (99) ongoing irrigation projects under AIBP for completion in phases up to December, 2019.
- Pari-passu implementation of command area development works in the Commands of these projects is envisaged to ensure that the irrigation potential created may be utilized by the farmers.
- The arrangement of funds for Central Assistance (CA) was made through NABARD under Long Term Irrigation Fund (LTIF) as per year-wise requirements which would be paid back in 15 years' time. Further, the State Governments, if required, may also borrow funds from NABARD for the State share.
- In January, 2020, Ministry of Finance conveyed the continuation of ongoing centrally sponsored scheme up to 31.03.2021.
- The Union Government approved continuation of PMKSY on 15.12.2021 for the period 2021-26 along with permission for inclusion of new major and medium projects under PMKSY-AIBP. Funding of Renuka ji and Lakhwar National Projects were also approved to be funded through PMKSY-AIBP.
- Funding arrangements for central assistance during 2021-26 has been

approved through budgetary allocations whereas state share for balance priority projects (out of 99 projects identified during 2016-17) through long term irrigation fund (LTIF) with loan from NABARD.

- The progress of the projects in physical as well as financial terms is monitored through the field units of Central Water Commission.
- Social audit in 10% of the projects in each State after completion is contemplated.

COMMAND AREA DEVELOPMENT AND WATER MANAGEMENT (CAD&WM)

Programme Components

The activities covered under CAD&WM component of a Project are broadly categorized as 'Structural' and 'Non-Structural' interventions, as detailed below:

- Structural Intervention: includes survey, planning, design and execution of:
 - On-Farm Development (OFD) works;
 - Construction of field, intermediate & link drains;

During 12th Plan period, a Culturable Command Area (CCA) of 7.6 million ha was been targeted with central assistance amount of Rs. 15,000 crores which was subsequently reduced to 3.6 million ha during mid-term appraisal. From 2015-16, the programme came

under HKPP component of PMKSY with a target of 1.5 million ha. Subsequently, from 2016-17 onwards, the role of programme has been restricted to 99 prioritized AIBP projects, under which the target was 4.5 million hectares. Against this, the achievement till March, 2023 has been reported to be about 1.79 million hectares, with release of central assistance of Rs.2954.46 crore during this period.

Participatory Irrigation Management (PIM)

National Water Policy stresses participatory approach in water resources management. It has been recognized that participation of beneficiaries will help greatly in the optimal upkeep of irrigation system and effective utilization of irrigation water. The participation of farmers in the management of irrigation would include transfer responsibility for operation & maintenance and also collection of water charges to the water users' association (WUA) in their respective jurisdiction. One-time functional grant @Rs. 1,200/-per hectare, to be shared by the Centre, State as well as farmers in the ratio of 45:45:10 respectively, is being paid to outlet level water users associations as incentive, the interest from which is to be used for maintenance. Apart from this, an amount of Rs. 3.00 lakh (60%-Central: 40%-State) is being provided to each WUA as one-time infrastructure grant.

Irrigation Reforms: Smart Irrigation through Modernization of CADWM

works (MCAD)

The Ministry is in the process of bringing irrigation reforms by modernization of CADWM component of PMKSY to make it more relevant in the current context. This smart irrigation scheme also envisages to transform the existing command (whether rain fed or gravity based) to a Pressurized Piped Irrigation Command (PPIC) by providing pressurized irrigation water from established canal source to farm gate below Minor (Tertiary) Level Network. This will make the entire canal command area as micro-irrigation ready for farmers by providing robust backend infrastructure for Surface Water. The Micro-Irrigation will shift to Surface Water and the dependency on the Ground Water will reduce.

An ideal size of the cluster can be from 50 Ha up to 5000 Ha. Assuming average land holding of 1 Ha per farmer this will lead to a Water User Society [WUS] from 50 to 5000 farmers.

The major areas of reforms under the proposed modernization are as:

- Institutional Changes by farmer education on Water User Society (WUS) and Micro-Irrigation (MI).
- Technology Changes by Pressurized Piped Irrigation Command (PPIC) with Internet of Things (IOT) based Smart irrigation on tertiary distribution system.
- Water Accounting & Monitoring by

- Geo mapping, App, MIS, water accounting with AI.
- On Farm Management by providing data to farmers for rational farm management plans, sensors, IMD data, eco system trainings to use agri robots and drones.
- Develop WUS into an Economic Entity by handholding for five years and Irrigation Management Transfer (IMT) to the WUS for subsequent maintenance to its own funds.
- The overall benefits of the MCAD shall be many, related to water conservation, accounting, pricing, management and maintenance.

IMPLEMENTATION OF PMKSY- AIBP (INCLUDING CADWM) DURING 2021-26

- PMKSY-AIBP including CAD&WM has been approved for implementation with an outlay of Rs. 23,918 crores (central assistance) during 2021-26 for completion of 60 ongoing AIBP and 85 ongoing CAD&WM projects, along with financial assistance of new major and medium irrigation projects. Funding of National Projects, including Renuka and Lakhwar Projects, is also approved.
- Financial progress requirement is dropped for inclusion of a project under AIBP and only physical progress of 50% to be considered.
- Advanced stage (50% physical progress) criteria is relaxed for

projects having command area of 50% or more in Drought Prone Area Programme (DPAP), Desert Development Programme (DDP), flood prone, Tribal area, Flood prone area, left wing extremism affected area, Koraput, Balangir and Kalahandi (KBK) region of Odisha, Vidarbha & Marathwada regions of Maharashtra and Bundelkhand region of Madhya Pradesh & Uttar Pradesh, as also for Extension Renovation Modernisation (ERM) projects and also for States with net irrigation below national average.

- Reimbursement is allowed for due central assistance in subsequent years also.
- Project completion permitted with physical progress of 90% or more.
- Central Assistance of Rs. 20235.91 crore (AIBP: Rs. 17107.12 crore; CADWM: Rs. 3128.79 crore) has been provided for these projects from 2016-17 to 2023-24, out of which Rs. 1508.21 crore (AIBP: Rs. 1333.82 crore; CADWM: Rs. 174.39 crore) has been provided during the Year 2023-24. So far, 8 new MMI and 2 new National projects have been included under PMKSY AIBP.

HAR KHET KO PAANI: SURFACE MINOR IRRIGATION (SMI) SCHEMES AND REPAIR, RENOVATION & RESTORATION (RRR) OF WATER BODIES

Under the SMI scheme, since 2015-16, 7,304 schemes are ongoing with an

estimated cost of Rs. 15,506 crores. Under the RRR of Water Bodies scheme, since 2015-16, 3,075 schemes are ongoing with an estimated cost of Rs. 2,835 crores. In the approval by Government of India for continuation of the scheme during 2021-22 to 2025-26, 4.5 lakh hectare of minor irrigation using surface water is targeted through SMI and RRR of water bodies. Cost norm of development of irrigated land under SMI has been revised from Rs. 2.5 lakh to Rs. 4 lakhs per hectare. Inclusion criteria for RRR of water bodies has been revised in terms of size from minimum 5 hectares to 2 hectares (1 hectare for north eastern and Himalayan States) for rural areas, and from 2-10 hectare in urban areas to 1 hectare (0.5 hectare for north eastern and Himalayan States). Funding pattern for RRR of water bodies component has also been enhanced from 25% to 60% for non-special category regions. The outlay for SMI & RRR of water bodies scheme for implementation during 2021-26 is Rs. 4,580 crores.

HAR KHET KO PAANI- GROUND WATER SCHEME (PMKSY-HKKP-GW)

PMKSY- Har Khet Ko Pani-Ground Water scheme, launched by DoWR, RD & GR envisages to provide irrigation facility for small and marginal farmers in areas having sufficient potential for future development of ground water.

During the year 2023, an amount of Rs. 29.71 crore has been released (01.01.2023 to 31.03.2024) to the projects in the States of Assam, Arunachal Pradesh,

Gujarat, Manipur, Mizoram, Nagaland, Tripura, Tamil Nadu, Uttar Pradesh and Uttarakhand towards central assistance and 550 wells have been constructed creating additional command area of 11305 Ha, benefitting 1309 small & marginal farmers.

IRRIGATION CENSUS SCHEME

“Rationalization of Minor Irrigation Statistics (RMIS)” was launched in 1987-88 in the DoWR, RD & GR, MoJS, with 100% central assistance to the States/ UTs. In 2017-18, the scheme was renamed as “Irrigation Census” and brought under the centrally sponsored umbrella scheme, “PMKSY and other schemes” to build up a comprehensive and reliable database in the Minor Irrigation (MI) sector for effective planning and policy making.

The continuation of the Irrigation Census scheme for a period of 5 years from 2021-22 to 2025-26 has been approved with a total outlay of Rs.237 crores for conducting 7th MI Census and 2nd Census of water bodies after completion of 6th MI Census and 1st Census of water bodies. Further, it is also proposed to conduct 1st census of Major and Medium Irrigation projects and 1st census of Springs also under 'Irrigation Census' scheme. 6th MI Census and 1st Census of Water Bodies has been completed successfully and reports of both the censuses have been uploaded on the website of the Ministry.

SPECIAL PACKAGE FOR COMPLETION OF IRRIGATION PROJECTS TO ADDRESS

AGRARIAN DISTRESS IN VIDARBHA AND MARATHWADA REGION AND DROUGHT PRONE AREAS OF REST OF MAHARASHTRA

The approval of the above scheme was given on 18.07.2018. The proposal aims to provide special package of Rs. 3,831.41 crore as central assistance to complete 83 SMI and 8 MMI (Major & Medium Irrigation) projects benefitting 12 districts of Vidarbha, Marathwada and drought prone areas of rest of Maharashtra. So far 45 SMI and 1 MMI project have been completed. The scheme has been extended till March 2025 for completion of balance works.

NATIONAL MISSION FOR CLEAN GANGA (NMCG)

Government of India approved the Namami Gange Mission on 13th May 2015 as a comprehensive and integrated approach for Ganga river rejuvenation and its tributaries. The programme was subsequently extended up to 31st March 2026 with a budgetary outlay of Rs. 22,500 crores from April 2021 to March 2026.

ATAL BHUJAL YOJANA (ATAL JAL)

Atal Bhujal Yojana (ATAL JAL) is being implemented since April, 2020 in 8,213 water stressed Gram Panchayats of 229 administrative blocks/ Talukas in 80 districts of seven States, viz. Gujarat, Haryana, 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.

GROUND WATER MANAGEMENT AND REGULATION (GWMR) SCHEME

Ground Water Management and Regulation scheme is a continuing Central Sector Scheme, which is being implemented since 2007-08 by Central Ground Water Board (CGWB). One of the major activities under the scheme is National Aquifer Mapping & Management (NAQUIM) Programme, under which it was targeted to cover approximately 25 lakh sq km of mappable area and it has been covered by 31st March 2023. In addition to above other activities like ground water level & quality monitoring, assessment of dynamic ground water resources, regulation and control of ground water withdrawal, demonstrative recharge projects etc. are also being carried out. Further, in order to scale up the aquifer mapping and ground water monitoring activities, CGWB is implementing a PIB approved project under which constructions of exploratory and observation wells, piezometers and installation of Digital Water Level Recorders (DWLRs) will be taken up on a national scale with an outlay of Rs. 805 Crore. Tendering activities for most part have been completed and work has been awarded for a value of Rs. 343 Crore.

FLOOD FORECASTING

Central Water Commission (CWC) is providing flood forecasting services at 338

stations, of which 200 are level forecasting stations on major rivers and 138 are inflow forecasting stations on major dams/barrages. 5 new stations (1 Level and 4 Inflow) have started functioning during the year 2023. Flood Forecast operations cover the 20 major river systems in the country across 25 States and UTs.

FLOOD MANAGEMENT & BORDER AREAS PROGRAMME (FMBAP)

The States/UTs are provided promotional central financial assistance through Flood Management Programme (FMP) and River Management Activities & Works related to Border Areas (RMBA) schemes of Department, which have been merged into a single scheme titled FMBAP which is under implementation.

NATIONAL PROJECTS

The Implementation of National Projects was approved in 2008 with central assistance to projects which meet the following criteria:

- International project where usage of water in India is required by a treaty or where planning and early completion of the project is necessary in the interest of the country.
- Inter-State projects which are dragging on due to non-resolution in inter-State issues relating to sharing of costs, rehabilitation, aspects of power production, etc., including river inter-linking projects.

	Category	Central: State
A	Projects in North-Eastern and Hilly States	90:10
B	Projects in other States	60:40

Sixteen projects have been declared as national projects so far. These projects are: Gosikhurd Irrigation Project, Shahpurkandi Dam Project, Teesta Barrage Project, Saryu Nahar Pariyojna, Polavaram Irrigation Project, Lakhwar Multipurpose Project, Renuka Dam Project, Kishau Multipurpose Project, Ujh Multipurpose Project, Ken-Betwa Link Project, Kulsi Dam Project, Noa-Dihing Dam Project, Bursar Hydro Electric Project, Gyspa Hydro Electric Project, 2nd Ravi Vyas Link Project and Upper Siang Project.

National projects are taken up for execution after the concerned States obtain techno-economic clearance, other statutory clearances and investment clearance.

NATIONAL HYDROLOGY PROJECT (NHP)

NHP with support from the World Bank, envisages establishing a system for timely and reliable water resources data acquisition, storage, collation and management. It has pan-India coverage with 48 Implementing Agencies (IAs) (including 9 from Central Government, 3 from River Basin Organisations, 36 from States/UTs). It will also provide tools and systems for informed decision making for water resources assessment, planning and management. The National Hydrology

Project has been approved with an outlay of Rs. 3,679.77 crores as a Central Sector Scheme with 100% grant to State Governments and Central Implementing Agencies. The project has a duration of 8 years from 2016-17 to 2023-24, However, Department of Expenditure has granted conditional extension upto September 2025 within the same allocation.

DAM REHABILITATION AND IMPROVEMENT PROJECT (DRIP)

DRIP is an externally aided project with financial assistance from the World Bank, targeting rehabilitation of some of the selected dams of the country along with accompanying institutional strengthening component.

DRIP (Phase-I)

World Bank assisted Dam Rehabilitation and Improvement Project was initiated in April 2012, with an objective to improve safety and operational performance of selected dams along with institutional strengthening with system wide management approach. 223 dams located in seven States i.e. Kerala, Madhya Pradesh, Odisha, Tamil Nadu, Karnataka, Jharkhand and Uttarakhand were taken up for rehabilitation measures for improving safety and operational performances of these dams.

DRIP: (Phase-II & III)

Based on the success of DRIP Phase-I, Ministry of Jal Shakti initiated another externally funded scheme, DRIP Phase-II and Phase-III. The scheme has provision

for rehabilitation of 736 dams located in 19 States (Andhra Pradesh, Chhattisgarh, Goa, Gujarat, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Odisha, Punjab, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh, Uttarakhand, West Bengal) and 3 Central Agencies (Central Water Commission, Bhakra Beas Management Board and Damodar Valley Corporation). It is a State Sector Scheme having central component, with duration of 10 years, to be implemented in two Phases i.e. Phase- II and Phase-III, each of six years duration with an overlap of two years.

RESEARCH AND DEVELOPMENT

Research & Development (R&D) activities under the scheme “Research and Development Programme in Water Sector and Implementation of National Water Mission” include basic and applied research, creation and up-gradation of research facilities and training of personnel implemented through the apex organizations of Department viz., CSMRS, CWPRS, NIH, and CWC. Also, the Department provides financial assistance to IITs, Universities, research organizations, etc., for taking up research in water sector through three Indian National Committees (INCs) constituted by the Department and Standing Advisory Committee headed by Secretary (WR, RD & GR). The Indian National Committees (INCs) constituted by the Department Are Indian National Committee on Surface Water (INCSW), Indian National Committee on Groundwater (INCGW) and

Indian National Committee on Climate Change (INCCC).

DEVELOPMENT OF WATER RESOURCES INFORMATION SYSTEM

DWRIS scheme is a continuing scheme of 12th five-year plan, is under implementation during 2021-22 to 2025-26 with outlay of Rs. 715 crores, for creation of reliable and sound database for policy formulation, planning and designing of water resources projects, timely dissemination of flood forecast, etc.

INTERLINKING OF RIVERS UNDER NPP

After concerted efforts taken by Ministry of Jal Shakti, a tripartite Memorandum of Agreement (MoA) for the implementation of Ken-Betwa link project was signed on 22.03.2021 amongst the Union of India, Government of Madhya Pradesh and Government of Uttar Pradesh in a virtual event in the presence of Hon'ble Prime Minister of India. The MoU for preparation of DPR and implementation of the Modified Parbati-Kalisindh-Chambal link benefitting the States of Rajasthan and Madhya Pradesh was signed on 28.01.2024.

NATIONAL RIVER CONSERVATION PLAN

The National River Conservation Directorate, functioning under the Department of Water Resources, River Development & Ganga Rejuvenation is providing financial assistance to the State Governments for conservation of rivers under the Centrally Sponsored Schemes of 'National River Conservation Plan (NRCP)'.

INDUS WATERS TREATY, 1960

Under the Indus Waters Treaty, 1960, India and Pakistan each have created a permanent post of Commissioner for Indus Waters. Each Commissioner is the representative of his government and serves as a regular channel of communication on all matters relating to implementation of the Treaty. The two Commissioners together form the Permanent Indus Commission (PIC).

1.3 ORGANIZATIONS AND INSTITUTIONS

ATTACHED OFFICES

CENTRAL WATER COMMISSION (CWC)

CWC with its headquarters at New Delhi is a premier technical organization in the field of water resources in the country since 1945. The Commission is entrusted with the general responsibility of initiating, coordinating and furthering, in consultation with the State Governments concerned, schemes for control, conservation and utilization of water resources throughout the country for the purpose of irrigation, flood control, drinking water supply and hydro-power development.

The Commission has three technical wings, namely:

- Design and Research Wing
 - Water Planning and Projects Wing
 - River Management Wing
- (Website: www.cwc.gov.in)

CENTRAL SOIL AND MATERIAL RESEARCH STATION (CSMRS)

CSMRS, New Delhi was established in 1954. CSMRS is an ISO 9001:2015 certified organization which deals with field and laboratory investigations, research and problems in geotechnical engineering, concrete technology, construction materials and associated environmental issues, having direct bearing on the development of irrigation and power in the country and functions as an adviser and consultant in the above fields to various projects and organizations in India and abroad. The Research Station is involved in the safety evaluation of existing hydraulic structures and quality control and quality assurance of construction for various river valley projects.

(Website: <https://csmrs.gov.in/>)

SUBORDINATE OFFICES

CENTRAL GROUND WATER BOARD (CGWB)

Central Ground Water Board (CGWB) operates as a subordinate office of Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti Government of India. CGWB is a multi-disciplinary scientific organization consisting of hydrogeologists, geophysicists, chemists, hydrologists, hydro-meteorologists and engineers. CGWB has about 600 scientists, 150 engineers and 3,250 supporting staff (technical, administrative and ministerial).

The Board is headed by the Chairman and has five Members who look after different regional offices and also perform other specified functions. CGWB also has five permanent members representing Central Water Commission, Ministry of Jal Shakti, Ministry of Environment, Forest & Climate Change and Oil and Natural Gas Commission (ONGC). (Website: <https://cgwb.gov.in>)

RAJIV GANDHI NATIONAL GROUND WATER TRAINING AND RESEARCH INSTITUTE (RGNGWTRI)

Rajiv Gandhi National Ground Water Training & Research Institute (RGNGWTRI), Raipur caters to training and research in the field of ground water in the country. Since 2012 (XII Plan) RGNGWTRI has been implementing a threetiered (Tier I- National Level, Tier II- State/ District Tier -III: Block Level) training programme. It also occasionally carries out training programmes related to ground water management for foreign nationals and institutes. Other important activities of RGI include conducting exams for accreditation of ground water consultants and conducting research on various aspects of ground water.

CENTRAL WATER AND POWER RESEARCH STATION (CWPRS)

CWPRS, Pune is an apex research and development institution in the field of hydraulics and allied research in the water and power sector. It has continued to serve the needs of the nation for more than 100 years through research and development

for evolving safe and economical planning and design of water resources structures, river engineering, hydropower generation, and ports and waterways projects. CWPRS has offered its services to a number of projects in the neighboring countries viz., Bangladesh, Bhutan, Afghanistan, Myanmar, Nepal, Singapore, etc., as well as countries in Middle East. (Website: www.cwprs.gov.in)

GANGA FLOOD CONTROL COMMISSION (GFCC)

GFCC was established in 1972 with its head quarter at Patna. The Commission is headed by a Chairman with two full time Members and other supporting officers and staff. The representatives of concerned Central Ministries and Departments as well as the Engineer-in-Chief/Chief Engineers of the Ganga basin States are part-time members/ permanent invites. The Commission provides technical guidance to the Ganga Basin States, namely, West Bengal, Bihar, Jharkhand, Uttar Pradesh, Uttarakhand, Chhattisgarh, Madhya Pradesh, Delhi, Haryana, Himachal Pradesh and Rajasthan on Flood Management. (Website: www.gfcc.gov.in)

BANSAGAR CONTROL BOARD (BCB)

BCB was set up vide Government of India, Ministry of Agriculture and Irrigation Resolution No.8/17/74-DW -II dated 30th January, 1976 as amended vide Resolution No.8/17/74-DW -II dated 28th March, 1978. This Resolution was in accordance with an agreement reached between the Governments of Madhya

Pradesh, Uttar Pradesh and Bihar on 16.09.1973 for sharing the waters of river Sone and the cost of the Bansagar Dam. (Website: www.bcb.nic.in)

UPPER YAMUNA RIVER BOARD (UYRB)

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

(Website: <https://jalshakti-dowr.gov.in/upper-yamuna-river-board/>)

FARAKKA BARRAGE PROJECT (FBP)

FBP was commissioned in 1975 for preservation and maintenance of the Shyama Prasad Mookerjee Port (erstwhile Kolkata Port) and for improving regime and navigability of the Bhagirathi-Hooghly river system. The Farakka Barrage Project also facilitates sharing of Ganga waters between Bangladesh and Government of India as per Treaty between the Governments of Bangladesh and India on

sharing of the Ganga waters at Farakka signed in 1996. (Website: www.fbp.gov.in)

NATIONAL WATER INFORMATICS CENTRE (NWIC)

NWIC was setup in March, 2018 as a subordinate office of the Department of Water Resources, River Development & Ganga Rejuvenation. The Centre is mandated to be a repository of nation-wide water resource data and to provide a 'single window' source of updated data on water resources and allied themes.

NWIC is presently maintaining two platforms as per details given below:

- **Water Information Management System (WIMS):** This is a centralised data aggregating platform for collection of regular time-series data for ground water and surface water resources through telemetry sensors and through web-based input facility from different data points spread across the country. Different central and State agencies are sharing their time series data on rainfall, river level, discharge, reservoir level, ground water level, surface and ground water quality etc. on the platform.
- **Water Resources Information System (India-WRIS):** This is a GIS enabled public platform (accessible through URL: <https://indiawris.gov.in/wris/#/>) for display and dissemination of water resources information. The time-series data

received through WIMS along with data on other hydro-meteorological parameters and allied themes is displayed through maps and dashboard on a GIS framework over the portal for ease of understanding of users. (Website: <https://nwic.gov.in/>)

REGISTERED SOCIETIES / AUTONOMOUS BODIES / STATUTORY BODIES

NATIONAL WATER DEVELOPMENT AGENCY (NWDA)

NWDA was set up in July 1982 as a Society under Societies Registration Act, 1860 under the then Ministry of Irrigation (now Ministry of Jal Shakti) to study the feasibility of the links under peninsular component of National Perspective Plan. NWDA is fully funded by Government of India. The functions of NWDA have been modified from time to time. (Website: www.nwda.gov.in)

NATIONAL WATER MISSION (NWM)

NWM was set up as per the National Action Plan on Climate Change (NAPCC) approved by the Government of India and released by the Hon'ble Prime Minister on 30th June 2008. NAPCC laid down the principles and identified the approach to be adopted to meet the challenges of impact of climate change through institutionalization of 8 national missions, one of which was the 'National Water Mission'. 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". (Website: www.nwm.gov.in)

NATIONAL INSTITUTE OF HYDROLOGY (NIH)

NIH, a Govt. of India Society under MoJS, DoWR, RD & GR established in December 1978 at Roorkee, is conducting basic, applied and strategic research in the fields of hydrology and water resources development. The Institute is fully aided by the MoJS, Govt. of India. The objectives of the Institute are:

- To undertake, aid, promote and coordinate systematic and scientific work on all aspects of hydrology,
- To cooperate and collaborate with other national and international organizations in the field of hydrology,
- To establish and maintain a research and reference library in pursuance of the objectives of the society and equip the same with books, reviews, magazines and other relevant publications,
- To carry out activities that the Society may consider necessary, incidental or conducive to the attainment of the objectives for which the Institute has been established.

(Website: www.nihroorkee.gov.in)

NORTH EASTERN REGIONAL INSTITUTE OF WATER AND LAND MANAGEMENT (NERIWALM)

NERIWALM is a registered Society under the administrative control of the DoWR, RD & GR. This is the only Water and Land Management Institute (WALMI) established and administered by Government of India and is serving eight States of the North East India. It imparts trainings to enhance knowledge, skill and capacity of in-service personnel working in the Departments of Water Resources/ Irrigation, Soil Conservation, Agriculture & Horticulture, Rural Development, etc. including Water Users' Associations (WUAs) and farmers in the NE region of India. Customized mid-term training programmes are also conducted on self-financed mode for BE/ B.Tech/ M.Tech/ Graduates/Post Graduate students as requested by colleges /universities for the fulfillment of their prescribe degree course. The institute develops human resources in water and land management through academic course in M.Tech in water resource management. The services of the institute are extended to State Governments and other organisations in water and land management by conducting R&D activities in the field of irrigation and agriculture. (Website: www.neriwalm.gov.in)

NATIONAL MISSION FOR CLEAN GANGA (NMCG)

NMCG was registered as a society on 12.08.2011 under the Societies

Registration Act, 1860. It acted as the implementation arm of National Ganga River Basin Authority (NGRBA), which was constituted under the provisions of the Environment Protection Act (EPA), 1986. NGRBA has since been dissolved with effect from 07.10.2016, consequent to the constitution of National Council for Rejuvenation, Protection and Management of River Ganga (referred as National Ganga Council) vide notification no. S.O. 3187(E) dated 07.10.2016 under EPA, 1986. (Website: <https://nmcg.nic.in/>)

NARMADA CONTROL AUTHORITY (NCA)

NCA and Review Committee were constituted in 1980 for proper implementation of the decisions and directions of the Narmada Water Disputes Tribunal vested with powers for implementation of the orders of the Tribunal with respect to the storage, apportionment, regulation and control of the Narmada water, sharing of power benefits from Sardar Sarovar Project (SSP), regulated release of water by Madhya Pradesh, acquisition of land likely to be submerged under the Sardar Sarovar Project by the concerned States, compensation, resettlement / rehabilitation of the oustees, sharing of costs and implementation of the environmental safeguard measures. (Website: www.nca.gov.in)

BRAHMAPUTRA BOARD (BB)

BB was constituted by an Act of Parliament and received the assent of the

President on 01.09.1980 for planning and integrated implementation of measures for the control of floods and bank erosion in the Brahmaputra valley and for matters connected therewith.

A High Powered Review Board to oversee the work of the Brahmaputra Board was constituted with the Union Minister of Jal Shakti as the Chairman, Chief Ministers of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, and Union Minister / Ministers of State - Finance, Surface Transport, Power, Agriculture, Ministers of State of Jal Shakti and Secretary to the Ministry of Jal Shakti, DoWR, RD & GR, Chairman of Central Water Commission as Members and Chairman of Brahmaputra Board as the Member-Secretary. Member (RM), CWC is a permanent invitee. (Website: www.brahmaputraboard.gov.in).

BETWA RIVER BOARD (BRB)

BRB was constituted in 1976 by an Act of Parliament to execute the Rajghat Dam Project and Power House. The project authority started construction of the project under the overall guidance of Betwa River Board after promulgation of Betwa River Board Act 1976. The benefits and cost of the above projects are being shared equally by both the State Governments of UP and Madhya Pradesh. (Website: www.brb.nic.in)

TUNGABHADRA BOARD (TB)

TB was constituted by the President

of India in exercise of the powers vested under sub section (4), section 66 of Andhra State Act, 1953 for completion of the Tungabhadra Project and for its operation and maintenance. The Board consists of a Chairman, appointed by the Government of India, and four Members, one each representing the States of Andhra Pradesh, Telangana, Karnataka and Government of India. Board exercises powers of a State Government under various codes, manuals, rules and regulations while discharging the functions on administrative matters of the project. (Website: <http://tbboard.gov.in>).

POLAVARAM PROJECT AUTHORITY (PPA)

Polavaram Irrigation Project (PIP) is a multi-purpose irrigation project on the river Godavari near Ramayyapeta village of Polavaram mandal in West Godavari District of Andhra Pradesh for construction of a dam to create ultimate irrigation potential. The project also envisages generation of 960 MW of hydro power, drinking water supply to 28.50 lakh population, diversion of 80 TMC of water to Krishna river basin. The project has been declared as a National Project as per section 90 of Andhra Pradesh Reorganization Act, 2014. (Website: <https://ppa.gov.in>)

APEX COUNCIL AND KRISHNA & GODAVARI RIVER MANAGEMENT BOARDS

In exercise of the powers conferred by sub-section (1) of section 84 of the

Andhra Pradesh Reorganisation Act, 2014 (APRA 6 of 2014), the Central Government had constituted the Apex Council under the chairmanship of Hon'ble Minister for Water Resources (now, renamed as Minister of Jal shakti) with Hon'ble Chief Ministers of the States of Telangana and Andhra Pradesh as Members for supervision of the functioning of the Godavari River Management Board (GRMB) and Krishna River Management Board (KRMB) vide Gazette Notification dated 29th May, 2014. Two meetings of the Apex Council were held so far. The 1st meeting was held on 21.09.2016. The 2nd Meeting of the Apex Council was held through video conferencing on 06.10.2020 under the chairmanship of Hon'ble Minister, MoJS in which inter alia, it was decided that jurisdiction of GRMB and KRMB shall be notified by Government of India.

In pursuance, the jurisdiction of GRMB has been notified by Central Government vide Notification S.O.No.2843 (E) dated 15.07.2021 for administration, regulation, maintenance and operation of specified projects/components in Telangana and Andhra Pradesh. The provisions of notification have become effective from 14th October, 2021. (Website: <https://grmb.gov.in/>)

The Central Government vide notification No S.O.2843 (E) dated 15th July 2021 has notified the Jurisdiction of GRMB by listing Projects under Schedule- I, Schedule-2 and Schedule-3.

The Schedule-I lists Headworks (Barrages, Dams, reservoirs, regulating structures, part of canal Network and Transmission lines of the Projects/ Components over which the Board will ordinarily have Jurisdiction.

Schedule-2 (a subset of Schedule-1) specifies the head works (barrages, dams, reservoirs, regulating structures) and part of canal network of the projects or components and transmission lines of both States of Andhra Pradesh and Telangana over which the GRMB shall have jurisdiction and shall perform the functions as per the provisions of sub-section (1) of section 85 of APRA, such as, administration, operation, maintenance and regulation.

Schedule-3 (a subset of Schedule-1) specifies the head works (barrages, dams, reservoirs, regulating structures), part of canal network of projects or components and transmission lines of both States of Andhra Pradesh and Telangana over which the GRMB shall have jurisdiction, but functions as provided in sub-section (1) of section 85 of APRA shall be performed by the respective States on behalf of the GRMB as per directions of the said Board.

The said notification came into force with effect from 14th October 2021. The said notification also stipulated that the State Governments shall get complete the unapproved projects appraised and approved within six months. If approvals are not obtained within the stipulated time of 6 months such completed unapproved

projects shall cease to operate. The Central Government vide Notification No.S.O.1562 (E) dated 1st April 2022 has extended the time period for appraisal and approval from six months to one year.

CAUVERY WATER MANAGEMENT AUTHORITY (CWMA)

The Central Government in exercise of the powers conferred by section 4 of the Inter-State River Water Disputes Act, 1956 (33 of 1956) constituted the Cauvery Water Disputes Tribunal vide Notification Number S.O. 437 (E), Dated the 2nd June, 1990 to adjudicate upon the water disputes regarding the inter-State river Cauvery and the river valley thereof, among the States of Karnataka, Kerala, Tamil Nadu and Union Territory of Puducherry.

The Cauvery Water Disputes Tribunal submitted its reports and decision under section 5(2) of Inter-State River Water Disputes Act, 1956 to Government on 5th February, 2007. The decision of CWDT was published by the Central Govt. vide Gazette Notification dated 19.2.2013. Supreme Court in its judgement dated 16.02.2018, slightly modified CWDT Order. Hon'ble Supreme Court also directed Central Government to formulate a 'scheme' to implement the CWDT's Order as modified by it. Thereafter, in exercise of the powers conferred by section 6A of the said Act, the Central Government notified the Cauvery Water Management Scheme on 01st June, 2018, inter alia, constituting the 'Cauvery Water Management Authority' (CWMA) and the

'Cauvery Water Regulation Committee' (CWRC) to give effect to the decision of the Cauvery Water Disputes Tribunal as modified by the Hon'ble Supreme Court on 16.02.2018.

NATIONAL DAM SAFETY AUTHORITY (NDSA)

Ministry of Jal Shakti Govt. of India vide gazette notification dated 17.02.2022 constituted National Dam Safety Authority (NDSA) with its headquarters at New Delhi. NDSA is headed by the Chairman and assisted by 5 Members viz. Member (Technical), Member (Policy and Research), Member (Regulation), Member (Disaster and Resilience) and Member (Administration and Finance). Posts of Members of NDSA are currently being held by the officers of CWC and DoWR, RD & GR on an additional charge basis. NDSA has four regional offices (North, East & North East, West and South) headed by the Director level officers of CWC on additional charge basis.

After enactment of the Dam Safety Act, Central Government, vide gazette notification dated 17.02.2022 also constituted the National Committee on Dam Safety (NCDS) to evolve dam safety policies and recommend necessary regulations as may be required. NDSA acts as a regulatory authority to implement the policy, guidelines and standards evolved by the NCDS for proper surveillance, inspection and maintenance of specified dams.

MAHADAYI - PRAWAH

Mahadayi-PRAWAH (Progressive River Authority for Welfare and Harmony) has been constituted on May 22, 2023 to give effect to the decision of the Mahadayi Water Disputes Tribunal.

KEN-BETWA LINK PROJECT AUTHORITY

Ken-Betwa Link Project Authority (KBLPA) has been constituted for the implementation of Ken-Betwa Link Project as a joint project of the Government of India and the states of Madhya Pradesh and Uttar Pradesh.

PUBLIC SECTOR ENTERPRISES

WATER AND POWER CONSULTANCY SERVICES LIMITED (WAPCOS)

WAPCOS Limited is a "MINIRATNA-I" Public Sector Enterprise under the aegis of the DoWR, RD & GR incorporated on June 26, 1969 under the Companies Act, 1956. WAPCOS is engaged in the engineering consultancy services and construction in the fields of water, power and infrastructure sectors in India and overseas. WAPCOS is providing engineering consultancy services to various clients since its incorporation in over 50 countries particularly in South Asia and across Africa. WAPCOS has the requisite experience and expertise to undertake consultancy & EPC projects of any scale and complexity in the sectors of its operations. WAPCOS portfolio of projects is diverse in nature. The Company has implemented a comprehensive quality management system in compliance with

the requirements of both ISO 9001:2015 for consultancy services in water resources, power and infrastructure development projects as well as ISO 9001:2015 for engineering, procurement and construction projects related to residential, office buildings, civil works, roads and highways, irrigation, agriculture and water projects, electrical power projects for generation, substation, transmission, distribution networks, rural electrification and renewable energy, industrial, IT, telecommunications and related projects. (Website: <http://www.wapcos.gov.in/>)

NATIONAL PROJECTS CONSTRUCTION CORPORATION LIMITED (NPCC)

National Projects Construction Corporation Limited (NPCC), a “Mini Ratna-I” Central Public Sector Enterprise under the aegis of Ministry of Jal Shakti was incorporated on 9th January, 1957 under

the Companies Act, 1956 as a premier construction company to create the necessary infrastructure for economic development of the Country. WAPCOS acquired 98.89% shareholding of National Projects Construction Corporation Limited (NPCC) as a result of which the Company has become subsidiary of WAPCOS. It is engaged in engineering, construction, planning, operation & project management consultancy. The organization operates in industrial infrastructure, thermal, hydro power projects, tunnelling & underground projects, railways, highways, surface transport projects, townships & other residential buildings, institutional buildings, office & sports complexes, bridges & flyovers, dams, weirs, barrages, Border roads, Border flood lighting & fencing works, hospitals & health sector projects, environmental engineering projects etc. (Website: <https://npcc.gov.in/>)



Chapter 2

Water Resources Scenario



2. Water Resources Scenario

2.1 WATER AVAILABILITY

The average annual water availability of any region or country is largely dependent upon hydro-meteorological and geological factors. As per the “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 comprising 690 BCM of surface water and 449 BCM of replenishable ground water. Out of this, the water potential utilized is around 691 BCM, comprising 450 BCM of surface water and 241 BCM of groundwater. 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 1,180 BCM, respectively.

Water availability per person is dependent on population of the country. Per capita water availability in the country is reducing progressively. The average annual per capita water availability in the years 2021 and 2031 was assessed as

1,486 cubic meters and 1,367 cubic meters respectively which may further reduce due to increase in population. Annual per-capita water availability of less than 1,700 cubic meters is considered as water stressed condition, whereas annual per-capita water availability below 1,000 cubic meters is considered as a water scarcity condition.

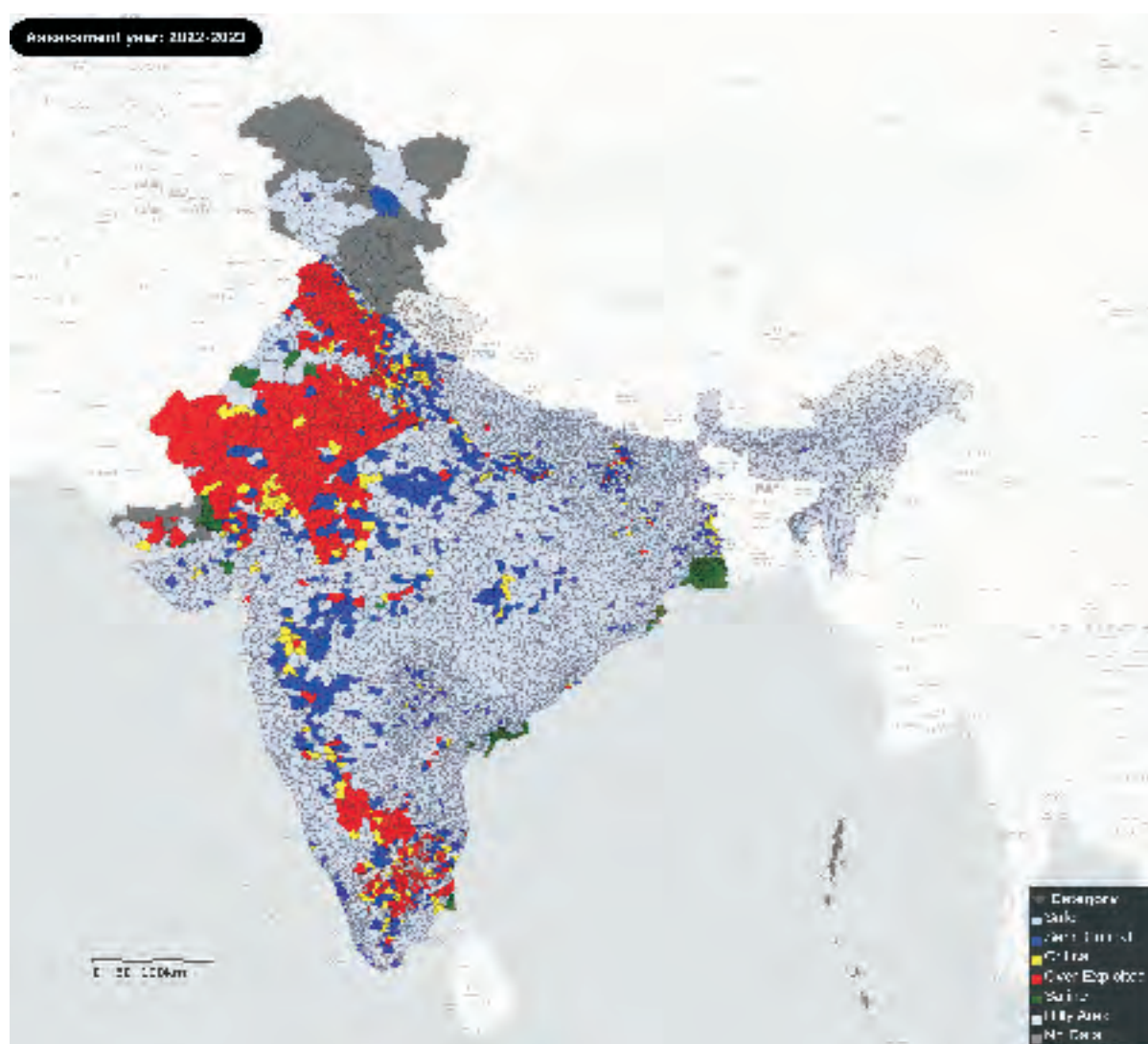
GROUND WATER RESOURCES OF INDIA

Assessment of Dynamic Ground Water Resources of India, 2023 has been carried out jointly by the Central Ground Water Board (CGWB) and State/UT Ground Water Departments under the overall coordination of the Central Level Expert Group (CLEG) constituted by DoWR, RD & GR, MoJS. The methodology prescribed by the Ground Water Estimation Committee-2015 was used in the assessment of ground water resources. The entire assessment has been done using the GIS based web portal 'India- Groundwater Resource Estimation System (IN-GRES)' developed by CGWB in association with the Indian Institute of Technology, Hyderabad.

Salient outputs of the assessment are summarized below.

Category	In billion cubic meter
Annual Ground Water Recharge	449.08 bcm
Annual Extractable Ground Water Resource	407.21 bcm
Annual Ground Water Extraction (for all uses)	241.34 bcm
Stage of Ground Water Extraction (SoE)	59.26 %

The assessment units (blocks / taluks / mandals / tehsil etc.) are categorized based on the Stage of Extraction (SoE) as 'Safe' if SoE < 70 %; 'Semi-critical' if SoE > 70 and ≤ 90 %; 'Critical' if SoE > 90 and ≤ 100% and 'Over-exploited' if SoE > 100 %. Assessment unit in which the ground water resources are entirely saline, have been categorised as 'Saline'.



Categorisation of ground water assessment units (CGWB, 2023)

Summary of the number of assessment units in each category is given below:

Sl. No	Category	Number of Assessment Units	
		Number	approx %
1	Safe	4793	73
2	Semi Critical	698	11
3	Critical	199	3
4	Over-Exploited	736	11
5	Saline	127	2
	TOTAL	6553	

2.2 CONSTITUTIONAL PROVISIONS FOR MANAGEMENT OF WATER RESOURCES

Water is a subject matter included in Entry 17 of List II (State List), subject to the provisions of Entry 56 of List I (Union List) under the Seventh Schedule of the Constitution. Entry 17 of List II of the Seventh Schedule provides that “Water, that is to say, water supplies, Irrigation and canals, drainage and embankments, waters to rage and water power subject to the provisions of Entry 56 of List I.”

Entry 56 of List I (Union List) of Seventh Schedule provides that “Regulation and development of inter-State rivers and river valleys to the extent to which such regulation and development under the control of the Union is declared by Parliament by law to be expedient in the

public interest.” As such, the Union Government is conferred with powers to regulate and develop Inter-State rivers under Entry 56 of List I of the Seventh Schedule to the extent declared by the Parliament by law to be expedient in the public interest. The Union Government also has the power to make laws for the adjudication of disputes relating to waters of Inter-State River or river valleys under Article 262 of the Constitution.

2.3 NATIONAL WATER POLICY

Central Government formulated the National Water Policy in 1987, which was subsequently reviewed and revised in the year 2002 and 2012. The main objective of the National Water Policy is to take cognizance of the existing situation in water sector, to propose a framework for creation of a system of laws and institutions and a plan of action with a unified national perspective in planning, management and use of water resources.

At present the National Water Policy - 2012 is in effect. However, to address the present challenges in water sector, revision of National Water Policy has been envisaged and a drafting committee was constituted to revise the National Water Policy, which has submitted its report.

2.4 National Framework for Sediment Management

DoWR, RD & GR, Ministry of Jal Shakti in consultation Central Water

Commission has prepared the “National Framework for Sediment Management” after extensive consultations with Central Government Ministries / Departments / State Governments / UTs. This National Framework document will serve as guidance document for efficient and sustainable sediment management in the country. The National Framework for

Sediment Management was launched by Hon'ble Minister of Jal Shakti during the 1st All India Annual State Ministers Conference on Water held in Bhopal, Madhya Pradesh on 5th- 6th January, 2023. Copy of NFSM is available on the Ministry's website. (<https://jalshakti-dowr.gov.in/policies/>)



Chapter 3

Major Schemes & Programmes



3. Major Schemes & Programmes

3.1 PRADHAN MANTRI KRISHI SINCHAYEE YOJANA (PMKSY)

PMKSY was launched during 2015-16 by the Central Government with an overarching vision to ensure access to some means of protective irrigation for all agricultural farms in the country, thus bringing much desired rural prosperity. Some of the broad objectives of the approved programme are as under: -

- Achieve convergence of investments in irrigation at the field level (preparation of district level and, if required, sub district level water use plans);
- Enhance the physical access of water on the farm and expand cultivable area under assured irrigation (*Har Khet Ko Paani*);
- Promote integration of water source, distribution and its efficient use, to make best use of water through appropriate technologies and practices;
- Improve on-farm water use efficiency to reduce wastage and increase availability both in duration and extent; irrigation and

other water saving technologies (*per drop more crop*);

- Introduce sustainable water conservation practices;
- Ensure the integrated development of rain-fed areas using the watershed approach towards soil and water conservation, regeneration of groundwater, arresting run-off, providing livelihood options and other NRM activities;
- Promote extension activities relating to water harvesting, water management and crop alignment for farmers and grass-root level field functionaries.

PMKSY Components:

PMKSY (Pradhan Mantri Krishi Sinchayee Yojana) has the following components being implemented by this Department viz., Accelerated Irrigation Benefits Programme (AIBP), Command Area Development & Water Management (CADWM), and Har Khet Ko Paani (HKKP) - Surface Minor Irrigation (SMI) & Repair, Renovation, and Restoration (RRR) of water bodies.

PRIORITIZATION OF AIBP PROJECTS DURING 2016-17:

One of the major reasons for the delay in completion of projects under AIBP (Accelerated Irrigation Benefits Programme) was inadequate provision of Central and State share funds. As a result, large amount of funds spent on these projects were locked up and the benefits envisaged at the time of formulation of the projects could not be achieved. This was a cause for concern and initiative was required at the national level to remedy the situation.

A Committee headed by the Minister (Water Resources) of Chhattisgarh was constituted during 2016-17. The committee deliberated on issues related to implementation of projects under PMKSY, including prioritization of projects. Based on the information provided by concerned States to the Committee, 99 projects were identified by the Committee for completion by 2019.

Innovation/initiatives under the scheme:

- The arrangement of funds for central assistance (CA) during 2016-21 was made through NABARD as per year-wise requirements which would be paid back in 15 years' time. Since 2021-22, central assistance being provided through budgetary allocations. Further, the State Governments, if required, could also borrow funds from NABARD for the State share.
- In respect of the State share availed by States from NABARD, interest subvention upto 2% is provided by the Central Government, in order to make it attractive for the States and encourage them to raise requisite State share for early completion of projects.
- The progress of the projects in physical as well as financial terms is monitored through the field units of Central Water Commission. Further, one nodal officer for each of the 99 priority projects has been identified who would be updating the physical and financial progress of the project regularly in the MIS developed for this purpose.
- Monitoring through MIS system and third party is being carried out.
- The use of pressurized pipe irrigation and micro irrigation wherever feasible is being promoted to increase efficiency. In Odisha and Maharashtra, land acquisition of 6,200 ha and 4,920 ha respectively has been avoided in distribution system by adopting underground Piped Distribution Network (PDN) with estimated cost saving of Rs. 1,500 crore. Other States are also being sensitized for adopting the same approach.
- Pari-Passu implementation of command area development works

in the commands of these projects is envisaged to ensure that the irrigation potential created could be utilized by the farmers. New guidelines bringing focus on Participatory Irrigation Management (PIM) have been brought out. Further, transfer of control and management of irrigation system to the Water Users' Association (WUA) has been made necessary condition for the acceptance of CADWM completion.

INCLUSION OF NEW PROJECTS UNDER PMKSY-AIBP SINCE 2021-22

- The Union Government approved continuation of PMKSY on

15.12.2021 for the period 2021-26 along with permission for inclusion of new major and medium projects under PMKSY-AIBP. Funding of Renuka ji and Lakhwar National Projects were also approved to be funded through PMKSY-AIBP.

• Nine new projects have been included under PMKSY-AIBP after approval of its continuation during 2021-26. Besides these, Relining of Rajasthan Feeder and Sirhind Feeder and Shahpur Kandi National project, which were earlier being funded through LTIF, also being funded through PMKSY-AIBP. The details of the same is as follows:

Sl. N.	State	Project	Eligible CA (Rs. Cr.)	Completion
1	Maharashtra	Jihe Kathapur Project	247.34	Jun-25
2	Himachal Pradesh	Nadaun Medium Irrigation Project	11.41	Mar-24
3	Rajasthan	Parwan Major Multipurpose Project	733.86	Jul-24
4	Tamil Nadu	Kannadian Channel	44.22	Sep-23
5	Assam	ERM of Sukla Irrigation Project	232.62	Dec-24
6	Manipur	ERM of Loktak Project Ph. I	51.94	Mar-25
7	Jharkhand and Bihar	North Koel Project (Balance CA)	1,115.19	Mar-26
8	Uttarakhand	Jamrani Multipurpose Project	1,557.18	Mar-28
9	Maharashtra	Bodwad Parisar Sinchai yojana-I	278.62	Mar-25
TOTAL			4,272.38	

- The detail of central assistance released to these projects is given at **Annexure-V**.

Completion of projects

- Out of 99 prioritized projects, AIBP works of 58 projects have been reported to be completed by the concerned State Governments. The details are at **Annexure-IV**.
- The details of central assistance and State share released during 2016-17 to 2023-24 for AIBP works of 99 priority projects under PMKSY are given at **Annexure-V**.

IMPLEMENTATION OF PMKSY-AIBP (INCLUDING CADWM) DURING 2021-26:

PMKSY-AIBP including CAD&WM has been approved for implementation during 2021-26 with an outlay of Rs. 23,918 crores (central assistance), for completion of 60 ongoing AIBP and 85 ongoing CAD&WM projects, along with financial assistance for new major and medium irrigation projects. Funding of National Projects, including Renuka and Lakhwar Projects, is also approved.

- Financial progress requirement is dropped for inclusion of a project under AIBP and only physical progress of 50% to be considered.
- Advanced stage (50% physical progress) criteria is relaxed for projects having command area of 50% or more in Drought Prone Area Programme (DPAP), Desert Development Programme (DDP), flood prone, Tribal area, Flood prone area, left wing extremism

affected area, Koraput, Balangir and Kalahandi (KBK) region of Odisha, Vidarbha & Marathwada regions of Maharashtra and Bundelkhand region of Madhya Pradesh & Uttar Pradesh, as also for Extension Renovation Modernisation (ERM) projects and also for States with net irrigation below national average.

- Reimbursement is allowed for due central assistance in subsequent years also.
- Project completion permitted with physical progress of 90% or more. So far, 8 new MMI and 2 new National projects have been included under PMKSY AIBP.

COMMAND AREA DEVELOPMENT & WATER MANAGEMENT

Programme Components:

The activities covered under CAD&WM component of a project are broadly categorized as 'structural' and 'non-structural' interventions, as detailed below:

- **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):
 - » One-time Functional Grant to the registered Water Users Associations (WUAs);
 - » One-time Infrastructure Grant to the registered WUAs;
 - » 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 Culturable 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.

Programme Implementation

The Detailed Project Report (DPR) of the CAD&WM component of prioritized Project prepared by the concerned State Government is submitted to CAD Cell of the pertinent Regional Office of CWC. CWC through its CAD Cell and the PMO appraises the DPR and forwards its recommendations to the CAD&WM Wing of the Ministry. CAD&WM Wing of Ministry processes the case for approval of competent level for inclusion of project under CAD&WM program.

All CAD works are planned, designed, tendered and executed by the State Governments. Central Water Commission (CWC) through its CAD Cells in the Regional Offices of CWC and the Project Monitoring Organization (PMO) at its headquarters provides the overall monitoring and coordination support. Moreover, for monitoring of PMKSY-AIBP and CADWM projects, a Project Monitoring Unit (PMU) has been set-up. Project implementation is reviewed, coordinated and guided at half yearly intervals by the Project Implementation Review Committee (PIRC).

Funding Pattern

Funds under PMKSY for the CAD&WM component are provided to the State Governments as per cost sharing ratios (to be applied on the ceiling costs), as below:

S.No.	Activities Eligible for Funding	Cost Sharing Ratio
1.	All activities of Structural interventions	50:50 (Centre:State)
2.	All activities of Non-Structural interventions excluding Functional Grant to WUAs	60:40 (Centre : State)
3.	Functional Grant to registered WUAs	45:45:10 (Centre: State: farmer)
4.	Incremental Establishment Cost	50:50 (Centre:State)

For the eight North Eastern States and the three Himalayan States of Himachal Pradesh, Jammu & Kashmir, and Uttarakhand, the cost sharing norms for all activities of non-structural interventions except functional grant to water user associations, is prescribed as 75:25 (Centre: State) in lieu of 60:40 norms applicable for other States.

One of the key components of physical works under CAD&WM relates to construction of field channels. Since its inception in 1974-75 up to March, 2023, CCA of 23.210 million hectares has been covered and central assistance of Rs. 10,125.82 crore has been released to States during this period. During 2016-17 to 2023-24, central assistance of Rs. 3,128.79

crore has been provided for CAD&WM of the 99 prioritized projects. The details of central assistance and State Share released for these CADWM projects are given at **Annexure-VI**.

Physical & Financial Progress

During 12th Plan period, a CCA of 7.6 million hectares was targeted with CA amount of Rs 15,000 crore which was subsequently reduced to 3.6 million ha during mid-term appraisal. From 2015-16, the programme came under HKKP component of PMKSY with a target of 1.5 million ha. Subsequently, from 2016-17 onwards, the role of programme has been restricted to 99 prioritised AIBP projects, under which the target was 4.5 million ha. Against this, the achievement till March, 2024 has been reported to be about 1.79 million ha, with release of central assistance of Rs. 3,128.79 crores during this period.

Participatory Irrigation Management (PIM)

National Water Policy emphasizes participatory approach in water resources management. It has been recognized that participation of beneficiaries will help greatly in the optimal upkeep of irrigation system and effective utilization of irrigation water. The participation of farmers in the management of irrigation would include transfer responsibility for operation & maintenance and also collection of water charges to the water users' association (WUA) in their

respective jurisdiction. One-time functional grant @ Rs. 1,200/-per hectare, to be shared by the Centre, State as well as farmers in the ratio of 45:45:10 respectively, is being paid to outlet level water users' associations as incentive, the interest from which is to be used for maintenance. Apart from this, an amount of Rs.3.00 lakh (60%-Central: 40%-State) is being provided to each WUA as one-time infrastructure grant.

Recognizing the need for sound legal frame work for PIM in the country, in 1998 a model act was circulated to be adopted by the States legislatures for enacting new irrigation Acts amending existing irrigation Acts. At present there are 18 States who have either enacted new Act or modified their existing Act to fulfil the objective of the PIM. As per information made available by the State Governments, about 93,000 WUAs, covering an area of 17.84 million hectares, have been formed in India.

Strengthening of PIM is being aimed as part of the CAD&WM program. Under CAD&WM for the 99 prioritized projects during 2016-22, 14,685 WUAs were targeted to be created under the ongoing 88 projects, out of which 9,272 WUAs have been formed, and about 2,900 WUAs the CAD assets have also been transferred to respective WUAs.

Irrigation Reforms: Smart Irrigation through proposed Modernization of CADWM works (MCAD)

The Ministry is in the process of

bringing irrigation reforms by modernization of CADWM component of PMKSY to make it more relevant in the current context. This smart irrigation scheme also envisages to transform the existing command (whether rain fed or gravity based) to a Pressurized Piped Irrigation Command (PPIC) by providing pressurized irrigation water from Established canal source to farm gate below Minor (Tertiary) Level Network. This will make the entire canal command area as micro-irrigation ready for farmers by providing robust backend infrastructure for on Surface Water. The Micro-Irrigation will shift to Surface Water and the dependency on the Ground Water will reduce.

The results are quick as the life cycle of the project is 2 years. An ideal size of the cluster can be from 50 Ha to up to 5000 Ha. Assuming average land holding of 1 Ha per farmer this will lead to a Water User Society [WUS] from 50 to 5000 farmers.

The major areas of reforms under the proposed modernization are as:

- **Institutional Changes** by Farmer Education on Water User Society (WUS) and Micro-Irrigation (MI).
- **Technology Changes** by Pressurized Piped Irrigation Command (PPIC) with Internet of Things (IOT) based Smart irrigation on tertiary distribution system.
- **Water Accounting & Monitoring** by Geo mapping, App, MIS, water accounting with AI.

- **On Farm Management** by providing data to farmers for rational farm management plans, sensors, IMD data, Eco system Trainings to use agri robots, drones.
- Develop WUS into an **Economic Entity** by handholding for five years and Irrigation Management Transfer (IMT) to the WUS for subsequent maintenance to its own funds.
- The overall benefits of the MCAD shall be many, related to water conservation, accounting, pricing, management and maintenance.



Internal consultations under chairmanship of Secretary

Provision for Women Empowerment in proposed MCAD Scheme

- In line with National Water Policy, a major thrust on ensuring women's participation at all levels of irrigation management through the women wing of WUS's or minimum 30% participation of women in the Water User Society (WUS) has been provisioned. The women wing of

WUS's to be evolved along the lines of Jal Shaelis model of Bundelkhand.

- States will be guided to consider representation of women in the WUS at all levels. A women wing of WUSs will be promoted which can take up activities such as development of small nursery, beehives, organic farming etc. in convergence with MoA&FW for additional income generation and sustainability of women wing. Based on gender-disaggregated data, a proportion of matching grants to registered WUSs will be reported in the Gender Budget Statement (GBS). Budget will be apportioned for women and reported in the GBS.

Focus on Marginalized social groups, namely SC/ST/Person with disability (Divyangjan), Minorities and other vulnerable groups in MCAD Scheme

The benefits of the proposed MCAD Scheme usually go to rural population engaged in farming, including SC/ST/PwD/Minorities/vulnerable groups. The relevant details of beneficiaries are proposed to be mapped in the MIS of the scheme.

SURFACE MINOR IRRIGATION (SMI) SCHEMES

Under the SMI scheme, since 2015-16, 7304 schemes are ongoing with an estimated cost of Rs. 15,506 crores. CA of Rs. 4,618 crores have been released to

States upto March, 2023. Further, 2,418 schemes have been reported to be completed upto March, 2023. Target irrigation potential creation of these schemes is 11.50 lakh ha and out of this, 3.73 lakh ha reported to have been created till March, 2023. In the current financial year, Rs. 675.22 crore has been released to SMI schemes till 31st March, 2024.

REPAIR, RENOVATION & RESTORATION (RRR) OF WATER BODIES

Under the RRR of Water Bodies scheme, since 2015-16, 3,075 schemes are ongoing with an estimated cost of Rs. 2,835 crores. CA of Rs. 451 crores have been released to States upto March, 2023. Further, 1,410 water bodies have been reported to be completed upto March, 2023. Target irrigation potential restoration of these schemes is 2.41 lakh ha and out of this, 1.40 lakh ha reported to be restored till March, 2023. In the current financial year, Rs. 135.97 crore has been released under RRR of Water Bodies schemes till 31st March, 2024.

HAR KHET KO PAANI-GROUND WATER SCHEME (PMKSY-HKGP-GW)

Pradhan Mantri Krishi Sinchayee Yojana- Har Khet Ko Paani- Ground Water scheme, launched by Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti, envisages to provide irrigation facility for small and marginal farmers in areas having sufficient potential for future development of ground water.

The scheme provides financial assistance to States for assured ground water irrigation to small and marginal farmers with priority to SC/ST and women farmers. The funding pattern is in the ratio of 90:10 (C: S) in case of NE/Hilly areas and 60:40 (C: S) in case of other areas. The scheme is applicable only in areas having stage of ground water development less than 60%, average rainfall more than 750 mm rainfall and having shallow ground water levels (less than 15 m below ground level).

Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti has sanctioned 13 projects under PMKSY-HKGP-GW scheme since 2019 in 10 States namely Arunachal Pradesh, Assam, Gujarat, Nagaland, Manipur, Mizoram, Tripura, Tamil Nadu, Uttar Pradesh, and Uttarakhand. All the 13 projects have been successfully completed. Under these thirteen projects, construction of 29779 wells was targeted with the creation of 88679 Ha of command area benefitting 67930 small & marginal farmers.

During the period, an amount of Rs.29.71 crore has been released (01.01.2023 to 31.03.2024) to the projects in the States of Assam, Arunachal Pradesh, Gujarat, Manipur, Mizoram, Nagaland, Tripura, Tamil Nadu, Uttar Pradesh and Uttarakhand towards central assistance and 550 wells have been constructed creating additional command area of 11305 Ha, benefitting 1309 small & marginal farmers.

IRRIGATION CENSUS SCHEME

“Rationalization of Minor Irrigation Statistics (RMIS)” was launched in 1987-88 in the DoWR, RD & GR, MoJS, with 100% central assistance to the States/ UTs. In 2017-18, the scheme was renamed as “Irrigation Census” and brought under the centrally sponsored umbrella scheme, “PMKSY and other schemes” to build up a comprehensive and reliable database in the Minor Irrigation (MI) sector for effective planning and policy making.

MI censuses are a rich source of information on India's ground and surface water sector. In the MI censuses detailed information on various aspects/ parameters like irrigation sources (dug well, shallow, medium and deep tube well, surface flow and surface lift schemes), irrigation potential created, potential utilized, ownership, holding size of land by the owner, devices used for lifting water, source of energy, energy conserving devices such as sprinkler and drip irrigation, use of non-conventional energy sources such as solar pumps, windmills etc. is collected.

Detailed database on minor irrigation works in the country has been generated through five censuses carried out under the scheme so far with reference years 1986-87, 1993-94, 2000-01, 2006-07 and 2013-14. A separate dashboard was created for easy dissemination of Fifth Minor Irrigation Census data.

The scope of Irrigation Census was expanded to include census of water bodies with 100% central assistance. The First Census of Water Bodies was launched to collect information on all important aspects on the subject including their size, condition, status of encroachments, use, storage capacity, status of filling up of storage etc. in the States/UTs in convergence with Sixth Minor Irrigation Census (with reference year 2017-18). The 6th MI Census and first Census of Water Bodies has been completed successfully and reports of both the censuses have been uploaded on the website of the Ministry. The results of first Census of Water Bodies has also been disseminated through Open Government Data (OGD) platform and Bhuvan portal.

The continuation of the Irrigation Census scheme has been approved for a period of five years from 2021-22 to 2025-26 with a total outlay of Rs.237 crore for conducting 7th MI Census and 2nd Census of water bodies after completion of 6th MI Census and 1st Census of water bodies. Further, it is also proposed to conduct 1st census of Major and Medium Irrigation (MMI) projects and 1st census of Springs also under 'Irrigation Census' scheme.

The Steering Committee constituted under the Chairmanship of Secretary (DoWR, RD & GR) to guide and advice the conduct of censuses has finalised the schedules/ instruction manuals/concept & definitions for data

collection and operational guidelines for the conduct of forthcoming censuses in consultation with State Governments.



All India workshop for launch of 7th MI census 2nd Census of Water bodies, 1st Census of MMI projects and 1st Census of Springs

All India workshop for launch of 7th MI census, 2nd Census of Water bodies, 1st Census of MMI projects and 1st Census of Springs was organised by the Department on 17.08.2023. Officers from Central Ministries and officers of Nodal Departments nominated from State/UTs for each of the censuses participated in the deliberations.

SPECIAL PACKAGE FOR COMPLETION OF IRRIGATION PROJECTS TO ADDRESS AGRARIAN DISTRESS IN VIDARBHA, MARATHWADA AND OTHER CHRONICALLY DROUGHT PRONE AREAS OF REST OF MAHARASHTRA

The approval of the above scheme was given on 18.07.2018 to provide special package of Rs. 3,831.41 crores as Central

Assistance (CA) to complete 83 SMI (Surface Minor Irrigation) and 8 MMI (Major & Medium Irrigation) projects benefitting 12 districts of Vidarbha, Marathwada and drought prone areas of rest of Maharashtra. Total estimated balance cost of these projects is Rs. 13,651.61 crores as on 01.04.2018. By completion of these schemes, an additional potential of 3.77 lakh ha would be created in above areas. CA of Rs. 2838 crore has been provided to the projects under this package (Rs. 500 crores during 2018-19, Rs. 300 crores during 2019-20, Rs. 400 crores during 2020-21, Rs. 725 crores during 2021-22, Rs. 213.01 crore during 2022-23, Rs. 699.99 Crore during 23-24).

Features of the Special Package

Under the Special Package, the Central Government is to provide Central Assistance (CA) at 25% of the balance cost of these 91 projects as on 01.04.2018, as well as 25% reimbursement for the expenditure incurred during 2017-18. The balance cost of the said projects as on 01.04.2018 is estimated to be Rs. 13,651.61 crores.

Status of Projects

Under the Special Package, 45 SMI projects have been reported to be completed and 1,61,000 ha of irrigation potential has been created from 2018-19 onwards.

Central Assistance Released

S. No.	Financial Year	CA Released under Special Package to MH		
		CA	No. of Projects & CA Released (Amount of CA in Rs. crore)	
			SMI	MMI
1	2018-19	500	56(Rs.170.57)	07(Rs.329.43)
2	2019-20	300	72(Rs.166.69)	06(Rs.133.31)
3	2020-21	400	53(Rs.97.48)	06(Rs.302.52)
4	2021-22	725	64(Rs.79.23)	08(Rs.645.76)
5	2022-23	213.01	51(Rs. 42.97)	07(Rs.170.04)
6	2023-24	699.99	22(Rs. 68.37)	05(Rs. 631.62)
	Total	2838	625.33	2212.68

NATIONAL PROJECTS

Implementation of National Projects was approved in 2008 with Central Assistance of 90% of project cost which meets the following criteria:

- International project where usage of water in India is required by a treaty or where planning and early completion of the project is necessary in the interest of the country.
- Inter-State projects which are dragging on due to non-resolution in inter-State issues relating to sharing of costs, rehabilitation, aspects of power production, etc. includings river inter-linking projects.
- Intra-State projects with additional potential of more than 2 lakh

hectare and with no dispute regarding sharing of water and where hydrology is established.

- Further, as per the modification in the guidelines of National Projects in September, 2012, Extension, Renovation and Modernization (ERM) projects, envisaging restoration of lost irrigation potential of 2.0 lakh hectare or more are eligible for inclusion as a National Project with certain conditions.
- The funding pattern from October, 2015, as follows.

	Category	Central: State
A	Projects in North-Eastern and Hilly States	90:10
B	Projects in other States	60:40

Sixteen projects have been declared as national projects so far. These projects are taken up for execution after the concerned States obtain techno-economic clearance, other statutory clearances and investment clearance. The list of these projects includes: Gosikhurd Irrigation Project, Shahpurkandi Dam Project, Teesta Barrage Project, Saryu Nahar Pariyojna, Polavaram Irrigation Project, Lakhwar Multipurpose Project, Renukaji Dam Project, Kishau Multipurpose Project, Ujh Multipurpose Project, Ken Betwa Link Project, Kulsi Dam Project, Noa-Dihing Dam Project, Bursar Hydro Electric Project, Gyspa Hydro Electric Project, 2nd Ravi Vyas Link Project and Upper Siang Project.

Out of these, seven projects, namely Polavaram project of Andhra Pradesh, Saryu Nahar Pariyojana of Uttar Pradesh, Gosikhurd Irrigation Project of Maharashtra, Teesta Barrage Project of West Bengal, Shahpurkandi Dam Project of Punjab, Lakhwar Multipurpose Project of Uttarakhand and Renukaji Dam Project of Himachal Pradesh have been taken up for execution. Gosikhurd, Saryu Nahar Pariyojna, Lakhwar and Renukaji are included under PMKSY.

Polavaram Irrigation Project:

The Polavaram Irrigation Project (PIP) is a multi-purpose irrigation project located on the river Godavari near Ramayyapeta village in the Polavaram mandal, about 42 km upstream of the Sir Arthur Cotton Barrage. This location is where the river emerges out of the last

range of the Eastern Ghats and enters the plains in the West Godavari District of Andhra Pradesh State. The project envisions the construction of a dam to create the ultimate irrigation potential.

The project has been declared a national project as per Section 90 of the Andhra Pradesh Reorganisation Act, 2014. The Central Government is funding 100% of the remaining cost of the irrigation component only, for the period starting from 01.04.2014. The Government of Andhra Pradesh is executing the irrigation component of the project on behalf of the Government of India. The power component of the project is being executed by APGENCO.

Saryu National Project:

Saryu Nahar Pariyojana is one of the 99 priority projects under PMKSY (AIBP) implemented in three phases. Main diversion structure and link channels are completed. Component of the project under the scheme of National Projects are some of the balance canal works of Phase-II and Phase – III, mainly construction of Rapti Main Canal and its complete distribution system.

The project as a whole, envisages irrigation potential of 14.04 lakh ha out of which 4.73 lakh ha is to be created under the scheme of National Projects. Total CA released to Saryu National Project is Rs 2,257.53 crore.

Gosikhurd National Project:

The Gosikhurd Irrigation Project is

one of the 99 priority projects under PMKSY (AIBP) and envisages the construction of an earth dam across the Wainganga River in Bhandara district of Maharashtra. The project aims to provide irrigation benefits to 2,50,800 hectares (ultimate irrigation potential), generate 24 MW of power, and supply 100 million cubic meters (MCM) of water for the thermal power station of NTPC at Mauda (Bhandara). The total Central Assistance (CA) released under this National Project is Rs. 3,881.28 crores.

Shahpurkandi Dam:

The work on the Shahpurkandi Dam project was suspended since 30.08.2014 following a dispute between the States of Jammu & Kashmir and Punjab. However, an agreement was reached between Punjab and Jammu & Kashmir States under the aegis of the erstwhile Ministry of Water Resources at New Delhi on 8th September 2018 to resume the works of Shahpurkandi Dam project in Punjab on the river Ravi. Work has been resumed w.e.f. 1st November 2018.

The Government of India has approved the funding for the "Implementation of Shahpurkandi Dam (National Project) on River Ravi in Punjab State" with an estimated cost of Rs. 2,715.70 crores. The irrigation component, constituting 28.61% of the approved cost, and the power component, constituting 71.39% of the approved cost, amount to Rs. 776.96 crores and Rs. 1,938.74 crores,

respectively. Central Assistance (CA) of Rs. 485.38 crores would be provided for the balance works portion of the irrigation component of the said project amounting to Rs. 564.632 crores.

After the completion of the project, water would be made available to the State of Punjab and the Union Territory of Jammu & Kashmir to provide irrigation in 5,000 hectares and 32,173 hectares, respectively. In addition, water being released to provide irrigation in 1.18 lakh hectares of area under the UBDC system in Punjab at present would be regulated efficiently, and irrigation in the area would be benefitted. Out of the total CA of Rs. 485.38 crores, CA of Rs. 364.75 crores have been released by the Government of India till March 2023.

Teesta Barrage National Project:

The Teesta Development Plan consists of three phases. The envisaged benefits include irrigation benefit to a Culturable Command Area (CCA) of 922 thousand hectares in Phase-I, 1,000 MW hydropower in Phase-II, and a navigation link between Brahmaputra and Ganga in Phase-III. The sub-stage – I of the Stage – I of Phase – I (under the National Project), upon completion, would create irrigation potential of 527 thousand hectares over a CCA of 342 thousand hectares. The estimated cost of the National Project is Rs. 2,988.61 crores (at 2008 price level). The Government of India has released Central Assistance (CA) of Rs. 178.20 crores under the scheme of National Projects

Lakhwar Multipurpose Project:

For the implementation of the Lakhwar Multipurpose Project in the upper Yamuna basin, an agreement among the States of Himachal Pradesh, Uttarakhand, Uttar Pradesh, Haryana, National Capital Territory of Delhi, and Rajasthan was signed by the Hon'ble Chief Ministers of the co-basin States on 28.08.2018. The project was accepted at a revised cost estimate of Rs. 5,747.17 crores (PL July, 2018) in the 141st TAC (Technical Advisory Committee) meeting held on 11.02.2019. The Ministry of Environment, Forest and Climate Change (MoEF&CC) via a letter dated 02.02.2021, has issued environmental clearance to the project. Funding for the project has been approved during 2021-22, and the project has been included under PMKSY. A Central Assistance (CA) of Rs. 121.63 crores has been released to the project.

Renukaji Dam Project:

For the implementation of the Renukaji Dam National Project in the upper Yamuna basin, an agreement among the States of Himachal Pradesh, Uttarakhand, Uttar Pradesh, Haryana, National Capital Territory of Delhi, and Rajasthan was signed by the Hon'ble Chief Ministers of the co-basin States on 11.01.2019. The revised estimated cost of Rs. 6,946.99 crores (PL October, 2018) was accepted by the Advisory Committee in its 143rd meeting held on 09.12.2019. Investment clearance was accorded to the project in the 13th meeting of the Investment Clearance Committee of DoWR, RD&GR held on

07.08.2020. Funding for the project has been approved during 2021-22, and the project has been included under PMKSY. A total CA (Central Assistance) of Rs. 1909.96 crores have been released to the project.

Relining of Sirhind Feeder and Relining of Rajasthan Feeder of Punjab

The funding for the relining of Sirhind Feeder and Rajasthan Feeder of Punjab was approved on 26.09.2018. Sirhind and Rajasthan feeders take off upstream of Harike headworks and flow through Punjab before crossing over to Rajasthan. The twin canals run parallel, have a common bank, and were constructed in the 1960s as lined (brick) channels to convey water to command areas in Punjab and Rajasthan. The Rajasthan feeder is exclusively meant for providing water to Indira Gandhi Nahar Project, which serves the command lying in western Rajasthan. Seven districts of western Rajasthan, including major cities like Jodhpur, Bikaner, and Jaisalmer, are totally dependent on Indira Gandhi Nahar Project for drinking water. Besides, it also supplies water to power plants at Suratgarh, Ram Garh, etc. Sirhind Feeder serves areas in both Punjab and Rajasthan.

The relining of Rajasthan feeder would save 560 cusecs of water, which would stabilize/improve irrigation in 98,739 hectares in Rajasthan to benefit the entire western Rajasthan. Relining of Sirhind feeder would save 256 cusecs of water, which would stabilize/improve irrigation in 20,740 hectares of area in

Rajasthan and 48,356 hectares in Punjab and address the problem of water-logging in 84,800 hectares of land in Muktsar, Faridkot, and Ferozpur districts in southwest Punjab. In addition to Rs. 156 crores of central assistance released earlier for these projects, Central assistance of Rs. 453.68 crores have been released.

3.2 NATIONAL MISSION FOR CLEAN GANGA (NMCG)

“Namami Gange” was launched with the aim of integrating previous and currently ongoing initiatives in holistic manner with a basin approach. It has been approved as a Central Sector Scheme in 2015 and includes diverse set of interventions such as pollution abatement measures to tackle different sources of pollution such as municipal sewage, industrial effluents, municipal solid waste, non-point sources of pollution and interventions for improving ecological flows, biodiversity conservation, afforestation, improving amenities and sanitation at riverbanks, capacity building, research & monitoring, public awareness. The programme was subsequently extended up to 31st March 2026 with a budgetary outlay of Rs. 22,500 crores from April 2021 to March 2026. The five main pillars of the program are Nirmal Ganga, Aviral Ganga, Jan Ganga, Gyan Ganga and Arth Ganga.



Pollution Abatement (Nirmal Ganga)

Till February 2024, a total of 201 sewerage infrastructure projects (including one Modular STPs Decentralized) have been sanctioned in the Ganga Basin for the creation of 6,196.19 MLD sewage treatment capacity and the laying of 5,282 km sewer network at an estimated cost of Rs. 31,717.30 Cr. Out of these, 116 sewerage projects have been successfully completed, resulting in the creation and rehabilitation of 3,110.55 MLD of sewage treatment capacity and the laying of 4,507.27 kilometers of sewer network with an expenditure of Rs. 14,652.16 Cr.

Industrial Pollution Management

NMCG has identified the industrial clusters for promoting the abatement of pollution and support financially to sectors like tannery, textile effluent and others. National Mission for Clean Ganga (NMCG) till date has sanctioned 5 industrial projects of Common Effluent Treatment Plants (CETPs) i.e. Jajmau CETP (20 MLD),

Banther CETP (4.5 MLD), Unnao CETP (2.65 MLD), Mathura CETP (6.25 MLD) and Gorakhpur CETP (7.5 MLD). Out of this, Mathura CETP (6.5 MLD) project is completed, and the plant is in the operational stage with 50 % recycling to its member's units. Construction of 20 MLD CETP at Jajmau tannery cluster at Kanpur is completed and Inaugurated by the Hon'ble Prime Minister on 30th December 2023.

Water Quality Monitoring

Water quality monitoring of river Ganga is carried out manually as well as using sensors based real time system. Central Pollution Control Board (CPCB) is monitoring water quality at 97 locations through respective State Pollution Control Boards (SPCBs) while at 76 Stations using Real Time Water Quality Monitoring Systems and collected data is compiled at CPCB.

Ecology and Flow (Aviral Ganga)

E-Flow: Central Government issued an Order vide gazette notification number S.O. 5195 (E), dated the 09.10.2018 specifying the minimum environmental flows to be maintained in river Ganga in the identified stretches.

Rural Sanitation

Department of Drinking Water and Sanitation (DoDWS) had identified 4,507 villages situated in the five Ganga States. Rs.829 crores has been released to the DoDWS for construction of around 14 lakhs independent household toilets in these

Ganga villages all of which have been declared ODF.

Under the ODF plus intervention of the Ministry, NMCG has released Rs.124 crores for undertaking solid and liquid waste management in the Ganga villages to address the problem of polluted water from the villages flowing into the river and also to improve the sanitation in the villages.

Biodiversity

One of NMCG's long term visions for Ganga rejuvenation is to restore the viable population of selected endemic and endangered biodiversity of the river, so that they occupy their full historical range and fulfil their role in maintaining the integrity of the Ganga river ecosystems.

Afforestation

A scientific plan for afforestation along the Ganga was made in 2015-16 with the help of the Forest Research Institute (FRI)/ Indian Council of Forestry Research and Education (ICFRE), which is being implemented throughout the States.

This DPR on "Forestry Interventions for Ganga" prepared by Forest Research Institute (FRI), Dehradun 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 estimated cost of Rs. 2,293.73 crores.

NMCG under the Namami Gange programme is implementing a forestry intervention project in the Ganga River basin as per the DPR from the year 2016-17 onwards. Till date, 30,071-hectare plantation has so far been carried out, for which an expenditure of Rs. 368 cr has been incurred by the State Forest Departments of Uttarakhand, Uttar Pradesh, Bihar, Jharkhand, and West Bengal

Wetland Conservation

Wetland conservation is also an integral component of 'Namami Gange'. There are 23 Ramsar sites in the Ganga Basin, out of a total of 75 Ramsar sites in India. Under the Namami Gange programme, 4 projects have been sanctioned for the conservation of wetlands at a cost of Rs. 12.54 Cr.

Research, Policy and Knowledge Management (Gyan Ganga)

Namami Ganga is working to facilitate diversified research, scientific mapping, studies, and evidence-based policy formulation (Gyan Ganga). This includes various projects comprising LiDAR Mapping, GIS & Remote Sensing, research, and knowledge development under Ganga Knowledge Centre, etc.

People River Connect (Jan Ganga)

Developments of River Front Development (RFD), Ghats & Crematoria and kunds/ponds rejuvenations works in select cities have been taken up. 238 ghats and promenade, 63 crematoria and 9

kunds/ ponds rejuvenation have been sanctioned, out of which 208 ghats, 53 crematoria and 9 kunds have been constructed. Additionally, NMCG engages with several relevant stakeholders from different geographies and regions to promote the river rejuvenation and protection.

River People Connect by Boosting Economy and Livelihood (Arth Ganga)

Over the years, concerted efforts made by NMCG are beginning to find success in restoring the pristine glory of the river. One such effort is the Arth-Ganga which was envisioned by the Hon'ble Prime Minister in 2019, during the National Ganga Council meeting. Arth Ganga pillar is based on the symbiotic relationship between nature and society and aims to strengthen the people-river connection. Several multi-sectoral interventions ranging from the promotion of natural farming to livelihood interventions, are to be achieved through synergies at different institutional levels, coupled with the adoption of decentralized governance practices. Arth Ganga strives to improve the quality of life of people in the Ganga Basin through sustainable economic development and strengthened people-river connect.

- NMCG has developed an initial concept note on Arth Ganga and shared it with various Ministries & Departments.
- NITI Aayog has constituted a High-Powered Group co-chaired by the

VC NITI Aayog and Union Minister of Jal Shakti for Developing the Sustainable Economic Development Model Based on River Ganga on 10.06.2020. Three meetings of the group have been held till date. (26th May 2020, 19th October 2020 & 5th April 2022);

- IIIM-IIT consortium has developed an Arth Ganga Framework for 53 districts. The reports have been shared with the concerned District Magistrate.

The progress of Arth Ganga framework is also being closely reviewed by the Empowered Task Force set up for coordinating Ganga-related matters between various Ministries and State governments and headed by the Hon'ble Union Jal Shakti Minister.

Six Verticals for Intervention under Arth Ganga

Zero Budget Natural Farming

- Chemical free ZBNF along the length of the river
- Doubling farmer's income & generating "more income per drop"
- "Gobar-Dhan"- for farmers & keeping pollution off
- Promotion of brand Ganga

Monetisation of Reuse of Sludge & Wastewater

- Reuse of treated wastewater by ULBs for revenue generation

- Conversion of sludge into usable products such as manure, pavers, bricks,

Livelihood Generation Opportunities

- 'Ghat Main Haat' for self-sustaining Ganga Ghats
- Promotion of local products of Ganga cities along riverbanks
- Capacity building trainings of people in the Ganga Basin.
- Promotion of afforestation activities like Ayurveda & medicinal plantation (Rudraksh)

Culture Heritage & Tourism

- Promotion of yoga and wellness, medical tourism, adventure tourism, eco-tourism, etc.
- Aartis to enhance cultural connection with the river.

Public Participation

- To increase public participation with river conservation effort.
- Increased synergies with various programs

Institutional Development and Capacity Building

- Enhancement of capacities, especially local administration for better water governance.
- Sustenance of the projects post asset handover.
- Mandated monthly minutes' meetings of DGCs.

3.3 ATAL BHUJAL YOJANA (ATAL JAL)

Atal Bhujal Yojana (ATAL JAL) is being implemented since April, 2020 in 8,213 water stressed Gram Panchayats of 229 administrative blocks/ Talukas in 80 districts of seven States, viz. Gujarat, Haryana, 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.

COMPONENTS OF THE SCHEME

- Institutional Strengthening & Capacity Building component (Rs. 1,400 crore) for strengthening institutional arrangements by providing strong data base, scientific approach and community participation in the States to enable them sustainably manage their ground water resources.
- Incentive Component (Rs. 4,600 crore) for incentivizing the States for convergence amongst various schemes of the Central and State Governments and achievement of pre-defined results as a measure of improved ground water management and consequent improvement in ground water scenario.

Allocation of funds under the Institutional Strengthening Component shall be used by the States for improving

their institutional framework for ground water management through activities such as engagement of domain experts & District Implementation Partners (DIPs), procurement of equipment, up-gradation of laboratories and capacity building activities.

Funds under the Incentive Component shall be disbursed to the States on achievement of pre-defined targets namely i) public disclosure of ground water related information and reports, ii) preparation of community-led Water Security Plans (WSPs), iii) public financing of approved Water Security Plans through convergence of ongoing/new schemes, iv) adoption of practices for efficient water use and v) improvement in ground water conditions, evidenced by arrest in the decline of water levels in observation wells. The incentives shall be used by the States for interventions that improve the sustainability of ground water resources.

The scheme is expected to result in multiple benefits including i) improvements in sustainability of ground water resource in target areas, ii) positive contributions to the sustainability component of Jal Jeevan Mission, and to the goal of doubling farmers' income, mainly through convergence among various ongoing schemes and iii) Inculcation of behavioural changes in the community to foster improved ground water management. The participatory approach envisaged under this scheme is crucial for addressing groundwater challenges in the long run.

Achievements during 2023-24:

During the year 2023-24, after verification from Third Party Government Verification Agency (TPGVA) for Disbursement Linked Indicator (DLI)#1, DLI#2, DLI#3, DLI#4 and DLI#5, approx. Rs. 1575 crore was released to the States based upon their achievement under DLIs. Further, an amount of Rs. 146.00 crore was released to the States under Institutional Strengthening and Capacity Building component.

All Water Budget and Water Security Plans (WSPs) have been updated & submitted. The purpose of the water budget is to assess surface and groundwater resources and identify current and future needs as a basis for planning. Water Security Plans (WSPs) are prepared on the basis of water budgets. These plans specify investments and interventions to meet the anticipated demands while ensuring sustainable water use. WSPs are customized to meet the specific challenges in the GP and include any water-related investments/interventions that serve the purpose. Water Budget as well as WSPs are prepared by the GPs with the support of the Water Management Committees (WMCs)/Village Water & Sanitation Committees (VWSCs), aided by the District Implementation Partners engaged. Implementations of the interventions proposed under WSP are being done in the field with active involvement of communities through convergence of various Central / State

Government schemes by concerned line Departments.

Convergence expenditure of Rs. 1572 crore for implementation of demand & supply side activities as proposed in the WSPs was achieved and an area of 2.29 lakh Ha was brought under efficient water use practices. 813 Gram Panchayats in 47 blocks have shown an improvement/arrest in the declining ground water levels.

As Atal Bhujal Yojana is a scheme aimed primarily at inculcating behavioral changes among the stakeholders to facilitate judicious use of ground water, training and capacity building have a vital role to play in ensuring its success. During the financial year 2023-2024, more than 39,000 trainings have been held at the gram panchayat level. Further, several State level workshops were conducted in order to guide and hand hold State/District/GP level authorities and DIPs. Also, in order to provide better understanding of the innovative practices available to increase water use efficiency, demonstration visits have been organized wherein farmers are exposed to these practices on field.



4th National Level Steering Committee (NLSC) of Atal Bhujal Yojana held on 26th May 2023 at New Delhi

Creation of awareness among the general public about the program objectives and creation of an enabling environment for scheme implementation at various levels through information, education and communication (IEC) is an important activity under Atal Bhujal Yojana. Awareness campaigns have been undertaken using different media of mass communication. The thrust of the campaign is at the GP level, where communication tools such as nukkad nataks (street plays), audio-visual clips, wall-writing, display boards, pamphlets and cable TV are being extensively used.

In order to review the implementation of the scheme as well as to provide guidance, Secretary, DoWR, RD&GR chaired an online meeting on 7th February, 2024 with the District Collectors / District Magistrates / Chief Executive Officers, Zilla Panchayats of all Atal Jal districts to review the implementation status. Further, two meetings of the National Inter-Departmental Steering Committee were held on 26th May, 2023 and 26th October, 2023 under the chairmanship of Secretary, DoWR, RD & GR with active participation from relevant line Ministries/Departments of GOI and Atal Jal States. “Jal Marathon”: A Run for Water Awareness in Uttar Pradesh conducted from 16th July 2023 to 20th July 2023. The Marathon flagged off from Lucknow and concluded in Banda.



“Jal Marathon”: A Run for Water Awareness in Uttar Pradesh

3.4 FLOOD FORECASTING (FF)

CWC provides flood forecasting service at 338 stations, of which 200 are level forecasting stations on major rivers and 138 are inflow forecasting stations on major dams/barrages. Overall 1,121 automatic data collection stations with sensors and satellite transmission system, three earth receiving stations viz, New Delhi, Jaipur and Burla and 27 modelling centres equipped with latest computer systems for analysis of data, flood forecast formulation and its dissemination to concerned agencies expeditiously have been installed on various river basins.

During flood season, CWC operates the Central Flood Control Room on 24x7 basis at its headquarter in New Delhi and 36 Divisional Flood Control Rooms spread throughout the country for monitoring flood situation. On an average, about 10,000 forecasts are issued during flood

season every year by the CWC. Normally, these forecasts are issued 6 to 30 hours in advance, depending upon the river terrain and location of the flood forecasting sites and their base stations. In addition to conventional flood forecasting techniques, mathematical model forecasting based on rainfall-run off methodology is being used for some areas. This has enabled CWC to issue 7-day advance flood advisory.

Automated online 7-day flood advisory for all the level and inflow forecasting stations is maintained. "Flood Situation for next seven days" in respect of stations likely to be above warning level has been added in the "Daily Flood Situation Report cum Advisory" based on the 7-day advisory. Ensemble forecasting based on NCMRWF 23-member forecast has been adopted. The technique of bias correction was also adopted for better 5-day flood advisory.

REGULAR FLOOD FORECASTING ACTIVITY

During the flood season 2023, a total of 6339 flood forecasts (4567 level forecasts and 1772 inflow forecasts) were issued, out of which 5952 (93.89%) forecasts were found within the accuracy

limit ($\pm 0.15\text{m}$ for level forecast and $\pm 20\%$ for inflow forecast). Since 2014, CWC has been utilising web-based software "e-SWIS" for entry of hydrological data on hourly basis, analysis of data and dissemination of flood forecasts. From the year 2020 onwards, web-based software WIMS is used by all divisions of CWC for entering data on hourly basis, analysis of data and dissemination of flood forecasts.

A summary of flood situation observed during 1st May to 31st December, 2023 is given below:

Extreme Flood situation in flood forecasting Stations:

5 FF stations flowed in Extreme Flood Situation; 5 flood forecasting stations and 61 Flood Monitoring Stations flowed in Extreme Flood Situation.

Severe Flood situation for flood forecasting Stations:

76 FF Stations flowed in Severe Flood situation in the States of Assam, Bihar, Uttar Pradesh, Andhra Pradesh, Telangan, West Bengal, Jharkhand, Odisha, Madhya Pradesh, Uttarakhand, Maharashtra, Rajasthan and Gujarat.

The Extreme Flood Situation Cases at Flood Forecasting Sites during 1st May to 31st December, 2023 are given at Table below:

S. No.	State	District	River	Period		
				Station	From (dd/mm/yyyy/hhmm)	To (dd/mm/yyyy/hhmm)
1	NCT of Delhi	North Delhi	Yamuna	Delhi Railway Bridge	12/07/2023/1300	15/07/2023/0900
2	Uttar Pradesh	Budaun	Ganga	Kachlabridge	14/07/2023/2200 16/07/2023/1100 29/07/2023/1800 18/08/2023/1600	15/07/2023/1800 22/07/2023/0400 01/08/2023/0700 20/08/2023/2100
3	Assam	Sivasagar	Dikhow	Sivasagar	17/07/2023/0500 11/08/2023/0900	17/07/2023/1300 12/08/2023/0400
4	Telangana	KumuramBheem	Wardha	Sirpur Town	24/07/2023/1300 29/07/2023/0500	24/07/2023/1800 29/07/2023/2100
5	Sikkim	South Sikkim	Teesta	Melli	04/10/2023/0400	04/10/2023/0400

3.5 FLOOD MANAGEMENT & BORDER AREAS PROGRAMME

The States /UTs are provided promotional financial central assistance through Flood Management Programme (FMP) and River Management Activities & Works related to Border Areas (RMBA) schemes of Department, which have been merged into a single scheme Flood Management and Border Areas Programme (FMBAP). The continuation of FMBAP scheme for the period 2021-22 to 2025-26 has been approved by the Union Cabinet on 26th February, 2024 with an outlay of Rs. 4,100 crores for the period

2021-22 to 2025-26, including Rs. 2,940 crores under FMP component and Rs. 1,160 crores under RMBA component. Grant-in-aid to the tune of Rs. 2,240.44 crores under FMP component and Rs. 695.12 crore under RMBA component of FMBAP has been released to States/UTs during the period April, 2017 to March, 2024.

FLOOD MANAGEMENT PROGRAMME

During 11th Plan, Government of India launched "Flood Management Programme for providing central assistance to the State Governments for undertaking the works related to river management, flood control, anti-erosion, drainage development, flood proofing,

restoration of damaged flood management works and anti-sea erosion works which has been continued as component of FMBAP.

So far central assistance amounting to Rs. 8,297.64 crores has been released to Union Territories/ State Governments under this programme. The 427 projects completed under this programme have given protection to an area of around 5.05 mha and protected a population of 54.11 million. The details of central assistance released and area protected /population benefitted are given in *Annexure-VII* and *Annexure-VIII* respectively.

RIVER MANAGEMENT ACTIVITIES AND WORKS RELATED TO BORDER AREAS

The above central sector scheme was approved for implementation during 12th Plan which has been continued. The scheme has three components viz.,

- **Hydrological observations and flood forecasting on common border rivers with neighboring countries. Activities under this component include:**
 - » **Flood forecasting on rivers common to India and Nepal:** Flood forecasting on rivers common to India and Nepal has been in operation with currently 46 meteorological/ hydro-meteorological sites in the Nepalese territory.
 - » **Hydrological observations on rivers originating in Bhutan: A**

comprehensive scheme for establishment of hydro-meteorological and flood forecasting network on rivers common to India and Bhutan is also in operation for transmission of real time data to control rooms in India. The cost of operation and maintenance of these sites in Bhutan is borne by India.

- » **Joint observations on rivers common to India and Bangladesh and cooperation with neighbouring countries:** During lean season (January to May), the Ganga water is shared at Farakka with Bangladesh, as per the provisions of the Treaty signed between the two countries in 1996. The hydrological observations are being conducted jointly at Farakka (India) and Hardinge Bridge (Bangladesh) every year during the lean season.
- » **Hydrological Data sharing by China:** During every monsoon, hydrological data of three stations (Nugesha, Yangqen and Nuxia) on Brahmaputra and station (Tsada) on Sutlej is provided by China to India as per MoUs (under process of renewal) and cost of maintenance of these stations is borne by India. The information provided by China is utilized by

India in flood forecasting and advance warning.

- » **Sharing of Ganga/ Ganges Waters at Farakka:** As per the Treaty, the Ganga/Ganges waters is being shared at Farakka (which is the last control structure on river Ganga in India) during lean period, from 1st January to 31st May every year, on 10-daily basis as per the formula provided in the Treaty to Bangladesh.
- **Investigations of Water Resources projects in neighbouring countries:** Activities / projects under this component are:
 - » **Pancheshwar Multipurpose Project:** Pancheshwar Multipurpose Project is proposed along the India-Nepal border as per the provisions of the Mahakali Treaty signed in 1996 between India and Nepal for in targeted development to river Mahakali (Sarada in India). The DPR of India-Nepal Pancheshwar Multipurpose Project is under finalization through discussions between Government of India and Government of Nepal.
 - » **Surveys & Investigation of Sapta Kosi High Dam and Sun Kosi Storage cum Diversion Scheme:** As per the bilateral agreement, the Joint Project Office-Sapta Kosi & Sun Kosi Investigation (JPO-SKSKI)-is carrying out field investigations for Sapta Kosi High Dam and Sun Kosi Storage-cum- Diversion Scheme for preparation of a comprehensive DPR. Regular meetings through established bilateral mechanisms between the Government of India & Nepal are held for reviewing the progress of various works.
- **Grant-in-Aid to States/ UTs for flood management/ anti-sea erosion:** The scheme provides for 100% grant to select border States and UTs for river management works. Grant-in-aid amounting to Rs. 695.12 crore has been released under RMBA component of FMBAP to States/ UTs during the period April, 2017 to March, 2024.

NORTH KOEL RESERVOIR PROJECT:

DoWR, RD & GR has taken up the long pending project for completion of balance works of North Koel Reservoir Project, Bihar and Jharkhand. The balance works of North Koel Reservoir Project have been approved by the Union Cabinet at revised cost estimated of Rs. 2430.76 crore on 4th October, 2023. Project will provide irrigation benefit to 1,14,021 hectares of land annually in drought prone areas of Aurangabad and Gaya districts of Bihar and Palamau and Garhwa districts of Jharkhand. It also has the provision for

supply of 44 MCM water for drinking and industrial water supply. Execution of balance works of the project on turnkey basis by M/s WAPCOS Ltd as Project Management Consultant (PMC) has been approved. 10% works on dam & appurtenant, 100% works on Mohammadganj barrage (50% of additional works), 86% works on left main canal and 17% works on right main canal of Jharkhand portion have been completed.

3.6 NATIONAL HYDROLOGY PROJECT (NHP)

National Hydrology Project (NHP), with support from the World Bank, envisages establishing a system for timely and reliable water resources data acquisition, storage, collation and management. It has pan-India coverage with 48 Implementing Agencies (IAs) (including 9 from Central Government, 3 from River Basin Organisations, 36 from States/UTs). It will also provide tools and systems for informed decision making for water resources assessment, planning and management. The National Hydrology Project has been approved with an outlay of Rs. 3,679.77 crore as a Central Sector Scheme with 100% grant to State Governments and Central Implementing Agencies. The project has a duration of 8 years from 2016-17 to 2023-24. Department of Expenditure, Ministry of Finance has accorded approval for completion of the Project upto September 2025 within the same allocation.

Objectives:

- To improve the extent, quality, and accessibility of water resources information.
- To create decision support system for floods and basin level resource assessment/planning.
- To strengthen the capacity of targeted water resources professionals and management institutions in India.

Important activities taken up under NHP:

Under the ongoing NHP, almost 21,200 Real Time Data Acquisition System (RTDAS) Surface Water and Ground Water stations have already been installed in the country. Besides, 35 stationaries as well as mobile water quality labs have been developed/procured/maintained and put into operation; high-resolution DEMs, CORS network as well as Geoid model have also been developed. Furthermore, Bathymetric surveys of 460 important reservoirs of the country covering 155 BCM have also been taken up under NHP of which 283 studies have already been completed. Further 29 States Data Centres/ Regional data centres/ knowledge centres, etc. have been completed under the ongoing NHP. The need for development & maintainance of appropriate institutional framework both at the Central as well as State level for water resources information system intended for collection, collation and dissemination of the database was given shape in the

ongoing NHP. As envisaged in the Cabinet note, the National Water Resources Informatics Centre (NWIC) has been created in 2018 and is now functional. Additionally, the formation of the State Water Informatics Systems was taken up in the ongoing NHP. Till date almost 17 SWICs have already been formed with a few more under process. The information system covering hydrometeorological, hydrogeological, sedimentation, morphological and water quality data is also important in the context of various knowledge products being developed under NHP. Some of the important knowledge products/ IT Applications/ Digital Products/ geospatial hydro products developed under NHP are as under:

- Early Flood Warning System/ Spatial Flood Early Warning System including flood inundation forecasting for the Ganga, Godavari, Tapi, Krishna- Bhima, Damodar, Periyar and Ravi basins.
- Development of Decision Support System for Near Real Time Integrated Reservoir Operation System for the Ganga basin.
- Physical based Mathematical Modelling for Estimation of Sediment rate and Sediment transport in 07 river basins i.e. Barak, Ramganga, Narmada, Cauvery, Kuttidipuzha, Peechi and Mangalam.
- Extended Hydrological Prediction (Multi week Forecast) for Narmada, Cauvery and Yamuna basins.
- Development, Maintenance and Updating of Decision Support System (Planning and Management).
- Glacial lake Outburst Flood (GLOF) Risk Assessment of Glacial Lakes in the Himalayan Region – Indus, Ganga, Brahmaputra river basins and the entire Himalayas.
- Development of Embankment Asset Management System/ Integrated Embankment Management System.
- Satellite based Evaporative Flux Estimation over Indian Region.
- Satellite data based Inputs for Irrigation Scheduling for a selected Irrigation Project Command Area – Narayanpur Command in Karnataka.
- Generation of LIDAR DEM with Resolution of 1m and vertical accuracy of 50 cm and Orthorectified images of 71,204 sq km area.
- Generation DEM with Resolution of 10m and vertical accuracy of 3-5m and creation and updating of geodatabase as appearing in 1:25000 topomaps of Survey of India for 8,35,000 sq km area.
- Continuously Operating Reference Stations (CORS) Network in Uttar Pradesh and part of Uttarakhand
- Generation of Geoid model for Uttar Pradesh and Uttarakhand.

- Development of Spatial Snowmelt Runoff product in the Indian Himalayas.
 - Operational National Hydrological modelling System.
 - Development of Web Enabled Hydrologic Modelling System in SWAT- HUMID.
 - Operational Hydrological Drought Assessment.
 - Integrated River Basin and Shoreline Management Plan for Goa.
 - Alleviating Water Logging problem in critical areas of Dimapur, Nagaland.
 - Preparation of feasibility study report to alleviate flooding in Imphal city, Manipur arising out of drainage congestion.
 - Development of Decision Support System (DSS) for Management of Groundwater Resources of Maharashtra State.
 - Inventory of Ground Water Abstraction Structures in the State of Kerala.
 - Web GIS based Spring Inventory for Vulnerability assessment and hydrogeological investigation of selected springs for sustaining local water demand in Ravi catchment of Himachal Pradesh; Studies on occurrence, distribution, sustainability of natural springs for Rural Water Supply in Western Ghats; both developed by National Institute of Hydrology, Roorkee.
 - Preparation of Groundwater Management Plan for the state of Goa.
 - Water Audit and Management in Andhra Pradesh.
 - 40 Purpose Driven Studies (PDS) have been taken up by National Institute of Hydrology and various other Implementing Agencies of which around 25 have been completed till date.
- Further, under the capacity building component of NHP, a variety of trainings, webinars, workshops, and conferences are conducted. These trainings/webinars/workshops/conferences are held both physically and virtually. About 1000 trainings/seminars/webinars/conferences/ workshops have been conducted so far and around 22600 personnel have participated in the same.
- Further, a web based Management Information System has also been developed for real time review and monitoring of physical and financial progress of various activities under NHP.

3.7 INFORMATION, EDUCATION AND COMMUNICATION (IEC)

National Water Awards:

The Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti

organizes the National Water Awards every year since 2018 with the objectives to encourage various stakeholders including the States, Districts, Schools, Non-Governmental Organizations (NGOs), Gram Panchayats, Urban Local Bodies, Water User Associations, Institutions, Corporate Sector, etc to adopt a holistic approach towards water resource management in the country. These awards would recognize exemplary work done by the people in this arena. National Water Awards is solely an initiative that focuses on incorporating and adopting innovative practices of groundwater augmentation by rainwater harvesting and artificial recharge, promoting water use efficiency, recycling & re-use of water through citizen participation. The National Water Awards (NWAs) focus on the good work and efforts made by individuals and organizations across the country in attaining the government's vision of a '*Jal Samridh Bharat*'.



Hon'ble Vice President of India, Shri Jagdeep Dhankad, presented the fourth National Water Awards in New Delhi on 17th June, 2023

The 1st, 2nd, 3rd and 4th National Water Awards were successfully organized by the Department in 2018, 2019, 2020 and 2023 respectively, and winners in different categories were felicitated with awards & cash prizes. The Hon'ble Vice President of India, Shri Jagdeep Dhankad, presented the fourth National Water Awards in New Delhi on 17th June, 2023.

5th National Water Awards for year 2023 have been launched to create awareness among the people about the importance of water and attempts to motivate them to adopt the best water usage practices. The event will also provide an occasion for all people and organizations to further cement a strong partnership and people engagement in water resources conservation and management activities. The 10 categories under 5th NWA, 2023 are Best State, Best District, Best Village Panchayat, Best Urban Local Body, Best Institution (other than School/College), Best School or College, Best Civil Society, Best Water User Association, and Best Individual for Excellence and Best Industry.

Electronic Media Campaign-Production of videos/films:

Various videos pots/documentary films on successful work done by the Department, animated videos/short videos/ films are produced for awareness on water conservation and rain water harvesting techniques, videos for National Water Awards were produced through NFDC. These videos are shared/ uploaded

on social media platforms like Facebook, Instagram, and twitter (now X) etc. to spread awareness among general public about water conservation and management practices.

Social Media campaign:

The social media activities of the Department are operated on Facebook, Twitter, Instagram, Youtube and Koo App. The targets of the campaign include increasing reach of social media handles of the Department & its organizations, creation of quality content to connect with the people, highlighting the initiatives/campaigns of the Department, creation of awareness about water resources, conservation and management, and engaging people of the country. Campaigns have been undertaken on success stories celebrating successful endeavours of individuals, groups, and organizations, Catch the Rain campaign, Water for All, Every Drop Counts, Azadi Ka Amrit Mahotsav (AKAM) campaign, Special Campaign 3.0, Swachhata Hi Seva, International Conference on Dam Safety, Dekho Apna Desh, Bane Zimmedar, Life Givers our Rivers, Virasat Bharat Ki, Ancient Civilization of Water, Jal Chakra, Amrit Sarovar, Wet lands of India, 'Guess the Place' quiz, Drought Tolerant Plants, Adbhut Ganga and others.

Internship in Mass Communication:

DoWR, RD & GR initiated an internship programme to engage students pursuing Under Graduate / Graduate / Post

Graduate Degrees or Research Scholars enrolled in recognized University/ Institution in the field of Mass Communication in India, as "interns". The Internship Programme aims to allow short term exposure to "selected candidates" to be associated with the Department's work related to media/social media activities. The programme will well acquaint the "Interns" with the working of the Department in field of media/social media related activities etc. as well as supplement the process of mass publicity of this Department to create awareness about importance of development and management of water resources in holistic manner. In the first batch of interns, 03 interns have joined.

Logo Support:

During the year, the Department has provided logo support for the various events including 10th edition of ISUW 2024, 9th Water Innovation Summit, 9th India Industry Water Conclave and 11th FICCI Water Awards, 3rd edition of Water Sustainability Awards, No Dig India Show exhibition, National Conference on Emerging Technologies in Construction and Infrastructure Sector, 92nd Annual meeting of ICOLD, Plumbex India organised by Indian Plumbing Association, & National Conference on Healthy Food Practices, etc.

Participation in Exhibitions/ Expos:

The Department has also

participated in various exhibitions / Expos including Saksham Haryana, Nadi Utsav in Odisha, Water Sammelan-Bainsali Dialogue, Rise in Gujarat 2023, Samridh Maharashtra, Jaipur Expo-2023, Ujjwal Rajasthan – Atmanirbhar Bharat ki or, 7th World Water Summit, G20- Environment and Climate Sustainability Work Group's meeting in Gujarat, 2nd Ujjwal Uttar Pradesh, Indian International Trade Fair, 2023, & 27th Sundarban Kristi Mela etc.

These events help in spreading the best & innovative water conservation and management practices among the masses.

Publicity through Print media - Publishing of bi-monthly magazine “Jal Charcha” and “10 years' achievement Pocket Booklet” of Ministry of Jal Shakti”:

The Department has been publishing bi-monthly magazine to engage with the stake holders to help in informed decision-making at the central level. The magazine in its new format has the objective to bring best practices and good work done by the Department & its organisations in the field of water sector to the national stage, and move ahead in the direction of creating water consciousness in the minds of the people. Given the vastness of the subject, while the theme of the magazines would change with different editions, effective water resources conservation and management in an integrated manner will remain the central theme.

A pocket booklet showcasing 10 years achievement of the Ministry of Jal Shakti has been published. The booklet has an objective of providing a comprehensive overview of the Ministry's achievements in the water sector over the past years. Highlighting achievements is not only a means of disseminating information, but also a way of celebrating the success and milestones attained by the Ministry of Jal Shakti. It will serve as a tangible representation of progress made in the water sector.

3.8 E-GOVERNANCE ACTIVITIES:

- Department has completely operationalized e-Office w.e.f. 2nd February, 2017. This Department has more than 95% electronic files usage in e-Office and the percentage of physical files being used is less than 5%. All new files are opened in electronic form. Presently e-Office (Lite) v7.0x (latest version) is implemented w.e.f. 16.01.2022 in the Department.
- Department has participated in the 'Smart India Hackathon (SIH) 2023' launched by Ministry of Education in coordination with All India Council for Technical Education (AICTE). SIH is the platform where State Governments/ Ministry/ Departments share critical 'Problem Statements' which will be used to challenge students of Higher Education Institutions

(HEIs) for offering innovative technical solutions. 8 Problem Statements (PSs) submitted by the Department have been selected by Ministry of Education for SIH 2023. Grand Finale of the event has occurred in December, 2023.

- “Azadi Ka Amrit Mahotsav (AKAM)” is a celebration to commemorate the 75 years of a progressive independent India, and undertakes fresh resolutions for the next 25 years of the country's Amrit Kaal. AKAM celebrations were extended for another year, and culminated on August 15, 2023. The emphasis of second phase of celebration was on Jan Bhagidari and Public Participation. Activities on 'Water' theme were organized by M/o Jal Shakti (as lead ministry) along with supporting ministries such as M/o Rural Development, M/o Housing & Urban Affairs, M/o Environment, Forests & Climate Change etc with the core areas of activities as follows:-

- a. Water Conservation;
- b. Water Pollution and;
- c. Drinking Water and Sanitation.

A Calendar of Activities was prepared for celebration of AKAM for the year 2022-23 at large scale by using resources of various wings, organizations, institutions and attached and subordinate offices of this Department spread all over India. Apart from these activities, this

department is also carrying out special programmes as per the themes decided by Cabinet Secretariat and Ministry of Culture from time to time, viz “Har Dil Dhyam, Har Din Dhyam”, “Har Ghar Tiranga” etc.

- Department has linked its e-Office instance with Department of Expenditure, Department of Personnel & Training, Department of Tourism, Department of Legal Affairs enabling inter-departmental transfer of e-Files amongst these Departments. e-Office is fully implemented in the Attached/ Subordinate/ Autonomous & PSU offices in Central Water Commission (CWC), Central Soil & Materials Research Station (CSMRS), Central Water & Power Research Station (CWPRS), Ganga Flood Control Commission (GFCC), Central Ground Water Board (CGWB), Upper Yamuna River Board (UYRB), National Institute of Hydrology (NIH), National Mission for Clean Ganga (NMCG), National Water Development Agency (NWDA), National Projects Construction Corporation Ltd. (NPCC), National Water Informatics Center (NWIC), National River Conservation Directorate (NRCD), National Hydrology Project (NHP), National Water Mission (NWM), WAPCOS, NERIWALM.
- The website of the Department and the websites of its organisations are being updated on regular basis.

Status of updation is reviewed on weekly basis.

- e-HRMS is a flagship programme of Department of Personnel and Training (DoPT) which aims to create a comprehensive and integrated system through adoption of principle of e-Governance is implemented in the Department. Further, as per direction of DoPT, implementation of e-HRMS in the Attached/ Subordinate offices under this Department is also in process.
- Data Governance Quality Index (DGQI) is being implemented in the Department. DGQI is mainly a self-administered survey for use of information technology for implementing central sector and centrally sponsored schemes of the Ministries/ Departments. The aim of DGQI is to improve the preparedness of the data systems of Ministries / Departments through a self-assessment mechanism. Action Plan for the Department has been prepared and submitted to NITI Aayog. About 17 projects/ schemes of the Department are included under DGQI. The Self-Assessment Questionnaire for the schemes/ projects of the Department are being submitted to NITI Aayog through online mode on quarterly basis and the Department is in-process to reach a DGQI score of 4 & above on the scale of 0-5.

3.9 DAM REHABILITATION AND IMPROVEMENT PROJECT (DRIP)

Dam Rehabilitation and Improvement Project (DRIP) is an externally aided project with financial assistance from the World Bank, targeting rehabilitation of some of the selected dams of the Country along with accompanying institutional strengthening component.

Dam Rehabilitation and Improvement Project (Phase-I):

DoWR, RD & GR initiated World Bank assisted Dam Rehabilitation and Improvement Project in April, 2012, with an objective to improve safety and operational performance of selected dams along with institutional strengthening with system wide management approach. The scheme became effective in April, 2012. 223 dams located in seven States i.e. Kerala, Madhya Pradesh, Odisha, Tamil Nadu, Karnataka, Jharkhand and Uttarakhand were taken up for rehabilitation measures for improving safety and operational performances of these dams.

The financial outlay of the scheme was originally Rs. 2,100 crore (with external loan of US\$ 279.3 million) with scheduled closure on 30th June, 2018. The cost of the scheme was revised to Rs 3,466 crore (with external loan of US\$ 416.3 million) in September 2018 along with extension of the scheme by two years i.e. up to 30th June, 2020. The scheme was further extended by 9 months to give adequate

opportunity to Implementing Agencies to complete left over works which were adversely impacted during COVID-19. Phase-I of the DRIP scheme was completed successfully on 31st March, 2021. The performance rating of scheme given by the World Bank is 'satisfactory'. It was a State Sector Scheme with back-to-back loan arrangement. The original funding pattern was 80:20, with modified funding pattern for additional financing i.e., 50:50 (Central Agencies), 70:30 (General Category States), and 80:20 (Special Category States).

DRIP Phase I - Achievements /Activities:

- **Physical rehabilitation at 221** dams completed to address various safety concerns of dams as well as safety of downstream people, property, & the environment. Balance major works at two dams were transferred to DRIP Phase II as spill over activity.
- **Financial achievement:** Out of the total project cost of Rs. 2,646 crores, total expenditure incurred was Rs. 2,567 crores.
- **Publication of Emergency Action Plans (EAP):** 217 EAPs were prepared out of which 210 EAPs were published. Stakeholder consultation meetings for 78 dams were held to disseminate EAP and sensitize all concerned stakeholders.
- **Operation and Maintenance (O&M) Manuals:** O&M manuals of 221 dams have been prepared, out

of which 215 were published.

- **13 Guidelines and Manuals** on various aspects of dam safety and 1 on standard technical specifications for dam instrumentation were published under DRIP. [These documents are available on official website of DRIP (www.dam.safety.in)].

Capacity building of staff and officials involved in regular operation of these water assets along with central and academic institutions is one of the important activities. This helps the operation of dams safely and efficiently during any emergency including extreme flood and earthquake activities. Under DRIP, 10 implementing agencies, eight academic institutions and two central agencies have been part of this activity. As a part of institutional strengthening, 191 customized national and international trainings have been conducted benefitting about 5,500 officials.

- To promote long term asset management, web-based tool called Dam Health and Rehabilitation Monitoring Application (DHARMA) has been developed to capture important data for all dams and use it for appropriate monitoring and development of rehabilitation protocols. This tool has been

implemented with seven modules with license to 18 States. Data has been entered for 1,500 dams with 1,052 official users.

- As a part of institutional strengthening, IIT Roorkee and IISc Bangalore have announced post graduate degree program in dam safety since July, 2021 academic session.

Dam Safety Conferences and Workshops provide a forum for exchange of experience among dam professional from around the world. Three National Dam Safety Conferences in Chennai (2015), Bengaluru (2016), Roorkee (2017) and two International Dam Safety Conferences in Thiruvananthapuram (2018) and Bhubaneswar (2019) were organized. National and international dam professionals submitted over 500 technical papers for these conferences covering aspects in dam safety management and dam rehabilitation. About 2,500 delegates participated and benefitted from rich exchange of experience relating to latest technical developments and practices in dam engineering. These conferences received overwhelming response from the national and international dam fraternity.

Dam Rehabilitation and Improvement Project (Phase-II & III):

Based on the success of DRIP Phase-I, Ministry of Jal Shakti initiated another externally funded scheme, DRIP Phase-II and Phase-III. The Union Cabinet has approved the Scheme on October 29, 2020.

The scheme has provision for rehabilitation of 736 dams located in 19 States (Andhra Pradesh, Chhattisgarh, Goa, Gujarat, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Odisha, Punjab, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh, Uttarakhand, West Bengal, and three Central Agencies (Central Water Commission, Bhakra Beas Management Board, and Damodar Valley Corporation). It is a State Sector Scheme with Central component, with duration of 10 years, to be implemented in two Phases i.e. Phase- II and Phase-III, each of six years duration with an overlap of two years.

The budget outlay is Rs 10,211 Cr (Phase II: Rs 5107 Cr; Phase III: Rs 5104 Cr) with rehabilitation provision of 736 dams. Out of this cost, Rs. 7,000 crore is an external loan and Rs. 3,211 crore would be borne by the respective participating States and the three Central agencies. The funding pattern of scheme is 80:20 (Special Category States), 70:30 (General Category States) and 50:50 (Central Agencies). The scheme also has provision of Central Grant of 90% of loan amount for special category States (Manipur, Meghalaya and Uttarakhand). The DRIP Phase-II and III Scheme is 10 years duration, proposed to be implemented in two Phases, each of six year duration with two years overlapping. Each Phase has external assistance of US\$ 500 M. The Phase-II of the scheme is being co-financed by World Bank and Asian Infrastructure Investment Bank (AIIB), with funding of US\$ 250 million each. The

loan agreement by World Bank was signed on August 04, 2021 with 10 States (Gujarat, Kerala, MP, Maharashtra, Manipur, Meghalaya, Rajasthan, Odisha, Tamil Nadu, and Chhattisgarh) and became effective from 12th October, 2021. In addition to 10 States, four States (Uttarakhand, Uttar Pradesh, West Bengal and Karnataka) have been notified by World Bank for inclusion under this scheme in June 2022 and their loan declared effective in January 2023.

The loan agreement by AIIB was signed on 19th May, 2022 with 10 States (Gujarat, Kerala, MP, Maharashtra, Manipur, Meghalaya, Rajasthan, Odisha, Tamil Nadu, and Chhattisgarh) and declared effective on 29th December, 2022 by AIIB.

Important project achievements include approval of PSTs of 125 dams costing Rs 3965 Cr by the World Bank. The contract(s) amounting approximately Rs 2264 Cr have been awarded by various Implementing Agencies and an amount of Rs 1080 Cr spent as on 31.03.2024 on various project activities including dam rehabilitation, institutional strengthening and project management activities. CWC signed Contract Agreement on August 14, 2023 for Engineering and Management Consultancy for duration of 10 years to provide technical and managerial support to States for implementation of DRIP Phase II and III. CWC signed MoA in February 14, 2023 with IIT Roorkee for development of International Centre of Excellence for Dams (ICED) in two emerging dam safety

areas viz Reservoir Sedimentation and Seismic Hazard Analysis. Envisaged as world class State of Art centre, this Centre will provide specialized technical support in investigations, modelling, research and innovations, and technical support services to the Indian and overseas dam owners. With regard to CoE in IISc Bangalore; the MoA is under advance stage of finalization.

Another MoA signed between CWC and IISc, Bengaluru for the establishment of Center of Excellence (CoE) at IISc Bangalore on 4th March 2024. Two research areas identified to be taken up at this CoE are – Advanced construction and rehabilitation materials and material testing for dams and Comprehensive (multi- hazard) risk assessment of dams. Officials from Ministry, CWC and IISc Bangalore attended this signing ceremony.

As part of capacity building program in dam safety, the World Bank conducted an online training on Tier-1 Risk Assessment Framework during January 11-13, 2023, The 20 officials of CWC and 60 officials of State Government participated in this training. Also, series of customized training program on Dam Safety are planned. Training of 'Dam Safety Aspects- An Overview' are being organised at NWA Pune. First training was held for Gujarat WRD officers (25 officers) during 17-26 May 2023; Second training organised during 18-23 September 2023 wherein 55 officers from various States, PSUs from DRIP IAs; third training was organised on

Dam Safety and Instrumentation during 06-10 November, 2023, wherein 20 officers from DRIP IAs and 9 officers from CWES ITP participated. Also regular trainings in web based asset management tool called DHARMA are being organized for various State Governments. Three international training programs on dam safety have been organized, one in USA, other in Canada, and third in Australia wherein about 40 officers State/Central government officials participated. 3 training on EAP, flood routing and freeboard calculation has been organised. Two training (17-19th May; 26-28th June 2023), were for UP WRD officers (80 officers in two trainings), and one training (11-15th December) was held in New Delhi for 34 officers belonging to 8 States and academic institutes. Another five-day training program (11th -15th December 2023) on 'Dam Break Analysis, preparation of inundation maps, Emergency Action Plan (EAP), Reservoir Routing and Free Board Calculations' organised by FE&SA Dte, DSO, CPMU under DRIP Phase-II & III at Training Hall, New Library Building. Total 34 officers from 08 States (namely Punjab, UP, Bihar, Chhattisgarh, Gujarat, Odisha, Telangana, and Andhra Pradesh), 01 State PSU (UPJVNL), and M. Tech. student from IISc. Bangalore attended the training programme. World Bank has organized a training program on the In-situ application of the Rapid Risk Assessment tool from March 4-15th, 2024, during which three teams of Risk Assessment experts from the World Bank visited the three dam sites

(Ukai Dam, Ichhari Dam and Bhakhra Dam) for demonstration of this tool at the dam sites.

M.Tech program related to dam safety & rehabilitation was initiated in the year 2021 in two premier academic Institutes viz IIT Roorkee and IISc Bangalore. These programs are continuing and helping to develop a strong cadre for dam safety to carry out the various technical activities as enshrined in the Dam Safety Act 2021.

The International Conference on Dam Safety 2023 organized in Jaipur during 14-15th September 2023. It was inaugurated by Hon'ble Vice President of India, in presence of Hon'ble Union Minister of Jal Shakti and various other Dignitaries. The conference brought together experts, technocrats, researchers, administrators and professionals from around the world to exchange ideas, share experiences and foster collaboration in the field of dam safety. About 800 delegates participated in this Conference, and 51 technical papers were presented by leading experts of various domains.

2nd Meeting of Technical Committee of DRIP-II was held on 26th October 2023 in Delhi under the Chairmanship of Member (D&R), CWC in which nodal officer and Project Director of DRIP IAs participated. Deliberations in respect of technical matters with regard to pertaining to implementation of the scheme were held during the meeting.

The World Bank Mid Term Review (MTR) Mission of DRIP-II and Preparatory Mission of DRIP-III to discuss about the physical & financial progress of IAs along-with their embedded issues was held in Bhubaneswar (Jan 18-20, 2024) and Surat (Jan 29-31, 2024). It was also discussed about the readiness/preparation of DRIP-III and the inclusion of four IAs (namely Goa, Andhra Pradesh, BBMB and DVC). Also, a one day parallel session on the matter of Environmental & Social (E&S team) was during the above missions. Furthermore, the wrap-up meet of MTR was held on 1st March 2024.

3.10 RESEARCH AND DEVELOPMENT (R&D)

Research & Development (R&D) activities under the scheme “Research and Development Programme in Water Sector and Implementation of National Water Mission” include basic and applied research, creation and up-gradation of

research facilities and training of personnel implemented through the apex organizations of Department viz., CSMRS, CWPRS, NIH, and CWC. Also, the Department provides financial assistance to IITs, Universities, research organizations, etc., for taking up research in water sector through three Indian National Committees (INCs) constituted by the Department and Standing Advisory Committee headed by Secretary (WR, RD & GR). The Indian National Committees (INCs) constituted by the Department are Indian National Committee on Surface Water (INCSW), Indian National Committee on Groundwater (INCGW) and Indian National Committee on Climate Change (INCCC). The R&D Program has also helped in capacity building and creation of additional facilities and infrastructure at various Research institutes in India.

Outcome of R&D Scheme:

Physical Achievements:

Particulars	Year					
	2021-22		2022-23		2023-24	
	Target	Achievement	Target	Achievement	Target	Achievement
Technical Reports Submitted (Nos.)	195	204	195	243	225	255
Research Paper Published (Nos.)	305	252	300	302	300	395
Training Programmes/ Conferences Organized(Nos.)	40	48	60	71	80	68
Training of Personnel(Nos.)	-	1058	-	1703	-	1617

Achievements of the research sponsored by the Ministry during the year:

- 13 research schemes were recommended by Standing Advisory Committee for inviting R&D proposals from the identified institutes.
- 32 proposals of organizing workshop/conferences/seminars were recommended and funded under the R&D programme.
- During 14th meeting of Indian National Committee on Climate Change (INCCC) held on dated 27.02.2024, 4 nos reports of completed INCCC sponsored projects were reviewed and accepted.
- A roadmap for R&D in the Water Sector was developed, which was recommended by the Standing Advisory Committee during the meeting held on 4th May 2023.

3.11 DEVELOPMENT OF WATER RESOURCES INFORMATION SYSTEM

Development of Water Resources Information System (DWRIS) Scheme, a continuing scheme of 12th Five Year Plan, is under implementation during 2021-22 to 2025-26 with outlay of Rs. 715 crores, for creation of reliable and sound database for policy formulation, planning and designing of water resources projects, timely dissemination of flood forecast, etc.

Achievements under DWRIS scheme:

- 1730 Hydro-meteorological sites are being operated across the country covering 20 river basins for gauge, discharge, sediment, rainfall and related observations.
- 338 flood forecasting stations established. On an average 10,000 flood forecasts are being issued every year and are being disseminated to all stakeholders through various platforms including social media.
- 7-days advisory has been operationalized to enhance lead time.

3.12 NATIONAL RIVER CONSERVATION PLAN

The National River Conservation Directorate, functioning under the Department of Water Resources, River Development & Ganga Rejuvenation, and Ministry of Jal Shakti is providing financial assistance to the State Governments for conservation of rivers under the Centrally Sponsored Schemes of 'National River Conservation Plan (NRCP)'.

Rivers are lifelines for the civilizations and need to be considered as vibrant ecological entities. They are a source of sustenance of our culture and civilization, and provide a host of ecosystem services for the human beings. The threat to rivers has been increasing over the years as a result of rapid

urbanisation, industrialization and increase in population. Over-extraction of water for irrigation, industrial, drinking purposes is compounding the problem. This calls for protection, conservation and rejuvenation of these valuable resources.

The Central Government took initiative of river pollution abatement programme with the launching of the Ganga Action Plan (GAP) in 1985. The Ganga Action Plan was expanded to cover other rivers under National River Conservation Plan (NRCP) in the year 1995. The objective of NRCP is to improve the water quality of rivers, which are major water sources in the country, through implementation of pollution abatement works in various towns along identified polluted stretches of rivers on cost sharing basis between the Central & State Governments.

Schemes taken-up under NRCP programme are aimed primarily at reduction in pollution load in rivers. Apart from improvement in water quality of rivers leading to better public health and ecology of the river systems, the pollution abatement works taken up under NRCP help to improve the aesthetics & sanitation in the towns and in maintaining a cleaner environment.

As per OM No. O-11013/02/2015-CSS&CMC dated 17th August, 2016 of NITI Aayog, National River Conservation Programme has been identified as a core scheme of the National Development Agenda approved by the Cabinet.

The pollution abatement works taken up under the NRCP include:

- Interception and diversion works/ laying of sewerage system to capture raw sewage flowing into the rivers through open drains and diverting them for treatment.
- Setting up of Sewage Treatment Plants (STPs) for treating the diverted sewage.
- Construction of Low Cost Sanitation Toilets to prevent open defecation on river banks.
- Construction of Electric Crematoria and Improved Wood Crematoria to conserve the use of wood.
- River Front Development works, such as improvement of bathing ghats.
- Public participation & awareness and capacity building, etc.

Presently, NRCP (excluding Ganga and its tributaries) has covered polluted stretches of 53 rivers in 98 towns spread over 17 States at a sanctioned cost of Rs.8649.67 crore is at **Annexure-IV**. An amount of Rs.3483.23 crore has been released to various State Governments for implementation of various pollution abatement schemes and a treatment capacity of 2910.50 million litres per day (mld) has been created so far under the NRCP resulting in reduction in pollution load being discharged into various rivers.

The following rivers are covered under NRCP:

Sl. No.	River
1	Adyar
2	Banganga
3	Beas
4	Bhadra
5	Brahmani
6	Cauvery
7	Cooum
8	Devika
9	Diphu & Dhansiri
10	Dhansiri & Chethe
11	Donyung Shumang
12	Garu
13	Ghaggar
14	Godavari
15	Jhelum
16	Jojari
17	Keleureu
18	Krishna
19	Marachu
20	Mahanadi
21	Mandovi
22	Melak
23	Mindhola
24	Mula Mutha
25	Musi
26	Mutsum

Sl. No.	River
27	Nag
28	Narmada
29	Nambul
30	Pennar
31	Pamba
32	Panchganga
33	Punyaonganmong
34	Rangit
35	Rani Chu
36	Sabarmati
37	Satluj
38	Sedzu
39	Subarnarekha
40	Tapti
41	Tapi
42	Tapi (Nagaland)
43	Tamrabarani
44	Tawi
45	Teesta
46	Tizu
47	Tunga
48	Tungabadra
49	Vaigai
50	Vennar
51	Wainganga
52	Zuari
53	Zungki

From 01.08.2014, works related to Ganga and its tributaries were transferred to the then Ministry of Water Resources, River Development & Ganga Rejuvenation (MoWR, RD&GR). Accordingly, the rivers namely Ganga, Yamuna, Gomti, Damodar, Mahananda, Chambal, Beehar, Khan, Kshipra, Betwa, Ramganga and Mandakini have been shifted to MoWR, RD & GR along with the National Mission for Clean Ganga (NMCG). The Central Government has, vide Notification No. 1763 dated 14th June, 2019, further amending in the Government of India (Allocation of Business) Rules, 1961, transferred NRCD including NRCP from Ministry of Environment, Forest and Climate Change (MoEF&CC) to the Department of Water Resources, River Development & Ganga Rejuvenation (DoWR, RD&GR) under the newly constituted Ministry of Jal Shakti for implementation of works in respect of pollution abatement of rivers other than Ganga and its tributaries under the NRCP.

3.13 NATIONAL WATER MISSION (NWM)

National Water Mission (NWM) was set up as per the National Action Plan on Climate Change (NAPCC) which was approved by the Government of India and released by the Hon'ble Prime Minister on 30th June 2008.

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”. “Implementation of National Water Mission (NWM)” is a Central Sector Scheme of DoWR, RD & GR.

National Water Mission is a think tank coordinating Mission to fill gaps in policy and for an integrated perspective as a coordinating body with the implementing wings/ bodies of the Ministry of Jal Shakti and its allied Departments/Ministries. National Water Mission plans to bring all the stakeholders like Central Government Ministries/ Departments, State Governments, NGOs, PRIs, KVKs, NYKS, international organizations together to work towards a greater vision for creating awareness and a sense of ownership of responsibility among the citizens of the country.

3.14 GROUND WATER MANAGEMENT & REGULATION (GWM & R)

Ground Water Management and Regulation (GWMR) scheme is a continuing Central Sector Scheme, which is being implemented since 2007-08 by Central Ground Water Board (CGWB). The scheme has been approved for continuation till 31st March 2026.

Major Activities under the Scheme include:

- Aquifer Mapping
- Interventions for Aquifer Rejuvenation and Springshed Mapping

- Construction of Piezometers
- Monitoring of ground water levels
- Monitoring of ground water quality
- Assessment of ground water resources
- Regulation and control of ground water extraction
- Outreach Activities

In addition to the above ongoing activities under GWMR scheme, a Project has been approved by the Public Investment Board (PIB) for creating infrastructure for data generation for National Aquifer Mapping and Management (NAQULM) to be implemented as a part of the GWM&R Scheme for the period 2022-2026 with a total outlay of Rs. 805 Crore.

Major Activities envisaged under this project include:

- Construction of 7000 piezometers along with installation of 7000 Digital Water Level Recorders (DWLRs) with telemetry system
- Heli-borne surveys for high resolution mapping in about 3 lakh sq km area in arid parts of NW India.
- Data Generation for Aquifer Mapping through construction of Wells (1135 wells in 11 States)

3.15 RIVER BASIN MANAGEMENT (RBM)

River Basin Management (RBM) consists of two broad components namely

Brahmaputra Board and Investigation of Water Resources Development Scheme (IWRDS). IWRDS is being implemented by (i) National Water Development Agency (NWDA) and (ii) Central Water Commission (CWC). Under this scheme, Brahmaputra Board is carrying out works of-

- Survey, investigation and preparation of Master Plan,
- Preparation of DPR of Multipurpose Projects
- Drainage Development Schemes
- Anti-erosion works including protection of Majuli Island, Balat Village in Meghalaya, Mankachar and Masalabari area in Assam etc. from flood and erosion and Construction of Raised Platforms.

The total budget outlay of this Central Sector Scheme during 2021-22 to 2025-26 is of Rs. 1276.00 crore. The expenditure under RBM scheme for the financial year 2023-24 is as under.

Sl. No.	Specification	Rupees (in crore)
1.	Budget Allocation for 2023-24 (BE)	215.00
2.	Budget Allocation for 2023-24 (RE)	204.49
3.	Expenditure incurred (from 1 January, 2024 to 31 March 2024)	33.35
4.	Total Expenditure incurred in 2023-24	167.35

Achievements of RBM Scheme

Under IWRDS component of scheme, Various S&I works and studies on hydrological, Irrigation Planning environment aspects, cropping pattern have been done for the following project mentioned projects:

- Barinium HEP, J&K
- Tlawng Hydro-Electric Project, Mizoram
- Madhura Irrigation Project, Assam
- Mat-Sekawi, H.E. Project Mizoram
- Tuichang H.E. Project, Mizoram
- Buroi Medium Irrigation Project, Assam
- Medium Irrigation Project in Mebo Area, Arunachal Pradesh
- Drass-Siru Link Project
- Damring Irrigation Project, Meghalaya

Under this scheme, Brahmaputra Board had taken up preparation of master plans of the main stem of the Brahmaputra and Barak along with 68 major tributaries of Brahmaputra including Majuli Island, river Dhaleswari and rivers of Meghalaya, Mizoram, Manipur and Tripura in three parts. Preparation of Manipur River Master Plan and updation of Hoara river Master Plans is going on and Updation of Master Plan of Main Stem Brahmaputra, Barak, South Flowing River of Meghalaya, Rivers of Mizoram have been initiated for taking up during FY 2022-23.

Three Master Plans (Tangani, Kynshi and Sankosh-Raidak) are under updation using latest State of art modern technology for obtaining necessary approval of Government of India. Modification of draft Master Plan of Teesta basin is also being taken up. In addition, Brahmaputra Board took up survey & investigation of 14 multipurpose projects in Brahmaputra and Barak basin and in the south flowing rivers of Meghalaya. Currently, work for DPR preparation of Simsang Dam project, Meghalaya and Jiadhal Dam project, Arunachal Pradesh has been entrusted to WAPCOS and is in progress.

Work of protection of Majuli Island from Flood and Erosion is also being done under this scheme. A new scheme for protection of Majuli Island from flood and erosion of river Brahmaputra for Rs. 233.57 crore was approved by the then Ministry of Water Resources and Ministry of DoNER allocated Rs. 207 crores for the same and remaining amount have been utilized under River Basin Management scheme. Execution of the scheme is in progress. 97% of the works has been completed so far.

Bio-Engineering measures for Flood and Erosion Management-A pilot project of bio-engineering measures for river bank erosion of Brahmaputra at Right bank downstream of Kordoiguri of river Brahmaputra at Majuli Island of river Brahmaputra at Majuli island is under progress. For preparation of Detailed

Project Report to check flash flood and erosion in BTC area by Pagla/Baitamari, Aie, Beki, Pagladiya, Sankosh, Gangia and Saralbhangra rivers, work has been allotted to WAPCOS for preparation of Draft DPR is in progress.

Chapter 4

Inter-State River Issues



4. Inter-State River Issues

4.1 INTER-STATE RIVER WATER DISPUTES (AMENDMENT) BILL, 2019

The Inter-State River Water Disputes (Amendment) Bill, 2019 has been considered and passed by Lok Sabha on 31.07.2019. Subsequently, the Bill is to be considered in Rajya Sabha. The Bill seeks to establish a single Tribunal in place of multiple Tribunals by way of amending the existing Inter-State River Water Disputes Act, 1956 (ISRWD Act, 1956) for adjudication of inter-State River water disputes in a time bound manner. A new Tribunal with permanent establishment and its own permanent office space and infrastructure will obviate the need for establishing a separate Tribunal for each water dispute, a process which has invariably been found to be time-consuming.

Enactment of the above amendments will facilitate faster adjudication of water disputes and establish a robust institutional architecture for the purpose. Constitution of a single Tribunal with different benches as envisaged in the proposed amendment will result in about 25% reduction in staff

and the consequent reduction in expenditure.

4.2 DAM SAFETY ACT, 2021

To have a unified dam safety procedure all over the country, the Dam Safety Act, 2021, was notified in the Gazette of India on 14th December 2021 and the Central Government appointed 30th December 2021 as the date on which the provisions of the said Act shall come into force. Dam Safety Act, 2021 provides for surveillance, inspection, operation and maintenance of the specified dam for prevention of dam failure related disasters and to provide for institutional mechanism to ensure their safe functioning and for matters connected therewith or incidental thereto.

The Act has the provisions for setting up the following institutional mechanism:

- **At National Level:**
 - » **National Committee on Dam Safety (NCDS):** NCDS evolves dam safety policies and recommend necessary regulations and maintain standards of dam safety. Ministry of Jal Shakti, vide

Gazette notifications S.O. 757(E) and G.S.R. 134(E) dated 17.02.2022, constituted NCDS and NCDS Rules, 2022, on procedures, allowance and other expenditure, respectively. Second, third & fourth meetings of NCDS was held on 06.06.2023, 05.12.2023 & 12.03.2024 under the chairmanship of the Chairman, NCDS as per the provisions of the Act.

- » **National Dam Safety Authority (NDSA):** NDSA implements the policy, guidelines and standards evolved by the NCDS for proper surveillance, inspection and maintenance of specified dams. Ministry of Jal Shakti, vide Gazette notifications S.O. 758(E) and G.S.R. 135(E) dated 17.02.2022 established NDSA and notified functions & power rules 2022, respectively. Details are covered under Chapter-7 (Sub heading-7.3.13).
- **At State Level:**
 - » **State Committee on Dam Safety (SCDS):** SCDS supervises State Dam Safety Organisation (SDSO), State dam rehabilitation programs, review the work of the SDSO, and review the progress on measures recommended in relation to dam safety. All 31 States/UTs

owning the specified dams have constituted the SCDS.

- » **State Dam Safety Organisation (SDSO):** State Dam Safety Organisation keeps perpetual surveillance, carry out inspections, 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. All 31 States/UTs owning the specified dams have established the SDSO.
- » **Dam Safety Unit (DSU):** As per the provisions of the Act, for each specified dam, the owner shall, within the operation and maintenance establishment, provide a dam safety unit consisting of such competent levels of engineers as may be specified by the regulations

WORKSHOPS, MEETINGS, VISITS:

- A Regional Review meeting/ Interaction meeting was held with all the SDSOs in the jurisdiction of Western Regional Office of NDSA on 21.02.2024 at Bhopal. The states made a presentation on the progress made by them in the implementation of the dam safety Act 2021. Subsequent to the visit, the team of the NDSA officials

visited Indirasagar dam (Madhya Pradesh) on 22.02.2024 to review their dam safety related activities. Further NDSA held such regional review meetings regularly with all the SDSOs in virtual mode.



Second meeting of NCDS held at New Delhi
Held on 06.06.2023

- With a view to capacity building in respect of the Dam Health & Rehabilitation Monitoring Application (DHARMA) portal, the training has been imparted to officers of concerned State Governments / Dam owners. Further, the Dam owners are being continuously sensitized to update the data in the DHARMA portal, pertaining to their respective dams.
- NDSA officials attended a training program on In-situ application of the Rapid Risk Assessment tool organised at Ukai dam, Bhakra Dam, and Ichari dam sites during March 4-15, 2024.

DAM SAFETY INSPECTION VISITS:

- After the information about sinking

- NDSA held regular meetings with the dam owners of the projects which are vulnerable to Glacial Lake Outburst Flood (GLOF). All these dam owners were directed to carry out a detailed study on their vulnerability to GLOF.



Western Regional Review meeting of NDSA
held at Bhopal on 21st Feb 2024

of piers of Medigadda (Laxmi) barrage was received, a committee comprising officials from NDSA and CWC was constituted to examine the reasons for the sinking of the piers of Medigadda (Lakshmi) Barrage vide NDSA, DoWR, MoJS, GoI O/o No: Mi/35/2023-NDSA-MOWR dated 22.10.2023. The Committee led by Member (Disaster & Resilience), National Dam Safety Authority was deputed from 23rd to 26th October 2023 to examine the reasons for the sinking of the piers of the Medigadda Barrage only. The Committee, based on the Medigadda barrage inspection, discussions held with the stakeholders and after examination of the documents

made available by I & CAD Deptt., had submitted its report to the Chairman, NDSA on 01.11.2023. This report has been shared with the Special Chief Secretary, I&CAD Telangana; Secretary DoWR, RD & GR and Chairman, CWC. The Telangana State has been requested to look into the issues raised in the Committee report and to undertake measures to remedy the barrage after a detailed investigation to determine the failure's causes. Further on the request of the Secretary, Irrigation and CAD Department, Govt. of Telangana (through their letter dated 13.02.2024), NDSA has constituted a Committee under the Chairmanship of Sh. J. Chandrashekhar Iyer, Ex-Chairman, Central Water Commission, New Delhi vide NDSA Office Order dated 02.03.2024 for thorough inspection and study of the designs and construction of the three barrages i.e. Medigadda, Annaram, and Sundilla barrages of Kaleshwaram Project. The Committee has to submit its report to the NDSA within four (4) months. The Committee visited Kaleshwaram Project during March 6-9, 2024. The investigation is under process.

- NDSA vide its O.M. dated 20.11.2023 constituted a committee headed by the Ex-Chairman, CWC to examine the issues related to Sikkim disaster

due to GLOF. The Committee has held seven meetings and a field visit to affected projects. The final report of the Committee is awaited.

- A team of officials from NDSA, CWC, CSMRS, KRMB, Govt. of Telangana and Govt. of Andhra Pradesh visited Srisailem Project (Andhra Pradesh) during Feb 7-9, 2024 to carry out the safety Inspection. During the visit, the team held a meeting with the SDSO Andhra Pradesh.
- A team of officials from NDSA, CWC, KRMB, Govt. of Telangana and Govt. of Andhra Pradesh visited Nagarjuna Sagar Project (Telangana) during Feb 15-17, 2024 to carry out the safety Inspection. The team submitted its report on March 14, 2024.
- Ministry of Jal Shakti through NDSA and CWC, organized outreach program at the 25 iconic dam sites across the Country with community participation under "Azadi Ka Amrit Mahotsav (AKAM)" for promoting Dam Tourism.

4.3 INTER - STATE WATER DISPUTES TRIBUNALS

KRISHNA WATER DISPUTES TRIBUNAL

The Krishna Water Disputes Tribunal was constituted on 2nd April, 2004 for adjudication of the dispute relating to sharing of waters of Inter-State River Krishna and river valleys thereof. In

the Writ Petition No. 408 of 2008, Hon'ble Supreme Court has ordered that the effective date of constitution of the Tribunal will be of 01.02.2006. Consequently, the term of the Tribunal was extended up to 31.12.2010 as per provisions of ISRWD Act, 1956. The report and the decision by the Tribunal under Section 5(2) of the Act were forwarded to the Ministry of Water Resources on 30th December, 2010.

Thereafter, the party States i.e. Andhra Pradesh, Karnataka, Maharashtra and also the Central Government filed their Reference Applications u/s 5(3) of the Act to the Tribunal. The order was pronounced by the Tribunal on 29.11.2013 by way of further report and same was forwarded to the Central Govt. and the respective Party States under Section 5 (3) of the Act for their information and implementation. However, on account of stay by Supreme Court vide its order dated 16.09.2011, the award could not be published in the Official Gazette in terms of Section 6(1) of the ISRWD Act, 1956, yet.

Meanwhile, as per Andhra Pradesh Re-Organization Act, 2014 the term of the Tribunal was extended for forwarding of further report by the Tribunal so as to address the terms of reference specified in clauses (a) and (b) of the Section 89 of the Andhra Pradesh Re-Organization Act, 2014 (6 of 2014). The Tribunal after hearing the parties delivered its decision on 19.10.2016 on the preliminary issues relating to jurisdiction and scope of Section

89 of Act No. 6 of 2014. The report was forwarded to Ministry of Water Resources on 19.10.2016. The date of submission of the Further Report has been extended from time to time.

Further, the Central Government vide Notification No. S.O. 4375(E) dated 6th October, 2023, in pursuance of the provisions contained in Section 3, Sub-section (1) of Section 5 and Section 12 of the Inter-State River Water Disputes Act, 1956 (33 of 1956), has referred the following further terms of reference to the Krishna Water Disputes Tribunal for adjudication: -

- for the purposes of clauses (a) and (b) in the existing terms of reference, "project-wise" means existing, on-going and contemplated projects of both the States of Telangana and Andhra Pradesh, and
- shall distribute/allocate the Krishna River waters between the States of Telangana and the present State of Andhra Pradesh from the undivided share of erstwhile State of Andhra Pradesh and the total undivided share of the erstwhile State of Andhra Pradesh that may be considered for the purpose of this distribution/allocation is as below:
 - » 811 Thousand Million Cubic Feet (TMC) of overall allocation (en bloc) made by the Krishna Water Disputes Tribunal-I to the erstwhile State of Andhra

Pradesh and any additional allocation over and above it made by the said Tribunal to the erstwhile State of Andhra Pradesh; and

- » share of water allocated to the erstwhile State of Andhra Pradesh by the Godavari Water Disputes Tribunal, which is made available by transfer of water from Godavari to Krishna through Polavaram Project and any further transfer from Godavari to Krishna from Polavaram project, if proposed.

On receipt of the Gazette Notification dated 6th October, 2023, the Tribunal has started its proceedings accordingly. Presently, the term of the Tribunal has been extended for a further period of 16 months w.e.f. 01.04.2024 vide Notification dated 21.03.2024 published in Extraordinary Gazette of India.

Expenditure incurred by the Tribunal upto 31.03.2024 is as under:-

Sl. No.	Particulars	Rs. in lakhs
1	Budget Allocation for 2023-24	474
2	Expenditure from 21/12/2023 to 31/03/2024	146
3	Expenditure from 01/04/2023 to 31/03/2024	469
4	Cumulative expenditure upto 31/03/2024 (since inception of the tribunal)	4426

MAHADAYI WATER DIPUTES TRINBUNAL

The Government of India on 16.11.2010 under Section 3 of the Inter-State River Water Disputes Act 1956, constituted a Tribunal known as Mahadayi Water Disputes Tribunal (MWDT) for adjudication of the water disputes relating to the inter-State River Mahadayi and the river valley thereof among the States of Goa, Karnataka and Maharashtra.

After completion of the procedure for examination of all the evidence, the Tribunal prepared its award and forwarded the same to the Ministry of Water Resources, River Development and Ganga Rejuvenation on 14.08.2018.

References have been filed by all the three party States as well as by the Central Government under Section 5(3) of the Inter State Water River Act 1956. Against the main Award dated 14.08.2018 all the three party States have preferred appeals before the Hon'ble Supreme Court of India. Those appeals are pending for hearing. The State of Karnataka has also filed an Interlocutory Application (I.A.) before Supreme Court for a direction to the Union of India to publish the MWDT Award dated 14.08.2018. Supreme Court vide its Order dated 20.02.2020, allowed the said I.A. subject to the result of the pending proceedings. Accordingly, Central Government has published MWDT decision in Official Gazette on 27.02.2020 which is effective now. The Tribunal is yet to submit its

Further Report under Section 5(3) of the ISRWD Act, 1956. The term of the Tribunal is being extended from time to time to facilitate disposal of further reference. Central Government vide Notification dated 21.07.2023 extended the period of submission of further report by the Tribunal for a further period of one year with effect from the 20th August, 2023.

Mahadayi PRAWAH (Progressive River Authority for Welfare and Harmony) has been constituted on May 22, 2023 to give effect to the decision of the Mahadayi Water Disputes Tribunal.

The financial expenditure of the Tribunal for the year 2023-24 is as under,

Sl. No.	Specifications	Rs. in lakhs
1	Final Budget Allocation for 2023-24	526.00
2	Expenditure incurred by the Tribunal from 1.4.2023 to 31.12.2023	359.00
3	Expenditure of the Tribunal from 01.01.2024 to 31.03.2024	104.70
4	Total Expenditure of the Tribunal in 2023-24	463.70

MAHANADI WATER DISPUTES TRIBUNAL

The Government of Odisha had filed a complaint dated 19.11.2016 under section 3 of Inter-State River Water Disputes Act, 1956, read with Inter-State

River Water Disputes Rules, 1959. The State of Odisha requested to Union Government for constitution of a Tribunal under section 4(1) of the Inter-State River Water Disputes Act, 1956 for adjudication of the water disputes in respect of the inter-State river Mahanadi and its basin between the riparian States of Odisha and Chhattisgarh.

The Central Government constituted Mahanadi Water Disputes Tribunal vide Gazette of India Notification No.114(E) dated 12.03.2018 consisting of the following Members nominated in this behalf by the Chief Justice of India, namely,

- Mr. Justice A.M. Khanwilkar, Judge of the Supreme Court of India [Chairman]
- Dr. Justice Ravi Ranjan, Judge of Patna High Court(then) Chief Justice of Jharkhand High Court, Ranchi(present) [Member-1]
- Mrs. Justice Indermeet Kaur Kochhar, Judge of the Delhi High Court [Member-2]

Progress in Adjudication of the Disputes before Mahanadi WDT: 32 hearings have been held till date. The Tribunal in the hearing held on 29.08.2020 has finalized 46 issues for the purpose of adjudicating the matter. Report of the Tribunal under Section 5 (2) is awaited. Central Government vide Notification dated 21.06.2023 extended the period of submission of report and decision by the Tribunal for a period of two years with

effect from the 14th April, 2024, that is, on or before the 13th April, 2026, or till the submission of report and decision under sub-section (2) of section 5 of the Act, whichever is earlier.

Hon'ble Chairman has resigned and demitted the charge of Chairperson on 08.03.2024 on being appointed as 'Lokpal of India'. The Tribunal hearing adjourned till further orders.

Expenditure incurred by the Tribunal:

Sl. No.	Specifications	Rs. in lakhs
1	Budget Allocation for 2023-24(BE)	535.00
2	Expenditure from 01/04/2023 to 31/12/2023	344.00
3	Expenditure from 01/01/2024 to 31/03/2024	111.00
4	Expenditure from 01/04/2023 to 31/03/2024	455.00
5	Cumulative Expenditure upto 31/12/2023 (since inception of the Tribunal) (w.e.f. FY-2019-20)	1558.20

RAVI & BEAS WATERS TRIBUNAL

The Ravi and Beas Waters Tribunal was set up in the year 1986 under sub-section (1) and sub-section (2) of section 14 of the Inter State River Water Disputes Act, 1956 (33 of 1956) to resolve the water dispute among the States of Punjab, Rajasthan and Haryana. The Tribunal submitted its report on 30.01.1987. The

Central Government made a further Reference No. 15(2)/85-IT dated 19.8.1987 under Sections 5(3) and 14(3) of the Inter State Water Disputes Act, 1956 for further explanation and guidance on the matter specified in the Schedule thereto. The said Reference remained pending before the Tribunal.

The Punjab Government was not satisfied with the award passed by the Tribunal and in the year 2004, the Punjab Legislative Assembly passed the Punjab Termination of Agreement Act, 2004. Consequently, the President of India made a Reference to Hon'ble Supreme Court of India under Article 143(1) of the Constitution of India regarding the constitution validity of the said Act, being the Special Reference No.1 of 2004. The Presidential Reference has since been disposed off by the Hon'ble Supreme Court of India vide judgment dated 10.11.2016. The Constitution Bench of the Supreme Court answered all the questions referred to it in the 'negative' and observed that the Punjab Act cannot be said to be in accordance with the provisions of the Constitution of India and by virtue of the said Act, the State of Punjab cannot nullify the judgment and decree referred to in the judgment and terminate the Agreement dated 31st December, 1981. The Supreme Court has transmitted its opinion to the President of India in accordance with the procedure prescribed in Part V of the Supreme Court Rules, 2013.

Consequent upon the said development, the Hon'ble President of India has been extending the time to submit its Report by the Tribunal and to pass further orders on the Reference pending before the Tribunal on yearly basis. Hon'ble Mr. Justice Suman Shyam, Judge of Guwahati High Court was nominated as Member vide Gazette Notification S.O. 2444(E) dated 27 July 2020; Hon'ble Mr. Justice Vineet Saran, Judge of the Supreme Court of India was nominated as its Chairman and Hon'ble Mr. Justice P. Naveen Rao, Judge of the Telengana High Court as Member vide Gazette Notification S.O. No. 1921(E) published on 22 April 2022.

Progress in adjudication of the Dispute before the Tribunal:

During the year 2023-24, five (05) hearings of the Tribunal have been conducted on 08 May, 2023, 16-17 August 2023, 31 October, 2023 & 23 January, 2024. The last hearing of the Tribunal which was scheduled on 05.04.2024 has also been conducted and at the request made by the advocate for the Union of India, the next hearing of the Tribunal is scheduled to be held on 4 and 5 July 2024. In the meanwhile, the available record of the Tribunal has been scanned and copies of the same have been provided to advocates for the appearing parties. Advocates have been conducting inspection of the case records and they have filed their respective replies/statements of case. At the request of advocates, a request has been made by the Tribunal to Bhakra Beas Management

Board (BBMB) for providing water accounts for the period 1980 to 1985, as the record available with the Tribunal is not legible. Part of the above record is yet to be received from the BBMB.

Details of the Expenditure of the Tribunal for the financial year 2023-24 are as under,

Sl. No.	Specifications	Rs. in lakhs
1	Budget Allocation for 2022-23 (BE)	1149.00
2	Budget Allocation for 2022-23 (RE)	802.33
3	Expenditure incurred by the Tribunal (from 01/01/2024 to 31/03/2024)	124.00
4	Expenditure incurred by the Tribunal (upto 31 December, 2022)	521.00

VANSADHARA WATER DISPUTE TRIBUNAL (VWDT)

The Hon'ble Supreme Court had directed Central Government to constitute the Vansadhara Water Disputes Tribunal before February 2010. The Tribunal was notified on 24th February 2010 under the Chairmanship of Mr. Justice B. N. Agrawal with Mr. Justice Nirmal Singh and Mr. Justice B.N. Chaturvedi as its Members. Mr. Justice B.N. Agrawal and Mr. Justice Nirmal Singh resigned from the posts of Chairman and Member of the Tribunal respectively. Thereafter, the Central Government nominated Dr. Justice Mukundakam Sharma as Chairman of the Tribunal, who

took over the charge of the post on 17th September 2011 and Mr. Justice Ghulam Mohammad as a Member of the Tribunal, who took over the charge of the post on 8th April 2012.

Further, the Hon'ble Supreme Court vide its order dated 13th December, 2013 in I.A. No. 7 in Writ Petition (Civil) No. 443/2006 had observed as under:

“It is common ground that Vansadhara Water Disputes Tribunal started functioning with effect from 17.09.2012. We are of the view that this date be considered as the effective date of the constitution of the said Tribunal for the purpose of calculating the period of three years as provided under Section 5(2) of the Inter State River Water Disputes Act, 1956.”

In pursuance of the order of the Hon'ble Supreme Court dated 13th December, 2013, the Central Government vide S.O. 778 (E) dated 14th March, 2014 decided that the effective date of constitution of said Tribunal shall be 17th September 2012 and accordingly, under the provision of sub-section (2) of section 5 of the Inter-State River Water Disputes (ISRWD) Act, the period of three years of submission of report and decision by the Vansadhara Water Disputes Tribunal shall commence from 17th September 2012.

The Tribunal delivered its order in I.A. No.1/2010 on 17th December 2013 allowing the Government of Andhra Pradesh to construct a Side Weir along with the ancillary works as proposed and, inter-

alia, directed for constitution of a three-member Supervisory Flow Management and Regulation Committee of river Vansadhara. The State of Odisha has filed a Special Leave Petition against the said order before the Hon'ble Supreme Court and the same is pending for hearing.

The Tribunal submitted its report in three volumes with the decision on the issues referred to it under Section 5(2) of the said Act within the stipulated time on 13th September, 2017. The State of Odisha and also the Central Government filed explanatory/guidance applications on 11th December 2017 and 12th December 2017 respectively under Section 5(3) of the said Act. The Tribunal has to forward to the Central Government a further report giving explanation and/or guidance within one year or the period extended under the provision in the said Act from the date of such reference i.e., from 11th December 2017.

The State of Odisha has also filed a Special Leave Petition before the Hon'ble Supreme Court of India against the Report and Final Order of the Tribunal dated 13th September 2017, which is pending for decision in the Hon'ble Supreme Court.

Further, Mr. Justice Ghulam Mohammad, Member, VWDT passed away on 23rd November 2017 in Hyderabad. The Chief Justice of India was requested by the Minister (WR, RD & GR) to nominate a sitting Judge of High Court/Supreme Court as a Member of the Tribunal. As per Gazette Notification No. S.O. 3923 (E) dated

7th August, 2018, the Central Government appointed Ms. Justice Pratibha Rani, Judge of Delhi High Court as Member of the Vansadhara Water Disputes Tribunal. Ms. Justice Pratibha Rani assumed the charge of Member of this Tribunal on 27th August, 2018.

The Tribunal heard the submission of the parties on 22.01.2018, 05.03.2019, 06.03.2019, 03.04.2019, 04.04.2019 and 05.04.2019. The next hearing of the Tribunal was scheduled to be held on 09.07.2019. In the meantime, on 08.07.2019 the State of Odisha filed an application for modification of the Tribunal's Order dated 05.04.2019. On 09.07.2019, the Tribunal took up the said I.A. for hearing and directed the parties to complete the pleadings and the matter was adjourned to 27.08.2019. The Tribunal, after hearing the parties, reserved its order on I.A. 1/2019. On 23.09.2019, the Tribunal pronounced its order dismissing the I.A. and directed to list the main matter on 10.01.2020 for further direction.

In the meantime, the State of Odisha filed a Special Leave Petition before the Hon'ble Supreme Court against the Order dated 23.09.2019 passed by the Tribunal. On 10.01.2020, while taking note of this fact, the Tribunal directed the matter to be listed on 30.03.2020 for hearing the issues arising out of Section 5(3) applications filed by the State of Odisha and the Central Government.

After completion of the hearing, the Tribunal prepared its Further Report providing explanation and guidance on the clarifications sought by the parties. Findings on the issues/clarifications/questions arising out of the Applications filed by the State of Odisha and the Central Government were prepared and the Order was pronounced on 21st June, 2021 through Virtual Mode in the presence of the Advocates appearing for all three parties. The Tribunal has forwarded its Further Report to the Central Government under Section 5(3) of the Act on 21st June, 2021.

On 22.09.2021, the State of Odisha has filed Special Leave Petition before the Hon'ble Supreme Court against the Further Report of the Tribunal dated 21.06.2021, which is pending for decision in the Hon'ble Supreme Court.

Vanshadhara Water Disputes Tribunal (VWDT) has been dissolved by the Central Government vide Gazette Notification No. S.O. 1051(E) dated 09.03.2022. All the assets & liabilities of the VWDT including pending financial and other matters were transferred to Ravi Beas Waters Tribunal (RBWT) on 08.03.2022. However, the Final Award of VWDT is yet to be published in the Official Gazette in terms of Section 6(1) of the ISRWD Act, 1956.



Chapter 5

International Cooperation



5. International Cooperation

5.1 G20 WATER DEPUTIES MEETING

India assumed the presidency of the G20 from 1st December 2022 to 30th November 2023. During India's G20 presidency, the Ministry of Jal Shakti (MoJS) in collaboration with the Ministry of Environment, Forest & Climate Change (MoEF&CC) participated in four Environment and Climate Sustainability Working Group (ECSWG) meetings in Bengaluru, Gandhi Nagar, Mumbai, and Chennai.

During the second G20 ECSWG meeting at Gandhi Nagar on 27-29th March 2023, the Ministry of Jal Shakti led the side event with thematic site visits to the Adalaj Vav, Sabarmati siphon, Sabarmati Riverfront, and Narmada main canal, showcasing India's ancient water management practices and the nation's long-standing tradition of conserving water resources. During other sessions of the day the G20 countries presented their best practices in Water Resource Management and organizations under the Ministry of Jal Shakti gave thematic presentations as follows:-

- The National Mission for Clean

Ganga (NMCG) gave a thematic presentation on its initiatives such as Gyan Ganga: Research Policies and Knowledge Management, Arth Ganga: Boosting Economy and Livelihood, Nirmal Ganga: Unpolluted Flow, Jan Ganga: Strengthening People River Connect and Aviral Ganga: Unrestricted flow.

- The Central Ground Water Board (CGWB) presented the National Aquifer Mapping and Management (NAQUIM) Programme Launched in 2012 with the primary objective of "Know your Aquifer, Manage your Aquifer". Also, it explained the Vision of Sustainable Development and management of Groundwater Resources and introduced the Govt. of India's initiatives of Jal Shakti Abhiyan and Atal Bhujal Yojana to the G20 participants.
- The Central Water Commission (CWC) gave a presentation on the Climate Resilient Water Infrastructure, Water Availability / Storage (G-20 Countries), Spatial and temporal Variation of precipitation, Water Demand by

2050 (INDIA), Dam Rehabilitation and improvement Project (DRIP), Flood Embankments, Drainage Channels, Anti - erosion infrastructure & River Training and strategies for Climate Resilience.

- The Department of Drinking Water and Sanitation gave presentations on the Jal Jeevan Mission & Swachh Bharat Mission-India's journey for the achievement of SDG 6.

The best practices were shared by G20 member countries including Argentina, Australia, Brazil, Canada, China, the European Union, Czech Republic, Slovakia, France, Germany, Indonesia, Italy, Japan, Mexico, the Republic of Korea, Saudi Arabia, South Africa, Türkiye, United Kingdom, and the United States as well as by International Organizations like Food and Agriculture Organization (FAO),

International Solar Alliance (ISA), United Nations Development Program (UNDP) and Asian Development Bank (ADB) on variety of themes such as Water Management, Waterway Monitoring, Environmental Flows, Basin Plan, Groundwater management, Rainwater Management, River Restoration, Micropollutants, Flood Protection and Ecological Development, Peat land Hydrological Restoration, Recover Sound Water Cycle, Alleviating Droughts, early Warning Gauging Weirs, Water Use Efficiency Practices, Fair Water Footprints, Estuary programs etc. during the 2nd ECSWG meeting in Gandhi Nagar. The Best Practices received were compiled into a Compendium, enabling knowledge exchanges and cross-learning amongst G20 countries, was released in the fourth meeting of ECSWG on 27th July 2023 at Chennai.



G20-2nd Environment and Climate Sustainability Working Group(ECSWG) meeting held at Gandhi Nagar during 27-29 March 2023



Pavilions showcasing the achievements in the Water Sector were installed during the 2nd ECSWG meeting

5.2 BILATERAL COOPERATION

DoWR, RD & GR has signed Memorandum of Understanding (MoU) with different countries on cooperation in the field of water resources management and development. For effective implementation of activities under the various signed MoUs, Joint Working Group (JWG) meetings were held with the following foreign countries collaboration: -

- MoU with Netherlands-** The MoU between India and the Netherlands was signed on 27.06.2017 for cooperation in the field of Water Management. This existing "MoU between India-Netherlands in the field of water management" expired on 25.06.2022 and was replaced with "STRATEGIC PARTNERSHIP ON WATER (SPW) document signed between India - Netherlands on 29.03.2022". The 1st Ministerial Level Joint Working Group Meeting under SPW was held on 3rd April 2023 in New Delhi in which a

"Cooperation Program" for formalizing JWG and organizing certain technical workshops was approved by both sides.



1st Ministerial Level JWG meeting between India and Netherland under SPW held on 3rd April 2023 in New Delhi

- MoU with Israel-** The MoU between India and Israel was signed on 11.11.2016 for cooperation in the field of Water Resources Management. A Joint Statement of Intent (JSOI) under the India-Israel MoU has been signed between DoWR, RD & GR(NMCG), IIT Roorkee, and the State of Israel on 09.05.2023 for the establishment of Centre of Water Technology (CoWT) in Greater Noida. A Joint Review Committee headed by the Director General, NMCG from Indian Side is also being formed to assess the activities and progress of the projects identified for implementation under the proposed CoWT.
- MoU with Hungary-** The MoU between India and Hungary was signed on 16.10.2016 for cooperation in the field of water management. The 1st JWG meeting under MoU was held in New Delhi on 25th April 2023 including field visits to Varanasi on 26-27th April 2023. A three-year working program was signed in the meeting by both parties on Integrated Water Resources Management; Flood Management; Drought and Water Scarcity Management; Rejuvenation of Rivers and other water bodies and Research and Education.



1st Joint Working Group (JWG) meeting held on 25 April 2023 in New Delhi under MoU between India and Hungary

- MoU with European Union-** The MoU between India and the European Union was signed on 01.10.2016 on Water Cooperation. The 3rd JWG meeting under the India-EU MoU was held on 12.07.2023 in Hybrid mode to take stock of progress in the implementation of the India-EU Water Partnership (IEWP) and discuss strategic priorities of EU-India water-related cooperation. Further, a final event for the culmination of Phase II of Support to Ganga Rejuvenation and IEWP Action was held on 20th November, 2023 in New Delhi.



3rd JWG meeting under the India-EU MoU held on 12.07.2023 in New Delhi (Hybrid Mode)

- **MoU with Australia-** The MoU between India and Australia was originally signed on 10.11.2009 for cooperation in the field of Water Resources Management. This MoU was replaced with a new MoU signed on 20.05.2020. A meeting under India-Australia MoU was held on 8th November 2023 in virtual mode in which the Work Plan of activities to be undertaken under the MoU was agreed upon by both sides. These activities involve the Integration of the My-Well App with NWIC, Australia-India Water Security Initiative, India Young Professional Program (Cohort-2), Water Policy and Technical Exchanges, Water Accounting in Practice Application Training, etc.
- **MoC with Japan -** The Memorandum of Cooperation (MoC) between DoWR, RD&GR & Ministry of Environment of Japan was signed on 19.03.2022 in the area of Decentralized Domestic Wastewater Management. The 1st Joint Working Group (JWG) meeting under the MoU was held on 29th November 2023 in Virtual Mode. During the meeting a Joint Working Program was signed by both sides for initiating activities under the MoC such as organizing Seminars, Capacity Building Workshops / Training Decentralized Domestic Wastewater Management, and a pilot project on Johkasou Technology.

FOREIGN VISITS/ DEPUTATION

To enhance capacity building of the officers of DoWR, RD & GR, and its organizations, during the period from January 2023 to December 2023 about 179 officers have been deputed for foreign training, visits, seminars and conferences in the field of water resources management, micro-irrigation, water use efficiency, irrigation management, enhancing crop production, flood disaster risk management, dam safety and rehabilitation, wastewater treatment, sewage treatment, morphological modeling, ecosystem conservation etc. Many officers were deputed for attending the Danida Fellowship Centre, Denmark Scholarship Training courses on various topics such as advanced Water Cycle Management, Green and Circular Economy, etc. Delegations of the Department were deputed to participate in various international events such as the Conference of Parties-28 (CoP-28) event held in Dubai, Saudi Arabia; Korea Water Week -2023 at Daegu, South Korea, etc.

5.3 INDO-BANGLADESH JOINT RIVERS COMMISSION

An Indo-Bangladesh Joint Rivers Commission (JRC) is functioning since 1972 with a view to maintain liaison in order to ensure the most effective joint efforts in maximizing the benefits from common river systems. It is headed by Water Resources Ministers of both the countries. So far, 38 meetings of JRC have been held.

India-Bangladesh Technical Level Meeting (TLM)

A Technical Level Meeting (TLM) of India-Bangladesh Joint Rivers Commission (JRC) was held at New Delhi during 23-24 August, 2023. The Indian delegation for the Technical Level Meeting was led by Mr. Atul Jain, Commissioner (FM), Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti, Government of the Republic of India and Member, India-Bangladesh Joint Rivers Commission. The Bangladesh delegation was led by Dr. Mohammad Abul Hossen, Member, India-Bangladesh Joint Rivers Commission, Ministry of Water Resources, Government of the People's Republic of Bangladesh.

Treaty on Sharing of Ganga/Ganges Waters at Farakka

A Treaty was signed by the Prime Ministers of India and Bangladesh on 12th December, 1996 for the sharing of Ganga/Ganges waters at Farakka during the lean season. As per the Treaty, the Ganga/Ganges waters is being shared at Farakka (which is the last control structure on river Ganga in India) during lean period, from 1st January to 31st May every year, on 10-daily basis as per the formula provided in the Treaty. The validity of Treaty is 30 years. The sharing of water as per the Treaty is being monitored by a Joint Committee headed by Members, JRC from both sides.

India-Bangladesh 81st, 82nd, 83rd and 84th Joint Committee Meetings for the sharing of Ganga / Ganges waters at Farakka between India and Bangladesh as per the Treaty of 1996.

- The 81st meeting of the Joint Committee on sharing of the Ganga/Ganges Waters at Farakka was held at Dhaka on 11th May, 2023 after visit to the joint observation sites at Hardinge Bridge, Pakshey on 09th May, 2023.
- The 82nd meeting of the Joint Committee on sharing of the Ganga/Ganges waters at Farakka was held at New Delhi on 24th August, 2023 for finalization of Annual Report of the lean season of the year 2023.
- The 83rd meeting of the Joint Committee on sharing of the Ganga/Ganges waters at Farakka was held at Dhaka on 24th January, 2024 after a visit to the joint observation site at Hardinge Bridge, Pakshey on 23rd January, 2024.
- The 84th meeting of the Joint Committee on sharing of the Ganga/Ganges waters at Farakka was held at Kolkata on 07th March, 2024 after visit to the joint observation sites at Farakka on 05th March, 2024.

For the meetings the Indian delegation was led by Mr. Atul Jain,

Commissioner (FM), Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti, Government of the Republic of India and Member, India-Bangladesh Joint Rivers Commission. The Bangladesh delegation was led by Dr. Mohammad Abul Hossen, Member, India-Bangladesh Joint Rivers Commission, Ministry of Water Resources, Government of the People's Republic of Bangladesh.

5.4 INDIA – NEPAL COOPERATION

PANCHESHWAR MULTIPURPOSE PROJECT

A "Treaty concerning the Integrated Development of the Mahakali River, including Sarada Barrage, Tanakpur Barrage and Pancheshwar Project" was signed during the visit of the then Nepalese Prime Minister Sher Bahadur Deuba to India in February 1996. Under this Treaty, India and Nepal have agreed to implement the Pancheshwar Multi-purpose Project as an integrated project. The Pancheshwar Development Authority (PDA) was also set up with approval of both the Governments in September, 2014. The project would provide hydro energy to stabilize the power grid in the region and address water deficit by long distance water transfer in due course.

SAPTAKOSI HIGH DAM MULTIPURPOSE PROJECT AND SUN KOSI STORAGE CUM DIVERSION SCHEME (INCLUDING KAMALA DIVERSION)

The India-Nepal Joint Project Office has started functioning in Biratnagar, Nepal since August 2004 with the mandate of jointly carrying out field investigations and preparation of DPR for Sapta Kosi High Dam Multipurpose Project and Sun Kosi Storage cum Diversion Scheme (SSDS). Investigation of Kamla Multipurpose Project, which is now a component of SSDS, and preliminary study of the Bagmati Multipurpose Project were added to its mandate in October, 2004. A Joint Team of Experts (JTE) of Government of India and Government of Nepal has been constituted to finalize modalities of investigations and method of assessment of benefits for joint studies/ investigation for Sapta Kosi High Dam Multipurpose Project (SKHDMP) and regular JTE meetings are held.

INDIA-NEPAL BILATERAL MECHANISM

The Eighth Meeting of the Governing Body (GB) of Pancheshwar Development Authority (PDA) was held on 6-7th July 2023 in Pokhara, Nepal. The Nepalese delegation was led by Mr. Dinesh Kumar Ghimire, Secretary, Ministry of Energy, Water Resources and Irrigation (MoEWRI), Government of Nepal, and co-chairperson of GB, PDA. The Indian delegation was led by Mr. Pankaj Kumar, Secretary, Department of Water Resources, River Development and Ganga Rejuvenation (DoWR, RD & GR), Ministry of Jal Shakti, Government of India, and co-Chairperson of GB, PDA.

The 5th meeting of the Team of Experts (TOE) was held on 6-7th October,

2023 at Kathmandu, Nepal for discussion on the updated Detailed Project Report (DPR) of Pancheshwar Multipurpose Project (PMP). The Nepali delegation was led by Mr. Sushil Chandra Tiwari, Secretary, Water and Energy Commission Secretariat, Government of Nepal and Leader of Team of Experts from Nepal. The Indian delegation was led by Mr. Kushvinder Vohra, Chairman, CWC and Ex-Officio Secretary to Government of India and leader of Team of Experts from India.

The 17th meeting of the Nepal-India Joint Team of Experts on Sapta-Kosi High Dam Multipurpose Project and Sun-Kosi Storage-cum-Diversion Scheme was held on 9-11th October 2023 at Biratnagar, Nepal. The Nepali side was led by Mr. Chiranjeev Chataut, Director General, Department of Electricity Development, Government of Nepal (GoN) and the Indian side was led by Mr. P.M. Scott, Member (RM), Central Water Commission (CWC) and Ex-Officio Additional Secretary, Government of India (GoI).

5.5 INDIA – CHINA COOPERATION

During the visit of Hon'ble President of the People's Republic of China in November, 2006, it was mutually agreed upon to set up an Expert Level Mechanism (ELM) to discuss interaction and cooperation upon provision of hydrological data in flood season, emergency management and other issues regarding trans-border rivers. The ELM meetings are held annually alternately in

both the countries. Government of India takes up relevant issues relating to trans-border rivers, with the Chinese side through Expert Level Mechanism. Fourteen meetings of ELM have been held so far. The 14th meeting of ELM was held at New Delhi during 20-21st June, 2023. The GoI delegation was led by Sh. S.K. Sinha, Commissioner (B&B), DoWR, RD & GR and the Chinese delegation was led by Mr. Li Ge, Consul, Deputy Director General of the Dept. of International Cooperation, Science and Technology, Ministry of Water Resources, People's Republic of China. Representatives of Ministry of External Affairs (MEA), Central Electricity Authority (CEA) and Central Water Commission (CWC) had also participated in the meeting.

India and China also signed a Memorandum of Understanding (MoU) on provision of hydrological information on Yaluzangbu/Brahmaputra River in Flood Season in 2002 which was renewed in 2008, 2013 and 2018. Further, another MoU for the provision of flood season hydrological information of the Langqen Zangbo/Sutlej River in Flood Season by China to India was signed in 2005 and was renewed in 2010 and 2015 for another five years. The hydrological information received from the Chinese side is utilized in the formulation of flood forecasts by the Central Water Commission. The MoU on Brahmaputra has expired on 05th June, 2023 and is under process of renewal through diplomatic channels. The MoU on Sutlej has also expired 05th November,

2020 and is under process of renewal through diplomatic channels. For the year 2023, hydrological data (water level, rainfall and discharge) for the river Brahmaputra was received regularly twice a day w.e.f. 15.05.2023 till 05.06.2023. The hydrological data of Brahmaputra river has been suspended with effect from 06/06/2023. The hydrological data of Sutlej river was supplied by Chinese side for the year 2021 (01/06/2021 to 15/10/2021) despite the expiry of MoU. However, no data has been received for the flood season 2022 and 2023.

5.6 INDIA - BHUTAN COOPERATION

With regard to Bhutan, the matter relating to problem of floods created by the rivers originating from Bhutan and coming to India was taken up with the Royal Government of Bhutan. A Joint Group of Experts (JGE) on flood management was accordingly constituted between India and Bhutan in 2004 to discuss and assess the probable causes and effects of the recurring floods and erosion in the southern foothills of Bhutan and adjoining plains in India and to recommend to both Governments appropriate and mutually acceptable remedial measures. Ten meetings of JGE have been held so far. The first meeting of JGE was held in Bhutan during 1st - 5th November, 2004 and the 10th meeting was held during 28th-29th February, 2024 at New Delhi, India. A Joint Technical Team (JTT) on Flood Management between the two countries

was constituted to assess the field situation and provide technical support to JGE on flood management. JTT held its first meeting in 2005 and the 7th meeting of JTT was held during 5th - 6th October, 2023 at Phuentsholing, Bhutan.

DoWR, RD&GR, Ministry of Jal Shakti is also operating a scheme for setting up of flood forecasting system on rivers common to India and Bhutan for the development of mutual cooperation between the two countries in the field of hydro-meteorological data collection and flood forecasting activities on rivers common to India and Bhutan.

The present network in Bhutan comprises 36 hydro-meteorological sites on common rivers flowing from Bhutan to India for the above work. The data received from these stations are utilised in India by the Central Water Commission for formulating flood forecasts. A Joint Expert Team (JET) consisting of officials from the Government of India (GoI) and the Royal Government of Bhutan (RGoB) meets twice a year to review the progress and other requirements of the scheme. Thirty-seven meetings of JET have been held so far. 37th meeting was held at Punakha-Wangdu, Bhutan during 11-12th April, 2023.

5.7 INDUS WATERS TREATY, 1960

The Government of India had signed Indus Waters Treaty 1960 with Pakistan concerning the use of waters of the Indus system of rivers. The Treaty was signed on 19th September, 1960 in Karachi, Pakistan.

The Indus Waters Treaty extends to main rivers of Indus basin i.e. Sutlej, Beas, Ravi (called as Eastern rivers) and Jelum, Chenab and Indus (called as Western rivers) including their tributaries and sub tributaries and other water bodies.

Under the Treaty, India and Pakistan each have created a permanent post of Commissioner for Indus Waters. Each Commissioner is the representative of his government and serves as a regular channel of communication on all matters

relating to implementation of the Treaty. The two Commissioners together form the Permanent Indus Commission (PIC).

Proceedings regarding the Kishenganga and Ratle Hydroelectric projects under the Indus Waters Treaty are ongoing in front of the Neutral Expert appointed by the World Bank. Two meetings have been held so far in the ongoing Neutral Expert proceedings. India has submitted its memorial on 31st August 2023.



Chapter 6

External Assistance in Water Resources Sector

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6. External Assistance in Water Resources Sector

The DoWR, RD & GR, Ministry of Jal Shakti assists the State Governments/ Union Territories in availing external assistance from different multilateral funding agencies to fill up the resource gap and state of the art technology for water resources development and management in the country. Presently, 09 Externally Aided Projects are being implemented in

various States of the country with the assistance from different funding agencies, viz. the World Bank (3), Asian Development Bank (2), Japan International Cooperation Agency (JICA) (3) New Development Bank (NDB) (1).

The details including name of project, objective, project cost and loan amount are as under:

Sl. No.	Name of State	Name Project	Project Objective	Effective date/ Closing date	Project cost: Loan amount (in crore approx.)	Cumulative Disbursement (In crore approx.)
Projects funded by WORLD BANK						
1.	Andhra Pradesh	Andhra Pradesh Integrated Irrigation and Agriculture Transformation Project	To enhance agricultural productivity, profitability and climate resilience of small holder farmers in 1000 selected tanks stabilizing an ayacut of 2,26,552 Acres in 12 districts (except Guntur).	05.11.2018/ 31.10.2025	Cost- 1,844.25 Loan- 1,291.5	197.88
2.	Tamil Nadu	Tamil Nadu Irrigated Agriculture Modernization Project	To enhance productivity and climate/resilience of irrigated agriculture, improve water management and increase market opportunities for farmers and agro-entrepreneurs in selected sub-basin areas.	23.01.2018/ 02.06.2025	Cost- 3,418.5 Loan- 2,385	1,486.36

Sl. No.	Name of State	Name Project	Project Objective	Effective date/ Closing date	Project cost: Loan amount (in crore approx.)	Cumulative Disbursement (In crore approx.)
3.	West Bengal	West Bengal Major Irrigation and Flood Management Project (WB-MIFMP)	To improve irrigation service delivery in the existing canal network of Damodar valley Project. Strengthen flood risk management.	11.08.2020/ 30.11.2025	Cost- 3,438.90 Loan- 2407.23 (WB and AIIB)	717.05
Projects funded by ASIAN DEVELOPMENT BANK (ADB)						
4.	Karnataka	Karnataka integrated & Sustainable Water Resources Management Investment program-2	Modernization of Vijayanagar Channel System and taking up Integrated Water Resources Management (IWRM) components in K8 sub-basin of Krishna River Basin. Preparation of River Basin Profile for K-2, K-3 & K-4 sub-basin in Karnataka and River Basin Atlas for Ghataprabha and Malaprabha Sub-basin.	24.1.2020/ 31.3.2024	Cost- 1,073.89 Loan- 751.87	234.31
5.	Madhya Pradesh	Madhya Pradesh Irrigation Efficiency Improvement Project	Develop 1,25,000 hectares of new, highly efficient micro-irrigation network in Rajgarh. Design and construction of a highly efficient and productive new pressurized irrigation system with automated volumetric control for efficient, reliable and flexible water delivery services.	22.11.2018/ 31.03.2026	Cost- 4,425.80 Loan- 3,098.09	1,837.36

Sl. No.	Name of State	Name Project	Project Objective	Effective date/ Closing date	Project cost: Loan amount (in crore approx.)	Cumulative Disbursement (In crore approx.)
Projects funded by JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)						
6.	Andhra Pradesh	Andhra Pradesh Irrigation & Livelihood Improvement Project Phase-2	To modernize/ renovate about 20 major and/ medium irrigation sub projects and restore 445 minor irrigation sub projects and improving livelihoods of farmers and other rural communities.	06.07.2018/ 06.07.2025	Cost- 1,988.74 Loan- 1410.4	174.33
7.	Odisha	Rengali Irrigation Project Phase-2	Increase agriculture production by constructing irrigation systems (main canal and distribution systems), establishing Water Users Associations and promoting livelihood support activity through improved farming technique and other related activities; thereby, contributing to improve living standard of farmers and socio-economic development.	14.7.2015/ 14.7.2026	Cost- 2,255.20 Loan- 1,787.30	523.50
8.	Rajasthan	Rajasthan Water Sector Livelihood Improvement project	The objective of the project is to improve livelihoods of farmers as well as promote gender mainstreaming in agriculture and irrigation sector in the State of Rajasthan, by improving water use efficiency and agriculture productivity, through improvement of existing irrigation facilities and agriculture support services.	26.10.2017/ 26.10.2024	Cost- 2,348.8 Loan- 908.94 (Tranche-II)	470.73

Sl. No.	Name of State	Name Project	Project Objective	Effective date/ Closing date	Project cost: Loan amount (in crore approx.)	Cumulative Disbursement (In crore approx.)
Projects funded by NEW DEVELOPMENT BANK (NDB)						
9.	Rajasthan	Rajasthan Water Sector Restructuring project Desert Area	The project envisages rehabilitation & modernization of Indira Gandhi Nahar Project (IGNP) system which will improve the availability of water in 1,81,618 Ha of CCA and will also reclaim 33,312 Ha of water-logged area in the region.	31.03.2018/ 12.08.2025	Cost- 2,254.38 Loan- 1,578.07 (Tranche-II)	572.05 Cr.



Chapter 7

Organisations and Institutions



7. Organisations and Institutions

7.1 ATTACHED OFFICES

7.1.1 CENTRAL WATER COMMISSION (CWC)

CWC is headed by a Chairman with status of an ex-officio Secretary to the Government of India. The Commission has three technical wings, namely:

- Design and Research Wing
- Water Planning and Projects Wing
- River Management Wing

Each wing is headed by a Member with the status of an ex-officio Additional Secretary to the Government of India. Activities of the wings are carried out by 18 functional units at the headquarters, each headed by a Chief Engineer. The Commission also has 13 Regional Organizations, each headed by a Chief Engineer. The National Water Academy, Pune headed by a Chief Engineer is also a part of the Commission. The main activities of CWC may be summarized as follows:

- Flood Forecasting and Assistance to State Governments in Flood Management
- Collection and Analysis of Hydrological Data
- Techno-Economic Appraisal of Projects
- Monitoring of Selected Projects including those receiving central assistance
- Planning & Design of Projects
- Surveys, Investigations and preparation of Detailed Project Report (DPR)
- Studies on Environmental and Socio-Economic issues
- Studies Related to Irrigation Planning and Water Management
- Basin Planning and Management
- National Water Resources Assessment
- Assistance in Resolution of Inter-State Water Disputes
- Construction Equipment Planning
- Studies on Dam Safety
- Research and Development
- Standardization of Engineering Practices
- Operation of Reservoirs
- Training and Capacity Building
- International Co-operation in Water Sector

- Collection and Analysis of Coastal Data

MAJOR ACTIVITIES

- **Hydrological Observations:**

There is a network of 1,730 hydro-meteorological observation stations (including 1,543 HO Stations and 187 exclusive meteorological stations) throughout the country in all major river basins. These are meant to observe water level (gauge), discharge, water quality, silt besides selected meteorological parameters including snow observations at key stations. The data collected from such sites is scrutinized, validated and published in the form of Water Year Book, Water Quality Year Book and Sediment Year Book, etc. The data so collected is utilized for planning and development of water resources projects, climate change studies, water availability studies, flood/in flow forecasting, examination of international and inter-State issues, river morphological studies, in land water way development, reservoir siltation studies and research related activities, etc.

- **Water Quality Monitoring:**

Water quality is monitored at 782 key locations (657 on HO network and 125 Water Quality Sampling Stations) covering all the major

river basins of India. In addition, water quality monitoring at 88 water bodies (lakes/reservoirs/ponds) have also been started w.e.f. 01.03.2023. In a 3-tier laboratory system, Level - I laboratories located at field water quality monitoring stations observe physical parameters such as temperature, colour, electrical conductivity /total dissolved solids; pH and dissolved oxygen of river water. There are 18 Level-II laboratories located at selected Division Offices throughout India to analyze 25 physico-chemical characteristics and bacteriological parameters of water. 5 Level- III laboratories are functioning at Coimbatore, Delhi, Guwahati, Hyderabad and Varanasi where 41 parameters including heavy metals/ toxic parameters and pesticides are analysed.

The National River Water Quality Laboratory, CWC, New Delhi is accredited with National Accreditation Board for Testing and Calibration Laboratories (NABL) in accordance with Standard ISO/ IEC17025:2017 in the discipline of chemical and biological testing since April, 2016. Apart from this, 21 more Water Quality Laboratories of CWC which are functioning under different Divisional Offices of CWC located at Hyderabad, Varanasi, Coimbatore, Guwahati, Bangalore,

Agra, Kochi, Pune, Gandhinagar, Bhubaneswar, Nagpur, Lucknow, Jammu, Chennai, Raipur, Berhampore, Bhopal, Jalpaiguri, Haridwar, Surat and Patna have obtained NABL accreditation in chemical discipline.

- **Survey and Investigation:**

The survey and investigation of Kalez Khola HE Project (Sikkim) has been completed. The survey and investigations for three other projects namely, Tlawng HEP (Mizoram), Katakhal Irrigation Project (Assam) and Barinium HEP (J&K), Tuichang H.E. Project (Mizoram), Mat-Sekawi, H.E. Project (Mizoram), Buroi Medium Irrigation Project, (Assam), Damring Irrigation Project (Meghalaya), Madhura Irrigation Project (Assam) and Drass-Suru Link HE Project in UT of Ladakh are continuing. Further, DEM preparation for irrigation projects in Sitamarhi Distt. Bihar is completed. A Joint Project Office for Sapta Kosi Sun Kosi Investigations (JPO-SKSKI) based in Biratnagar (Nepal) is carrying out surveys and investigations for preparation of DPR of Sapta Kosi High Damand Sun Kosi Storage- cum-Diversion Project jointly with Nepal for mutual benefit of both the countries.

- **Project Appraisal:**

The Advisory Committee of DoWR, RD & GR considers the techno-economic viability of Medium and Major Irrigation, Multipurpose and Flood Control Project proposals. During 2023-24, total 29 MMI projects (11 Irrigation & 18 Flood control projects) have been considered and accepted by the Advisory Committee. Further, during the year, 2023-24, 01 project has been accorded TEC by CEA. A web-enabled Project Appraisal Management System (e-PAMS) has been developed by CWC for online submission and techno-economic appraisal of DPRs of irrigation and multipurpose projects submitted by the State Governments.

- **Project Monitoring:**

A three tier system of monitoring at Centre, State and Project level was entrusted to CWC. The main objective of monitoring was to ensure the achievement of physical and financial targets and achieve the targets of creation of irrigation potential. During 2023-24 (up to February 2024), 58 (39 major, 15 medium and 4 ERM) on-going projects under PMKSY-AIBP and 8 major & medium projects under Special Package to Maharashtra and Punjab were monitored by CWC field units. During 2022-23, 75 visits were under taken and 63

status reports were issued for projects under PMKSY- AIBP and 08 monitoring visits were under taken and 08 status reports were issued for projects under Special Package of Maharashtra and Punjab.

- **Morphological Studies:**

Every year floods cause damage to life and property in spite of existing flood control measures taken both by Central and State Governments. Consultancy works form morphological studies of 15 rivers (Ganga, Sharda, Rapti, Kosi, Bagmati, Yamuna, Brahmaputra, Subansiri, Pagladiya, Krishna, Tungbhadra, Mahananda, Mahanadi, Hoogli, Tapti) by using remote sensing technology was awarded to IITs/NITs under the Plan Scheme “R&D Programme in Water Sector”.

The details and status of these studies are given below: -

Sl. No.	Institute	Name of Rivers	Status
1.	IIT Roorkee	Ganga, Sharda, Rapti	Completed
2.	IIT Delhi	Kosi, Bagmati, Yamuna	Completed
3.	IIT Guwahati	Brahmaputra, Subansiri, Pagladiya	Completed
4.	IIT Madras	Krishna, Tungbhadra	Completed
5.	IIT Kharagpur	Mahananda, Mahanadi, Hooghly	Completed
6.	SVNIT Surat	Tapi	Completed

- **Monitoring of Glacial lakes and water bodies:**

CWC has increased the monitoring of glacial lakes/water body based on remote sensing from 477 to 902. The process of monitoring of GL/ WBs has been automated to large extent to reduce processing time. The open-source satellite images at 10 m resolution are being used. The SAR images are also being used for detecting lakes even in cloudy condition.

The monthly monitoring reports from June to October are being shared with Ministry of Jal Shakti, concerned field offices of CWC, concerned Himalayans States and other stakeholders.

- **Special Studies like Dam Break Modelling and GLOF study:**

CWC also carries out special studies like Dam Break Analysis and GLOF Modeling. Besides, appraising & vetting such special studies received in CWC, consultancy services are also provided by CWC for them. Recent incident of breach of South Lhonak lake and its impact on downstream projects in Teesta basin was also analysed and accordingly report was issued. In 2023-24, GLOF reports for 15 nos. of projects have been appraised and approved by CWC.

Memorandum of Understanding (MoU) to carry out Dam Break

Analysis of Baglihar Dam, Jammu & Kashmir on consultancy has been signed and the modelling study is under progress.

- **Coastal Management Information System (CMIS)**

CWC initiated development of Coastal Management Information System (CMIS) under the Plan Scheme DWRIS during the 12th Five Year Plan Period. The CMIS envisages setting up of sites along the coast of the maritime States/UTs of India for collecting and analyzing data of Nine coastal parameters i.e. Wave, Current, Tide, Riverine Data, Wind, Coastal Sediment, Beach Profile, Bathymetry and Shoreline Change. CMIS also envisages to create an integrated data bank to tackle coastal engineering problems along the vulnerable stretches of Indian coast in a scientific manner keeping in view the long term perspective and challenges of climate change for evolving long term coastal management plans and coastal protection measures.

CWC started implementation of CMIS in Maritime States/UTs through the signing of a tripartite Memorandum of Understanding (MoU) with CWC as 'Project Implementer', the expert agency as 'Project Executor' and the concerned State/ UT Government as 'Project Facilitator'.

Establishment of 3 coastal data collection sites (Devanari-Tamil Nadu, Karaikal-Puducherry and Ponnani-Kerala) has been completed under this project and the sites were taken over by CSRO, CWC, Coimbatore on 31.05.2021 from IIT Madras. The CMIS data collection at 5 other sites (Satpati-Maharashtra, Nanidanti Motidanti-Gujarat) (Tarkhali-Maharashtra, Benaulim-Goa, Baga-Goa) are being executed through CWPRS, Pune and NIO, Goa. These activities are under implementation through respective CWC field offices of MTBO, Gandhinagar and UKD, Pune.

- **Hydrological Studies:**

The success of a project is largely governed by the hydrological inputs. The Hydrological Studies Organization (HSO), a specialized unit under Design and Research (D&R) Wing of CWC, carries out hydrological studies in respect of the water resources projects in the country. The inputs in Detailed Project Report (DPR) or Pre-Feasibility (PFR) stage are made available in the form of:

- » Water availability/yield studies.
- » Design flood estimation.
- » Sedimentation studies.
- » Diversion flood studies.

The country has been divided into 7 zones and further into 26 hydro-

meteorologically homogeneous sub-zones and flood estimation models are developed for each subzone to compute the design flood in ungauged catchments. So far, flood estimation reports covering 24 sub-zones have been published. During the year 2023-24, technical examinations of hydrological aspects of DPRs in respect of 128 projects have been carried out in CWC. Out of this, 79 projects have been cleared and comments were issued for 21 projects. Rest of the projects are under examination. In addition, CWC has also carried out Design Flood Review Studies of the 8 projects under DRIP:

Some of the major works carried out during this period are:

- Assessment of Water Availability in Godavari and its sub-basins as per GWDT Award.
- Design Flood Review Study of Sardar Sarovar Project, Gujarat on consultancy basis.
- Consultancy work for the preparation of hydrological studies chapter of Detailed Project Report of Panchnad Barrage on Yamuna River in District Auraiya, Uttar Pradesh.
- Design Flood Review Study of Kinnersani Project, Telangana on consultancy basis.
- Conducted workshop on Familiarization with DPR Preparation of SMI, FMP, AIBP, RRR Projects for officials of Govt. of Ladakh.
- Hydrological studies for Detailed Project Report of Burisuti Irrigation Project, Chirang and Berpeta District, Assam
- Hydrological studies for Detailed Project Report of Buroi Irrigation Project, Biswanath, Assam
- Hydrological studies for Mebo Irrigation Project, East Siang Distt, Arunachal Pradesh
- Hydrological studies for Detailed Project Report of Kaya Valley Irrigation Project, East Kameng District Arunachal Pradesh
- Hydrological studies for Detailed Project Report of the Mat Sekawi HEP, Lunglei District, Mizoram
- Hydrological studies of 18 projects under modified PKC link
- Special Study report submitted on Glacial Lake Outburst Flood (GLOF) of Teesta -III HEP, Sikkim.
- Re-assessment of design flood of Lakya Dam tailing reservoir (Karnataka)
- Design flood study of Erach dam, Uttar Pradesh.
- Hydrological studies for DPR for Construction of Medium Irrigation

project by providing Rain Water Harvesting Structure in SatyarKhad (near Parchhoo) in tehsil Dharampur/ Sarkaghat district Mandi. H.P on consultancy basis.

- Hydrological studies for Revise Pre-Feasibility Report for Rehabilitation / Relining of Nohar feeder, Baruwali Disty & Fatehabad Branch in Haryana state.
- Hydrological studies for Kishau Multi - Purpose Project, Uttarakhand.
- Hydrological studies for Arakot-Tiuni HEP, Uttarakhand.
- Hydrological studies for Bokang Bailing HEP, Uttarakhand
- Water Availability Study of Yamuna River at Hathnikund Barrage, Okhla and Mawi Site.
- Development of 2D- Urban Flood Model of Delhi.

- **Technical Assistance / Advice tendered**

» HSO has provided secretariat assistance to various technical/ expert committees for undertaking special studies on various aspects related to water resources development and management. Some of the important contributions during the year 2023- 24 are as under:

Consultancy services of physical based mathematical modelling for estimation of sediment rate and

sediment transport in 7 river basins of India (under NHP): Awarded to M/s Haskoning DHV Consulting Pvt. Ltd with effective date 16.11.2020 (18+12 months). Final report of the project has been accepted and approved by the TARC on 30.09.2022. Phase-II of the project has been commenced from 16.11.2022. Under the capacity building 01 training and 01 workshop were organized during the phase-II of the project. Final Report of Phase-II of project was accepted by the committee on 09.01.2024 during the 18th TARC meeting.

» Hydrological modeling for tackling issues related to high intensity rainfall, riverine flood, drainage and interrelated issues in urban areas.

- **Planning and Design of Water Resources Projects**

CWC is actively associated with design of majority of the mega water resources projects in India and neighboring countries, viz., Nepal and Bhutan by way of design consultancy or in the technical appraisal of the projects. At present CWC is providing design consultancy to 92 projects. Out of this, 28 projects (including 3 from neighboring countries) are at construction stage, 32 projects (including 2 from neighboring

countries) are at DPR stage and 28 projects involve special problems.

- **National Committee on Seismic Design Parameters:-**

The National Committee on Seismic Design Parameters (NCSDP) was constituted by MoWR Order dated 21st October, 1991 with the objective to recommend the seismic design parameters for the proposals received from the dam owners. Member (D&R), CWC is the chairman of the committee with 12 other experts from various engineering disciplines from different technical institutions and Government organizations as its members. Director (FE & SA), CWC is the member Secretary of NCSDP. The 37th meeting of NCSDP was held on 10.03.2023 at CWC, New Delhi under the Chairmanship of Member (D&R) wherein four projects were cleared.

38th meeting of NCSDP is proposed in the 1st week of May, 2024.

- **National Register of Large Dams:**

Before enactment of Dam Safety Act 2021, Dam Safety Organisation (DSO), CWC compiled and maintained the register of large dams across the country in the form of National Register of Large Dams (NRLD) based on information provided by State Govts. / PSUs. After enactment of Dam Safety Act

2021, the NDSA has been mandated to maintain National level database of all specified dam in the country. The National Register of Specified (Large) Dams 2023 was released by Hon'ble Vice President of India in International Conference on Dam Safety held during 14th-15th September 2023 at Jaipur. As per NRLD-2023, there are 6138 constructed and 143 under construction dams in the country. The NRLD, 2023 is available on CWC's website and can be accessed by link- <https://cwc.gov.in/publication/nrld>.

- **Technical Examination of Instrumentation aspects of the projects:**

Detailed Project Report (DPR)/ construction drawings of 56 river valley projects in various States/ countries namely Andhra Pradesh, Arunachal Pradesh, Gujarat, Himachal Pradesh, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Meghalaya, Odisha, Rajasthan, Tamil Nadu, Uttarakhand, Uttar Pradesh, West Bengal, Jammu & Kashmir and Nepal were examined, out of which 6 projects have been cleared with respect to instrumentation aspects and observations for remaining 50 projects are at various stages of examination.

- **Standing Technical Advisory Committee of CSMRS**

The Standing Technical Advisory Committee (STAC) was constituted under the Chairmanship of Member (D&R), CWC for providing an overall perspective and guidance in technical scrutiny of research schemes being undertaken at CSMRS. The STAC is composed of 11 members drawn from various public sector institutions and is headed by Member (D&R), CWC. The 38th Standing Technical Advisory Committee (STAC) meeting of CSMRS was held on 29.01.2024

- **Other Seismic works:**

Work related to technical evaluation and critical examination of web based tool Seismic Hazard Assessment Information System (SHAISYS) being developed by IIT Roorkee and CWPRS Pune under DRIP is being carried out. A meeting was held on 12th October 2023 with the experts of IIT Roorkee at CWC, New Delhi regarding issues related to development of SHAISYS.

- **Establishment of International Centre of Excellence:**

Dam Rehabilitation and Improvement Project (DRIP) Phase-II and Phase- III provides for establishment of two Centres of Excellence (CoE) for adapting the advances in dam engineering across

the world and developing technologies relevant to Indian conditions. These centers shall have state of the art facilities to provide leadership, best practices, research, support and training in dam engineering. The services of these centers of excellence could be utilized by the dam fraternity in India to get consultancy for addressing their dam safety issues as well as training of dam engineers.

CoEs have been established at IIT Roorkee and IISc Bangalore after signing MoAs with IIT Roorkee and IISc Bangalore on 14th February 2023 and 4th March 2024, respectively.

- **Support for Irrigation Modernization Program (SIMP):**

Support for Irrigation Modernization Program (SIMP) is a new initiative taken up by DoWR, RD & GR with Technical Assistance (TA) from the Asian Development Bank (ADB) to modernize Major/ Medium Irrigation (MMI) projects in the country. Objective of the programme is to improve water use efficiency, increase crop water productivity and ultimately increase farmer's income in the command area of the project through application of national/ international best practices. For overall implementation and management of the programme, a

Central Irrigation Modernization office (CIMO) has been setup under Chief Engineer (POMIO), CWC supported by national / international consultants.



Support for Irrigation Modernization program (SIMP-Phase II) Mid-term Workshop

SIMP is proposed to be taken up in 4 phases. SIMP Phase-1 concluded on 31.12.2021 under which 4 MMI projects have been identified for inclusion under 1st batch of projects for preparation of Irrigation Modernization Plans (IMPs) out of the 57 proposals received from 14 States and 2 UTs. The entire process including the preparation of IMPs, Detailed Project Report (DPRs), detailed designs and final implementation/ project execution is expected to be completed by Phase-4. Implementation of the project would lie with the concerned States who would have an option to either fund it from their own resources or they can avail loan facility from ADB or any other financial institutions.

SIMP Phase-2 was initiated from November 2022. Irrigation Modernization Plan (IMP) of four projects namely Vanivilasa Sagara Project, Karnataka, Palkhed Project Maharashtra, Purna Project, Maharashtra and Loharu Lift Irrigation Project, Haryana have been prepared. As a 1st step for preparation of IMPs, FAO developed RAP-MASSCOTE (Rapid Appraisal Procedure-Mapping System and Services for Canal Operation Techniques) workshops were organized to assess the present status of the identified four projects. The findings of RAP MASSCOTE workshops and issues related to Batch 1 SIMP projects were discussed in a mid-term workshop organized by ADB and CWC on 09.06.2023 at New Delhi.

For capacity building under SIMP phase-II, the following activities were organized:

- From 6th to 10th November 2023, a five days training on modernization and design of Pipe Distribution Networks (PDN) was organised at Panchkula/Chandigarh. 22 Engineers from Karnataka, Maharashtra, Haryana, Punjab and CWC participated in the training.
- On 15th and 20th December 2023, a Webinar on Irrigation Modernization and Design of PDN Systems was organized.
- A Training on Asset Management Planning for Irrigation Schemes was held from 8th to 12th January 2024 at WALMI, Aurangabad.
- A training on New technologies in Agriculture and Water Practices was held from 22nd to 25th January 2024 at HIRMI, Kurukshetra, Haryana.
- **Reservoir Sedimentation Assessment Studies:**
CWC has taken up sedimentation assessment studies of reservoirs located all over the country using Hydrographic Survey and satellite remote sensing technique. During Year 2020-21, a new scheme for conducting reservoir sedimentation survey using hydrographic techniques of major reservoirs in India under National Hydrology Project (NHP) was

introduced. Under the scheme in Phase-I, 32 reservoirs were taken up, works of Phase-I have been completed in all respect. In phase -II, 87 reservoirs across the country have been taken up, works of 35 reservoirs have been completed in all respect and of remaining 52 reservoirs are under progress.

Under the scheme during 2022- 23, the study of 40 reservoirs using satellite remote sensing technique has been entrusted to M/s Geo Marine Solutions Pvt. Ltd. Mangalore, Karnataka.

CWC has conducted in-house sedimentation assessment study of one reservoir using remote sensing technologies. These in-house studies have been conducted using microwave data (instead of optical data). The advantage of using microwave data is that the images are not affected by cloud cover, and it is possible to get images of the reservoirs near FRL during monsoon season as well; this is relatively difficult with optical images for full reservoir during monsoon season when it is cloudy).

Central Water Commission (CWC) has undertaken sedimentation assessment studies of reservoirs located throughout the country using satellite remote sensing techniques under the plan scheme "Research & Development

Programme in Water Sector." These studies are conducted both through outsourcing and in-house efforts.

During the year 2023-24, the study of 40 reservoirs was entrusted to M/s Geo Marine Solutions Pvt. Ltd. in Mangalore, Karnataka, out of which 31 were found feasible and the draft final reports of 31 reservoirs are in final stage of publication. The next batch of 40 studies will be outsourced and carried out during 2024-26.

CWC has also conducted in-house sedimentation assessment studies of three reservoirs using remote sensing technologies. These in-house studies have utilized microwave data instead of optical data. The advantage of using microwave data is that the images are not affected by cloud cover, making it possible to obtain images of reservoirs near Full Reservoir Level (FRL) even during the monsoon season, when it is typically cloudy. Obtaining such clear images during the monsoon season can be challenging with optical images. Data from the recently launched RISAT 1A satellite has been utilized in these in-house studies.

In the last 5 years (2019 to 2023), Remote Sensing Dte, CWC have completed Sedimentation Assessment studies of 39 reservoirs

(both in-house and outsourced) using Remote Sensing technique. As on date, a total of 183 Studies (both in-house and outsourced) has been completed.

- **Monitoring of Major Reservoir Storage:**

CWC is monitoring live storage status of reservoirs of the country on weekly basis and issues weekly bulletin on every Thursday. 150 reservoirs are being monitored having total live storage capacity of 178.784 BCM which is about 69.35% of the live storage capacity of 257.81 BCM estimated to have been created in the country. Out of these reservoirs, 20 reservoirs are of hydro-electric projects having total live storage capacity of 35.299 BCM. The weekly bulletin contains current storage position vis-à-vis storage status on the corresponding day of the previous year and average of last 10 years on the corresponding day.

Weekly Bulletin is shared with PMO, NITI Aayog, MoJS, MOP, MOA&FW, IMD, and the Water Resources Departments of concerned States and is also uploaded on CWC's website. This weekly bulletin is also shared with Crop Weather Watch Group (CWWG) of the Ministry of Agriculture and Farmers Welfare of which representative of CWC is also a member. The meeting of CWWG is

convened on every Friday to review agricultural activities across the country and to suggest remedial measures to States in case of distress situation.

- **25th International Congress and 74th IEC of ICID:**

The Indian National Committee for Irrigation & Drainage (INCID) is India's representative national committee in the International Commission on Irrigation & Drainage (ICID). INCID is headed by Chairman, Central Water Commission.

INCID organized the 25th International Congress & 74th IEC Meeting of ICID at Radisson Blu Resort, Vishakhapatnam (Vizag), Andhra Pradesh during 2-8th, November, 2023 in partnership with the State Govt of Andhra Pradesh, CWC and ICID. This marked the return of the prestigious ICID Congress to India after a gap of almost 6 decades. The ICID Congress and IEC had participation of about 1200 delegates from about 45 countries. The 25th ICID Congress was jointly inaugurated by the Hon'ble Minister (Jal Shakti), Govt of India and the Hon'ble Chief Minister of Andhra Pradesh. The Hon'ble Minister (Jal Shakti), Govt of India delivered in the inaugural N D Gulhati Memorial Lecture.

The theme for the 25th ICID Congress was 'Tackling Water Scarcity in Agriculture' and detailed deliberations were held to address these issues in the form of two questions.

- » *Alternative water resources could be tapped for irrigated agriculture*
- » *On-farm techniques can increase water productivity*

Various Technical sessions, Technical Tours, Cultural Evening, Cultural Tours, Industry Session, etc. were organized during the event along with Technical sessions of the various Working Groups of ICID and IEC Meetings of ICID.

ICID WHIS Awards - 2023 to India: ICID, every year, announces awards namely: World Heritage Irrigation Structures (WHIS) and the Water Saving (Wat Save) awards. India has won 4 nos of WHIS awards 2023 which are listed below. The WHIS awards were presented to the winners during the 25th ICID Congress and 74th IEC Meeting:

- Prakasam Barrage (Old Krishna Anicut) - Andhra Pradesh
- Srivaikuntam Anicut - Tamil Nadu
- Balidiha Irrigation Project – Odisha
- Jayamangal Anicut - Odisha, Andhra Pradesh during 1-8 November, 2023

- **Central Water Commission/
National Water Academy:**

CWC / National Water Academy conducted various trainings / workshops in CWC headquarter and its field offices. In addition to above, some officers participated in trainings, workshops and conferences organized by various national and international organizations during 01.04.2023 to 31.12.2023.

- **CWC Activities under National Hydrology Project (NHP):**

Achievements includes Completion of Phase-I i.e., Development Phase of consultancy work for “Physical based Mathematical Modelling for estimation of Sediment Rate and Sediment Transport in Seven River Basin”. Phase-II Support and Maintenance Services is under process, Quarter 1, Quarter 2 and Quarter 3 support has been completed by the consultant. “Extended Hydrological Prediction (multi week forecast) for Yamuna, Narmada and Cauvery basins: Phase I (Inception Report), Phase II (Submission and approval of Input Data Development Report), Phase III (Model development for Low flow season and Testing) and Phase IV (Model development for High flow season and Testing) have been completed. Phase VI (Dashboard Development) is also parallelly in

progress. Benefitting States: Karnataka, Tamil Nadu, M.P, Gujarat, Haryana, Rajasthan, U.P, Delhi.

“Reservoir Sedimentation Studies using Hydrographic survey for 32 reservoirs” under Phase-I has been completed. Works of Phase II: Consists of 87 reservoirs in 10 states (Rajasthan, Gujrat, Uttar Pradesh, Uttarakhand, Madhya Pradesh, Maharashtra, Andhra Pradesh, Kerala, Telangana, and Odisha is under progress.

Supply, Installation, Testing & Commissioning (SITC) of 93 Nos. ADCP (14 + 29 + 50 in three phases) for the measurement of discharge at the HO sites of CWC has been completed. 32 velocity radar sensors for modernization of discharge observations has been procured out of which 18 has been installed and commissioned so far. 7 nos of Water Quality Equipment (ICP-MS and GC-MS) have been procured and installed so far. Procurement of 3 more Water Quality Equipment (1 GC-MS and 2 ICP-MS) is under process.

Development phase of Consultancy services for “Early Flood Warning System Including Inundation Forecast in Ganga Basin” is in progress: Task I-(a) Verification of the Currently Used and Alternative Hydro-Met Data (b) Licenses of

models, dashboard and other software components, Task II–Cross-section, Satellite Imageries and Digital Elevation Model Data, Task III – Hydrologic Analyses of Historic Flows has been completed. Task-IV: Conduct Hydrologic and Hydraulic Modelling is in advance stage.

“Consultancy Services for Development of Decision Support System near to real time for Integrated Reservoir Operation System of Ganga Basin”: The Development Phase has been completed and Testing Phase is in progress.

Installation, testing and commissioning of Real Time Data Acquisition System (RTDAS) for Narmada Control Authority (NCA), Bhopal by CWC: all 48 sites has been completed. Installation, testing and commissioning of Real Time Data Acquisition System (RTDAS) in Arunachal Pradesh: Civil work and installation of telemetry equipment has been completed at 50 sites. Partial Commissioning of all the equipment has been completed and it will be connected to Sol GTS benchmark as per availability of Sol GTS benchmark.

Modernization of training facilities in NWA Pune & Modernization of Water Quality Monitoring activity by providing state of art equipment.

- **Flood Plain Zoning**

Draft “Technical guidelines on Flood Plain Zoning” sent to DoWR, RD&GR for finalization. The Guidelines will support respective State Governments in framing their own flood plain zoning legislations.

CWC undertook works of delineation and demarcation of floodplain zones on river Yamuna for the stretches from Asgarpur (d/s of Okhla barrage to Prayagraj upon request from the Government of Uttar Pradesh.

- **Revival of Swarnrekha River, M.P.**

CWC submitted a report on revival of Swarnrekha River, Gwalior, Madhya Pradesh on the direction of Hon'ble High Court of Madhya Pradesh, Gwalior Bench.

7.1.2 CENTRAL SOIL AND MATERIAL RESEARCH STATION (CSMRS)

The Central Soil and Materials Research Station (CSMRS), New Delhi, an attached office of DoWR, RD & GR, was established in 1954. CSMRS is an ISO 9001:2015 certified organization and deals with field and laboratory investigations, research and problems in geotechnical engineering, concrete technology, construction materials and associated environmental issues, having direct bearing on the development of irrigation and power in the country and functions as an adviser and consultant in

the above fields to various projects and organizations in India and abroad. The Research Station is involved in the safety evaluation of existing hydraulic structures and quality control and quality assurance of construction for various river valley projects. The sphere of activity of CSMRS comprises the following key areas:

- The soil discipline deals with soil characterization, rock fill material characterization and geosynthetics material characterization. This discipline conducts foundation investigations for assessing the competency of the foundation strata for the construction of structures and borrow area investigations for ascertaining the suitability of the soils collected from the borrow area to be used for the construction of the structures. It also carries out studies on expansive and dispersive soils, hydraulic fracturing of core materials, quality control, quality assurance, dynamic characterization of soil, and numerical modelling based research in this area.
- The rock discipline deals with in-situ rock mass characterisation, laboratory assessment of intact rocks, geophysical investigations and geotechnical instrumentation. This discipline conducts laboratory investigation of intact rock, in-situ tests for determination of shear strength properties, deformability characteristics of rock mass, in-situ stress measurements, grout ability tests in rock and rock bolt/ anchor pull-out tests. It carries out investigations using the geophysical methods to decipher the sub-surface ground conditions, delineation of bed rock, thickness of overburden, detection of geological anomalies, blast vibration monitoring studies etc. It is also involved in health monitoring of the structures through instrumentation, geophysical studies and numerical modelling.
- The concrete discipline deals with construction materials characterization, concrete mix design, special studies on concrete and non-destructive diagnosis of the concrete structures. It carries out special tests for concrete durability assessment, under water abrasion test, concrete permeability test, testing of epoxy materials, alkali aggregate reactivity study etc. It also carries out chemical characterization of all construction materials including the admixtures. It provides consultancy for quality control and quality assurance services for concrete structures. It is also involved in diagnostics health monitoring, repair and rehabilitation of structures, durability of concrete etc.

CSMRS undertakes consultancy works primarily pertaining to the projects in the area of water resources sector, in the domain of investigation with reference to laboratory and in-situ testing for foundations on soils and rocks and investigations for the construction materials such as concrete (and its constituents), soil, geo synthetics, rock fill. The consultancy work comprises suggestions, based on the recommended parameters of the investigated materials (required for the design of structures) and remedial measures to be adopted for the problems encountered in the project.

INVESTIGATIONS FOR PROJECTS

Fourty five projects, including two projects in North- East region of India and three interlinking projects were investigated. The investigations comprised field and laboratory investigations in the areas of soil, rock, rockfill, geosynthetics, concrete and its constituents. The investigated projects are as under:

North Eastern Project

- Dibang Multipurpose Project, Arunachal Pradesh
- Katkal Irrigation Project, Assam

Interlinking Projects

- Damanganga - Vaitarna - Godavari Intrastate Link Project, Maharashtra
- Ken-Betwa Link Canal Project, Madhya Pradesh (NWDA)

- Pailani Barrage Ken Betwa Link Canal Project, Uttar Pradesh

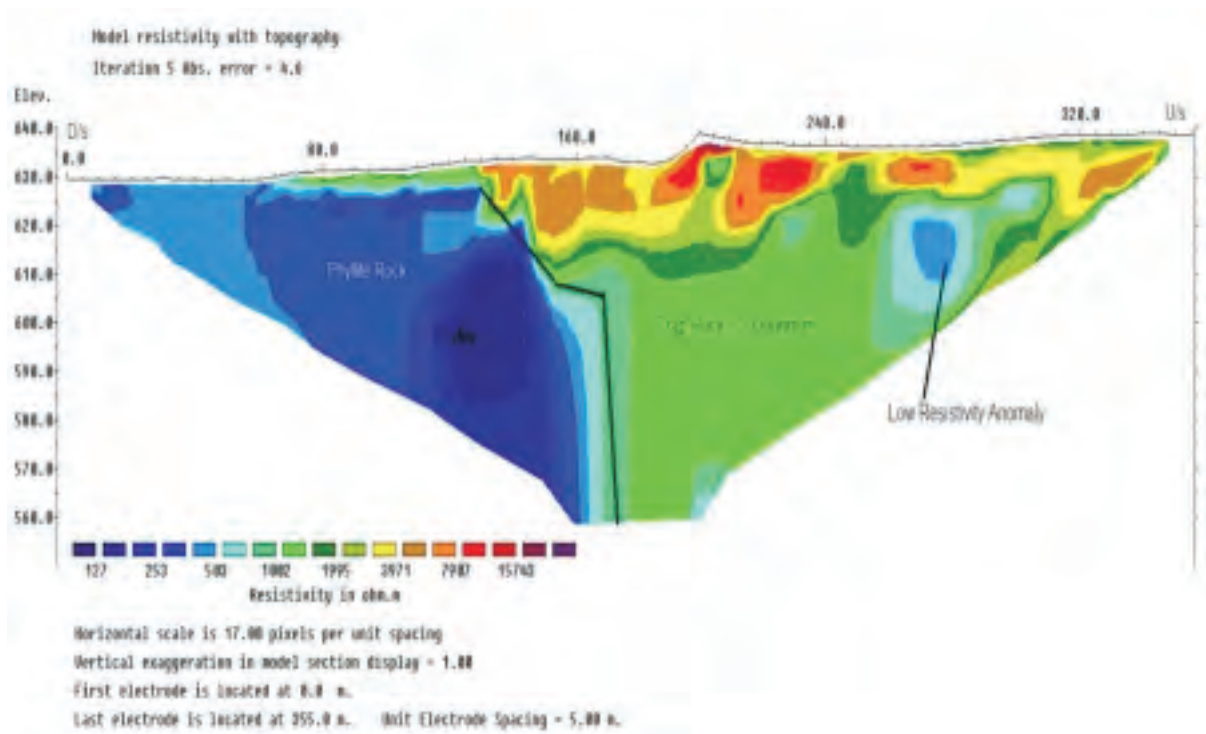
National Projects:

- Adi Badri Project, Haryana
- Bastawa Mata and Indroka Dam Projects, Rajasthan
- Barua Sagar Dam Project, Uttar Pradesh
- Barua Sagar Lake Project, Jhansi, Uttar Pradesh
- Bhaunrat Dam Project, Uttar Pradesh
- Cholavaram Tank, Tamilnadu
- Daudhan Dam Project, Khajuraho, Madhya Pradesh
- Dibang Multipurpose Project, Arunachal Pradesh
- Gandikota Pumped Storage Project (1000 MW), Andhra Pradesh
- Canal Head Regulator at Khamaria Bhaugul Bareilly, Uttar Pradesh
- Isarda Dam Tonk, Rajasthan
- Khamaria Head Regulator, Bareilly Project, Uttar Pradesh
- Kanhar Irrigation Project, Uttar Pradesh
- Khetri Tailing Dam, Khetri, Rajasthan
- Kol Dam Project, Himachal Pradesh
- Lakhwar Multipurpose Project, Uttarakhand
- Madhyamaheshwar Small Hydro Electric Project, Uttarakhand

- Nathpa Jhakri Hydroelectric Project, Himachal Pradesh (SJVN)
- North Koel Project, Jharkhand
- Pailani Barrage Ken Betwa link canal project, Uttar Pradesh
- Panchnad Irrigation Project, Auriaya, Uttar Pradesh
- Paricha Dam Project, Uttar Pradesh
- Polavaram Irrigation Project, Andhra Pradesh
- Purthi Hydroelectric Project, Himachal Pradesh
- Tehri Pump Storage Project, Uttarakhand
- Reoli Dugli Hydroelectric Project, Himachal Pradesh
- Renukaji Dam Project, Himachal Pradesh
- Rihand Dam Project, Uttar Pradesh
- Rukura Dam project, Odisha
- Sardar Sarovar Project, Gujarat
- Sillahalla Hydroelectric Project, Tamilnadu
- Somb Sarsavati Reservoir Scheme, Haryana
- Song Dam Project, Uttarakhand
- Subarnarekha Multipurpose Project, Jharkhand
- Upper Indravati pumped storage project, Odisha
- Vishnugad Pipalkoti Hydroelectric Project, Uttarakhand
- Bhivpuri Pumped Storage Project, Maharashtra
- Bhavali Pumped Storage Project, Maharashtra
- Sachkhas H.E. Project, Gujarat



Geophysical Investigation in progress at site



2D Resistivity Section on Left Bank showing clear contrasts between phyllite and trap rocks



Collection of borrow area Soil samples



LVDT's setup for Uniaxial Jacking Tests



Setup of In-situ Shear Test

Important achievements of CMSRS during 2023-24:

Success Indicators	Achievements (number)
Technical reports brought out / published	76
Publication of Research Papers	47
Evaluation of Detailed Project Reports and	31
Technical comments on compliance to DPR	42
Training programme organized	06

SELF-SPONSORED RESEARCH SCHEMES:

The self-sponsored research schemes currently in progress are as follows:

- Assessing the Effect of Fines on Liquefaction Potential of Solani Sand using Cyclic Simple Shear Test.
- Effect of Breakage Factor on Shear Strength Parameters.

INSTITUTIONAL COOPERATION

CSMRS is having institutional cooperation with the following Institutes/ Departments:

- Norwegian Geotechnical Institute, Norway – Cooperation in the fields of geotechnical engineering and construction materials.
- Satluj Jal Vidyut Nigam Limited – Cooperation in geotechnical investigation and construction

material survey of hydroelectric projects.

- NEHARI, Brahmaputra Board, Assam - Cooperation in the fields of geotechnical engineering and construction materials including training of officers of NEHARI.

7.2 SUBORDINATE OFFICES

7.2.1 CENTRAL GROUND WATER BOARD (CGWB)

Central Ground Water Board (CGWB) is a scientific department under Department of Water Resources, RD & GR, Ministry of Jal Shakti, Government of India and national apex organization for all aspects of ground water surveys, exploration, development and management. CGWB is a multidisciplinary Scientific Organization with a mandate to "Develop and disseminate technologies for Scientific and Sustainable development and management of India's Ground Water Resources, including monitoring exploration, assessment and augmentation."

Central Ground Water Board is also discharging the functions as Central Ground Water Authority (CGWA) to regulate and control the development and management of ground water in the country since 1997.

Major Activities of Central Ground Waterboard (CGWB)

Most of the activities of the CGWB

are undertaken as a part of the central sector scheme titled 'Ground Water Management and Regulation (GWMR) scheme'. In addition to above, CGWB is an implementing agency of National Hydrology Project (NHP). CGWB also implements specific components of other schemes of DoWR, RD & GR like

- RGNGWTRI component of HRD and Capacity Building scheme
- Supporting implementation of Atal Bhujal Yojana.

A brief of activities and achievements of CGWB is given below.

National Aquifer Mapping and Management Program (NAQUIM):

CGWB is implementing National Aquifer Mapping and Management program (NAQUIM), which envisages mapping of aquifers (water bearing formations), their characterization and development of aquifer management plans to facilitate sustainable management of ground water resources. NAQUIM was initiated in 2012 as a part of the GWMR plan scheme with the objectives to delineate and characterize the aquifers and develop plans for ground water management. Out of 32 lakh sq km of the entire country, entire mappable area of 25 lakh sq km has been covered under this programme. NAQUIM outputs are shared with various stakeholders including the District authorities.

NAQUIM 2.0 was initiated in 2023 with broad objectives of

- providing information in higher granularity with a focus on increasing density of dynamic data like ground water level, ground water quality etc.
- providing issue based scientific inputs for ground water management upto Panchayat level,
- providing printed maps to the users and putting in place a strategy to ensure implementation of the recommended strategies. Involving state agencies in the studies for a sense of ownership.

An area of nearly 44000 sqkm is being covered in 76 studies in year 2023. The inception reports of studies have been shared with concerned State Government.

Workshops under NAQUIM 2.0 were organised by CGWB for 11 priority areas assigned in AAP 2023-24. Four workshops have been organized in different Regional



Sharing of Inception Report with Ms. Chithra S IAS, District Collector, Palakkad, Kerala Workshop on Spring Study and Autoflow Areas at UR Dehradun (18.10.2023)

offices of CGWB from Jan 2023 to March 2024.

High resolution aquifer mapping and management in Arid areas of India:

CGWB has initiated high resolution mapping of aquifers using modern heli-borne geophysical survey in parts of the arid areas spread over the states of Rajasthan, Gujarat and Haryana. The study is aimed at establishing aquifer geometry, demarcation of de-saturated and saturated aquifers, identification of paleo channels network, identification of potential sites for ground water withdrawal and identification of sites for water conservation structures, MAR sites etc.

In Phase-I survey work of the project, covering an area of 97,165 sq.km has been completed covering 92 Blocks in Rajasthan, Gujarat and Haryana states.

Ground water level monitoring:

Ground water level monitoring is one of the key activities of CGWB. The primary objective of ground water monitoring is to record the response of various natural and anthropogenic stresses on the groundwater regime which impacts the recharge and discharge parameters. At present, CGWB has a network of nearly 27,000 ground water observation wells throughout the country. The ground water levels are measured four times a year during the months of January, March/ April/ May, August and November.

Ground water quality studies:

CGWB has 16 regional chemical laboratories to carry out chemical analysis of water samples. These chemical laboratories are well equipped with sophisticated instruments like ICP-MS, Atomic Absorption Spectrophotometer (AAS) etc. Ground water sampling for quality monitoring is done once a year during the pre-monsoon period through a country-wide network of around 17,000 wells, wherein the samples are analyzed for basic constituents as well as heavy metals. In addition to this ground water samples are also collected and analysed as a part of other scientific studies. The results are widely circulated with all stakeholder agencies, including state governments for suitable interventions, wherever required.

Geophysical Studies:

Geophysical studies employ non-invasive techniques, offering indirect insights into the disposition and characteristics of aquifers. The Central Ground Water Board (CGWB) possesses an in-house facility for various geophysical studies. Both surface and subsurface (well logging) geophysical techniques are extensively utilized in the quest for groundwater and the proper construction of water wells. The results of geophysical studies are amalgamated with hydrogeological investigations to establish a robust foundation. Transient Electromagnetic techniques (TEM) have

been introduced to identify sub-surface layer parameters like resistivity and thickness, similar to Electrical Resistivity surveys. TEM surveys, despite providing comparable information, require less time than conventional Electrical Resistivity surveys. CGWB is currently conducting advanced 2-D Imaging surveys using a Multi Electrodes Resistivity Meter for special studies and aquifer mapping.

During 2023 to March 2024, CGWB through its field offices carried out 2750 Vertical Electrical Sounding (VES), 3089 Transient Electro-magnetic (TEM) studies.

Exploratory Drilling:

Ground water exploration is one of the core activities of Central Ground Water Board. Drilling aided ground water exploration provides direct information about disposition and characteristics of the aquifers. Every year around 700 wells are drilled by CGWB for ground water exploration through in-house resources. CGWB has a fleet of 78 operational drilling rigs and has capability to construct wells in various types of terrain in the country. In view of enhanced requirements of ground water exploration under the NAQUIM programme, CGWB has also taken up exploratory drilling through outsourcing. After conducting necessary tests and chemical quality assessment, successful wells are handed over to the State user agencies.

During 01st January 2023 to 31st March 2024, CGWB has constructed 802

wells including EW, OW and Piezometers.

Aquifer Rejuvenation and Water Conservation:

a) Groundwater Augmentation through Artificial Recharge in water stressed areas of Rajasthan:

- During 2021-22, CGWB has taken up the project on 'Groundwater augmentation through artificial recharge in identified water stressed areas of Rajasthan, comprising Jodhpur, Jaisalmer & Sikar districts of Rajasthan. The structures include check dams, anicuts and recharge shaft with ponds.
- One of the major achievements under the project, construction of Zoned Earth Filled Dam with Clay Core at Indorka, Jodhpur, Rajasthan has been completed and the structure was inaugurated by Hon'ble Minister of Jal Shakti on 16.03.2024.
- 13 water harvesting structures were also completed during 2023-24.

b) Master Plan for Artificial Recharge to Groundwater:

- Central Ground Water Board has prepared a Master Plan for Artificial Recharge to ground water. It has been proposed to implement the Master Plan on Artificial Recharge

in one district identified of each State/UTs through various Central/State schemes which are being implemented in the State. The implementation of master plan for Artificial Recharge- 2020 is being taken up in 36 districts (one district in each State/UTs) falling in 36 States/UTs.

- One district in each state has been identified for the implementation of Master Plan for Artificial Recharge-2020 on pilot basis and the implementation is in progress in 33 States/UTs of India.
- c) Convergence with MGNREGS in Water Stressed areas:**
- CGWB is providing technical guidance in site selection & design of artificial recharge structures and capacity building of MGNREGS officials in selected 09 Blocks of 08 States as a pilot study. The work has been taken up under the MGNREGS fund, so far the work is completed in Andhra Pradesh, Telangana & Tamil Nadu (one block each) and is under progress in the rest of the blocks of the states.

Assessment of Ground Water Resources

Periodic assessment of dynamic ground water resources is done jointly by CGWB and the respective State Governments. The web-based application "INDIA-GROUNDWATER RESOURCE ESTIMATION SYSTEM (IN-GRES)

developed by CGWB in association with IIT-Hyderabad for automated estimation of the dynamic ground water resources provides a common and standardized platform for the entire country. Ground water resource assessment for the base year 2023 has been done using IN-GRES software.

As per the recent assessment of dynamic ground water resources (2023) carried out jointly by CGWB and the State Governments, of the 6553 assessment units, 736 (11%) units are categorized as 'over-exploited', 199 (3%) as 'critical', 698 (11%) as 'semi-critical', 4793 (73%) as 'safe' and the remaining 127(2%) are categorized as 'saline. (approx. %)



Presentation by CGWB before the Hon'ble Minister of Jal Shakti during the release of the National Compilation on dynamic ground water resources of India 2023 on 1st December 2023

Outreach Activities

Public Interaction programs (PIPs) were organised by CGWB under Azadi Ka Amrit Mahotsav. The participants are sensitized on various aspects of water conservation, ground water management and findings of the NAQUIM study. During

January 2023 to March 2024, a total of 146 such programmes were conducted in which nearly 15887 people have participated.

Regulation and Control of Ground Water Draft- Central Ground Water Authority:

The Central Ground Water Authority (CGWA) has been entrusted with the responsibility of regulating and controlling ground water development and management in the country. The functions/ responsibilities of CGWA include:

- Exercise of powers under section 5 of the Environment (Protection) Act, 1986 for issuing directions and taking such measures in respect of all the matters referred to in sub-section of section 3 of the said Act.
- To resort to penal provisions contained in sections 15 to 21 of the said Act.
- To regulate and control, management and development of ground water in the country and to issue necessary regulatory directions for the purpose.

For the purpose of such regulation, CGWA has issued Guidelines dated 24.09.2020 with pan India applicability under which the abstraction of ground

water is regulated through issuance of NOCs to project proponents. During the period from January 2023 to March 2024, total 15477 NOC applications were processed by CGWA. On-site inspections were also carried out by the Regional Offices of CGWB to check the compliance of NOCs granted by CGWA before recommending the renewal applications to CGWA, New Delhi. Necessary show-cause notices were issued to the project proponents who had not complied with the conditions of the NOC issued by CGWA.

Rajiv Gandhi National Ground Water Training and Research Institute (RGNGWTRI):

Rajiv Gandhi National Ground Water Training & Research Institute (RGNGWTRI) is the training wing of Central Ground Water Board, Ministry of Jal Shakti, Govt. of India and functions as a 'Centre of Excellence' with the national role of capacity building of CGWB, groundwater professionals from Central and State Government Organizations, Public Sector Undertakings, Non-Governmental Organizations, Academic institutions, and other stakeholders through three-tier training -Tier I (National Level), Tier II (State Level) and Tier III (Block level) trainings and is located in Sector 23, Naya Raipur, Chhattisgarh.

Details of Tier-I, II, And III Training Conducted (January 2023 to March 2024)

Sl. No.	Training	Period January 2023 - March 2024		
		Training Conducted	No. of Participants	No. of Women Participants
1	Tier-I	66	1080	196
2	Tier-II	21	580	160
3	Tier-III	51	6310	2840
Total		138	7970	3196

Other Activities of RGNGWTRI**Research & Development**

Activities: Apart from training RGNGWTRI is also conducting research in various aspects of groundwater, conducting accreditation of ground water professionals qualified for preparing Impact Assessment reports related to ground water withdrawal, training of water auditors etc.

RGNGWTRI has been accredited as under the Capacity Building Commission's National Standards as assessed by the National Accreditation Board of Education and Training (NABET) on 22.11.23.

7.2.2 CENTRAL WATER AND POWER RESEARCH STATION (CWPRS)

CWPRS has been working and providing specialized services through physical and mathematical model studies, field and laboratory investigations in river training and flood control, hydraulic structures, ports and harbours, coastal protection, foundation engineering, construction materials, pumps and turbines, ship hydrodynamics, hydraulic

design of bridges, environmental studies, earth sciences, cooling water intakes for thermal and nuclear power plants.

AREAS OF EXPERTISE

The research activities at CWPRS can be grouped into seven major disciplines as listed below:

- **River Engineering:** Studies related to river training and bank protection works, hydraulic design of barrages and bridges, measuring water and sediment discharge etc., are carried out under this discipline.
- **River and Reservoir Systems Modelling:** Studies related to flood estimation and forecasting, reservoir sedimentation and water quality are carried out under this discipline using mathematical models and field surveys.
- **Coastal and Offshore Engineering:** Studies related to optimization of length and alignment of breakwaters, jetties, berths, approach channel, turning

circle etc. for development of various ports and harbors are carried out under this discipline. Field data collection is being carried out for coastal parameters like water level, currents, wave-height etc.

- **Foundation and Structures:** Laboratory and field test studies are carried out under this discipline to determine the soil, rock and concrete properties. The studies undertaken by this discipline pertain to dams, power plants etc. Also, Geotechnical studies using numerical modeling are conducted to assess safety and seepage aspects of earthen dams, tailings dams, ash dykes, barrages, hill slopes, embankments and coastal structures such as breakwaters, navigation channels, shore slopes, etc.
- **Applied Earth Sciences:** Studies related to seismic surveillance of river-valley projects, controlled blasting studies for civil engineering projects, detection of seepage and engineering properties of structures using nuclear logging and geophysical methods for various dams, canals, nuclear and thermal power plants etc. are carried out under this discipline.
- **Instrumentation, Calibration and Testing Facilities:** Studies related to installation and monitoring of

instruments in dams, hydro electric power plants etc., calibration of instruments and their testing are under this discipline. Services of dam instrumentation are provided at project sites. Hydraulic instrumentation is also being used for data acquisition on physical hydraulic models at CWPRS.

The significant achievements of CWPRS during the period from January 2023 to March 2024 are indicated below:

Success Indicators	Achievements (number)
Number of Technical Reports published	182
Number of Research Papers published	96
Number of Lectures delivered by CWPRS Scientists	56
Number of training programs organized by CWPRS	35

IMPORTANT STUDIES CARRIED OUT AT CWPRS DURING THE PERIOD:

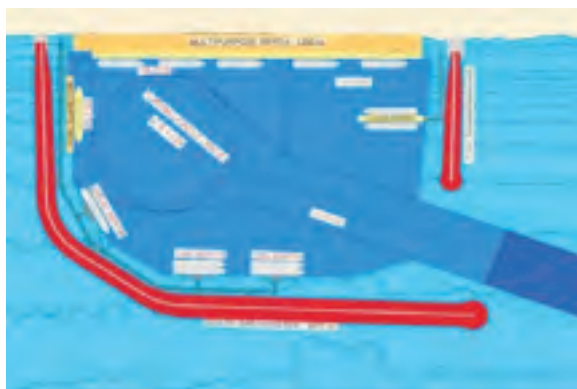
- Hydraulic model studies were conducted on the 1:75 scale 3-D comprehensive model for the spillway of Kiru H.E Project on the left bank of the Chenab river Kishtwar District, UT of Jammu and Kashmir to investigate the performance of spillway and energy dissipation arrangement for the entire range of discharges up to the design discharge of 10196 m³/s.



Physical model of Kiru H.E. project in dry condition

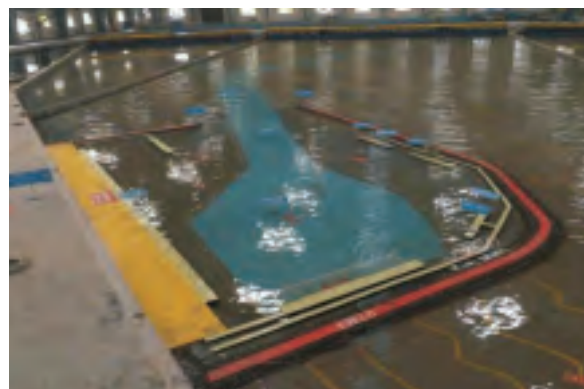


Physical model of Kiru H.E. project in running condition



Plan and model view of the Kakinada Port

- Wave Tranquility studies were conducted for Gate Wave Port at Kakinada, AP. The Kakinada Gateway Port Ltd. is developing an all-weather deep water multi-purpose port facility at Kakinada in east Godavari District, Andhra Pradesh. The Kakinada Port is fully exposed to incident waves from the Bay of Bengal with maximum significant waves of upto 3.5m (Hs) from the quadrant North-East to South-East. The studies using geometric similar physical wave model with rigid bed of scale 1:150 were conducted for assessment of wave tranquillity conditions inside the proposed berths in port area and at the port entrance to optimise layout of the proposed breakwater.



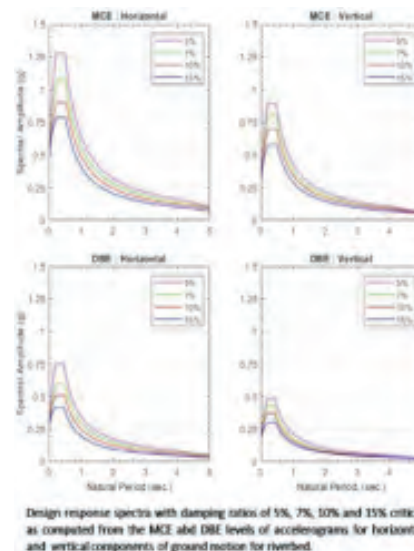
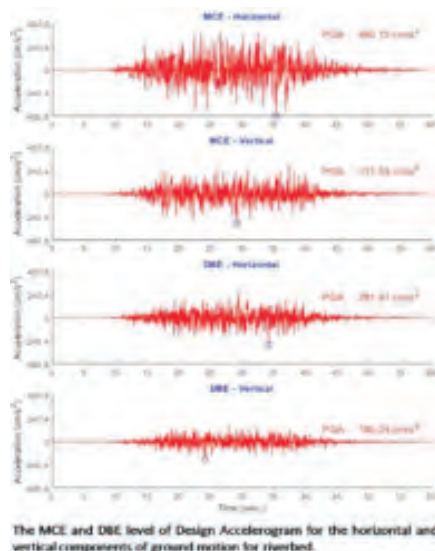
- Estimation of site-specific seismic design parameters for Katakhal Irrigation Project, Assam. The Katakhal Irrigation Project (KIP) envisages construction of a barrage with 17m height across Dhaleswari / Katakhal River in the district of Hailakandi, Assam. As per the zoning map of India (IS: 1893-2002 & 2016 Part-1), the KIP site lies in

seismic zone V, which is in the highly seismic northeast India region. Both deterministic and probabilistic approaches have been applied to arrive at the Maximum Credible Earthquake (MCE) and Design Basis Earthquake (DBE) levels of ground motion.

The deterministic spectra of KIP are found to be governed by the envelope of MCE magnitude 6.0 and 7.5 associated with a nearby lineament and Sylhet Fault at a closest rupture distance of 14.3 km and 96.2 respectively. Smoothed design response spectra are computed for damping ratios of 5%, 7%, 10% and 15% of critical values from these design accelerograms. Recommendations are also made for site specific design seismic coefficients needed for conventional stability analysis.

- Mathematical model studies for identification of location of

dumping site for the disposal of the dredged material resulted from capital & maintenance dredging at Vadhavan Port. A major Greenfield, all-weather port is proposed to be developed jointly by Authorities of Jawaharlal Nehru port and Maharashtra Maritime Board at the offshore of headland at Vadhavan (Lat. $19^{\circ} 55.8' N$, Long. $72^{\circ} 39.6' E$) in Dahanu Taluka, Palghar district of Maharashtra state. The JN Port referred the studies to CWPRS to identify dumping sites for disposal of dredged material resulting from Capital & maintenance dredging for the proposed port at Vadhavan. The depth of dredging proposed in navigational channel, manoeuvring area and berth pockets are -22 m CD; -19.5 m CD and -20 m CD, -17.5 m CD respectively for master plan & Phase-I layouts.



- Hydraulic model studies for the proposed barrage on river Kamla, Jaynagar, Dist. Madhubani, Bihar. Water Resources Department Government of Bihar has proposed to construct a 550 m wide barrage across river Kamla to replace the existing 292.45 m wide weir in order to utilize water more effectively and to have better flood management / regulation of the flow. In this connection hydraulic model studies of River Kamla at Jaynagar were carried out at CWPRS to study sufficiency of waterway, barrage orientation and flow conditions. The study for finalizing level, length and alignment of guide bunds/divide walls and designing suitable bank protection measures have been carried out.



View of Physical Model at CWPRS showing placement of existing weir and proposed barrage

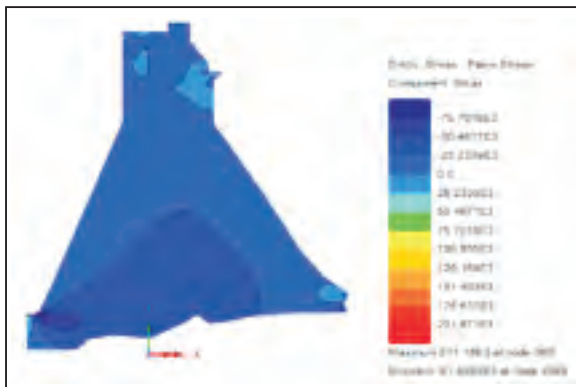
- Hydraulic model studies for spillway of Ratle H.E. Project, 1:45 scale 2-D sectional model. The Ratle Hydro Electric Project is envisaged

as a run of the river scheme on River Chenab near Drabshala village in Kishtwar District of J&K and is located about 25 km from Kishtwar town. The Project proposes to utilize the flow of Chenab River to harness the head created by constructing a 133 m high dam (from deepest foundation). The Project has been cleared by Govt. of India under the Indus Water Treaty, 1960. The spillways (lower level/ sluice and upper level/ overflow) are designed to dispose of a Probable Maximum Flood of 13814 m³/s at MWL/FRL El. 1029 m. The energy dissipators of both spillways envisaged are in the form of a ski jump bucket followed by a common pre-formed plunge pool with bottom at El. 900 m. The installed capacity of the main Power House is 820 MW with four units of 205 MW each.

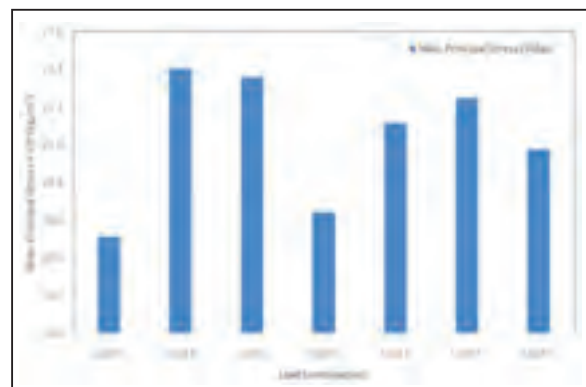
- 2D stress analysis by FEM of 3 sections namely block No. 35, 44 and 47 of Sardar Sarovar Dam, SSNNL, Gujarat. The Sardar Sarovar dam is a concrete gravity dam having 1210.0 m length with maximum height of 163.00 m above deepest foundation built across Narmada River, near Kevadia in Narmada Dist. of Gujarat state. The dam is provided with 23 Nos. of service spillway gates of size 18.3 m x 16.76 m and 7 Nos. Chute

(Auxiliary) Spillway gates of size 18.3 m x 18.3 m each. The project has been constructed to irrigate more than 18,000 km² drought prone areas of Kutch and Saurashtra and to generate 1200 MW electricity. The dam's main power

plant houses 6 x 200 MW Francis pump turbines with pumped-storage capability. Additionally, a power plant on the intake for the main canal contains five 50 MW Kaplan turbine-generators. The total installed power generation capacity is 1,450 MW.



Maximum principal stressed distribution in dam body under load combination



Peak Value of Maximum Principal Stress under seven Load Combination

7.2.3 GANGA FLOOD CONTROL COMMISSION (GFCC)

Ganga Flood Control Commission (GFCC) was established in 1972 with its headquarter at Patna. The Commission is headed by a chairman with two full time members. The representatives of concerned central ministries and departments as well as the Engineer-in-Chief/ Chief Engineers of the Ganga basin States are part time members/permanent invitees.

The Commission has been assigned the following tasks:

- Preparation and updation of comprehensive plans for flood

management of the river systems in the Ganga basin.

- Phasing/sequencing of programme of implementation of works included in the basin-wise plans.
- Providing technical guidance to the Ganga basin States, namely, West Bengal, Bihar, Jharkhand, Uttar Pradesh, Uttarakhand, Chhattisgarh, Madhya Pradesh, Delhi, Haryana, Himachal Pradesh and Rajasthan on flood management.
- According techno-economic appraisal and clearance to flood management schemes of the Ganga basin States with an estimated cost

of more than Rs. 12.5 crore and up to Rs. 25 crore, except for schemes of the States of Haryana, Uttar Pradesh and Delhi on the river Yamuna in the reach from Tajewala to Okhla Barrage. The schemes with estimated cost of more than Rs. 25 crore are appraised by GFCC and their techno-economic clearance is accorded by TAC-MoWR.

- Monitoring the execution of the important flood management schemes, particularly those receiving central assistance under Flood Management and Border Area Programme or being executed under Central Sector.
- Assessment of adequacy of the existing water ways under the road and rail bridges and additional waterways required to be provided for reducing the drainage congestion to reasonable limits.
- Performance evaluation of major flood management measures executed by the States including the inter-State flood management schemes.

Achievements during 2023-24:

- **Maintenance of Flood Protection Works of Kosi and Gandak Projects:**

The flood protection works on river Kosi and Gandak are being carried out based on site inspection after every flood season and on

recommendations of Kosi High Level Committee (KHLC) and Gandak High Level Standing Committee (GHLSC) respectively. The reimbursement of expenditure incurred on maintenance of the flood protection works executed in Nepal portion is being made by Government of India after utilization certificate of the same is received from the State Government of Bihar for Kosi and Government of Uttar Pradesh for Gandak, respectively. KHLC/GHLSC conducted annual inspection of the flood protection works on rivers Kosi and Gandak during 31.10.2023 to 03.11.2023, and 06.11.2023 to 09.11.2023, 29.01.2024 to 31.01.2024, respectively, held meetings and finalized the recommendations for flood protection works on these rivers to be taken up and completed in time bound manner before the flood season 2024.

- **Updating of comprehensive Plan for Flood Management:**

Comprehensive plans for flood management for all the 23 river systems of the Ganga basin were prepared between 1975 and 1990. The work of updating these comprehensive plans was taken up due to changes, additional information/data on hydro-meteorology and morphology in the

basin in the subsequent years. All comprehensive plans, except comprehensive plan for flood management for Kosi river system, have been updated once. Second updating of 6 plans has also been completed. During the year 2020-21, a pilot project proposal on the “preparation of comprehensive plan of flood management for the Kosi river system using state of the art technology” was formulated and a sub-committee on “preparation of comprehensive plan using state of the art technology” was constituted involving officers from GFCC, State Govt. of Bihar and other subject experts. The proposal was submitted and is under active consideration of DoWR, RD & GR. In the recent 53th GFCC meeting held on 14th March 2024, it was stressed on Development of integrated comprehensive plan for flood management of a river sub-basin as a whole, considering the international-trans boundary aspects. The concerned States were requested to supply the data available under their domain.

- **Assessment of the adequacy of existing waterways under road and rail bridges:**

Main stem Ganga was divided into 5 reaches a) Outfall to Sahebganj, b) Sahebganj to Buxar, c) Buxar to Haridwar, d) Haridwar to

Rudrapryag, e) Rudraprayag to Badrinath & Rudrapryag to Kedarnath. Out of 5 selected reaches, the assessment study is in progress for 3 reaches. Survey and data collection work for Haridwar to Rudraprayag has been completed. Assessment study report for Haridwar to Rudraprayag is in progress and survey for Rudraprayag to Badrinath & Rudraprayag to Kedarnath is in process.

- **Techno-economic Appraisal of Flood Management Schemes:**

Thirty-Nine flood management schemes were received in GFCC from Ganga Basin States during the period April 2023 to March 2024 including spillover projects from previous years. Out of this Twenty-Four schemes were approved by the Technical Advisory Committee of DoWR, RD&GR. Fourteen schemes are pending with State Governments for compliance and Six schemes are under examination in GFCC.

7.2.4 BANSAGAR CONTROL BOARD (BCB)

Bansagar Control Board was set up vide Government of India, Ministry of Agriculture and Irrigation Resolution No.8/17/74-DW-II dated 30th January, 1976. It was amended vide Resolution No.8/17/74-DW-II dated 28th March,

1978. This Resolution was in accordance with an agreement reached between the Governments of Madhya Pradesh, Uttar Pradesh and Bihar on 16th September, 1973 for sharing the waters of river Sone and the cost of the Bansagar dam. The Union Minister of Jal Shakti is the Chairman of the Board and Union Minister of Power, Chief Ministers, Minister-in-charge of Irrigation and Finance of the three States and Minister-in-charge of Electricity of Madhya Pradesh are members. The expenditure on the office of the Board is met out of budget grant from DoWR, RD&GR and subsequently reimbursed by the three States of Madhya Pradesh, Uttar Pradesh and Bihar. An Executive Committee of the Board headed by Chairman, CWC manages the activities of the Board. Bansagar dam was raised to its full height along with erection of 18 radial crest gates in June 2006. In 2023-24 the reservoir got filled up to reservoir level 341.48 m (FRL=341.649m) on 26.09.2023.

Bansagar Dam Project: Bansagar is a multipurpose river valley project on river Sone in Madhya Pradesh envisaging both irrigation and hydroelectric power generation. The Bansagar project is being executed by the Water Resource Department, Government of Madhya Pradesh under direction of Bansagar Control Board. The Party States carry out the execution of the canals and power system independently under their jurisdiction. As per the information provided by the Water Resources

Department, Government of Madhya Pradesh, the water released to the States of Madhya Pradesh, Uttar Pradesh and Bihar from 1st January, 2023 to 31st March, 2024 is 4,673.661 MCM, 562.75 MCM and 1172.611 MCM, respectively.

7.2.5 UPPER YAMUNA RIVER BOARD (UYRB)

Upper Yamuna River Board (UYRB) was constituted by Resolution No. 10(66)/71-IT dated 11th March, 1995 of MoWR, RD & GR, Govt. of India in accordance with the provision of the MoU signed by the Chief Ministers of Himachal Pradesh, Haryana, Uttar Pradesh, Rajasthan, and National Capital Territory of Delhi on 12th May, 1994 regarding allocation of utilizable surface flow of river Yamuna upto Okhla Barrage (Upper Yamuna) among the co-basin States. After the creation of Uttaranchal State in 2000, the resolution was modified to include Uttaranchal (now Uttarakhand) also in the Board in 2001.

The Board consists of Member, Central Water Commission as part-time Chairman and one nominee each from the States of Uttar Pradesh, Uttarakhand, Haryana, Rajasthan, Himachal Pradesh, and National Capital Territory of Delhi not below the rank of the Chief Engineer, a Chief Engineer from Central Electricity Authority and representatives of Central Ground Water Board and Central Pollution Control Board as part-time Members. The Board has a full-time Member-Secretary

who does not belong to beneficiary States. The expenditure on the Board is shared equally by the six basin States.

Upper Yamuna Review Committee

Upper Yamuna Review Committee (UYRC) is also constituted under the chairmanship of the Hon'ble Minister, Ministry of Jal Shakti, Government of India and comprising of Chief Ministers (Governor in case of President's Rule) of the States of Himachal Pradesh, Haryana, Rajasthan, Uttar Pradesh, Uttarakhand, and National Capital Territory of Delhi for assessment of working of the UYRB and ensuring implementation of MoU dated 12.05.1994.

Functions of UYRB:

The main function of the UYRB include regulating the allocation of available flows amongst the beneficiary States; monitoring the return flows; monitoring conserving and upgrading the quality of surface and groundwater; maintaining hydro-meteorological database for the basin; overviewing plans for watershed management; monitoring and reviewing the progress of all projects upto and including Okhla barrage.

Activities of UYRB:

The 61st meeting of Upper Yamuna River Board (UYRB) was organised on 13th December, 2023 at New Delhi. The matters discussed during the meeting include (a) Utilization of Himachal's share of un-

utilized Yamuna water by Delhi; (b) Short Supply of Yamuna Water to Rajasthan; (c) Construction of river training work in the downstream of Hathnikund Barrage; (d) Transfer of Rajasthan's share of Yamuna water (e) Allocation of share of undivided Uttar Pradesh between Uttar Pradesh and Uttarakhand; (f) Release of outstanding raw water charges by Delhi to Haryana on account of extra raw water supplied; (g) Status of implementation of storage projects in Upper Yamuna Basin; and (h) Disruption of water supply in Delhi due to rise in ammonia levels in river Yamuna due to pollution entering river Yamuna from Panipat and Sonapat.

The 8th meeting of Upper Yamuna Review Committee (UYRC) was organised under the chairmanship of Shri Gajendra Singh Shekhawat, Hon'ble Union Minister for Jal Shakti on 21.2.2024 at Yamuna Bhawan, Noida. Shri Swatantra Dev Singh, Hon'ble Minister (Jal Shakti), Uttar Pradesh, Shri Suresh Singh Rawat, Hon'ble Minister (Water Resources), Rajasthan and Ms. Atishi, Hon'ble Minister (Water), Delhi also attended the meeting. Various aspects related to regulation and management of surface water in Upper Yamuna Basin were discussed during the meeting.

As a follow up of the decision taken in meeting held on 04.03.2022 under the chairmanship of Chairman, UYRB & Member (WP&P), CWC to deliberate on the proposal of transfer of Rajasthan's share of Yamuna water at Tajewala Head, Haryana to Jhunjhunu and Churu districts of

Rajasthan, a Technical Committee was constituted under the chairmanship of Member Secretary, UYRB. Six (6) meetings of the Technical Committee were organised during the year. Several other meetings were also organised with representatives of States of Haryana and Rajasthan for discussion on related issues. Finally, a meeting was held on 17.2.2024 by Hon'ble Union Minister for Jal Shakti with Hon'ble Chief Ministers of Haryana and Rajasthan and a consensus was arrived for preparation of Detailed Project Report (DPR) jointly by the Governments of Haryana and Rajasthan for project for transfer of water through underground pipelines. In this regard, Haryana and Rajasthan also signed an MoU which has paved way for stepping forward for ending almost two-decade old issue for transfer of Yamuna water to Rajasthan.

Two meetings of the Committee constituted under the Chairmanship of the Chairman, CWC to study the basis and logic of the allocation of Yamuna water up to Okhla to the erstwhile State of UP and recommend the allocation to the States of Uttarakhand and Uttar Pradesh in the share of erstwhile State of UP was organised during the year. After extensive deliberations, a consensus has been achieved between the two States on water allocation during its meeting held on 29.11.2023.

Three storage projects, viz., Lakhwar (on the river Yamuna with 330 MCM live storage & 300 MW power

generation in the State of Uttarakhand), Kishau (on the river Tons, a tributary of river Yamuna, with 1,324 MCM live storage & 660 MW power generation in the States of Uttarakhand & HP) and Renukaji (on the river Giri, a tributary of river Yamuna, with 498 MCM live storage & 40 MW power generation in the State of HP) have been identified to be constructed in upper Yamuna basin. The agreements for implementation of Lakhwar & Renukaji were signed among the basin States on 28.08.2018 and 11.01.2019 respectively. Efforts have been made by UYRB for resolving various concerns raised by Uttarakhand & Himachal Pradesh for signing the agreement for Kishau MPP. Various meetings have been held in this regard to deliberate on alternatives for funding of power component of the project.

The new office building of UYRB "Yamuna Bhawan" was inaugurated by Shri Gajendra Singh Shekhawat, Hon'ble Union Minister for Jal Shakti on 21.2.2024. The Secretariat of the UYRB has started functioning from its new office building.

7.2.6 FARAKKA BARRAGE PROJECT (FBP)

The Farakka Barrage Project (FBP) was commissioned in 1975 for preservation and maintenance of the Shyama Prasad Mukherjee Port (erstwhile Kolkata Port) and for increasing the navigational depth of the Bhagirathi-Hooghly waterway. FBP also facilitates the sharing of Ganga waters between

Bangladesh and India as per the Indo-Bangladesh Water Treaty-1996. It comprises 2,245 m long barrage across river Ganga at Farakka in Murshidabad District of West Bengal, a canal Head Regulator at Farakka for diverting water to feeder canal and Jangipur Barrage, besides the road-cum-rail bridge across Ganga at Farakka, navigation locks at Farakka and Jangipur, a road-cum-rail bridge across the feeder canal, townships at Farakka, Ahiron and Khejuriaghat having about 4,000 dwelling units, a higher secondary school with the student capacity of 1,200 and a hospital. Its appurtenant structures include flood embankments, marginal bunds, afflux/guide bunds, etc.

FBP authority has been assigned following major responsibilities:

- Operation & maintenance of main barrage
 - » 112 gates on main barrage
 - » 11 gates on Head Regulator
 - » 15 gates of Jangipur barrage
 - » Protective measures of apron and river bed in upstream and downstream of both the barrages & Head Regulator.
- Maintenance and protective measures of feeder canal (38.38 km in length), structures across Feeder Canal, culverts, inlets, ferry services, inspection road (both banks), syphon, buildings etc.
- Maintenance and protective anti-erosion work in the original

jurisdiction (12.5 km upstream and 6.9 km downstream of barrage); along with its allied structures like marginal bund, afflux bund, inspection road, regulator, culverts, guide bund etc. for the safety of barrage.

- Maintenance of Farakka Barrage Township, Khejuriaghat Township, Jangipur barrage colony, colony at Kalindri regulator, including maintenance of all civil, mechanical and electrical structures.
- Operation & maintenance of all equipment, vehicles and machineries, etc.

Major achievements:

- Replacement of 11 no. Head regulator gates are in progress.
- Annual Maintenance of 108 nos. Main Barrage gates and its Hoist machineries & embedded parts.
- Supply of Services of manpower for operation and regulation of all gates of Main Barrage and Head Regulator gates of Farakka Barrage round the clock.
- Repairing of Left bank upstream guide bund inspection road from Afflux Bund to stack yard, repairing of pot holes and fixing of road marking strips of PSC road bridge of Farakka Barrage Project
- Identification, Demarcation and Mutation of FBP Land as per acquisition plan/LR Mouza map of

- the whole area alignment/perimeter alignment in all stretches of FBP is in progress.
- Special repair and renovation of CISF unit Office cum Barrack, SO's Barrack, CISF Mess, pump rooms, existing boundary walls and construction of new camp office, 3 nos. toilets block at Khejuriaghat is in progress.
- Supply, Installation, Testing & Commissioning of CCTV Surveillance system for Farakka Main Barrage & Head Regulator of FBP.
- Work of LED street lights on main Barrage and Head Regulators.
- Installation of LAN and supply of hardware and internet at Farakka Barrage Project
- Hiring of 102 nos. Private Security Guards and Supervisors for Farakka Barrage Project
- Anti-erosion works at upstream left bank of river Ganga near Birnagar area in 10 no. reaches between Ch. 1200.00 m and Ch. 3200.00 m (total working length 3190 m).
- Anti-erosion works at downstream right bank of river Ganga in 4 no. reaches (total working length 860 m).
- Bank protection measures in 4 no. reaches on the Left & Right bank of Feeder Canal under Farakka Barrage Project
- Repair & maintenance of longitudinal drain, cleaning of culverts and cleaning of jungle on the left bank of Feeder Canal.
- Construction of Boundary Wall around the kalindri CISF Barrack & FBP Colony, Nurpur, Malda, West Bengal.
- Special repair/renovation of office building no.-5 of FBP.
- Special repair and renovation of VIP Guest House & Rest Shed cum Office of Farakka Barrage Project, Kolkata.
- Construction of Glow Sign board at Gandhi Ghat for promoting Dam tourism at Farakka Barrage Project Colony.
- 119th Meeting of Technical Advisory Committee under chairmanship of Member (D&R), CWC was convened on 30th January, 2024.
- 33rd Induction Training Programme (ITP) for Central Water Engineering Services (CWES) Group "A" Probationary Officers-Project Appreciation Visit/ Study Tour to FBP" held at Farakka during 02.07.2023-07.07.2023.

7.2.7 NATIONAL WATER INFORMATICS CENTRE (NWIC)

National Water Informatics Centre (NWIC) is a subordinate office of the Department of Water Resources, River Development & Ganga Rejuvenation, set up

to act as a repository of nation-wide water resources data to facilitate informatics based management of water resources of the country. The roles and responsibilities of NWIC are: -

- Collection of water resources data from varied sources, generate new database, organize in standardized GIS format, and provide scalable web-enabled information system.
- Collect, collate, update, maintain and disseminate data on water resources and related information.
- Sharing of hydro-metrological data amongst Central and State government organizations and other stakeholders.
- Provide tools to create value added maps by way of multilayer stacking of GIS database to provide an integrated view to the water resources scenarios.
- Develop tools and systems for decision making (Decision Support Systems), and
- Provide technical support to organizations dealing with water emergency response for hydrological extremes.

Key activities performed by NWIC during the year 2023-24:

- **Water Information Management System (WIMS)**
 - » **New Module:** A 'Groundwater Data Download' module has been developed for

comprehensive groundwater level database.

- » **New Telemetry Stations:** New telemetry stations have been created for surface and groundwater sites.

» **Functionalities Added:**

a. Station Management Module:

New functionalities were implemented in 'Station Management module'. The primary purpose of the Station Management module, in Network Monitoring System, is to enable users to add, delete, and update stations. In the Station Management module, a new feature called Download Stations Meta Data (for both Groundwater & Surface Water) functionality has been added in the report panel.

b. Import Tool:

The Import Tool (in the Import/Export Tool module of WIMS) has been developed for enabling the user agencies to upload the surface water and groundwater data in bulk for number of months/ years at one time without the need for manual input of parameters. The template comprises Station Code, Data Type, Date (DD-MM-YYYY), Time (HH:MM: SS), and data value.

- » **Flood Forecast Portal:** A new

functionality has been added to the Flood Forecast Portal of Central Water Commission (CWC), which allows users to access information on level forecast stations, inflow forecast stations and base forecast stations in a tabular format. The level forecast data and inflow forecast data sub-modules of the Flood Forecast Module have been enhanced with a new functionality to provide users with the most current information on the related data.

- » **Integration of Telemetry Stations:** A series of surface water and groundwater telemetry stations have been added and seamlessly integrated into the Water Information Management System (WIMS). These telemetry stations play a pivotal role in continuously monitoring and gathering real-time data on water resources.
- » **APIs created and shared:** NWIC has provided State Governments with customized Application Programming Interface (API), specifically designed to cater state governments with the ability to anticipate and foresee critical aspects such as river water levels, reservoir status, and

climate-related concerns like floods and drought.

- » **Creation of SCADA stations:** The Supervisory Control and Data Acquisition (SCADA) system provides operators with the necessary tools to efficiently monitor and control processes that are spread across different remote sites. Multiple SCADA stations of various states have been integrated in WIMS platform.

- **India - Water Resources Information System (India-WRIS)**

- » **Data Dissemination:** Data has been disseminated to various agencies through APIs.
- » **Trainings on India- WRIS and WIMS** were organized for users and NHP implementing agencies (State Governments/ Central agencies)
- » **Improvements in existing modules:** Various modules such as Geoviewer, water resources projects have undergone improvements in visualization and functionalities.

- **Water and Allied Resources Information and Management System (WARIMS):**

Integrated Water and Crop Information and Management System (IWCIMS) is now renamed

as Water and Allied Resources Information and Management System (WARIMS). It is being developed as a holistic and comprehensive platform that will integrate database, applications, models and information for identified use cases pertaining to water resources ranging from irrigation management, integrated reservoir management, water use efficiency, water demand management, flood forecasting, ground water quality and management etc. to provide decision support system with regards to planning, design, formulation and management of water resources and allied sectors.

- **Development of State Water Informatics Centers (SWIC):**

NWIC plans to assist States in development of State Water Resource Information System (State-WRIS) as a State water data repository by providing them necessary technical guidance and IT infrastructure support. SWIC is envisaged to empower States with digital, validated, unified online water resources information system required for better planning and management of water resources at State level. As of now, 22 States and UTs have signed the Memorandum of Agreement (MoA) for establishing SWIC.

7.3 REGISTERED SOCIETIES/ STATUTORY BODIES / AUTONOMOUS BODIES

7.3.1 NATIONAL WATER DEVELOPMENT AGENCY (NWDA)

The National Water Development Agency (NWDA) was set up in July 1982 by the Government of India as a Society under Societies Registration Act, 1860 under the then Ministry of Irrigation (now Ministry of Jal Shakti) to study the feasibility of the links of rivers under peninsular component of National Perspective Plan (NPP). NWDA is fully funded by Government of India. The functions of NWDA have been modified from time to time and the present functions are furnished below:

- To carry out detailed survey and investigations of possible reservoir sites and inter-connecting links in order to establish feasibility of the proposal of peninsular rivers development and Himalayan rivers development forming part of NPP for water resources development prepared by the then Ministry of Irrigation (now Ministry of Jal Shakti) and Central Water Commission (CWC).
- To carry out detailed studies about the quantum of water in various peninsular river systems and Himalayan river systems which can be transferred to other basins/States after meeting the

reasonable needs of the basin/States in the foreseeable future.

- To prepare feasibility report of the various components of the scheme relating to peninsular rivers development and Himalayan rivers development.
- To carry out survey and investigation work and prepare detailed project reports of river link proposals under NPP for water resources development and thereafter approach concerned States for obtaining concurrence for implementation of the project.
- To prepare pre-feasibility/ feasibility/ detailed project reports of the intra- State links as may be proposed by the States. The concurrence of the concerned co-basin States for such proposals may be obtained before taking up their FRs/DPRs.
- To undertake /construct /repair /renovate /rehabilitate /implement the projects either of its own or through an appointed Agency /Organizations /PSU or Company and the projects forming part of Interlinking of Rivers, for completion of projects falling under Pradhan Mantri Krishi Sinchai Yojna (PMKSY) of which projects under Accelerated Irrigation Benefits Programme (AIBP) are

also included and similar other projects.

- NWDA to act as a repository of borrowed funds or money received on deposit or loan given on interest or otherwise in such manner, as directed by MoWR, RD & GR (now MoJS) and to secure repayment of any such borrowed funds/ money/deposits/ loan etc. by way of mortgage, pledge, charge or lien upon all or any other property, assets or revenue of the Society, both present and future.
- To do all such other things the Society may consider necessary, incidental, supplementary or conducive to the attainment of above objectives.
- To support Ken-Betwa Link Project Authority (KBLPA) as specified in Memorandum of Agreement (MOA) signed on 22nd March, 2021 for implementation of Ken-Betwa Link Project.

Hon'ble Union Minister of Jal Shakti is the President of the Society. The Governing Body (GB) of the NWDA Society under the chairmanship of the Secretary (DoWR, RD & GR), Government of India, manages, administers, directs and controls the affairs and funds of the Society subject to the rules, bye-laws and orders of the Society and generally pursues and carries out the activities of the Society.

HIGHLIGHTS OF ACTIVITIES

Interlinking of Rivers under NPP:

Priority link Project:

Ken-Betwa Link Project (KBLP):

- After concerted efforts the DoWR, RD & GR, a tripartite Memorandum of Agreement (MoA) for the implementation of the Ken-Betwa Link Project (KBLP) jointly was signed on 22.03.2021 between the Union of India, Governments of Madhya Pradesh (MP) and Uttar Pradesh (UP), in the presence of Hon'ble Prime Minister of India.
- The PIB Memo was appraised by the PIB in its meeting held on 1st October, 2021. Based on the PIB recommendations, the Cabinet approved implementation of KBLP at an estimated cost of Rs 44,605 crore at 2020-21 price level with central support of Rs 39,317 crore on 08.12.2021.
- KBLP will provide annual irrigation to an area of 10.62 lakh ha (8.11 lakh ha in Madhya Pradesh and 2.51 lakh ha in Uttar Pradesh) in Chhattarpur, Tikamgarh, Panna, Sagar, Damoh, Raisen, Shivpuri and Datia districts of Madhya Pradesh and Banda, Mahoba, Jhansi and Lalitpur districts of Uttar Pradesh in Bundelkhand region as well as to the Vidisha, Shivpuri and Raisen districts of Madhya Pradesh. The project will provide 194 Million Cubic Metre (MCM) of water for enroute drinking water supply to a population of 62 lakh (41 lakh in Madhya Pradesh and 21 lakh in Uttar Pradesh). The project will also generate 103 MW of hydropower and 27 MW of solar power. Apart from other benefits, the project will rejuvenate all the tanks in the enroute area of link canal by feeding through the link canal, wherever feasible and would help in ground recharge.
- A Steering Committee and Special Purpose Vehicle viz. Ken-Betwa Link Project Authority (KBLPA) for the implementation of KBLP jointly by Government of India and State Governments of MP and UP have been constituted vide Gazette Notification dated 11.02.2022.
- With allocation of budget under RE of FY 2021-22, the implementation of the project has started.
- Rs. 4,639.46 crore have been utilized during FY 2021-22 mainly for CAMPA fund and land acquisition. A provision of Rs. 3,500 crore has been made in FY 2023-24 for KBLP out of which Rs. 622.42 crore has been utilised during FY 2022-23. Total expenditure of Rs. 8910.77 crore (upto March, 2024) has been made on the including ff 2256.51 crore from State budget. The project is planned to be completed by March, 2030.

- Initially the focus is on land acquisition, R&R, fulfilling the compliances to the conditions of forest clearance and wildlife clearance. The process for acquisition of land in 22 villages in Panna and Chhattarpur is in progress.
- Final report of Integrated Landscape Management Plan of Panna Tiger Reserve, was released by Secretary, DoWR, RD & GR on 02.06.2022. A Greater Panna Landscape Council (GPLC) under Chief Secretary, Govt. of MP has been constituted for the implementation of ILMP systematically. Its first meeting was held on 05.09.2023. Sub-Committee of GPLC was constituted on 16.10.2023 and its 1st Meeting was held on 17.10.2023.
- Five meetings of the Steering Committee of Ken-Betwa Link Project (SC-KBLP) have been held under the Chairpersonship of the Secretary DoWR, RD & GR, Ministry of Jal Shakti in New Delhi on 07.04.2022, 20.07.2022, 18.01.2023, 05.06.2023 and 19.01.2024 respectively. Six meetings of KBLPA have been held so far on 24.06.2022, 13.09.2022, 23.02.2023, 22.06.2023, 19.10.2023 and 27.02.2024. Seven meetings of Technical Advisory Group (TAG – KBLP) have been held so far and the last Meeting was held on 17.02.2024.
- DPRs of Pailani and Banda barrages are under finalization.
- DPR of enroute tanks of Mahoba district and DPR for renovation and modernization of Ken Canal system of UP have been finalized.
- The offices of KBLPA have been opened at Bhopal, Jhansi, Panna and Chattarpur, as decided during the first meeting of Steering Committee.
- The tender document for the main component of the project i.e. Daudhan dam and its Appurtenant works (EPC mode) was finalised by Technical Advisory Group of KBLP and the Tender Evaluation Committee (TEC) for Daudhan dam works. Tender were floated on CPP portal on 11.08.2023. Techno commercial bids as received for Daudhan dam alongwith other appurtenant structures were opened on 11.03.2024. Six bidders have participated. Scrutiny/ Evaluation of bids is in progress.
- The work on State-specific components like Lower Orr, Kotha Barrage and Bina Complex Multipurpose Project is already in progress.

Modified Parbati-Kalisindh-Chambal (PKC) link project:

With a view to optimize the utilization of water of the Chambal River System, the Task force for Interlinking of Rivers in November, 2019 decided to explore the integration of ERCP with PKC link project. The issue of integration of ERCP with PKC link has been deliberated with both the States at various platforms. Based on these deliberations, a proposal of Modified Parbati-Kalisindh-Chambal (Modified PKC) link, incorporating the components as proposed by Govt. of Madhya Pradesh in Kuno, Parbati and Kalisindh sub-basins along with components of ERCP has been framed.

Under the Modified PKC link, there shall be equal exchange of water in Kuno and Parbati between two states. There shall be equal exchange of water in Kalisindh and Upper Chambal basin based on detailed hydrology and without affecting the approved command of Chambal Valley Development Project in both the states.

Under this proposal, both the states shall be allowed to use the water availability as per Guidelines for preparation of DPRs of Irrigation and Multipurpose Projects, Govt. of India, Ministry of Water Resources, 2010 and Niti Aayog norms for planning of irrigation projects in Inter- State rivers.

The Modified PKC link project will help in utilizing the available water resources of Chambal basin optimally and

economically. This link project proposes to provide drinking and industrial water in 13 districts of eastern Rajasthan and Malwa and Chambal regions of Madhya Pradesh apart from providing irrigation in 2.8 lakh ha. area or more each in both the states including supplementation of enroute tanks in the states. The various components of Modified PKC link including areas of benefit shall be firmed up at DPR stage in consultation with both the states.

Looking at importance and utility of the Modified PKC link project, proposal of making Modified Parbati-Kalisindh-Chambal link duly integrated with Eastern Rajasthan Canal Project (ERCP) as part of National Perspective Plan (NPP) of ILR and declaring it as one of the priority link projects of NPP, was approved by the Special Committee for Interlinking of Rivers (SCILR) in its 20th meeting held on 13th December, 2022 in New Delhi. The draft PFR of Modified PKC link and a draft MoU for preparing the DPR of the Modified PKC link for taking the project forward for implementation have been circulated to both the States on 31st January, 2023 for comments. Meetings have been held frequently with both the States to build consensus between them so as to expedite the preparation of DPR and finalization of the draft MoU. The persistent efforts of Govt. of India has led to signing of MoU by both these states with Ministry of Jal Shakti (MoJS), Govt. of India (GoI) on 28.01.2024 in New Delhi in the presence of Hon'ble Chief Ministers of both the states, for

preparation of its DPR and on broad planning of the link project. The work of preparation of the DPR of the Modified PKC link project is in progress.

Now the DPR of the Modified PKC link is under preparation primarily by both the states. The Hydrology has been finalized by CWC and NWDA. The matter is being pursued with both the states for the preparation of the DPR at the earliest. The Chairman, Task Force has taken a number of meetings with both the states, CWC and NWDA to expedite the process. A draft MoA for the implementation of the link project has also been shared with both the states.

It is planned to finalise the DPR of the link project by June, 2024 and thereafter, MoA amongst the states of Rajasthan and Madhya Pradesh and Central Govt. for the early implementation will be finalised. On approval, the implementation of various components of the link project can be taken up in phases as per requirements and readiness of the state.

Godavari (Inchampalli barrage) – Cauvery link proposal

The preparation of DPRs of three links namely Godavari (Inchampalli) – Krishna (Nagarjunasagar) link, Krishna (Nagarjunasagar) – Pennar (Somasila) link and Pennar (Somasila) – Cauvery link under Godavari – Cauvery alternative link scheme have been completed for transfer of 7000 MCM of water from Godavari river and was finalized in April 2021. Five

consultation meetings with party States / UT have been held so far. As per decision taken during third meeting held on 18.2.2022, a proposal limiting the transfer from 7000 MCM to about 4000 MCM from Godavari along with combining the proposal for supplementation in Krishna basin through Bedti -Varda link was studied by NWDA. The proposal for transfer of 4189 MCM of Godavari water to Krishna, Pennar and Cauvery basins was deliberated with the co basin States and UT on 10.11.23 at Hyderabad along with the draft MoU for the implementation of the link project benefitting States of Telangana, Andhra Pradesh, Karnataka, Tamil Nadu and Puducherry (UT). The draft DPR of the revised proposal has been prepared by NWDA in December, 2023 and circulated to all party States / UT. A draft MoA has been prepared for implementation of link project and circulated to concerned States / UT for perusal and observations.

The main focus is finalizing the DPR in consultation with States and on building consensus amongst states and signing of MoA for the implementation of this alternative link project.

Intra State Links

Under the intra-State link projects, NWDA received 49 link proposals from 10 States out of which pre-feasibility reports of 39 link projects were completed and sent to concerned States. The remaining links are either withdrawn by States or are not under intra-State link category. Based on

the request of concerned States, the DPRs of Six links viz; Kosi-Mechi, Burhi Gandak-Noon-Baya-Ganga links of Bihar, Wainganga-Nalganga link, Damanganga (Ekdare)-Godavari link and Damanganga-Vaitarna-Godavari link projects of Maharashtra and Ponnaiyar (Nedungal)-Palar intra- State link of Tamil Nadu, were completed and sent to them.

System studies of link projects

System study of Mahanadi-Godavari link project has been completed. System Studies of 4 more links viz; (a) Manas – Sankosh – Tista-Ganga link (b) Subarnarekha – Mahanadi link (c) Ganga-Damodar-Subarnarekha Link and (d) Farakka – Sundarbans link project were awarded to IIT, Guwahati, NIT, Warangal, NIT Patna and NIH, Roorkee respectively in December, 2022. Inception Reports were submitted by the four Institutes in May, 2023 and their further progress was reviewed in a meeting held under Chairmanship of DG, NWDA on 15.02.2024. All the four Institutes have been requested to submit their Draft Final Reports by 30.04.2024.

Awarding of work for system studies for Godavari – Krishna – Pennar – Cauvery – Vaigai- Gundar linkage system has also been initiated.

India Water Week:

Conceptualized and organized first in 2012, the Ministry of Jal Shakti, Government of India is organizing the India

Water Week-2024 biannually. It is a 5-day conference and exhibition which is India's international water resources event. Seven editions of events have been organized in 2012, 2013, 2015, 2016, 2017, 2019 and 2022. Now, 8th India Water Week is scheduled to be held from 17th -21st September, 2024.

Eighth India Water Week

- The proposal for organisation of 8th India Water Week during 17th to 21st September, 2024 at Pragati Maidan, New Delhi has been approved by the Ministry. The Organising Committee and Technical Committee for organisation of the event have been constituted.
- 8th India Water Week (IWW-2024) will be held from 17th to 21st September, 2024 consisting of conference and exhibition with site visit towards the end.
- The theme of 8th India Water Week (IWW-2024) and the Logo of IWW have been finalised and the theme is "Partnerships and Cooperation for Inclusive Water Development and Management".
- The Hon'ble Minister has launched the 8th India Water Week-2024 and inaugurated its website on 14.12.2023.
- Two meetings of Organising Committee have been held on 24.11.2023 & 22.03.2024. Two

meetings. of Technical Committee have been held on 30.11.2023 & 05.02.2024.

National Interlinking of Rivers Authority (NIRA)

- The proposal for the constitution of National Interlinking of River Authority (NIRA) is under active consideration in the Ministry. The issue was deliberated at length in 15th meeting of Task Force-ILR (TFILR) covering the need for its constitution, appropriate mode for its creations, mandate and functions, structure, subsuming the staff of NWDA into NIRA and additional requirements of posts, consultation mechanism etc.
- The revised proposal for the restructuring of NWDA and creation of NIRA was deliberated by the Special Committee on ILR in its 19th meeting held on 12.11.2021 covering mandate and functions of NIRA, proposed structure, subsuming the staff of NWDA into NIRA and additional requirements of posts etc.
- The proposal for constitution of NIRA has been prepared by NWDA and submitted to the Ministry on 17.12.2021. The Cabinet note was examined by Ministry and the finalized Cabinet note, duly approved by Hon'ble Minister, MoJS, was circulated amongst concerned Central Ministries/ Departments

for comments on 28th February, 2022.

- The comments have been received from DoE, MoF, MoEF & CC, NITI Aayog, Deptt. of Agriculture & Farmer Welfares, Ministry of Agriculture and MoRD. The Other Ministries/ Departments have supported the constitution of NIRA.
- The Cabinet Note was further modified as per comments/ observations received from various Ministries/ Departments & modified Cabinet Note was submitted to Ministry.
- The Cabinet Note is under active consideration in Ministry.

7.3.2 NATIONAL WATER MISSION (NWM)

With the aim of addressing the adverse impacts of climate change on water resources, NWM was set up under the National Action Plan on Climate Change (NAPCC) by the Government of India on 30th June 2008. One of the main objectives of the mission is to ensure integrated water resource management which would help conserve water, minimize wastage and ensure more equitable distribution both across and within States.

The five goals of the mission are reflective of a non-siloed approach to water. The mission through its goals tries to break sectors & verticals in water policy for an integrated holistic approach to water. National Water Mission has revised its

goals in view of anticipated challenges in water sector.

Five goals of NWM are as follows:

- Comprehensive water data base in public domain.
- Assessment of the impact of climate change on water resource.
- Promotion of citizen and state actions for water conservation, augmentation and preservation and Focused attention to vulnerable areas including over-exploited areas.
- Increasing water use efficiency by 20%.
- Promotion of basin level integrated water resources management.

NWM has been addressing accomplishment of above five goals through implementation of 31 strategies and 73 action points prescribed in the Mission Document.

Activities and new initiatives taken during the year

- **All India Secretaries' Conference on Water Vision @ 2047 – Way Ahead"**

National Water Mission (NWM), Department of Water Resources, River Development and Ganga Rejuvenation (DoWR), Ministry of Jal Shakti organized "All India Secretaries' Conference on Water Vision @ 2047 – Way Ahead" on 23rd - 24th January, 2024 at Mahabalipuram, Tamil

Nadu, to discuss the progress made by State/ UT Governments on 22 recommendations made during the "1st All India Annual State Ministers' Conference on Water" with the theme "Water Vision @ 2047" which was held on 5-6 January, 2023 at Bhopal and to highlight best practices in various water related issues. In order to document the journey of the Jal Shakti Abhiyan and best practices of water conservation in various parts of the country, NWM compiled the best practices under 'Jal Shakti Abhiyan: Catch The Rain' in form of an eBook. This e-book was launched during the event.

The conference was graced by Shri Gajendra Singh Shekhawat, Hon'ble Minister of Jal Shakti. The Conference witnessed participation of over 300 delegates including 30 Secretaries from 32 States/UTs. A special attraction of the Conference was 'Publication Curation'



All India Secretaries Conference on Water Vision @2047, 23-24th January 2024 Mahabalipuram

where over 150 important publications from Centre / States / Civil Society Organizations etc. were displayed. A 'Round Table Conference of Secretaries and CEOs' was also held during the Conference to discuss important issues pertaining to water sector wherein 12 CEOs participated. 33 presentations were made and 7 movies were showcased during five thematic sessions of the conference which

include (i) Climate Resilience and River Health; (ii) Water Governance; (iii) Water Use Efficiency; (iv) Water Storage and Management; and (v) People's Participation / Jan Baghidari. The Conference ended with a presentation of important takeaways emerged during the deliberations held in 2 days Conference on which feedback of the stakeholders were invited.



e-Address by Hon'ble Prime Minister on the occasion of 1st All India Annual State Ministers' Conference on water



1st All India Annual State Ministers Conference on Water
5th - 6th January, 2023 at Bhopal, Madhya Pradesh

From Ministry of Jal Shakti, the Conference was attended by Ms. Debashree Mukherjee, Secretary, DoWR, RD & GR; Shri G. Asok Kumar, Director General, National Mission for Clean Ganga (NMCG); Ms. Archana Varma, Additional Secretary & Mission Director, National Water Mission, Ministry of Jal Shakti and other senior officials of the Department

- **Setting up of Bureau of Water Use Efficiency (BWUE)**

The Ministry of Jal Shakti has set up the Bureau of Water Use Efficiency (BWUE) under the National Water Mission on 20.10.2022 to act as a facilitator for promotion of improving water use efficiency across various sectors namely irrigation, drinking water supply, power generation, industries, etc. in the country. The Bureau engages with various stakeholders in developing standards, implement, prepare case studies, make

necessary regulatory directions to promote water use efficiency, assessment of water footprint and water auditing in agriculture sector, showcasing national/international best practices and evolving innovative mechanism to secure community participation.

Following are the proposed functions of the Bureau:

- The Bureau will be the Forum in which everyone can play a part in achieving, what needs to change, who needs to be involved and progress will be tracked. It will monitor delivery of the strategy - ensuring accountability and measuring that the right level of progress is being made and that intended outcomes are being achieved
- The Bureau may engage with various stakeholders in developing standards, making them to be implemented, preparing case studies, making necessary regulatory directions to promote water use efficiency.
- Showcasing national/ international best practices and evolving innovative mechanism to secure community participation.
- Evolving system for incentivizing for promotional efforts to increase in water use efficiency.
- Evolve guidelines to promote and ensure water audit in water supply,

industrial and agriculture sector.

- Evolving system of efficiency star labeling/ blue labeling.
- Develop protocols for water footprint and water pricing/tariff.
- The Bureau will also spearhead campaign for promoting water use efficiency at the national level with a national perspective.
- The Bureau will facilitate assessment of Water Footprint for virtual export of water.
- Encourage States to formulate policy and to use treated water widely for non-potable use and focus on reuse, recycle, & recharge.

• **Water Heritage Structures**

As a part of Azadi Ka Amrut Mahotsava, NWM has initiated the process of identification of 75 water ancient water conservation structures across India and declare them as “Water Heritage Structures”. In this connection, a Committee has been constituted under the chairmanship of Shri Rajiv Ranjan Mishra, former Director General, National Mission for Clean Ganga with experts from technical organizations of the Ministry, Archaeological Survey of India, INTACH etc. to evaluate the nominations and give recommendations to the Department. The nominations, so adjudged by the committee, finally selected would be processed for inclusion in the national register. NWM has received 421

nominations from the 32 States/UTs. of various typology. The Committee has recommended a list of 75 Water Heritage Structures from 29 States/UT's.

"Jal-Itihas" sub-portal under India-WRIS portal was launched in 1st All India Annual State Ministers' Conference held during 5th-6th January, 2023, wherein the list of 75 Water Heritage Structures across the country was announced.

- **"Jal Shakti Abhiyan- Catch the Rain (JSA: CTR)" 2023 campaign**

Jal Shakti Abhiyan-I (JSA-I) was conducted in 2019 in 1,592 blocks out of 2,836 blocks in 256 water stressed districts of the country and was expanded as "Jal Shakti Abhiyan: Catch the Rain" (JSA: CTR) in 2021 & 2022 with the theme "Catch the Rain – Where it Falls When it Falls" to cover all the blocks of all districts (rural as well as urban areas) across the country. "Jal Shakti Abhiyan: Catch the Rain" (JSA:CTR) 2023 campaign, the fourth in the series of JSAs, was launched by Hon'ble President of India on 04.03.2023 in all districts (rural as well as urban areas) of the country for implementation from 04th March, 2023 to 30th November, 2023 - the pre-monsoon and monsoon period with the main theme "Source Sustainability for Drinking Water".

Jal Shakti Abhiyan, a flagship campaign of the National Water Mission, involves inter-sectoral convergence of all development programmes like MGNREGS, AMRUT, Repair, Renovation and Restoration Scheme, Water Shed

Development Scheme, Per Drop More Crop etc. The abhiyan offers a major opportunity in leveraging convergence and working towards a greater vision of water conservation. "Jal Shakti Abhiyan: Catch the Rain brings in more collaboration from different Central Department/ Ministries as well State Governments to work in an integrated manner.

- **Focused interventions of the campaign:** The focused interventions of the campaign include (1) water conservation and rainwater harvesting; (2) enumerating, geo-tagging & making inventory of all water bodies; preparation of scientific plans for water conservation based on it; setting up of Jal Shakti Kendras in all districts; (4) intensive afforestation; and (5) awareness generation.
- **Appointment of Central Ministries/ Departments Nodal Officers and State Nodal Officers:** For seamless coordination and better implementation of the campaign, Nodal Officers from concerned Central Ministries / Departments and State Nodal Officers from each State/ UT have been appointed.
- **Orientation of CNOs and TOs:** In order to discuss the modalities related to the field visits of CNOs and TOs, a workshop-cum-orientation programme was

organized on 10th May, 2023 at New Delhi for the Central Nodal Officers and Technical Officers appointed for JSA: CTR-2023. The workshop was chaired by Hon'ble Minister for Jal Shakti. Among other officials, the meeting was also attended by Secretary, DoWR, RD & GR, Secretary, Department of Land Resources; Secretary, Department of Rural Development and Additional Secretary and Mission Director, National Water Mission, Ministry of Jal Shakti. During the workshop, presentations were made on 'Introduction of JSA: CTR – 2023 and Role of CNOs and TOs'. The workshop highlighted the role of CNOs and SNOs during their visit to the districts allotted to them.

- **Meetings with DM/DCs:** A series of meetings had been organized with District Magistrates/District Collectors to discuss the progress of JSA: CTR-2023. In this series, two meetings were organized with DM/DCs through virtual mode in April wherein States apprised about the best practices being taken up in their respective areas for successful implementation of JSA: CTR-2023 campaign. Action points for each meeting were prepared and sent to the DM/DCs of each State for necessary action.
- **Progress under Jal Shakti Abhiyan: Catch the Rain-2023:** As per the information uploaded by



Launch Ceremony of Jal Shakti Abhiyan:
Catch the Rain campaign 2023

various stakeholders on the JSA: CTR portal (jsactr.mowr.nic.in), during the period of 04th March 2023 till 08th March 2024 under the JSA: CTR campaign, 12,40,834 water conservation & rain water harvesting structures were created / ongoing, 2,83,626 traditional water bodies were renovated / ongoing, 6,79,863 reuse and recharge structures were completed/ ongoing and 14,83,534 watershed development structures were completed/ ongoing. Further, 5,50,26,652 afforestation activities were carried out under the campaign. 529 districts have prepared water conservation plans.



Address by Hon'ble Minister of Jal Shakti

- Financial assistance to districts for GIS Mapping of Water Bodies and for preparation of Scientific Plans:** A financial grant of up to Rs 2.00 lakh to each district is provided in two installments of Rs. 1.00 lakh each to meet part of the expenditure in undertaking GIS mapping of water bodies and preparation of scientific action plan under JSA:CTR campaign. GIS Mapping of water bodies of a district depends on many factors such as area, geographic characteristics etc. Further, the task requires hiring of technical man-power for its completion. The financial grant of Rs 2.00 lakh was only meant to encourage the district authorities for undertaking the activity and was meant to cover only a part of the cost. First installment of Rs. 1.00 lakh each has been released to 623 districts till date. Second installment of Rs 1.00 lakh has been released to 235 districts.

- Jal Shakti Kendras**

As water is a subject handled by various Departments of the State Government like Irrigation- Major/ Minor; Water resources; Public Health Engineering, Rural Water Supply, Municipality, Agriculture, Industries, Rural Development etc. and also the technical knowledge on appropriate RWHS is also limited at local level (rural & urban), it has been proposed to the States to set up Jal Shakti Kendras in every district of the country. All the State Governments have been requested to set up 'Jal Shakti Kendras' in every district headquarters as a part of the campaign. 'Jal Shakti Kendras' (JSKs) will work as "knowledge centers" for disseminating information related to water conservation techniques and will provide technical guidance to people. As per information available on 'Jal Shakti Abhiyan: Catch the Rain' portal (jsactr.mowr.gov.in), 662 Jal Shakti Kendras have been set up in various States/UTs.



Jal Shakti Abhiyan - CTR: Theme "Nari Shakti Se Jal Shakti", 9th March 2024

- **Launch of “Jal Shakti Abhiyan: Catch the Rain-2024” Campaign:**

National Water Mission (NWM), Department of Water Resources, River Development and Ganga Rejuvenation (DoWR), Ministry of Jal Shakti organized the event launch of “Jal Shakti Abhiyan: Catch the Rain-2024” Campaign with the theme "Nari Shakti Se Jal Shakti" in collaboration with Jal Jeevan Mission, Department of Drinking Water & Sanitation, Ministry of Jal Shakti on 9th March, 2024 at NDMC Convention Centre, New Delhi.

The event was graced by Shri Gajendra Singh Shekhawat, Hon'ble Minister of Jal Shakti. The Hon'ble Minister virtually launched two books namely “Jal Shakti Abhiyan 2019 to 2023- The Journey for Sustainable Water Future” and “101 glimpse of Women Power: Through the prism of Jal Jeevan Mission”. Two short films “Jal Shakti Abhiyan 2019 to 2023 – A public led movement marching towards Water Security” and (ii) “Short films of Jal Jeevan Mission” and documentary of Ladakh were also screened during the event. The event witnessed participation of women warriors from diverse backgrounds such as Sarpanchs, VWSC members, pump operators, etc. who shared their experiences, challenges and successes in championing water conservation efforts from the State Governments.

From Ministry of Jal Shakti, the event was attended by Ms. Debashree Mukherjee, Secretary, DoWR, RD & GR; Ms. Archana Varma, Additional Secretary & Mission Director, National Water Mission, Ministry of Jal Shakti, Sh. Chandra Bhushan Kumar, Additional Secretary & Mission Director, Jal Jeevan Mission, Senior Officials of Department of Water Resources, RD & GR, Department of Drinking Water & Sanitation, NGOs, Officials of State Governments etc.



With focus on the previous year interventions, JSA: CTR 2024 will also have a distinctive emphasis on following key aspects this year (i) de-silting and cleaning of water bodies, (ii) Revitalizing Abandoned/Defunct Borewells for groundwater recharge, (iii) Geo-tagging of water bodies, coupled with meticulous mapping and regular updates in the State's revenue records, (iv) Intensified afforestation efforts in the catchment areas

of water bodies, (v) Snow harvesting in hilly areas like stupas in Ladakh for conserving water and (vi) Rejuvenation of Small Rivers.

- **Preparation of State Specific Action Plans for Water Sector**

NWM envisaged developing State Specific Action Plan (SSAP) for water sector covering irrigation, industry, domestic and waste water of a State/UT. NWM is providing financial assistance of Rs. 50 Lakh to major States and Rs. 30 Lakh to minor States/UTs as a grant for formulation of SSAPs for water sector. NWM engaged two nodal agencies for coordination and monitoring of SSAP formulation. North Eastern Regional Institute of Water and Land Management (NERIWALM), Tezpur, Assam is coordinating & monitoring SSAP formulation for 19 States and National Institute of Hydrology (NIH), Roorkee, Uttarakhand is coordinating & monitoring with remaining 16 States/UTs. So far, 35 States / UTs have signed MoUs with the nodal agencies. 24 States/UTs have submitted the first phase of draft status report. 03 States namely Uttar Pradesh, Maharashtra & Gujarat has submitted the Final SSAP Report and approved by Competent Authority.

- **HRD & Capacity Building and Mass Awareness Programmes**

Trainings/workshops are regularly organized in collaboration with State and

Central Government Agencies like Water & Land Management Institute (WALMI), Dharwad, Centre for Water Resources Development & Management (CWRDM), Kerala, North Eastern Regional Institute of Water and Land Management (NERIWALM), Tezpur and National Institute of Hydrology (NIH), Roorkee. In order to further enhance the quality and reach, this year IITs/NITs are also requested to submit proposals under the NWM's training & capacity building programme. Dialogue series on "Catch the Rain" where Collectors/District Magistrates / Commissioners and water activist are invited to share the commendable work carried out in their districts to address the water issues.

- **Baseline Studies**

To evaluate water use efficiency of the major/medium irrigation projects, National Water Mission (NWM) has completed 17 baseline studies through 3 premier institutes namely Water and Land Management Training and Research Institute (WALAMTARI), Hyderabad, Water and Land Management Institute (WALMI), Aurangabad, Centre for Water Resources Development and Management (CWRDM), Kozhikode. The overall project efficiency of the studied projects comes out at 38% (the group weighted average on culturable command area basis).

- **Benchmark Studies –**

To enhance water use efficiency in

some of the water intensive industries viz. Thermal Power plants, Textile, Pulp & Paper and Steel Industry, NWM has awarded a benchmarking study to The Energy and Resources Institute (TERI) regarding “Benchmarking Industrial Water Use to Assist Policy for Enhancing Industrial Water Use Efficiency in India”. The study focuses on two industrial sectors viz. Thermal Power Plants & Textile Industries in Phase-I and Pulp & Paper and Steel Industries in Phase-II. TERI has submitted its draft final report on both Phase I (Thermal Power Plants, Textile Industries) and Phase II (Pulp & Paper and Steel Industries) and same has been circulated to stakeholder for their comments and suggestions. A Workshop was organised on 18.12.2023 to disseminate the studies on Water Use Efficiency completed by TERI. A Policy Brief on Enhancing Water Use Efficiency in Industrial Sector has been launched by TERI on 08.02.2024.

- **Sahi Fasal –**

National Water Mission, for increase in water use efficiency in agriculture sector, launched “Sahi Fasal” campaign in 2019 to nudge farmers in the water stressed areas to grow crops which are not water-demand intensive, but use water very efficiently; and are economically remunerative; are healthy and nutritious; suited to the agro-climatic-hydro characteristics of the area; and are environmentally friendly. Under Sahi Fasal, a series of workshops were organized in

Amritsar (Punjab), Aurangabad (Maharashtra) and Kurukshetra (Haryana) and with technical experts in New Delhi, involving domain experts, economists, scientists, soil micro-biologist and agriculturist. During 2023 a series of Sahi Fasal workshops were organized in 5 districts viz. Aurangabad, Gaya, Rohtas, Navada and Kaimur of Bihar.

- **Mandating Low Flow Fixtures –**

Water scarcity and insecurity has become a crucial issue worldwide with consistent increase in global water withdrawals in the last century and it is predicted that more than half of the global population will be living in water-stressed areas by 2050. The standards, IS 17650 (Part 1) and IS 17650 (Part 2) cover additional requirements for assessment and water efficiency rating of the sanitary wares (such as water closets, squatting pans, flush valves, flushing cisterns and urinals) and sanitary fittings [such as faucets (taps) and showerheads] for their performance based on water efficiency. Department for Promotion of Industry and Internal Trade (DPIIT) has been requested to consider Water Use Efficiency as additional criteria in the scope of Quality Control Orders issued by them after due stakeholders' consultation process.

- **Water Talks**

A monthly 'Water Talk' lecture series is an important activity undertaken by the NWM with the aim to stimulate awareness, build capacities of stakeholders

and encourage people to become active participants to sustain life by saving water on earth. Leading water experts are invited to present inspiring and broadening perspectives on current water issues in the country. 'Water Talk' series was launched on 22nd March 2019 on the occasion of World Water Day.

NWM has so far organized 51 'Water-Talks' on a wide range of topics dominating water sector with a wide range of speakers from NGOs to grass-root workers.

- **Mission Lifestyle for Environment (LiFE)**

NWM had organized outdoor activities on Mission LiFE on 1st of June 2023 at India Gate, INA-Delhi Hat market & Okhla Bird Sanctuary for awareness generation about the Water Conservation under the Mission LiFE campaign of Ministry of Environment Forest & Climate Change.

- **Outdoor activities on Mission LiFE**

NWM also organized outdoor activities on Mission LiFE on 15th of July 2023 at Master Adityendra Senior Secondary School Bharatpur, Rajasthan, DM office Bharatpur, Rajasthan and Bharatpur Bird Sanctuary (Keoladeo Ghana National Park) for awareness generation about the Water Conservation and also conduct IEC activities

- **Special Campaign 3.0 for institutionalizing "Swachhata"**

Under Special Campaign 3.0 for institutionalizing Swachhata and minimizing pendency in Government offices from 2nd October 2023 to 31st October, 2023, NWM identified and reviewed the files for scanning and weeding out thereby attaining the cleanliness in the organization.

- **Vinyl wrapping of trains in collaboration with Ministry of Railways**

Following the clarion call given by the Hon'ble PM' in his "Man Ki Baat" in 2019 to make "Jan Andolan to Jal Andolan", the Jal Shakti Abhiyan, a flagship campaign, of the National Water Mission, was launched in 2019, with the aim of conserving water through community participation. It has created immense awareness amongst the citizens about importance of water conservation. Community participation and mobilization through awareness generation is one of the focus areas of the Jal Shakti Abhiyan: Catch the Rain campaigns.

To publicize all the flagships of Ministry of Jal Shakti together, Vinyl wrapping of two trains namely "Kamakhya Express" (West to East) and "Himsagar Express" (North to South) was undertaken in collaboration with Ministry of Railways. One of the two trains i.e. Kamakhya Express was e-flagged off by Hon'ble Vice President of India on 14th September 2023.



E-flagging off of Kamakhya Express by Hon'ble Vice President of India



- ### Jal Itihas Utsav' Event

The National Water Mission, Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti organised "Jal Itihas Utsav" in Delhi on 01.12.2023 at Shamsi Talab, Jahaz Mahal situated in Mehrauli. The purpose of this event is to highlight the centrality of water bodies as cherished spaces for community connect. Sh. Vinai Kumar Saxena, Lieutenant Governor of NCT Delhi graced the occasion and stated that water is essential for healthy, stable, and sustainable civilizations. Sh. Gajendra Singh Shekhawat, Minister of Jal Shakti

stated that from ages these water resources protect us but now it's our turn to protect. The restoration work of the site adequately reflects convergence of various Departments of Central and State Government. Cleaning up of the Talab and leveling/cleaning of the park etc. was undertaken with the help of ASI and MCD. The same was documented in the form of an e- book which was launched during the event. A short video on the "Jal Itihas Journey", which showcases the 75 identified Water Heritage sites, was shown during the event.



Hon'ble Minister of Jal Shakti and Hon'ble Lt Governor of Delhi performing Jal Kalash Ceremony at "Jal Itihas Utsav"



Launch of ebook on "Rejuvenation of Shamsi Talab"

- **World Water Day:**

National Water Mission celebrated the World Water Day on 22nd March, 2024 comprising of activities like Rallies, plantation of saplings, distribution of pamphlets, public meeting etc by the officers and staff of NWM. This was an effort to generate awareness among the public and create a movement for conservation of water.

7.3.3 NATIONAL INSTITUTE OF HYDROLOGY (NIH)

The NIH was established in December 1978 at Roorkee. The Institute is fully aided by the MoJS, DoWR, RD& GR. The objectives of the Institute are:

- To undertake, aid, promote and coordinate systematic and scientific work on all aspects of hydrology,
- To cooperate and collaborate with other national and international organizations in the field of hydrology,
- To establish and maintain a research and reference library in pursuance of the objectives of the society and equip the same with books, reviews, magazines and other relevant publications,
- To carry out activities that the Society may consider necessary, incidental or conducive to the attainment of the objectives for which the Institute has been established.

The major theme wise R&D activities: (1) environmental hydrology; (2) ground water hydrology; (3) hydrological investigations; (4) surface water hydrology; and (5) water resources systems. (6) centre for cryosphere and climate change studies. In addition, the Institute has a Research Management and Outreach Division (RMOD), which provides the interface with various research and academic institutions along with R&D activities.

The Institute has set up seven regional centers: (1) Hard Rock Regional Centre (Belagavi); (2) Western Himalayan Regional Centre (Jammu); (3) Deltaic Regional Centre (Kakinada); (4) Central India Hydrology Regional Centre (Bhopal); (5) North Eastern Regional Centre (Guwahati); and (6) Centre for Flood Management Studies for Ganga basin (Patna); and (7) North Western Regional Centre (NWRC), Jodhpur.

The 7th new regional centre at Jodhpur (Rajasthan) was inaugurated by Shri Gajendra Singh Shekhawat, Hon'ble Union Minister for Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti (GoI) on 13th June, 2023 to carry out field-oriented hydrological studies related to arid and semi-arid region in the North-Western states of Rajasthan, Gujarat, Haryana and Punjab.



Inauguration of 7th regional centre of NIH at Jodhpur (13th June, 2023) by
Shri Gajendra Singh Shekhawat, Hon'ble Union Minister for WR, RD & GR, Ministry of Jal Shakti (GoI)

Studies and Research:

The Institute carries out a significant number of demand driven, user-defined, and strategic studies in the area of hydrology and water resources. The broad categories of research tasks are given as below:

- Basic studies and research
- Applied studies and research
- Software development
- Field and laboratory-oriented and strategic research
- Sponsored research and consultancy
- Capacity building and training activities
- Advisory services to NGT & judiciary

- Inputs in policy making

The Institute has the following well-equipped laboratories with state-of-art instruments to provide the necessary support to field studies:

- Hydrological Instrumentation Lab
- Nuclear Hydrology Lab
- Remote Sensing & GIS Lab
- Soil Water Lab
- Water Quality Lab
- Hydro-meteorological observatory

Thrust Area of Research and R&D Capabilities: Major thrust areas research in the areas of hydrology & water resources along with R&D capabilities of the NIH are given as under:

Thrust Area of Research	R&D Capabilities
<ul style="list-style-type: none"> • Water Resources Planning and Management • Ground Water Modeling and Management • Flood and Drought Prediction and Management • Snow and Glacier Melt Runoff Estimation • Prediction of Discharge in Ungauged Basins • Water Quality Assessment • Hydrology of Arid, Semi-arid Regions • Hydrology of Coastal & Deltaic Zones • Reservoir/Lake Sedimentation • Impact of Climate Change on Water Resources • Application of Modern Techniques in Hydrology • Hydrology of Reservoir, Lakes and Wetlands • Hydrology of Extremes • Environmental Hydrology • Regional Hydrology • Hydrology for Watershed Management • Integrated Water Resource Management (IWRM) • Springs rejuvenation and Isotope applications in hydrology • Hydrology for Arid Region • Forest Hydrology & Urban Hydrology • Cryosphere and Climate Change Studies in Hydrology 	<ul style="list-style-type: none"> • Flood and Drought Studies • Ground Water Hydrology, Managed Aquifer Recharge • River Bank Filtration Studies • Sprigshed Management • Hydrological Investigations • Isotope Applications in Hydrology • Surface & Ground Water Quality Studies • Inland & Coastal Salinity Studies • Environmental Flows Assessment & EIA • Remote Sensing & GIS Applications • Reservoir Analysis & Sedimentation • Snow and Glacier Hydrology • Impacts of Climatic Change on Hydrology and Water Resources • Rejuvenation of Ponds & Rivers • Eco-Prudent Wastewater Treatment • Water Budget, Water Conservation/ RWH • Watershed Hydrology • Lake Hydrology • Glacial Lake Outburst Flood studies • Hydro-meteorological Observations • Integrated Water Resource Management • Hydrological Software Development • Development and Application of Decision Support Systems • Hotspot Analysis/Livelihood Vulnerability Index • Hydro-geological Studies for Power Projects

During the year FY 2023-2024, the Institute has published 254 research papers in reputed international/national journals including proceedings of international/ national conferences/ symposia/book chapters and 4 separate books. During the year, the Institute (at HQ and 7 RC) has worked on 51 internally funded R&D studies, 33 sponsored projects by external organizations as well as various demand driven consultancy projects across the country. Apart from R&D activities, the Institute has also organized 35 trainings and workshops during the year for capacity building of field engineers, scientists, researchers, etc., enabling training of more than 1000 people during the year. The Institute has also organized various mass awareness activities across the country at HQ (Roorkee) and its 7 regional centers (Jammu, Patna, Guwahati, Bhopal, Belagavi, Kakinada and Jodhpur).

NATIONAL HYDROLOGY PROJECT (NHP)

Keeping in view the NHP objectives and initiatives, NIH is involved in the following activities of NHP:

Purpose Driven Studies (PDS): NIH is coordinating the research activities under Purpose Driven Studies (PDS). 40 PDS have been approved and 28 PDS have been completed.

Training and Capacity Building: NIH is the Nodal Agency for planning and organizing the training programmes for capacity building of the implementing

agencies under NHP. More than 75 training courses have been organized in different areas of hydrology and water resources.

Centre of Excellence for Hydrologic Modelling: Centre of Excellence for Hydrologic Modelling (CEHM)" is functioning at NIH, Roorkee. Two studies based on application of different models are under final stage. Status report on the Hydrologic modelling has been published by NIH. Development of "National Hydrology Model (NHM)" with IIT Kharagpur has also been developed and same will be tested on different River Basins of India.

Decision Support System (DSS): Decision Support System (DSS) has been developed for 9 states by NIH during HP-II project. New applications of DSS-PM (Planning & Management) have been created in association with states. DSS-PM contract has been signed with DHI India on 5th August, 2019 at NIH Roorkee. This task of DSS has been completed.

Miscellaneous Activities (Patents/ MoU/Awards, etc.):

During the year 2023-24, one scientist of the NIH received Patent entitled "A Fixed Depth Horizontal Soil Profile Sampler (Patent No. 476627 dated 4/12/2023)" for R&D activities at NIH. In addition, two MOUs were signed b/w (i) NIH, Roorkee and MI (Stat), DoWR, RD&GR (MoJS, GoI), New Delhi for conducting nationwide First Spring Census on September 29th, 2023, and (ii) b/w NIH,

Roorkee and JNTU, Kakinada (A.P.) for research collaboration, guiding Ph.D. scholars, internships on 1st November, 2023, respectively. An ISG-IRS National Geospatial Award for Excellence - 2022 awarded to Dr. Sanjay Kumar Jain, Sc. G during National symposium (ISGNS 2023) held at Pune (28th Nov., 2023).



MoU signed b/w NIH, Roorkee and MI (Stat), DoWR, RD&GR (MoJS, GoI), New Delhi for conducting nationwide First Spring Census (September 29th, 2023)



MoU signed b/w NIH, Roorkee and JNTU, Kakinada (A.P.) for research collaboration, guiding Ph.D. scholars, internships (1st November, 2023)



ISG-IRS National Geospatial Award for Excellence - 2022 awarded to Dr. Sanjay Kumar Jain, Sc. G during National symposium (ISGNS 2023) held at Pune (28th Nov., 2023)

Dr. M.K. Goel, Director (NIH) participated in a panel discussion on commencement of 150th Year celebration of IMD's establishment which was inaugurated by the Vice President of India, Shri Jagdeep Dhankar on 15th January, 2024 at New Delhi. In addition, the Institute has also co-organized an international conference (Roorkee Water Conclave-2024: Theme-Responsible Water Management and Circular Economy) during 3-6 March, 2024 in collaboration with IIT, Roorkee.



Dr. M.K.Goel, Director (NIH) participated in a panel discussion held on 15th January, 2024 at New Delhi on commencement of 150th Year celebration of IMD's establishment

7.3.4 NORTH EASTERN REGIONAL INSTITUTE OF WATER AND LAND MANAGEMENT (NERIWALM)

North Eastern Regional Institute of Water and Land Management (NERIWALM) is a Registered Society under the administrative control of the DoWR, RD & GR, Ministry of Jal Shakti, Government of India. This is the only Water and Land Management Institute (WALMI) established and administered by Government of India and is serving eight

states of the North East India. NERIWALM is engaged in organising various regional, national as well as international training programmes extending its capacity building services to South East Asian countries. It imparts trainings to enhance knowledge, skill and capacity of in-service personnel working in the Departments of Water Resources/Irrigation, Soil Conservation, Agriculture & Horticulture, Rural Development, etc. including Water Users Associations (WUAs) and farmers in the NE region of India. Customized mid-term training programmes are also conducted on self-financed mode for BE/B.Tech/M.Tech/ graduates/post graduate students as requested by

colleges/universities for the fulfilment of their prescribe degree programmes.

During the year 2023-24 (April 2023 to March 2024), the target for training programme recommended by Technical Advisory Committee of NERIWALM was 65 for different target groups like officers, farmers, water users associations, women group/farmers, other stakeholders, and students. In the year 2023, from January, 2023 to March 2024, 73 Nos. of training programmes were organized by the institute and benefitted 2717 persons. The breakup of number of training programme and participants from January to March, 2024 is given below:

Target group	Target for Number of training programme (January to March, 2024)	Achievement Number of training programme (January to March, 2024)	Achievement Number of participants (January to March, 2024)
Officers	25	28	779
WUAs/Farmers	22	11	500
Women groups/ farmers	07	15	612
NGO	02	01	11
Student	10	17	815
Stakeholders	07	01	-
Grant Total	73	73	2717

Note: As stakeholders' programmes are participated by Officers/Farmers/Student/ NGOs participants as per designation are included in participants column to avoid repetition.

7.3.5 NATIONAL MISSION FOR CLEAN GANGA (NMCG)

NMCG was registered as a society on 12.08.2011 under the Societies Registration Act, 1860. It acted as implementation arm of National Ganga River Basin Authority (NGRBA) which was constituted under the provisions of the Environment Protection Act (EPA), 1986. NGRBA has been dissolved with effect from 07.10.2016, consequent to the constitution of National Council for Rejuvenation, Protection and Management of River Ganga (referred as National Ganga Council) vide notification no. S.O. 3187(E) dated. 7-10-2016 under EPA, 1986. The Act envisages five tier structures at national, state and district level to take measures for prevention, control and abatement of environmental pollution in river Ganga and to ensure continuous adequate flow of water to rejuvenate the river Ganga as below:

- National Ganga Council under chairmanship of Hon'ble Prime Minister of India (last NGC meeting held on 30th December, 2022).
- Empowered Task Force (ETF) on river Ganga under chairmanship of Hon'ble Union Minister of Water Resources, River Development and Ganga Rejuvenation.
- National Mission for Clean Ganga.
- State Ganga Committees.
- District Ganga Committees in every specified district abutting river

Ganga and its tributaries in the States.

NMCG has a two-tier management structure comprising of Governing Council and Executive Committee which are headed by Director General, NMCG. Executive Committee has been authorized to accord approval for all projects up to Rs.1,000 crore. NMCG has signed Memorandum of Understanding (MoUs) with various Central Ministries such as Ministry of Human Resources Development, Ministry of Rural Development, Ministry of Railways, Ministry of Shipping, Ministry of Tourism, Ministry of Ayush, Ministry of Petroleum, Ministry of Youth Affairs and Sports, Ministry of Drinking Water & Sanitation and Ministry of Agriculture and Farmers' Welfare.

"Namami Gange" was launched with the aim of integrating previous and currently ongoing initiatives in holistic manner with a basin approach. It has been approved as a Central Sector Scheme in 2015 and includes diverse set of interventions such as pollution abatement measures to tackle different sources of pollution such as municipal sewage, industrial effluents, municipal solid waste, non-point sources of pollution and interventions for improving ecological flows, biodiversity conservation afforestation, improving amenities and sanitation at riverbanks, capacity building, research & monitoring, public awareness. The program is placed into five pillars i.e.,

Nirmal Ganga, Aviral Ganga, Jan Ganga, Gyan Ganga and Arth Ganga.

- Pollution Abatement (Nirmal Ganga)**

Out of 461 projects, 285 projects have been completed so far. These projects pertain to sewerage infrastructure, rural

sanitation, pilot projects for in- situ treatment of wastewater in drains, industrial pollution abatement, modernization/ development of ghats and crematoria, trash skimmers for river surface cleaning, biodiversity conservation and improvement of fisheries, ghat cleaning, afforestation, and medicinal plantations, etc.

Projects Status as on February, 2024					
Sl. No	Projects Undertaken	No of Projects	No of Projects completed	Sanction Cost (Rs in crore)	Total Expenditure (Rs in crore)
Sewage Infrastructure					
1	Sewage Infrastructure	200	116	31,307.30	14,652.16
2	Modular STPs Decentralized Treatment	1	0	410.00	0.00
	Sub Total	201	116	31,717.30	14,652.16
Ghat & Crematoria/ River Front Development					
3	RFD, Ghats & Crematoria and Kunds (includes 24 old sanctioned projects of West Bengal)	107	82	1,778.67	1,224.02
4	Ghats Cleaning	5	3	59.84	52.23
5	River Surface Cleaning	1	1	33.53	19.49
6	Solid Waste/Sanitation	6	5	201.89	120.93
	Sub Total	119	91	2073.93	1,416.67
Institutional Development (Non -Infrastructure)					
7	Ganga Knowledge Center	7	3	153.27	44.20
8	Industrial Pollution Abatement	21	8	1608.73	475.98
9	District Ganga Committee	1	0	2.30	0.00
	Sub Total	29	11	1,764.3	520.18
Project Implementation Support/Research & Study Projects/Public Relations and Public Outreach					
10	Project Implementation Support/ Research & Study Projects and Public Outreach	37	13	260.29	48.80

Projects Status as on February, 2024					
Sl. No	Projects Undertaken	No of Projects	No of Projects completed	Sanction Cost (Rs in crore)	Total Expenditure (Rs in crore)
Biodiversity					
11	Educating Schools & Communities for conserving habitat of Ganga River Dolphin	1	1	1.28	1.28
12	Assessment of fish & fisheries of the Ganga river system for developing suitable conservation & restoration plan	5	4	52.21	18.65
13	Biodiversity Conservation	8	3	185.44	72.12
	Sub Total	14	8	238.93	92.05
Afforestation					
14	Afforestation	37	32	525.18	370.95
Composite Ecological Task Force & Ganga Mitra					
	Composite Ecological Task Force and Ganga Mitra	7	6	335.04	177.22
Bioremediation					
	Bioremediation	16	7	278.96	38.08
Construction of IHHL across Gram Panchayats near Ganga River					
	Construction of toilets across Gram Panchayats near Ganga River (States-UK, UP,BH,JH,WB)	1	1	1,421.26	1,020.44
	Grand Total	461	285	38,615.19	18,336.55

Major Achievements from January-March 2024:

- **Project for foundation stone laid by Hon'ble PM:**
 - » On 1st March 2024, Hon'ble Prime Minister inaugurated three projects worth ff 575 crore from Hooghly, West Bengal.

- » On 2nd March 2024, Hon'ble Prime Minister inaugurated twelve projects worth ff 2,189 crore from Aurangabad, Bihar.
- » On 10th March 2024, Hon'ble Prime Minister inaugurated three sewage projects worth ff 1,114 crore from Azamgarh, Uttar Pradesh.



Hon'ble Prime Minister inaugurated three Sewerage Infrastructure Projects from Hooghly, West Bengal

- » On January 25, 2024, the Hon'ble Prime Minister inaugurated the following projects with a cumulative cost of off790.5 Crores.
- » Construction of 30 MLD STP at Masani, Mathura (under Hybrid Annuity- based PPP (HAM) model under Namami Gange Program);
- » Rehabilitation of existing (30 MLD at Trans Yamuna and 6.8 MLD STP at Masani, Mathura) total 36.8 MLD;



Hon'ble Prime Minister inaugurated three Sewerage Infrastructure projects Azamgarh, Uttar Pradesh

- » Construction of 20 MLD TTRO plant (Tertiary Treatment and Reverse Osmosis Plant), Masani, Mathura.

- » Construction of 58 MLD STP with 264 km and sewerage Network at Moradabad.



Hon'ble Prime Minister inaugurated two Sewerage Infrastructure projects of Mathura and Moradabad

- » On 24th March, 2024, Hon'ble Prime Minister, laid the foundation stone of 3.45 KM

Interception & Diversion and 55 MLD STP projects worth Rs. 308.09 for Assi-BHU Area (Phase II), Varanasi.



Hon'ble PM laid foundation stone of 3.45 KM Interception & Diversion and 55 MLD STP for Assi-BHU Area (Phase II), Varanasi

- » On 30th December, 2023 Hon'ble Prime Minister dedicated to the nation the sewage and effluent treatment infrastructure created by NMCG at Kanpur. He inaugurated the new 30 MLD sewerage Treatment plant at Pankha, the rehabilitation of the 130 MLD STP at Jajmau, the new 15 MLD STP at Unnao and the new 20 MLD Common Effluent Treatment Plant for the tannery cluster at Kanpur. He had laid the foundation of these projects on 8th March, 2019. This is a very major achievement for

NMCG, as this comprehensively addresses the issues of sewage and industrial pollution in Kanpur stretch, which was notorious as one of the most polluted stretches of River Ganga earlier.

- » **Inauguration of 14 MLD STP Baghpat:** On 4th January, 2024, the Hon'ble Union Minister for Jal Shakti inaugurated 14 MLD Sewage Treatment Plant (STP) with a 2.4 km Interception & Diversion (I&D) Network worth Rs. 77.36 crores in Baghpat, Uttar Pradesh.



Hon'ble Union Minister for Jal Shakti inaugurated 14 MLD Sewage Treatment Plant at Baghpat, Uttar Pradesh

- **Laying of Foundation Stone of Meerut 220 MLD, STP:** On 18th January, 2024, the Hon'ble Union Minister for Jal Shakti laid the foundation stone for the 220 MLD Meerut sewage treatment plant (STP) with interception and diversion (I&D) project worth ff370 crore in Meerut, Uttar Pradesh.
- **Completion of Sewerage Projects:** Till February 2024, a total of 201 sewerage infrastructure projects (including one Modular STPs Decentralized) have been sanctioned in the Ganga Basin for the creation of 6,196.19 MLD sewage treatment capacity and the laying of 5,282 km sewer network at an estimated cost of Rs. 31,717.30 Cr. Out of these, 116 sewerage projects have been successfully completed, resulting in the creation and rehabilitation of 3,110.55 MLD of sewage treatment capacity and the laying of 4,507.27 kilometers of sewer network with an expenditure of Rs. 14,652.16 Cr.
- **The UN 2023 Water Conference:** During UN Water 2023, Namami Gange organized a side event at UN Headquarters (New York) to discuss the achievements of Namami Gange as an integrated and holistic approach towards conservation and rejuvenation of River Ganga and its ecosystem for which it received global recognition. Hon'ble Minister of Jal Shakti, Government of India, who also graced the event, announced the NMCG led commitments titled as "River Cities Alliance: Partnership for Building International River Sensitive Cities" and "Scaling up Technology Driven Nature Based Solutions for River Rejuvenation", which were endorsed by many participating nations and international institutions.



Hon'ble Minister of Jal Shakti and DG NMCG addressing the participants during UN Water Conference 2023

Alliance during COP 28 in Dubai-

The National Mission for Clean Ganga (NMCG) under the Ministry of Jal Shakti, Republic of India launched the Global River Cities Alliance (GRCA) on 10th December 2023 at the COP28 of the United Nations Climate Change Conference in Dubai, United Arab Emirates. Expanding the reach of the River Cities Alliance (RCA) under it (formed in association with NIUA) with 142 Indian river-cities as members, the countries namely Egypt, Netherlands, Denmark,

Ghana, Australia, Bhutan, Cambodia, Japan along with river-cities of Den Haag, from the Netherlands, Adelaide from Australia, and Szolnok of Hungary joined the Global River Cities Alliance today. The International Institutions including The World Bank, Asian Development Bank (ADB), Asian Infrastructure Investment Bank (AIIB) and KPMG also partnered with the global alliance.



Launch of Global River Cities Alliance during COP 28 in Dubai

Common Purpose (MoCP) with Mississippi River Towns and Cities- Earlier on 6 December 2023, at the COP 28, NMCG representing RCA had signed a Memorandum of Common Purpose (MoCP) with Mississippi River Towns and Cities

Initiative representing 124-member river-cities of the USA. The Global River Cities Alliance, the first of its kind alliance in the world is a unique platform of 270 global river-cities with the launch at COP28, Dubai, UAE.



Signing of Memorandum of Common Purpose (MoCP) with Mississippi River Towns and Cities



- **G-20 Meeting:** From 27th to 29th March 2023, second Environment and Climate Sustainability Working Group (ECSWG) meeting held under India's G20 presidency in Gandhinagar, Gujarat. More than 130 delegates from G20 member countries along with 11 invitee countries and 14 international organizations participated in the three-day event. During sessions of

the day, G20 countries presented their best practices in Water Resource Management. From NMCG, Executive Director (Technical) also gave an overview of the Namami Gange Programme. NMCG also set up an exhibition to showcase the interventions undertaken within Namami Gange Programme.



NMCG's participation during G20 Meeting in Gandhinagar, Gujarat



- **Launch of Monitoring Centre- "PRAYAG":** On 20th April 2023, Hon'ble Union Minister launched the Monitoring Centre "PRAYAG"

Platform for Real-time Analysis of Yamuna and Ganga & their Tributaries at National Mission for Clean Ganga (NMCG) office in New

Delhi. PRAYAG is a real time monitoring center for planning and monitoring of projects, river water quality, etc. through various online dashboards such as Ganga Tarang

Portal, Jajmau Plant through Online Drone Data, PMT Tool Dashboard, Ganga Districts Performance Monitoring System, etc.



Hon'ble MoJS inaugurated the PRAYAG Monitoring Centre on 20th April 2023

- Namami Gange- Universities Connect:** On 12th April 2023 NMCG and APAC News Network organized "Namami Gange: Universities Connect" event. Shri Gajendra Singh Shekhawat, Hon'ble Union Minister for Jal Shakti, presided over the function, where Memorandums of Understanding (MoU) were signed between NMCG and Chancellors /Vice-Chancellors of 50+ universities to foster awareness among the youth on water conservation and river rejuvenation. These MoUs strive to bring the student communities to

the forefront of the mass movement for creating a sustainable ecosystem of our rivers. DG NMCG, Executive Director Technical – NMCG, Additional Managing Director, National Water Mission, Dr. T.G. Sitharam, Chairman, All India Council of Technical Education were also present. Ms. Eunhee Jung, Founder and President, International Virtual Schooling (IVECA) joined the event virtually from New York, USA and made a presentation on 'Global Citizenship Education for Clean Earth'.



NMCG organised Universities Connect and signed MoUs with 49 Universities across India

- Meeting with World Bank Executive Directors Team:** On 5th August 2023, DG, NMCG, along with senior NMCG officials, attended a meeting held with the World Bank Group's Executive Directors at Agra during their study visit to India. It was organised to understand the transformational impact of World Bank projects in the country. During the meeting, DG, NMCG presented pioneering strategies for the mission, spotlighting the integrated management of the Ganga River Basin. They appreciated that NMCG

has started a new chapter of public participation with multiple stakeholders including people, educational institutes, social organizations and civil society become part of Namami Gange becoming a global name to reckon with in river rejuvenation. The EDs appreciated the clarity of vision of the leadership and were especially impressed by the HAM model, One City One Operator Model, Arth Ganga initiative and Public Participation efforts put under Namami Gange mission.



DG NMCG & Senior Officials Meeting with Team of Executive Directors from World Bank in Agra on 5th August 2023

- **Launch of a JALAJ Awareness and Marketing (JAM) Center started functioning at Dilli-Haat:** On 17th September 2023, a JALAJ Awareness and Marketing (JAM) Center started functioning at Dilli-Haat. This is a very unique information dissemination and livelihood opportunities initiative under Arth -Ganga. Products made by Women SHG under JALAL and the other NGOs of Ganga Basin are

being sold by an Apex Jalaj SHG (JALAJ-NAULA) in a stall leased out by NMCG. An apex Body, a Monitoring Committee and Executive Committee has been constituted to guide the group, and handle day to day handholding of the SHG to run the shop. Sri Pankaj Kumar, the then Secretary, DoWR, RD & GR visited the JAM Center on 30/9/2023 and appreciated the initiative.



Hon'ble MoJS visiting the JALAJ Awareness and Marketing (JAM) Center at Dilli-Haat on 22nd December 2023



- **IWA's Special Recognition to NMCG under Climate Smart Utilities Initiative-** On 13th December 2023, NMCG was recognized as a "Climate Smart Utility" within the framework defined by the International Water Association (IWA) following a review by three different jury members. This recognition is awarded under IWA's Climate Smart Utilities Initiative—Recognition

Program. NMCG's success was celebrated by IWA during one of the renowned platforms of the World Water Congress 2023, held from 10th to 14th December in Kigali, Rwanda.

- **2023 Going Digital Awards:** The 318 MLD STP at Coronation Pillar in North Delhi achieved global recognition at the '2023 Going Digital Awards' in Infrastructure. The pioneering project was

financed jointly by Namami Gange and the Delhi Jal Board at a cost of INR 515 crores. The wastewater treatment Plant was selected from more than 300 nominations from 235 organizations across 51 countries. With a staggering capacity to treat 318 million liters of sewage daily, the project could also contribute to reduction in annual carbon emissions by approximately 14,450 tonnes. The remarkable facility manages 10% of Delhi's

daily wastewater and featured state-of-the-art phosphate and nitrogen removal technology. It could treat water up to BOD/TSS levels of 10/10, employing real-time monitoring and automation techniques. In a competitive field, this STP excelled in the structural engineering category of awards, hosted by Bentley Systems. The achievement is a testament to the dedication and expertise of the team involved.



Glimpses from DG NMCG visit to Going Digital Award winner 318 MLD STP at Coronation Pillar in North Delhi

Hybrid annuity-based PPP model

Government of India has approved the adoption of the Hybrid Annuity Based Public-Private Partnership Model for the development of sewerage infrastructure under Namami Ganga.

- Under HAM, NMCG has sanctioned 33 numbers of projects in 24 packages worth of Rs. 12,513.86 crores. These projects are for the towns of Haridwar, Varanasi, Mathura, Kanpur, Unnao,

Shuklaganj, Prayagraj, Budhana, Muzaffarnagar, Mirzapur, Ghazipur, Moradabad, Bareilly, Ayodhya, Agra, Meerut, Mathura-Gokul Barrage, Saharanpur, Lucknow, Patna – Digha & Kankarbagh, Bhagalpur, Dhanbad, Kolkata- Howrah, Bally, Baranagar, Asansol, Durgapur, North Barrackpore, Maheshtala, and Garden Reach. These projects shall create / rehabilitate sewage treatment capacity of 2883.10 MLD.

- Of the 24 packages taken up on hybrid annuity-based PPP model, 1 package for 82 MLD STPs at Haridwar, 1 package for 50 MLD STP at Ramana, 1 package of 30 MLD new STP and 20 MLD TTP at Mathura and 1 package of 72 MLD new STP and Rehabilitation of existing STPs at Prayagraj has already been implemented and commissioned, for 15 packages, works have already been awarded and are under implementation.

Industrial Pollution Management

Inventory of Grossly Polluting Industries (GPIs) has been made for prioritized monitoring. GPIs are industries discharging pollution load of BOD 100kg per day or more and/ or handling hazardous chemicals.

- **Annual Inspection of GPIs by Independent Institutions-** The GPIs are inspected on annual basis for compliance verification of the pollution norms and process modification, wherever required through third party technical institutions of repute.
- **Industry-Specific Improvement:** Reuse and recycling of wastewater in Industries have been promoted in water-intensive grossly polluting industrial units along river Ganga. The industry specific interventions are detailed below:

Tannery Cluster:

Three CETPs at Kanpur region connected with tanneries sector are being monitored on quarterly basis.

- **Jajmau Tannery Cluster:** There are 320 tanneries operating in Jajmau Cluster at Kanpur. They have installed primary effluent treatment plant and the outlet effluent is collected and treated at 36 MLD CETP (9MLD tannery wastewater + 27MLD sewage). NMCG has sanctioned the 20 MLD CETP & its associated components project for Jajmau Tannery Cluster, Kanpur, UP worth Rs. 617 crore (Phase-I). The module 1 (300KLD) of Common Chrome Recovery Unit was started on 25th December 2022. On 30th December 2023, Hon'ble Prime Minister inaugurated the new 20 MLD Common Effluent Treatment Plant for the tannery cluster at Kanpur.
- **Unnao and Banthar Tannery Cluster:** Banthar Tannery Cluster, Unnao, UP has 4.5 MLD CETP and has 27 Member Units. NMCG has sanctioned the project for up-gradation of 4.5 MLD CETP with ZLD system with an estimated cost of Rs.108.93 crore excluding taxes (Funding Pattern 75% central Govt. Share and 25% from Banther SPV). Administrative approval and expenditure sanction was issued on

21st Feb 2020. The project is under tendering stage. Unnao CETP has 2.15 MLD CETP and has 15 member units. NMCG has sanctioned the project for up-gradation of 2.15 to 2.6 MLD CETP with ZLD system at Unnao, UP at an estimated cost of Rs.107.21 crores (excluding taxes). The tendering process is completed. The acceptance of contribution of 25% share by Unnao Tanneries Pollution Control Company (UTPCC) and issuance of letter of award is awaited from UTPCC.

Textile Cluster: Textile clusters namely Pilkhuwa, Rooma, Farrukhabad and Mathura were selected for consideration of CETP.

- **Mathura textile cluster:** NMCG has approved the upgradation of existing 6.25 MLD Mathura CETP project for Rs. 13.87 crore with a condition that NMCG and SPV share will be 75%: 25% i.e., Rs 10.40 crore & Rs. 3.47 crore, respectively and 100% operation and maintenance cost will be borne by SPV. The work (Civil and Electromechanical) has been completed and the project has been commissioned. After upgradation, the industries connected with CETP will be reusing the 60 % treated effluent in their process.
- **Rooma textile cluster:** Rooma has 1.55 MLD CETP, which is operational and CETP Rooma is run

by Special Purpose Vehicle (SPV) namely Rooma Pollution Control Association of member units of Rooma. About 19 units (operational) are presently connected with CETP Rooma. As per CPCB direction, the CETP working is adequate, except the primary tube settler and aeration tank which are working at its half capacity (0.76 MLD).

- **Pilkhuwa Textile Park:** Upgradation of existing 2.1 MLD CETP at Pilkhuwa.
- **Farrukhabad Textile Park:** a new Textile Park is proposed for which 1.5 MLD CETP is required. ZLD based system has been accepted by textile association with 25% funding toward the capital cost by the SPV of Textile Park. Farrukhabad proposal is due for consideration in next Executive Committee meeting subject to receiving of land approval from State Government and on the grounds of Environmental Clearance.
- **Gorakhpur CETP:** NMCG has sanctioned the project for construction of Industrial Effluent / Sewer Piped Network & Setting up Common Effluent Treatment Plant (CETP) of 7.5 MLD Capacity in GIDA at Gorakhpur – UP under Industrial Pollution component of Namami Gange programme with 50%

central sector support as grant-in-aid (Rs. 46.76 crore), at an estimated project cost of Rs. 93.52 crore.

- **Pollution Prevention and Effective Waste Management at Panipat:** Project for the Pollution Prevention and Effective Waste Management of Panipat Textile Cluster to optimize the trade potential of the cluster, Panipat Haryana has been sanctioned and is initiated for 45 Grossly Polluting Industries at Panipat.

Water Quality Monitoring

Water quality monitoring of River Ganga is carried out manually as well as using sensors based real time system.

Manual water quality: Manual water quality monitoring of river Ganga is being carried out by CPCB at 97 locations in 5 main stem States through the respective SPCBs namely Uttarakhand (UK), Uttar Pradesh (UP), Bihar, Jharkhand and West Bengal (WB).

Based on the water quality assessment by CPCB in 5 Ganga main stem states in 2023 (January to September), the observed water quality indicates that median value of Dissolved Oxygen which is an indicator of river health has been found to be within acceptable limits of notified primary bathing water quality criteria and satisfactory to support the ecosystem of river for almost entire stretch of river

Ganga. The median value of Biochemical Oxygen Demand (BOD) has been found within the acceptable limits except marginal exceedance (BOD: 3.2 to 4.5 mg/L) in the stretch from (i) Farrukhabad to Dalmau, Rai Bareilly and (ii) downstream Mirzapur to Tarighat, Ghazipur (except upstream Varanasi, Vishwa Sundari Bridge) in Uttar Pradesh. Further, as a result, because of multi-sectoral interventions as per comparison of median data of water quality parameter viz. Dissolved Oxygen (DO), Biochemical Oxygen Demand (BOD) and Faecal Coliforms (FC) of years 2014 and 2023 (Jan to Sept), DO median has improved at 32 locations, BOD median has improved at 43 locations and the FC median has improved at 25 locations respectively.

Real-Time Water Quality Monitoring Stations (RTWQMS):

- **Setting Up RTWQM Stations on River Ganga:** 36 Real-Time Water Quality Monitoring Stations (RTWQMS) are installed on main stem of river Ganga, tributaries and drains since March 2017. Data from these stations is collated and displayed at different locations of significance. In addition to the existing 36 RTWQM stations, additional 40 RTWQM stations have been installed.
- **Engagement of Data Qualification Consultant for 76 RTWQM stations:** Data Qualification Services Consultant

has started validation of data for 40 RTWQM stations from 05.07.2022.

Ecology and Flow (Aviral Ganga)

As per the mandate given under the NMCG authority notification dated 07th October 2016, for maintaining ecological flow of water in river Ganga, NMCG on the 9th October, 2018 has notified the minimum ecological flow in the river Ganga required to be maintained at different points in different stretches at all times, starting from originating glaciers and through respective confluences of its head tributaries finally meeting at Devprayag up to Haridwar and the main stem of River Ganga up to Unnao district of Uttar Pradesh.

Central Water Commission has been designated as authority and the custodian of the data and responsible for supervision, monitoring, regulation of flows and reporting of necessary information to the appropriate authority as and when required. As per notification, monitoring of e-flows is being carried out Central Water Commission (CWC) since 1st January, 2019 and is submitting quarterly progress reports to NMCG. So far 18 reports of e-flow have been received from CWC.

National Institute of Hydrology carried out a study for assessment of environmental flows in river Yamuna for stretch starting from Hathnikund barrage to Okhla barrage.

A similar exercise has also been initiated for the river Ramganga. WWF-

India is working on an integrated approach for rejuvenation of Ramganga using a multi-stakeholder approach, which aims at restoring the health of Ramganga.

GIZ together with NMCG have been carrying out the E-flow assessment in Ramganga Basin along with Basin Stakeholders. The results of this exercise will support the identification of measures to ensure minimum e-flows in Ramganga basin.

Rural Sanitation

Department of Drinking Water and Sanitation (DoDWS) had identified 4,507 villages situated in the five Ganga States. Rs.829 crore has been released to the DoDWS for construction of around 14 lakhs independent household toilets in these Ganga villages all of which have been declared ODF.

Under the ODF plus intervention of the Ministry, NMCG has released Rs.124 crore for undertaking solid and liquid waste management in the Ganga villages to address the problem of polluted water from the villages flowing into the river and also to improve the sanitation in the villages.

Biodiversity

National Mission for Clean Ganga (NMCG) has established partnerships with Wildlife Institute of India (WII), Dehradun, Uttar Pradesh State Forest Department (UPSFD), Central Inland Fishery Research Institute (CIFRI), Barrackpore, Centre for

Environment Education (CEE), World Wide Fund for Nature (WWF) India and Turtle Survival Alliance India (TSAI) is adopting a

basin level approach through involvement of multiple stakeholders for biodiversity conservation and Ganga rejuvenation.



Glimpses of Biodiversity Activities under Namami Gange

Under the biodiversity conservation program of NMCG, 13 projects have been sanctioned at a cost of Rs. 236 crores for the conservation & restoration of indigenous and endangered aquatic species of Ganga, such as Gangetic dolphin, otters, gharial, turtles and aquatic birds etc. by involving multiple stakeholders and to create awareness among the stakeholders for the

conservation of these species in Ganga. Out of the 13 projects, 8 projects have been completed and 5 projects are ongoing.

Afforestation

Afforestation is a key component in rejuvenation of river Ganga. Accordingly, a DPR was prepared by FRI Dehradun for afforestation of 1,34,104 hectares in the Ganga basin States of Uttarakhand, Uttar

Pradesh, Bihar, Jharkhand, and West Bengal at an estimated cost of Rs. 2,293.73 crore. Implementation of the DPR has started from the year 2016-17 onwards, and expenditure of Rs. 398.0 crore has been incurred so far by the 5 State Forest Departments for plantation in 31,494 hectares.

35 projects have been sanctioned for afforestation works to the respective State Forest Departments of all the 5 States of Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal.

Details of the sanctioned projects are as under:

State	FY 2016-17 to 2022-23		
	No. of projects sanctioned	Cost (Expenditure in Rs. Cr.)	Total Area Covered under Plantation (in ha.)
Uttarakhand	7	141.85	10776.44
Uttar Pradesh	7	77.22	9165.53
Bihar	7	121.80	8553.77
Jharkhand	7	27.81	884.00
West Bengal	7	29.42	2114.70
Total	35	398.09	31,494

Note: Costs mentioned for years 2016-17 to 2022-23 are the actual expenditure incurred by the respective State Forest Departments.

Wetland Conservation

Wetlands are an important part of the riverine ecosystem and play an important role in maintaining flows in river, flood abatement and groundwater recharge. They support rich floral and faunal diversity that also supports livelihood of the local communities. However, these wetlands are threatened by various anthropogenic pressures, thereby disturbing the ecosystem services' role played by wetlands.

Wetland conservation is an integral component of the 'Namami Gange'

programme, under which 4 project have been sanctioned to State Forest Departments of Uttar Pradesh, Bihar and Jharkhand at a total cost of Rs. 12.54 Crores, out of which 1 project at UP had been completed.

- **Research, Policy and Knowledge Management (Gyan Ganga)**

Leading Research and Development

Ganga Knowledge Centre (GKC) is conceptualized as a premiere and autonomous knowledge based institution which will blend system characterization,

innovation and stakeholder participation so as to optimize the investments of NGRBA. GKC is one of its kinds of institution which generate the state of art scientific and technical knowledge even while reflecting constantly on traditional and local knowledge but still remain focused on relevant issues and stay connected to the stakeholders.

A collaborative Platform to access Information, Data and Maps, Apps & Dashboards of NMCG. The application has been Configured to organizes scientific

data, citizen centric scientific data and tools to accomplish Initiatives and goals. The Portal includes information about various activities and initiatives under Namami Gange-Research and Development projects, GIS Cell, Pilot Project & Policy Initiative, Global Connect, Engaging with Youth & Children, Ganga Museum, Ganga E-Library (Ganga Gyan Dhara-IIPA), Publications & Awards and Capacity Building (Vigyan Prasar-DST). GKC portal link is at <https://gkc-nmcgindia.hub.arcgis.com/>.



- **Geo-Ganga: Space Based Mapping & Monitoring of Ganga River by Indian Institute of Remote Sensing:** NMCG has awarded a research project titled "Geo-Ganga: Space Based Mapping & Monitoring of Ganga River" to IIRS, Dehradun

under "Namami Gange Program". The main objectives of this research project is to develop a geo-portal of entire Ganga basin for visualization and analysis of hydro-meteorological and other thematic parameters, to develop a geospatial

solution for mapping and monitoring of river water quality in respect of few parameters, water level and solid waste dumps in the active river channel or buffer area of the selected river stretch/s and to generate flood hazard potential zones for the selected stretch using geospatial techniques. The possible outcome of the study would be to develop a Geo-portal (Geo-Ganga) to visualize and analyze the hydro-meteorological and other thematic parameters.

- **Bhuvan Ganga:** NMCG has MoU with NRSC/ISRO for supporting geospatial technology in 2015. Bhuvan Ganga Geoportal provides platforms to manage, access, visualize, share and analyze geo spatial data, non-spatial data products and services towards spatial mashups to support NMCG objectives of environmental and ecological improvement within the Ganga River basin. Bhuvan Ganga mobile app is a user-friendly application to enable user/public to collect and report information on various pollution sources that affect water quality of River Ganga.
- **LiDAR Mapping:** NMCG has collaborated with Survey of India, the oldest survey & mapping department in the country set up in 1767, to facilitate the Ganga rejuvenation task by using

Geographic Information System (GIS) technology for mapping the Ganga basin in high resolution generating Digital Elevation Models (DEM). Deliverables of mapping would be Digital Elevation Model/ Digital Terrain Model (The bare earth model has vertical accuracy better than 50 cm), contour of 1.0 m, ortho-photos (25 cm Ground sampling distance or better), GIS ready dataset, outlet/vent of sewerage and other discharge from all dwelling units, industrial, commercial and all type of other institutions mapping from the sources outlet to the public drainage network, the entire public network integrated with the present project mapping, crematoria, ghats, RFD, solid waste disposal sites, STP/ETP/CETP etc. for defined project area of interest.

- **Sand Mining Mapping using UAV Technology:** Rapid assessment of sand mining and its impact on Ganga river between Raiwala to Bhogpur stretch using historical remote sensing data and drone technology project. This pilot project was focused on a small stretch of the main Ganga river between Raiwala and Bhogpur in Uttarakhand where some sand mining has been done in the past but there are very limited mining activities at present. IIT Kanpur is executing the research project on

- "Geomorphic and Ecological Impacts of Sand Mining in Large Rivers as revealed from high resolution historical remote sensing data and drone surveys: Assessment, Analysis and Mitigation.
- **Water bodies mapping using UAV technology:** QCI is executing "Census Survey of Water Bodies in Ganga Basin" using drone technology. The purpose of the study is to do mapping of all the water bodies in 31 Ganga districts (3189 villages) of Uttar Pradesh, Uttarakhand, Bihar, Jharkhand & West Bengal for improvement /rejuvenation of water bodies that are either dried up or working less than their full efficiency.
- **Corona Spy Satellite using Remote Sensing Technique:** Reconstructing the Ganga of the Past from Corona archival imagery- implemented by IIT Kanpur. Project cost was INR 40 lakh. Deliverables of Corona project is all processed Corona images available for upload on public portal such as Bhuvan Ganga, published an Atlas of the Ganga River showing a comparison between 1960s and present, establish the reference condition of the Ganga river and quantify the changes in morphological characteristics and landuse/landcover within the Ganga valley between 1960s and present, and a
- policy document on 'desirable' landuse within the Ganga valley.
- **Spring Rejuvenation using Remote Sensing, GIS & UAV technology:** Pilot study on spring rejuvenation for Tehri Gadhwal district of Uttarakhand – under implementation by Survey of India/CGWB. Project cost is INR 8.50 cr. Nature of project is Schematic mapping of Tehri Garhwal district for inventory of springs using LiDAR technology, Hydro-geomorphic & liniment studies for identification of different type of springs & their recharge zones and implementation of spring rejuvenation by constructing rainwater harvesting and artificial structures. Rejuvenation of dying springs in Tokoli Gad catchment of Tehri Garhwal District using Geo-chemical & Geo-physical techniques- under implementation by IIT Roorkee. Project cost is INR 1.35 cr. The project will assess the impact of land use land cover change or impact of natural or anthropogenic precipitation variability and also will strengthen the local water governance and participatory spring shed management approach.
- **GIS based Mapping of Microbial Diversity:** GIS -based Mapping of Microbial Diversity across the Ganges for Ecosystem Services - (implementation by CSIR-NEERI,

Nagpur). Project cost is INR 9.72 cr. The objective of this study is to understand the water quality of river Ganga along the stretch with the specific focus on parameters that indicates the interactions of river with its varied environment. Being highly analytics and interdisciplinary, this project will provide a strong scientific rationale to understand bacteriophage and microbial population diversity, purifying properties of the Ganga and disease predications.

- **Aquifer Mapping using Heliborn Survey by NGRI, Hyderabad:** Aquifers in the Ganga Yamuna doab play an important role in sustaining the flows in these rivers. Ganga River Basin Management Plan recognizes the importance of interplay between groundwater and surface water. Aquifer mapping project- Data generation for aquifer mapping with focus on paleo-channels in parts of Ganga Yamuna Doab in Kaushambi-Kanpur stretch for tracking the existing paleo-channel further northwest ward for engineered ground water recharge/ augmentation, Uttar Pradesh is executing by National Geophysical Research Institute (NGRI), Hyderabad.
- **Climate Change scenario mapping using Weather Research and Forecasting Model:**

High resolution climate scenarios for basin scale water resource management applications - under implementation by IIT Delhi. Project cost is INR 1.31 cr. Change in climatic scenarios can result a disbalance in near future. NMCG is working with IIT Delhi to map out high resolution climate scenarios for basin-scale water resources management. This project aims to develop high-resolution (10 km X 10 km) datasets of current climate and future climate scenario and demonstrate its applicability for water resource management problems in the Indo-Gangetic plain.

- The first Ministerial Level Joint Working Group Meeting held on 3rd April 2023 in New Delhi under the co-chairmanship of Mr. Gajendra Singh Shekhawat Hon'ble Union Minister for Jal Shakti, Government of India and Mr. Mark Harbers, Hon'ble Minister of Infrastructure and Water Management, Government of Netherlands. The partnership provides the necessary impetus to expand the bilateral water cooperation, while recognizing the importance of Sustainable Development Goals, water safety, water availability and water quality for wellbeing and sustainable development of the present and future generations.



First Ministerial Level Joint Working Group Meeting under Indo-Dutch Cooperation



- On 9th May, in the august presence of Foreign Minister of Israel Mr Eli Cohen and Foreign Minister of India Dr S. Jaishankar a Joint Statement of Intent was signed today between NMCG, State of Israel and IIT Roorkee. On the occasion NMCG was represented by DG Shri Asok Kumar, State of Israel was represented by H.E. Mr.Naor Gilon, Ambassador, Israel in India and IIT

Roorkee was represented by Deputy Director Prof. U P Singh. This initiative aims to promote projects in the field of water resources, technologies, and management for sustainable solutions in the water sector through the establishment of the Centre of Water Technology by NMCG.



Foreign Minister of India and Foreign Minister of Israel signing a Joint Statement NMCG, State of Israel and IIT Roorkee



- During Stockholm World Water Week 2023, NMCG organized and/or participated in the virtual sessions on (i) Water Quality Management: Lessons Learned from India (ii) Peer Networking for

Integrated River Basin Planning and Management (iii) Breaking with Business as Usual: Sanitation Innovations in the Asia-Pacific - (with ADB, JSC, APWF, B&M Gates Foundation, etc) (iv) Addressing

Water Security Challenges in the Himalayan Region- IWMI. While participating in these sessions, DG, NMCG said that Namami Gange Mission involves a substantial financial commitment of USD 4.5

billion and the interventions have already made a positive impact as evidenced by the restoration of polluted stretches of the river and significant improvement in river water quality.



NMCG Participation during Stockholm World Water Week 2023



- On 20th November 2023, DG, NMCG delivered a special address during the Final Event of Phase II of Support to Ganga Rejuvenation and India-EU Water Partnership Action took place at The Lalit Group, New Delhi. In his address, DG, NMCG shared that NMCG has been working to tackle the issue of the

most polluted rivers across the nation. With the project focusing on EU-inspired River Basin Planning in Indian River Basins, the River Basin Management Plans for Tapi and Ramganga Basin are major accomplishments achieved through collaborative efforts by Indian & EU experts along with other key developments



DG, NMCG delivered a special address during the Final Event of Phase II of Support to Ganga Rejuvenation and India-EU Water Partnership Action



- On 22nd November 2023, Chaired by DG, NMCG a session 'River Cities Alliance, a Global Step Forward' was held during CITIS2023 summit ahead of the global launch of River Cities Alliance during COP28 in UAE. Representatives from the embassies of United Kingdom,

Japan, Nepal, Israel, Netherlands, Denmark, Paraguay, Mexico, Indonesia, Germany, Bhutan & industrial sector are present. Dir Ministry of External Affairs, along with senior officials from NMCG were present at the session.



River Cities Alliance session during CITIS 2023

- People River Connect (Jan Ganga)**
 - » **River** Front Development (RFD), Ghat, Crematoria and Kunds/ Ponds rejuvenation: Total 83 projects have been sanctioned for the construction of 238 ghats and promenades, 63 crematoria and rejuvenation of 9 kunds/ ponds. 208 ghats, 53 crematoria and 9 kunds have been completed.
- Important Activities (under Jan Ganga)**
 - » **DHARA 2023:** On 13th and 14th February 2023, National

Mission for Clean Ganga (NMCG) in collaboration with National Institute of Urban Affairs organized "DHARA 2023: Driving Holistic Action for Urban Rivers" in Pune, Maharashtra. Hon'ble Minister of Jal Shakti inaugurated the Conference, which was attended by over 51 Municipal Commissioners / Additional Commissioners of member cities of the River Cities Alliance. The two-day Conference had more than 300 participants and DG, NMCG, delivered the keynote address in the

Conference. Day 1 included sessions on 'Innovative Examples of River Management within India', 'Innovative International Case Studies for River Management', 'Strengthening the Agenda for Urban River management', 'Youth for Rivers', 'Experiences

from International River Cities'. On Day 2, a 'Ghat Par Yoga' program was organized at Sant Gyaneshwar Ghat, Mulla Mutha River, Pune. Shri Kaushal Kishore, Hon'ble Minister of State for Ministry of Housing and Urban Affairs, presided over the valedictory session.



"DHARA 2023: Driving Holistic Action for Urban Rivers" in Pune, Maharashtra

» **National River Ranching Programme 2023:** NMCG in association with ICAR-CIFRI organized the "National River Ranching Programme 2023" of Indian Major Carps (IMC) and Mahseer at various locations in Uttarakhand, Uttar Pradesh, West Bengal, Jharkhand, Bihar and Jharkhand in river Ganga from 2nd April 2023 to 31st May 2023. In the month of April 2023, more than 8.5 lakhs fish juveniles Indian Major Carps (IMC) comprising of Rohu, Catla, Mrigal and Calbasu were

ranching in the river Ganga by the different designated officers and local fishers of the state during the month. On 17th April 2023, 50,000 juvenile IMC fish were released in the Ganga River at Atal Ghat, Kanpur in the presence of the DG, NMCG. On 16th June 2023, NMCG in association with Pantajali Sevashra and ICAR-CIFRI released 10,000 (Ten thousand) Mahseer fish fingerlings into the Ganga river at Devprayag for conservation and restoration of fishes of the Ganga river. So far

more than 93 lakhs fish seeds have been released at different locations and more than 20 lakh

were released under National River Ranching Program.



National River Ranching Program 2023

» **River City Alliance Global Seminar:** On 4th May 2023, NMCG, in association with the National Institute of Urban Affairs (NIUA), organized the 'River-Cities Alliance (RCA) Global Seminar: Partnership for Building International River-Sensitive Cities' held at Delhi. The seminar was presided over by Director General, NMCG. The purpose of the RCA Global Seminar was to provide a platform for officials of member cities and international stakeholders to discuss and learn good practices for managing urban rivers. Launched with 30 member

cities in November 2021, RCA has now expanded to 115 member cities, including one international city from Denmark. RCA Global Seminar witnessed participation from Embassies/High Commissions of select countries. Cities such as Manchester, Copenhagen, Aarhus and Hamburg made presentations on their urban river management plans. These highlighted their visions, achievements, and potential collaborative outcomes with RCA. State Missions for Clean Ganga (SMCGs) and funding agencies like World Bank, ADB, JICA & KfW also participated.



Glimpses from RCA Global Seminar on 4th May 2023

» **Ganga Utsav 2023:** On 4th November, 2023, the 7th edition of Ganga Utsav was organized by NMCG in New Delhi and was inaugurated by Secretary, DoWR, RD & GR, Ministry of Jal Shakti, in the presence of Special Secretary and DG, NMCG. In recent years, Namami Gange has advocated for the decentralization of Ganga-related activities with District Ganga Committees conducting regular meetings marking a substantial achievement. The

event also marked the release of 33rd edition of Namami Gange Magazine, the new Chacha Chaudhary series and the Voyage of Ganga Booklet, based on Ganga Pustak Parikrama in collaboration with NBT. Ganga Utsav 2023 was a vibrant fusion of music, dance, knowledge, culture, and dialogue. Ganga Utsav 2023 concluded with a captivating performance of fusion music by Pandit Siddharta Banerjee.



Glimpses from Ganga Utsav 2023

- » 8th India Water Impact Summit: From 22nd - 24th November 2023, NMCG and Center for Ganga River Basin Management and Studies (cGanga) organised the 8th Edition of the India Water Impact Summit (IWIS) 2023. The 8th India Water Impact Summit carried the theme 'Development vis-à-vis Land, Water and Rivers,' aimed at uniting scientific experts, stakeholders, and government representatives to address dynamic challenges and

opportunities in India's water sector. Inaugural session of 8th India Water Impact Summit was held under the gracious presence of Hon'ble Minister Sh Nitin Gadkari, National Highway Authority of India, Hon'ble Minister Mr. Igor Papic, Minister of Science-Tech & Innovation, Slovenia, Smt. Debashree Mukherjee, Secretary Ministry of Jal Shakti, Department of Water Resources, RD & GR, Sh Asok Kumar DG-NMCG, & Sh Vinod Tare, Prof Indian Institute of Technology Kanpur.



Glimpses from 8th India Water Impact Summit

- **Arth Ganga:**

On 14th December 2019 the first National Ganga Council was convened under the chairmanship of the Honourable Prime Minister, who shared his vision of Arth Ganga. The Arth Ganga is based on the symbiotic relationship between nature and society, by primarily strengthening people-

river connect and adopting an ecologically conscious sustainable development framework. It comprises of multi-sectoral interventions ranging from development of natural farming to livelihood interventions, are to be achieved through synergies at different institutional levels, coupled with adoption of decentralized governance practices.

The success of Arth Ganga is based on multi sectoral interventions through stakeholder engagement and good governance practices. Thus, various Ministries, Departments and Organizations have been brought on board to realize the vision of the model. These include- Ministry of Agriculture and Farmers Welfare, Ministry of Tourism, Ministry of Culture, Ministry of Shipping, Ports and Inland Waterways, Ministry of Fisheries, Animal Husbandry and Dairying, Ministry of AYUSH, Ministry of Environment, Forest and Climate Change, Ministry of Rural Development, Ministry of Housing and Urban Affairs, Indian Institute of Management Lucknow, Centre for Ganga River Basin Management and Studies, Wildlife Institute of India, INTACH and many others.

Six key verticals identified for Arth Ganga: (i) Zero Budget Natural Farming; (ii) Monetisation of Reuse of Sludge & Wastewater; (iii) Public Participation; (iv) Culture Heritage & Tourism; (v) Livelihood Generation Opportunities; (vi) Institutional Building.

Sustainable agriculture and allied areas:

Several meetings with important stakeholders held including Ministry of Agriculture, Patanjali, Art of Living, FICCI, IFAD, WRI, IUCN practitioners of Natural Farming etc. to explore its replication in Ganga basin.

NMCG has organised several Natural Farming training workshops (Bijnor, Saran, Bhojpur, Buxar, Samastipur, Purnea, Katihar, Khagaria, Bhagalpur etc) with the support of States'/Districts' Agricultural Departments, District Ganga Committees, SPMG and trainers from National Centre for Organic and Natural Farming (NCONF), Art of Living, Sahakar Bharati etc.

Exploring possibility of marketing organic/natural farming products of Ganga Basin with the help of several Corporates including ITC, Hindustan Unilever and Patanjali etc.

NMCG has sanctioned a study Project on "Evaluation of Natural Farming practices on water and energy savings and Enhancement of Soil Fertility & Crop Productivity" to WALAMTARI, Andhra Pradesh. The findings of the study will be useful for promoting Natural Farming. Also, a few villages will be taken up by WALAMTARI in Ganga Basin.

Reuse of Treated Waste Water (TWW) & Sludge

- Under Mathura sewage scheme, 20 MLD Tertiary Treatment Plant is completed and now supply of treated water to Indian Oil Corporation's Mathura Refinery for non- potable purpose has started. As of now, about 8 MLD treated water is supplied to IOCL.
- NMCG in association with Ministry of Power has mapped 15 STPs

within 50 km radius of Thermal Power Plants (TPPs). Based on the mapping, Ministry of Power has taken up initiatives for studying the feasibility of using the treated waste water from identified STPs.

- To accomplish the objective of use of STP water by TPPs as per Tariff Policy, 2016, MoU with Ministry of Power (26.09.2022) signed
- indicating role and responsibilities of MoP and NMCG.
- In the first phase, 13 Thermal Power Plants (TPP) have been identified for use of treated waste water.
- EOI for empanelling the agencies floated on 13th June 2022 for sludge reuse – after meetings with several stakeholders including Patanjali, TERI, Corporates, Art of Living etc.



Livelihood Generation Opportunities

Project Jalaj – "Connecting river and people to realise Arth Ganga" is a livelihood model involving participation and empowerment of local people, especially women towards realizing bio-diversity sensitive tourism involving boat safaris, home stays, marketing of local handicrafts and food items etc. is being implemented at 75 locations through WII.

7.3.6 NARMADA CONTROL AUTHORITY (NCA)

The Authority is headed by the Secretary, DoWR, RD & GR, as its Chairman,

with Secretaries of the Union Ministries of Power, Environment, Forests and Climate Change, Social Justice & Empowerment and Tribal Welfare, Chief Secretaries of the four Party States, viz. Madhya Pradesh, Maharashtra, Gujarat & Rajasthan, one full time Executive Member and three full time independent Members appointed by the Central Government and four-part time members nominated by Party States.

The Review Committee for Narmada Control Authority (RCNCA) is headed by the Union Minister of Jal Shakti, Union Minister for Environment, Forest and Climate Change and Chief Ministers of

four Party States viz. Madhya Pradesh, Rajasthan, Maharashtra & Gujarat as members and Secretary (WR, RD&GR) is the convener.

The Narmada Control Authority has its headquarter at Indore (MP) and regional offices at Indore, Bhopal & Vadodara, liaison unit in New Delhi and field offices at Mandla, Hoshangabad, Kevadia and Indore.

In pursuance of sub-clause 16(1) clause-XIV of the Narmada Water Disputes Tribunal, Sardar Sarovar Construction Advisory Committee was constituted on 04.09.1980 for ensuring efficient, economical and early construction of Units-I and III of Sardar Sarovar Project. Further in pursuance of sub-clause 16(1) of clause-XIV, the Sardar Construction Advisory Committee (SSCAC) was dissolved on 11th August 2020 and the post construction management of Units-I and II will be by Gujarat under the supervision of Narmada Control Authority (NCA).

PROGRESS OF SARDAR SAROVAR PROJECT (SSP)

• SARDAR SAROVAR DAM

As per decision of 89th meeting of NCA held on 16th June, 2017, the work of lowering of gate of SSP was completed by the GoG and reservoir permission schedule to fill the SSP reservoir up to FRL EL 138.68 m was finalized by the SSRRC in its

51st meeting on the basis of the draft schedule submitted by GoG as per Indian Standard Code 15272:2004 guidelines and other technical standards being followed. Due to lesser rain in 2017 leading to deficit in utilizable flow in order of 45%, the SSP reservoir was filled up to EL 130.75 m only in the month of September, 2017. The reservoir got filled up to FRL (138.68 m) during the monsoon 2019, 2020 and 2022 due to sufficient rainfall in the basin. An expenditure of Rs. 74,604.83 crore has been incurred on Sardar Sarovar Project up to October, 2023.

• NARMADA MAIN CANAL

Work on Narmada Main Canal (NMC) from head regulator to Gujarat Rajasthan border (Ch. 0 to 458.318 km) has been completed. Work of 74.0 km. Narmada Main Canal in Rajasthan is also completed. In Gujarat, the work on all branch canals of NMC from 0 to 458.318 km has been completed. 96.58% work of distributaries, 93.54% work of minors and 90.11% work of sub-minors are completed in Gujarat.

In Rajasthan, 100% work of main canal, distributary (flow) and distributary (lift), minors & sub minors (flow) are completed. The project can be considered as completed.

- UTILIZATION OF WATER**

The water available from Sardar Sarovar Dam has been utilized for irrigation, domestic and industrial purposes under Phase-I & II of the Sardar Sarovar Project Command. During the year 2022-23, 15205.97 MCM (12.328 MAF) water has been released through HR of Narmada Main Canal for utilization in Gujarat and Rajasthan, out of which 861.80 MCM (0.698 MAF) water has been released for Rajasthan. The Narmada water has also been supplied to the Central Gujarat / North Gujarat and Saurashtra Region for domestic utilization. From the Narmada Canal system 9,490 villages and 173 towns are envisaged for drinking water network in Gujarat. Total 12.60 L ha

area was irrigated in addition to Industrial utilization of 109.58 MCM water by Gujarat during 2022-23.

- RESETTLEMENT AND REHABILITATION ASPECTS OF SSP**

The 37th Task Force Meeting of NCA on rehabilitation and resettlement issues of SSP was conducted on 26th November, 2020. There are 23 operational R&R sites in Madhya Pradesh, 14 in Maharashtra and 223 in Gujarat. A brief overview of the Project Affected Families (PAFs) and affected villages till March, 2023, based on the information furnished by the Party States are given in the following table:

Affected Villages and Families (Till March, 2023)

States	Villages affected			Total PAFs resettled so far in			Total No. of PAFs rehabilitated
	Fully	Partially	Total	Gujarat	Maharashtra	Madhya Pradesh	
Madhya Pradesh	1	177	178	5542	0	18060	23602
Maharashtra	-	33	33	753	3436	0	4189
Gujarat	3	16	19	4765	0	0	4765
Total	4*	226	230	11060	3436	18060	32556**

Source: Progress Report received from the party States.

* Complete agriculture land of this village has come under submergence of Sardar Sarovar Reservoir, but no family was residing in this village.

** This number may change after verification of cases pending in GRA/ Hon'ble Courts for eligibility.

7.3.7 BRAHMAPUTRA BOARD (BB)

The Brahmaputra Board was constituted by an Act of Parliament and received the assent of the President on 01.09.1980 for planning and integrated implementation of measures for the control of floods and bank erosion in the Brahmaputra valley and for matters connected therewith.

The Board consists of 21 members under the Chairman, Brahmaputra Board (4 full time members and 17-part time members). The jurisdiction of Board covers all the North Eastern States including Sikkim and North Bengal. The organizational setup of Brahmaputra Board has been modified after restructuring order issued by GoI on 10.01.2019 which provides for establishment of regional offices headed by Dy. Chief Engineer/Superintending Engineer in all the State capitals of North Eastern States. All the 9 (nine) regional offices set up as a part of restructuring have started functioning in close coordination with respective State Governments.

A High Powered Review Board was constituted with the Union Minister of Jal Shakti as the Chairman, Chief Ministers of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and Union Minister / Ministers of State-Finance, Surface Transport, Power, Agriculture, Ministers of State - Jal Shakti and Secretary, Department of Water Resources, RD & GR, Govt. of India,

Chairman, Central Water Commission as members and Chairman of Brahmaputra Board as the member-secretary. Member (RM), CWC is a permanent invitee.

THE NORTH EASTERN HYDRAULIC & ALLIED RESEARCH INSTITUTE (NEHARI):

North Eastern Hydraulic and Allied Research Institute (NEHARI) was established in the year 1996 under Brahmaputra Board, as a follow up of 'Assam Accord' signed on 15th August, 1985 by the Hon'ble Prime Minister of India. The Institute was set up as a pioneer laboratory of North Eastern Region for laboratory testing of soil, rock, concrete and construction materials for development of water resources and other projects along with hydraulic laboratory adequate facility for simulating and understanding river behavior through physical models.

Mandate:

Undertaking field and laboratory investigations, research and development work of basic and applied types in 'Geomechanics', 'Concrete Technology', 'Soil Characteristics', 'Construction Materials' and associated issues for development of hydropower, irrigation and flood control projects.

Rejuvenation and Renovation:

An institute set up under Assam Accord and lying non-functional since 2010, have been taken up for rejuvenation

& renovation with special focus on Hydrological laboratory that matches CWPRS facility at Pune, thus making it one of its kind facility in NE region. Renovated NEHARI was inaugurated on 14.01.2021 by the Hon'ble Union Minister of Jal Shakti. An MoU signed with IIT Guwahati for undertaking studies in various aspects of river basin management at the institute. MoU also signed with CWPRS Pune and CSMRS New Delhi for capacity building and mutual cooperation.

For capacity building in North-East, training of manpower from NE states at NEHARI in association with NIH, NERIWALM, NESAC, CWPRS Pune and CSMRS New Delhi were started from the year 2021-22. So far, 396 nos. of Officers from NE States including West Bengal has been trained in the Institute so far.

Current Activities:

- Year long training programme for Capacity Building of officers of North Eastern region in Water Resources Development is being carried out at renovated NEHARI from 2021-22.
- Northeast Frontier Railway has entrusted the following model studies to be carried out at NEHARI-
 - a. River Survey and Hydraulic Model Studies for construction of Rail Bridge near Tezpur. Draft report has been submitted to NF Railway.

- b. Hydraulic Model Study for 2nd Rail cum Road Bridge near over Brahmaputra adjacent to existing Saraighat Bridge. Final report has been submitted to NF Railway.

MAJOR FUNCTIONS

The main objectives of Brahmaputra Board are management and control of flood and bank erosion and improvement of drainage giving due importance to the development and utilization of water resources of the Brahmaputra valley for irrigation, hydropower, navigation and other beneficial purposes.

ACHIEVEMENTS:

- **Master Plans:**

The Board had taken up preparation of master plans of the main stem of the Brahmaputra and Barak along with 68 major tributaries including Majuli island, river Dholeswari and rivers of Meghalaya, Mizoram, Manipur and Tripura in three parts.

Preparation of Manipur River Master Plan and updation of Hoara River Master Plans is going on and updation of Master Plan of main stem Brahmaputra, Barak, South flowing river of Meghalaya, rivers of Mizoram have been initiated for taking up during this year.

- **Survey & Investigation and Preparation of Detailed Project Reports of Multipurpose Projects:**

Brahmaputra Board took up survey & investigation of 14 multipurpose projects in Brahmaputra and Barak basin and in the south flowing rivers of Meghalaya. Status of these projects is summarised at **Annexure-IX**.

- **Scientific dissemination and improvement of water management practices of local tribes and indigenous people of NE region:**

Under scientific dissemination and improvement of water management practices of local tribes and indigenous people of NE region, Board has taken up (i) Water Management practices of Apatani inhabited Ziro Valley and Pakke Valley in Arunachal Pradesh; (ii)

Water conservation and Management practices of Chakhesang tribe of Phek district in Nagaland; and (iii) Dong Water Management practices of Bodo tribes of Baksa district in Assam in association with NERIWALM.

Pilot schemes of springshed management at Mizoram, Nagaland and Arunachal Pradesh are also proposed during 2022-23 and continued during 2023-24.

- **Bio-engineering measures for flood and erosion management:**

A pilot project of bio-engineering measures for river bank erosion of Brahmaputra at right bank downstream of Kordoiguri of river Brahmaputra at Majuli island has been taken up in 2022-23. Major components of works completed and observations/maintenance is in progress.



Trimming of Bank



Laying of Coir mat



Laying of Coir bag filled with earth



Laying of geo bag filled with earth



Laying of Coir mat above geo-bag



Laying of Coir mat above geobag & coir bag



Ready for plantation



Plantation of Vetiver

- **Preparation of Detailed Project Report to check flash flood and erosion in BTC area:**

For preparation of Detailed Project Report to check flash flood and

erosion in BTC area by Pagla/ Baitamari, Aie, Beki, Pagladiya, Sankosh, Gangia and Saralbhangra rivers, work has been allotted to WAPCOS. Draft DPRs completed

and is under consultation with State Water Resources Department to avoid duplicacy of the works proposed in the DPRS.

- **Anti-Erosion and Flood Management Schemes**

Protection of Majuli Island from Flood and Erosion:

Majuli is the largest inhabited fresh water river island in the world. It is situated between latitudes 26°45'N and 27°10'N, and longitudes between 93°40'E and 94°35'E. Majuli island has constantly been subjected to erosion by the mighty Brahmaputra. Responsibility for undertaking anti-erosion works for protection of Majuli island was given to Brahmaputra Board in the year 1999. Physical activities on the ground started in the year 2004.

Majuli main island was 502.21 sq km in the year 2004. Since then, with regular implementation of anti-erosion/bank protection measures, the total area of Majuli island had increased to 524.29 sq km till the year 2016. Works under immediate measures, emergent measures, Phase-I, Phase-II & III have been completed. A new scheme for protection of Majuli island from flood and erosion of river Brahmaputra for Rs. 233.57 crore was approved by the then Ministry of Water Resources and Ministry of DoNER allocated Rs. 207 crore for the same. Execution of the scheme is in progress. 98.89% of the work has been completed so far. Board has assigned work of office campus at Majuli to NPCC as PMC for monitoring of protection work and for further survey and investigation activities and 86.09% works have been completed till March, 2024.



Performance of Bank Revetment work at Kordoiguri area, In Majuli Island

Restoration of Dibang and Lohit Rivers at Dhola –Hatiguli:

The scheme "Avulsion of Brahmaputra at Dhola-Hatighuli

(measures for diversion of rivers Dibang and Lohit to their original courses) with ancillary anti-erosion measures" was approved by Ministry of Water Resources, Government of India in the Technical

Advisory Committee (TAC) meeting held in May, 2002 and the Board was entrusted with the responsibility for execution of the scheme. Expenditure of Rs 93.93 crore has so far been incurred by the Board on execution of works envisaged under Phase-I, Phase-II, Phase-III, Phase- IV and Phase-V.

For continuation of benefits accrued from the schemes implemented in four phases of works of scheme Avulsion of Brahmaputra at Dholla Hatghuli, it is proposed to convert the existing tie-bund into a full-fledged embankment at Bahbari. Work estimated at Rs. 24.95 crore is under implementation and 91% work has been completed up to March, 2024. On construction of retirement bund at Hatighuli area on Left bank of Lohit river, 11 villages under Doomduma Revenue Circle in an area of about 1500 ha got protection from floods.

Bank protection work at Bhogdebri area on the Right Bank of River Mansai in Cooch Behar District, West Bengal:

Anti-erosion scheme was taken up for execution during 2019-20 with an estimated cost of Rs. 4.68 crore. Allotted work has been completed. Some additional works have been taken during 2022-23 completed in 2023-24. An area 128 Ha and 2000 Nos. of population benefited from this scheme.



Bank protection work at Bhogdebri area on the Right Bank of River Mansai in Cooch Behar District, West Bengal

Protection work at Mirem Village, Miglung Village & Remi Village" in East Siang District of Arunachal Pradesh:

Anti-erosion scheme with an estimated cost of for Rs. 23.3306 crore was taken up for execution during 2022-23 and 37% of work completed upto March, 2024.



Protection work at Mirem Village, Miglung Village & Remi Village" in East Siang

Protection Work at Oyan and Sile Village" in East Siang District, Arunachal Pradesh:

Anti-erosion scheme with an estimated cost of for Rs. Rs. 20.79 crore was

taken up for execution during 2022-23 and 42% of work completed upto March, 2024.



Protection Work at Oyan and Sile Village" in East Siang District

7.3.8 BETWA RIVER BOARD (BRB)

A decision to harness the available water resources of Betwa river was taken in a meeting held on 22nd July, 1972 between Chief Ministers of Uttar Pradesh and Madhya Pradesh. Further Uttar Pradesh and Madhya Pradesh in a meeting held on 9th December 1973 agreed for setting up of a tripartite Control Board for the speedy, smooth and efficient execution of the various inter-State projects of both the States. BRB was constituted in 1976 by an Act of parliament to execute the Rajghat dam project and power house. The project authority started construction of the project under the overall guidance of BRB after promulgation of BRB Act 1976. The benefits and costs of the above projects are being shared equally by both the State Governments.

The Union Minister (Jal Shakti) is the Chairman of the Board. Union Minister of Power, Union Minister of Water Resources, Chief Ministers and Ministers-in-charge of Finance, Irrigation and Power of the two States are its members. An Executive Committee of the Board headed by Chairman, CWC manages the activities of the Board.

Rajghat Dam Project

The Rajghat dam with appurtenant structures has been constructed across river Betwa to provide irrigation facilities to 1.38 lakh ha in Uttar Pradesh and 1.21 lakh ha in Madhya Pradesh with power generation of 45 MW through Rajghat Hydro Electric Project at the toe of dam on left flank. The costs as well as benefits of the project are to be shared equally by both the States. Construction works of dam and power house have been completed.

• Land Acquisition

The dam submerges 38 villages in U.P. and 31 villages in M.P. State. Compensation in M.P. area is completed. In U.P., the District Administration, Lalitpur had paid the land compensation of 25 villages and Betwa River Board have paid the compensation of 13 villages by mutual negotiation except the property compensation of village Kalapahar between FRL and MWL and the case has already been submitted for its valuation to the concerned Department of Uttar Pradesh.

- **Planning and Present status of Rajghat Power House works**

The estimated cost of Rajghat Hydro Electric Project at 1997 price level was Rs. 131.26 crore which included Rs. 58.41 crore for the civil works. The revised cost of the civil works of power house is Rs. 66.89 crore at December, 1999 price level. MPPGCL has contributed Rs. 59.51 crore. The total expenditure incurred on civil works of Rajghat Power House till June, 2008 is Rs. 63.15 crore.

The three units of power house have been tested and commissioned during 1999-2000. From 1999-2000 to 2022-2023 (23 years), electricity generation from Rajghat Power House is 20808.37 lakh units. The electricity generation during 2023-24 (upto 31.12.2023) is 1,059.49 lakh units. The completion cost of Rajghat Dam is Rs 300.60 crore at 2000 price level. The expenditure on dam is being booked in O&M head since October, 2005 as per decision taken in the meeting held on 02.02.2006 under the chairmanship of Secretary, MoWR. The State of U.P. has paid Rs 223.60 crore and M.P. has paid Rs 140.99 crore against their due share up to December, 2023.

7.3.9 TUNGABHADRA BOARD

Tungabhadra Board was constituted by the President of India in exercise of the powers vested under sub section (4), section 66 of Andhra State Act 1953 for completion of the Tungabhadra project and for its operation and maintenance. The Board consists of a Chairman, appointed by the Government of India, and four members, one each representing the States of Andhra Pradesh, Telangana, Karnataka and Government of India.

The Government of Andhra Pradesh and the Government of Karnataka provide funds in agreed proportions and also depute staff to man the various specified posts as per the agreed ratio.

Physical and Financial achievements and new initiatives

i) Irrigation Wing

The Tungabhadra Reservoir has filled up to the level of 496.427 m (1628.70 ft) only against the full reservoir level of 497.748 m (1633.00 ft) in this year. The inflow into the reservoir from June 2023 to 31st March 2024 is 3245.126 Million Cubic Meters (114.604 TMC). The utilization by States of Karnataka, Andhra Pradesh & Telangana till 31st March 2024 during the water year 2023-24 is as per the table below;

Sl. No.	Name of the State	Allocation as per KWDT Award (TMC)	Prorata Entitlement on Abstraction (TMC)	Actual Utilization in TMC (As on 31.03.2024)	Actual Utilization in M Cum (As on 31.03.2024)
1.	Karnataka	138.99	70.806	70.583	1,998.628
2.	Andhra Pradesh	66.50	33.877	33.517	949.067
3.	Telangana	6.51	3.316	3.316	93.895
	Total	212.000	108.000	107.416	3,041.590

TMC: Thousand Million Cubic Feet; 1 Million Cubic Meters is equivalent to 35,314,666.7 Cubic Feet

The water surplus over spill way & water drawn for extra power generation by the power houses on both sides are Nil during the water year 2023-24.

- Due to completion of modernization of RBHLC from km 0.00 to 105.00 (except Canal Cross drainage works (UT, Aqueduct & Super passage), The Modernization works for the leftover reaches from Km 0 to 40 along with CM & CD repair works (UT & Aqueducts) are proposed for the year 2023-24 and the works are in progress. Due to modernization the velocity of water flow in the canal has improved substantially and the canal is now able to draw the designed discharge of 4,000 cusecs (against earlier discharge of 3,200 cusecs) at its head and has delivered a discharge of 2,350 cusecs already and is capable of carrying the design discharge of 2,575 cusecs at Andhra Pradesh border (against earlier discharge of 1,500 cusecs) subject to readiness of canal from Andhra Pradesh side.
- Completion of modernization of power canal and modernization of RBLLC (old unlined canal) upto 115 km (out of 250 km) and partial modernization of RBLLC from km 115 to km 205 have resulted in realization of water around 1,100 cusecs at km 133 (against earlier realization of 750 cusecs) and around 600 cusecs (average) at km 250 i.e., AP border against earlier realization of 400 cusecs (average) and for some period the discharge even has crossed 700 cusecs. Further, modernization works for the balance reach from km 205.450 to km 250.580 of RBLLC will be taken up during 2024-25 closure period.
- Transparency in Water Accounting and Measurement:** Canal flow measurement with modern Telemetry system has been implemented in all the canals of TB Project which has helped in propagating awareness among the farmer community about the over

usage and misuse of canal water.

Installation of Telemetry system to all the canals of TB Project has been commissioned and Hourly live flow data of TB Project canals is being displayed on the website tbbliveflow.com and daily status of TB Reservoir & other details are being displayed on the website www.tbboard.gov.in for the information of the Member States, general public and farmer community.

- **Dam Rehabilitation and Improvement Project works (i.e., under DRIP-II) for Tungabhadra Dam – Inspection by DSRP Team & World Bank Team:**

Tungabhadra dam was included in the DRIP-II. As there were some differences in the procedure for execution of work & accountability under the supervision of TB Board, the Board in its 218th meeting held on 26.05.2022 decided to take up the right side dam safety works of Tungabhadra dam with its own funds on the similar lines of modernization works taken up for TB Board canals viz., RB HLC, Power Canal & RB LLC and the works are in progress.

- Erection of Wave deflectors to avoid the overtopping of water over the Gates as per the recommendations of Dam Safety Review Panel (DSRP); As per the direction of the Board,

erection of wave deflectors to height of "one feet" is taken up to avoid the overtopping of water over the Gates as per the recommendations of Dam Safety Review Panel (DSRP).

- **Restoration of Damaged Hagari Aqueduct at the peak season;**

Hagari Aqueduct was constructed at km 121/000 of RBLLC across the Hagari (Vedavathi) river with a span of 700m in the year 1953. The time-tested structure, which plays a vital role in supply of water to the ayacut of about 3 lakhs acres was undergone for distortion by heavy flood of 1,00,000 cusecs in the Hagari river. Immediately temporary supports were given to the Aqueduct structure and meanwhile toiling day and night, engineers and officials of the Board, based on the suggestions of the experts, carried out permanent restoration work and restored the supply of water to the ayacut in time and saved the invaluable standing crops. The value of the standing crops may be around few hundreds of Crores of rupees.

- **Hydro Electric Scheme**

Two power houses are being maintained by the Tungabhadra Board with a total installed capacity of 72 MW and a target of 160 million units of power generation is envisaged during the year 2023-24. The power generated for the year

2023-24 is 96.3 million units. The power generated is shared between the States of Karnataka and Andhra Pradesh in the ratio of 20:80.

A mini hydel plant at the head of Right Bank High Level Canal of the Tungabhadra Project under Build, Operate, Own and Transfer (BOOT) system through an independent power producer has been commissioned on 27.10.2004. The mini hydel plant comprising 3 units of 2.75 MW each generated 8.3 million units for the year 2023-24. The power generated is purchased by the transmission corporations of Karnataka and Andhra Pradesh in the agreed ratio of 20:80.

One more new mini hydel plant was implemented at the head of Rayabasavanna canal of Tungabhadra Project under BOOT system through an independent power producer. The project construction was started in September 2012 and commissioned in record time of 11 months, i.e., on 31.08.2013. The total project capital cost is Rs.11.50 crore. The mini hydel plant comprising single unit of 1.4 MW has generated 3.29 million units for the year 2023-24. The power generated is purchased by GESCOM, Gulbarga (Karnataka) at the rate of Rs. 2.80 per unit.

Capital Overhauling works for the

Unit-3 and 4 were completed successfully after 60 years of their service and Unit-1 work was started during December-2023 and the same is under progress.

- **Fisheries Wing**

Fisheries Wing consists of four units viz., Fish Farm Unit (FFU), Reservoir Unit (RU), Ice-cum-Cold Storage Plant & Aquarium Unit. Every year revenue is being generated from the Fisheries Wing on account of Fish Farm, Ice Plant and leasing of fishing rights in the TB Reservoir. From June 2022 onwards Fisheries Wing has been leased on PPP Model to the private Agencies for a period of 5 years. The gross earning from Fisheries Wing upto March, 2024 is Rs.266.63 Lakhs.

7.3.10 POLAVARAM PROJECT AUTHORITY (PPA)

Polavaram Irrigation Project (PIP) is a multi-purpose irrigation project which is on the river Godavari near Ramayyapeta village of Polavaram mandal, about 42 km upstream of Sir Arthur Cotton Barrage, where river emerges out of last range of the Eastern Ghats and enters the plains in West Godavari District of Andhra Pradesh State. It envisages construction of a dam to create ultimate irrigation potential. The project also envisages generation of 960 MW of hydropower, 23.44 TMC for water supply to industries and drinking water to 28.50 lakh population & Visakhapatnam, sharing of 5

TMC and 1.5 TMC of water from reservoir rim with Odisha and Chhattisgarh respectively, stabilization in Godavari delta including 8 TMC for Samarlakota Branch Canal and diversion of 80 TMC of water to Krishna river basin as per GWDT Award.

The project has been declared as a national project as per section 90 of Andhra Pradesh Reorganisation Act, 2014. Central Government is funding 100% of the remaining cost of the irrigation component only of the project for the period starting from 01.04.2014. Government of Andhra Pradesh is executing the irrigation component of the project on behalf of Government of India. The power component of the project is being executed by APGENCO.

In pursuance of the Andhra Pradesh Reorganization Act, 2014, the Central Government constituted a Governing Body for Polavaram Project Authority vide the Ministry of Water Resources Notification dated 28th May, 2014. The Authority is playing an important role in executing the project in guiding WRD in all important aspects of the project execution such as designs, monitoring of the progress, quality control, land acquisition & rehabilitation (LA and R&R) of the project affected people etc. M/s WAPCOS Limited has been engaged for project monitoring & coordination consultancy services and CSMRS, New Delhi as quality consultant.

Estimated Cost of the Project:

The 2nd Revised Cost Estimate (2nd

RCE) at 2017-18 PL was examined in CWC and was accepted by Advisory Committee of DoWR, RD & GR in its 141st meeting held on 11.02.2019 for an amount of Rs. 55,548.87 crores.

Subsequent to the acceptance of Advisory Committee of DoWR, RD&GR, a Revised Cost Committee (RCC) was formed under the chairmanship of JS & FA of DoWR, RD & GR on 02.04.2019 to examine the cost escalation of Polavaram Irrigation Project. The committee, in its report submitted to DOWR, RD & GR on 17.03.2020, recommended the 2nd RCE as Rs. 47,725.74 crores at 2017-18 PL.

Further, As per MoF OM No-10(04)PFC-1/2023 dated 05.06.2023, department of expenditure, Ministry of Finance conveyed that it has no objection to additional funding for completing the balance work of Polavaram Irrigation Project for filling of water up to 41.15 meters amounting to Rs.10,911.15 crore and Rs.2,000 crore for cost of repairing damages caused to Polavaram Irrigation Project by flood being considered by the Gol, subject to the approval of the Cabinet, by modifying the earlier Cabinet decision.

The revised cost estimate was submitted by GoAP for Phase-I of the Project on 05.06.2023, it was examined by CWC and forwarded to MoJS on 13.10.2023. A Revised Cost Committee (RCC) was formed under the chairmanship of JS & FA of DoWR, RD & GR on 19.10.2023 to examine the revised cost estimate for

Phase- I of Polavaram Irrigation Project and committee submitted its report on 16.02.2024

Status of Land Acquisition and Resettlement & Rehabilitation

373 habitations of 222 revenue villages in 8 mandals are in submergence area and working area in ASR district (erstwhile East Godavari) and Eluru District (erstwhile West Godavari) in Andhra Pradesh. Out of these, 165 revenue villages in 5 mandals (Chinturu, VRPuram, Yetapaka, Kunavaram & Devipatnam) are

in ASR District and 57 revenue villages in 3 mandals (Polavaram, Kukunoor & Velairpadu) are in Eluru District.

As per 141st meeting of Advisory Committee (2nd RCE), excluding Government and forest land, about 1,55,464.88 acres of land are to be acquired for the Polavaram Irrigation Project, of which the RCC in its report of March 2020 has recommended as 1,27,262.79 acres. Out of 1,27,262.79 acres, an extent of 1,13,124.17 acres has been acquired till 15th March 24 and a balance of 14,138.62 acres of land is to be acquired.

DETAILS OF REHABILITATION & RESETTLEMENT				
Sl. No.	Item	upto EL+41.15m	above EL+41.15m	Total
		(Phase -1)	(Phase -2)	
1	Mandal Affected	6	2	8
2	Revenue Villages Affected	54	168	222
3	Habitations Affected	123	250	373
4	Habitations Shifted	38	0	38
5	Balance Habitations	85	250	335
6	Total R&R Colonies	75	138	213
7	R&R Colonies Completed	26	0	26
8	Balance R&R Colonies	49	138	187
9	Total PDFs	20,946	85,060	1,06,006
10	No. of PDFs Shifted	12,797	0	12,797
11	Balance PDFs to be shifted	8,149	85,060	93,209

R&R : Resettlement and Rehabilitation; PDF: project-displaced families; EL: Elevation of Intersection

Physical and Financial Achievements:

The project is in an advanced stage of construction. The physical and financial

progress of Polavaram Irrigation Project as submitted by Water Resources Department, Government of Andhra Pradesh upto February, 2024 is as follows:

Sl. No.	Description	% of Physical progress (upto Feb, 2024)
1	Earthwork	87.79
2	Concrete	81.90
3	Structures	75.87

Sl. No	Description	% of financial progress (upto Feb, 2024)
1	Head works	70.91
2	Right main canal	92.75
3	Left main canal	72.84
4	Total Project (Works)	74.60
5	LA and R&R	22.47
Overall Project Works + LA and R&R)		49.74

Expenditure on the project:

Expenditure of Rs. 21,434.79 crore (Rs 21,257.50 cr for PIP + Rs 177.29 cr for PPA) has been incurred on the project since inception till February 2024. An expenditure of Rs. 4,730.71 crore was incurred before declaration of National Project, i.e., before 01.04.2014.

Funds released / reimbursement by Central Government:

Central Assistance of Rs. 562.47 crore was provided to the State under AIBP till March, 2014. Central Government will provide 100% of the remaining cost of the irrigation component only of the project

for the period starting from 01.04.2014 to the extent of the cost of the irrigation component on that date. An eligible amount of Rs. 15,146.27 crore has been released by Govt. of India so far for execution of project after declaration of project as national project including the expenditure towards establishment charges of PPA.

7.3.11 KRISHNA AND GODAVARI RIVER MANAGEMENT BOARDS (KRMB & GRMB)

APEX COUNCIL

In exercise of the powers conferred by sub-section (1) of section 84 of the Andhra Pradesh Reorganisation Act, 2014 (Act 6 of 2014), the Central Government constituted the Apex Council for supervision of the functioning of the Godavari River Management Board and Krishna River Management Board vide Gazette Notification dated 29th May, 2014, consisting of:

- Minister of Water Resources, River Development and Ganga Rejuvenation, (now, renamed as Minister of Jal Shakti), Government of India – Chairman;
- Chief Minister of the State of Andhra Pradesh – Member; and
- Chief Minister of the State of Telangana – Member.

Two meetings of the Apex Council have been held so far. The 1st meeting was held on 21.09.2016. The 2nd meeting was

held on 06.10.2020. Following decisions were taken in the 2nd meeting.

- Jurisdiction of GRMB: It was decided to notify the jurisdiction of GRMB.
- Both the States agreed for setting up of Godavari Tribunal for adjudicating on the sharing of the waters of Godavari between AP and Telangana. Hon'ble Union Minister requested both the States to send their proposal for the same. He assured that Ministry will take a positive decision in this regard. Hon'ble CM of Telangana stated that he would send the request immediately for constituting a Tribunal.
- Submission of New Project DPRs: It was decided that both the States of Andhra Pradesh and Telangana should submit the DPRs of their new projects to GRMB for appraisal and subsequent sanctions by Apex Council.

Five Projects of Telangana, namely, Chanaka-Korata (Rudha) Barrage (5,466 Ha), Choutapally Hanmanth Reddy LIS (3,359 Ha), Chinna Kaleshwaram LIS (18,211 Ha), Modikuntavagu Medium Irrigation Project (5,500 Ha of CCA), Kaddem-Gudem LIS (12,141 Ha) have been accepted by the Advisory Committee of Department of Water Resources, River Development & Ganga Rejuvenation. Government of Andhra Pradesh has been

requested to put up the DPRs as per CWC Guidelines.

KRISHNA RIVER MANAGEMENT BOARD (KRMB)

The KRMB was constituted vide Gazette Notification No: S.O.1391 (E) dated: 28th May, 2014 in accordance with sub-sections (1), (4) and (5) of section 85 of the Andhra Pradesh Reorganisation Act, 2014.

Subsequent to formation of the Board, various issues related with the functioning of the Board as mandated in the Andhra Pradesh Reorganisation Act, 2014 were discussed in meetings with the senior officers of the States of Telangana and Andhra Pradesh. To sort out the issues raised by the State Governments, regular meetings were held at technical level as well as Board level. The jurisdiction of KRMB has been notified by MoJS, DOWR, RD & GR by Gazette Notification S.O. 2842(E) dated: 15.07.2021. Subsequently, the amendment to clauses 1(l), 2(f) and 2(g) was notified by Gazette Notification S.O. 1563 (E) dated 01.04.2022. The Gazette Notification S.O. 2842(E) dated 15.07.2021 was further amended by Gazette Notification S.O. 3511(E) dated 27.07.2022.

Besides various technical meetings, the 17th Board meeting was held on 10.05.2023. Various issues related to Administration, Finance, Regulation of Krishna water etc. were discussed during the meeting.

Ministry of Water Resources, River Development & Ganga Rejuvenation has constituted a Committee vide their order No. R-12011/7/2/2016-Pen Riv dated: 05.10.2018 under Chairmanship of Chairman, KRMB to ensure supply of Krishna water to augment the drinking water supply to Chennai city. The meetings of the Committee are held regularly every year.

GODAVARI RIVER MANAGEMENT BOARD (GRMB)

The GRMB was constituted vide Gazette Notification No: S.O.1403 (E) dated 28th May, 2014 in accordance with section 85 of the Andhra Pradesh Reorganisation Act, 2014. Subsequent to formation of the Board, various issues related with the functioning of the Board as mandated in the Andhra Pradesh Reorganisation Act, 2014 were discussed in meetings with the senior officers of the States of Telangana and Andhra Pradesh. To sort out the issue raised by the State Governments, regular meetings were held at Board level. So far 15 meetings have been held with 15th meeting held on 01.03.2024.

During 2023-24, dialogues have been established with two State Governments and all inter State issues were resolved at the Board level itself requiring no intervention by the Ministry and/or Apex Council. The 15th Meeting of Board was held on 01.03.2024 under Chairmanship of Chairperson, GRMB at Hyderabad on Administrative, Financial

and Technical issues. The revised Secretariat organization strength was got approved and the State Governments were requested to depute their Engineers as per the revised Organization Chart. The State Government of Andhra Pradesh assured to submit the DPRs as per CWC Guidelines by May 2024.

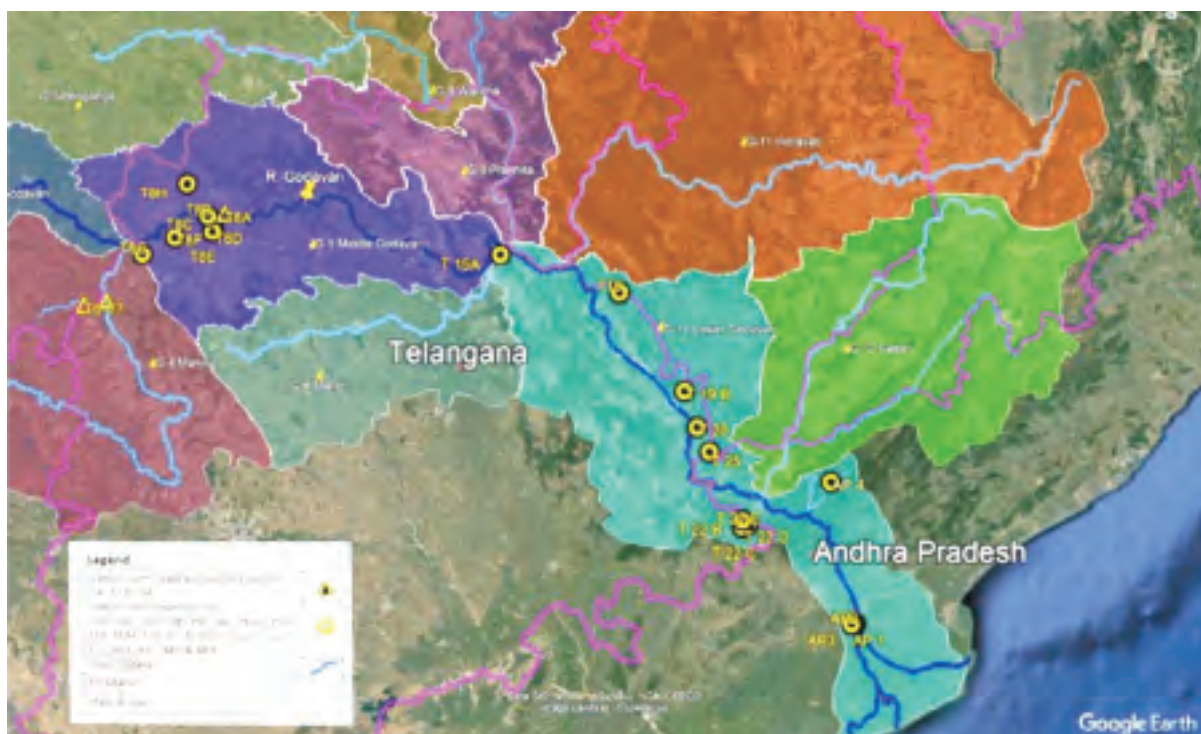
On the request of GRMB, a study of water availability and water allocated to erstwhile State of Andhra Pradesh as per the Award of Godavari Water Disputes Tribunal was done by Central Water Commission, on which GRMB is evolving consensus in consultation with the States of Andhra Pradesh and Telangana. The issue of rehabilitation and modernization of Peddavagu Project was handled through unpacking of political ideology. Initially the entire work was estimated to cost Rs. 180 Crores for which the consent of the State Governments was not forthcoming. Subsequently, the entire works was trifurcated into (i) Rehabilitation of Head works, which had got damaged during flood season of 2021, (ii) Modernization of Command area in Telangana, (iii) Modernisation of command area in Andhra Pradesh. This made the Rehabilitation of Head Works of Peddavagu Project into manageable level, for which Telangana was persuaded to undertake, and got completed averting the disastrous scenario during the monsoon season.

The GRMB Board in its 7th meeting decided to install Telemetry Stations in Godavari River Basin initially at all inter

State Border points, which may assist in quantification and estimation of water flowing in the States of Andhra Pradesh and Telangana. In the 9th meeting, a Telemetry Committee under the Chairmanship of Member, GRMB was constituted vide letter dated 17.06.2021. The Committee under the Chairmanship of Member, GRMB, along with the officers from States of AP; TS; CWC, Hyderabad and CWPRS, Pune visited all the locations and accordingly identified total 23 locations, with 3 Nos. of level and velocity sensors and 20 Nos for installing only level sensors initially at interstate borders of AP & TS. In addition, telemetry stations at two Projects were recommended by the Advisory Committee.

Due to paucity of funds and to ensure integration with the telemetry system under NHP, the Governments of Telangana and Andhra Pradesh were asked to install Telemetry Stations in their respective States as recommended by the Telemetry Committee in their respective jurisdictions. Out of total 25 stations, 16 stations have been installed and six stations are under commissioning with three stations being proposed for deletion due to local constraints.

In order to improve organizational efficiency, Aadhar based Biometric Attendance System and e-office system in



Index Map of Proposed Telemetry Stations in Godavari basin

GRMB Secretariat got established through NIC. Similarly, GRMB website has been revamped through NIC and launched. The State Governments have been requested to evolve a system of water accounting in Godavari River basin in their respective States, which can facilitate regulations of Godavari river waters and establish their prescriptive rights over utilisation of Godavari River waters.

Even though section 86(2) of the Andhra Pradesh Reorganisation Act, 2014 stipulate that Governments of Andhra Pradesh and Telangana shall at all times provide the necessary funds to GRMB to meet all the expenses required for the discharge of its functions, the State Governments have been found trawanting. Secretary (WR, RD & GR) has taken up the matter with the Chief Secretaries for release of funds to fulfil the statutory obligations of the State Governments.

7.3.12 CAUVERY WATER MANAGEMENT AUTHORITY (CWMA)

The Central Government in exercise of the powers conferred by section 4 of the Inter-State River Water Disputes Act, 1956 (33 of 1956) constituted the Cauvery Water Disputes Tribunal vide notification no. S.O. 437 (E) dated the 2nd June, 1990 to adjudicate upon the water disputes regarding the inter-state river Cauvery and the river valley thereof, among the States of Karnataka, Kerala, Tamil Nadu and Union Territory of Puducherry.

The Cauvery Water Disputes Tribunal submitted its reports and decision under section 5 (2) of Inter-State River Water Disputes Act, 1956 to Government on 5th February, 2007. The decision of CWDT was published by the Central Govt. vide Gazette Notification dated 19.02.2013. Supreme Court, in its judgement dated 16.02.2018, slightly modified CWDT's Order. Hon'ble Supreme Court also directed Central Government to formulate a 'scheme' to implement the CWDT's Order as modified by it. Thereafter, in exercise of the powers conferred by section 6A of the said Act, the Central Government notified the Cauvery Water Management Scheme on 01st June, 2018, inter alia, constituting the 'Cauvery Water Management Authority' (CWMA) and the 'Cauvery Water Regulation Committee' (CWRC) to give effect to the decision of the Cauvery Water Disputes Tribunal as modified by the Hon'ble Supreme Court on 16.02.2018.

The Authority comprises one Chairman, two whole time Members, two-part time Members, four-part time Members from Party States - Kerala, Karnataka, Tamil Nadu and Union territory of Puducherry. The Head Quarter of the Authority is at New Delhi.

The Authority exercises such power and shall discharge such duty to do any or all things necessary, sufficient and expedient for securing compliance and implementation of the Award of the Tribunal as modified by the Hon'ble

Supreme Court vide Order dated the 16th February, 2018 including:

- storage, apportionment, regulation and control of Cauvery waters;
- supervision of operation of reservoirs and with regulation of water releases with the assistance of Regulation Committee;
- regulated release by Karnataka, at the inter-State contact point presently identified as Billigundulu gauge and discharge station, located on the common border of Karnataka and Tamil Nadu.

7.3.13 NATIONAL DAM SAFETY AUTHORITY (NDSA)

Ministry of Jal Shakti Govt. of India vide gazette notification dated 17.02.2022 constituted National Dam Safety Authority (NDSA) with its headquarters at New Delhi. NDSA is headed by the Chairman assisted by 5 Members viz. Member (Technical), Member (Policy and Research), Member (Regulation), Member (Disaster and Resilience) and Member (Administration and Finance). Posts of Members of NDSA are currently being held by the officers of CWC and DoWR, RD & GR on an additional charge basis. NDSA has four regional offices ((North, East & North East, West and South) headed by the Director level officers of CWC on additional charge basis.

After enactment of the Dam Safety Act, Central Government, vide gazette notification dated 17.02.2022 also

constituted the National Committee on Dam Safety (NCDS) to evolve dam safety policies and recommend necessary regulations as may be required. NDSA acts as a regulatory authority to implement the policy, guidelines and standards evolved by the NCDS for proper surveillance, inspection and maintenance of specified dams.

As per National Register of Large (Specified) Dams (NRLD-2023), India has 6281 specified dams, out of which, 6138 dams are operational and 143 dams are under construction. Maharashtra has the largest number of specified dams (2333) followed by Madhya Pradesh (1354), Gujarat (487), Chhattisgarh (349), Rajasthan (304), Karnataka (231), Odisha (210), etc. The responsibility for safety of dams, including its operation and maintenance, rests primarily with dam owners which are mostly the State Governments, Central/State PSUs/ Private Units. As per the Dam Safety Act 2021, Dam owners need to carry out regular pre and post monsoon inspection of the dams in their jurisdiction.

Actions taken by NDSA during FY 2023-24:

As per the Dam Safety Act 2021, Dam owners need to carry out regular pre and post monsoon inspection of the dams in their jurisdiction. These inspections are to be carried out as per the inspection guidelines published by the Central Water Commission and shared with the States.

Based upon the inspection report, the dams are categorized in category- I, II or III. Depending upon the category of the dam, suitable remedial measures are taken by the dam owners in a time bound manner. As per the data reported by the SDSOs for the year 2023-24, a total number of 6414 pre-monsoon and 5858 post-monsoon inspections have been carried out as on 28.03.2024. During the FY 2023-24, 37 dams were brought from Category- II to Category-III while additional 65 dams were reported in Category- II by the SDSOs

- As per section 54(1) of the Dam Safety Act 2021, the National Dam Safety Authority on the recommendations of the National Committee, has to frame 19 regulations. Out of these 19 regulations, 17 regulations have been approved by the National Committee on Dam Safety (NCDS). Out of these 17 regulations, 6

regulations have been published in the official gazette.

- NDSA officials attended a training program on In-situ application of the Rapid Risk Assessment tool organised at Ukai dam, Bhakra Dam, and Ichari dam sites during March 4-15, 2024.
- 47 dams (38 Commissioned and 9 under construction dams) were identified which are likely to be affected by Glacial Lake Outburst Flood (GLOF) event. All Dam owners were directed to submit the GLOF studies and to carry out spillway capacity. Till March 2024, the information has been received in respect of 28 dams which was analysed from GLOF considerations and the reports were shared with all the stakeholders.
- NDSA examined the beta version of DHARMA (Dam Health And



Demonstration of Rapid Risk Assessment tools at Ukai Dam, Gujarat

Rehabilitation Monitoring Application) and suggested changes for its upgradation with respect to



stipulation of Dam Safety Act 2021. NDSA filled the project portfolio data of all specified dams in mission mode.

- Ministry of Jal Shakti through NDSA and CWC, organized outreach program at the 25 iconic dam sites across the Country with community

participation under "Azadi Ka Amrit Mahotsav (AKAM)" for promoting Dam Tourism.



AKAM event organized at Bichom Dam, Arunachal Pradesh



AKAM event organized at Bakhra Dam, Himachal Pradesh

- NDSA carrying out ranking on studies of all the SDSOs on the basis of the dam safety activities carried out by them for implementation of various provisions of the Dam Safety Act 2021.
- NDSA organised a logo design competition for NDSA logo on mygov portal during 15 January 2024 -14 February 2024. Recommended entries forwarded by mygov portal were scrutinised by the Committee formed for this purpose.
- MoU was signed on 22nd May 2023 between Malviya National Institute of Technology (MNIT), Jaipur and National Dam Safety Authority (NDSA) to establish the National Centre for Earthquake Safety of Dams.



MoU signing ceremony for establishment of National Centre for Earthquake Safety of dams at MNIT Jaipur



Chapter 8

Public Sector Enterprises



8. Public Sector Enterprises

8.1 WATER AND POWER CONSULTANCY SERVICES LIMITED (WAPCOS)

WAPCOS Limited is a "MINIRATNA-I" Public Sector Enterprise under the aegis of the DoWR, RD & GR, Ministry of Jal Shakti incorporated on June 26, 1969 under the Companies Act, 1956. WAPCOS is engaged in the engineering consultancy services and construction in the fields of water, power and infrastructure sectors in India and overseas. WAPCOS is providing engineering consultancy services to various clients since its incorporation in over fifty countries particularly in South Asia and across Africa. WAPCOS has the requisite experience and expertise to undertake consultancy & EPC (Engineering, Procurement and Construction) projects of any scale and complexity in the sectors of its operations. WAPCOS portfolio of projects is diverse in nature. The Company has implemented a comprehensive quality management system in compliance with the requirements of both **ISO 9001: 2015** for consultancy services in water resources, power and infrastructure development projects as well as **ISO 9001: 2015** for engineering, procurement and

construction projects related to residential, office buildings, civil works, roads and highways, irrigation, agriculture and water projects, electrical power projects for generation, substation, transmission, distribution networks, rural electrification and renewable energy, industrial, IT, telecommunications and related projects.

FIELDS OF SPECIALIZATION

- Irrigation, Drainage and Water Management
- Ground Water Exploration and Minor Irrigation
- Flood Control and River Morphology
- Watershed Management
- Dams and Reservoir Engineering
- River Basin Planning
- Hydropower, Thermal Power
- Renewable energy development such as solar and wind
- Water Supply, Sanitation and Drainage
- Ports, Harbours and Inland Waterways
- Urban and Rural Areas development

- Roads, Railways and Highway
- Buildings & Townships Ropeways

WAPCOS provides a range of services from 'concept-to-commissioning' and beyond to various projects in water, power and infrastructure sectors by leveraging its diverse experience, core competencies and using the latest technologies available at its disposal. Over the years, WAPCOS has developed the expertise for servicing the clients at each stage of project development cycle. WAPCOS services for any given project include any one or a combination of (i) preliminary investigations and reconnaissance; (ii) feasibility studies, planning and project formulation; (iii) field surveys and testing; (iv) design engineering; (v) baseline and socio-economic surveys; (vi) tender engineering; (vii) institutional and human resource development; (viii) project management and construction supervision; (ix) operation and maintenance; (x) engineering procurement consultancy, turnkey and deposit works; and (xi) other consulting services.

The activities of WAPCOS include survey & investigation/pre-feasibility/DPRs for more than 550 projects in irrigation, water resources & agricultural sector contributing to development of over 17 million ha irrigation potential; more than 200 projects in ports & inland navigation; over 500 projects in water supply & sanitation,

rural & urban development, roads & highway engineering; EIAs for over 300 projects in the field of irrigation, hydro/thermal power, ports & harbours in India and abroad. Similarly, in hydro-power sector; WAPCOS has provided consultancy and EPC services for almost 60 hydro-power projects in 19 countries with an installed capacity of more than 9,500 MW; over 107 hydro-power projects in India with an installed capacity of more than 22,500 MW. In Thermal Power, the Company has successfully provided engineering consultancy services for 10 overseas projects with capacity of around 6,100 MW and 19 projects in India with capacity of about 15,000 MW.

ASSOCIATION WITH INTERNATIONAL ORGANIZATIONS

WAPCOS is associated with several development projects funded by multilateral funding agencies like World Bank, Asian Development Bank, African Development Bank, Japan Bank for International Cooperation, United Nations Office for Project Services, French Development Agency and German Development Bank, Asian Infrastructure Investment Bank, European Investment Bank and European Bank for Reconstruction and Development. It is also associated with key development projects as part of the bilateral funding initiative of the GoI to various countries such as Afghanistan, Bhutan, Cambodia, Nepal, Ghana and Tanzania, amongst others.

WAPCOS OPERATIONS

WAPCOS has provided engineering consultancy services to its clients in over fifty (50) countries. WAPCOS has developed global presence, particularly in South Asia and across Africa, in areas of water, power and infrastructure sectors by undertaking engineering consultancy services for various development projects. Wide presence and assignments undertaken overseas demonstrate its global experience and expertise over the years. Presently, WAPCOS is undertaking projects in 33 countries, viz., Afghanistan, Bangladesh, Belize, Bhutan, Botswana, Burundi, Cambodia, Cuba, Central African Republic, DR Congo, Eswatini, Ethiopia, Fiji Islands, Ghana, Gambia, Indonesia, Liberia, Lao PDR, Mozambique, Myanmar, Mongolia, Nicaragua, Niger, Nepal, Rwanda, Sri Lanka, Suriname, Sierra Leone, Tanzania, Togo, Uganda, Vietnam and Zimbabwe.

WAPCOS operates in all the States of India through more than 100 project offices spanning across the country, with the distinction of having involved in major schemes of Government of India.

CORPORATE SOCIAL RESPONSIBILITY

WAPCOS undertakes CSR activities in diverse fields in different States of India, as specified under Schedule VII of the Companies Act, 2013 and guidelines issued by Department of Public Enterprises, Government of India, from time to time.

CSR activities undertaken during the year covered healthcare & nutrition, school education, environmental sustainability sectors, socio-economic development of underprivileged members of society and contribution to PM CARES Fund.

8.2 NATIONAL PROJECTS CONSTRUCTION CORPORATION LIMITED (NPCC)

National Projects Construction Corporation Limited (NPCC) was established on 9th January, 1957 as a premier construction company to create the necessary infrastructure for economic development of the country. NPCC Limited is a mini ratna (Category-I) and ISO 9001:2015 accredited Public Sector Enterprise under the aegis of the Ministry of Jal Shakti and is well established in the country with its registered office at New Delhi, corporate office at Gurugram and 12 zonal offices in capitals of different States.

FIELDS OF SPECIALIZATION

- Townships and other residential buildings,
- Institutional buildings,
- Office complexes,
- Roads, bridges and flyovers,
- Hospitals and health sector projects,
- Industrial structures,
- Surface transport projects,

- Environmental projects,
- Heritage projects,
- Thermal power projects,
- Hydro-electric power projects,
- Dams, barrages & canals, and
- Tunnels and underground projects

MAJOR WORKS COMPLETED:

- Construction of Border Out-Post (BOP) Ramkrishna Shyam, BOP Drona, BOP Shaket & BOP Sagarmatha in West Bengal and BOP Sachindraraajapara & BOP Grehchandpara in Tripura for Ministry of Home Affairs (MHA).
- Different works of Regional Institute for National Institute of Electronics & Information Technology (NIELIT) at Senapati in Manipur.
- Construction of Phase-B Works at JNV East Siang and JNV West Kameng under Navodaya Vidyalaya Samiti (NVS) in Arunachal Pradesh.
- Construction of Assam Type Women's Hostel at North Eastern Regional Institute of Water and Land Management (NERIWALM) at Tezpur in Assam.
- Construction of Officer Mess (G+1) in 01 Block with allied services and development works at Shangshak (Manipur), 03 Nos. Single Men Barrack (G+II) in 1 block and 01 Nos. Single Men Barrack (G) in 1 block at Somsai (Manipur),

Technical Accommodation (G+I) at Keithalmanbi (Manipur), 1 Nos. Community Hall / Dining Hall & 2 Nos. Single Men Barrack (G+1) in 1 block at Dimapur in Nagaland under Assam Rifles.

- Construction of School Building, Staff Quarters, Boundary Wall and other facilities in schools at Kurud & Kawardha in Chhattisgarh, Samalkha (Haryana), Tivri (Rajasthan) and Kadrimidri (Karnataka) under Kendriya Vidyalaya Sangathan (KVS).



Construction & Development of Kendriya Vidyalaya at Chanderi, Madhya Pradesh

- Construction of Arts & Social Science Building, Law, Commercial Building, first floor of Information Technology (IT) workshop, Education building at Guru Ghasidas University (GGU) at Bilaspur (Chhattisgarh).
- Construction of Eklavya Model Residential School (EMRS) and Eklavya Model Day Boarding Schools (EMDBS) at Noamundi,

Tantnagar, Garu, Barwadih, Bansjore, Pakartanr in Jharkhand.

- Improvement of Shankarpur Fishing Harbour at Purba Medinipur (West Bengal).



Construction & Improvement of Shankarpur Fishing Harbour, Purba Medinipur district, West Bengal

- Construction of Office Building of Upper Yamuna River Board, at Plot No. C-56/3, Sector-62, Noida (Uttar Pradesh).
- Repair Renovation of Body Dissection Room in Sharir Rachna Department; furniture and interior works of Guest House Building for National Institute of Ayurveda (NIA) at Jaipur (Rajasthan) under Ministry of AYUSH.
- Construction of Veterinary Dispensaries and Polyclinics in Karnataka under Rural Infrastructure Development Fund (RIDF)-24 scheme, Phase-1 & Construction of Veterinary Dispensaries under RIDF-25 scheme, Phase-2 for Department of Animal Husbandry, Bengaluru (Karnataka).
- Construction and Renovation of Gautam Buddha Sanskruti Bhawan at Jajpur (Odisha) under DMF Jajpur.
- Construction of EMRS at Bangiriposi, Bhalda and Karanjia of Mayurbhanj District and EMRS Teleibani of Deogarh district, Odisha
- Improvement, widening and strengthening of roads at Hemgir block of Sundargarh District under DMF Sundargarh (Odisha).
- Renovation & Upgradation of Government fish farm at various locations under Directorate of Fisheries (Odisha).
- Construction of Upgraded (+2) colleges, SC hostels, ST hostels, Upgraded High Schools, Post-Matric hostels, Staff quarters etc. for ST &

SC Development Commission under Government of Odisha at various locations in Odisha.

- Construction of 8 Drug Warehouses in Raebareli, Sitapur, Barabanki, Gonda, Shahjahanpur, Saharanpur, Meerut, Baghpat district in Uttar Pradesh under National Health Mission.
- Development of Software Technology Parks of India

Infrastructure at Agra, Uttar Pradesh.

MAJOR WORKS UNDER EXECUTION:

- Construction of Eklavya Model Residential School (EMRS) and Eklavya Model Day Boarding Schools (EMDBS) at various locations in Gujarat, Jharkhand, Chhattisgarh, Madhya Pradesh, Uttarakhand and Union Territory of Ladakh.



Construction of EMRS at Barwadih in Latehar district, Jharkhand

- Construction of Kendriya Vidyalaya Sangathan (KVS) schools in various locations in Chhattisgarh, West Bengal, Madhya Pradesh, Arunachal Pradesh, Manipur, Rajasthan, Haryana, Punjab, Himachal Pradesh, Union Territory of Jammu & Kashmir, Telangana, Andhra Pradesh, Odisha, Kerala, Karnataka, Uttar Pradesh, Uttarakhand and Maharashtra.
- Construction of various buildings under Pradhan Mantri Awas Yojana (PMAY) for Jharkhand Urban Infrastructure Development Company (JUIDCO) at various locations in Jharkhand.



Construction & Development of Kendriya Vidyalaya School at Nileshtar (Kerala)

- Construction of All India Institute of Ayurveda (AIIA) building at Sarita Vihar (New Delhi), National Research Institute of Ayurvedic Drug Development (NRIADD) building at Kolkata (West Bengal) and National Institute of Ayurveda (NIA) building works at Jaipur (Rajasthan) under Ministry of AYUSH.
- Navodaya Vidyalaya Samiti (NVS) works at various locations in Madhya Pradesh, Arunachal Pradesh, Mizoram, Bihar, Uttar Pradesh and Union Territory of Jammu & Kashmir.
- Central Agricultural University (CAU) works in North Eastern States of Mizoram, Nagaland and Manipur.
- Construction of Residential Complex for Central Board of Indirect Taxes Customs at Dwarka (New Delhi).
- Construction of International Guest house, Indoor and Outdoor Stadium, College Building, Boy's Hostel, Girls' Hostel, road works etc. under Dr. Rajendra Prasad Central Agricultural University (Dr. RPCAU) in Pusa at Samastipur (Bihar).
- Construction of Software Technology Parks of India (STPI) infrastructure at various locations in Himachal Pradesh, Bihar, Kerala, Uttar Pradesh and Uttarakhand.
- Construction & up-gradation of Industrial Training Institute (ITI) at Jabalpur, Rewa, Shahdol & Sagar (Madhya Pradesh).
- Construction of Hydro Engineering College in Bilaspur (Himachal Pradesh).

- Construction of Prefab building, Boys Hostel, Girls Hostel, roads, boundary wall and various site development works for Indian Agricultural Research Institute (IARI) at Dhemaji (Assam).
- Construction of JCOs Club, Quarter Guard, Armoury and Armoury Shop, Officer Mess, Cook House cum Dining Hall, Single Men Barrack etc. works of Assam Rifles in North Eastern States of Nagaland and Manipur.
- Construction of office building for Central Ground Water Board (CGWB) in Transport Nagar (Union Territory of Jammu & Kashmir) and Ahmedabad (Gujarat).
- Construction of buildings under Pradhan Mantri Awas Yojana (PMAY) works of Karnataka Slum Development Board (KSDB) at various locations in Karnataka.
- Construction of Industrial Biotech Park for Council of Scientific & Industrial Research and Indian Institute of Integrative Medicines (CSIR-IIIM) in Union Territory of Jammu & Kashmir.
- Upgradation works of fencing hall & Boundary wall work for Deen Dayal Upadhyaya Regional Centre in Maharashtra under Sports Authority of India (SAI).
- Construction of Drug Warehouses and various building under Emergency COVID Response Package (ECRP) in various districts in Uttar Pradesh.
- Construction of Border Out-Posts (BOPs), Roads & Fencing Works for Ministry of Home Affairs (MHA).
- Construction of Border Flood lighting works for Ministry of Home Affairs (MHA) in North Eastern States.
- Pradhan Mantri Gram Sadak Yojana (PMGSY) Road works at different locations in Bihar, Jharkhand, Uttarakhand and West Bengal.
- Construction of G+1 Load bearing wall type structure at Central University of Kashmir Campus, Ganderbal (Union Territory of Jammu & Kashmir).
- Design, Construction and AMC of 120 bedded specialized orthopaedic units including six bedded ICU in Bone & Joint hospital in Srinagar (Union Territory of Jammu & Kashmir).
- Construction & Remodelling of primary, secondary and tertiary drains of Bruhat Bengaluru Mahanagara Palike (BBMP) at Gandhinagar, Mahalakshmiapuram & Bomanahalli in Karnataka.
- Construction of Academic Block, Hostel, Canteen at Indian Statistical Institute, Bengaluru (Karnataka).
- Construction of various police building infrastructure for Police

- Head Quarters, Leh at Solar Colony, Choglamsar, Leh (Union Territory of Ladakh).
- Construction of Centre for Development of Personality & Skill Development along with Boys and Girls Hostels under North East Council (NEC) in North Eastern States of Assam, Arunachal Pradesh, Tripura and Manipur.
- Construction of Science Centre Cum Planetarium at various locations in Odisha.
- Renovation of Namtikiri Nallah, Construction of Veterinary hospital at various locations for Directorate of Animal Husbandry & Veterinary Services in Odisha.
- Construction of New Building of Birbal Sahni Institute of Palaeosciences (BSIP) at Lucknow (Uttar Pradesh).
- Storm Water Drainage Scheme for Municipal Town for Tarakeswar, Hoogly under Tarakeswar Development Authority (TDA) in West Bengal.



Chapter 9

Initiatives in North East



9. Initiatives in North East

9.1 NATIONAL INSTITUTE OF HYDROLOGY

To cater the hydrological needs of the North Eastern Region, Sikkim and northern part of West Bengal (Teesta Basin), the North Eastern Regional Centre (NERC, Guwahati), for the Brahmaputra Basin has been actively interacting with the State, Central and Academic organizations working in water resources in this region. The thrust areas of research at NERC, Guwahati are (i) Flood estimation and routing; (ii) Structural/ non structural measures for flood management; (iii) Integrated watershed management for flood control; (iv) Hydrological data base management system; (v) Drainage congestion and erosion problems; (vi) Water quality problems; and (vii) Socio-economic aspect of flood disaster.

As approved by the 18th Regional Coordination Committee at meeting on 24th August, 2023 NIH-NERC, Guwahati the following studies are undertaken during 2023-24:

- A Coupled Hydrodynamic and Bank Dynamic Modeling Approach for Forensic Analysis of Bankline

Erosion Process Along Majuli Island- the Largest Inhabited River Island in the World.

- Drought characterization and vulnerability assessment in Assam.
- Short Term Flood Forecasting Using Bootstrap based Artificial Neural Networks within Beki River basin.
- Linear Hydrological routing using Satellite precipitation datasets for flood forecasting in parts of Brahmaputra Basin.
- Rainfall Induced Flood Hazard Risk Vulnerability Assessment in East Jaintia Hills, Meghalaya.
- Hydrodynamic modelling for riverbank protection- A case study.

Also, NERC, Guwahati has actively participated along with NERIWALM, Brahmaputra Board, NEHARI, CGWB and CWC in the region in a number of capacity building campaigns and in various Technology Transfer Activities/Awareness activities. A five-day training programme on basic hydrology was also organised by NIH-NERC, Guwahati in collaboration with WRD, Meghalaya during December 4th to 8th, 2023 at Shillong.



18th Regional Coordination Committee meeting to review progress of R&D activities of NIH-NERC held at Guwahati (24th August, 2023)



A training programme on basic hydrology organised by NIH-NERC, Guwahati in collaboration with WRD, Meghalaya at Shillong (December 4-8, 2023)



Swachhata-Hi-Sewa Pledge (SHS 3.0) and Awareness Activity organized by NIH-NERC at Belotola High School, Guwahati (on 17th October, 2023)

9.2 CENTRAL SOIL AND MATERIAL RESEARCH STATION

CSMRS investigated 45 projects, out of which one abroad, 2 projects in the NER, 3 interlinking projects and the rest were national projects. The investigations comprised field and laboratory investigations in the areas of soil, rock, rockfill, geosynthetics, concrete and its constituents. One project of neighboring country Tanahu Hydroelectric Project, Nepal, was taken up. Dibang Multipurpose Project, Arunachal Pradesh and Katakhal Irrigation Project, Assam are two projects belong to North-East region of India.

9.3 CENTRAL GROUND WATER BOARD

Central Ground Water Board carries out its activities in the North Eastern Region (Arunachal Pradesh, Assam, Meghalaya, Manipur, Mizoram, Nagaland and Tripura) through its regional office at Guwahati and the State Unit offices. Major activities and achievements of CGWB during 2023-24 are summarized below:

Sl. No	Activities	Achievements
1.	Field Activities for Aquifer Mapping:	Under NAQUIM programme from January 2023 to March 2024 entire mappable area has been covered.
2.	Ground Water Exploration	From January 2023 to March 2024, CGWB has constructed 26 wells. (EW: 15 nos. & Pz: 11 nos.)
3.	Water Quality Analysis	Around 8061 water samples were analysed for the basic constituents, heavy metals and Uranium.
4.	Groundwater Resource Estimation (base year 2020)	Groundwater Resource Estimation (as on March 2023) has been completed and was carried out for seven North Eastern States. Reports is shared with States.
5.	Ground Water Regime Monitoring	Nearly 877 ground water monitoring stations are being regularly monitored four times a year (January, March, August & November). 58 Springs are also included in the monitoring networks from January 2024.
6.	Short Term Water Supply Investigation.	37 investigations have been carried out
7.	Public Interaction Program (PIP)	10 public interaction programmes have been conducted during 2023 with 1,730 participants including 916 female participants.
8.	Regulation and control of ground water development and management in the country under CGWA	253 NOCs issued and 639 exempted.
9.	Training	(a) One Tier-II training was organised in the NER during November 2023. Total participants in the training were 28; out of which 23 are female participants. (b) 8 Tier III trainings have been organised in NER under the aegis of RGNGWTRI (during January 2023 - March 2024). Total participants in these trainings were 714 out of which 305 were female participants. Total ST participants was 454 nos.

9.4 DAM REHABILITATION AND IMPROVEMENT PROJECT (DRIP)

The States of Manipur and Meghalaya (Implementing Agencies: Manipur WRD and Meghalaya Energy Corporation Limited (MePGCL)) are partner States under DRIP Phase II & Phase III with rehabilitation provision of five (5) and six (6) dams with financial outlay of Rs 311 crore and Rs 441 crore, respectively. These States are eligible for central grant of 90% of loan amount. The funding pattern for special categories States is 80:20 (loan: counterpart funding). Under DRIP Phase II, Manipur WRD has awarded 3 tenders for civil works worth Rs. 140 crores, whereas MePGCL has awarded one tender amounting to Rs 77.5 crore.

9.5 NATIONAL PROJECTS CONSTRUCTION CORPORATION LIMITED

NPCC is working in North Eastern States for the last 37 years for developing the infrastructure and other social amenities for upliftment of socio-economy of the people of North-Eastern States, Government of India started border fencing in Assam; thereafter in other North-Eastern States of Tripura, Meghalaya and Mizoram to check the influx of illegal migrant.

Indo-Bangladesh Border Fencing and Road Works:

NPCC is working on the

construction of Border Fence & Road along Indo-Bangladesh Border and Link Road in the North Eastern state like Assam, Tripura, Mizoram & Meghalaya.

- Fence work sanction length: 525.19 km (Actual on ground 510.84 km), completed: 489.96 km.
- Road works sanction length: 359.87 km (Actual on ground 318.354 km), completed: 262.62 km.
- Link Road sanction length: 165.86 km (Actual on ground 105.43 km) completed: 48.83 km

During execution of works NPCC has faced tough challenges like high hilly terrain area, dense forest, unconditional monsoon, landslides, pathetic condition of roads, adverse geographical constraints, insurgency, etc. However, NPCC has made the area accessible with network of road along the border fencing.

Indo-Bangladesh Border Flood-lighting Works:

Ministry of Home Affairs (GoI) has sanctioned the construction of border flood-lighting along Indo-Bangladesh Border of Tripura and Meghalaya for a total length of 1205.52 km (actual on ground 1215.51 km) where NPCC has completed border flood lighting work of 719.80 km in Tripura and 345.8 km in Meghalaya. The border flood light is serving BSF to have 24 hours vigil over insurgent groups and illegal migrant.

Border Out Post (BOP) Works:

MHA (GoI) has sanctioned the work for construction of composite BOPs along Indo-Bangladesh Border in the North Eastern state (Assam, Tripura, Mizoram, Meghalaya) & West Bengal for monitoring of the border activities by BSF. A total of 187 Nos. BOPs had been allotted to NPCC out of which 151 nos. BOP has been completed successfully and handed over to BSF authorities without compromising the teething troubles faced during the execution of the work. The details are as under:

- Tripura- out of allotted 50 nos. BOP we have completed all the BOP successfully, Mizoram- out of allotted 21 nos. BOP 04 nos. BOP completed till date,
- Assam- out of allotted 6 nos. BOP 05 nos. BOP completed till date,
- Meghalaya- out of allotted 17 nos. BOP 13 nos. BOP completed till date and
- West Bengal- out of 93 nos. BOP 79 nos. BOP completed till date.

National Institute of Electronics & Information Technology (NIELIT) Works:

NPCC is also playing a major role creating infrastructure for extension centres and a centre of NIELIT in the North-Eastern States of Mizoram, Nagaland, Manipur, Arunachal Pradesh, Meghalaya and Assam for development of the skill of

information technology which contributes towards socio-economic development.

Indian Agricultural Research Institute (IARI) Works:

Construction of Prefab building, Directorate Block, Guest House, Boys Hostel, Girls Hostel, roads, boundary wall and various site development works of IARI at Dhemaji, Assam.

Central Agricultural University (CAU) Works:

Construction of Multi Technology Testing Centre (MTTC) & Vocational Testing Centre (VTC) at College of Veterinary Science and Animal Husbandry at Selesih (Mizoram), College of Veterinary Science and Animal Husbandry at Jalukie (Nagaland), College of Horticulture & Forestry at Thenzawal (Mizoram), College of Agriculture at Iroisemba, Imphal (Manipur) under Central Agricultural University (CAU).

Assam Rifles Works

Construction of complete establishment of Assam Rifles in all the States of North-East with administrative block, hospitals all types of residential quarters, barracks, posts, recreation centers, library building, museum building, MT park, etc.

North East Council (NEC) Works:

Construction of Skill Development Training Centre, Hostel Building for Girls at Dhamma Dipa School, Birg weshree Shikla

Girls Hostel of Kalyan Ashram, Hostel Building for Boys and Girls at Bal Vidya Mandir, School Building cum Teacher's Training Centre at Tripureshwari Shishu Mandir, Establishment of school & hostel infrastructure for under privileged tribal students in Arunachal Pradesh, Manipur, Tripura, Nagaland, Meghalaya, Mizoram and Assam under North East Council (NEC).

OIL India Work

Construction of Two Multi-storey (G+6) Residential Building and allied development works in Narengi area in Guwahati Assam.

Kendriya Vidyalaya Works

Construction of School Building, Residential Quarters and Allied Development works in Longding Arunachal Pradesh and Tamenlong in Manipur.

JNV works

Construction of School Building and Residential quarters and Development works at Upper Siang & West Kameng in Arunachal Pradesh and at Kolasib in Mizoram.

NERIWALM Works

Construction of Various infrastructure works at the campus of NERIWALM Tezpur in Assam.

9.6 BRAHMAPUTRA BOARD

Brahmaputra Board has taken up

scientific dissemination and improvement of water management practices of local tribes and indigenous people of NE region in association with NERIWALM. Four areas of NE region have been identified in first phase. Brahmaputra Board has taken up a pilot project at Majuli island in collaboration with IIT, Guwahati for 'hard and soft measures termed as bio-engineering method for flood and erosion management. Springshed Management work in pilot basis has been taken up in the State of Nagaland, Mizoram and Arunachal Pradesh in collaboration with State Water Resources Departments. For preparation of Detailed Project Report to check flash floods and erosion in BTC area by Pagla/Baitamari, Aie, Beki, Pagladiya, Sankosh, Gangia and Saralbhanga rivers, work was allotted to WAPCOS, a PSU of the Ministry and Draft DPR prepared in 2023-24. The activities carried out by Brahmaputra Board in North Eastern Region have already been covered in detail in Chapter 7.

9.7 NORTH EASTERN REGIONAL INSTITUTE OF WATER AND LAND MANAGEMENT

TRAINING PROGRAMMES

- NERIWALM caters to the capacity building needs of all the States of the North Eastern region. Details of State- wise participants in training in 2023-2024 (from January to March, 2024) are given below:

Name of state	Total number of participant
Assam	1,877
Arunachal Pradesh	270
Manipur	158
Meghalaya	80
Mizoram	03
Nagaland	03
Tripura	81
Sikkim	119
Other states	126
Total:	2717

OUTREACH ACTIVITY:

The Institute in collaboration with the Brahmaputra Board is implementing good water management practices in the NE region of India. The best practices of water management and water conservation at Ziro and Pakke Kassang, Arunachal Pradesh have been initiated with community participation. Basic learning workshops and pilot activity planning were conducted for community members for effective water management through participatory approach. The institute also conducted field demonstration on water management in potato at farmer's field at Jamuguri, Assam and Tezpur.

SPONSORED TRAINING/ WORKSHOP / SEMINARS

Out of the 73 programmes conducted during January, 2023 to March, 2024, Institute received sponsorship for 06 training/workshops, while 12 were self -

financed and remaining 55 were conducted from the Institute's funds.

INDUCTION TRAINING PROGRAMMES

The institute conducted 01 (one) Induction Level Training Course (ILTC) for Officers from Central Ground Water Board, 01 (one) for Central Water Engineering Service (CWES) officers and 11 (eleven) for newly recruited Engineers of Irrigation department of Govt. of Assam.

NATIONAL COLLABORATIVE TRAINING PROGRAMMES

The institute has organized training programmes on PMKSY-HKKP: Groundwater Irrigation and Catch the Rain- A Rainwater Harvesting Campaign and ground water development and management in collaboration with Rajiv Gandhi National Ground Water Training and Research Institute, Raipur.

INTERNATIONAL TRAINING PROGRAMMES

NERIWALM completed the training on Hydro-Meteorological Observation for 15 Officers of TMO (GOI programme), HOID, NCHM, Royal Government of Bhutan. Another International Training Programme on "Technical Innovations On Integrated Water Management: The Indian Experiences" was organised by NERIWALM, under The Mekong-Ganga Cooperation (MGC) Initiatives in Collaboration with Indo-Pacific Division Ministry of External Affairs, Government of India. The training was attended by 19

officers from Mekong basin countries viz. Cambodia, Laos, Myanmar, Thailand and Vietnam.

M.TECH COURSE IN WATER RESOURCE MANAGEMENT

One of the objectives for establishing NERIWALM is to prescribe courses in water and land management for irrigation and agriculture and hold examinations and grant certificates, diplomas etc. by seeking affiliation with universities and other appropriate academic bodies.

For M.Tech and PhD courses, NERIWALM is affiliated to Assam Science and Technology University, Guwahati. The course is approved by AICTE, Govt. of India. In 2023, 10 students (Fifth batch) enrolled in the M.Tech programme and 1 student (1st batch) in the Ph.D Programme. The main subjects covered in the course are surface water, ground water, water quality, irrigation, on-farm development, integrated water resource management, research methodology and IPR, water legal aspects, etc. This year, One student of NERIWALM was conferred the Gold Medal for excellent performance in M.Tech. Water Resource Management course by ASTU.

RESEARCH & DEVELOPMENT (R&D) ACTIVITIES

The institute undertook R&D

activities from different Ministries of Government of India & State Government Departments of NER States. During 2023-2024, institute has undertaken concurrent evaluation of irrigation project (PMKSY-AIBP) in Assam, concurrent evaluation of irrigation project PMKSY-HKKP in Meghalaya, semi detail soil survey and irrigation planning for command area towards preparation of detail project report of Haora and Champamura reservoir schemes in West Tripura. The Institute has also done studies on Good water management practices in NE region for better basin planning in Arunachal Pradesh, farmers' participation in irrigation Management: A case study in Manipur, and study on soil moisture conservation with organic mulching in potato (*Solanum tuberosum* L.) cultivation after the harvest of Sali paddy (*Oryza sativa* L.) in Assam situation.



Training program on "Technical innovations on integrated water management: The Indian Experiences" (Under the exchange of experiences programme of Mekong Ganga Cooperation plan) During 20th November to 10th December, 2023 at Tezpur.



Training program on Hydro-Meteorological Observation, during 6-17 February, 2023, participated by 15 officers of TMO (GOI program), HOID, NCHM, Royal Government of Bhutan

9.8 NATIONAL RIVER CONSERVATION PLAN WORKS IN NORTH EASTERN STATES:

Achievements under National River Conservation Plan (NRCP) in various NER States are as follows:

Sikkim: Under NRCP, projects were sanctioned for conservation and pollution abatement of rivers Rani Chu, Teesta and Rangit in Sikkim at a cost of Rs.569.00 crore in 6 towns namely Gangtok, Ranipool, Singtam, Mangan, Chungthang and Geyzing. The works sanctioned under the projects pertains to interception & diversion of sewage, sewage treatment plants, rehabilitation of sewer mains, low-cost sanitation, river front development and improved wood crematoria. Sewage treatment capacity of 26.00 MLD is envisaged to be created in these towns. Under the project, a STP of 20.12 MLD has

already been commissioned along with other infrastructure facilities and river front development works. The scheme is presently under implementation.

Nagaland: For pollution abatement of rivers Diphu and Dhansiri at Dimapur, Nagaland, works have been sanctioned under NRCP at an estimated cost of Rs.78.65 crore. The works envisaged under the project pertain to construction of sewage treatment plant of 25.43 MLD capacity and other allied sewerage works, low cost sanitation, afforestation, etc. Under the project, a STP of 25.43 MLD has already been commissioned along with other allied sewerage works, low cost sanitation, afforestation works, etc. Also, Project for pollution abatement of 14 rivers namely; Dhansiri, Chathe, Zungki, Garu, Melak, Tapi, Punyaonganmong, Keleureu, Sedzu and Tizu, Donyung Shumang, Mutsum, Marache has been sanctioned under NRCP at a cost of Rs.61.47 crore in 13

towns of Nagaland. The work sanctioned under the project pertains to construction of 13 nos. of FSTP of total capacity 210 KLD, the scheme is presently under implementation.

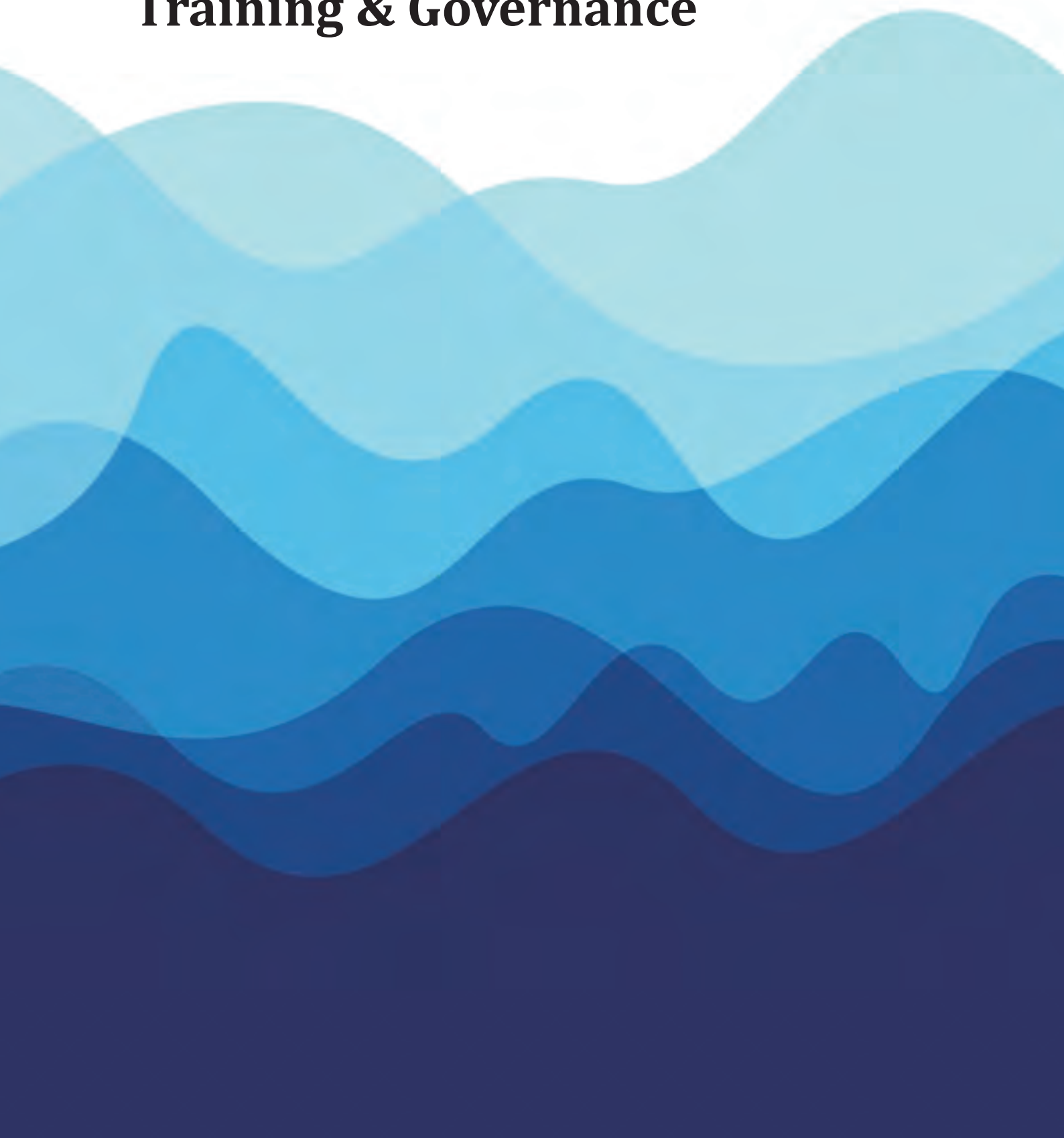
Manipur: For pollution abatement of river Nambul at Imphal, Manipur, works

have been sanctioned under NRCP at an estimated cost of Rs.97.72 crore. The works envisaged under the project pertain to construction of 2 sewage treatment plants of 16 MLD & 1 MLD capacities, and other allied sewerage works like low-cost sanitation, afforestation, etc. The scheme is presently under implementation.



Chapter 10

Wings of the Department, Training & Governance



10. WINGS OF THE DEPARTMENT, TRAINING & GOVERNANCE

10.1 WINGS OF THE DEPARTMENT

The work allotment of different wings/divisions of the Department is summarized as below:

I. ADMINISTRATION WING HEADED BY JOINT SECRETARY (ADMN./IC & GW

- **ADMINISTRATION SECTION INCLUDING SC/ST & OBC CELL)**
 - » Establishment matters of all (Group 'A', 'B' and 'C' employees of the Department (Sectt.))
 - » Engagement of Consultants
 - » Training Cell
 - » Advances
 - » Deputation of Assistant Secretaries
 - » Matters related to Hon'ble Minister and Hon'ble MoS Office
 - » E-HRMS
 - » FR 56(j)
 - » Reports / Returns
 - » Leave / LTC / Service Book etc. related matters
 - » APAR Cell

- » Court Cases
- » Air Ticket Cell
- » Recruitment Rules
- » SC/ST/OBC/PWD Cell
- » Matters related to Allocation of Business Rules, 1961
- » Election Matters
- » Miscellaneous Matters

• CASH SECTION

- » Salaries Bills
- » GPF: GPF maintained of 252 Officers/officials of Old Pension scheme) in PFMS Portal, annual interest calculation end of March of every year. GPF transfer cases are running whole year.
- » After Superannuation benefits: payment of Gratuity, Commutation of Pension, Death Gratuity, Leave encashment on retirement & CGEIS payment through PFMS Portal etc.

• COORDINATION SECTION

- » Monitoring of E-Samiksha, PMRef portal VIP/PMO references, RTI Portal etc.

- » Forwarding of RTI requests / appeals to concerned PIOs/ appellate authority.
- » Furnishing information and disposal of RTI requests and appeals pertaining to coordination section.
- » Preparation of material for Hon'ble President's Address to both the Houses of Parliament.
- » Preparation of material for Hon'ble Prime Minister Independence Day Speech and preparation of status/ action taken on announcements made by Hon'ble PM on Independence Day etc;
- » Collection, compilation and furnishing the monthly, quarterly, half-yearly and yearly reports to the concerned Ministries/ Departments.
- » Capacity building and implementation of Mission Karmayogi
- **O&M SECTION**
 - » Record Management Activities:
 - » Departmental Records Room's Inspection by NAI team and follow up;
 - » Appraisal of more than 25 years old physical records/files by NAI team & follow up;
 - » Various Half Yearly / Annual reports and returns on Records Management compilation and submission to NAI and DAR&PG;
- » Getting periodical review of physical records lying in DRR done by concerned Sections/ Divisions;
- » Recording, Reviewing and Destruction of old records in the Department;
- » Compilation of information on Review of Records Retention Schedule for substantive functions of the Department and getting vetted by NAI;
- » Maintenance and upkeep of Departmental Records Room (DRR) located at CSMRS Building, Hauz Khas, New Delhi.
- **e-GOVERNANCE SECTION:**
 - » To look after the Information Technology (IT) functions of this Department and e-Governance.
 - » Implementation of e-Office in the Department (Proper) and its Organisations
 - » E-Governance related functions and implementation thereof.
- **INFORMATION, EDUCATION AND COMMUNICATION (IEC) SECTION:**

Information, Education and Communication Section has been assigned task of carrying out mass awareness activities/ programmes on water conservation and water

resources management of the Department;

- **ESTABLISHMENT – I SECTION:**

Establishment-I is Subject Matter Division (SMD) for Central Water Commission (CWC). CWC is an apex organization in the Water Sector. It is an attached office under Department of Water Resources, RD & GR. It is the largest organization under the control of the Department. All administrative and organizational matters pertaining to CWC are processed in E-I Section.

- **ESTABLISHMENT – II SECTION:**

All administrative and organizational matters relating to CSMRS, CWPRS, NIH and NERIWALM.

- **ESTABLISHMENT – III SECTION:**

All administrative matters pertaining to the Brahmaputra Board, GFCC, Farakka Barrage Project and Upper Yamuna River Board.

- **ESTABLISHMENT - IV SECTION:**

Deals with the Establishment matters in respect of NCA, NWDA, BCA, BRB, TB, KRMB, GRMB, PPA, CWMA and monitoring of Court Cases through LIMBS portal but no policy matters.

- **GROUND WATER (Estt.):**

- » Establishment matters relating

to Group 'A' officers of the CGWB/CGWA, including recruitment, promotion, confirmation, etc.

- » Cadre review of Group A, B, C, D officers of the Board.

- **EA & IC:**

- » **EXTERNALLY AIDED PROJECTS:** Funded by World Bank, JICA, Germany, ADB and other Multilateral Banks.

- » **INTERNATIONAL COOPERATION:** Collaboration /Bilateral agreements /Cooperation in the field of Water Resources with Foreign countries including signing of memoranda of understanding.

- » **FOREIGN TRAININGS AND DEPUTATION:** Matters relating to participation of the Indian delegation in the International events such as World Water Forum, World Water Week, World Water Day, G-77, G-20 and other important Global Platforms etc (On invitation basis). Processing of matters relating to official foreign visits by Hon'ble Minister (Jal Shakti), Hon'ble Minister of State (Jal Shakti) for the matter pertaining to Department of Water Resources, RD&GR. Processing matters relating to foreign visits of officers for Joint

Working Group Meetings under the implementation of MoUs signed with foreign countries.

- **Vigilance Section:**

- » Application of CCS (Conduct) Rules, 1964/ CCS (CCA) Rules, 1965 in respect of cases attracting vigilance angle and their interpretation/ clarification.
- » Disciplinary cases of vigilance nature of all employees of the Department (proper), as well as of CSS/CSCS/ CSSS cadres and officers of Group 'A' services of attached and subordinate offices and related action thereon.
- » Immovable Property Returns/ intimation of acquisition/ disposal of movable/immovable property under the CCS (Conduct) Rules 1964 and AIS Rules in respect of officers and staff of the Department proper.

- **PARLIAMENT SECTION:**

Coordination of replies to all Lok Sabha and Rajya Sabha Questions including Short Notice Questions. **Coordination with the concerned House of the Parliament** on the laying of Annual Report / Audited Accounts/ Review/ Delay Statement of the organization under the control of DoWR etc;

- **GROUND WATER DESK:**

Groundwater desk shall be the subject matter division (SMD) for all technical matters of CGWB & CGWA. All personnel/establishment & administrative matters shall be dealt by GWE division of the Ministry.

II. **FINANCE WING: HEADED BY JOINT SECRETARY & FINANCIAL ADVISER**

- **BUDGET SECTION / Fin-I:**

- » Examination/compilation/ preparation of following budgetary stage documents
- » Statement of Budget Estimates
- » Detailed Demand for Grants
- » Revised Estimates
- » Supplementary Grants
- » Works relating to re-appropriation of funds
- » Laying of Demands for Grants and Output-Outcome Monitoring Framework document of DOWR, RD&GR on the Table of the Parliament.
- » Works relating to the meetings of Finance Minister and Secretary (Expenditure) with Financial Advisors.
- » Expenditure review under scheme and establishment expenditure etc;

- » Budget at Glance is provided at **Annexure-X.**
 - **INTEGRATED FINANCE DIVISION (IFD) / Fin-II:**
 - » Advising the Department and its organizations on all policy issues having financial implications
 - » Examination and furnishing comments on draft Memo for EFC/SFC Appraisal/Cabinet Notes etc.
 - » Scrutiny of proposals of all Wings requiring financial concurrence within the delegated powers of the Department.
 - » Examination of expenditure proposals, proposals for creation/ revival of posts and all matters requiring approval of Ministry of Finance.
 - » Examination and tendering advice on cases for deputation to foreign countries and on foreign travels.
 - **CONTROLLER OF ACCOUNTS (CA)**
 - » Preparation of monthly and annual (financial and appropriation) accounts.
 - » Regular monitoring of expenditure and receipts.
 - » Internal Audit.
 - » Coordination of Ministry's responses to external (CAG) audit.
 - » Preparation of Appropriation Accounts
- III. RIVER DEVELOPMENT AND PUBLIC POLICY WING: HEADED BY JOINT SECRETARY (RD&PP)**
- **POLICY & PLANNING:**
 - » Policy matters related to water resources of the country like: Formulation and revision of National Water Policy; Matters related to Hydro-Meteorological Data Dissemination policy; Sediment Management Policy.
 - » Matters related to National Commission for integrated Water Resources Development & Management (NCIWRDM)
 - » Coordination of the meetings of National Water Resources Council (NWRC) and National Water Board (NWB);
 - » Monitoring and other matters related to Development of Water Resources, Information System (DWRIS).
 - **BASIN MANAGEMENT – 1:**
 - » Administration and amendment of Inter State River Water Dispute (ISRWD) Act, 1956; Administration and amendment of River Boards Act, 1956 and

matters relating to River Basin Management Bill;

- » Dam Safety Bill- 2020 (Legislative matters only);
- » Work related to formation of Ganga Management Board (GMB);
- » Coordination of Works related to Inter Linking of Rivers (ILR);

- **BASIN MANAGEMENT – 2:**

Setting up of water disputes tribunals and reference of disputes to tribunals under the Inter-State Water Disputes Act. Also administrative and legal matters connected therewith: Ravi-Beas Water Tribunal (RBWT); Mahanadi Water Dispute Tribunal; Krishna Water Dispute Tribunal (KWDT); Mahadayi Water Dispute Tribunal (MWDT) etc.

- **PEN RIVER- I:**

Inter-State issues/disputes on use, distribution and control of water related to rivers Godavari, Krishna, Cauvery, Mahi, Sabarmati, Narmada, Tapi, West flowing rivers from Tapi to Tadri and Tadri to Kanyakumari.

- **PEN RIVER- II:**

Inter-State issues/disputes on use, distribution and control of water related to rivers Subarnarekha, Brahmani-Baitarani, Mahanadi, Pennar and rivers of A&N Islands & Pudducherry; East flowing rivers between Mahanadi & Pennar and

between Pennar and Kanyakumari; rivers of Kutch & Saurashtra including Luni; rivers of Islands of Dadra & Nagar Haveli and Daman & Diu; rivers draining desert in Rajasthan.

Works related to drought such as nominations from the Department for IMCT and the Dam Rehabilitation and Improvement Project (DRIP), issues related with implementation of Dam Safety Act, 2021, Safety issues of Mullapariya Dam, Technical matters of Bansagar Control Board and Betwa River Board.

- **RIVER DEVELOPMENT:**

- » Studies and schemes related to rivers/spring rejuvenation
- » River Water Quality Management, pollution abatement in rivers
- » Studies related to impact of climate change, glacier melt, etc., on rivers
- » Environmental flow / longitudinal connectivity in rivers, to ascertain effect of e-flow on Ecosystems, habitats and biological organisms

- **NHP- UNIT- I:**

- » All matters related to RTDAS SW, SCADA and related instruments including procurement, hydro met network physical and

- financial progress, installation and commissioning of RTDAS SW system
- » Coordination for data sharing related to WRIS/WIMS.
- » All matters related to NWIC.
- » India WRIS - State WRIS integration.
- **NHP: UNIT- II:**
 - » All matters related to Knowledge Products and Studies pertaining to Surface Water.
 - » All matters related to Surface Water PDS including physical & financial Progress.
- **NHP: UNIT- III:**
 - » All matters related to RTDAS- Ground Water and related instruments including procurement, physical & financial progress, examination & finalization of bids, installation, and commissioning and data transmission to WIMS.
 - » Piezometers – Hydro-network, Construction, physical and financial progress
- **PSU:**

PSU Section deals with all matter of Board level posts i.e. appointment, extension and creation etc. of two CPSEs (WAPCOS and NPCC) etc.
- **GENERAL ADMINISTRATION SECTION:**
 - » Purchase and online distribution of stationary, cartridges, crockery, briefcase, consumable items etc.;
 - » Swachh Bharat work including coordination with all offices and reporting to Ministry of Drinking Water and Sanitation including works related to organization of Swachhta Pakhwada by the Department;
 - » Modernization and renovation of office space including toilets in all buildings of the Department.
 - » All housekeeping related works such as outsourcing of services for housekeeping work, sanitization of office space etc.
- **CENTRAL REGISTRY (C.R.) SECTION:**
 - » Receipt, Scanned/diary and distribution of incoming dak.
 - » Despatched of outgoing dak.
 - » Maintenance of accounts of postage stamps and Frankling machines postage values.
 - » Settlement of speed post bills.

IV. ECONOMIC ADVISORY WING: HEADED BY ECONOMIC ADVISER

- **PLANNING UNIT:**

- » Preparation of Annual Report of the Department.
- » Third Party Evaluation of Central Sector Schemes of the Department in coordination with internal SMDs and coordinating the feedbacks and comments of internal SMDs to the Third Party Evaluation of Centrally Sponsored Schemes of the Department by NITI Aayog.
- » Liaison with NITI Aayog in preparation of Output-Outcome Monitoring Framework document and updating quarterly physical and financial progress i.r.o. schemes of the Department.
- » To update and integrate NIP, PMG and PM Gati Shakti Portal.
- » Communication with other Ministries/Departments related to Gender Budgeting, allocation of resources for SC/ST, updation of India Code Portal, Economic Survey, input for Budget Speech etc.
- » Holding of monthly Standing Audit Committee meeting for speedy disposal of PAC and C&AG audit paragraphs.

- **HINDI SECTION:**

- » To ensure the implementation of instructions/ directions and constitutional provisions on Official Language, Official Languages Act, Official Languages Rules etc., in the Department and its subordinate organizations.
- » To ensure the implementation of Presidential Orders on the Reports of Committee of Parliament on Official Language and issue instructions to all Sections and Officers in the Department and Subordinate Offices.
- » Translation of Parliament Questions' answers, Cabinet notes, Standing Committee materials, Annual Report, Statutory reports, Orders, Letters etc. into Hindi.

V. STATE PROJECTS WING: HEADED BY COMMISSIONER (SPR)

- **SPR-I:**

- » Release of Central Assistance under PMKSY-AIBP & CADWM for the States of Andhra Pradesh, Assam, Bihar, Jharkhand, Karnataka, Kerala, Odisha, Tamil Nadu & Telangana;

- » Works relating to Polavaram Irrigation Project (declared as National Project as per AP Reorganization Act, 2014);
- » Parliament Questions/ VIP References/ PMO references pertaining to the work allocated to SPR-I division and related Parliamentary matters;
- » Works related to evaluation, Audit, Court Cases etc. of above mentioned PMKSY-AIBP & CADWM and National Project when taken up;
- **SPR-II:**
 - » Works related to Accelerated Irrigation Benefit Programme (AIBP) and Command Area Development & Water Management (CAD&WM). Central Assistance releases under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)-AIBP and CAD&WM for Major and Medium Irrigation/ Multipurpose projects for the states Chhattisgarh, Goa, Madhya Pradesh, Maharashtra, Uttar Pradesh, Uttarakhand, Punjab, Rajasthan, Himachal Pradesh, Haryana, Gujarat and the Union Territories of Jammu & Kashmir and Ladakh.
 - » Works related to National Projects (other than Interlinking of Rivers (ILR) projects. Release of Central Assistance for the National Projects of the aforesaid States.
- **MINOR IRRIGATION (SMI & RRR):**
 - » Work related to Surface Minor Irrigation (SMI) Schemes under Har Khet Ko Paani (HKKP) component of Pradhan Mantri Krishi Sinchayee Yojana (PMKSY).
 - » Examination of schemes for inclusion in the Surface Minor Irrigation (SMI) Scheme.
 - » Work related to Repair, Renovation and Restoration (RRR) of Water Bodies Schemes under Har Khet Ko Paani (HKKP) component of Pradhan Mantri Krishi Sinchayee Yojana (PMKSY).
 - » Examination of schemes for inclusion in the Repair, Renovation and Restoration (RRR) of Water Bodies Scheme.

VI. COMMAND AREA DEVELOPMENT & WATER MANAGEMENT CADWM) WING: HEADED BY COMMISSIONER (CADWM)

- » Release of central assistance to States and Union Territories for implementation of CAD Programme other than PMKSY under Five Year Plans and Annual Plans.

- » Monitoring and review of CAD Projects other than PMKSY and evaluation studies. Examination of water management / CAD aspects major and medium irrigation projects except those under PMKSY received from CWC.
- » Examination projects for inclusion in the CAD programme. Liaison with NITI Aayog, Ministry of Agriculture, ICAR, etc.
- » Coordination regarding On-farm water management projects proposed by ICAR and Ministry of Water Resources.
- » Farmers Exchange Programme in States and Action Research Programme.

VII. BRAHMAPUTRA AND BARAK WING: HEADED BY COMMISSIONER (B&B)

- **BB & BARAK:**
 - » Technical and financial matters related to the Brahmaputra Board except Flood Management Programme.
 - » Release of grant-in aids to Brahmaputra Board under RBM Scheme.
 - » Matter related to approval of Master Plans prepared by Brahmaputra Board.

NORTH EASTERN REGION:

- International matters in the field of water resources sector with China and Bhutan including strategic economic dialog (SED) meetings with China.
- Matters related to Hydro-Power Development in North Eastern Region, Clearance of Detailed Project Reports.

VIII. MINOR IRRIGATION STATISTICS WING: HEADED BY ADDITIONAL DIRECTOR GENERAL (STAT.)

- Implementation of Centrally Sponsored scheme 'Irrigation Census'.
- Conduct of Census of Minor Irrigation Schemes as well as Census of Water Bodies on quinquennial basis.
- Release/ revalidation of grants in aid to States and UTs for conduct of Minor Irrigation Census and Census of Water Bodies.
- To review the performance of Statistical Cell created in different States/ UTs under Irrigation Census Scheme.
- Release of fund for Statistical Cell in States and UTs under Irrigation Census scheme.

IX. FLOOD MANAGEMENT WING: HEADED BY COMMISSIONER (FM)

• DIVISION – I:

- » India-Bangladesh Water Resources related matters pertaining to common border/ trans-boundary rivers: Implementation of Ganges Water Sharing Treaty (1996) with Bangladesh on the sharing of Ganga/Ganges waters at Farakka during the lean season. Matters relating to the Joint Committee to oversee the implementation of the Treaty and making arrangements for joint hydrological observations at Farakka (India) and Hardinge Bridge (Bangladesh) on river Ganga as per provisions of the Treaty. Selection of Indian Team and its deputation to Hardinge Bridge in Bangladesh for joint hydrological observations.
- » Matters relating to India-Bangladesh Joint Rivers Commission (JRC) headed by Union Minister for Jal Shakti, Technical Level Committee and various other Joint Committees/ Groups formed from time to time under the framework of Joint Rivers Commission including convening of bilateral meetings.

- » Exchange of river data with Bangladesh on identified common border / trans-boundary rivers for scientific study and preparation of framework for the interim water sharing agreements on these rivers as per identified priority jointly.

• DIVISION – II:

- » Implementation of centrally sponsored Scheme "Flood Management and Border Areas Programme (FMBAP)" in the country comprising of two major components viz. Flood Management Programme (FMP) component and "River Management Activities and Works related to Border Areas (RMBA)" component.
- » Expert Committees/Task Forces/Working Groups on Flood Management.
- » Crisis Management Plan and National Disaster Management Authority matters related to floods.

• DIVISION – III:

- » India - Nepal Matters: Implementation of Mahakali Treaty for the "Integrated Development of the Mahakali River including Sarada Barrage, Tanakpur Barrage and

Pancheshwar Project". All matters related to Pancheshwar Development Authority except establishment matters.

- » Matters relating to various joint India-Nepal Committees including Joint Ministerial Commission on Water Resources (JMCWR), Joint Committee on Water Resources (JCWR), Joint Standing Technical Committee (JSTC), Joint Team of Experts (JTE), Joint Committee on Inundation and Flood Management (JCIFM), Joint Committee on Kosi and Gandak Projects (JCKGP).
- » Matters related to India-Nepal joint projects including Sapta Kosi High Dam Multipurpose Project and Sun Kosi Storage cum Diversion Scheme, Kamala Dam project and Bagmati Dam project.
- **DIVISION – IV:**
 - » Technical Matters pertaining to Upper Yamuna River Board, Upper Yamuna Review Committee and Yamuna Standing Committee.
 - » Steering the implementation of balance works of North Koel Reservoir Project.
 - » Implementation of MoU on sharing of Yamuna waters, Renuka, Kishau and Lakhwar-

Vyasi dams in Yamuna basin.

X. INDUS WING: HEADED BY COMMISSIONER (INDUS)

- **Matters related to Eastern Rivers of Indus System and BBMB:** Sutlej-Yamuna Link (SYL) Canal- Works related to its implementation, court cases, meetings, funding and release of grants-in-aid.
- Water related issues among Punjab, Haryana and Rajasthan - Restoration of 0.6 MAF of Rajasthan's share of surplus Ravi Beas waters, Transfer of Control of Head works at Ropar, Ferozepur and Harike, BML-Hansi Branch-Butana Branch Multipurpose Link channel, court cases thereof etc.
- **Matters related to Indus Waters Treaty 1960**

XI. NATIONAL WATER MISSION WING: HEADED BY MISSION DIRECTOR (NWM)

- **ADVISER (TECHNICAL) AND ADVISER (COORDINATION & MONITORING):**
 - » Setting up of National Bureau of Water Use Efficiency (NBWUE);
 - » Preparation of State Specific Action Plans and Implementation thereon;
 - » Incentivization of sectors like industries, farmers, local bodies, water users' associations etc. for water conservation;

- » Coordinating for taking up Baseline Study, Benchmarking and Demonstration Projects for Water Use Efficiency;
- » Matters related to National Action Plan on Climate Change and National Water Mission;
- » Inter-Ministerial committee on Water Conservation.
- **RESEARCH & DEVELOPMENT DIVISION:**
Coordination of activities related to research and development in water sector to be taken under the component "Research and Development Programme in Water Sector" of the scheme titled "Research and Development Programme in Water Sector and Implementation of National Water Mission".
- **BUREAU OF WATER USE EFFICIENCY- HEAD: DIRECTOR**
 - » Planning and executing nation-wide program for promotion of efficient use of water in irrigation, domestic water supply, municipal and/or industrial uses in the country.
 - » Making necessary regulatory directions to promote Water Use Efficiency.
 - » Prescribing guidelines for water conservation codes, standardizing and developing codes and facilitate their notification from concerned authorities.
 - » Developing standards for water efficient fixtures, appliances, sanitary wares and other equipment using water in both urban / rural areas to specify equipment and appliances or class of equipment/appliances as the case may be for the purpose of water use efficiency.
 - » Evolving a system of efficiency labelling/ blue labelling, Water footprint and protocols.
 - » Assessment of water foot print and water auditing in Agriculture sector to minimize virtual export of water.
 - » Evolving a system for incentivizing for promotional efforts to increase in water use efficiency.
 - » Creating a Resource Centre and Data Bank related to various aspects of Water Use Efficiency.
 - » Promoting research and development including research in the field of water conservation in order to increase the water use efficiency. Work towards capacity building and mass awareness through Information, Education and Communication (IEC) by

organizing training by specialists in the techniques for efficient use of water and its conservation. Promote region specific projects on water use efficiency in collaboration with Central/State Government institutions.

XII. NATIONAL RIVER CONSERVATION DIRECTORATE (NRCD): Headed by Joint Secretary (NRCD)

Centrally Sponsored Scheme (CSS) i.e. National River Conservation Plan (NRCP) jointly with the State Governments on a cost sharing basis for abatement of pollution in identified river stretches of India (excluding river Ganga and its tributaries).

XIII. GANGA REJUVENATION WING: HEADED BY DIRECTOR GENERAL (NMCG)

NAMAMI GANGE MISSION:

- Matters of Rejuvenation, Protection and Management of river Ganga and its tributaries and National Mission for Clean Ganga.
- Relating to Coordination Work of National Mission for Clean Ganga with other Wings of DoWR, RD & GR.
- Processing of budget and other financial proposals for National Mission for Clean Ganga.

10.2 IMPLEMENTATION OF TRAINING POLICY OF THE DEPARTMENT

Administration Division administers the mandatory training of officers of various services and staff of the Department. of DoWR, RD & GR officers' under HRD & Capacity Building Scheme to train officers/ officials of the Department in reputed Institutes located in India and abroad in different fields, induction training on selection/ recruitment in the Department. Officers are also given induction training on joining. Officials are also deputed on mid-career training at various levels/stages in their career as well as for thematic training like leadership development, stress management, ethics and values, finance, administration, etc.

10.3 INTERNATIONAL YOGA DAY: 2023

9th International Day of Yoga, was celebrated as per the directions of Ministry of Ayush, in Chandigarh and Baripada, Mayurbhang, Orissa in the presence of Hon'ble Minister (J.S) and MoS respectively on 21.06.2023. A yoga event was also organized in Sectt. proper in the parking area of Shram Shakti Bhawan on 21.06.2023 at 07:00 AM. with help of Prajapita Brahma Kumaris Iswariya Vishwavidyalya. They conducted a session on 'Benefit and Technique of Rajyog' for officers/staff of DoWR, RD & GR.

10.4 INTERNATIONAL WOMEN'S DAY: 2024

On the occasion of International Women's Day 2024, DoWR, RD & GR organised a self-defence training program on 8th March 2024 from 2.00-3.00 PM in Conference room of Shram Shrakti Bhawan, New Delhi. The program was conducted by Rakesh Kumar, Associate General Manager & chief operating officer-Self Defense Division (SPEFL-SC) with his team.

10.5 HAR GHAR TIRANGA PROGRAMME

The Department has celebrated Har Ghar Tiranga Programme during Azadi Ka Amrit Mahotsav. Shri Gajendra Singh Shekhawat, Hon'ble Minister (Jal Shakti) distributed flags in the Ministry on 8th August 2023. 650 flags were distributed in

the department for hoisting the same at homes from 13th to 15th August, 2023. All employees/staff of the Department actively celebrated the Har Ghar Tiranga Programme and hoisted the flags at their homes from 13th to 15th August, 2023.

10.6 SPECIAL CAMPAIGN 3.0 FOR CLEANLINESS

On the directions of Hon'ble Prime Minister, a Special Campaign 3.0 (1st Oct to 31st Oct 2023) had been launched in the same manner as it was launched last year. The main focus of the Special Campaign 3.0 was to minimize pendency and ensure cleanliness in the Govt. offices. 12 campaigns were targeted during the preparatory phase of the Special Campaign 3.0 covering all the buildings where the offices of Department Secretariat are located.





The achievements vis-à-vis target of Special Campaign 3.0 in respect of DoWR, RD & GR are tabulated below: -

Sl. No.	Parameters/Activities	Overall Targets	Achievements	Achievement (%)
1	Cleanliness Campaign Sites	350	350	100%
2	Inter-Ministerial References (Cabinet Note)	1	1	100%
3	Parliament Assurances	10	6	60%
4	MPs References	36	33	92%
5	PMO References	9	9	100%
6	Public Grievances	65	65	100%
7	Public Grievance Appeals	19	19	100%
8	Review & Weeding out of Physical Files	36593	36593 of which 10139 files Weeded out	100%
9	Review & Closing of E-Files	4333	4333 of which 270 files closed	100%

Besides above:

- Rs. 47,90,320/- revenue was generated through scrap disposal;
- 160969 Sq ft area was freed through cleaning of sites/scrap disposal;
- 5 PIB Statements were issued.
- 230 (112 tweets & 118 other posts) tweets/posts were issued on Twitter/Facebook/Instagram/YouTube.

10.8 CELEBRATION OF CONSTITUTION DAY - 2023

Constitution day was celebrated by the officers / officials on 26th November 2023 by reading the preamble of the Constitution of India online (<https://readpreamble.nic.in/registration.aspx>); and taking part on online Quiz programme “Bharat: Loktantra ki janani” at (<https://constitutionquiz.nic.in/Userregistration.aspxfflangID=EN>).

10.9 SWACHHATA PAKHWADA - 2024

The Department observed Swachhata Pakhwada - 2024 from 16th March 2024 to 31st March 2024 on the directions of Department of Drinking Water and Sanitation. Several activities were conducted during the Swachhata Pakhwada - 2024 some of them are listed below:

The inaugural event of the Swachhata Pakhwada 2024 was observed by this Department on 15th March (16th being holiday) 2024. Swachhata Pledge administered by the Secretary, WR RD & GR followed by shramdaan at Parking area in front of C wing, Shram Shakti Bhawan. Senior officers along with the officials of the Department participated in the event enthusiastically.

Plantation in parking area in front of C wing, Shram Shakti Bhawan administered by JS (RD&PP.) on 21st March 2024. In view of the World Water Day i.e 22nd March 2024 falling in between the Swachhata Pakhwada Period, World Water Day pledge was administered by Secretary, WR RD & GR to the officers/officials of DoWR. Essay competitions on the theme of “Swachhata” were also organized on 26th & 27th March 2024.



Chapter 11

Gender Empowerment / Women Welfare Activities



11. Gender Empowerment / Women Welfare Activities

Women play a vital role in water resource management. The right approach and steps taken towards water conservation, water use in domestic as well as field (agricultural/industrial) by women make considerable overall impact. The National Water Policy while emphasizing on participatory approach in water resources management, specifically provides for necessary legal and institutional changes to be made at various levels for the purpose of ensuring appropriate role for women.

Participatory Irrigation Management (PIM), which envisages involvement of end-users/farmers in all aspects and at all levels of irrigation management, functions through farmer's groups generally known as WUAs. DoWR, RD & GR, while issuing guidelines, specifically emphasized that the States consider representation of women in the Water Users' Associations (WUAs) at all levels. As a result, many States have amended their irrigation Acts or came out with specific Acts on participatory irrigation management. In addition to smooth implementation of micro irrigation system and agriculture related activities, this may lead to additional income

generation and sustainability of women wing of WUAs.

International Women's Day-2023 was organized by DoWR, RD & GR on 08.03.2023 inviting all women employees of the Department. The theme of the event was 'DigitALL: Innovation and Technology for Gender Equality'.

A Gender & Child Budgeting Cell has been established in the Department to promote gender sensitization and awareness. The Department is emphasizing participation of women in various training programmes being conducted in the Department and its field offices. A separate cell for women staff employees has also provided in the Staff Canteen of the Department.

Under Atal Bhujal Yojana, participation of women and vulnerable groups is being ensure through membership in committees and attendance in meetings. Numerous IEC activities have successfully encouraged women to actively engage in various activities such as meetings, trainings, and awareness programs aimed at understanding their roles and responsibilities in groundwater

management. Through the trainings, women have been empowered in decision-making processes, particularly in the development of Water Security Plans. The consistent engagement of women in these

meetings, workshops, and training sessions has significantly boosted their confidence levels, leading to an enhanced social status and increased respect within their communities.



Chapter 12

Progressive Use of Hindi



12. Progressive Use of Hindi

Effective measures have been taken for progressive use of Hindi for official purposes in various sections and attached and subordinate offices of the Department during the year. Efforts were also made to ensure the compliance of various orders/instructions issued by the Department of Official Language. The Second Sub-Committee of Parliamentary Committee on Official Language inspected seven offices of the DoWR, RD & GR viz. (1) CWC, Delhi (2) WAPCOS Ltd., Gurugram (3) NPCC Ltd., Gurugram (4) CGWB, Faridabad, (5) CSMRS, Delhi (6) WAPCOS Ltd., Bhubaneswar and (7) NWDA, Bhubaneswar. 36 Regional Offices of seven offices mentioned above were inspected by Parliamentary Committee on Official Language during the current year. Apart from this, official language inspections are also conducted from time to time by the officials of the Hindi Section of the Ministry of Jal Shakti.

The Department has conducted three meetings of Official Language Implementation Committee (OLIC). In these meetings, the Committee reviewed the progress made in the use of Hindi in the Department as well as in its various offices and pinpointed the shortfalls in relation to targets prescribed by Department of Official Language. Measures were also suggested for the removal of shortfalls in the meeting.

Five officers of the DoWR, RD & GR participated in 3rd 'Akhil Bhartiya Rajbhasha Sammelan' held at Pune from 14-15th September, 2023 by Deptt. of Official Language, Ministry of Home Affairs.

In order to encourage the use of Hindi in the official work of the Department, messages of Hon'ble Union Minister of Jal Shakti and Hon'ble Minister of State for Jal Shakti and the appeal by Secretary, DoWR, RD & GR were issued. Hindi Fortnight was organized in the Department from 14.09.2023 to 29.09.2023. Before organizing the Hindi fortnight, all the offices and employees of DoWR, RD & GR were given a pledge to do their maximum work in the official language Hindi. During the fortnight, eight competitions viz., Hindi Essay, Questionnaire on Official Language Hindi (written), Translation Competition (written), Hindi Typing, Hindi Noting-Drafting, Hindi Debate, Hindi Essay Competition (for MTS level candidates), Hindi Poetry Recitation were organized. Officers and employees of the Department enthusiastically participated in these competitions. First, second and third prizes of Rs. 5,000/-, Rs. 3,500/- and Rs. 2,500/- respectively were given to winners of each of these competitions. There was also provision of four consolation prizes of Rs. 1,500/- for each of these competitions.

The prizes were given to 55 meritorious participants.

Incentive schemes like 'Rajbhasha Vaijayanti Puraskar Yojana' and 'Incentive Scheme for doing work in Hindi' were implemented in the Department for promoting the implementation of official

language policy. 'Rajbhasha Vaijayanti Purashkar Yojana' is for promoting Hindi work in attached and subordinate organizations of the Department. Besides this "Moulik Pustak Lekhan Yojana" is also being implemented in the Ministry. Under the head, an amount of Rs. one lakh has been earmarked as prize money.



Second sub-committee review meeting of the Parliamentary Rajbhasha Committee.



Chapter 13

Staff Welfare



13. Staff Welfare

13.1 MONITORING OF RESERVATION FOR SC/ ST/ OBCS

The Scheduled Castes/Scheduled Tribes and Other Backward Classes (SCs/STs/OBCs) Cell also forms part of Administration Section. It renders secretarial assistance to Liaison Officer for SCs/STs and OBCs in discharging the functions on various matters relating to reservation for SCs/STs/OBCs in Government Services.

This Department is responsible for reservation of various categories in services only for Staff Car Drivers and MTS grade. Implementation of reservation in these posts to Scheduled Castes, Scheduled Tribes, OBCs, Ex-Servicemen and Divyangjan is followed as per Government rules. The post of MTS is filled through SSC. The vacancies in MTS grade are intimated to SSC.

Shri Binod Kumar, Director is Liaison Officer for OBC in respect of the Department (Secretariat). Shri Mukesh Kumar, Deputy Secretary is appointed as Liaison Officer for SC/ST in respect of the Department (Secretariat).

13.2 COMPLAINTS COMMITTEE ON SEXUAL HARASSMENT OF WOMEN EMPLOYEES

In compliance with the guidelines laid down by the Hon'ble Supreme Court of India on prevention of sexual harassment of women employees, a committee is functioning to look into the complaints of the women working in the Main Secretariat of the Department. The composition of the Committee is as below:

Sl. No.	Name & Designation(Shri/Smt./Ms)	Designated as
1	Soumya P. Kumar, Director (MI Stat)	Chairperson
2	Shalini Gupta, Under Secretary (GWE)	Member
3	Manish Uniyal, Under Secretary (Coordination)	Member
4	Representative of HR Helpdesk Trust, NGO	Member

The Complaints Committee deemed to be the Inquiring Authority appointed by the Disciplinary Authority for the purpose of CCS (CCA) Rules, 1965 and its reports are treated as Inquiry Report. It examines the complaints made against sexual harassment by women employee(s) and, if necessary, conducts an enquiry. On completion of the same, the committee submits its findings to the Joint Secretary (Admn.), DoWR, RD & GR for further necessary action.

During the year ending 31st December, 2023, no complaint was received by the Committee.

13.3 REDRESSAL OF PUBLIC/ STAFF GRIEVANCES

A Grievances Redressal Cell was set up in the DoWR, RD & GR which entertains the grievances of employees/officers working in various organizations under the Department. Input in respect of Brahmaputra Board is as under-

During the period from 1st January, 2023 to 31st March, 2024, 5,843 grievance petitions were received in this Department. Besides, 93 grievance petitions pending at the end of 31st December, 2022 were carried forward. Out of total 5,936 grievance petitions, 5,753 were settled during the above period. It has been the endeavour of the Department to resolve all the grievances within stipulated time and review meetings are being held at the level of Secretary (WR) on monthly basis to review pendency and ensure timely disposal of grievances and appeals by Grievance Officers/ Appellate authorities. The list of Public/Staff Grievance Officers in the Department its various organizations along with postal addresses is given at **Annexure-XI**

13.4 TRAINING AND CAPACITY BUILDING

Department administers training to officers/officials of the Department in reputed Institutes, including DoWR, RD

&GR own training institutes (viz. NWA, Pune, NERIWALM, Tezpur and RGNGWTRI, Raipur) in different competencies related to Domain, Functional and Behavioural aspects. Officers are also given induction training upon joining the Department. Officials are also deputed on cadre based Mid-Career Trainings at various levels/stages in their career.

During FY 2023-24, all the officials of the department have been onboarded on i-GOT platform- an online capacity building platform developed by Capacity Building Commission under *Mission Karmayogi*- so that they can avail various training courses available on it. Three (03) training modules i.e. (i) Namami Gange, (ii) Overview of Water Resources and (iii) Source Sustainability on Ground Water Resources have also been developed and uploaded on i-GOT platform for capacity building of officials of the Department and others in these areas. A Capacity Building Unit (CBU) has also been set up under the charge of Joint Secretary (A, IC & GW).

A Capacity Need Assessment (CNA) of the Department was done by Capacity Building Commission (CBC) and on the basis of it, Department has finalized its **Annual Capacity Building Plan (ACBP)**, under the *Mission Karmayogi*. As a part of implementation of the ACBP, officials were sent on trainings on various subjects viz. Overview of Water Resources Sector of India, Management Development Program, Water Laws and River Valley Disputes, Contemporary Project

Management and Legislation drafting organised by different institutes. Immersion programme in terms of field visit to various water structures like Dams, Hydro power stations was also organised for officials of the Department. As per

directions issued by DoPT, officials of the Department have also been advised to undergo trainings on i-GoT for at least 4.5 hours in a month and the progress thereof is being monitored.



Chapter 14

Transparency and Vigilance



14. Transparency & Vigilance

13.3 TRANSPARENCY

THE RIGHT TO INFORMATION ACT, 2005

The Right to Information Act, 2005 came into effect from 12.10.2005. As provided under section 4(1) (b) of the Act, information on mandatory disclosure in respect of Department (Sectt.) and by all organizations of the department were uploaded on the Department's website. The disclosure was also got audited through one of the Training Institutes (NWA Pune) of the Department as per CIC instructions. Information of Central Public Information Officers (CPIOs) in terms of section 5 (1) and (2) of the said Act was hosted on the website of the Department and of concerned organizations.

The Coordination Section of Department of Water Resources, RD &GR, has been assigned the task of accepting applications and the fees under the RTI Act. During the period from 01.01.2023 to 31.03.2024, total 1,407 RTI applications and 92 RTI appeals were received which were handled by concerned Central Public Information Officers/ First Appellate Authorities as per provisions of the Act.

The details of Central Public Information Officers / Appellate Authorities in the various Wings/Sections of the Department are given at **Annexure-XII**.

14.2 VIGILANCE

The Vigilance matters relating to this Department and its organizations are handled by the Vigilance Division, which functions under the guidance, supervision and control of a part time Chief Vigilance Officer of the level of Joint Secretary and above assisted by a Director and the Vigilance Section. Various aspects pertaining to vigilance cases of all the employees of the Ministry (proper) and all Group A and retired officers of the attached/subordinate offices as well as Group-A officers of other organizations under the Ministry, including Board level officers of PSUs are dealt with by the Division.

The Vigilance Division functions as a link between the Ministry and the Central Vigilance Commission (CVC) and other Authorities in the matters pertaining to vigilance. The Division tenders advice, wherever required, on vigilance matters, to

the Attached and Subordinate Offices, PSUs, Statutory Bodies etc. under the administrative control of the Ministry, in consultation with CVC and other agencies/ departments.

The Division monitors the disciplinary cases and related matters of the organizations under the Ministry through periodical returns prescribed by CVC, DoP&T, etc. The Division prepares the “List of officers of Doubtful Integrity” and the “Agreed List” in consultation with CBI.

This year, Vigilance Awareness Week was observed by the Vigilance Division from 30th October, 2023 to 5th

November, 2023. An essay competition was held which received wide participation from the employees.

Three preventive vigilance inspections of organizations under the purview of the Department have been completed during the year 2023-24 with a view to check various irregularities and identify corruption prone areas.

The Vigilance Division is also responsible for calling for the Annual Immovable Property Returns of all Group 'A', 'B' and 'C' Staff and monitoring them.

Five CVOs and Three VO's with consultation of CVC were appointed in the organizations.

Performance Statistics (01.01.2023 to 31.03.2024):

Category	Count
Number of Complaints received	165
Number of Complaints disposed off	143
Number of cases wherein CVC consultation sought	7
Number of cases submitted to UPSC	1
Number of cases where penalty imposed	NIL



Chapter 15

Appointment of Persons with Special Needs



15. Appointment of Persons with Special Needs

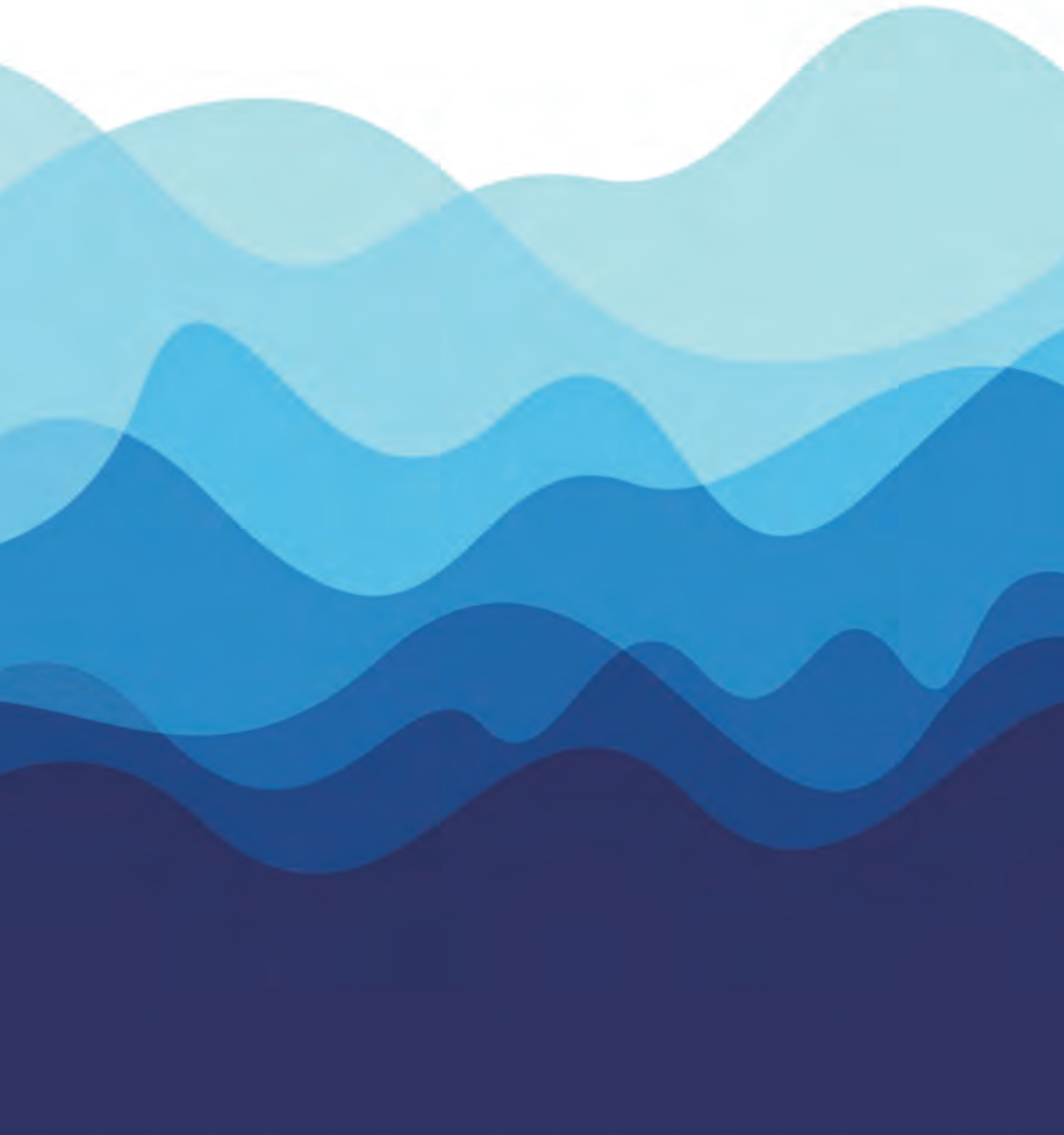
Monitoring of the recruitment of persons with Special Needs is being done to ensure fulfillment of prescribed percentage of reservation for the category by the Ministry as well as various organizations under it. Periodic reports on the progress made are being sent regularly to the Ministry of Social Justice & Empowerment. The Persons with Special Needs are given facilities, concessions and relaxations at the time of test/interview as per the rules on the subject matter.

Administration Section is dealing with reservation of Persons with Disabilities (Divyangjan) in MTS Post. The vacancies in MTS grade are filled through SSC. As on 31.12.2023 the total strength in MTS grade was 77 out of which four Person are Persons with Disabilities.

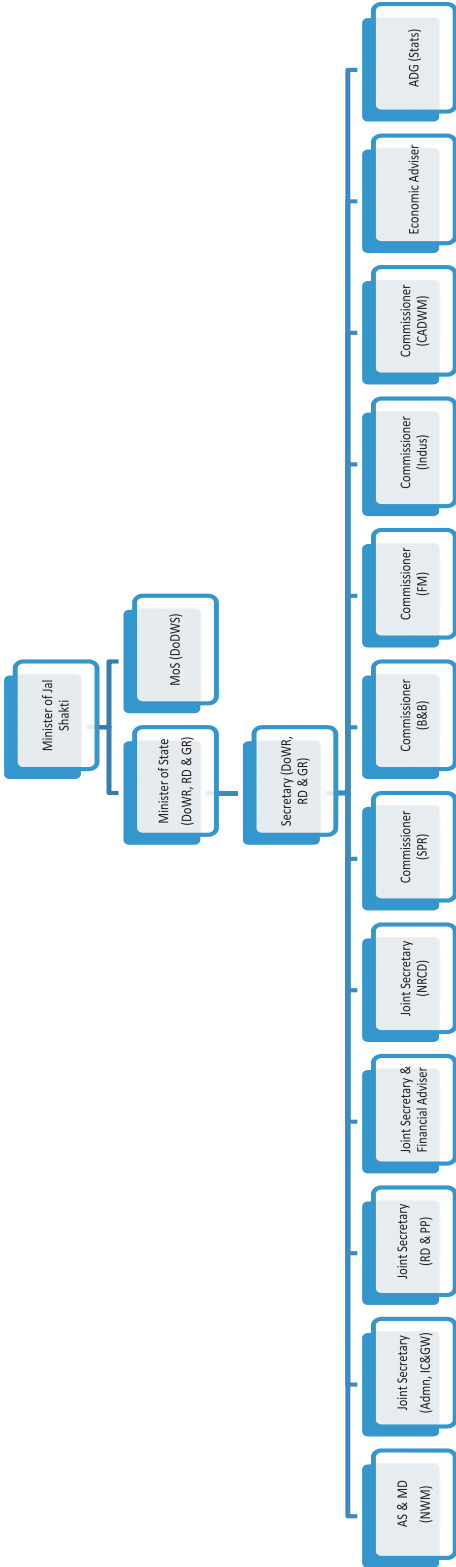
The relevant reservation rosters as prescribed by the Government are also maintained for planning the reservation of Persons with Special Needs. Shri B.L. Meena, DS is as Liaison Officer for Persons with Disabilities (Divyangjan) in respect of the Department (Secretariat).



ANNEXURES



ORGANIZATION CHART OF DEPARTMENT OF WATER RESOURCES, RIVER
DEVELOPMENT & GANGA REJUVENATION



ANNEXURE –II

STAFF IN POSITION IN THE DEPARTMENT OF WATER RESOURCES, RIVER DEVELOPMENT & GANGA REJUVENATION

AS ON 31.12.2023

Group	Total Employees in position	Representation of SC/ST/OBC				PH
		SC	ST	OBC	Other	
A	115	12	09	11	83	1
B	163	23	07	55	78	--
C	105	40	09	36	20	4
Total	383	75	25	102	181	5

ANNEXURE – III

LIST OF NAMES AND ADDRESSES OF SENIOR OFFICERS & HEADS OF ORGANISATIONS UNDER THE DEPARTMENT OF WATER RESOURCES, RIVER DEVELOPMENT & GANGA REJUVENATION

S. No.	Name of the Organisation	Head of the Organisation/ Senior Officer
1.	Department of Water Resources, RD & GR, Room No.412, 4 th Floor, Shram Shakti Bhavan, Rafi Marg, New Delhi.	Smt. Debashree Mukherjee, Secretary, Tel. No. 011-23710305/23715919 Fax.011-23731553.
2.	Department of Water Resources, RD & GR, Room No.404, 4 th Floor, Shram Shakti Bhavan, Rafi Marg, New Delhi.	Shri Rakesh Kumar Verma, Additional Secretary, Tel.No. 011-23714609 Fax. 011-23716894
3.	Department of Water Resources, RD & GR, Room No.6, 2 nd Floor, 'B' wing, Lok Nayak Bhawan,Khan Market, New Delhi.	Shri Ajay Bakshi, Additional Director General (Stat.) Tel. No. 011-24691080 Fax. 011- 24691080
4.	Department of Water Resources, RD & GR, Room No.403, 4 th Floor, Shram Shakti Bhavan, Rafi Marg, New Delhi.	Shri Subodh Yadav, Joint Secretary (Admn., IC & GW), Tel. No. 011-23710343 Fax. 011-23730719
5.	Department of Water Resources, RD & GR, Room No. 406, 4 th Floor, Shram Shakti Bhavan, Rafi Marg, New Delhi -110001	Shri Anand Mohan, Joint Secretary (RD&PP), Tel. No. 011-23725477 Fax. 011-24369170
6.	Department of Water Resources, RD & GR, Room No. 401, 4 th Floor, Shram Shakti Bhavan, Rafi Marg, New Delhi -110001	Smt. Richa Misra, Joint Secretary & Financial Adviser, Tel. No. 011-23710297 Fax. 011-23710297
7.	Department of Water Resources, RD & GR, Room No.411, 4 th Floor, Shram Shakti Bhavan, Rafi Marg, New Delhi -110001	Shri A.S. Goel, Commissioner (SPR), Tel. No. 011-23710107
8.	Department of Water Resources, RD & GR, Room No.236, 2 nd Floor, 'B'wing, Krishi Bhavan, Rafi Marg, New Delhi-110001	Shri Anuj Kanwal, Commissioner (CADWM) Tel. No. 011-23382256

S. No.	Name of the Organisation	Head of the Organisation/ Senior Officer
9.	Department of Water Resources, RD & GR, Room No. 827, 8 th Floor, C.G.O. Complex, Lodhi Road, New Delhi-110003	Shri Atul Jain, Commissioner (FM) Tel. No.011-24368238 Fax. 011-24362780
10.	Department of Water Resources, RD & GR, Room No. 204, 2 nd Floor, C.G.O. Complex, Lodhi Road, New Delhi-110003	Shri S.K. Sinha, Commissioner (B&B) Tel. No. 011-24364724.
11.	Department of Water Resources, RD & GR, Room No. 814, 8 th Floor, C.G.O. Complex, Lodhi Road, New Delhi-110003	Shri A.K. Pal, Commissioner (Indus) Tel. No.011-24361540 Fax. 011-24361540
12.	Department of Water Resources, RD & GR, Room No. 826, 8 th Floor, Block-11, C.G.O. Complex, Lodhi Road, New Delhi-110003	Smt. Sunita Yadav, Economic Adviser Tel. No. 011-24368941
13.	Department of Water Resources, RD & GR, 2 nd Floor, B wing, Lok Nayak Bhawan, Khan Market, New Delhi-110003	Smt. Priyanka Kulshreshtha, Deputy Director General Tel. No. 011-24699496
14.	Department of Water Resources, RD & GR, National River Conservation Directorate, Antyodaya Bhawan, C.G.O. Complex, Lodhi Road, New Delhi- 110003	Shri Pradeep Kumar Agrawal, Joint Secretary (NRCD) Tel. No.011-24365020 Fax. 011-24369382
Attached Offices		
15.	Central Water Commission, Room No. 326, Sewa Bhawan, R. K. Puram, New Delhi-110022	Shri Kushvinder Vohra, Chairman, Tel. No.011-26715351, Fax: 011-26108614.
16.	Central Soil and Materials Research Station, Room No. 111, Hauz Khas, New Delhi-110016	Dr. R Chitra, Director, Tel. No. 011-26961894/26967985 Fax. 011-26967985
Subordinate Offices		
17.	Farakka Barrage Project, P.O. Farakka Barrage, Distt. Murshidabad-742212, West Bengal	Shri R. D. Deshpande, General Manager, Tel. No. 03485-253644, Fax. 03485-253608.

S. No.	Name of the Organisation	Head of the Organisation/ Senior Officer
18.	Ganga Flood Control Commission, Sinchai Bhawan, 3 rd floor, Patna-800015	Shri Gulsan Raj Chairman, Tel. No. 0612-2217294 Fax. 0612-2217960
19.	Central Water and Power Research Station, P.O. Khadakwasla, Pune-411024	Shri. R. S. Kankara, Director, Tel. No.020-24380552, Fax. 020-24381004.
20.	Central Ground Water Board, Bhujal Bhawan, Faridabad-121001.	Shri Sunil Kumar, Chairman, Tel. No. 0129-2477101, Fax. 0129-2477200.
21.	Bansagar Control Board, Bansagar Colony, Rewa, Madhya Pradesh, 486001.	Shri M. W. Paunikar, Secretary, Tel. No.07662-226318 Fax. 07662-242433
22.	Upper Yamuna River Board, 201, 'S', Sewa Bhawan, R.K.Puram, New Delhi-110016	Shri Naveen Kumar, Chairman, Tel. No. 011-26108590 Fax. 011-26195289
Public Sector Undertakings		
23.	Water and Power Consultancy Services (India) Limited, 5 th Floor, 'Kailash', 26, Kasturba Gandhi Marg, New Delhi.	Shri R. K. Agrawal, Chairman & MD, Tel. No. 011-23313881 Fax. 011-23314924
24.	National Projects Construction Corporation Limited, Plot No.148, Sector-44, Gurugram, Haryana-122003.	Shri R. K. Agrawal, Chairman & MD, Tel. No.0124-2385219, Fax. 0124-2385219.
Registered Societies/ Autonomous Bodies / Statutory Bodies etc.		
25.	National Mission for Clean Ganga, Department of Water Resources, RD & GR, 1 st Floor, MDCNS Building, India Gate, New Delhi-110002	Shri Rajeev Kumar Mital. Director General (NMCG) Tel. No. 011-23049528
26.	National Water Mission, 2 nd Floor, Block-3, C.G.O.Complex, Lodhi Road, New Delhi-110003	Smt. Archana Varma, Additional Secretary & Mission Director, Tel. No. 011-24365200

S. No.	Name of the Organisation	Head of the Organisation/ Senior Officer
27.	National Institute of Hydrology, Jal Vigyan Bhawan, Roorkee, Uttarakhand-247667.	Dr. M. K. Goel, Director, Tel. No. 01332-272106 Fax. 01332-272123/273976
28.	National Water Development Agency, 18-20, Community Centre, Saket, New Delhi -110017	Shri Bhopal Singh, Director General, Tel. No. 26519164 Fax. 26513846
29.	North Eastern Regional Institute of Water and Land Management, Dolabari, Tezpur, Sonitpur, Assam-784027	Dr. Pradip Kumar Bora, Director, Tel. No. 03712-291069, Fax. 03712-268007
30.	Narmada Control Authority, Narmada Sadan, Sec-B, Scheme No.74-C, Vijay Nagar, Indore-452010	Shri Ashok Kumar Thakur, Executive Member & HoD, Tel. No. 0731-2557276, Fax. 0731-2559888.
31.	Brahmaputra Board, Basistha, Guwahati, Assam-781029	Shri Ranbir Singh, Chairman Tel. No.0361-2301099 Fax. 0361-2301099
32.	Betwa River Board, Nandanpura, Shivpuri Highway, Jhansi-284003	Shri B. S. Mohaniya, Secretary, Tele no. 0510-2480183 fax. No. 0510-2480183
33.	Tungabhadra Board, Tungabhadra Dam, Taluk: Hospet, Distt: Bellary, Karntaka -583225	Shri D.M. Raipure, Chairman, Tel. No. 040-23301858 Fax. 040-29808742
34.	Krishna River Management Board, Jalasoudha, Errum Manzil, Hyderabad, 500082.	Shri Shiv Nandan Kumar, Chairman, Tel. No. 040-23301659.
35.	Godavari River Management Board, 5 th Floor, Jalasoudha, Errum Manzil, Hyderabad-500082.	Dr. Mukesh Kumar Sinha, Chairman, Tel. No. 040-23313163 Fax. 040-23313162

ANNEXURE-IV

LIST OF PRIORITY PROJECTS (AIBP WORKS) REPORTED COMPLETED/ALMOST COMPLETED

S. No.	State	Name of the Project	Ultimate Irrigation Potential (in Th.Ha.)
1	Andhra Pradesh	Maddigedda	1.42
2	Assam	Champamati	25.00
3		Dhansiri	86.37
4	Chhattisgarh	Maniyari Tank	14.52
5		Kharung	10.30
6	Jammu & Kashmir	Rajpora Lift	2.43
7		Restoration & Mod. Of Main Ravi Canal	50.75
8		Tral Lift	6.00
9	Karnataka	Sri Rameswar Irrigation	13.80
10		Bhima LIS	24.29
11		Narayanpur LBC	105.00
12		Karanja	29.23
13	Madhya Pradesh	Singhpur Project	10.20
14		Mahuar Project	13.78
15		Sagad Project	17.06
16		SindhProject Phase-II	162.10
17		Indira Sagar Project Canal Phase-I&II (km.0 to km.142)	62.20
18		Omkareshwar project Canal Phase-IV (<i>OSP lift</i>)	54.63
19		Indira Sagar Project Canal Phase-V (<i>Khargone Lift</i>)	33.14
20		Bansagar Unit 2	154.54
21		Barriyarpur LBC	43.85
22		Sanjaysagar(Bah)Project	17.81
23		Bargidiversion Project Ph-I	21.19

S. No.	State	Name of the Project	Ultimate Irrigation Potential (in Th. Ha.)
24		Mahi Project	33.75
25		Mahan Project	19.74
26		Omkareshwar Project Canal Phase-II	19.578
27		Omkareshwar Project Canal Phase-III	48.592
28		Indira Sagar Project Canal Phase-III	20.7
29		Indira Sagar Project Canal Phase-IV	19.6
30	Maharashtra	Bawanthadi (IS)	27.71
31		Lower Panzara	6.79
32		Dongargaon	2.77
33		Warna	54.75
34		Nandur Madhmeshwar Ph-II	20.50
35		Upper Kundalika	2.80
36		Lower Dudhna	44.48
37		Khadakpurna	23.86
38		Dhom Balakwadi	18.10
39		Wang	7.07
40		Gadnadi	3.47
41		Krishna Koyna LIS	104.17
42	Manipur	Dolaithabi	7.54
43	Odisha	Upper Indravati(KBK)	85.95
44		Rukura-Tribal	7.65
45		Ret	8.50
46		Telengiri	13.83
47		Lower Indra	35.87
48	Punjab	Kandi Canal Extension (Ph.II)	23.33
49		Rehabilitation of 1 st Patiala Feeder and Kotla Branch Project	68.62
50	Rajasthan	Narmada Canal	245.88
51		Mod. Of Gang Canal	69.69
52	Telangana	Gollavagu Project	3.85

S. No.	State	Name of the Project	Ultimate Irrigation Potential (in Th. Ha.)
53		Rallivagu project	2.43
54		Mathadivagu Project	3.44
55		Sri Komaram Bheem project	9.92
56	Uttar Pradesh	Bansagar Canal	150.13
57		Sary Nahar Paroyojna	1312.00
58	Goa	Tillari	14.52

ANNEXURE -V

CENTRAL ASSISTANCE & STATE SHARE RELEASED FOR AIBP WORKS OF 99 PRIORITY PROJECTS UNDER PMKSY

(Rs. in crore)

Sl. No.	State	Releases under PMKSY-AIBP					
		2016-17 to 2022-23		2023-24		Total 2016-17 to 2023-24	
		CA Released	State Share release through NABARD	CA Released	State Share release through NABARD	CA Released	State Share release through NABARD
1	Andhra Pradesh	22.63	489.34	0.00	0.00	22.63	489.34
2	Assam	0.00	108.10	0.00	7.91	0	116.01
3	Bihar	110.24	0.00	0.00	0.00	110.24	0
4	Chhattisgarh	46.05	0.00	3.57	0.00	49.62	0
5	Goa	0.00	209.94	0.00	0.00	0	209.94
6	Gujarat	4501.39	3611.03	32.40	0.00	4533.79	3611.03
7	Jharkhand	756.73	518.10	0.00	250.00	756.73	768.1
8	Karnataka	1190.05	0.00	0.00	0.00	1190.05	0
9	Kerala	0.00	0.00	0.00	0.00	0	0
10	Madhya Pradesh	756.15	1296.60	40.62	46.5	796.77	1343.1
11	Maharashtra	2265.76	14279.58	240.15	1730.11	2505.91	16009.69
12	Manipur	240.11	335.12	0.00	0.00	240.11	335.12
13	Odisha	1208.86	3755.98	0.00	502.33	1208.86	4258.31
14	Punjab	52.42	0.00	0.00	0.00	52.42	0
15	Rajasthan	458.56	259.01	0.00	0.00	458.56	259.01
16	Telangana	981.49	0.00	0.00	0.00	981.49	0
17	Uttar Pradesh	1421.82	6431.18	0.00	0.00	1421.82	6431.18
18	UT of J&K	39.71	0.00	0.00	0.00	39.71	0
19	UT of Ladakh	2.98	0.00	0.00	0.00	2.98	0
	Total	14054.95	31293.98	316.74	2536.85	14371.7	33830.8

ANNEXURE-V (CONTINUED)**CENTRAL ASSISTANCE RELEASED FOR AIBP WORKS
OF NEWLY INCLUDED PROJECTS UNDER PMKSY**

S. No.	State	Project Name	CA released till March 2023 (Rs. in crore)	CA released during 2023-24 (Rs. in crore)	CA released till March 23-24 (Rs. in crore)
1	Maharashtra	Jihe Kathapur Project	39.02	26.81	65.84
2	Himachal Pradesh	Nadaun Project	2.25	0	2.25
3		Renukaji dam Project*	1,495.50	414.46	1909.96
4	Rajasthan	Parwan multipurpose project (National Project)	41.43	154.88	196.31
5	TamilNadu	Kannadian channel	34.74	0	34.74
6	Assam	ERM of Sukla irrigation project	41.98	0	41.98
7	Manipur	ERM of Loktak LIS (Ph-I)	24.88	5.91	30.79
8	Uttarakhand	Lakhwar multipurpose project (National Project)	38.58	165.56	204.14
9	Uttarakhand	Jamrani Dam multipurpose project	0	0	0
10	Maharashtra	Bodwad Parisar Sinchan Yojana, Stage-I	0	0	

**Rs. 446.96 crore were released to Renukaji dam Project during 2016-17 in pursuant to Supreme Court order for enhanced land compensation.*

ANNEXURE-VI

CENTRAL ASSISTANCE & STATE SHARE RELEASED FOR CADWM WORKS OF PRIORITY PROJECTS UNDER PMKSY (AS ON 31.03.2024)

(Rs. in crore)

Sl. No.	State	Total (2016-17 to 2023-24)	
		CA released	State Share release through NABARD
1	AndhraPradesh	69.18	0.00
2	Assam	7.55	0.00
3	Bihar	35.82	0.00
4	Chhattisgarh	28.58	0.00
5	Goa	3.84	0.00
6	Gujarat	1,719.15	0.00
7	Jammu & Kashmir *	3.57	0.00
8	Jharkhand	0.00	0.00
9	Karnataka	78.26	0.00
10	Kerala	2.69	0.00
11	MadhyaPradesh	361.36	361.36
12	Maharashtra	279.495	112.07
13	Manipur	9.822	34.900
14	Odisha	131.964	347.01
15	Punjab	82.08	0.00
16	Rajasthan	155.55	164.05
17	Telangana	36.34	0.00
18	Uttar Pradesh	156.00	0.00
	Total	3128.794	1019.39

ANNEXURE-VII**STATE/UT - WISE DETAILS OF CENTRAL ASSISTANCE
RELEASED UNDER FMP/FM COMPONENT OF FMBAP****(Rs. in crore)**

Sl. No.	State	Funds released under FMP						2022- 23	2023- 24	Total funds release d
		During 11 th and 12 th Plan	2017 - 18	2018 - 19	2019- 20	2020- 21	2021- 22			
1	Arunachal Pradesh	169.60	21.18	--	--	--	0			190.78
2	Assam	813.75	245.49	142.12	85.03	--	14.08	248.65	7.2012	1557.04
3	Bihar	907.82	--	16.58	--	--				924.40
4	Chhattisgarh	19.32	--	--	--	--				19.32
5	Goa	11.98	--	--	--	--				11.98
6	Gujarat	2.00	--	--	--	--				2.00
7	Haryana	46.91	--	--	--	--				46.91
8	Himachal Pradesh	387.85	87.50	162.60	176.41	11.87	6.35		30.16	862.74
9	Jammu & Kashmir	422.52	110.40	52.20	92.74	10.14	116.79		0.486	805.27
10	Jharkhand	22.71	--	--	--	--				22.71
11	Karnataka	23.80	--	--	--	--				23.80
12	Kerala	118.90	19.05	--	--	--				137.95
13	Manipur	90.70	--	--	--	--	52.38	76.63	62	281.71
14	Meghalaya	3.81	--	--	--	--				3.81
15	Mizoram	16.41	0.48	--	--	--				16.88
16	Nagaland	83.12	--	10.84	--	--			0.864 78	94.83

(Rs. in crore)

Sl. No.	State	Funds released under FMP							2023-24	Total funds released
		During 11 th and 12 th Plan	2017 - 18	2018 - 19	2019-20	2020-21	2021-22	2022-23		
17	Odisha	101.12	--	--	--	15.79	2.51			119.42
18	Puducherry	7.50	--	--	--	--				7.50
19	Punjab	40.43	--	--	--	--				40.43
20	Sikkim	91.84	--	--	--	--				91.84
21	Tamil Nadu	59.82	--	--	--	--				59.82
22	Tripura	23.62	--	--	--	--				23.62
23	Uttar Pradesh	401.91	13.55	15.58	39.15	--				470.19
24	Uttarakhand	203.61	--	4.63	35.58	--	2.77			246.59
25	West Bengal	802.01	65.03	23.65	117.12	--	44.15			1051.96
	Total	4,873.07	562.67	428.20	546.01	37.79	239.03	325.28	100.71	7,113.50

ANNEXURE-VIII

STATE -WISE AREA PROTECTED AND POPULATION BENEFITTED UNDER FLOOD MANAGEMENT PROGRAMME DURING 11th & 12th PLAN

Sl. No	State	Projects (in number)	Area protected (hectares)	Population benefitted (number)
1	Arunachal Pradesh	21	47,617	2,01,209
2	Assam	111	7,21,018	1,77,12,497
3	Bihar	42	28,67,117	2,23,45,566
4	Chhattisgarh	3	100	35,596
5	Goa	2	300	27,000
6	Gujarat	2	320	46,400
7	Haryana	1	1,41,279	10,53,441
8	Himachal Pradesh	6	14,462	2,75,694
9	Jammu & Kashmir	24	2,32,194	16,01,693
10	Jharkhand	3	17,700	1,965,00
11	Karnataka	2	18	80,000
12	Kerala	2	3,841	10,756
13	Manipur	22	39,315	2,01,640
14	Mizoram	1	136	312
15	Nagaland	14	2,463	1,63,000
16	Odisha	66	1,93,749	11,54,300
17	Punjab	4	11,383	55,500
18	Sikkim	28	48,728	2,06,534
19	Tamil Nadu	5	3,19,517	20,17,103
20	Tripura	11	1,964	88,480
21	Uttar Pradesh	24	2,64,862	39,64,469
22	Uttarakhand	18	25,908	1,77,162
23	West Bengal	15	1,03,416	24,94,250
	Total	427	50,57,407	5,41,09,102

ANNEXURE -IX

‘SURVEY & INVESTIGATION’ AND PREPARATION OF DETAILED PROJECT REPORTS OF MULTIPURPOSE PROJECTS BY BRAHMAPUTRA BOARD

Sl. No.	Name of Project	Basin	Installed Capacity (MW)	Status
A. Completed DPR				
1.	Dihang (Siang) Dam Project	Brahmaputra	20,000	Single-stage project DPR was completed in 1983 by the Board. Handed over to NHPC under 3 stage development in 2000
2.	Subansiri Project	Brahmaputra	4,800	Single stage project DPR was completed in 1983 by the Board. Handed over to NHPC under 3 stage development in 2000
3.	Tipaimukh Project	Barak	1,500	DPR completed in 1995. Handed over to NEEPCO in 1999
4.	Bairabi Dam Project	Barak	75	Handed over to Govt. of Mizoram in 2000
5.	Pagladiya Project	Brahmaputra	3	Implementation by Brahmaputra Board halted due to inability to provide land for construction by Government of Assam.
B. DPR Partially completed				
1.	Dibang Dam Project	Brahmaputra	4,900	S & I Executed by the Board and DPR partially completed. Handed over to NHPC in 2006 and under execution by NHPC.
2.	Lohit Dam Project	Brahmaputra	3,000	S & I completed. Project entrusted to private developer by Govt. of Arunachal Pradesh in 2009.
3.	Kynshi Stage-I Dam Project	Others	450	S & I was under final stage of completion.
4.	Kynshi Stage-II Dam Project	Others	450	Govt of Meghalaya assigned the project to private developers in 2011.

Status of Projects currently under S & I and DPR preparation is as under:

Sl. No.	Name of Project	State	Basin	Installed Capacity (MW)	Status
1.	Kulsi Multi-Purpose Project (Identified as National Project)	Assam & Meghalaya	Brahmaputra	55	DPR completed. Government of Assam vide letter No. PEL.227/2021/5 dt. 14.03.2022 requested to formally hand over the project DPR for implementation funded by Government of Assam. Government of Meghalaya vide letter No. POL 146/2021/104 dt. 23.02.2022 requested to keep in abeyance the execution till issue of boundary dispute is settled with Govt. of Assam.
2.	Noa-Dehing Dam Project (Identified as National Project)	Arunachal Pradesh	Brahmaputra	72	DPR completed. Govt. Of Arunachal Pradesh has taken over the project.
3.	Simsang Dam Project	Meghalaya	Others	65	Work for preparation of DPRs is entrusted to WAPCOS and is in progress.
4.	Jiadhal Dam Project	Arunachal Pradesh	Brahmaputra	70	
5.	Killing Dam Project	Assam & Meghalaya	Brahmaputra	85	Survey & investigation halted
6.	Preparation of DPR for flash floods of rivers in Bodo territorial Council Area	BTC, Assam	Brahmaputra	--	Draft DPR are under examination in consultation with State Water Resources department to avoid delicacy of work proposed in DPRs prepared.

ANNEXURE-X

BUDGET AT A GLANCE

(Rs. in crore)

Scheme/ Office/ Component	Actuals 2022-23	BE 2023-24	RE 2023-24	Exp. upto 31.03.2024 (Tentative)
A. Central Sector Schemes				
Farakka Barrage Project	24.96	55.98	70.92	43.36
DRIP	23.79	50.00	54.05	53.63
National Ganga Plan	2047.98	4000	3200.00	3198.18
River Basin Management	78.14	110.00	94.00	63.59
Development of Water Resources Information System	157.71	162.13	171.00	168.81
Ground Water Management & Regulation	177.18	330.00	280.00	202.84
National Hydrology Project	481.00	500	426.00	321.25
R&D and NWM	36.45	50.00	50.00	42.68
Atal Bhujal Yojana	1155.43	1000.00	1778.00	1738.21
Central Sector Schemes (Total)(A)	4182.64	6258.11	6123.97	5832.19
B. Centrally Sponsored Schemes				
PMKSY				
HKKP	4193.85	4175.00	4374.41	4579.36
a. Debt Servicing	3757.85	3875.00	3774.41	3768.16

Scheme/ Office/ Component	Actuals 2022-23	BE 2023-24	RE 2023-24	Exp. upto 31.03.2024 (Tentative)
b. SMI & RRR	371.44	300.00	600.00	811.20
c. GW	64.56	0.00	0.00	0.00
(ii)AIBP and CADWM	767.68	3522.23	3136.69	2908.24
AIBP and National/Special Projects	668.61	3122.23	2900.00	2733.85
CADWM	99.07	400.00	236.69	174.39
FMBAP	433.21	450	200.00	198.08
Irrigation Census	29.00	40.00	20.00	18.06
Special Package for Marathwada, Vidarbha and other drought prone areas of Maharashtra	213.02	400.00	700.00	699.99
National River Conversation Plan-Others Basins	442.64	300.00	432.00	411.56
Interlinking of river	624.34	3500.00	3200.00	3195.00
Centrally Sponsored Schemes (Total (B)	6703.74	12387.23	12063.10	12010.29
Scheme Total (A+B)	10886.38	18645.34	18187.07	17842.48
C. Establishment				
Secretariat- Economic Services	122.12	279.07	285.54	255.72

Scheme/ Office/ Component	Actuals 2022-23	BE 2023-24	RE 2023-24	Exp. upto 31.03.2024 (Tentative)
Attached, Subordinate & Other offices				
Central Water Commission	386.52	460.00	400.00	392.34
Central Soil & Material Research Station	27.60	28.77	30.47	29.67
Central Water & Power Research Station	67.61	100	73.00	72.16
NDSA	0.12	12.68	12.68	3.78
Bansagar Control Board	0.10	0.55	0.30	0.02
Upper Yamuna river Board	8.02	10.00	7.26	3.53
Central Ground Water Board	282.98	304.49	304.00	290.129
National institute of Hydrology	43.67	50.00	55.00	49.95
National Water Information Centre	2.68	3.95	3.60	3.66
National River conservation Directorate	7.44	8.50	8.50	7.24
NERIWALM	18.01	26.02	24.00	23.51
Brahmaputra Board	43.47	50.00	55.50	55.50
NWDA	9.55	16.45	12.00	11.11
RGI	2.80	3.85	3.00	2.42
Sub Total © Establishment Expenditure	1075.7	1409.33	1329.85	1253.17
Grand Total (A+B+C)	11962.08	20054.67	19516.92	19095.65

ANNEXURE-XI

**LIST OF PUBLIC/STAFF GRIEVANCE OFFICERS IN THE
DEPARTMENT OF WATER RESOURCES, RIVER DEVELOPMENT &
GANGA REJUVENATION AND ITS VARIOUS ORGANISATIONS
ALONG WITH POSTAL ADDRESSES**

Sl. No.	Name of the Organization	Address	Name & Designation of P.G./S.G. Officer
1.	Department of Water Resources, River Development and Ganga Rejuvenation	Room No. 01, 'B' Wing, Shastri Bhavan, New Delhi-110001 (Tel No. 011-23074005)	Shri G.S. Panwar Deputy Secretary (Coord.) Email Id: dscoord-mowr@nic.in
2.	Narmada Control Authority	Room No. 221, Narmada Sadan, Sector-B, Scheme No. 74, Vijay Nagar, Indore – 452010, Madhya Pradesh, (Tel No. 0731-2554477) E-mail: secy.nca@nic.in	Shri Yogesh Pushwani, Secretary and Grievance Redressal Officer
3.	Betwa River Board	Betwa River Board, Nandanpura, Jhansi, Uttar Pradesh- 284003 (Tel No. 0510-2480279)	Shri Kautuk Jain Pay & Accounts Officer and Grievance Officer
4.	Central Ground Water Board	Bhujal Bhawan NHIV, Faridabad-121001 Phn.No. 8718803058 Office Phn. No.-0129-2477410 diradm-cgwb@nic.in	Dr. Ratikanta Nayak, Regional Director & Director (Administration)
5.	Central Soil and Materials Research Station	Room No. 214, New Building, CSMRS, Hauz Khas, New Delhi-110 016 (Tel No. 0-11 26563140; Extn 2214 FAX No.-26853108	Dr. Amardeep Singh Scientist 'E' & Director (Grievances),
6.	Central Water Commission	Room No. 308, Sewa Bhawan, R.K. Puram, New Delhi-110066, (Tel No. 011 26187232) (Fax No. 26195516)	Praveen Kumar (Staff Grievances Officer & Secretary)
7.	Central Water & Power Research Station	Central Water & Power Research Station, P.O. Khadakwasla, Research Station, Pune - 411024 (Tel No. 020-24103402)	Dr. Jireshwar Sinha, Scientist 'E', and Grievance Redressal Officer

Sl. No.	Name of the Organization	Address	Name & Designation of P.G./S.G. Officer
8.	Farakka Barrage Project	Office of the General Manager P.O. Farakka Barrage, Distt. Murshidabad, West Bengal- 742212 (Tel No. 03485-253335)	Shri Uday Kumar Mondal, Sr. Administrative Office
9.	Ganga Flood Control Commission	Ganga Flood Control Commission, First Floor, Ganga Bhawan, Amarnath Path, Adalatganj, Patna-800001	Shri Sanjeev Kumar Director Coord. & Director (Staff Grievances & Public Grievances) e-mail:- dir-mp2-gfcc@nic.in
10.	National Institute of Hydrology	National Institute of Hydrology Jal Vigyan Bhawan, Roorkee, Uttarakhand - 247667 (Tel No. 01332249222)	Dr. Nitesh Patidar, Scientist-C, Public Grievance Officer
11.	National Projects Construction Corporation Limited	NPCC Ltd., Plot No. 148, Sector -44, Gurugram, Haryana-122003	Smt. Jasmine Dhar Singh GM (HR) Staff Grievance Redress Officer, NPCC Sh. Arindam Guha Director (Public Grievances), NPCC
12.	National Water Development Agency	18-20, Community Centre, Saket, New Delhi-110017 (Tel No. 26852735)	Shri Baleshwar Thakur, Chief Engineer (HQ) & Grievance Officer
13.	Water & Power Consultancy Services(India) Ltd.	76, C, Institutional Area, Sector-18, Gurugram, Haryana-122015, Tel No: - 0124-2348021 Email Address: grievances@wapcos.co.in	Shri Sanjay Sharma, Director (Staff/Public Grievance)
14.	Brahmaputra Board	Brahmaputra Board Basistha, Guwahati - 781029 Mobile: 8486809881 (Tel No. 0361-2300128)	Smt. Jalee Bezbaruah, Executive Engineer (HQ) - Brahmaputra Board - Public Grievances Officer
15.	Upper Yamuna River Board	Upper Yamuna River Board, Yamuna Bhawan, C-56/3, Sector-62, NOIDA, Uttar Pradesh - 201309 (Tel 0120-4971338)	Sh. Ravi Bhushan Kumar Member Secretary, UYRB
16.	Tungabhadra Board	Tungabhadra Board, Tungabhadra Dam, Vijayanagara District, Karnataka State. - 583225	Sri O.R.K. Reddy Secretary, & Director of Grievances

Sl. No.	Name of the Organization	Address	Name & Designation of P.G./S.G. Officer
17.	National Mission for Clean Ganga	1st Floor, Major Dhyanchand National Stadium, New Delhi-110002.	Shri Kundan Lal, Under Secretary, NMCG
18.	National Water Informatics Centre (NWIC)	4 th Floor, Sewa Bhawan, New Delhi-110066	Shri Adhir Kumar Mallik, Under Secretary (Admn.)
19.	North Eastern Regional Institute of Water and Land Management	Tezpui Dolabari, P.O. Kalaibhomora Tezpur, Assam-784027, Assam, India	Dr.Pradip Kumar Bora, Director, NERIWALM Public-Grievance Officer,NERIWALM
20.	Godavari River Management Board (GRMB)	Godavari River Management Board, 5 th Floor, Jalasoundha, Errum Manzil, Hyderabad-500082 Phone: 040-2331313164, Fax: 040-23313162 E-mail: membersecy-grmb@gov.in	Shri R. Azhagesan, Member Secretary, GRMB
21.	Krishna River Management Board (KRMB)	Krishna River Management Board, 5 th Floor, Jalasoudha, Errum Manzil, Hyderabad-500082 Phone: 040-23301858 Fax: 040-23301655 E-mail:membersecretary-krmb@gov.in	Shri D.M. Raipure, Member Secretary, KRMB
22.	National River Conservation Directorate (NRCD)	Room No. 140, 1 st Floor, Pt. Deendayal Antyodaya Bhawan, First Floor, C.G.O. Complex, Lodhi Road, New Delhi- 110003 Tel No.- 011-24366018 Email:nelapatla.ashokbabu@gov.in	Shri Nelapatla Ashok Babu, Director(NRCD)
23	National Water Mission	Room No. 235 , 2 nd floor , Block 3, CGO Complex , Lodhi Road, New Delhi	Shri A.P. Singh, Director, Public Grievance officer, dealing with PG Portal
24.	Polavaram Project Authority	H.No. 11-4-648, I Floor, Krishna Godavari Bhawan, A.C. Guards, Hyderabad - 500004	Shri M. Ramesh Kumar, Grievance Officer, Director (A&C), PPA
25.	Principal Account Office, DoWR, RD & GR	Principal Account Office, 'C' Wing, Ground Floor, Shastri Bhawan, New Delhi-110001	Shri Subhash Chandra, Controller of Accounts &Public-Grievance Officer

ANNEXURE – XII

**LIST OF CENTRAL PUBLIC INFORMATION OFFICERS / APPELLATE
AUTHORITIES IN THE VARIOUS WINGS / SECTIONS OF THE
DEPARTMENT OF WATER RESOURCES, RIVER DEVELOPMENT &
GANGA REJUVENATION**

S. No.	Name & Designation of CPIO Appointed (S/Shri/ Smt)	Name of the Section/ Desk/work	Name & Designation of the Appellate Authority appointed (Shri/Smt/Kum)
1	Raju, Under Secretary (Admn/Cash) Tel No.011-23738126 Email id : usadmn-mowr@nic.in	Administration Section /Cash Section & SC/ST/OBC Cell	Shanker Lal, Deputy Secretary (Admn /Cash) Tel. No. 011-23712655 Email id : dsadmn-mowr@nic.in
2	Ashish Kumar Sao (General Administration) Tel No. 011-23710333 Email: usga-mowr@nic.in	General Administration	S.B. Pandey, Deputy Secretary General Administration Tel.No.011-23714734 Email id: dsga-dowr@gov.in
3	Anil Kumar Sharma, US(E-I) Tel No. 011-23716928 Email: use1-mowr@nic.in	E-I Section	Bhuvaneshwari Hariharan, Deputy Secretary (E-I) Tel No.011-23711459 Email id :- b.hariharan@nic.in
4.	Raju, (admn/Cash) Tel No. 011-23738126 Email id: usadmn-mowr@nic.in	E-III	Shri Mahendra Nath Deputy Secretary (E-III) Email.Id: Mahendra.nath67@nic.in Tel.No.-011-23714734
5.	Arvind Joseph Soreng Under Secretary (PSU) Tel. No-011-23714350 Email id: Uspp-mowr@nic.in	PSU	Barjmohan Lal Meena, Deputy Secretary (PSU) Tel. No.-011-23711875 Email id. Barjmohan.meena@nic.in
6.	Arvind Joseph Soreng Under Secretary (PSU) Tel. No-011-23714350 Email id: Uspp-mowr@nic.in	Policy and Planning	O.P Gupta, Senior Joint Commissioner(PP) Tel No. 011-23719603 Email id; sjcpp-mowr@nic.in

S. No.	Name & Designation of CPIO Appointed (S/Shri/ Smt/Kum)	Name of the Section/ Desk/work	Name & Designation of the Appellate Authority appointed (Shri/Smt/Kum)
7.	Shri Mahesh Kumar Kashyap Under Secretary (IEC/e-Gov) Tel No-011-23766944 Email id :-mk.kashyap@gov.in	IEC/e-Gov	Dalbir Singh, Deputy Secretary (IEC, e-Gov) Tel No.011-23766369 Email id : dalbir.singh@nic.in
8	Manish Uniyal, Under Secretary (Coord.) Tel No.011-23383078 Email id :uscoord-mowr@nic.in	Coordination Section	G.S. Panwar, Deputy Secretary (Coord.), Tel No.011-23074005 Email id :dscoord-dowr@nic.in
9.	Avinash Chandra, Under Secretary (EA & IC) TelNo.011-23383078 Email id :coord-mowr@gov.in	EA&IC	Lokesh Kumar Jain Director, (EA & IC) Tel No.011-23382448 Email id:-dsea-mowr@nic.in
10	Shalini Gupta, Under Secretary(GWE) Tel.No.011-23716928 Email id :usgw-mowr@nic.in	GWE	S.M Routray, Director (GWE), TelNo.011-23712654 Email id : sm.routray67@nic.in
11.	Jitendra Kumar, Under Secretary (Budget) Tel No.011-23719627 Email id :jitendra.kr80@nic.in	Budget	A.K. Sahoo, Deputy Secretary (Fin-I) Tel No.011-23711360 Email id : ak.sahoo@nic.in
12.	Narayanan Bhattadiri K.P. Under Secretary (E-IV) Tel No.: 011-23711946 Email Id: use4-mowr@nic.in	E-IV	S.B. Pandey, Deputy Secretary(E-IV) Tel No. 011-23714374 Email id: sb.pandey@nic.in
13.		Parliament	B.L. Meena, Deputy Secretary (PSU) Tel No. 011-23711875 Email id: barjmohan.meena@nic.in
14 .	Ajay Kumar Malik, Under Secretary (Fin-II) Tel No. 011-23711302 Email id :ajay.malik@nic.in	IFD	A.K. Sahoo, Deputy Secretary (Finance) Tel No.011-23711875 Email id : dirfin-mowr@nic.in

S. No.	Name & Designation of CPIO Appointed (S/Shri/Smt/Kum)	Name of the Section/ Desk/work	Name & Designation of the Appellate Authority appointed (Shri/Smt/Kum)
15.	Vinod Kumar Gupta, Under Secretary (E-II) Tel. No. 011-23711946 Email id: vinod.9450@gov.in	E-II	Shashi Pal, Director (E-II) Tel. No. 011-23310409 Email: palshashi@nic.in
16	Prashant Malik Under Secretary (Vig) Tel No.011-23350131 Email: usvig-mowr@nic.in	Vigilance	Lokesh Kumar Jain, Director (Vigilance) Tel No.011-23382448 Email id: dirvigilance-mowr@nic.in
17	Rajendra Kumar Sahoo, Under Secretary (GW) Tel No. 011-23716928 Email: usgw2-mowr@nic.in	Ground Water	Vinayak Bhatt, Director (GW) Tel No. 011- 24320293 Email id : dirgw-mowr@gov.in
18.	Aman Bishnoi, SO (Atal Jal) Tel. No. 011-24367069	Atal Jal	Raghav langer, Director (Atal Jal) Email Id. r.langer@ias.nic.in
19.	Anil Kumar, Assistant Director (OL), Tel. No. 011-23310408 Email id: anilk.mahraja@gov.in	Official language Section	Vijay Singh Meena, Director (OL) Tel.No.011-23714374 Email id: vsmeena25@nic.in
20	Kaushal Kumar, Deputy Commissioner (B&B) Tel No.011-24367106 Email : kaushalkmr-cwc@nic.in	Matters of Brahmaputra & Barak Wing	Ram Das Meena, Senior Joint Commissioner (B&B) Tel No.011-24367590 Email: sjc3bb-mowr@gov.in
21	Vinod Kumar, Under Secretary (NHP) Tel.No.011-21420161 Email: kumar.bharti@gov.in	National Hydrology Project	Ashis Banerjee, Senior Joint Commissioner (NHP) Tel No.011-24367081 Email: sjc1nhp-mowr@nic.in
22	Anil Kumar, Assistant Engineer(FM) Tel No.011-24656135 Email id anilkumar.mowr@nic.in	FM	Rajeev Singhal SJC –IV (FM) Tel No. 011-24392095 Email: sjcfm4-mowr@nic.in

S. No.	Name & Designation of CPIO Appointed (S/Shri/Smt/Kum)	Name of the Section/ Desk/work	Name & Designation of the Appellate Authority appointed (Shri/Smt/Kum)
23	Sh. Mohit Kumar, Deputy Director (CADWM) Tel.No.011-23383090 Email:cadwm-mowr@nic.in	CAD related matters	. B.B. Saikia, Senior Joint Commissioner (CADWM) Tel.No.23388977 Email: cadwmwm-mowr@nic.in
24	Kumar Vaibhav, Deputy Commissioner (Basin Management) Tel No.011-24364473 Email id : dcbm-mowr@nic.in	River Basin Management, Administration of UP, Bihar, MP Reorganisation Act, Inter State Water Disputes Act, Inter State Water Disputes Tribunal, technical matters of NWDA and Inter-Linking of Rivers	Rakesh Kumar, Sr. Joint Commissioner (Basin Management) Tel No.011-24367109 Email id : sjcbm-mowr@nic.in
25	Sh. Veeresh, Deputy Commissioner (SPR-I) Tel No.011-23385186 Email: veeresh-cwc@gov.in	SPR-I	D.C. Bhatt, Sr. Joint Commissioner (SPR-I), Tel No.011-23385186 Email id: sjcspr1-mowr@nic.in
26	Abhiram Kumar, Under Secretary (Pen. River) Tel No .011-23383059 Email : uspenriv-mowr@gov.in	Peninsular River Wing	S.S. Bonal, Sr. Joint Commissioner (PR-I) Email id : cadwmsouth-mowr@nic.in
27	Abhinav Kumar Singh, Assistant Commissioner (Minor Irrigation) Tel No. 011-23387834 Email id : abhinavksinghies.cwc@gov.in	Minor Irrigation	S.L. Meena, Sr. Joint Commissioner (MI) Tel.No.011-23387834 Email id : sjcmi-mowr@nic.in
28	Shreyas Gune, Deputy Commissioner (SPR-II), Tel No .011-23714129 Email id: dcspr-mowr@nic.in	SPR-II Section	Amit Kumar Jha, Senior Joint Commissioner (SPR-II) Tel No.011-23710131 Email id : sjcpr-mowr@nic.in
29	Sumit Gupta, Deputy Commissioner (Indus) Tel No. 011-24360332 Email: dcindus-mowr@nic.in	Indus Wing	Naveen Kumar, Sr. Joint Commissioner (Indus) Tel No. 011-24361437 Email: sjcindus1-mowr@nic.in

S. No.	Name & Designation of CPIO Appointed (S/Shri/Smt/Kum)	Name of the Section/ Desk/work	Name & Designation of the Appellate Authority appointed (Shri/Smt/Kum)
30.	Anshika Bhatnagar, SEO (MI Stat) Tel No .011-24654503 Email id : bhatnagar.anshika@gov.in	Minor Irrigation Statistics	Soumya P Kumar Director (MI Stats) Tel No. 011-24654503 Email: soumya.kumar@gov.in
31.	Shambhu Nath Gupta, Under Secretary (National Water Mission) Tel No.011-24368985 Email id : usnwm-mowr@gov.in	National Water Mission	A.P. Singh, Deputy Secretary (National Water Mission) Tel No.011-24366614 Email id : arvindp.singh22@nic.in
32.	Kundan Lal, Under Secretary (NMCG), Tel. No. 011-23072900 Email id: Kundan.lal68@gov.in	Namami Gange	Binod Kumar, Director, National Mission for Clean Ganga Tel No.011-23072900 Email : binodkumar.ofb@nic.in
33.	Shri Yogesh Kumar, Under Secretary, TelNo. 24361057 Email:- yogesh.kr@nic.in	National River Conservation Directorate (NRCD)	Nelapatla Ashok Babu, Director(NRCD) Tel No. 011-24366018 Email id : nelpatla.ashokbabu@gov.in
34.	Vinod Kumar, Under Secretary(NHP), Tel No. 011-21420161 Email Id: Kumarv.bharti@gov.in	NHP	Ashis Banerjee, SJC (NHP), Tel No. 01124367081 Email id: Sjc1nhp-mowr@gov.in
35.	Chandrima Das, Deputy Director Tel No. 011- 24362517 Email:- chandrima.das.dgcis@gov.in	Planning Unit	Arun C. Adatte Joint Director Email Id: ac.adatte@gov.in

Note: In case work of any CPIO/ Appellate Authority is changed due to transfer/ retirement/ any other reasons and a new official joins in place of the existing CPIO/ Appellate Authority, he/ she would automatically be the CPIO/ Appellate Authority of the allotted work. In case any CPIO/Appellate Authority proceeds on leave/training, the concerned Link Officer or the officer who is entrusted with the charge of the post of the concerned Division/Branch Head would automatically be the CPIO/Appellate Authority of the allotted work.

Annexure-XIII

LIST OF OTHER IMPORTANT PUBLICATIONS OF DoWR, RD & GR AND ITS ORGANISATIONS DURING 2023-24

Sl. No.	Publication	Published by	Website
1.	Compilation of Status of Ongoing Major and Medium Project -2022	CWC	https://cwc.gov.in/
2.	Water Resources at a Glance - 2021	CWC	https://cwc.gov.in/
3.	Pricing of Water in Public System in India -2022	CWC	https://cwc.gov.in/
4.	Jal Charcha (Monthly)	DoWR, RD & GR	http://jalshakti-dowr.gov.in/
5.	Jalansh (Monthly)	CWC	https://cwc.gov.in/
6.	Bhujal Samwad (Quarterly)	CGWB	https://cgwb.gov.in/
7.	1st census of water bodies Report (vol - I & II)	DoWR	http://jalshakti-dowr.gov.in/
8.	6th Minor Irrigation census Report (Vol - I & II)	DoWR	http://jalshakti-dowr.gov.in/



**GOVERNMENT OF INDIA
MINISTRY OF JAL SHAKTI
DEPARTMENT OF WATER RESOURCES,
RIVER DEVELOPMENT AND GANGA REJUVENATION
NEW DELHI**