

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

# REPORT 2021-22

Renuka and Lakhwar Projects for water security of Northern States

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Ken-Betwa Interlinking of Rivers Project for water security of Bundelkhand

Jal Shaktı Abhıyan-II (Catch the Raın campaıgn) ın all Districts of India

Dam Safety Bill passed in the Parliament, heralding a new era of dam safety in India

Jal Shakti - Jan Shakti



# ANNUAL REPORT 2021-22





# GOVERNMENT OF INDIA MINISTRY OF JAL SHAKTI DEPARTMENT OF WATER RESOURCES RIVER DEVELOPMENT AND GANGA REJUVENATION NEW DELHI

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# **ABBREVIATIONS**

| Asian Development Bank                                    |
|-----------------------------------------------------------|
| African Development Bank                                  |
| Association of Global<br>Groundwater Scientists           |
| Accelerated Irrigation<br>Benefits Programme              |
| All India Council for Technical<br>Education              |
| Atal Mission for Rejuvenation<br>and Urban Transformation |
| Agriculture Mechanisation<br>and Training Centre          |
| Artificial Recharge                                       |
| Administrative Staff College of<br>India                  |
| Annual Water Account                                      |
| Brahmaputra Board                                         |
| Bansagar Control Board                                    |
| Billion Cubic Meter                                       |
| Betwa River Board                                         |
| Bio-chemical Oxygen Demand                                |
| Border Out Post                                           |
| Build, Operate, Own and<br>Transfer                       |
| Central Assistance                                        |
| Command Area Development<br>& Water Management            |
|                                                           |

| CAU     | Central Agricultural<br>University                    |
|---------|-------------------------------------------------------|
| CCA     | Culturable Command Area                               |
| CEA     | Central Electricity Authority                         |
| CGWB    | Central Ground Water Board                            |
| CLA     | Central Loan Assistance                               |
| СМС     | Cauvery Monitoring<br>Committee                       |
| CMIS    | Coastal Management<br>Information System              |
| СРСВ    | Central Pollution Control<br>Board                    |
| CPGRAMS | Centralized Public Grievance<br>and Monitoring System |
| CPIOs   | Central Public Information<br>Officers                |
| CPSU    | Central Public Sector Units                           |
| CRA     | Cauvery River Authority                               |
| CSMRS   | Central Soil & Material<br>Research Station           |
| CSR     | Corporate Social<br>Responsibility                    |
| Cumec   | Cubic metre per sec                                   |
| Cusec   | Cubic foot per sec                                    |
| CVC     | Central Vigilance Commission                          |
| CWC     | Central Water Commission                              |
| CWES    | Central Water Engineering<br>Service                  |

| CWPRS    | Central Water & Power<br>Research Station            | E<br>F  |
|----------|------------------------------------------------------|---------|
| CWDT     | Cauvery Water Disputes<br>Tribunal                   | E       |
| DBE      | Design Basic Earthquake                              | Г       |
| DDRP     | Dam Design Review Panel                              | E       |
| DDS      | Drainage Development<br>Scheme                       | E       |
| DDUGJY   | Deen Dayal Upadhyaya Gram<br>Jyoti Yojana            | E'<br>F |
| DEM      | Digital Elevation Models                             | F       |
| DHARMA   | Dam Health and<br>Rehabilitation Monitoring          | F       |
|          | Application                                          | F       |
| DoDWS    | Department of Drinking<br>Water & Sanitation         | F       |
| DoLR     | Department of Land<br>Resources                      | F       |
| DoWR, RD | Department of Water<br>Resources, River Development  | F       |
| & GR     | and Ganga Rejuvenation                               | G       |
| DPR      | Detailed Project Report                              |         |
| DRIP     | Dam Rehabilitation and<br>Improvement Project        | G       |
| DSB      | Dam Safety Bill                                      | G       |
| DSO      | Dam Safety Organization                              | G       |
| DSRP     | Dam Safety Review Panels                             | C       |
| DVC      | Damodar Valley Corporation                           | G       |
| DWRIS    | Development of Water<br>Resources InformationSystem  | u<br>C  |
| EFC      | Expenditure Finance<br>Committee                     | Ч<br>Н  |
| e-HRMS   | Electronic-Human Resource<br>Management System       | H<br>H  |
| EISL     | Environmental Infrastructure<br>and Services Limited | Н<br>Н  |
|          |                                                      |         |

| EPA   | Environment Protection Act                     |
|-------|------------------------------------------------|
| EPC   | Engineering Procurement and Construction       |
| EPFO  | Employees Provident Fund<br>Organization       |
| ERM   | Extension, Renovation and<br>Modernization     |
| ETP   | Effluent Treatment Plant                       |
| ETF   | Empowered Task Force                           |
| FBP   | Farakka Barrage Project                        |
| FR    | Feasibility Report                             |
| FF    | Flood Forecasting                              |
| FMBAP | Flood Management and<br>Border Areas Programme |
| FMP   | Flood Management<br>Programme                  |
| FMIS  | Flood Management<br>Information System         |
| FRL   | Full Reservoir Level                           |
| GFCC  | Ganga Flood Control<br>Commission              |
| GHLSC | Gandak High Level Standing<br>Committee        |
| GPIs  | Grossly Polluting Industries                   |
| GRA   | Grievances Redressal<br>Authority              |
| GTF   | Ganga Task Force                               |
| GWM&R | Ground Water Management<br>and Regulation      |
| GSI   | Geological Survey of India                     |
| На    | Hectare                                        |
| HDPE  | High Density Polyethylene                      |
| HE    | Hydro-electric                                 |
| НККР  | Har Khet Ko Pani                               |
| HP    | Hydrology Project                              |

| НРС    | High Performance Concrete                       | IPU        | Irrigation Potential Utilized               |
|--------|-------------------------------------------------|------------|---------------------------------------------|
| HRD-CB | Human Resource<br>Development and Capacity      | ISRWD      | Inter-State River Water<br>Disputes         |
| HSO    | Building<br>Hydrological Studies                | IWMI       | International Water<br>Management Institute |
| IAs    | Organisation                                    | IWRM       | Integrated Water Resources<br>Management    |
|        |                                                 | 1147147    |                                             |
| IARI   | Indian Agricultural Research                    |            | India water week                            |
| ICAR   | Indian Council of Agricultural                  | JBIC       | Japan Bank for International<br>Cooperation |
| ID     | Research<br>Infrastructure Development          | JCWR       | Joint Committee on Water<br>Resources       |
| IEC    | Information, Education and                      | JET        | Joint Expert Team                           |
|        | Communication                                   | JGE        | Joint Group of Experts                      |
| IGWC   | International Ground Water<br>Conference        | JICA       | Japan International<br>Cooperation Agency   |
| IITF   | India International Trade Fair                  | IPO-SKSKI  | Ioint Project Office-Santa Kosi             |
| ILR    | Inter Linking of Rivers                         | JI O BRBIN | & Sun Kosi Investigation                    |
| IHHL   | Individual House Hold Latrine                   | JRC        | Joint Rivers Commission                     |
| IMD    | India Meteorological                            | KHLC       | Kosi High Level Committee                   |
|        | Department                                      | KNNL       | Karnataka Neeravari Nigam                   |
| INCCC  | Indian National Committee on                    |            | Limited                                     |
| INCGW  | Indian National Committee on                    | KRMB       | Krishna River Management<br>Board           |
| INCID  | Ground Water                                    | KWDT       | Krishna Water Disputes<br>Tribunal          |
| IIICID | Irrigation and Drainage                         | TT         | Lift Irrigation                             |
| INCWR  | Indian National Committee on<br>Water Posources | LTIF       | Long Term Irrigation Fund                   |
| INCOLL | Indian National Committeeon                     | М          | Meter                                       |
| INCON  | Hydrology                                       | MAF        | Million Acre Feet                           |
| INCSW  | Indian National Committee on                    | M Cum      | Million Cubic Meter                         |
|        | Surface Water                                   | MCC        | Master Control Centre                       |
| IPC    | Irrigation Potential Created                    | МСМ        | Million Cubic Meter                         |
| IPDS   | Integrated Power<br>Development Scheme          | MDDL       | Minimum Drawdown Level                      |

| MEE      | Multiple Effect Evaporation                            |
|----------|--------------------------------------------------------|
| MLD      | Million Liters per Day                                 |
| MMI      | Major & Medium Irrigation                              |
| Mha      | Million hectare                                        |
| MI       | Minor Irrigation                                       |
| MoEF&CC  | Ministry of Environment,<br>Forest and Climate Change  |
| MoES     | Ministry of Earth Science                              |
| MoFPI    | Ministry of Food Processing<br>Industries              |
| MoJS     | Ministry of Jal Shakti                                 |
| MoU      | Memorandum of<br>Understanding                         |
| NABARD   | National Bank for Agriculture<br>and Rural Development |
| NAPCC    | National Action Plan on<br>Climate Change              |
| NAQUIM   | National Project on Aquifer<br>Management              |
| NASC     | National Agriculture Science<br>Centre                 |
| NBWUE    | National Bureau of Water Use<br>Efficiency             |
| NCA      | Narmada Control Authority                              |
| NCDS     | National Committee on Dam<br>Safety                    |
| NCSDP    | National Committee on<br>Seismic Design Parameters     |
| NDB      | New Development Bank                                   |
| NDSAP    | National Data Sharing &<br>Accessibility Policy        |
| NER      | North Eastern Region                                   |
| NEHARI   | North Eastern Hydraulic &<br>Allied Research Institute |
| NERIWALM | North Eastern Regional                                 |

|          | Institute of Water and Land<br>Management                                  |
|----------|----------------------------------------------------------------------------|
| NGRBA    | National Ganga River Basin<br>Authority                                    |
| NGWTRI   | National Ground Water<br>Training and Research<br>Institute                |
| NHDC     | Narmada Hydro-electric<br>Development Corporation                          |
| NHP      | National Hydrology Project                                                 |
| NIH      | National Institute of<br>Hydrology                                         |
| NIH-CFMS | National Institute of<br>Hydrology- Centre for Flood<br>Management Studies |
| NLEC     | National Level Expert<br>Committee                                         |
| NLPMC    | National Level Programme<br>Monitoring Committee                           |
| NLSC     | National Level Steering<br>Committee                                       |
| NMCG     | National Mission for Clean<br>Ganga                                        |
| NPCC     | National Projects<br>Construction Corporation Ltd.                         |
| NPP      | National Perspective Plan                                                  |
| NRCD     | National River Conservation<br>Directorate                                 |
| NRCP     | National River Conservation<br>Plan                                        |
| NRLD     | National Register of Large<br>Dams                                         |
| NRSC     | National Remote Sensing<br>Centre                                          |
| NWA      | National Water Academy                                                     |
| NWDA     | National Water Development<br>Agency                                       |

| NWP          | National Water Policy                          |                        | Yojana                                                   |
|--------------|------------------------------------------------|------------------------|----------------------------------------------------------|
| NWDT         | Narmada Water Disputes<br>Tribunal             | РМР                    | Pancheshwar Multipurpose<br>Project                      |
| NWIC         | National Water Informatics                     | PPA                    | Polavaram Project Authority                              |
|              | Centre                                         | PMAY                   | Pradhan Mantri Awas Yojana                               |
| NWM          | National Water Mission                         | PMKSY                  | Pradahan Mantri Krishi                                   |
| OCEMS        | Online Continuous Effluent                     |                        | Sinchayee Yojana                                         |
| OED          | On Form Development                            | PZ                     | Piezometer                                               |
| OFD<br>O 8 M | On Farm Development                            | QPF                    | Quantitative Precipitation                               |
|              |                                                |                        | Forecast                                                 |
| OW           | Observatory Well                               | R & D                  | Research and Development                                 |
| PAC          | Project Advisory Committee                     | R&R                    | Rehabilitation and<br>Resettlement                       |
| PAF          | Project Affected Families                      | RFD                    | Results Framework Document                               |
| PDS          | Purpose Driven Studies                         |                        | L Daiiy Candhi National                                  |
| PDA          | Pancheshwar Development<br>Authority           | KGNGWTR                | Ground Water Training &<br>Research Institute            |
| PDMC         | Project Development &<br>Management Consultant | RMBA                   | River Management Activities<br>& Works related to Border |
| PER          | Pre-Feasibility Report                         |                        | Areas                                                    |
| PES          | Performance Evaluation<br>Studies              | RMIS                   | Rationalization of Minor<br>Irrigation Statistics        |
| PHED         | Public Health Engineering<br>Department        | RRR                    | Repair, Renovation and<br>Restoration                    |
| PIB          | Public Investment Board                        | RTDAS                  | Real Time Data Acquisition                               |
| PIC          | Permanent Indus Commission                     |                        | System                                                   |
| PIM          | Participatory Irrigation<br>Management         | RTWQMS                 | Real Time Water Quality<br>Monitoring Station            |
| PIP          | Polavaram Irrigation Project                   | SCEC                   | Sub Committee on                                         |
| PIRC         | Project Implementation                         | COMOC                  |                                                          |
|              | Review Committee SGWCC                         | Coordination Committee |                                                          |
| PMA          | Project Management Agency                      | SIVN                   | Satlui Ial Vidvut Nigam                                  |
| РМС          | Project Management                             | -,                     | Limited                                                  |
| PMGSY        | Pradhan Mantri Gram Sadak                      | SLWM                   | Solid Liquid Waste<br>Management                         |

| SMD      | Subject Matter Division                               | THDC   | Tehri Hydro Development<br>Corporation          |
|----------|-------------------------------------------------------|--------|-------------------------------------------------|
| SMI      | Surface Minor Irrigation                              | ת נו ח |                                                 |
| SMP      | Sediment Management Policy                            | IF-ILK | Rivers                                          |
| SOP      | Standard Operating<br>Procedure                       | ТМС    | Thousand Million Cubic feet                     |
| SPCBs    | State Pollution Control Boards                        | ToR    | Terms of Reference                              |
| SSCAC    | Sardar Sarovar Construction                           | TW     | Tube Well                                       |
| bband    | AdvisoryCommittee                                     | ULBs   | Urban Local Bodies                              |
| SSP      | Sardar Sarovar Project                                | UYRB   | Upper Yamuna River Board                        |
| STP      | Sewage Treatment Plant                                | VWDT   | Vansadhara Water Dispute                        |
| SW       | Surface Water                                         |        | Iribunai                                        |
| TAC      | Technical Advisory Committee                          | WALMI  | Water and Land Management<br>Institute          |
| ТАМС     | Technical Assistance and<br>Management Consultancy    | WAPCOS | Water and Power Consultancy<br>Services Limited |
| TANGEDCO | Tamil Nadu Generation and<br>Distribution Corporation | WB     | World Bank                                      |
| ТВ       | Tungabhadra Board                                     | WDS    | Water Detention Structure                       |
| Th.      | Thousand                                              | WEGWIS | Web Enabled Ground Water<br>Information System  |



Inauguration of 50 MLD STP Project in Ramana, Varanasi on 23<sup>rd</sup> December 2021 by Hon'ble Prime Minister



# **1. OVERVIEW**

# **1.1 INTRODUCTION**

Water is essential for sustenance of life. It is a limited resource. Water resources of the country are required to be harnessed judiciously to meet the growing requirement of our developing economy. Therefore, development, conservation and management of water resources are crucial.

The Department of Water Resources, River Development and Ganga Rejuvenation (DoWR, RD & GR) 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 ;
- Twelve 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:**



• **Two public sector enterprises:** Water and Power Consultancy Services Limited (WAPCOS) and National Projects Construction Corporation Limited (NPCC).

The Department is under the Ministry of Jal Shakti headed by the Hon'ble Union Minister Shri Gajendra Singh Shekhawat, who assumed charge on 31<sup>st</sup> May, 2019. Hon'ble Minister of State Shri Rattan Lal Kataria assumed charge on the same day and held it till 8<sup>th</sup> July, 2021. Shri Prahlad Singh Patel and Shri Bishweswar Tudu assumed charge of Hon'ble Minister of State on 8th July, 2021. Shri Pankaj Kumar has taken charge as the Secretary of the Department on 27<sup>th</sup> January, 2021. The organization chart of the Department is given at Annexure-I. The present staff strength of the Department (as on 31.12.2021) is given at Annexure-II. The list of names and addresses of Senior Officers & 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, National River Conservation Directorate, River Development & Public Policy and State Projects.

# 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 constituted was 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 upto 31.03.2021.
- The progress of the projects in physical as well as financial terms is monitored through the field units of Central Water Commission. In addition, third party monitoring of these projects is also being done through PMU. NABARD is also carrying out monitoring visits as per their norms.

- Social audit in 10% of the projects in each State after completion is contemplated.
- A GIS based portal for monitoring the progress of the projects, a mobile application has been developed for geo-tagging the project components under PMKSY-AIBP.

Central Assistance of Rs. 16,358.54 crore (AIBP: Rs. 13,577.48 crore; CADWM: Rs. 2,781.06 crore) has been provided for these projects from 2016-17 to 2021- 22 (upto 31.12.2021), out of which Rs. 611.84 crore (AIBP: Rs. 578.13 crore; CADWM: 33.71) has been provided during the year 2021-22(upto 31.12.2021).

# 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:

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

During XII Plan period, a CCA of 7.6 Mha has been targeted with CA amount of Rs. 15,000 crore which was subsequently reduced to 3.6 Mha during mid term appraisal. From 2015-16, the programme came under HKPP component of PMKSY with a target of 1.5 Mha. 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 hectare. Against this, the achievement till March, 2021 has been reported to be about 1.5 million hectare, with release of central assistance of Rs. 2,747.35 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.1200/- 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.

# 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 crore (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), tribal, 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.

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

Under the SMI scheme, since 12<sup>th</sup> plan onwards, 6,213 schemes are ongoing with an estimated cost of Rs. 13,473 crore. Under the RRR of Water Bodies scheme, since 12<sup>th</sup> Plan onwards, 2,228 schemes are ongoing with an estimated

cost of Rs. 1,910 crore. 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 lakh per hectare. Inclusion criteria for RRR of water bodies has been revised in terms of size from minimum 5 hectare to 2 hectare (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 crore, out of which Rs. 710 crore is targeted for the current financial year.

# 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 FY 2021-22, an amount of Rs.190.66 crore has been released (upto 31.12.2021) to the projects in the States of Assam, Arunachal Pradesh, Tripura, Tamil Nadu & Uttarakhand towards central assistance and 2,613 wells have been constructed creating additional command area of 3,332 Ha, benefitting 2,659 small & marginal farmers.

The scheme has been extended for the year 2021-22, with an outlay of Rs. 822 crore, targeting 1.52 lakh hectare of irrigation using ground water in regions having favorable ground water conditions.

# MINOR IRRIGATION CENSUS & CENSUS OF WATER BODIES

"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 crore for conducting 7<sup>th</sup> MI Census and 2<sup>nd</sup> Census of water bodies after completion of 6<sup>th</sup> MI Census and 1<sup>st</sup> Census of water bodies.

# 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.

# NATIONAL MISSION FOR CLEAN GANGA (NMCG)

The 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.

Namami Gange programme is an integrated Ganga conservation mission with a vision to restore the wholesomeness of the Ganga river by ensuring Aviral Dhara, Nirmal Dhara, and maintaining geo-hydrological and ecological integrity of the river. Namami Gange is following an Integrated River Basin Management (IRBM) approach with multi-sectoral and multi-agency interventions. Such interventions include pollution abatement for all sources of pollution to improve water quality, improving ecology and flow through ensuring environmental flow, conservation of wetlands, biodiversity, and demand sidemanagement. The programme aims to strengthen people-river connect through river front development and public outreach. It also strives to facilitate research, scientific mapping of different aspects, developing real-time monitoring and enabling evidence based policies and programs. The program can be broadly divided into four categories i.e. Nirmal Ganga, Aviral Ganga, Jan Ganga and Gyan Ganga.

# ATAL BHUJAL YOJANA (ATAL JAL)

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

#### **FLOOD FORECASTING**

Central Water Commission (CWC) is providing flood forecasting service at 331 stations, of which 198 are level forecasting stations on major rivers and 130 are inflow forecasting stations on major dams/ barrages. Out of these, flood forecasting service at three stations has been started during 2021. It covers 20 major river systems in the country across 25 States and UTs.

# FLOOD MANAGEMENT & BORDER AREAS PROGRAMME

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 "Flood Management and Border Areas Programme (FMBAP)" which is under implementation.

## **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., including river inter-linking projects.

|   | Category                                       | Central : State |
|---|------------------------------------------------|-----------------|
| A | Projects in North-<br>Eastern and Hilly States | 90:10           |
| В | Projects in other States                       | 60:40           |

Sixteen projects have been declared as national projects so far. These projects Gosikhurd are: 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

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 across all States & UTs in India, with 3 River Basin Organizations (RBOs) and 9 Central Government Agencies. 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. Overall, there are 48 Central and State Implementing Agencies (IAs) under this project. The project has a duration of 8 years from 2016-17 to 2023-24.

# HUMAN RESOURCE DEVELOPMENT AND CAPACITY BUILDING

The Human Resource Development and Capacity Building (HRD-CB) consists of five components namely (i) Information, Education & Communication (IEC), (ii) Central Water Commission (National Water Academy), (iii) Rajiv Gandhi National Ground Water Training Institute,(iv) North Eastern Regional Institute of Water And Land Management (NERIWALM) and (v) Trainings of officers of Department of Water Resources, RD & GR. The scheme has been discontinued from 2021-22 onwards. Resources for HRD-CB would be made available from non-scheme budget of DoWR, RD & GR.

# **INFRASTRUCTURE DEVELOPMENT**

Infrastructure Development (ID) Scheme was formed by merging four continuing schemes viz. (i) Land & Building and Information Technology Plan of Central Ground Water Board (CGWB) (ii) Land & Building Plan of Central Water Commission (CWC) (iii) Information Technology Development Plan of the DoWR, RD & GR, and (iv) e-Governance of the DoWR, RD & GR. ID scheme aimed at providing better working environment in the offices, creation of assets and savings on payment of monthly rent.

The scheme has been discontinued from 2021-22 onwards. Resources for ID would be made available from non-scheme budget of DoWR, RD & GR.

# DAM REHABILITATION AND IMPROVE-MENT PROJECT

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)

Ministry of Jal Shakti, Govt. of India 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. 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.

# Dam Rehabilitation and Improvement Project (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, Gujarat, Jharkhand, Karnataka, Goa. 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 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.

# **RESEARCH AND DEVELOPMENT**

Research & Development (R&D) activities under the scheme include basic and applied research, creation and upgradation of research facilities and training of personnel implemented through the apex organizations of Department viz., CSMRS, CWPRS, NIH, and CWC and also research projects sponsored by the Department. Under the sponsored research projects, 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

Development of Water Resources Information System (DWRIS) scheme, a continuing scheme of XII five year plan, is under implementation during 2021-22 to 2025-26 with outlay of Rs. 715 crore, 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.

## 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).

#### NATIONAL WATER MISSION

National Water Mission (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 development water resources and management". (website: www.nwm.gov. in)

# 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: <u>www.cwc.gov.in</u>)

# CENTRAL SOIL AND MATERIALS RESEARCH STATION (CSMRS)

The Central Soil and Materials Research Station (CSMRS), New Delhi, an attached office of DoWR, RD & GR, Ministry of Jal Shakti, was established in 1954. CSMRS is an ISO 9001:2015 certified organization which deals with field and laboratory investigations, basic and applied 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: <u>http://csmrs.gov.in/</u>)

## **SUBORDIATE OFFICES**

## **CENTRAL GROUND WATER BOARD**

Central Ground Water Board (CGWB) operates as a subordinate office of DoWR, RD & GR, Ministry of Jal Shakti Government of India. CGWB is a multi-disciplinary scientific organization consisting of hydrogeologists, geophysicists, chemists, hydrologists, hydrometeorologists 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: http://cgwb.gov.in )* 

# CENTRAL WATER AND POWER RESEARCH STATION

Central Water and Power Research Station (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 water ways projects. CWPRS has offered its services to a number of projects in the neighbouring countries viz., Bangladesh, Bhutan, Afghanistan, Myanmar, Nepal, Singapore, etc., as well as countries in Middle East. (Website: <u>www.cwprs.gov.in</u>)

# GANGA FLOOD CONTROL COMMISSION

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 and other supporting officers and staff. The representatives of concerned Central Ministries and Departments as well as the Engineerin-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. bif.nic.in*)

# **BANSAGAR CONTROL BOAD**

Bansagar Control Board (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**

Upper Yamuna River Board is a subordinate office under the DoWR, RD & GR, Ministry of Jal Shakti, Government of India. A memorandum of Understanding (MoU) was signed by the Chief Ministers of Himachal Pradesh, Haryana, Uttar Pradesh, Rajasthan, and National Capital Territory of Delhi on 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 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. After the creation of Uttaranchal State in 2000, the resolution was modified to include Uttaranchal (now Uttarakhand) also in the Board in 2001. (*Website: www. uyrb.gov.in*)

## FARAKKA BARRAGE PROJECT

The Farakka Barrage Project (FBP) was commissioned in 1975 for preservation and maintenance of the Shyama Prasad Mookerjee Port (erstwhile Kolkata Port ) and for increasing the navigational depth of the Bhagirathi -Hooghly waterway. The Farakka Barrage Project also facilitates sharing of Ganga waters between Bangladesh and India as per Treaty between the Governments of Bangladesh and India on sharing of the Ganga waters at Farakka signed in 1996. (Website: <u>www.fbp.gov.in</u>)

# NATIONAL WATER INFORMATICS CENTRE (NWIC)

To ensure sustainable and informatics-based management of water resources of the country through seamless access to real-time and historical water data, National Water Informatics Centre (NWIC) was set up in March, 2018 as a subordinate office of the Department. The Centre is mandated to be central repository of nation-wide water resources data and to provide a *'single window'* source of updated data on water resources and allied themes.

NWIC is presently maintaining two platforms viz. WIMS- for water resources data collection and storage and India-WRIS- for dissemination of data on GIS framework as per details given below:

- (i) 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.
- (ii) Water Resources Information System (India-WRIS): This is a GIS enabled public platform (accessible through URL: indiawris.gov.in) for display and dissemination of water resources information. The timeseries data received through WIMS alongwith data on other hydrometeorological 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

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 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

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. 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 resources through integrated water development and management". (website: www.nwm.gov.in)

# NATIONAL INSTITUTE OF HYDROLOGY

The National Institute of Hydrology (NIH), a Society under 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 Government 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

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 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 selffinanced 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 also develops human resources in water and land management by opening academic course in M.Tech in water resource management. The services of the institute are also 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

The National Mission for Clean Ganga (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

Narmada Control Authority and Review Committee was 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: <u>www.nca.gov.in</u>)

## **BRAHMAPUTRA BOARD**

The Brahmaputra Board was constituted by an Act of Parliament and received the assent of the President on 01.09.1980. The Brahmaputra Board Act provides for the establishment of a Board 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**

Betwa River Board (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. *(Website: www.brb. nic.in)* 

# **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. Board exercises powers of a State Government under various codes, manuals, rules and regulations while discharging thefunctions on administrative matters of the project (Website: http://tbboard.gov.in).

## **POLAVARAM PROJECT AUTHORITY**

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 AP Reorganisation Act, 2014. (Website: http:// 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 (Act 6 of 2014), the Central Government constituted the Apex Council for supervision of the functioning of the Godavari River Management Board (GRMB) and Krishna River Management Board (KRMB) vide Gazette Notification dated 29<sup>th</sup> May, 2014. The 2<sup>nd</sup> 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.

The jurisdiction of GRMB and KRMB 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 14<sup>th</sup> October, 2021. (*Website: <u>https://krmb.</u> gov.in and https://grmb.gov.in/*)

# **PUBLIC SECTOR ENTERPRISES**

# WATER AND POWER CONSULTANCY SERVICES LIMITED (WAPCOS)

WAPCOS Limited is a "MINI RATNA-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 driven Consultancy is а technology and Engineering, Procurement and Construction (EPC) organization with strong home country and global presence in Water, Power and Infrastructure sectors. 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 quality management systems of WAPCOS comply with the quality assurance requirements of ISO 9001:2015 for consultancy services in water resources, power and infrastructure development projects. *(Website: www. wapcos.co.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 industrial infrastructure, thermal, in hydro power projects, tunneling & underground projects, railways, highways, surface transport projects, townships & other residential buildings, institutional buildings, office & sports complexes, bridges & flyovers, real estate works, dams, weirs, barrages, border road & fencing, hospitals & health sector projects, environmental engineering, flood lighting works etc. (Website: http://npcc.gov.in/).



Inauguration of high resolution aquifer mapping and management in arid areas of India by Shri Gajendra Singh Shekhawat, Hon'ble Minister of Jal Shakti and Dr Jitendra Singh, Minister of State (Independent Charge) of Science & Technology on 5<sup>th</sup> October 2021 at Jodhpur, Rajasthan.



# **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) per annum. After evaporation, 1,999.20 BCM water is available as natural runoff. Due to geological and other factors, the utilizable water availability is limited to 1,122 BCM per annum comprising 690 BCM of surface water and 432 BCM of replenishable ground water. Out of this, the water potential utilized is around 699 BCM, comprising 450 BCM of surface water and 249 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 2001 and 2011 was assessed as 1,816 cubic meters and 1,545 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 percapita water availability below 1,000 cubic meters is considered as a water scarcity condition.

# 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 the Seventh Schedule provides that, "Water, that is to say, water supplies, irrigation and canals, drainage and embankments, water storage 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 DRAFT NATIONAL WATER FRAMEWORK BILL

The National Water Policy (2012), inter-alia, recommends formulation of National Water Framework Law, which would be a broad overarching national legal framework of general principles of water to lead the way for essential legislation on water governance in every State of the Union and devolution of necessary authority to the lower tiers of the Government to deal with local water situation.

The draft Bill was circulated to States/ UTs and the concerned Central Ministries for obtaining their comments. Comments on the draft bill have been received from 11 States viz., Rajasthan, Tamil Nadu, Madhya Pradesh, Kerala, Karnataka, Odisha, ujarat, Uttar Pradesh, Maharashtra, Bihar and Jharkhand whereas, interim response have been received from 5 States/UTs viz., Uttarakhand, Punjab, Arunachal Pradesh, NCT of Delhi and Lakshadweep.



Sh. Bishweswar Tudu, Hon'ble MoS, MoJS along with other senior officers during 6<sup>th</sup> India Water Impact Summit held from 9<sup>th</sup> to 14<sup>th</sup> December, 2021



Completed Project under PMKSY-AIBP: Arjun Sahayak Project, Uttar Pradesh
# **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 Pani*);
- 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 ground water, 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;

All these objectives are expected to lead to substantial increase in agricultural production and productivity thereby enhancing farm income.

### **PMKSY COMPONENTS**

- Accelerated Irrigation Benefits Programme (AIBP), [Implementation by the DoWR, RD & GR, Ministry of Jal Shakti]
- *Har Khet Ko Pani* (HKKP), [Implementation by the DoWR, RD & GR, Ministry of Jal Shakti]
- *Per Drop More Crop*, [Implementation by the Department of Agriculture Cooperation & Farmers Welfare (DoAC & FW), Ministry of Agriculture & Farmers Welfare]

• *Watershed Development* [Implementation by the Department of Land Resources (DoLR), Ministry of Rural Development]

### **Physical Targets and Financial Outlays**

The PMKSY was initially approved during 2015-16 for implementation across the country with an indicative outlay of Rs. 50,000 crore in five years.

# PRIORITIZATION OF AIBP PROJECTS DURING 2016-17:

One of the major reasons for the delay in completion of projects under AIBP 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 Minister (Water Resources) of Chhattisgarh was constituted during 2016-17. The issues related to implementation of projects under PMKSY, including prioritization of projects, were deliberated in the Committee. Based on the information supplied 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) was made through NABARD as per year-wise requirements which would be paid back in 15 years' time. 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 is provided by the Central Government so that overall interest rate for State share comes to about 6%, 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 irrigation and micro 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.

### **Completion of projects**

- Out of 99 prioritized projects, AIBP works of 46 projects have been reported to be complete/almost complete by the concerned State Governments. The details are at *Annexure –IV.*
- The details of central assistance and State share released during 2016-17 to 2021-22 (upto 31.12.2021) for AIBP works of 99 priority projects under PMKSY isgiven at <u>Annexure-V.</u>

# 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 crore (central assistance) during 2021-26 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), tribal, 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.



Some of the recently inaugurated projects :

Saryu Nahar National Project-Uttar Pradesh



Arjun Sahayak Project-Uttar Pradesh

# 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:

- (a) **Structural Intervention:** includes survey, planning, design and execution of:
  - (i) On-Farm Development (OFD) works;
  - (ii) Construction of field, intermediate & link drains;
  - (iii) Correction of system deficiencies; and
  - (iv) Reclamation of waterlogged areas.
- (b) Non-Structural Intervention: includes activities directed at strengthening of Participatory Irrigation Management (PIM):
  - (i) One time Functional Grant to the registered Water Users Associations (WUAs);
  - (ii) One time Infrastructure Grant to the registered WUAs;
  - (iii) Trainings, demonstration and adaptive trials for water use efficiency, increased productivity and sustainable irrigation participatory environment.

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

#### **Programme Implementation**

The Detailed Project Report (DPR) of the CAD&WM component of prioritized roject 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.  | Activities Eligible  | Cost Sharing     |
|-----|----------------------|------------------|
| No. | for Funding          | Ratio            |
| (a) | All activities       | 50:50            |
|     | of Structural        | (Centre : State) |
|     | interventions        |                  |
| (b) | All activities of    | 60:40            |
|     | Non-Structural       | (Centre : State) |
|     | interventions        |                  |
|     | excluding Functional |                  |
|     | Grant to WUAs        |                  |
| (c) | Functional Grant to  | 45:45:10         |
|     | registered WUAs      | (Centre: State:  |
|     |                      | farmer)          |
| (d) | Incremental          | 50:50            |
|     | Establishment Cost   | (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 norm 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, 2021, CCA of 23.058 million hectares has been covered and central assistance of Rs. 9,843.45 crore has been released to States during this period. During 2016-17 to 2021-22 (upto 31.12.2021), central assistance of Rs. 2781.06 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 XII Plan period, a CCA of 7.6 Mha has been targeted with CA amount of Rs 15,000 crore which was subsequently reduced to 3.6 Mha. during midterm appraisal. From 2015-16, the programme came under HKPP component of PMKSY with a target of 1.5 Mha. 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 hectare. Against this, the achievement till March, 2021 has been reported to be about 1.5 million hectare, with release of central assistance of Rs. 2,747.35 crore during this period.

# Participatory Irrigation Management (PIM)

Water National 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.

Recognizing the need for sound legal framework 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 hectare, 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 2016-21, 14,685 WUAs were targeted to be created under the ongoing 88 projects, out of which 8,890 WUAs have been formed, and about 2,900 WUAs the CAD assets have also been transferred to respective WUAs.

### SURFACE MINOR IRRIGATION (SMI) SCHEMES

Under the SMI scheme, since 12<sup>th</sup> Plan onwards, 6,213 schemes are ongoing with an estimated cost of Rs. 13,473 crore. CA of Rs. 7,957 crore has been released to States upto March, 2021. Further, 3,893 schemeshave been completed upto March, 2021. Target irrigation potential creation of these schemes is 10.513 lakh ha. and out of this, 6.924 lakh ha. is reported to have been created till March, 2021. In the current financial year, Rs. 335.578 crore has been released to SMI schemes till 31<sup>st</sup> December, 2021.

### **REPAIR, RENOVATION & RESTORATION** (RRR) OF WATER BODIES

Under the RRR of Water Bodies scheme, since 12<sup>th</sup> Plan onwards, 2,228 schemes are ongoing with an estimated cost of Rs. 1,910 crore. CA of Rs. 469.69 crore has been released to States upto March, 2021. Further, 1,591 water bodies have been reported to be completed upto March, 2021. Target irrigation potential restoration of these schemes is 1.887 lakh ha. and out of this, 1.319 lakh ha is reported to be restored till March, 2021. In the current financial year, Rs. 6.645 crore has been released under RRR of Water Bodies schemes till 31<sup>St</sup> December, 2021.

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

Pradhan Mantri Krishi Sinchayee Yojana- Har Khet Ko Paani- Ground Water scheme, launched by DoWR, RD & GR, 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).

Since 2019, 15 projects amounting Rs. 1,719.55 crore have been approved

for 12 States namely Assam, Arunachal Pradesh, Gujarat, Nagaland, Manipur, Mizoram, Tripura, Telangana, Tamil Nadu, Uttar Pradesh, Uttrakhand and West Bengal. Against the target of 30,064 wells, 88,891 ha. command area and 68,762 beneficiaries, 23,265 wells have been constructed, 38,770 ha. command area has been created benefiting 37,414 small and marginal farmers by December' 2021.

During FY 2021-22, an amount of Rs. 190.66 crore has been released to the projects in the States of Assam, Arunachal Pradesh, Tripura, Tamil Nadu & Uttarakhand towards central assistance and, 2,613 wells have been constructed creating additional command area of 3,332 ha. benefitting 2,659 small & marginal farmers.



# MINOR IRRIGATION (MI) CENSUS & CENSUS OF WATER BODIES

"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 and conserving devices such as sprinkler and drip irrigation, use of non-conventional energy sources such as solar pumps, wind mills 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 has also been created for easy dissemination of Fifth Minor Irrigation Census data.

The scope of Irrigation Census has now been expanded to include census of water bodies with 100% central assistance. The first census of water bodies has been 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.

6<sup>th</sup> Minor Irrigation Census and Census of Water bodies has approved outlay of Rs.168.14 crore for 6<sup>th</sup> MI Census and Rs. 89.64 crore for census of water bodies, respectively, for the period 2017-18 to2019-2020.

A Memorandum of Understanding (MoU) has been signed by DoWR, RD & GR with National Informatics Centre (NIC) for development of mobile application and software for data entry and validation of 6<sup>th</sup> MI Census and first census of water bodies. The provision for capturing the latitude, longitude and photograph of water bodies has been kept in the Census of Water Bodies. The mobile App developed by NIC for the purpose was pilot tested along with the software for data entry and validation in four Regional Data Processing Workshops held at Northern, Southern, Eastern & Western regions. After the finalisation of mobile App & software including mandatory security audit, the field work of 6<sup>th</sup> MI Census and first census of water bodies was launched. The State/UT Governments constituted a State level Steering Committee under the chairmanship of Principal Secretary of the Nodal Department with representatives of Agriculture, Urban Development, Fisheries, CWC, CGWB, etc. for monitoring and guiding the census work in the State/ UT. Presently, out of 33 participating States/UTs, the field work of 6<sup>th</sup> MI Census and first Census of Water Bodies has been completed in 27 States/UTs (Andhra Pradesh, Arunachal Pradesh,

Assam, Bihar, Chhattisgarh, Goa, Gujarat, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Kerala, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Punjab, Rajasthan, Sikkim, Tamil Nadu, Telangana, Uttar Pradesh, Uttarakhand and UTs of A & N Islands, Chandigarh and Puducherry). Data entry and data validation activities using the online software are also at an advanced stage. The field work and data processing works are fast progressing in the remaining States/UTs.

The continuation of the Irrigation Census scheme has been approved for a period of 5 years from 2021-22 to 2025-26 with a total outlay of Rs. 237 crore for conducting 7<sup>th</sup> MI Census and 2<sup>nd</sup> Census of water bodies after completion of 6<sup>th</sup> MI Census and 1<sup>st</sup> Census of water bodies.

### 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 crore 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 crore 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. 1,600 crore has been provided to the projects under this package (Rs. 500 crore during 201819, Rs. 300 crore during 2019-20, Rs. 400 crore during 2020-21 and Rs. 400 crore during 2021-22 so far).

### **Features of the Special Package**

Under the Special Package, Central Government is to provide CA @ 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. State share can be borrowed by the State through NABARD within their FRBM limit, if required, for implementation of these 91 projects. The balance cost of the said projects as on 01.04.2018 is estimated to be Rs.13,651.61 crore.

#### **Status of Projects**

Under the Special Package, 18 SMI projects have been reported to be completed up to 17.12.2021 and 97,160 ha of irrigation potential has been created from 2018-19 onwards.

|     |             | CA Released under |                      |          |  |  |  |  |
|-----|-------------|-------------------|----------------------|----------|--|--|--|--|
|     |             | cial Packag       | kage to MH           |          |  |  |  |  |
| S.  | Financial   |                   | No. of Projects & CA |          |  |  |  |  |
| No. | Year        |                   | Released (Amount     |          |  |  |  |  |
|     |             | LA                | of                   | CA)      |  |  |  |  |
|     |             |                   | SMI                  | MMI      |  |  |  |  |
|     |             |                   | 56 (Rs.              | 07 (Rs.  |  |  |  |  |
| 1   | 2018-19     | 500               | 170.57               | 329.43   |  |  |  |  |
|     |             |                   | crore)               | crore)   |  |  |  |  |
|     |             |                   | 72 (Rs.              | 06 (Rs.  |  |  |  |  |
| 2   | 2019-20     | 300               | 166.69               | 133.31   |  |  |  |  |
|     |             |                   | crore)               | crore)   |  |  |  |  |
|     |             |                   | 53 (Rs.              | 06 (Rs.  |  |  |  |  |
| 3   | 2020-21     | 400               | 97.48                | 302.52   |  |  |  |  |
|     |             |                   | crore)               | crore)   |  |  |  |  |
|     | 2020-21     |                   |                      | 06 (Rs.  |  |  |  |  |
| 4   | (up to Nov. | 400               | 0 (0)                | 400      |  |  |  |  |
|     | 2021)       |                   |                      | crore)   |  |  |  |  |
|     | Tatal       | 1600              | 434.74               | 1,165.26 |  |  |  |  |
|     | 10121       | 1600              | crore                | crore    |  |  |  |  |

### **Central Assistance Released**

#### **NATIONAL PROJECTS**

Implementation of National Projects was approved in 2008 with central aAssistance 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., including 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 National Project with certain conditions.
- The funding pattern of National Projects has been revised with effect from October, 2015, as follows.

|   | Category                 | Central : State |
|---|--------------------------|-----------------|
| Α | Projects in North-       | 90:10           |
|   | Eastern and Hilly States |                 |
| В | Projects in otherStates  | 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. 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.

Out of these, five projects, namely Polavaram project of Andhra Pradesh, Saryu Nahar Pariyojana of Uttar Pradesh, Gosikhurd Irrigation Project of Maharashtra, Teesta Barrage Project of West Bengal and Shahpurkandi Dam Project of Punjab have been taken up for execution. Gosikhurd and Saryu Nahar Pariyojna are included under 99 prioritized projects under PMKSY.

### **Polavaram National Project:**

Polavaram Irrigation Project (PIP) is a multi-purpose irrigation project on river Godavari in Andhra Pradesh to create ultimate irrigation potential. The project also envisages generation of 960 MW of hydro power, drinking water supply to a population of 28.50 lakh in 540 villages, by diversion of 80 TMC of water to Krishna river basin. It will also provide supply of 23.44 TMC of water to Visakhapatnam city including Vizag Steel Plant and drinking water facilities.

PIP has been declared as a National Project as per Section 90 of

AP Reorganization Act, 2014. Central Government is funding 100% of the remaining cost of the irrigation component, as on 01.04.2014. Government of Andhra Pradesh is executing the project on behalf of Government of India.

The 2<sup>nd</sup> RCE of Polavaram Irrigation Project of Rs. 55,548.87 crore (at 2017-18 price level) was accepted by 141<sup>st</sup> TAC. Subsequently, in pursuance of MoF OM dt. 05.08.16, 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. RCC submitted its report on 17.03.2020, wherein cost of the project is firmed as Rs. 47,725.74 crore. After declaration of National Project, a sum of Rs. 11,600.16 crore has been released, as CA, for execution of Polavaram Irrigation Project during 2014-2021 so far, out of which Rs. 751.868 crore has been released during 2021-22. An expenditure of Rs17,319.52 crore has been incurred on the project works till December, 2021. Polavaram Project Authority (PPA) has engaged M/s WAPCOS and CSMRS as Project Management Consultant and Quality Consultant for the project.

### 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 of the project which involve 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 under said National Project is Rs 2,243.10 crore, out of which Rs 358.30 crore has been released during 2020-21.

### **Gosikhurd National Project:**

Gosikhurd Irrigation Project is one of the 99 priority projects under PMKSY (AIBP) and envisages construction of earth dam across river Wainganga in Bhandara district of Maharashtra. The project will provide irrigation benefits to 2,50,800 ha. (ultimate irrigation potential), power of 24 MW and 100 MCM water for thermal power station of NTPC at Mauda (Bhandara). Total CA released under this National Project is Rs. 3,535.9465 crore, out of which Rs. 135.244 crore has been released during 2020-21.

#### Shahpurkandi Dam:

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

Government of India has approved the funding for "Implementation of Shahpurkandi Dam (National Project) on River Ravi in Punjab State" with an estimated cost of the Rs 2,715.70 crore out of which, the irrigation component (28.61% of approved cost) and power component (71.39% of approved cost) amount to Rs.776.96 crore and Rs.1,938.74 crore, respectively. CA of Rs 485.38 crore would be provided for the balance works portion of irrigation component of the said project amounting to Rs.564.632 crore.

After completion of the project, water would be made available to the State of Punjab and UT of J&K to provide irrigation in 5,000 ha and 32,173 ha, respectively. In addition, water being released to provide irrigation in 1.18 lakh ha. of area under UBDC system in Punjab at present would be regulated efficiently and irrigation in the area would be benefitted. Out of total CA of Rs. 485.38 crore, CA of Rs. 233.506 crore has been released by Govt. of India.

#### **Teesta Barrage National Project:**

Teesta Development Plan consists of three phases. Benefits envisaged are irrigation benefit to CCA of 922 Th Ha. (Phase-I), 1,000MW Hydro Power (Phase-II) and Navigation Link between Brahmaputra & Ganga (Phase-III). The Sub-stage – I of the Stage –I of Phase – I (under National Project), on completion, would create irrigation potential of 527 Th. Ha. over a CCA of 342 Th. Ha. The estimated cost of the National Project is Rs. 2,988.61 crore (at 2008 Price level). The Government of India has released CA of Rs.178.20 crore under the scheme of National Projects.

### Lakhwar Multipurpose Project:

For implementation of Lakhwar Multipurpose in upper Yamuna basis, an agreement amongst the States of Himachal Pradesh, Uttarakhand, Uttar Pradesh, Haryana, National Capital Territory of Delhi and Rajasthan was signed by Hon'ble Chief Ministers of the co-basin States on 28.08.2018. The project was accepted at Revised Cost Estimate of Rs. 5,747.17 crore (PL July, 2018) in 141<sup>st</sup> TAC meeting held on 11.02.2019. MoEF & CC vide letter dated 02.02.2021 has issued environmental clearance to the project. Funding of the project has been approved during 2021-22.

### Renukaji Dam Project:

For implementation of the Renukaji Dam National Project in upper Yamuna basin, an agreement amongst the States Himachal of Pradesh. Uttarakhand, Uttar Pradesh, Haryana, National Capital Territory of Delhi and Rajasthan has been signed by Hon'ble Chief Ministers of the co-basin States on 11.01.2019. Revised estimated cost of Rs. 6,946.99 crore (PL October, 2018) was accepted by Advisory Committee in its 143<sup>rd</sup> meeting held on 09.12.2019. Investment clearance was accorded to the Project in 13th meeting of Investment Clearance Committee of DoWR, RD & GR held on 07.08.2020. Funding of the project has been approved during 2021-22.

### RELINING OF SIRHIND FEEDER FROM RD 119700 TO 447927 AND RELINING OF RAJASTHAN FEEDER FROM RD 179000 TO 496000 OF PUNJAB

The funding of Relining of Sirhind Feeder and Rajasthan Feeder of Punjab was approved on 26.09.2018. Sirhind and Rajasthan feeders take off upstream of Harike head works and flow through Punjab before crossing over to Rajasthan. The twin canals run parallel, have a common bank and were constructed in 1960s as lined (brick) channels to convey water to command areas in Punjab and Rajasthan. 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 cusec of water which would stabilize/ improve irrigation in 98,739 ha in Rajasthan to benefit the entire western Rajasthan. Relining of Sirhind feeder would save 256 cusec of water which would stabilize/improve irrigation in 20,740 ha of area in Rajasthan and 48,356 ha in Punjab and address the problem of water-logging in 84,800 ha of land in Muktsar, Faridkot and Ferozpur districts in south-west Punjab. This is in addition to Rs. 156 crore of central assistance released earlier for these projects. Central assistance of Rs. 118.29 crore has been released till date (as on Dec 2021).

### 3.2 NATIONAL MISSION FOR CLEAN GANGA (NMCG)

National Council for Rejuvenation, Protection and Management of River Ganga (referred as National Ganga Council) was constituted vide notification no. S.O. 3187(E) dated.7-10-2016 under EPA, 1986. "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 was given a dedicated budget of Rs. 20,000 crore for a period of 5 years. The program can be placed into four categories i.e. Nirmal Ganga, Aviral Ganga, Jan Ganga and Gyan Ganga.

### **Pollution Abatement (Nirmal Ganga)**

During the FY 2021-22 against budget allocation of Rs. 1,300 crore DoWR, RD & GR has released an amount of Rs. 800 crore to NMCG. NMCG has released an amount of Rs. 634.08 crore (upto 30<sup>th</sup> November 2021) to State Programme Management Groups and other implementing agencies for the implementation of project under Namami Gange.

#### **Industrial Pollution Management**

Inventory of Grossly Polluting Industries (GPIs) has been done for prioritized monitoring. GPIs are industries discharging pollution load of BOD 100 kg per day or more and/ or handling hazardous chemicals.

#### **Tannery Cluster**

Three CETPs at Kanpur region connected with Tanneries sector are being monitored on weekly basis since March, 2019. Directions under section 18(1)(b) of Water Act, 1974 were issued in May, 2019 based on weekly inspection reports.

**Textile Cluster:** 5 textile clusters namely Bhadohi, Pilkuwa, Rooma, Farrukabad and Mathura were selected for consideration of CETP.

### 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) 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**

Till date, 12.38 lakh Individual Household Latrines (IHHL) have been constructed across 4,507 villages in the States of Uttarakhand, Uttar Pradesh, Jharkhand, Bihar, and West Bengal. NMCG has released Rs. 829 crore to DoDWS, Ministry of Jal Shakti for the construction of IHHL, Rs. 124 crores for SLWM and Rs. 67.44 crore for afforestation in Ganga villages. All villages situated along the bank of river Ganga have been declared Open Defecation Free (ODF).

### **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

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.

# Research, Policy and Knowledge Management (Gyan Ganga)

**Groundwater- Surface** water interface: Namami Ganga is working with National Geophysical Research Institute (NGRI), Hyderabad to delineate the subsurface aquifers with focus on paleochannels from Kausambi to Kanpur to provide newer insights into disposition of the aquifers; extent and characteristics of the paleochannel and possible interaction of the aquifers with Ganga and Yamuna rivers.

### People River Connect (Jan Ganga)

### Ghat, Crematoria and River Front Development (RFD)

Development of Ghats & Crematoria works in select cities have been taken up. 61 projects (including one river front development project in Patna) have been sanctioned for the construction of 210 ghats and 57 crematoria.

### **Ghat Cleaning**

IL&FS Environmental Infrastructure

and Services Ltd. (IEISL) has been engaged for cleaning of 84 ghats in Varanasi. Similar activities have been taken up for cleaning of 87 ghats at Bithoor, Kanpur, Prayagraj and Mathura-Vrindavan in Uttar Pradesh at a cost of Rs. 12.97 crore for 3 years. Also cleaning of 72 ghats of Haridwar, Uttarakhand has been taken up at a cost of Rs. 15.9 crore for 3 years.

# 3.3 ATAL BHUJAL YOJANA (ATAL JAL)

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

### **COMPONENTS OF THE SCHEME**

- i. Institutional Strengthening & Capacity Building component (Rs. **1,400 crore)**: for strengthening institutional arrangements bv strong providing data base, scientific approach and community participation in the States to enable sustainably manage them their ground water resources.
- ii. 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.

under the Incentive Funds 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 multiple benefits including in 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 on-going 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 term.

### **Achievements during 2021**

During the year 2021, Third Party Government Verification Agency (TPGVA) completed **first round of verification** for Disbursement Linked Indicator (DLI) #1 and Rs. 120.44 crore were released to the States based upon their achievement under this DLI.

Preparation of Water Budget and Water Security Plans (WSPs) under DLI#2 is underway. The purpose of the water budget is to assess surface and ground water resources and identify current and future needs as a basis for planning. Further, Water Security Plans (WSPs) are being 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 being 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.

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. In order to build capacity at the ground level, necessary action has been taken in the year 2021. Training of master trainers for all seven States has been completed with focus on preparation of WSPs. In addition, several State level workshops were conducted in order to guide and hand hold State/District/GP level authorities and DIPs. A capacity building framework document was prepared and shared with States. MoA was signed with Arghyam for support in capacity building activities.

One of the key aspects of ATAL JAL is to bring in behavioral changes in the community, from the prevailing attitude of consumption to conservation & smart water management. It is imperative that this message is driven across all levels, especially at the grass-root level, so that the objectives of the scheme are achieved. 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, the **National Inter-Departmental Steering Committee** held its first meeting on 26<sup>th</sup> October, 2021 under the Chairmanship of Secretary, DoWR, RD &GR with active participation from relevant line Ministries/Departments of GOI and Atal Jal States.

### 3.4 FLOOD FORECASTING (FF)

CWC is providing flood forecasting service at 331 stations, of which 199 are level forecasting stations on major rivers and 132 are inflow forecasting stations on major dams/barrages. Overall 1,014 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 the flood season, CWC operates Flood Control Room on 24×7 basis at its headquarter in New Delhi and 29 Division Offices spread throughout the country for monitoring the flood situation. On an average, about 7,000 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, the locations of the flood forecasting sites and base stations. In addition to conventional flood forecasting methodology, mathematical model forecasting based on rainfall-runoff methodology is also being used in some areas. This has enabled CWC to issue 5 day advance flood advisory.

# **REGULAR FLOOD FORECASTING ACTIVITY**

During the flood season 2021, 10,617 flood forecasts (6,670 level forecast and 3,947 inflow forecasts) were issued, out of which 9,976 (93.96%) forecasts were found within accuracy limit ( $\pm$ 0.15 m for level forecast and  $\pm$  20% for inflow forecast). Since 2014, CWC is using 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, 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 1<sup>st</sup> May to 31<sup>st</sup> December 2021 is given below:

**Extreme Flood situation in flood forecasting Stations:** Eight flood forecasting stations flowed in Extreme Flood Situation during 1<sup>st</sup> May to 31<sup>st</sup> December, 2021; 50 Flood Monitoring Stations flowed in Extreme Food Situation.

Severe Flood situation for flood forecasting Stations: 87 FF Stations flowed in Severe Flood Situation in the States of Arunachal Pradesh, Assam, Odisha, Bihar, Uttar Pradesh, Uttarakhand, West Bengal, Maharashtra, Rajasthan, NCT Delhi, Andhra Pradesh, Kerala, Telangana and Jharkhand during the period 1<sup>st</sup> May to 31<sup>st</sup> December, 2021.

Table Showing Extreme Flood Situation Cases during 1<sup>st</sup> May to 31<sup>st</sup> December, 2021 :

# 3.5 FLOOD MANAGEMENT & BORDER AREAS PROGRAMME

The States/UTs provided are 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). Grant-in-aid to the tune of Rs. 1,574.68 crore under FMP component and Rs. 527.82 crore under RMBA component of FMBAP has been released to States/UTs during the period April, 2017 to December, 2021.

### FLOOD MANAGEMENT PROGRAMME

During XI 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

| Sl. | Chata             | District      | Dimor        | Divor Station          |            | Period     |  |  |
|-----|-------------------|---------------|--------------|------------------------|------------|------------|--|--|
| No. | State             | District      | River        | Station                | From       | То         |  |  |
| 1.  | Dihan             | Patna         | Ganga        | Hatidah                | 13/08/2021 | 19/08/2021 |  |  |
| 2.  | DIIIai            | Bhagalpur     | Ganga        | Bhagalpur              | 16/08/2021 | 19/08/2021 |  |  |
| 3.  | The               | Auraiya       | Yamuna       | Auraiya                | 06/08/2021 | 07/08/2021 |  |  |
| 4.  | Uttar             | Buduan        | Ganga        | Kachlabridge           | 23/10/2021 | 23/10/2021 |  |  |
| 5.  | Flauesii          | Siddarthnagar | Rapti        | Bansi                  | 02/09/2021 | 04/09/2021 |  |  |
| 6.  | Odisha            | Balasore      | Subarnarekha | Mathani Road<br>Bridge | 22/09/2021 | 22/09/2021 |  |  |
| 7.  | West<br>Bengal    | Coochbehar    | Teesta       | Mekhliganj<br>(R/B)    | 20/10/2021 | 20/10/2021 |  |  |
| 8.  | Andhra<br>Pradesh | Nellore       | Pennar       | Nellore Anicut         | 20/11/2021 | 20/11/2021 |  |  |

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. 6,447.76 crore has been released to Union Territories/State Governments under this Programme. The 415 projects completed under this programme have given protection to an area of around 4.994 mha and protected a population of 52.21 million. The details of central assisitance 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 XII Plan which has been continued. The scheme has three components viz.,

- i) 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.

- Ioint 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 one station (Tsada) on Sutlej is provided by China to India as per existing MoUs 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.

### ii) 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 integrated development of 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.

### iii) 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-inaid amounting to Rs. 527.82 crore has been released under RMBA component of FMBAP to States/ UTs during the period April, 2017 to December, 2021.

### 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 at an estimated cost of Rs. 1,622.27 crore. Project will provide irrigation benefit to 1,11,521 hectares of land annually in drought prone areas of Aurangabad and Gaya districts of Bihar and Palamau and Garwa 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, 93% works on Mohammadganj Barrage and 75% works on Left Main Canal have been completed.

### 3.6 NATIONAL HYDROLOGY PROJECT (NHP)

National Hydrology Project (NHP) has been approved as central sector scheme with a total outlay of Rs. 3,679.76 crore. NHP is a Central Sector Scheme, with 100% grant to the States with World Bank assistance to the tune of 50% of the project cost. It has pan-India coverage with 48 Implementing Agencies (IAs) (including 9 from Central Government, 3 from River Basin Organisations, 2 from Union Territories and 34 from States).

#### **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.

### **Impact:**

The aim of NHP is to provide an enabling platform to the various Implementing Agencies across the country for taking informed decisions related to scientific management of precious water resources in the country. Emphasis is laid on installation of Real Time Data Acquisition System (RTDAS). Accordingly, around 22,000 surface and ground water monitoring sites are being throughout the country established through which real time data would be transmitted to the Central and State Data Centers apart from the centralized online water resources information system.

Contracts have already been awarded for 10,724 such systems. The data of these stations is being integrated into centralized database system gradually, as the systems are installed, tested and integrated to the centralized database. The States are also sharing data from manual and automatic observation stations established under other initiatives. The available information is now being disseminated through water data online module of IndiaWRIS and WIMS. For this purpose, National Water Informatics Centre (NWIC) has already been established and further strengthening is being carried out.

### Some of the major Analytical Tools, knowledge products and Decision Support Systems being developed under NHP are:

- a) Early Flood Warning System including inundation forecasting for the Ganga Basin by CWC and for the Godavari and Tapi Basins;
- b) Development of Decision Support System, Planning and Management;
- c) Development of National Hydrological Model for the entire country;



NHP : Review Meeting taken by Hon'ble Minister for Jal Shakti on 09.11.2021

- d) Integrated Water and Crop Irrigation Management System is being developed as a Decision Support System for Reservoir Management, Village level water budgeting, block level crop planning, preparation of water security plans and managing water pollution;
- e) Glacial lakes (GT>0.25 ha) has been prepared for entire catchment of Indian Himalayan River Basins-Indus, Ganga & Brahmaputra;
- f) Extended Hydrological Prediction (EHP) for three river basins with a lead time of 4 weeks;
- g) Sedimentation transport for 7 basins is being carried out under NHP.

### **Capacity Building:**

Capacity Building of Central and State Implementing Agencies through physical as well as in virtual mode is being done for taking digital initiatives which include using advance techniques of remote sensing, geographical information system, digital elevation models etc.

321 trainings have been conducted, wherein 3,015 staff were trained. Out of these, 199 trainings were imparted through webinars/online. Besides the trainings, 84 workshops, conferences, study tours, seminars etc. have been conducted under NHP.

# 3.7 HUMAN RESOURCE DEVELOPMENT AND CAPACITY BUILDING (HRD-CB)

The Human Resource Development and Capacity Building (HRD-CB) consists of five components namely (i) Information, Education & Communication (IEC), (ii) Central Water Commission (National Water Academy), (iii) Rajiv



**Training Programs under NHP** 

Gandhi National Ground Water Training Institute, (iv) North Eastern Regional Institute of Water And Land Management (NERIWALM) and (v) Trainings of officers of Department of Water Resources, RD & GR. The scheme has been discontinued on recommendation of D/o Expenditure from 2021-22 onwards. Resources for various activities will be provided under nonscheme budget for DoWR, RD & GR.

### Information Education and Communication (IEC):

Information Education Communication (IEC) is a component of the HRD & CB Scheme of the Department. Major activities undertaken by IEC Section include National Water Awards, Water Heroes Share Your Stories contest, monthly magazine "Jal Charcha", electronic media campaign, non-financial logo support, participation in fairs/ exhibitions/ melas, social media activities etc.

#### National Water Awards 2020:

The Department has instituted National Water Awards with the objectives of encouraging the stakeholders to holistic adopt approach towards water resources conservation and management in the country. Also, the aim is to recognize the efforts of individuals, organizations, districts & State authorities etc. for the good work done in the field of water conservation & management. The 1<sup>st</sup> and 2<sup>nd</sup> National Water Awards were successfully organized by the Department in 2019 and 2020 respectively, and winners in different categories were felicitated with awards and cash prizes.

# Water Heroes: Share Your Stories Contest 3.0:

The 1<sup>st</sup> and 2<sup>nd</sup> editions of Water Heroes: Share Your Stories Contest were successfully completed in 2020 and 2021. The objective of the contest is to promote value of water, in general, and for supporting country-wide efforts on water conservation and sustainable development of water resources.

The 3<sup>rd</sup> edition of the contest was launched on 1st December 2021 and will continue for one year till 30<sup>th</sup> November, 2022. The participants will share their success stories in the form of write up, video clips and photos. Maximum of 10 winners per month will be selected and given a cash prize of Rs. 10,000/- each with a certificate.

### Publicity through Print media -Publishing of monthly magazine "Jal Charcha":

The Department has come up with the monthly magazine to engage with the stakeholders to help in informed decisionmaking at the central level. The magazine is also an effort to bring best practices and good work done by the people in water sector to the national stage. Given the vastness of the subject, while the theme of the magazine would change with every issue, effective conservation and management of water resources in an integrated manner remain the main theme.

# Electronic Media Campaign – Production of videos/films:

Various video spots/documentary films on successful work done by the Department, best practices of State Governments on water conservation and management, videos for National Water Awards, rainwater harvesting techniques and water conservation etc. are being produced. These videos area shared/ uploaded on social media platforms like Facebook, Instagram, Twitter etc. for mass awareness.

#### Social Media Campaign:

The social media activities of the Department are operated on Facebook, Twitter, Instagram and Youtube. The target is increasing reach of social media handles of the Department and the various 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.

### **Logo Support:**

Non-financial logo support was extended to 40<sup>th</sup> India International Trade Fair, National Conference on Urban Water management/7<sup>th</sup> International Water Innovation Summit, Water India/7<sup>th</sup> Smart cities India 2022 expo, Momentum North East 2021, 7<sup>th</sup> India Industry Water Conclave, India Smart Utility Week 2022, Ujjwal Uttar Pradesh 2021, ET Infra Water Conclave, 8<sup>th</sup> National Conference of Resident Welfare Associations (8<sup>th</sup> NCRWA) etc.

# Central Water Commission/National Water Academy

Central Water Commission, New Delhi conducted various trainings, workshops in CWC h/q and field offices under HRD/CB scheme during 01.04.2021 to 12.01.2022. In addition to above some of officers have participated in trainings and workshop/conferences organized by various organizations.

### Rajiv Gandhi National Ground Water Training & Research Institute (RGNGWTRI)

RGNGWTRI is the only institute of its kind dedicated to training and research in the field of ground water. Since 2012 (XII Plan) RGNGWTRI has been implementing a three-tiered (Tier I-National Level, Tier II- State/District Tier -III: Block Level) training programme.

As a part of the three-tiered training programme being implemented a total of 81 trainings of various types (Tier I- 45, Tier II- 14 & Tier III- 22) were conducted during January to December 2021. 4,656 participants included ground water professionals as well as users at grassroots level participated in the programmes.

|         |          | Period January-December 2021 |                        |                                 |  |  |  |
|---------|----------|------------------------------|------------------------|---------------------------------|--|--|--|
| Sl. No. | Training | <b>Training</b><br>Conducted | No. of<br>Participants | No. of<br>Women<br>Participants |  |  |  |
| 1       | Tier-I   | 45                           | 1,204                  | 250                             |  |  |  |
| 2       | Tier-II  | 14                           | 824                    | 324                             |  |  |  |
| 3       | Tier-III | 22                           | 2,628                  | 1,161                           |  |  |  |
| Total   |          | 81                           | 4,656                  | 1,735                           |  |  |  |

# North Eastern Regional Institute of Water and Land Management

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 Eastern part of 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 prescribed degree programmes.

During the year 2021-22, the target for training programme recommended by Technical Advisory Committee of NERIWALM is 65 for different target groups like officers, farmers, water users associations, women group/farmers, other stakeholders and students. 1,950 persons are expected to be benefited from these 65 training programmes. In the year 2021, from January to December, 73 of training programmes organized by the institute and benefitted 3,030 persons. The breakup of number of training programme and participants from January to December, 2021 is given in the Table.

| Target group         | Target for Number<br>of training<br>programme<br>(January to<br>December, 2021) | Achievement<br>Number of training<br>programme<br>(January to<br>December, 2021) | Achievement<br>Number of<br>participants<br>(January to<br>December, 2021) |  |
|----------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------|--|
| Officers             | 19                                                                              | 06                                                                               | 215                                                                        |  |
| WUAs/Farmers         | 31                                                                              | 38                                                                               | 1,560                                                                      |  |
| Women groups/farmers | 02                                                                              | 04                                                                               | 190                                                                        |  |
| NGO                  | 03                                                                              | 00                                                                               | 0                                                                          |  |
| Student              | 05                                                                              | 18                                                                               | 690                                                                        |  |
| Stakeholders         | 17                                                                              | 07                                                                               | 375                                                                        |  |
| Grant Total          | 77                                                                              | 73                                                                               | 3,030                                                                      |  |

### 3.8 INFRASTRUCTURE DEVELOPMENT (ID)

### **CWC - Land & Building Component**

The renovation and modernization of CWC (HQ) at Sewa Bhawan, West Block-I

& II (Revised estimated cost: Rs. 43.85 crore) was completed by NPCC Ltd. As on December, 2021 total expenditure on this project is Rs. 40.69 crore.

The construction of office building of CWC/GFCC at Patna (revised estimated

cost: Rs.21.81 crore) is almost completed and finishing works of the building is under progress by CPWD, Patna. It is likely to be completed by March 2022. As on December, 2021 total expenditure on this project is Rs. 20.01 crore. (physical progress: 90%, financial progress: 85%).

The work for dedicated water supply lines at CWC, Jammu (estimated cost: Rs. 1.43 crore) is being executed by PHE Department of J&K, and work will continue in next FY. As on December, 2021, total expenditure on this project is Rs. 1.07 crore (Physical progress: 60%, financial progress: 74%).

The work of renovation/ modernization of 80 toilets at CWC (HQ), Sewa Bhawan, West Block- I & II, New Delhi (estimated cost: Rs. 4.84 crore) has been completed in FY 2021-22 by NPCC Ltd. with final cost as Rs. 4.30 crore.

The work of construction of CWC portion in the building to be constructed by UYRB at Noida (estimated cost: Rs. 7.66 crore) through NPCC Ltd. is under progress and the work is likely to continue beyond FY 2021-22. As on December, 2021 total expenditure on this project is Rs. 4.59 crore (physical progress: 30%, financial progress: 60%).

The work of Electrical Load augmentation for CWC (HQ), Sewa Bhawan, WB-I & II has been completed by CPWD, New Delhi. As on December, 2021 total expenditure on this project is Rs. 0.64 crore (physical progress: 100%, financial progress: 70%).

### **CGWB- Land & Building Component**

Infrastructure Development Scheme (IDS) viz. Land & Building (CGWB) has

been approved with an outlay of Rs. 12.00 crore for the period of FY 2021-22.

To achieve the objective of this scheme, construction work of offices, workshops and stores of various CGWB offices (7) have been undertaken. The details of these works are as under:

- Construction of Regional and Divisional office, workshop and store at Guwahati.
- Construction of boundary wall and Building for RGI training institute at Raipur.
- Construction of boundary wall, guard room for Divisional Workshop & Store at Chennai.
- Construction of Regional and Divisional office building at Ahmedabad.
- Construction of Building for Divisional, Workshop & Store Division-II at Ambala.
- Construction of boundary wall, guard room for Divisional, Workshop & Store at Jodhpur.

# Status of construction work undertaken is as under:

- The construction of Guwahati office building is likely to be completed in the FY 2021-22.
- The construction of Regional & Divisional office at Ahmedabad is under progress. The construction is likely to be completed during FY 2022-23.
- The construction of Divisional office at Ambala is under progress. The construction is likely to be completed during FY 2021-22.
- The construction of boundary wall, guard room for Divisional workshop

& store at Jodhpur is under progress and likely to be completed in the financial year 2021-22.

 The Construction of Divisional office, workshop & Store building at Jammu is under progress. The construction is likely to be completed during FY 2022-23.

### Land & Building (Department) Component

Renovation of five rooms and one toilet are being undertaken in CGO Complex of FM Wing and BM Division.

### **E-GOVERNANCE ACTIVITIES:**

Department has completely operationalized e-Office. The Department has more than 95% electronic files usage in e-Office and the percentage of physical files being used is less than 5%. The Department has linked its e-Office with Central Ground Water Board, Ministry of Power, Department of Expenditure, Department of Personnel & Training, CWC and Department of Legal Affairs enabling inter-departmental transfer of e-Files amongst these Departments. e-Office is fully implemented in the Central Water & Power Research Station (CWPRS), Central Water Commission (CWC), Central Soil & Materials Research Station (CSMRS), Ganga Flood Control Commission (GFCC), National Institute of Hydrology (NIH), Central Ground Water Board (CGWB), and National Mission for Clean Ganga (NMCG).

An integrated monitoring dynamic dashboard capturing all major schemes, programmes and interventions on realtime basis for all schemes, including monitoring of financial allocation, has been developed through NIC and launched in public domain. The website of the Ministry is updated fortnightly. Focus is on regular updation of contents on the websites of the attached offices.

e-HRMS, a flagship programmme of Department of Personnel and Training (DoPT) which aims to create a comprehensive and integrated system for employees' information to the Government, is implemented in this Department.

Data Governance Quality Index (DGQI) is being implemented in the Department. The DGQI exercise is undertaken by NITI Aayog in collaboration with NIC. 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. A Data and Strategy Committee (DSC) has been formed in the Department under the Chairmanship of JS(RD&PP). About 17 projects/ schemes of the Department are included under DGQI. The Self-Assessment Questionnaire for the Schemes/ projects of the Department has already been submitted to NITI Aayog through online mode in September 2021.

### 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) :

Ministry of Jal Shakti, Govt. of India 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 June 30, 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 June 30, 2020. The Phase-I of the DRIP Scheme was completed successfully on March 31, 2021. The Performance Rating of Scheme given by the World Bank is 'satisfactory'. It was a State Sector back-to-back Scheme with loan original arrangement. The 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. During the year 2021, rehabilitation activities were completed at 11 dams.

- **Financial achievement**: Out of the total project cost of Rs. 2,646 crore, total expenditure incurred was Rs. 2,567 crore. During the year 2021, the expenditure incurred was Rs. 150 crore.
- Publication of Emergency Action Plans (EAP): 217 EAPs are prepared out of which 210 EAPs are published. During the year 2021, 47 EAPs were published and 46 stakeholder's meetings were conducted.
- **Operation and Maintenance (O&M) Manuals**: O&M manuals of 221 dams have been prepared, out of which 215 were published. During year 2021, 67 O&M manuals were published.
- 13 Guidelines and Manuals on • various aspects of dam safety and one of standard technical specifications for dam instrumentation were published under DRIP. [These documents are available on official website of DRIP (www.damsafety.in)].
- International Commission on Large • Dams (INCOLD), New Delhi in collaboration with CWC and DRIP organized the ICOLD Symposium on "Sustainable Development of Dams and River Basins" from February 24-27, 2021 at New Delhi. The Symposium was attended by Hon'ble Minister of Jal Shakti, Hon'ble Minister of State for Power & Renewable Energy, officials from Ministry, CWC, ICOLD, national and international experts from dam industry.

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

Based on the success of DRIP Phase-I, Ministry of Jal Shakti initiated another externally funded cheme, 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 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 total cost of the project is Rs. 10,211 crore. Out of this cost, Rs. 7,000 crore is an external loan, 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 Phase II is being financed by World Bank and AIIB, each for US\$250 million. The loan agreement was signed on August 04,

2021 with 10 States and became effective from October 12, 2021. In addition to 10 States, four States (Uttarakhand, Uttar Pradesh, West Bengal and Karnataka) are in advanced stage of inclusion under this scheme.

# 3.10 RESEARCH AND DEVELOPMENT (R&D)

R&D activities under the scheme include basic and applied research, creation and up-gradation of research facilities and training of personnel etc. implemented through the apex organizations of Department viz., CSMRS, CWPRS, NIH, and CWC; and research projects sponsored by the Department. Under the sponsored research projects, financial Department provided the 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 Ground Water (INCGW) and Indian National Committee on Climate Change (INCCC). The R&D Program has also helped in capacity building and creation of additional facilities, research and infrastructure at various research institutes in India.

#### **OUTCOME OF R&D SCHEMES:**

### **Physical Achievements:**

|                                                     | Year    |     |         |     |         |     |                             |     |
|-----------------------------------------------------|---------|-----|---------|-----|---------|-----|-----------------------------|-----|
| Particulars                                         | 2018-19 |     | 2019-20 |     | 2020-21 |     | 2021-22<br>(till Dec, 2021) |     |
|                                                     | Т       | A   | Т       | A   | Т       | Α   | Т                           | Α   |
| Technical Reports Submitted (Nos.)                  | 150     | 115 | 150     | 241 | 200     | 207 | 195                         | 120 |
| Research Papers<br>Published(Nos.)                  | 150     | 114 | 250     | 238 | 290     | 277 | 305                         | 163 |
| Training Programmes/<br>Conferences Organized(Nos.) | 25      | 21  | 30      | 66  | 40      | 42  | 40                          | 25  |
| Training of Personnel(Nos.)                         | 650     | 579 | 650     | 791 | -       | 752 | -                           | 710 |
| T - Target A - Achievement                          |         |     |         |     |         |     |                             |     |

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

- The study titled "Impact of Climate Change on Water Resources of Sabarmati Basin" undertaken jointly by IIT Gandhi Nagar and SVNIT Surat has been completed.
- The study titled "Effects of Climate Change and land area/land cover changes on spatial and temporal water availability in Subarnarekha Basin" undertaken by IIT Kharagpur has been completed.
- The Research Chair on Water Sector Conflicts and Governance at Centre for Policy Research has produced following knowledge products:
  - A Monograph titled "The Bar and The Binding: The Supreme Court and Interstate River Water Disputes" indicating Hon'ble Supreme Court's engagement with the interstate river water disputes.

- An updated compilation of 192 Interstate River Water Agreements in digital form.
- A synthesis/analysis paper titled, "Integrating India: Inter-State River Water Cooperation" regarding India's track record of interstate river water cooperation.

# 3.11 DEVELOPMENT OF WATER RESOURCES INFORMATION SYSTEM

Development of Water Resources Information System (DWRIS) Scheme, a continuing scheme of XII five year plan, is under implementation during 2021-22 to 2025-26 with outlay of Rs. 715 crore, 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:

- Hydro-meteorological observations at 1,750 sites.
- 331 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.
- 5-day advisory has been operationalized to enhance lead time.
- Work for study on Extended Hydrological Prediction (Multiweek forecast) Narmada, Yamuna & Cauvery basins has been awarded.

# 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)'.

lifelines Rivers are 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.

Government The Central 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.

# 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 34 rivers in 77 towns spread over 16 States at a sanctioned cost of Rs. 5,961.75 crore. An amount of Rs. 2,680.34 crore has been released to various State Governments for implementation of various pollution abatement schemes and a treatment capacity of 2,677 million litres per day (mld) has been created so far under NRCP (excluding Ganga and its tributaries).

| Sl.<br>No. | River            | Sl.<br>No. | River     | Sl.<br>No. | River        | Sl.<br>No. | River       |
|------------|------------------|------------|-----------|------------|--------------|------------|-------------|
| 1          | Adyar            | 10         | Godavari  | 19         | Pennar       | 27         | Тарі        |
| 2          | Beas             | 11         | Krishna   | 20         | Pamba        | 28         | Tunga       |
| 3          | Bhadra           | 12         | Mahanadi  | 21         | Panchganga   | 29         | Tungabadra  |
| 4          | Brahmani         | 13         | Mandovi   | 22         | Rani Chu     | 30         | Tamrabarani |
| 5.         | Cauvery          | 14         | Mindhola  | 23         | Sabarmati    | 31         | Tawi        |
| 6          | Cooum            | 15         | MulaMutha | 24         | Satluj       | 32         | Vaigai      |
| 7          | Devika           | 16         | Musi      | 25         | Subarnarekha | 33         | Vennar      |
| 8          | Diphu & Dhansiri | 17         | Narmada   | 26         | Tapti        | 34         | Wainganga   |
| 9          | Ghaggar          | 18         | Nambul    |            |              |            |             |

The following rivers are covered under NRCP:

From 01.08.2014, works related to Ganga and its tributaries were trasferred 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 14<sup>th</sup> 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 implemention 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 integrated through water resources development and management". "Implementation of National Water Mission (NWM)" is a Central Sector Scheme of the Department of Water Resources River Development & Ganga Rejuvenation, M/o Jal Shakti with total financial outlay of Rs.196 crore for the

XII Plan period. Scheme has now been extended for the 15<sup>th</sup> Finance Commission period i.e. from financial year 2021-22 to 2025-26 with total financial outlay of Rs. 51 crore.

# 3.14 GROUND WATER MANAGEMENT & REGULATION (GWM&R)

Central Ground Water Board (CGWB) operates as a subordinate office of DoWR, RD & GR, Ministry of Jal Shakti Government of India. CGWB is a multi-disciplinary scientific organization consisting of hydrogeologists, geophysicists, chemists, hydrologists, hydrometeorologists and engineers. The 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. In addition to this 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).

Major activities of the Board include i) Aquifer Mapping and Preparation of management plans as a part of the NAQUIM programme; ii) Exploratory drilling including lithology preparation and pumping tests; iii) Monitoring of ground water levels; iv) Monitoring of ground water quality v) Implementation of demonstrative schemes for artificial recharge and rainwater harvesting; vi) Periodic assessment of ground water resources of the country, jointly with the concerned State Government agencies; vii) Geophysical studies; viii) Capacity building activities for personnel of its own as well as Central/State Government organizations; ix) outreach activities for dissemination of usable information xi) Providing technical assistance to States / UTs; x) regulation and control of ground water development and management in the country under CGWA; xi) providing technical assistance for participatory ground water management as a part of Atal Bhujal Yojana; xii) implementation of the ground water component of PMKSY-HKKP scheme for promoting ground water based irrigation etc.

### 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 –

- (a) Survey, investigation and preparation of Master Plan,
- (b) Preparation of DPR of Multipurpose Projects
- (c) Drainage Development Schemes
- (d) 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.

### **INTER-LINKING OF RIVERS**

On the directions of Supreme Court, a committee called "Special Committee on Interlinking of Rivers" was constituted on 23<sup>rd</sup> September, 2014 under the chairmanship of the Union Minister of Water Resources, River Development & Ganga Rejuvenation (now Ministry of Jal Shakti) for implementation of Inter-Linking of Rivers (ILR) programme. Nineteen meetings of the Special Committee for Inter-Linking of Rivers (ILR) have been held so far (last meeting held on 12.11.2021 at New Delhi), wherein State Irrigation/Water Resources Ministers along with the Secretaries of various States participated. The Special Committee on ILR takes into consideration all the suggestions/ observations of the stakeholders while planning and formulating the ILR projects.



Release of Glacial Lake Atlas by Secretary, DoWR, RD & GR on 29th June, 2021
# **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 timeconsuming.

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

The Dam Safety Act, 2021 has been notified in the Gazette of India and the provisions of the said Act came into force from 30<sup>th</sup> December, 2021. The Dam Safety Act, 2021, provides for surveillance, inspection, operation and maintenance of the specified dams 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 Dam Safety Act, 2021, inter-alia, provides for:

- (a) Constitution of the National Committee on Dam Safety to discharge functions to prevent dam failure related disasters and to maintain standards of dam safety and evolve dam safety policies and recommend necessary regulations as may be required for that purpose;
- (b) Establishment of the National Dam Safety Authority as a regulatory body to implement the policy, guidelines and standards for proper surveillance, inspection and maintenance of specified dams and address unresolved points of issues between the State Dam Safety Organisation of two States, or between the State Dam

Safety Organisation of a State and the owner of a dam in that State, and in certain cases, such as dams extending in two or more States or dams of one State falling under the territories of another State;

- (c) Constitution of the State Committee on Dam Safety by the State Governments to ensure proper surveillance, inspection, operation and maintenance of all specified dams in that State and ensure their safe functioning;
- (d) Establishment of the State Dam Safety Organisation in States having specified dams which will be manned by officers with sufficient experience in the field of safety of dams;
- (e) An obligation upon every owner of a specified dam to establish operational and maintenance set up to ensure continued safety of such dams, to earmark sufficient and specific funds for maintenance and repairs of the dams, for undertaking pre-monsoon and post-monsoon inspections and

special inspections during and after floods, earthquakes, etc., to carry out risk assessment studies at such intervals as specified by the National Committee on Dam Safety;

- (f) An obligation upon the concerned State Dam Safety Organisation to keep perpetual surveillance, carry out inspections and monitor the operation and maintenance of specified dams under its jurisdiction to ensure their safety; and to classify each dam under their jurisdiction as per the vulnerability and hazard classification in accordance with the regulations;
- An obligation upon the National (g) Dam Safety Authority to forward its Annual Report to the Parliament and the National Disaster Management Authority and the State Dam Safety Organisation to forward their Annual Reports on safety status of dams to concerned State the Legislative Assembly and State Disaster Management Authority.



Sh. Gajendra Singh Shekhawat, Hon'ble Minister, MoJS and senior officers of DoWR, RD & GR on 02.12.2021 in Parliament of India, New Delhi

# 4.3 INTER-STATE WATER DISPUTES TRIBUNALS

### **KRISHNA WATER DISPUTES TRIBUNAL**

The Krishna Water Disputes Tribunal was constituted on 2<sup>nd</sup> 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 upto 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.

Meanwhile, as per Andhra Pradesh Re-organization Act, 2014 the term of the Tribunal was extended for two years w.e.f. 1<sup>st</sup> August, 2014 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 report has been extended for a further period of one year w.e.f 01.08.2021. Expenditure incurred by the Tribunal:

| SI. No. | Particulars                                            | Rs. in lakhs |
|---------|--------------------------------------------------------|--------------|
| 1       | Budget Allocation for 2021-22                          | 322          |
| 2       | Expenditure from<br>4/21 to 12/21 (upto<br>23/12/2021) | 243          |
| 3       | Cumulative<br>Expenditure upto<br>31/12/2021           | 3430 *       |

\*includes expenditure upto 31/12/2020 - 3113 lakhs and 317 lakhs from 1/1/2021 onwards (74 lakhs 2020-21 last quarter and 243 for 21-22 upto 23/12/2021)

# 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 financial expenditure of the Tribunal for the year 2021-22 is as under,

| Sl.<br>No. | Specification                                                                    | Rupees in<br>lakhs            |
|------------|----------------------------------------------------------------------------------|-------------------------------|
| 1.         | Budget allocation for 2021-22                                                    | 301 (BE) 365<br>(Proposed RE) |
| 2.         | Expenditure<br>incurred by the<br>Tribunal from<br>1.4.2021 to<br>31.12.2021     | 265                           |
| 3.         | Anticipated<br>expenditure of<br>the Tribunal<br>from 01.01.2022<br>to 31.3.2022 | 100                           |

## 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 adjucation 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, Chief Justice of Jharkhand High Court, Ranchi [Member-1]
- Mrs. Justice Indermeet Kaur Kochhar, Judge of the Delhi High Court [Member-2]

**Progress in Adjudication of the Disputes before Mahanadi WDT:** 25 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.

| Expenditure | incurred | by the | Tribunal: |
|-------------|----------|--------|-----------|
|-------------|----------|--------|-----------|

| Sl.No. | Specifications                                                                      | Rs. In Lakhs |
|--------|-------------------------------------------------------------------------------------|--------------|
| 1      | Budget Allocation for 2021-22                                                       | 296.00       |
| 2      | Expenditure from 04/2021 to 12/2021                                                 | 224.00       |
| 3      | Cumulative<br>Expenditure upto<br>31/12/2021[since<br>inception of the<br>Tribunal] | 656.50       |

### **RAVI & BEAS WATERS TRIBUNAL**

The Ravi and Beas Waters Tribunal was set up in the year 1986 under subsection (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 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 regarding the constitutional validity of the said Act, being the Special Reference No.1 of 2004 under Article 143(1) of the Constitution of India. The Presidential Reference has since been disposed of 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 said upon the development, the Hon'ble President of India has extended the time to submit the Report by the Tribunal and to pass further orders on the Reference pending before the Tribunal upto 5th August, 2022. Hon'ble Mr. Justice Ashok Bhushan, a Judge of the Supreme Court of India was appointed as its Chairman and Hon'ble Justice Suman Shyam, Judge of Guwahati High Court has been appointed as its Member vide Gazette Notification S.O. 2444(E) published on 27<sup>th</sup> July 2020.

The Expenditure of the Tribunal for the financial year 2021-22 is as under,

| Sl. No. | Specification                                            | Rupees (in lakhs) |
|---------|----------------------------------------------------------|-------------------|
| 1.      | Budget Allocation for 2021-22 (BE)                       | 247               |
| 2.      | Budget Allocation for 2021-22 (RE)                       | 243.85            |
| 3.      | Expenditure incurred by the Tribunal (upto 27 Dec. 2021) | 92.24             |

# 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 24<sup>th</sup> 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, Central Government the nominated Dr. Justice Mukundakam Sharma as Chairman of the Tribunal, who

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

Further, the Hon'ble Supreme Court vide its order dated 13<sup>th</sup> 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 14<sup>th</sup> March, 2014 decided that the effective date of constitution of said Tribunal shall be 17<sup>th</sup> 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 17<sup>th</sup> 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 13<sup>th</sup> September, 2017. The State of Odisha and also the Central Government filed explanatory/guidance applications on 11<sup>th</sup> December, 2017 and 12<sup>th</sup> 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  $11^{\text{th}}$  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 13<sup>th</sup> September, 2017, which is pending for decision in the Hon'ble Supreme Court.

Further, Mr. Iustice 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.

Unfortunately, due to the COVID-19 pandemic and the lockdown declared by the Government, the Tribunal could not take up the matter for hearing as everything was put to a grinding halt. Due to the emergence of some COVID-19 cases in the office of the Tribunal, the next hearing of the matter could take place on 06.10.2020 through Video Conferencing mode. After hearing, the Tribunal fixed the next date of hearing on 02.12.2020 and 03.12.2020. The hearing was postponed considering the request of the counsel for

the Government of India and the matter was heard on 4th March, 2021 and 5<sup>th</sup> March, 2021 through Video Conferencing mode. On completion of the arguments of the counsel for all the three parties, the pronouncement of the Order of Tribunal was reserved.

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  $21^{st}$  June, 2021. Expenditure incurred by the Tribunal (VWDT) during 2021-22 is as below:

| Sl. No. | Specification                                    | Rupee in Lakhs |
|---------|--------------------------------------------------|----------------|
| 1       | Budget allocation for 2021-2022                  | 526.00         |
| 2       | Expenditure upto 31 <sup>st</sup> December, 2021 | 377.54         |
| 3       | Cumulative expenditure upto December, 2021       | 3933.23        |

### 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 2<sup>nd</sup> 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 5<sup>th</sup> 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 01<sup>st</sup> 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 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:

- (i) storage, apportionment, regulation and control of Cauvery waters;
- (ii) supervision of operation of reservoirs and with regulation of water releases with the assistance of Regulation Committee;
- (iii) 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.

The Head Quarters of the Authority are at New Delhi.



India-Bangladesh Water Resources Secretary level meeting under the framework of Joint Rivers Commission held on 16<sup>th</sup> March, 2021 at New Delhi

# **5. INTERNATIONAL COOPERATION**

# 5.1 BILATARAL 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 for enhancing the collaboration in the field of water resources management: -

- (i) MoU with Morocco-3<sup>rd</sup> Joint Working Group (JWG) meeting of was held on 13<sup>th</sup> July 2021 via virtual platform under the joint chairmanship of Commissioner (CAD) – DoWR, RD & GR and Director of Research and Planification of Water, Ministry of Equipment, Transport, Logistics and Water, Govt. of Morocco.
- (ii) MoU with Netherlands 3<sup>rd</sup> Joint Working Group (JWG) meeting of was held on 7<sup>th</sup> September 2021 via virtual platform under the joint chairmanship of DG, NMCG and Special Envoy for International Water Affairs, Ministry of Infrastructure and Water Management, Govt. of Netherlands.
- (iii) MoU with Japan 1<sup>st</sup> Joint Working Group (JWG) meeting was held on 21<sup>st</sup>

December 2021 via virtual platform under the joint chairpersonship of Additional Secretary, DoWR, RD & GR and DG, Water Resources Department, Water and Disaster Management Bureau, MLIT, Govt. of Japan.

- (iv) MoU with European Union:- A meeting was convened under the chairmanship of Member (WP&P), CWC on 13<sup>th</sup> September, 2021 with EU Delegation and IEWP Nodal officers from CWC, CGWB, NMCG to discuss the flexible Action Plan of IEWP Action Phase 2 regarding all four work areas i.e. 1) River Basin Management, 2) Irrigation and Efficient Water Use 3) E-Flows Assessment and 4) Safe Reuse of Treated Water.
- (v) MoU with Hungary: The pre JWG Indo-Hungary meeting was held on 20.11.2020 under the Co-Chairmanship of Shri Subodh Yadav, JS (Admn./IC&GW), DoWR, RD & GR, Govt. of India and Mr. Peter Kovacs, Water Director, Ministry of Interior of Hungary. During the meeting, both the sides agreed to put priority on management of extreme phenomena, mitigation of the impact of climate change on water resources, protection and preservation of the quality of water

resources and to facilitate knowledge exchange programs between experts & relevant institutions. A three year working program has also been finalized in the meeting which will be signed by both sides in the next JWG meeting.

FIRST BRICS Water **Ministers** Meeting and BRICS Water Forum:-Consequent to the announcement made by the Hon'ble Prime Minister of India during 11<sup>th</sup> BRICS Summit held at Brasilia to hold first meeting of BRICS Water Ministers in India, the Ministry of External Affairs requested the Ministry of Jal Shakti to organise the first BRICS Water Ministers meet in India. Accordingly, Ministry of Jal Shakti, Government of India in coordination with Ministry of External Affairs organized first BRICS Water Ministers Meet and BRICS Water Forum during 16-18 November 2021 at New Delhi in Hybrid mode during India's BRICS Chairship-2021.

The two-day BRICS Water Forum Sessions held during 16-17 November, 2021 deliberated on technical themes on "Climate Change Impacts - Challenges **Opportunities**," and "Technology Innovations in Water Management" and "Addressing the Water, Food and **Energy Security.**" The Country papers were presented by India, People's Republic of China, Republic of South Africa, Federative Republic of Brazil, Russian Federation during these sessions. 36 delegates joined the Forum virtually and 15 delegates attended physically.

The BRICS Water Forum sessions were followed by a session on 17<sup>th</sup> November, 2021 for finalization of joint declaration by BRICS Water Ministers on the following day. The first BRICS Water Ministers Meet was held on 18<sup>th</sup> November 2021. The speeches delivered during the Meet have set forth a definitive path of mutual cooperation of highest order in the water sector. All BRICS member countries adopted New Delhi statement on Water 2021 in this meet showing.

The New Delhi statement on water 2021 resolved that BRICS countries will strive to work together on the following issues of common interest: (i) Sustainable Development Goal 6, (ii) Fostering Sustainable Water Resources Development, (iii) Resilient Water Resources Management, (iv) Mitigation and Adaption of Impact of Climate Change on Water Resources & (v) Capacity Building and Sharing Best Practices. It was also resolved to continue to focus attention on the precious water resources and further explore ways and means to intensify cooperation in water management among **BRICS** countries.

# 5.2 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 effective joint efforts in maximizing the benefits from common river systems. It is headed by Water Resources Ministers of both the countries.

The India-Bangladesh Water Resources Secretary level meeting under the framework of the Joint Rivers Commission was held on 16<sup>th</sup> March 2021 at New Delhi. The Indian delegation was led by Shri Pankaj Kumar, Secretary (DoWR, RD & GR and the Bangladesh delegation was led by Mr. Kabir Bin Anwar, Senior Secretary, Ministry of Water Resources, Government of the People's Republic of Bangladesh. Both sides agreed to expand cooperation across entire gamut of water resources issues including framework for sharing of river waters, mitigation of pollution, river bank protection, flood management, basin management etc. A Joint Technical Working Group will provide inputs in this matter. The discussions were substantive and held in a cordial atmosphere. Both sides agreed to schedule the next round of Water Resources Secretary Level meeting under JRC framework at Dhaka at mutually convenient dates.

# TREATY ON SHARING OF GANGA/ GANGES WATERS AT FARAKKA

A Treaty was signed by the Prime Ministers of India and Bangladesh on 12<sup>th</sup> 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 1<sup>st</sup> January to 31<sup>st</sup> 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. The "Ganga Water Treaty of 1996" with Bangladesh is being implemented to the satisfaction of both the countries since 1997.

The 75<sup>th</sup> India-Bangladesh Joint Committee (JC) meeting as per provisions of "Ganga Water Treaty-1996" was held on virtual platform on 5th January, 2021 for the finalisation of Annual Report on sharing of the Ganga/Ganges waters at Farakka for the lean season of the year, 2020 and the 76<sup>th</sup> meeting of Joint Committee was held at Dhaka on 25th November, 2021 for finalisation of Annual Report on sharing of the Ganga/Ganges waters at Farakka for the lean season of the year, 2021. A Technical Level Meeting (TLM) of India and Bangladesh was also held on virtual platform on 6<sup>th</sup> January, 2021. The delegation on the Indian side was headed by Shri Atul Jain, Commissioner (FM) &



76th meeting of Joint Committee was held at Dhaka on 25th November, 2021

Member, Joint Rivers Commission and the Bangladesh delegation was headed by Mr. Md. Mahmudur Rahman, Member, Joint Rivers Commission, Bangladesh.

### 5.3 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 Multipurpose 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.

### **5.4 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 co-operation of upon provision hydrological data in flood season, emergency management and other issues regarding trans-border rivers. The ELM meeting is held yearly alternately in both the countries. Government of India takes up relevant issues relating to trans-border rivers, with the Chinese side through this Expert Level Mechanism. Twelve meetings of ELM have been held so far. The 12<sup>th</sup> meeting was held during 12-13<sup>th</sup> June, 2019 at Ahmedabad, India wherein Implementation Plan upon provision of hydrological information of the river Yaluzangbu/Brahmaputra was signed for five years. The next (13th) meeting of ELM was proposed to be held in China. However, the meeting could not be held during 2020 due to Corona pandemic.

A special meeting of Expert Level Mechanism (ELM) on Trans-Border Rivers between India and China was held online on 8<sup>th</sup> September, 2021. The Indian delegation was led by Commissioner (Brahmaputra & Barak), Ministry of Jal Shakti, Department of Water Resources, River Development and Ganga Rejuvenation. Representatives of MEA, CEA and CWC also participated in the meeting. In the special meeting of ELM, it was decided to hold the 13<sup>th</sup> meeting of ELM online at any mutually convenient date agreed by both the countries.

India and China have also signed a Memorandum of Understanding (MoU) on Provision of Hydrological Information on Brahmaputra River in Flood Season in 2002 which was renewed in 2008, 2013 and 2018. Further, another MoU for the provision of 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. Renewal of MoU is under process through diplomatic channels. For the year 2021, hydrological data (water level, rainfall and discharge) for both the rivers viz Brahmaputra (15.05.21 to 15.10.21) and Sutlej (01.06.21 to 15.10.21) was duly received twice a day.

# 5.5 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 recommend to both Governments

remedial measures. Nine meetings of JGE have been held so far. The first meeting of JGE was held in Bhutan from 1st-5th November, 2004 and the 9<sup>th</sup> meeting was held during 7-8th January, 2020 at Punakha, Bhutan. 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 6<sup>th</sup> meeting of JTT was held during 12-13th September, 2019 at Jalpaiguri, India. On account of Corona Pandemic, JTT meetings could not be held in the year 2020 and 2021. DoWR, RD&GR, Ministry of Jal Shakti

appropriate and mutually acceptable

is also operating a separate scheme for setting up of flood forecasting system on rivers common to India and Bhutan in 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 32 hydro-meteorological sites on common rivers flowing from Bhutan to India for the above work. The data received from these stations are utilized 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 in year to review the progress and other requirements of the scheme. The 35<sup>th</sup> JET meeting was held at Paro (Bhutan) during 6-7<sup>th</sup> March, 2019. The 36<sup>th</sup> meeting is proposed to be held in India. However, the meetings could not be held in the

year 2020 and 2021 on account of COVID pandemic.

## 5.6 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).

In fulfilment of the requirement of Indus Waters Treaty, the daily G&D data of hydrological sites on six basins, the Indus, the Jhelum, the Chenab, the Ravi, the Beas and the Sutlej of Indus system was sent to Pakistan every month. Irrigated cropped area statistics for the crop year 2020-21 for the Indus, the Jhelum & the Chenab basin had been compiled and sent to Pakistan as per the provisions of Indus Waters Treaty during November, 2021. Extra ordinary flood flow data for agreed sites on the rivers Ravi, Sutlej, Tawi and Chenab was also communicated by India to Pakistan as per the provisions of Indus Waters Treaty through telephone during 01<sup>st</sup> July to 10<sup>th</sup> October, 2021 to undertake advance flood relief measures in Pakistan.

**Meeting of PIC:** 116<sup>th</sup> meeting of the Permanent Indus Commission was held in New Delhi during 23<sup>rd</sup> -24<sup>th</sup> March, 2021. 117<sup>th</sup> meeting of Permanent Indus Commission is scheduled to be held in Islamabad, Pakistan.

**Pong Dam Oustees:** The 26<sup>th</sup> meeting of the High Powered Committee (HPC) under Chairmanship of Secretary (DoWR,RD & GR) constituted for looking into the issues of rehabilitation & resettlement of Pong Dam Oustees held on 01.02.2021 at New Delhi. Next meeting is scheduled to be held in February, 2022.



Smt. Debashree Mukherjee, Additional Secretary, DoWR, RD & GR in a meeting with ACS, WRD, Govt. of Maharashtra and SPMU team reviewing status of DRIP projects of Maharashtra on 22.10.2021

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Smt. Debashree Mukherjee, Additional Secretary, DoWR, RD & GR during inspection of rehabilitation works done under DRIP in KRS Dam, Karanataka on 26.08.2021

# 6. EXTERNAL ASSISTANCE IN WATER RESOURCES SECTOR

The Department 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, 13 Externally Aided Projects are being implemented in various States of the country with the assistance from different funding agencies, viz. the World Bank (4), Asian Development Bank (4), Japan International Cooperation Agency (JICA) (3), New Development Bank (NDB) (1) and Asian Infrastructure Investment Bank (AIIB) (1). The details of these projects are as under:

| SI.<br>No. | Name of<br>State              | Name of<br>Project                                                                            | Project Objective                                                                                                                                                                                                                                       | Effective<br>date/<br>Closing<br>date | Project cost<br>Loan amount<br>(Rs. in crore<br>approx.) | Cumulative<br>Disbursement<br>(Rs. in crore) |  |
|------------|-------------------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------------------------------------|----------------------------------------------|--|
| Proje      | Projects funded by WORLD BANK |                                                                                               |                                                                                                                                                                                                                                                         |                                       |                                                          |                                              |  |
| 1.         | Andhra<br>Pradesh             | Andhra<br>Pradesh<br>Integrated<br>Irrigation and<br>Agriculture<br>Transformation<br>Project | Enhance agricultural<br>productivity,<br>profitability and<br>climate resilience of<br>small holder farmers<br>in 1000 selected<br>tanks stabilizing an<br>ayacut of 2,26,552<br>acres in 12 districts<br>(except Guntur) of<br>Andhra Pradesh<br>state | 27.07.2018/<br>31.10.2025             | Cost-1,844.25<br>Loan-1,291.5                            | 213                                          |  |
| 2.         | Tamil Nadu                    | Tamil Nadu<br>Irrigated<br>Agriculture<br>Modernization<br>Project                            | Enhance<br>productivity and<br>climate resilience of<br>irrigated agriculture,<br>improve water<br>management and<br>increase market<br>opportunities for<br>farmers and agro-<br>entrepreneurs in<br>selected sub-basin<br>areas of Tamil Nadu.        | 23.01.2018/<br>02.06.2025             | Cost-3,418.5<br>Loan-2,385                               | 1,055.65                                     |  |

| SI.<br>No. | Name of<br>State | Name of<br>Project | Project Objective      | Effective<br>date/<br>Closing<br>date | Project cost<br>Loan amount<br>(Rs. in crore<br>approx.) | Cumulative<br>Disbursement<br>(Rs. in crore) |
|------------|------------------|--------------------|------------------------|---------------------------------------|----------------------------------------------------------|----------------------------------------------|
| 3.         | Uttar            | Uttar Pradesh      | Strengthening of       | 24.10.2013/                           | Cost-3,862.5                                             | 1,886.1                                      |
|            | Pradesh          | Water Sector       | institutional and      | 30.06.2021                            | Loan-2,078                                               |                                              |
|            |                  | Project            | for integrated         |                                       |                                                          |                                              |
|            |                  |                    | water resource         |                                       |                                                          |                                              |
|            |                  | Phase-II           | management for the     |                                       |                                                          |                                              |
|            |                  |                    | entire State.          |                                       |                                                          |                                              |
|            |                  |                    | Increase agricultural  |                                       |                                                          |                                              |
|            |                  |                    | productivity and       |                                       |                                                          |                                              |
|            |                  |                    | water productivity     |                                       |                                                          |                                              |
|            |                  |                    | farmers in targeted    |                                       |                                                          |                                              |
|            |                  |                    | irrigation areas.      |                                       |                                                          |                                              |
| 4.         | West             | West Bengal        | To improve irrigation  | 11.08.2020/                           | Cost- 3,098.74                                           | 394.69                                       |
|            | Bengal           | Major              | service delivery in    | 30.11.2025                            | Loan – 2,175                                             |                                              |
|            |                  | Irrigation         | the existing canal     |                                       | (WB and AIIB)                                            |                                              |
|            |                  | and Flood          | network of Damodar     |                                       |                                                          |                                              |
|            |                  | Management         | Valley Project.        |                                       |                                                          |                                              |
|            |                  | (WBMIFMP)          | To Strengthen flood    |                                       |                                                          |                                              |
|            |                  |                    | risk management.       |                                       |                                                          |                                              |
| Proje      | ects funded      | by ASIAN DEVE      | LOPMENT BANK (ADI      | 3)<br>I                               |                                                          |                                              |
| 5.         | Karnataka        | Karnataka          | Modernization of       | 24.1.2020/                            | Cost-960.73                                              | 107.90                                       |
|            |                  | Sustainable        | System and taking      | 31.3.2024                             | Loan-672.51                                              |                                              |
|            |                  | Water              | up Integrated          |                                       |                                                          |                                              |
|            |                  | Resources          | Water Resources        |                                       |                                                          |                                              |
|            |                  | Management         | Management             |                                       |                                                          |                                              |
|            |                  | Investment         | (IWRM) components      |                                       |                                                          |                                              |
|            |                  | Program-2          | in K8 sub-basin of     |                                       |                                                          |                                              |
|            |                  |                    | Krishna River Basin.   |                                       |                                                          |                                              |
|            |                  |                    | The program            |                                       |                                                          |                                              |
|            |                  |                    | also envisages         |                                       |                                                          |                                              |
|            |                  |                    | preparation of River   |                                       |                                                          |                                              |
|            |                  |                    | Basin Profile for K-2, |                                       |                                                          |                                              |
|            |                  |                    | in Karnataka and       |                                       |                                                          |                                              |
|            |                  |                    | River Basin Atlas for  |                                       |                                                          |                                              |
|            |                  |                    | Ghataprabha and        |                                       |                                                          |                                              |
|            |                  |                    | Malaprabha sub-        |                                       |                                                          |                                              |
|            |                  |                    | basin.                 |                                       |                                                          |                                              |

| SI.<br>No. | Name of<br>State  | Name of<br>Project                                                                | Project Objective                                                                                                                                                                                                                                                                                                                                                                                                                      | Effective<br>date/<br>Closing<br>date                              | Project cost<br>Loan amount<br>(Rs. in crore<br>approx.) | Cumulative<br>Disbursement<br>(Rs. in crore) |
|------------|-------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------------|
| 6.         | Karnataka         | Sustainable<br>Coastal<br>Protection and<br>Management<br>Investment<br>Program-2 | Address the<br>immediate<br>coastal protection<br>needs and coast<br>instability using<br>environmentally and<br>socially appropriate<br>solutions ; through<br>economically<br>viable long term<br>sustainable<br>protection works<br>for identified sites<br>of Karnataka, which<br>are severely affected<br>by beach erosion or<br>flooding causing loss<br>of livelihoods, public<br>property and land.                            | 15.12.2017/<br>28.09.2020<br>(Financial<br>closure 27-<br>01-2021) | Cost-691.28<br>Loan-484.06                               | 341.79                                       |
| 7.         | Madhya<br>Pradesh | Madhya<br>Pradesh<br>Irrigation<br>Efficiency<br>Improvement<br>Project           | Kundaliya Irrigation<br>Project (KIP) will<br>develop 1,25,000<br>hectares of new,<br>highly efficient micro<br>irrigation network<br>in Rajgarh District<br>in Madhya Pradesh.<br>It will include<br>the design and<br>construction of<br>a highly efficient<br>and productive<br>new pressurized<br>irrigation system<br>with automated<br>volumetric control<br>for efficient, reliable<br>and flexible water<br>delivery services. | 22.11.2018/<br>21.11.2026                                          | Cost-3,959.03<br>Loan-2,771.34                           | 1,374.80                                     |
| 8.         | Tamil Nadu        | Climate<br>Adaptation<br>in Vennar<br>Sub-basin in<br>Cauvery Delta<br>Project    | Strengthen key<br>irrigation and<br>drainage system,<br>build climate<br>resilient hydraulic<br>infrastructure and<br>improve water<br>management in the<br>Venner sub-basin of<br>the Cauvery Delta in<br>Tamil Nadu.                                                                                                                                                                                                                 | 14.07.2016/<br>30.06.2022                                          | Cost-1,064.19<br>Loan-739                                | 608.29                                       |

| SI.<br>No. | Name of<br>State | Name of<br>Project                                   | Project Objective                                                                                                                                                                                                                                                                                                                                                                                                                 | Effective<br>date/<br>Closing<br>date | Project cost<br>Loan amount<br>(Rs. in crore<br>approx.) | Cumulative<br>Disbursement<br>(Rs. in crore) |
|------------|------------------|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------------------------------------|----------------------------------------------|
| Proje      | ects funded      | by JAPAN INTER                                       | NATIONAL COOPERA                                                                                                                                                                                                                                                                                                                                                                                                                  | TION AGENC                            | Y (JICA)                                                 |                                              |
| 9.         | Andhra           | Andhra                                               | Modernize/renovate                                                                                                                                                                                                                                                                                                                                                                                                                | 06.07.2018/                           | Cost-2,000                                               | 67.78                                        |
|            | Pradesh          | Pradesh<br>Irrigation &<br>Livelihood<br>Improvement | about 20 major and<br>medium irrigation<br>sub projects<br>and restore 445                                                                                                                                                                                                                                                                                                                                                        | 06.07.2025                            | Loan-1,410.4                                             |                                              |
|            |                  | Project Phase-2                                      | minor irrigation<br>sub projects<br>and improving<br>livelihoods of<br>farmers and other<br>rural communities<br>in Andhra Pradesh<br>State.                                                                                                                                                                                                                                                                                      |                                       |                                                          |                                              |
| 10.        | Odisha           | Rengali                                              | Increase agriculture                                                                                                                                                                                                                                                                                                                                                                                                              | 14.7.2015/                            | Cost-2,255.20                                            | 361.80                                       |
| 10.        | Odisha           | Rengali<br>Irrigation<br>Project<br>Phase -2         | Increase agriculture<br>production by<br>constructing<br>irrigation systems<br>(main canal and<br>distribution<br>systems),<br>establishing Water<br>users associations<br>and promoting<br>livelihood support<br>activity through<br>improved farming<br>technique and other<br>related activities;<br>thereby, contributing<br>to improve living<br>standard of farmers<br>and socio-economic<br>development of<br>odisha State | 14.7.2015/                            | Cost-2,255.20<br>Loan-1,787.32                           | 361.80                                       |

| SI.<br>No. | Name of<br>State | Name of<br>Project | Project Objective     | Effective<br>date/<br>Closing<br>date | Project cost<br>Loan amount<br>(Rs. in crore<br>approx.) | Cumulative<br>Disbursement<br>(Rs. in crore) |
|------------|------------------|--------------------|-----------------------|---------------------------------------|----------------------------------------------------------|----------------------------------------------|
| 11.        | Rajasthan        | Rajasthan          | Improve livelihoods   | 26.10.2017/                           | Cost-2348.15                                             | 352.66                                       |
|            |                  | Water Sector       | of farmers as well    | 26.10.2024                            | Loan-908.94                                              |                                              |
|            |                  | Livelihood         | as promote gender     |                                       |                                                          |                                              |
|            |                  | Project            | in agriculture        |                                       |                                                          |                                              |
|            |                  |                    | and irrigation        |                                       | (Tranche-I)                                              |                                              |
|            |                  |                    | sector in the State   |                                       |                                                          |                                              |
|            |                  |                    | of Rajasthan, by      |                                       |                                                          |                                              |
|            |                  |                    | improving water       |                                       |                                                          |                                              |
|            |                  |                    | use efficiency        |                                       |                                                          |                                              |
|            |                  |                    | and agriculture       |                                       |                                                          |                                              |
|            |                  |                    | productivity, through |                                       |                                                          |                                              |
|            |                  |                    | Improvement of        |                                       |                                                          |                                              |
|            |                  |                    | facilities and        |                                       |                                                          |                                              |
|            |                  |                    | agriculture support   |                                       |                                                          |                                              |
|            |                  |                    | services.             |                                       |                                                          |                                              |
| Proje      | ects funded      | by NEW DEVELO      | )<br>PMENT BANK (NDB) |                                       |                                                          |                                              |
| 12.        | Rajasthan        | Rajasthan          | The project           | 31.03.2018/                           | Cost-3,665.47                                            | 728.83                                       |
|            |                  | Water Sector       | envisages             | 12 00 2022                            | Loop 740 5                                               |                                              |
|            |                  | Restructuring      | rehabilitation &      | 12.00.2025                            | L0aii-740.5                                              |                                              |
|            |                  | Project in         | modernization of      |                                       | (Tranche-I)                                              |                                              |
|            |                  | Desert Area        | Indira Gandhi Nahar   |                                       |                                                          |                                              |
|            |                  |                    | Project (IGNP)        |                                       |                                                          |                                              |
|            |                  |                    | system which          |                                       |                                                          |                                              |
|            |                  |                    | will improve the      |                                       |                                                          |                                              |
|            |                  |                    | in 1.81.618 hp of CCA |                                       |                                                          |                                              |
|            |                  |                    | and will also reclaim |                                       |                                                          |                                              |
|            |                  |                    | 33.312 ha of water-   |                                       |                                                          |                                              |
|            |                  |                    | logged area in the    |                                       |                                                          |                                              |
|            |                  |                    | region.               |                                       |                                                          |                                              |
| Proje      | ects funded      | by ASIAN INFRA     | STRUCTURE INVEST      | MENT BANK (                           | (AIIB)                                                   |                                              |
| 13.        | Tamil Nadu       | Extension,         | Ensuring the          | 06.02.2021/                           | Cost-2,639.15                                            | 229.08                                       |
|            |                  | Renovation and     | capacity of canal     | 5 02 2024                             | Loan-1,602.45                                            |                                              |
|            |                  | Modernization      | / channels to full    | 5.02.2027                             |                                                          |                                              |
|            |                  | of Grand Anicut    | supply level and      |                                       |                                                          |                                              |
|            |                  | Canal System       | increasing the water  |                                       |                                                          |                                              |
|            |                  |                    | use efficiency from   |                                       |                                                          |                                              |
|            |                  |                    | the process 450/ t    |                                       |                                                          |                                              |



Hon'ble Vice President of India Shri Venkaiah Naidu during visit to Tungabhadra Dam on 20.08.2021

# ORGANISATIONS AND INSTITUTIONS



Shri Bishweswar Tudu, Hon'ble MoS, MoJS during visit to Central Ground Water Board, Faridabad on 11.11.2021

# **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

### **MAJOR ACTIVITIES**

### i) Hydrological Observations:

There is a network of 1,730 hydrometeorological observation stations (including 1543 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/ inflow forecasting, examination of international and inter-State issues, river morphological studies, inland waterway development, reservoir siltation studies and research related activities, etc.

# ii) Water Quality Monitoring:

Water quality is monitored at 764 key locations (652 on HO network and 112 Water Quality Sampling Stations) covering all the major river basins of India. In a three tier laboratory system, level- I laboratories located at field water quality monitoring stations for observing 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 5 levelparameters of water. 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 New Laboratory, CWC, Delhi accredited with National is Accreditation Board for Testing and Laboratories Calibration (NABL) in accordance with Standard ISO/ IEC17025:2017 in the discipline of chemical and biological testing since April, 2016. Apart from this, 16 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, Lucknow, Nagpur, Iammu and Chennai, Raipur and Jalpaiguri have obtained NABL accreditation in chemical discipline.

# iii) National Hydrology Project

Under National Hydrology Project, CWC has been allocated Rs. 167 crore. The major achievements/initiatives are as under:

- Finalization of hydrometeorological network of various States
- Finalization of specifications of hydro-meteorological and survey equipment
- Finalization of reports on various modelling softwares available worldwide
- Development and up gradation of old eSWIS into WIMS

- Contract for installation, testing and commissioning of Real Time Data Acquisition System for all NE States except Assam has been awarded in Nov 2020. Work is under progress.
- Contract for Installation, Testing and Commissioning of Real Time Data Acquisition System for Narmada Basin has been awarded in August 2020. Work is under progress.
- Consultancy Service for Extended Hydrological – Prediction (multi-week forecast) for three river basin namely, Yamuna, Narmada and Cauvery has been awarded and study is under progress.
- Consultancy Service for sedimentation study in 7 river basins has been awarded and study is under progress.
- Procurement of 43 ADCP and 13 velocity radar system for modernization of discharge observations has been awarded and installation of the same is under progress.
- Contract for Reservoir Sedimentation and Bathymetric Survey of 32 reservoirs was signed on January 2021 and study is under progress.
- Study of the issue of floods and siltation in river Ganga due to Farakka Barrage in the State of Bihar is under progress.
- Consultancy services for "Development of Decision Support System near to real time for Integrated Reservoir Operation

System of Ganga Basin" has been awarded and study is under progress.

- Consultancy Service for "Early Flood Warning System Including Inundation Forecast in Ganga Basin" has been awarded and work is under progress.
- Modernization of training facilities in NWA Pune
- Modernization of water quality monitoring activity
- Tender for "Supply Installation, Testing and Commissioning of 50 Acoustic Doppler Current Profiler (ADCP) and 19 velocity radar (VR) and Related Services" has been floated through CPP portal on December 2021.
- Tender for "Supply Installation, Testing and Commissioning of 45 Numbers of Out Board (OB) Engine and 19 nos Digital Global Positioning System (DGPS) has been floated through CPP portal.

# iv) Survey and Investigation:

The survey and investigation of Kalez Khola HE Project (Sikkim) has been completed. The survey and investigations for three other projects HEP namelv. Tawang (Mizoram), Katakhal Irrigation Project (Assam) and Barinium HEP (J&K) 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 Dam and Sun Kosi Storage-cum-Diversion Project jointly with Nepal for mutual benefit of both the countries.

# v) Project Appraisal:

The Advisory Committee of DoWR, RD & GR considers the technoeconomic viability of Medium and Major Irrigation, Multipurpose and Flood Control Project proposals. The appraisal of civil aspects including appraisal of cost estimates for 01 hydroelectric project has been completed during the current vear (upto December 2021). Other components of hydro-electricprojects are appraised in Central Electricity Authority (CEA).

The Techno-Economic Clearance (TEC) to these projects is accorded by CEA. During the year, 2021-22 (up to December, 2021), 02 projects have 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. Presently, 12 irrigation projects and 4 flood projects have been submitted and are under appraisal on e-PAMS.

# vi) 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 2020-21, 36 (21 major, 14 medium and 2 ERM) on-going projects under PMKSY-AIBP and 4 major & medium projects under Special Package to Maharashtra and Punjab were monitored by CWC field units.

During 2021-22, 43 visits were undertaken and 39 status reports were issued for projects under PMKSY-AIBP and 06 monitoring visits were undertaken and 06 status reports were issued for projects under Special Package of Maharashtra and Punjab. In addition, 2 meetings of Monitoring Committee including 1 virtual monitoring visit of Shahpurkandi Dam Project was held during 2021 and 1 meeting of Expert Committee of Polavaram Irrigation Project was held in 2021. Further, Expert Project Review Committee visited sites and reviewed progress of project Relining of Rajasthan Feeder (RF) and Sirhind Feeder (SF).

# vii) 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 for 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".

| Sl. No. | Institute     | Name of Rivers                      | Status                                                                        |
|---------|---------------|-------------------------------------|-------------------------------------------------------------------------------|
| 1.      | IIT Roorkee   | Ganga, Sharda, Rapti                | Final Reportsubmitted                                                         |
| 2.      | IIT Delhi     | Kosi, Bagmati, Yamuna               | Draft Reportof Kosi and Bagmati submitted<br>Final Report of Yamuna submitted |
| 3.      | IIT Guwahati  | Brahmaputra,Subansiri,<br>Pagladiya | Final Report submitted                                                        |
| 4.      | IIT Madras    | Krishna, Tungbhadra                 | Final Report submitted                                                        |
| 5.      | IIT Kharagpur | Mahananda,Mahanadi,<br>Hooghly      | Final Reportsubmitted                                                         |
| 6.      | SVNIT Surat   | Тарі                                | Final Reportsubmitted                                                         |

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

# viii) Monitoring of Glacial lakes and water bodies:

Monitoring of Glacial lakes/water bodies in the Himalayan Region of Indian river basin are being carried out on monthly basis from June to October every year to study, monitor the changes in the spatial extent of the glacial lakes and water bodies greater than 50 ha. area with the area of base year 2009 using satellite data received from NRSC, Hyderabad. The monitoring has been done during the year and monthly monitoring reports have been sent to Central/State Govt. agencies and other stakeholders.

# ix) Monitoring of E- Flow

The Government of India vide Gazette Notification dated 9<sup>th</sup> October, 2018, has notified the minimum environmental flows for river Ganga that has to be maintained at various locations in the river. The order applies to the upper Ganga River Basin. This exercise starts from the originating glaciers and through respective confluences of head tributaries, meeting at Devprayag up to Haridwar and the main stem of river Ganga up to Unnao district of Uttar Pradesh. CWC has been entrusted the responsibility of monitoring the compliance by project authorities on maintenance of desired e-flows. Monitoring of e-flows is being carriedby CWC since 1<sup>st</sup> January, 2019.

# x) 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 hydrometeorologically homogeneous sub-zones and flood estimation models are developed for each subzone to compute the design flood in un-gauged catchments. So far, flood estimation reports covering 24 subzones have been published. During the year 2021-22, technical examinations of hydrological aspects of DPRs in respect of 86 projects have been carried out in CWC. Out of this, 36 projects have been cleared and comments were issued for 38 projects. In addition, CWC has also carried out Design Flood Review Studies of the 41 projects in the following States:

| SI.<br>No. | Name of the<br>State | No of<br>Projects |
|------------|----------------------|-------------------|
| 1          | Andhra Pradesh       | 5                 |
| 2          | Chhattisgarh         | 2                 |
| 3          | Karnataka            | 27                |
| 4          | Maharashtra          | 1                 |
| 5          | Odisha               | 1                 |
| 6          | Rajasthan            | 1                 |
| 7          | Tamil Nadu           | 3                 |
| 8          | Uttar Pradesh        | 1                 |

Hydrological studies were carried out on consultancy basis for the following projects:

- Damanganga-Godavari Link Project
- Damanganga-Vaitarna-Godavari Link Project
- Bhur, Basakattha, Khuntishot and Bhelwa Reservoir Scheme: Reservoir Sedimentation Study and rating curve
- Satyar Khad Medium Irrigation project

 Hydrological series for rescheduling of monthly design energy of UPJVNL Power Sation of Matatila power station Dist. Lalitpur, Rihand power station, Pipri Sonebhadra, Obra power station, Obra, Sonebhadra & Khara power station Badshahibagh, Saharanpur.

# 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 2021-22 are as under:

- Consultancy work to study the issue of floods and siltation in river Ganga due to Farraka barrage (under NHP): The consultancy work was awarded to RMSI Pvt Ltd. The Inception Report on the consultancy work has been accepted by the Committee constituted by MoJS under the chairmanship of Chairman, CWC. The Data Compilation Report is under examination by the Committee.
- Consultancy services of physical based mathematical modelling for estimation of sediment rate and sediment transport in 7 river basins of India (under NHP): The consultancy work has been awarded to M/s Haskoning DHV Consulting Pvt Ltd. A Technical Advisory and Review Committee (TARC) under the chairmanship of CE, HSO to monitor progress, guide

consultant and accept reports submitted by the consultant has been constituted with the approval of Chairman, CWC. The Inception Report and Data Compilation Report have been accepted. During 2021-22, one 5-day training and two 2-days workshops have been organized under capacity building component of the work with participation of CWC Officers as well as representatives from State Governments.

# xi) 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 73 projects. Out of this, 26 projects (including 3 from neighboring countries) are at construction stage; 26 projects (including 3 from neighboring countries) are at DPR stage and 21 projects involve special problems.

In addition to the above, technical examinations of design aspects of DPR of 51 Hydro-Electric/ Irrigation / Flood Management/ Multi-Purpose Projects were also carried out during the year (till Dec 2021). Out of these, DPR of 6 projects have been cleared. DPR of remaining 45 projects are at various stages of examination.

# xii) Dam Rehabilitation and Improvement Project

Dam Rehabilitation and Improvement

Project (DRIP) is an externally aided project with financial assistance from World Bank. Project envisaged rehabilitation provision of 223 dams in seven (7) States during Phase I and 736 dams in nineteen (19) States during Phase II & III along with institutional strengthening with system wide management approach.

# Dam Rehabilitation and Improvement Project (Phase I) :

Ministry of Jal Shakti, DoWR, RD & GR, initiated World Bank assisted Dam Rehabilitation and Improvement Project (DRIP) in April 2012. The scheme successfully closed in March, 2021.

The rehabilitation portfolio included 223 dams located in seven States i.e. Kerala, Madhya Pradesh, Odisha, Tamil Nadu, Karnataka, Jharkhand and Uttarakhand with 10 Implementing Agencies onboard.

The financial outlay of the scheme was originally Rs 2,100 crore (with external loan of US\$ 279.3 million) with scheduled closure on June 30, 2018. The cost 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 up to June 30, 2020. Due to the COVID19 pandemic, Ministry initiated some urgent actions to facilitate the partner agencies to compensate for the loss of time and complete the ongoing rehabilitation activities. The Scheme was extended by additional nine (9) months i.e. up to March 31, 2021. Also, loan amount of US\$ 101 million was surrendered in 2020 to avoid the commitment charges on undisbursed loan amount. Phase I of project closed successfully on March 31, 2021. The performance rating of scheme given by World Bank is 'satisfactory'.

The completion cost is Rs 2,567 crore and the loan disbursement was US\$308 million.

# Phase I - Achievements /Activities during year 2021:

Phase I of project was closed on March 31, 2021. The achievements mentioned hereunder are at project closure stage.

**Physical rehabilitation**: Out of 223 dams, 221 dams rehabilitated. During the year 2021, rehabilitation activities were completed at 11 dams.

**Financial achievement:** Out of total project cost of Rs. 3,466 crore, total expenditure incurred was Rs. 2,567 crore. During the year 2021, the expenditure incurred was Rs. 150 crore.

Dam Health and Rehabilitation MonitoringApplication(DHARMA): A web-based asset management tool has been developed to support the effective collection and management of dam data. The licenses for this tool have been provided to 18 States. Preliminary information available in National Register of Large Dams data for about 5,745 dams has been transferred into DHARMA, wherein detailed data in respect of 1,527 dams have been entered.

# Dam Rehabilitation and Improvement Project Phase II (DRIP-II):

Based on the success of DRIP Phase I, Ministry of Jal Shakti initiated activi-

ties for DRIP Phases II and III, by inviting proposals from various States in the year 2017. 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 2 Central Agencies (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 total cost of the project is Rs. 10,211 crore. Out of this cost, Rs. 7,000 crore is an external loan, 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).

DRIP Phase-II and Phase-III was approved in 2020. Phase II is being financed by World Bank and AIIB, each for US\$ 250 million. The loan negotiation with World Bank for Phase II was held on November 10, 2020 in which 10 States (Gujarat, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Rajasthan, Odisha, Tamil Nadu, and Chhattisgarh) participated. The loan agreement was signed on August 04, 2021 with 10 States and became effective from October 12, 2021. In addition to 10 States, the four States (Uttarakhand, Uttar Pradesh, West Bengal and Karnataka) are in advanced stage of inclusion under this scheme. 138 tenders for civil works approximately for Rs. 1,981 crore have been published; out of which 68 of tenders have been awarded amounting to Rs 780 crore.

# **Details of Symposium/Meeting**

• ICOLD 2021 Symposium on Sustainable Development of Dams and River Basin, February 24-27, 2021.

> International Commission on Large Dams (ICOLD), New Delhi in collaboration with CWC and DRIP organized the ICOLD Symposium "Sustainable on **Development of Dams and River** Basins" under the aegis of ICOLD at New Delhi as hybrid event from February 24-27, 2021 at New Delhi. The symposium was attended by Hon'ble Minister of Jal Shakti, Hon'ble Minister of State for Power & Renewable Energy, officials from Ministry, CWC, ICOLD, national and international experts from dam industry.

• Final World Bank Review Mission, March 10-16, 2021

FinalWorldBankReviewMissionwasheldinhybridmodeduringMarch10-16,2021.Deliberationsweredoneonstatusof

implementation and progress of results framework as per the Project Appraisal Document (PAD) of original DRIP as well as additional financing. The mission was physically attended by representatives of Kerala WRD, KSEB, DVC (March 10, 2021), TANGEDCO, Tamil Nadu WRD, UJVNL (March 11, 2021), Odisha WRD, Madhya Pradesh WRD, Karnataka WRD (March 12, 2021), 8 Academic Institutes (March 15, 2021) followed by a virtual wrap-up meeting with all Implementing Agencies on March 16, 2021.

• Loan Signing with World Bank for DRIP Phase II

> А loan signing ceremony with World Bank for a loan amounting to US \$ 250 million was held on August 04, 2021. The loan agreement was signed by DEA and World Bank and Project Agreement was signed by 10 partner States (Gujarat, Manipur, Meghalaya, Chhattisgarh, Madhya Pradesh, Rajasthan, Odisha, Kerala, Maharashtra and Tamil Nadu) with World Bank. Ministry of Jal Shakti was represented by Smt. Debashree Mukherjee, Additional Secretary, DOWR, RD&GR, World Bank by Shri Junaid Kamal Ahmad, Country Director, World Bank and DEA by Shri. Rajat Kumar Mishra, Additional Secretary, Ministry of Finance.

• Joint Review meeting with Karnataka WRD, August 26-27, 2021 A joint meeting was held on August 26, 2021 at Bengaluru, Karnataka to review the Project Readiness Criteria of Karnataka WRD for DRIP Phase II, followed by a field visit to KRS dam for inspecting the works being carried under DRIP. The central team was headed by Smt. Debashree Mukherjee, Additional Secretary, DoWR RD & GR and Karnataka was represented by Shri Rakesh Singh, Additional Chief Secretary, WRD, Govt of Karnataka.

# • World Bank Review Mission

World Bank Review Mission for DRIP Phase II was held in hybrid mode with ten (10) Implementing Agencies during November 30 - December 21, 2021, followed by a wrap-up meeting on December 22, 2021 at New Delhi under the chairmanship of Smt. Debashree Mukherjee, Additional Secretary, DOWR, RD&GR. During the meeting, States were sensitized about project implementation requirements and other aspects including procurement, finance, social and environment. In respect of Implementing Agencies from State of Meghalaya, Manipur, Gujarat, Odisha, Uttarakhand, Rajasthan,

Kerala, the mission was held physically at Delhi. However, for the State of Chhattisgarh, Karnataka, Maharashtra and West Bengal, the review mission was held in their respective States.

# xiii) Special Studies in D&R wing

CWC undertakes special studies e.g. dam break analysis, backwater GLOF studies, studv. Reservoir routing study etc. for water resources projects. Dam break analysis is carried out to prepare the inundation map and disaster management plan in the unlikely event of dam failure. It estimates the maximum water level at the downstream locations of the dam in the event of a hypothetical failure of the dam. Glacial Lake Outburst Flow (GLOF) studies are carried out to account for the flood, resulting from the breach of moraine dams, in the design of the projects. During 2020-2021, dam break analysis of Lower Wunna (Wadgaon) Project, Maharashtra, Upper Wardha Project, Maharashtra, Mullaperiyar Dam, Kerala and Sapan Dam, Maharashtra have been carried out and report has also been shared with respective dam owning authorities. Glacial Lake Outburst Flood (GLOF) studies of Dagmara HE Project, Bihar, Dulhasti Satge-II HEP Jammu and Kashmir



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and Bajoli Holi HE Project Himachal Pradesh have been carried out.

- The study on breach of artificial lakes created due to landslide events in year 2018, 70 km downstream of Nuksia in Tibet Autonomous Region (TAR) and their impact on downstream i.e Tuting, proposed Upper Siang project, Passighat and up to India Bangladesh border.
- The impact of floods due to proposed dam in the TAR region and their effects near the India Tibetan border and downstream i.e. from Tuting, Passighat, Tezpur and Pandu up to India-Bangladesh border.
- The impact of floods including floods due to breach of proposed dam in the TAR flood region with storage in Upper Siang Project and the effects of the same on reduction of flood discharge/ levels at CWC's G&D sites of Pasighat, Tezpur, Pandu and near India-Bangladesh border
- Foundation Engineering & Analysis Special (FE&SA) Directorate has studied the glacial lake formed at a tributary of Rishiganga river. This new glacial lake formation was the result of the debris back flow due to the disaster that took place in Rishiganga valley on 7 February, 2021 and the length of lake is about 350m with a dam height of 60m. FE&SA Directorate did the landslide induced lake outburst flow modeling simulation and shared the results of the study

with concerned ministries and agencies.

 The 20<sup>th</sup> meeting of the Water Resources Division Council (WRDC) was held on 29<sup>th</sup> June 2021 under the chairmanship of Shri S.K. Haldar, Chairman, Central Water Commission.

### xiv) 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 11 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. Site specific study report of 11 projects has been examined and observations issued.

### xv) National Register of Large Dams:

Dam Safety Organisation (DSO), CWC compiles and maintains 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. As per the latest information compiled under the NRLD - 2019 maintained by CWC, there are 5,745 large dams in the country as on June, 2019. Out of these, 5,334 large dams have been completed and 411 large dams are under construction. The NRLD is available on CWC's website. NRLD -2019 was released by Chairman, CWC on 27th June, 2019.

### xvi) National Committee on Dam Safety (NCDS)

А Standing Committee was constituted under the chairmanship of Chairman, CWC in 1982 to review the existing practices and to evolve unified procedures of dam safety for all dams in India. Subsequently, Ministry of Water Resources reconstituted the Standing Committee in 1987 as the National Committee on dam safety to (i) monitor the follow-up action on the report on Dam Safety procedures both at the Centre and at the State level; and, (ii) oversee dam safety activities in various States and suggest improvements to bring dam safety practices in line with stateof the art practices consistent with Indian conditions. The committee acts as a forum for exchange of views on techniques adopted for remedial measures to relieve distress in dams. So far 39 meetings of NCDS have been held. Last meeting was held on 12<sup>th</sup> February, 2019 at Bhubaneswar.

# xvii) Technical Examination of Instrumentation aspects of the projects

Detailed Project Report (DPR)/ construction drawings of 6 of river valley projects in various States/ Countries namely Rajasthan, Himachal Pradesh, Assam, Bihar, Andhra Pradesh and Nepal have been examined; out of which 4 projects have been cleared with respect to instrumentation aspects and observations for remaining 2 projects have been sent to the project authorities for compliance. The instrumentation chapter for two projects (Rukni Irrigation Project and Sonai Irrigation Project of Assam) have been prepared and submitted to the project authorities.

## xviii) Support for Irrigation Modernization Program (SIMP):

During 2020-21, DoWR, RD & GR has taken up a new initiative "Support for Irrigation Modernization Program with technical (SIMP)" support 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. SIMP is proposed to be taken up in 4 phases. SIMP Phase-1 was initiated in September, 2020 and is on the verge of conclusion. Phase-1 includes identification of first batch of projects i.e. 3-4 MMI projects for preparation of Irrigation Modernization Plans (IMPs). 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.

During 2021-22, 57 proposals have been received from 14 States/ 2 UTs for inclusion under SIMP. Based on the selection procedure and consultations held with the States, a list of 8 probable projects has been identified for inclusion for which State's concurrence has been sought. ADB has proposed its Technical Assistance (TA) grant funds for preparation of IMPs. 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.

### xix) Reservoir Sedimentation Assessment Studies:

CWC has conducted in-house Sedimentation Assessment Studies of 12 reservoirs 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 we get images of the reservoirs near FRL during monsoon season as well (which is relatively difficult with optical imageries as when the reservoir is full during monsoon season when it is cloudy).

The work of Reservoir Sedimentation Assessment studies using hydrographic survey for 32 reservoirs has been awarded under National Hydrology Project for a period of three years. Out of these, final reports of 5 reservoirs have been submitted. The work of remaining reservoirs is under progress.

# 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, Ministry of Jal Shakti, was established in 1954. CSMRS is an ISO 9001:2015 certified organization which deals with field and laboratory investigations, basic and applied 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 is covered by 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 expansion and dispersion soil studies, core material hydraulic fracturing, quality control, quality assurance, dynamics 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, insitu 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 pertaining to the proposed projects, mostly 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, like - concrete (and its constituents), soil, geosynthetics, rockfill etc. 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**

Thirty five projects, including four abroad and one in North- East region of India, 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:

#### **International Projects:**

- Kholongchhu HE Project, Bhutan
- Kuri Gongri Project, Bhutan
- Punatsangchhu-I H E Project, Bhutan Indian Projects:

#### **Projects in North-East India:**

 Dibang Multipurpose Project, Arunachal Pradesh

#### **Projects in other parts of India:**

- Adi Badri (Yamuna Nagar) Haryana
- Bastawa Mata and Indroka Dam Projects, Jodhpur, Rajasthan

- Bhaunrat Dam Project, UP
- Chandil Dam Project, Jharkhand
- Chheligada Dam Project Odissa
- Dam over Kalpong River, Khudirampur, Andaman & Nicobar Islands
- Damanganga (Ekdare) intra-State link project, Maharashtra
- Damanganga-Vaitarna-Godavari intra-Sstate link project, Maharashtra
- Devsari Hydroelectric Project, Uttarakhand
- Eight Irrigation Project, Jharkhand
- Ganga-Buxar Embankment Project, Bihar
- Gararda Dam Project, Rajasthan
- Icha Dam Project, Jharkhand
- Isarda Dam Tonk, Rajasthan
- Kanhar Irrigation Project, U.P.
- Luhri–II HE Project, Himachal Pradesh



**Uniaxial Jacking Tests Setup** 



Insitu Permeability test in Clay Core

- Nathpa Jhakri H E Project, Himachal Pradesh (SJVN)
- North Koel Project, Jharkhand
- Polavaram Project, Andhra Pradesh
- Rihand Dam Project, U.P
- Saraswati Reservoir Scheme, Haryana
- Sardar Sarovar Project, Gujarat
- Sirkari Bhyol Rupsiabagar HEP, Uttarakhand
- Sone Dam STG Link Canal Project, Bihar
- Song Dam Project, Uttarakhand
- Suhia Bhagar, Biha
- Sunni HEP, Himachal Pradesh
- Tapovan Project, NTPC, Uttarakhand
- Tehri Pump Storage Project, Uttarakhand
- Vishnugad Pipalkoti HE Project, Uttarakhand
- Vyasi HE Project, Uttarakhand



Ogee concreting completed and in service



Insitu Density Test in Rockfill material



Insitu Permeability Test on the Dam Body

#### **GOVERNING COUNCIL FOR CSMRS**

The Governing Council (GC) is a principal policy formulating advisory body to the Government on all matters relating to Research Station. This committee is headed by Secretary, Department of Water Resources, RD&GR, New Delhi, and has 15 members.

### STANDING TECHNICAL ADVISORY COMMITTEE

The Standing Technical Advisory Committee (STAC) of CSMRS is an advisory body for guidance, scrutiny and review of technical matters of CSMRS. This committee also provides technical input to the Governing Council. The committee is headed by Member (D&R), Central Water Commission, New Delhi, and has a total strength of 15 members.

# Important achievements of CMSRS during 2021-22

| Success Indicators                                                                          | Achievements       |
|---------------------------------------------------------------------------------------------|--------------------|
| Technical reports brought out / published                                                   | 32 Nos.            |
| Publication of Research<br>Papers                                                           | 21 Nos.            |
| Evaluation of Detailed<br>Project Reports and<br>Technical comments on<br>compliance to DPR | 10 Nos.<br>14 Nos. |
| Training programme organized                                                                | 07 Nos.            |



**Provision of Geosynthetics material** 

#### **SELF-SPONSORED RESEARCH SCHEMES:**

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

- Effect of molding water and compaction densities on the permeability characteristics of soils
- Effect of molding water content on the shear strength characteristics of soils
- Remediation of expansive soil by using polymer
- Effect of molding water on swelling pressure of expansive soils
- Improvement of expansive soil using flyash and lime (Phase-VI) (Expansive Soil from Gosikhurd Project, Maharashtra)
- Study on swelling characteristics of soft rocks
- Effect of fines on behaviour of rockfill material
- Study on behavior of abrasiveness, impact and flexural strength of rocks

### **TRAINING PROGRAMMES**

### Training Programmes/ Conferences/ Workshop

 Two days online training programme on "Importance of Water Quality Assessment in Durability Consideration for Hydropower Projects", 27-28 May, 2021.

- Two days online training programme on "Quality Control in Construction of Concrete Dams", 15-16 July, 2021.
- Two days online training programme on "Geotechnical Investigations for Earth & Rockfill Dams", 22–23 June, 2021.
- Two days online training programme on "Role of Supplementary Cementitious Materials in Providing Case Specific Solution for River Valley Projects", 25-26 August, 2021.
- Two days online training programme on "Geotechnical Instrumentation and Numerical Modeling", 28-29 September, 2021.
- Two days online training programme on "Rock and Rock Mass Characterization", 11-12 November, 2021.

### **Special Training Programmes**

Three 2<sup>nd</sup> year M. Tech. (Civil Engineering) students of National Institute of Technology, Tiruchirappalli, Tamil Nadu, India were imparted internship in the functioning of PLAX-IS-2D (Geotechnical Finite Element Software).

### 7.2 SUBORDINATE OFFICES

# 7.2.1 CENTRAL GROUND WATER BOARD (CGWB)

Most of the activities of the Board 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 i) RGNGWTRI component of HRD and Capacity Building scheme ii) Ground Water component of the PMKSY – HKKP scheme iii) supporting implementation of Atal Bhujal Yojana.

Major activities of the Board include: i) Aquifer mapping and preparation of management plans as a part of the NAQUIM programme; ii) Exploratory drilling including lithology preparation and pumping tests; iii) Monitoring of ground water levels; iv) Monitoring of ground water quality; v) Implementation of demonstrative schemes for artificial recharge and rainwater harvesting; vi) Periodic assessment of ground water resources the country, jointly with of the concerned State Government agencies; vii) Geophysical studies; viii) Capacity building activities for personnel of its own as well as Central/State Government organizations; ix) outreach activities for dissemination of usable information; x) Providing technical assistance to States / UTs; xi) regulation and control of ground water development and management in the country under CGWA; xii) providing technical assistance for participatory ground water management as a part of Atal Bhujal Yojana; xiii) implementation of the ground water component of PMKSY-HKKP scheme for promoting ground water based irrigation etc;

# National Aquifer Mapping and Management Program (NAQUIM):

Central Ground Water Board (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 km<sup>2</sup> of the entire country, a mappable area of  $\sim 25$ lakh km<sup>2</sup> has been identified to be covered under this programme.

During the year 2021 (January to December), nearly 4 lakh sq km area has been covered and aquifer maps and management plans have been prepared for an area of 18.7 lakh km<sup>2</sup> spread over various parts of the country. The remaining area is targeted to be covered by March 2023.

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

Central Ground Water Board (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 has been taken up for an area of 4 lakh km<sup>2</sup> in collaboration with Ministry of Science and Technology. Under phase- I of the project, work has been initiated for an area of 1 lakh km<sup>2</sup> starting from Rajasthan. Heli-borne survey under this project was inaugurated by Shri Gajendra Singh Shekhawat, Hon'ble Minister of Jal Shakti and Dr Jitendra Singh, Minister of State (Independent Charge) of Science & Technology on 5<sup>th</sup> October 2021 at Jodhpur, Rajasthan.

### Ground water level monitoring:

Ground water level monitoring is one of the key activities of Central Ground Water Board (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 23,000 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:

Central Ground Water Board has 16 Regional Chemical Laboratories to carry out chemical analysis of water samples. These chemical laboratories are well equipped with sophisticated instruments ICP-MS, like Atomic Absorption Spectrophotometer (AAS) etc. Ground water sampling for quality monitoring is done once a year during the pre-monsoon period. In addition to this ground water samples are also collected and analysed as a part of other scientific studies. During 2021, CGWB through its in-house laboratories analysed 36500 samples for basic constituents and heavy metals.

### Study of Uranium in Ground Water:

CGWB has taken up sampling and analysis of ground water samples for uranium content across the country. So far nearly 31,000 groundwater samples have been collected and analysed.

### **Geophysical Studies:**

Geophysical studies are noninvasive techniques and provide indirect information about disposition and characteristics of aquifers. CGWB has inhouse facility for various geophysical studies. Outputs of geophysical studies are used mostly in aquifer mapping studies and other case specific investigations.

During 2021, CGWB through its field offices carried out 2481 Vertical Electrical Sounding (VES), 2423 Transient Electromagnetic (TEM) studies and 35 borehole logging.

### **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 650 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,



Vertical Electrical Sounding being carried out by CGWB officers.

successful wells are handed over to the State user agencies.

During 2021 CGWB constructed 1,100 wells including inhouse resources (730) as well as outsourcing (370). More than 100 high discharge wells were constructed during this period.

# Aquifer Rejuvenation and Water Conservation:

Artificial Recharge studies in water stressed areas of Rajasthan & Haryana: During 2021-22, CGWB has taken up the project on 'Groundwater augmentation through artificial recharge in certain water stressed areas of Rajasthan and Haryana' under GWM&R scheme with an estimated cost of Rs 170 crore. Work is being taken up in collaboration with WAPCOS Ltd.

Master Plan for artificial Recharge to Groundwater: The master plan for Artificial Recharge- 2020 published in October 2020 was revised by including two additional chapters, viz., Guidelines for Artificial Recharge Projects and 'Way Forward' for the next revision, considering the technological advancement.

### Assessment of Dynamic Ground Water Resources of India:

Periodic assessment of dynamic ground water resources is done jointly by CGWB and the respective State Governments. The web-based application "India-Ground water 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. During 2020, for the first time, the entire assessment for the base year 2020 has been done using a GIS based. This is a significant step towards getting more reliable estimates of ground water resources for its sustainable management.

As per the recent assessment of dynamic ground water resources (2020) carried out jointly by CGWB and the State Governments, out of the 6,965 assessment units, 1,114 (16%) units are categorized as 'over-exploited', 270 (4%) as 'critical', 1057 (15%) as 'semi-critical' and the remaining



Public Interaction Programme at Bhadohi, Uttar Pradesh

4,427 (64%) are categorized as 'safe'.

#### **Outreach Programs:**

PublicInteractionprograms(PIPs)were initiated in the year 2018 as amediumtodisseminatefindingsofNAQUIMstudiesatgrassrootslevel.DuringJanuary2021toDecember2021,498suchprogrammeshavebeenconducted in which nearly33,500peoplehaveparticipated.Theparticipantsweresensitized onvariousaspectsofwatermanagementandfindings oftheNAQUIMstudy.

Nadi Utsav (River Festival) 2021 was launched on 16<sup>th</sup> December 2021 as a part of Azaadi ka Amrut Mahotsav campaign commemorating 75 vear of India's independence, under the four chosen themes of cleanliness, patriotism, nature and ecology, devotion and spirituality. Field offices of CGWB organised 15 programmes as a part of Nadi Utsav in 14 States along the river banks spreading a message of river cleaning, awareness for water conservation and river protection, rain water harvesting, afforestation etc. The events were attended by 1751 persons.

### **Central Ground Water Authority:**

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(2) 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.
- Exercise of powers under section 4 of the Environment (Protection) Act, 1986 for the appointment of officers.

# Important activities of CGWA during 2021 are given below:

**Committee for Operationalization** notified guidelines of dated 24/09/2020: А committee was constituted by the Ministry of Jal Shakti under the chairmanship of the Adviser, to review the operationalization of the notified guidelines. The committee held a series of meetings and submitted its report to the Ministry in August, 2021. Based on the recommendations of the committee, amendment of the guidelines that were notified in September, 2020 is under consideration in the Ministry.

Processing of Applications for Grant/ Renewal of No Objection Certificate (NOC) for Ground Water Withdrawal: CGWA continued to evaluate applications from Industries/ Infrastructure Units / Mining Projects for grant of NOC for ground water withdrawal as per provisions of the notified guidelines. 2,381 NOCs were issued during 2021-22 till 10<sup>th</sup> Jan 2022.

Self-inspectionModuleforMonitoring of Compliance of ConditionsStipulated in the NOC:A self-inspection

module has been developed and has been made available in the NOCAP portal for monitoring of compliance conditions of NOC. The users can fill in the compliance status of conditions specified in the NOC and upload geotagged photos on the portal.

**On-Site Inspection by CGWB: On**site inspections were carried out by the Regional Offices of CGWB to check the compliance of NOCs granted by CGWA recommending the before renewal applications to CGWA, New Delhi. Necessary show- cause notices were issued to the project proponents who have not complied with the conditions of the NOC issued by CGWA.

RajivGandhiNationalGroundWater Training and Research Institute(RGNGWTRI): (Covered in Chapter - 3)

### 7.2.2 CENTRAL WATER AND POWER RESEARCH STATION (CWPRS)

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

i) River Engineering: Major 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 river engineering studies. Significant studies during the period include:

- Studies for bank protection of river Ganga near Bhagalpur, Bihar.
- Studies for river training and bank protection works in the vicinity of Narmada main canal and Banas river crossing, Totana village, Gujarat.
- Back water studies and preparation of inundation maps for Padalse weir on river Tapi, Maharashtra.
- Studies for protection of left bank of river Godavari at Purushothampatnam, East Godavari district, Andhra Pradesh.
- Studies of river Mutha for Maha Metro Rail Corporation Ltd. Pune.
- Studies foe sediment deposition and flushing for Lower Seti, Tanahu, Nepal.
- ii) River and Reservoir Systems Modelling: Important studies related to flood estimation and forecast, reservoir sedimentation and water quality studies are carried out using mathematical models and field surveys are carried out under this discipline. Few significant studies during the period include:
  - Dam break analysis and emergency action planning for Kurumurtharaya Reservoir Telangana

- Dam break analysis and flood zone mapping for emergency action planning of Nathpa Dam at NJHPS Nathpa, Dist. Kinnaur, Himachal Pradesh.
- Field studies for discharge measurement for checking of live flow data measuring system for Tungabhadra canal system at 25 locations, Tungabhadra Project, Karnataka.
- Field studies for assessing the discharging capacity of Narmada main canal near Gujarat-Rajasthan border.
- iii) Reservoir and Appurtenant Structures: Hydraulic design for spillway and energy dissipation systems, reservoir sedimentation and flushing, water conductor system studies is carried out using physical and mathematical models. Sedimentation in reservoirs is also assessed through remote sensing. Significant studies carried out under this discipline include:
  - Studies for optimisation of layouts of approach channel, guide bund and spill channel for Polavaram Project, Andhra Pradesh.
  - Studies for spillway capacity, energy dissipation arrangement of main and tunnel spillways for Pakal Dul Dam, J&K.
  - Studies on modified energy dissipation arrangement for Punatsangchhu-I H.E. Project, Bhutan
  - Hydraulic Model Studies for Desilting Chamber for

Kholongchhu H.E. Project, Bhutan.

- Studies foe sediment deposition and flushing for Lower Seti, Tanahu, Nepal.
- iv) Coastal and Offshore Engineering: Major significant projects related to optimization of length and alignment of breakwaters, jetties, berths, approach channel, turning circle etc. are undertaken for development of various ports and harbors under this discipline. Major studies carried out are indicated below :
  - Studies for wave tranquility to assess the effect of Vizhinjam International Seaport, Kerala on the existing fishing harbor.
  - Studies for wave transformation at proposed coast guard jetty at Okha, Gujarat
  - Studies for identification of dumping ground location for dredged material.
  - Coastal field data collection at two sites under Coastal Management Information Service (CMIS).
  - Studies to assess sedimentation in approach channel and to evolve dredging plan for NMPT, Mangalore, Karnataka.
  - Studies for assessment of wave tranquility for the proposed port at Vadhavan, Maharashtra.
  - Desk and wave flume studies for design of break water for the proposed development of Vadhavan Port, Paradeep Port and protection to the main dam of Kalpasar.

- v) Foundation and Structures: Laboratory and field test studies are carried out under this discipline to determine the soil, rock and concrete properties. Mostly the studies undertaken by this discipline pertain to dams, power plants etc. Major studies include:
  - 3D stress analysis by finite element method of penstock bifurcation of ARUN-3 Project, Nepal
  - Stress analysis by finite element method of three spillway blocks of Sardar Sarovar Dam, Gujarat
  - Analysis and interpretation of dam instrumentation data of Indira Sagar Dam, M.P.
  - Analysis and interpretation of dam instrumentation data of three spillway blocks of Polavaram Dam, A.P.
  - Studies for determining in-situ strength parameters of stone masonry for Bhatsa dam, Dist. Thane, Maharashtra.
- vi) Applied Earth Sciences: Important 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 are carried out for various dams, canals, nuclear and thermal power plants. Major studies carried out are indicated below :
  - Estimation of site-specific seismic design parameters for Attappady Valley Irrigation Project, Kerala.

- Site specific seismic design parameters for Selim H.E Project, Meghalaya.
- Analysis of past seismological data of Sankosh Basin for the period October 2003 to July 2015.
- Seismic hazard assessment of North and North East, India (Including DSHA and PSHA)
- Estimation of shear wave velocity (Vs30) for Saraswati Heritage Development Project, Haryana
- Borehole logging and tracer studies for seepage studies at DUDHGANGA Dam, Kolhapur District, Maharashtra.
- vii) Instrumentation, Calibration and Testing Facilities: Important studies related to installation and monitoring of instruments in dams, hydroelectric power plants etc., calibration of instruments and their testing are being carried out at CWPRS. Hydraulic instrumentation is being used for data acquisition on physical hydraulic models. Field data collection is being carried out for coastal parameters like water level, currents, wave-height etc. A Random Sea Wave Generation (RSWG) system is used for wave flumes and basins. Services of dam instrumentation are provided for prototype. Few important studies include:
  - Bathymetry survey for Kadana dam in Gujarat State.
  - Assessment of dam stability by dam instrumentation being carried out for Polavaram dam.

- Dam instrumentation for 17 dams under DRIP.
- Calibration of various types of current meters / flow meters / testing of valves.
- Performance test of 4 x 75 MW Hydro Power Plant for Ukai H.E. Project, Gujarat.
- Performance test of turbine units at Koyna Hydroelectric Power Station, Stage 1, 2, 3 & 4, Maharashtra.
- Dimensional investigation of similar centrifugal pumps for improvement on performance and functional features of centrifugal pumps for Kirloskar Brothers Ltd, Pune.
- Surge analysis studies for lift irrigation schemes of Ambawade and Kamathi, Satara, Maharashtra.

### 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 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 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 and clearance appraisal to flood management schemes of the Ganga basin States with 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 waterways 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 2021-22:

# i) 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 the 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.

The KHLC/GHLSC conducted annual inspection of the flood protection works on river Kosi and Gandak during 17-20 November, 2021 and 26-29 November, 2021 respectively, held meetings and finalized the recommendations for flood protection works on these rivers to be taken up and completed in time bound manner.

### ii) 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.

# iii) Assessment of the adequacy of existing waterways under road and rail bridges

Assessment of the adequacy of existing waterways started during the later half of the eighties has been completed except for some stretches of the Ganga main stem. Main stem Ganga was divided in to 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 reaches the assessment study has been completed for 3 reaches. Survey and data collection work for Rudrapryag to Kedarnath has been completed. Assessment study reports for Haridwar to Rudraprayag, Rudraprayag to Badrinath & Rudraprayag to Kedarnath were completed.

### iv) Techno-economic Appraisal of Flood Management Schemes:

Techno-economic appraisal of flood management schemes of Ganga basin States is a continuing activity of GFCC. 45 flood management schemes were received in GFCC from Ganga Basin States during 2021-22 including spill over projects from previous years. Four schemes were returned to State Govt. and 26 schemes are pending with State Governments for compliance. 15 Schemes are under examination in GFCC.

## v) Joint Committee on Inundation and Flood Management (JCIFM) between India and Nepal:

During the 4<sup>th</sup> meeting of Joint Committee on Water Resources held in March, 2009 at New Delhi, a Committee for flood management known as Joint Committee on Inundation & Flood Management (JCIFM) was constituted after merging various other Committees namely SCIP, HLTC, JCFM, SCEC and SCFF into a single committee. The terms of reference of JCIFM are:

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

The 13<sup>th</sup> meeting of committee was held during 27-31 May, 2019 at Kathmandu. In the meeting various issues relating to flood inundation and flood management were discussed and decision taken.

### 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 30<sup>th</sup> 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 16<sup>th</sup> 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 of 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 2021-22 the reservoir got filled up to reservoir level 340.42 (FRL) on 04.10.2021.

**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 are carrying out the execution of the canals and power system independently under their jurisdiction. The expenditure on dam is being booked in 0&M head since April, 2015 as per decision taken in the meeting held on 09.03.2018 under the chairmanship of Secretary, DoWR, RD & GR. The expenditure of capita cost of Bansagar dam is Rs. 1696.06 crore as per decision taken in the same meeting.

# Status of release of water to the beneficiary States from the Bansagar Dam:

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 November, 2020 to December, 2021 is 4027.185 M.Cum, 136.597 M.Cum and 893.278 M.Cum, respectively.

# 7.2.5 UPPER YAMUNA RIVER BOARD (UYRB)

Upper Yamuna River Board is a subordinate office under the DoWR, RD & GR, Ministry of Jal Shakti, Government of India. A memorandum of Understanding (MoU) was signed by the Chief Ministers of Himachal Pradesh, Haryana, Uttar Pradesh, Rajasthan, and National Capital Territory of Delhi on 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 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. 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. There are 22 posts at present. All the posts of Board Secretariat are to be filled up on deputation basis from staff/officers of Central/State Government.

### **Upper Yamuna Review Committee**

As per Resolution dated 11th March 1995, there shall be a "Upper Yamuna Review Committee (UYRC)" comprising the 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 under the chairmanship of the Hon'ble Minister, DoWR, RD & GR, Ministry of Jal Shakti, Govt. of India for assessment of working of the UYRB and ensure implementation of MoU dated 12.05.1994 regarding allocation of surface flow of Yamuna and issue directions as may be necessary for the proper development and management of the upper reaches of the Yamuna river basin upto and including Okhla barrage.

### **Functions of UYRB:**

The main function of the Upper Yamuna River Board is to regulate the allocation of available flows amongst the beneficiary States and also monitor the return flows; monitoring conserving and upgrading the quality of surface and groundwater; maintaining hydrometeorological data for the basin; overviewing plans for watershed management; monitoring and reviewing the progress of all projects up to and including Okhla barrage.

### Activities of UYRB:

UYRB worked to resolve actively various issues amongst the basin States of Upper Yamuna reaches viz. share of Yamuna Water to Rajasthan at ex-Tajewala, short supply of Yamuna water to Rajasthan from Okhla headwork, interceptor sewer scheme for Yamuna river, schemes for Gurgaon Feeder Canal and Agra Canal, pollution of Yamuna raw water at Wazirabad, division of utilizable water resources of Yamuna river between Uttar Pradesh and Uttarakhand etc.

UYRB has continuously engaged itself in resolving the inter-State issues amongst the basin States and signing agreements related to water distribution. 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) & Renukaji (on the river Giri, a tributary of river Yamuna with 498 MCM live storage & 40 MW power generation in the State of HP) MPPs have been identified to be constructed in Upper Yamuna Basin. All the three projects were declared as National Projects in 2008 under which 90% funding of the irrigation/drinking water component of the projects shall be

provided by the Central Govt. as central assistance and the rest amount will be borne by the basin States. The agreements for Lakhwar & Renukaji have been signed among the basin States on 28.08.2018 11.01.2019 respectively. Efforts and have been made by UYRB for resolving various concerns raised by Uttarakhand & Himachal Pradesh for signing the agreement for Kishau MPP. A virtual meeting on 18.10.2021 was convened under the chairmanship of Chairman, UYRB & Member (WP&P), CWC with Chief Secretary (Power), Additional Himachal Pradesh & Secretary (Energy), Uttarakhand, and concerned Chief Engineers of CWC & CEA to discuss the issues related to the finalization of draft agreement on Kishau MPP. Subsequently, a virtual meeting on 09.11.2021 was also convened under the chairmanship of Chairman, UYRB & Member (WP&P) to deliberate the issues of average energy rate for sale of power to be adopted for cost apportionment.

The Board has been regulating the seasonal distribution of water to basin States at various distribution points. In continuation to above, UYRB has made efforts in technological advancement and installed the telemetry system at 11 locations in the Upper Yamuna Basin and real-time measurement of flow. The discharge data in the canals is available amongst the basin States.

A committee of Superintending Engineers from Haryana, Uttar Pradesh, and Rajasthan with EE, UYRB as Member Secretary was constituted for joint measurement of discharge & inspection of the canal system to minimize theft. UYRB officials visited on 25.07.2021 and 23.12.2021 at Agra Canal and Gurgaon Canal at Rajasthan border and reviewed the various issues on the short supply of water to Rajasthan. Funds have also been deposited by Rajasthan to Haryana for repair of the canal system to improve conveyance and the work has been completed by Haryana.

UYRB has organized 60<sup>th</sup> Board meetings of the Board and 7 meetings of the Upper Yamuna Review Committee since its constitution to date. In the year 2021-22 the 60<sup>th</sup> Board meeting was convened on 13<sup>th</sup> & 15<sup>th</sup> May 2021 under the chairmanship of Chairman UYRB and Member (WP&P), CWC for consideration of the representation of Delhi Jal Board for the supply of additional 150 cusec water to Delhi in pursuance of directions of Hon'ble Supreme Court.

The issue of disruption of water supply in Delhi due to rise in ammonia levels as a result of pollutants entering river Yamuna from Panipat and Sonipat was discussed in 59th Upper Yamuna River Board meeting held on 03.11.2020. Accordingly, UYRB has constituted Ammonia Level Monitoring Committee of Yamuna River. A surveillance visit has been conducted during 8-9 February 2021 by Specialist Environment, UYRB, Assistant Executive Engineer, Panipat and Sub Divisional Engineer, Sonipat Haryana State Pollution Control Board. Water samples were collected from river Yamuna and various drains out falling in river Yamuna. Collected samples were sent to the National River Water Quality Laboratory of Central Water Commission, New Delhi for the analysis of major cations, anions, BOD, COD, and metals.

# 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-Water Treaty 1996. Bangladesh It comprises 2,245m 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, a 38.38 km long feeder canal and Jangipur Barrage, besides the road-cum-rail bridge across Ganga at Farakka, navigation locks at Jangipur, 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:

- i) Operation & maintenance of main barrage
  - a) 112 gates on main barrage
  - b) 11 gates on head-regulator
  - c) 15 gates of Jangipur barrage
  - d) 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.
- iii) Maintenance and protective antierosion works 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.
- iv) Maintenance of Farakka township, Khejuriaghat township, Jangipur barrage colony, colony at Kalindri regulator including maintenance of all civil, mechanical and electrical structures.
- v) Operation & maintenance of all equipments, vehicles and machineries, etc.

### **Major achievements**

- Replacement of eleven (11) barrage gates in phase-II & phase III in Farakka barrage.
- Bank protection works in a length of 565m under emergent condition on left bank of Ganga river near Ch. 2980m upstream of barrage.
- Construction of boundary wall of the Khejuriaghat Colony (total length=1.185 km) at left bank of river Ganga in Farakka Barrage Project.
- Digitalization of land record data and land use mapping by National Institute of Hydrology.
- 117<sup>th</sup> meeting of Technical Advisory Committee under chairmanship of

Member (D & R), CWC was held on  $21^{st}$  to  $23^{rd}$  December, 2021.

FBP entered into agreement with NTPC in July 2021 for implementation of LAN and WAN for connecting all the office buildings and networking of all computers. The implementation is under progress.

- About 6.8 crore worth of scrap lying in the FBP godowns and other places have been surveyed with the support of WAPCOS and put for e-auctioning as per the agreement between MSTC & DoWR, RD & GR.
- For improving the security of the barrage, 2 speed boats with 90 bhp outboard engine which can achieve speed up to 35 knots have been procured and deployed for use of CISF.
- Action for segregated collection of solid wastes has been initiated in the office as well as residential areas.

To assess the health of some components of the barrage structure, vibration analysis was carried out with support of CWPRS.

### 7.2.7 NATIONAL WATER INFORMATICS CENTRE (NWIC)

The National Water Informatics Centre (NWIC) is a subordinate office of the Department set up to act as a repository of nation-wide data on water resources of the country. The Centre has been established as a part of larger National Hydrology Project (NHP) to, inter-alia, improve the extent, quality, and accessibility of water resources information and to provide tools/systems for informed decision making for water resources assessment, planning and management. NWIC is supposed to act as a single window source of water resources data and is mandated to: -

- Collect, collate, update, maintain and disseminate data on water resources and related information.
- Share hydro-meteorological data amongst Central and State Governments organisations; institutions, academia,planners and general public.
- Develop tools and systems for decision making (decision support systems).
- Provide technical support to organizations dealing with water emergency response for hydrological extremes.

The primary activities of the NWIC include:

- Maintenance of Water Information Management System (WIMS)-a data aggregating platform; and India-Water Resources Information System (India-WRIS) – a publicly accessible online web portal for dissemination of water data. The data collection, generation and presentation into the portal are continuous activities. Various types of data displayed on India-WRIS through different modules is rainfall, reservoir storage level, river water level and discharge, ground water level and surface and ground water quality etc.
- Enhancement of existing modules and development of new modules.
- Enriching existing content of India-WRIS by adding new data and data layers.

Maintenance of server and IT infrastructure.  Sharing of data with Central and State Government organisations, and stake holders by providing easy access through web portal and facilitating data down- loads based on their area of interest.

Key activities performed by NWIC during the year 2021-22 are listed below:

# Integrated Water and Crop Information and Management System (IWCIMS)

IWCIMS is being developed by NWIC as a Decision Support System (DSS) to help administrators and policy makers to take holistic decisions based on different planning and management modules proposed to be developed under the project. The project envisages development of seven modules regarding reservoir management, block level crop planning, village water budgeting, drought management, water pollution & quality management, smart grid water transfer and water security plan. The system is being designed to be a single source solution for all water, crop and weatherrelated information in the country. NWIC has awarded the implementation of the project on turn-key basis key to WAPCOSa PSU of the department. The feasibility study of the project is currently being carried out by WAPCOS.

### Development of State Water Informatics Centers (SWIC)

NWIC plans to assist states in development of SWIC as a State water data repository and development of State Water Resource Information System (State-WRIS) by providing them necessary technical guidance and IT infrastructure support. SWIC is envisaged to empower States with digital, validated, on-line water resources information system required for better planning and management of water resources at State level and simultaneously to feed the central system for basin and regional level policy planning and taking strategic decisions based on authentic data analytics. In coordination with NWIC, the SWIC shall act as a single point solution for regional and micro level data amalgamation and its dissemination. Policy framework for providing support to the States by NWIC has been finalized recently and discussions are on with the States for finalizing their requirements.

### Activities related to improvement and data enrichment of India-WRIS and WIMS

Besides regular O&M of India-WRIS and WIMS, including resolving helpdesk queries and removing bugs, following activities were carried out with regard to development of new modules, enhancement of existing modules and data enrichment on the two platforms:

# (i) India-WRIS

- India-WRIS website has been revamped to facilitate navigation and to make it user friendly. Data and report download have been made available to public without login. User guide has been introduced. Facility also has been created for sending e-mails to users on India-WRIS updates.
- Facility for providing feedback and star rating by users has been created. MIS tool for analysis of users' feedback has also developed.

 Ground Water Quality (GWQ) and Surface Water Quality (SWQ) Modules have been revamped to make them more user friendly. Data from CPCB has also been integrated with the two modules alongwith water quality data from other agencies.

An Artificial recharge structure (ARS) module has been developed to maintain a centralised database of ARS structures created by State Govt. organisations and field level organisations. The user agencies can populate their information on ARS structures on the module. Facility has also been created on the module for viewers to view and download the data in different ways as per their requirement. The CGWB published 'Master Plan for artificial recharge to ground water in India-2020'-which indicates various ARS and rain water harvesting structures required in the different terrain conditions and their estimated cost has also been integrated with the module.

- Data updation: Latest data • available made available bv concerned agencies with regard to different modules viz. Land Use-Land Cover (LULC); Waste Land; Land Degradation; Forest and tree outside forest: reservoir sediment studies. Ground Water exploration has been updated.
- Trainings on India-WRIS and WIMS were organised for users and NHP implementing agencies (State governments/ Central agencies)

- (ii) WIMS:
  - Development of new modules: Two modules viz. 'Ground Water Data Entry Module' and 'Water Quality Data Entry Module' have been created to enable manual data entry related to ground water level; and surface water & ground water quality parameters on the platform.
  - Flood Forecasting Module: Email and SMS functionality has been created to enable issue of flood alerts by CWC w.e.f. September 2021; improvement, bug resolution and other changes have also been made in different sub-modules as requested by CWC.
  - Telemetry Management • Module: This module which meta-data contains and other configuration details telemetrv of stations. has been revamped to make it fully functional and to reduce time taken in real-time data processing and historical data migration.
  - **MIS Dashboard**: The dashboard has been developed for monitoring of data generating stations with regard to supply and receipt of data from them.
  - Historical Data Migration: The data gaps reported by various NHP implementing agencies in the legacy data on WIMS were removed.

# 7.3 REGISTERED SOCIETIES/ STATUTORY BODIES/ AUTONOMOUS BODIES

### 7.3.1 NATIONAL WATER DEVELOP-MENT 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 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:

- (a) 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 the National Perspective Plan for water resources development prepared by the then Ministry of Irrigation (now Ministry of Jal Shakti) and Central Water Commission.
- (b) 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?
- (c) To prepare feasibility report of the various components of the scheme relating to peninsular rivers

development and Himalayan rivers development.

- (d) To carry out survey and investigation work and prepare detailed project reports of river link proposals under National Perspective Plan for water resources development and thereafter approach concerned States for obtaining concurrence for implementation of the project.
- (e) 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.
- (f) To undertake/construct/repair/ renovate/rehabilitate/implement the projects either on its own or through an appointed agency/organization/ PSU or company and the projects forming part of interlinking of rivers for completion of projects falling under Pradhan Mantri Krishi Sinchai Yojana (PMKSY) of which projects under Accelerated Irrigation Benefits Programme (AIBP) are also included and similar other projects.
- (g) 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 the repayment of any such borrowed funds/money/deposits/ loan etc. by way of mortgage, pledge, change or lien upon all or any other property, assets or revenue of the society both present and future.
- (h) To do all such other things the Society may consider necessary, incidental,

supplementary or conducive to the attainment of above objectives.

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**

### i) Interlinking of Rivers under NPP :

- After concerted efforts by the DoWR, RD & GR, Ministry of Jal Shakti, a tripartite Memorandum of Agreement (MoA) for the implementation of the Ken-Betwa Link Project jointly was signed on 22.03.2021 between the Union of India, Governments of Madhya Pradesh and Uttar Pradesh, 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 and the PIB recommended a funding pattern of (90 (C): 10(S)) for the project, with some conditions. Based on the PIB recommendations, the Cabinet approved implementation of KBLP at an estimated cost of Rs 44,605 crore at 2020-21 price with central support of Rs 39,317 crore on 08.12.2021.
- The DPR of Godavari (Inchampalli barrage) – Cauvery (Grand Anicut) link proposal, after incorporating the views/ suggestions of the States/UT



to the extent feasible, has been circulated to party States/UT during April 2021.

- Draft DPR of Bedti- Varda link has been completed in December, 2021.
- Modified Feasibility Report of Yamuna-Rajasthan link has been completed in October, 2021.

### ii) Intra State Links

• Draft DPRs of Damanganga

(Ekdare)-Godavari link and Damanganga-Vaitarna-Godavari link projects have been completed in September, 2021 and November, 2021 respectively and have been submitted to Govt. of Maharashtra for their observations.

• Draft PFR of Sharda - Gomti Intra State link project of State of Uttar Pradesh was completed in October, 2021. • PFR of Nagavali-Vamsadhara-Rushikulya link of State of Odisha was completed in December, 2021.

# DETAILS OF IMPORTANT FUNCTIONS / MEETINGS

- Cabinet has reviewed the statuscum-progress report of Special Committee for ILR in its meeting held on 25.05.2021.
- 68<sup>th</sup> Governing Body Meeting of NWDA was held on 17.08.2021 under the chairmanship of Secretary, DoWR, RD & GR, Ministry of Jal Shakti.
- The 13<sup>th</sup>, 14<sup>th</sup> and 15<sup>th</sup> meetings of Task Force for Interlinking of Rivers were held on 25.02.21, 29.09.21 and 22.10.21 under the chairmanship of Shri Sriram Vedire, Advisor, DoWR, RD &GR, Ministry of Jal Shakti in hybrid mode.
- 35<sup>th</sup> Annual General Meeting of NWDA was held on 12.11.2021 under the chairmanship of Hon'ble Minister for Jal Shakti at Vigyan Bhawan, New Delhi in hybrid mode.
- 19<sup>th</sup> Meeting of Special Committee for ILR was held on 12.11.2021 under the chairmanship of Hon'ble Minister for Jal Shakti, at Vigyan Bhawan at New Delhi.
- The BRICS Water Forum and BRICS Water Ministers Meet were successfully organised on 16-17 November, 2021 and 18<sup>th</sup> November, 2021 respectively in hybrid mode at Sushma Swaraj Bhawan, New Delhi.

### FINANCIAL ASPECTS:

• The budget estimate of NWDA for the year 2021-22 was Rs. 87 crore. The

revised Budget Estimate for the year 2021-22 was Rs. 70 crore and the actual expenditure upto December, 2021 was Rs. 53.29 crore.

 NWDA disbursed an amount of Rs. 751.80 crore for Polavaram project as central share under PMKSY / AIBP funding during the period 01.04.2021 to 12.01.2022.

# 7.3.2 NATIONAL WATER MISSION (NWM)

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 30<sup>th</sup> June 2008.

The 5 goals identified by the comprehensive mission document for National Water Mission are:

- Comprehensive water data base in public domain and assessment of the impact of climate change on water resource,
- (ii) Promotion of citizen and state actions for water conservation, augmentation and preservation,
- (iii) Focused attention to vulnerable areas including over-exploited areas,
- (iv) Increasing water use efficiency by 20%,
- (v) Promotion of basin level integrated water resources management.

### Activities and new initiatives taken during the year under the above goals and its strategies

(i) Preparation of State Specific Action Plans for Water Sector

National Water Mission envisaged developing State Specific Action Plans 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 small 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), Tejpur has been engaged for coordinating and monitoring SSAP formulation for 19 States and National Institute of Hydrology (NIH), Roorkee & monitoring with is coordinating remaining 17 States/UTs. So far, 30 States / UTs have signed MoUs with the nodal agencies. 11 States (out of which 8 in past one year) have submitted the first phase draft status report.

# (ii) HRD & Capacity Building and Mass Awareness Programmes

Trainings/workshops are regularly organized through government agencies like National Institute of Hydrology (NIH), Roorkee, North Eastern Regional Institute of Water and Land Management (NERIWALM), Tezpur, Water & Land Management Institute (WALMI), Dharwad, Centre for Water Resources Development & Management (CWRDM), Kerala.

Besides, a number of mass awareness programmes have been taken up. The following HRD capacity building and IEC activities have been undertaken:

- Monthly Water Talks by water experts every third Friday of the month. 33 water talks have held so far.
- Dialogue series on "Catch the Rain" has also been started where Collectors/

District Magistrates/Commissioners and water activist have been invited to share their commendable work in their districts to address the water issues. More than 150 webinars have held so far.

- Monthly Water Tech Talks
- (iii) Setting up of National Bureau of Water Use Efficiency (NBWUE)

It is proposed to set up a "National Bureau of Water Use Efficiency (NBWUE)" through a notification of under Article 3(3) the Environment (Protection) Act, 1986. The proposed Bureau will have the overall responsibility of improving water use efficiency across various sectors namely irrigation, drinking water supply, power generation, industries, cities etc. in the whole country. As directed by Department of Expenditure, Ministry of Finance, re-submitted proposal was for appraisal of Committee on Establishment Expenditure (CEE) in the financial year 2021-22. Now, CEE has returned the proposal with the observation that DoWR may explore the feasibility for taking up the responsibilities proposed to be undertaken by NBWUE to any of the already existing body/organization.

# (iv) Baseline Studies

NWM has awarded 26 baseline studies in association with 4 institutes (NERIWALM, WALMTARI, WALMI and CWRDM) for improving water use efficiency in irrigation sector. These studies are done considering major – medium projects covering five States - Assam (5 projects), Andhra Pradesh (5 projects), Telangana (5 projects), Maharashtra (6 projects) and Kerala (5 projects). Inception reports of 18 studies had been approved by Core Group on baseline studies.

### (v) Catch the Rain

After the successful implementation of Jal Shakti Abhiyan in 2019, Ministry of Jal Shakti planned to take up the Jal Shakti Abhiyan-II (JSA-II), covering all blocks of all districts of the country but could not be taken up due to Covid-19 pandemic imposed restrictions. However, to keep its continuity, National Water Mission, Ministry of Jal Shakti launched a campaign "Catch the Rain" with the tag line "Catch the rain, where it falls, when it falls" to nudge the states and all stakeholders to create Rain Water Harvesting Structures (RWHS) suitable to the climatic conditions and sub-soil strata, with people's active participation, before the onset of monsoon to ensure storage of rainwater.

Under the "Catch The Rain" campaign, drives to make Rain Water Harvesting Structures (RWHS) like Rooftop RWHS, ponds, water harvesting pits, check dams etc; enumeration and geo-tagging of all water bodies in the districts; removal of encroachments and de-silting of tanks to increase their storage capacity; removal of obstructions in the channels which bring water to them; repairs to stepwells and using defunct bore-wells to put the water back to aquifers; rejuvenation of rivulets and rivers; conservation and restoration of wet lands etc were some of the activities

suggested to be taken up.

To facilitate this, State Governments and stakeholders were requested to take steps to build RWHS to trap rainwater from roof-top and open-grounds of all government, semi-government and corporate establishments. State Governments were requested to direct the district authorities to enumerate all water bodies cross verifying with old revenue records and remove encroachments, if any, from them.

"Catch The Rain" campaign has supported bv Ministries/ been Departments of Central Government & State Governments, Airports Authority of India, Army, Navy, Air Force, Central Armed Police Forces, Railways, IITs, IIMs, Universities and other educational institutions including schools, Central Public Undertakings, Sector banking institutions etc. The campaign has also been endorsed by the Hon'ble Vice President of India, Shri Venkaiah Naidu: Vice-Chairman, NITI Avog: Senior Government officials; water experts - Shri Sonam Wangchuck; Dr. Anil Joshi etc and influencers like Sri Sri Ravishankarji, Shri Gopi Chand etc.

Over 200 webinars have been organized by NWM so far to involve the stakeholders. These include the weekly "Catch The Rain: Dialogues with selected District Magistrates" since 8<sup>th</sup> August 2020; monthly "Water-Talks" and "Water-Tech Talks"; webinars with NGOs, FICCI, representatives of industries; vice chancellors of universities; principals of colleges/schools Delhi Government officials and Resident Welfare Associations etc. to involve & motivate them towards the objective of the campaign.

## Involvement of Nehru Yuva Kendra Sanghatan (NYKS)

After easing of the lock-down, the "Jal Shakti Abhiyan-Catch The Rain" Awareness generation campaign in collaboration with NYKS (Nehru Yuva Kendra Sangathan) was launched on 21 December, 2020 jointly by Minister of Jal Shakti and Minister of Youth Affairs & Sports in New Delhi. NYKS has been implementing the awareness generation campaign 623 districts of the country since then. Training was given to over 700 officials of NYKS. So far, it has seen participation of over 2.90 crore people, including many District Magistrates, Municipal Public Commissioners. Representatives etc. in 23.86 lakh activities like talks, oath taking programs, rallies, quizzes, debate competitions, writing of slogans, posters, banners, wall writings; nukkad-nataks, community work etc.

# vi) "Jal Shakti Abhiyan-Catch the Rain (JSA: CTR)"

- The "Jal Shakti Abhiyan: Catch The Rain" (JSA: CTR) campaign was launched by Hon'ble Prime Minister on 22 March 2021, the World Water Day, with the theme – "Catch The Rain, Where it falls, When it falls".
- **JSA:** CTR has been taken up in all districts (rural as well as urban areas) of the country

during the pre-monsoon and monsoon period in the country i.e. from March 2021 to 30 November 2021.

ISA: CTR has been implement-• ed with five focused interventions- (1) intensive rainwater harvesting and water conservation which include making of roof-top Rain Water Harvesting Structures (RWHS) on buildings and water harvesting pits in compounds; maintenance of existing RWHS & creation of new check dams/ponds; renovation of traditional WHS; removal of encroachments of tanks/lakes and in their catchment channels; de-silting of tanks, reuse and recharge of borewells; watershed development; rejuvenation of small rivers and rivulets; revival of wetlands and protection of flood-banks etc; (2) enumerating, geo-tagging & making inventory of all water bodies; preparation of scientific plans for water conservation based on it (3) Setting up of Jal Shakti Kendras in all districts (4) intensive afforestation and (5) awareness generation.

# Major steps taken up during implementation of JSA: CTR campaign are as follows:

 Hon'ble Prime Minister wrote letter (dated 25.03.2021) to Chief Ministers of all states seeking their co-operation in this campaign. He also wrote letters (dated 24.03.2021) addressed to all Sarpanchs in the country urging them to take steps for water conservation, play active role in JSA:CTR campaign and to ensure community participation.

- State Governments have been requested to set up 'Jal Shakti Kendras' (JSKs) in all district headquarters. These JSKs will be "knowledge centres" for disseminating information related to water, techniques for water conservation and water saving. It will provide technical guidance to local people as well as to the district administration.
- Everv district has been requested to enumerate with the help of old revenue records and using remote sensing images from NRSA and GIS mapping technology all existing water-bodies/Water Harvesting Structures (WHS) and using the data for scientifically planning future WHS. NWM has prepared guidelines for preparation of GIS based water conservation plans and inventory of water bodies of districts and forwarded it to all the districts for its

implementation.

- A portal (http://jsactr.mowr. gov.in) has been developed for monitoring the progress of the campaign and report generation of JSA: CTR.
  - Capacity and awareness building has also been undertaken in the campaign. National Water Mission, Ministry of Jal Shakti collaborated with Nehru Yuva Kendra Sangathan (NYKS) which engaged over 2.90 crore people in the campaign through the 23.86 lakh activities like rallies, Jal Choupals, quizzes, debates, slogan writing competitions, wall writings etc. In order to build awareness and capacities of various stakeholders, National Water Mission, Ministry of Jal Shakti engaged Universities, Educational Institutions, Railway Board, Airport Authority of India, Central Armed Police Forces, Central Ministries/ Departments, CPSUs, IITs, IIMs, NGOs etc. in the campaign.



State-wise/district-wise meetings with District Magistrates across the country to review the implementation of JSA: CTR

- State-wise/district-wise meetings have been conducted with District Magistrates/ District Collectors/Deputy Commissioners of all the districts across the country to review the implementation of JSA: CTR and to sensitize them about the campaign.
- The Ministry of Rural Development has implemented GIS based planning in all the Gram Panchavats under Mahatma Gandhi NREGA Scheme. The GIS based plans provide scientific input to the community based participatory planning process at the grass root level. The GIS planning in Mahatma Gandhi NREGS started with a view to develop GIS based GP plan in a saturation mode and following the ridge to valley approach using remote sensing technology.
- Afforestation drive has been taken up to plant saplings to increase green cover.

### (vii) Outcomes of JSA:CTR

- As per information available on 'Jal Shakti Abhiyan: Catch the Rain' portal (jsactr.mowr.gov. in), 307 Jal Shakti Kendras have been set up in various States/ UTs.
- As reported by the Ministry of Rural Development, more than 2.03 lakh GPs out of 2.69 lakh GPs have prepared water conservation plans.
- 14.81 lakh water bodies have been enumerated with its details like its latitude and longitude, ownership, state of

health, photos etc so far under the campaign.

### (viii) 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 is proposed to set up Jal Shakti Kendras in every districts 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), 307 Jal Shakti Kendras have been set up in various States/UTs.

### (ix) Water Talks

A monthly 'WATER TALK' lecture series is an important activity undertaken with the aim to stimulate build capacities awareness, of stakeholders and encourage people 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 ocassion of World Water Day.



Sh. Rattan Lal Kataria, Hon'ble MoS, DoWR,RD & GR during along with senior officers during NWM Water Talks

Following Government's restrictions on public gatherings due to COVID-19 pandemic, the water talks are now being organized as e-Water Talk in webinar format since May 2020. NWM has organized 33 Water Talks so far out of which last 21 talks have been held on virtual platform.

### (x) R & D and Pilot Projects

**Demonstrative project on Desalination: N**WM had awarded CSMCRI to develop, test and install an RO based water purification technology to meet the drinking water needs of villager suffering from saline and contaminated ground water resources in the regions of Mota Asota, Devbhoomi, Gujarat. This project is successfully completed on  $30^{\text{th}}$  April, 2021 and handed over to local authorities.

### (xi) Other Initiatives:

National Water Mission Internship Scheme 2021: То allow young academic talent to be associated with the work of DoWR, RD & GR for mutual benefit, National Water Mission has initiated an internship scheme. The main objective of the scheme is to familiarize eligible graduates and post graduates with water conservation, water resource development, water resources governance, technology & rural work, environmental science and hydrology.

• Water Biz Talk: To further the cause of water conservation by involving people working on water related issues in the industry, National Water Mission initiated a webinar series called "Water Biz Talk." It serves as a platform for people in industry to showcase their achievements related to the water sector.

# 7.3.3 NATIONAL INSTITUTE OF HYDROLOGY (NIH)

The NIH was established in December 1978 at Roorkee. The institute is fully aided by the 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 five scientific themes at the headquarters are: (i) environmental hydrology (ii) ground water hydrology (iii) hydrological investigations, (iv) surface water hydrology, and (v) water resources systems. The institute has a Research Management and Outreach Division (RMOD), which provides the interface with various research and academic institutions.

The institute has set up six regional centers. These centers are: (i) Hard Rock Regional Centre (Belagavi); (ii) Western Himalayan Regional Centre (Jammu); (iii) Deltaic Regional Centre (Kakinada); (iv) Central India Hydrology Regional Centre (Bhopal); (v) Centre for Flood Management Studies for Brahmaputra basin (Guwahati); and (vi) Centre for Flood Management Studies for Ganga basin (Patna).

### **Studies and Research :**

### Major research areas are as under:

- Hydrology of extremes
- Regional hydrology
- Environmental hydrology
- Integrated water resources management
- Snow & glacier hydrology
- Hydrology for watershed management
- R&D under National Water Mission
- Technology transfer and outreach activities

The studies and research in the institute are being carried out broadly under the following major categories:

- Basic studies and research
- Applied studies and research
- Software development
- Field and laboratory oriented and strategic research
- Sponsored research

The institute has the following well



Sh. Ganjendra Singh Shekhawat, Hon'ble Minister, MoJS with Sh. Bishweswar Tudu, Hon'ble MoS, MoJS and other senior officers of DoWR, RD & GR during 40<sup>th</sup> Annual General Meeting National Institute of Hydrology Society on 12.11.2021

equipped laboratories with state-of-art instruments to provide support to field studies:

- Nuclear hydrology
- Remote sensing & GIS
- Soil water
- Water quality
- Hydro-meteorological observatory

During the year 2021-2022 (up to Dec. 2021), the institute has published 74 papers in reputed international and national journals and proceedings of international and national conferences and symposia. During the year, 47 internal and 61 sponsored R&D studies were going on. 21 consultancy projects were completed and 72 are continuing in the year 2021-22.

Some of the important R & D studies completed during the year include

studies on Occurrence, Distribution and Sustainability of Natural Springs for Rural Water Supply in parts of Western Ghats, India; Ground Water Quality Assessment with Special Reference to Sulphate **Contamination in Bemetara District of Chhattisgarh State and Ameliorative** Measures; Modelling of Tawa Reservoir Catchment and Development of Tawa Reservoir Operation Policy; Understanding the impact of salinity of river Mahadayi due to proposed dams on river Mahadayai; Modelling of Narmada River Basin using GWAVA; Flood Inundation Mapping of Beki River Basin of Assam.

Some of the studies under progress include Water Quality Assessment of Southwest Punjab Emphasizing Carcinogenic Contaminants and their Possible Remedial Measures; Simulation of Non-Point Source Pollution Processes in Song River; Influence of Anthropogenic Factors on River Ganga in the stretch from Rishikesh to Haridwar; Integrated **GEE-MODFLOW** based Groundwater Recharge Assessment System for Hindon River System; Assessment of Impacts of Groundwater Salinity on Regional Groundwater Resources; Current and Future Situation in Mewat, Harvana -Possible Remedy and Resilience Building Measures; Future Secular Changes and Remediation of Groundwater Arsenic in the Ganga River Basin - FAR GANGA; Assessment of impact of land use and land cover change on groundwater conditions in parts of Sabarmati river Basin, Gujarat; Groundwater rejuvenation as climate change resilience for marginalized and gender sensitive Ganges (GRACERS); Glacial Lakes & Glacial Lake Outburst Flood (GLOF) in Western Himalayan Region; Integrated assessment of water resources for sustainable use in Upper Dhasan basin in Bundelkhand region; Mass and Energy Balances of Phuche and Khardung glaciers, Ladakh Range with implications for downstream water availability under changing climate; Groundwater Quality Assessment of Morigaon district of Assam with emphasis on Arsenic & Fluoride Contamination.

One of the main objectives of the Institute is to transfer the developed technology to the target users. During the year 2021-22, the Institute has organized 19 training programmes in VC/physical mode for field engineers, scientists, researchers, etc.

### Involvement of NIH in National Hydrology Project:

Keeping in view the NHP objectives and initiatives, NIH is involved in the following activities of NHP:

- Purpose Driven Studies (PDS): The sub-committee on PDS at NIH is coordinating research activities and reviewing & monitoring the progress of PDS through R&D sessions. The R&D sessions were organized to review the progress of PDS: during 20-21 Jan. 2021 (10<sup>th</sup> session), during 7-8 July 2021 (11<sup>th</sup> session) & during 10-11 Nov. 2021 (12<sup>th</sup> session).
- **ii) Training and Workshop**: During the year, 11 trainings and workshops were organized by NIH online.
- **Centre of Excellence for Hydrologic** iii) Modelling: Four studies with States (A.P., Telangana, Sikkim and Rajasthan) are under progress. Two special studies: (i) Integrated assessment of the impacts of climate change on the hydrology of Narmada basin through hydrological modelling approaches, and (ii) Integrated management of water resources for quantity and quality in upper Yamuna basin up to Delhi are also under progress. A joint study with IIT Kharagpur on development and testing of a large scale conceptual hydrological model is under progress. development has Model been completed and NIH has developed the forest module and GW module of the model. Now, testing of the model for a few basins is in progress.
- iv) Decision Support System (DSS): Three reports, namely the Inception Report (Task 1), Report on Development of Enhancement DSS(PM) (Task 2) and Report on Development of Model Connectors for DSS (PM) (Task 3) have been
submitted by DHI (India) and approved. Under Task 4, the Report on Testing the DSS (PM) for Selected Pilot Area is to be submitted shortly by DHI. The report would highlight the application of the developed DSS (PM) on pilot basin through modeling and scenario creations.

#### **NMSHE Project:**

This project entitled "Integrated Hydro- logical Studies for Upper Ganga Basin up to Rishikesh" has been completed at NIH in September 2021. Some of the aspects which have been studied in the project include development of hydrological database, real-time snow cover information system, glacial lakes and GLOFs, understanding of hydrological processes by using isotopic techniques, environmental assessment of aquatic ecosystem, water census and hotspot analysis, and assessment of impact of climate change on hydrological characteristics of the basin.

#### SIGNIFICANT ACHIEVEMENTS

- **Development of database:** Detailed hydro-meteorological database was developed for the study area with isotopic data of rainfall, snow, river flow, and groundwater (including springs),water quality observations at 15 locations in study basin; ecology/ aquatic species observations in eight zones, water census data of around 200 villages, geo-tagging of cloud burst and extreme events in basin since 2010, etc.
- A semi-automated procedure for altitude-based masking of NSIDC MODIS snow extent maps developed.
- Methodology for assessment of vulnerable glacial lakes developed and prepared the inventory of such

lakes.

- Backward trajectory analysis for identification of vapour source for different precipitation events in upper Ganga basin.
- Hydrological modeling using different models under present and future climate scenarios.

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

North Eastern Regional Institute Water and Land Management of (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. 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 selffinanced mode for BE/B.Tech/M.Tech/ graduates/post graduate students as requested by colleges/universities for the fulfillment of their prescribe degree programmes.

During the year 2021-22 (April 2021 to March 2022), 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 2021, from January to December, 73 training programmes were organized by the institute and benefitted 3,030 persons. The breakup of number of training programme and participants from January to December, 2021 is given below,

| Target group             | Target for Number of training<br>programme (January to<br>December, 2021 | Achievement Number of<br>training programme<br>(January to December,2021) | Achievement Number of<br>participants (January to<br>December, 2021) |  |
|--------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------|--|
| Officers                 | 19                                                                       | 06                                                                        | 215                                                                  |  |
| WUAs/Farmers             | 31                                                                       | 38                                                                        | 1,560                                                                |  |
| Women groups/<br>farmers | 02                                                                       | 04                                                                        | 190                                                                  |  |
| NGO                      | 03                                                                       | 00                                                                        | 0                                                                    |  |
| Student                  | 05                                                                       | 18                                                                        | 690                                                                  |  |
| Stakeholders             | 17                                                                       | 07                                                                        | 375                                                                  |  |
| Grant Total              | 77                                                                       | 73                                                                        | 3,030                                                                |  |

## 7.3.5 NATIONAL MISSION FOR CLEAN GANGA (NMCG)

NMCG was registered as a society on 12.8.2011 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 since been dissolved with effect from 7.10.2016, 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 structure 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,
- Empowered Task Force (ETF) on river Ganga under chairmanship of Hon'ble Union Minister of Water Resources, River Development and Ganga Rejuvenation,
- NMCG,
- State Ganga Committees, and
- 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 for effective implementation and success of its multi-disciplinary programme.

"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 pollution as abatement measures to tackle different sources of pollution such as municipal sewage, industrial effluents, municipal non-point sources solid waste, of pollution and interventions for improving ecological flows. biodiversity afforestation, conservation, improving amenities and sanitation at riverbanks, capacity building, research & monitoring, public awareness. The program was given a dedicated budget of Rs. 20,000 crore for a period of 5 years. The program can be placed into four categories i.e. Nirmal Ganga, Aviral Ganga, Jan Ganga and Gyan Ganga.

# II. Pollution Abatement (Nirmal Ganga)

 a) During the FY 2021-22 against budget allocation of Rs. 1,300 crore, DoWR, RD & GR has released an amount of Rs. 800 crore to NMCG. Further, NMCG released an amount of Rs. 634.08 crore for Financial Year 2021-22 (upto 30<sup>th</sup> November 2021) to State Programme Management Groups and other implementing agencies for the implementation of project under Namami Gange.

b) Towards cleaning the river Ganga, till 30<sup>th</sup> November 2021, projects have been sanctioned under Namami Gange programme (including the existing projects sanctioned under NGRBA programme) at an estimated project cost of Rs. 30,780 crore. Out of 357 projects, 172 projects have been completed so far. These projects pertain to sewerage infrastructure, rural sanitation, pilot projects for in-situ treatment of waste water 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 30 <sup>th</sup> November, 2021 |                   |                                |                                |                                    |  |  |
|-----------|-------------------------------------------------------|-------------------|--------------------------------|--------------------------------|------------------------------------|--|--|
| SI.<br>No | Projects Undertaken                                   | No of<br>Projects | No of<br>Projects<br>completed | Sanction<br>Cost (Rs in<br>Cr) | Total<br>Expenditure<br>(Rs in Cr) |  |  |
|           | Sew                                                   | age Infrast       | ructure                        |                                |                                    |  |  |
| 1         | Sewage Infrastructure                                 | 160               | 71                             | 24,567.82                      | 9,358.45                           |  |  |
| 2         | Modular STPs Decentralized<br>Treatment               | 1                 | 0                              | 410.00                         | 0.00                               |  |  |
|           | Ghat & Cremato                                        | ria/ River I      | Front Develop                  | ment                           |                                    |  |  |
| 3         | Ghats & Crematoria                                    | 85                | 62                             | 1,146.42                       | 799.71                             |  |  |
| 4         | River Front Development                               | 1                 | 0                              | 336.73                         | 311.05                             |  |  |
| 5         | Ghats Cleaning                                        | 3                 | 0                              | 49.28                          | 34.66                              |  |  |
| 6         | River Surface Cleaning                                | 1                 | 1                              | 33.53                          | 19.49                              |  |  |
|           | Sub Total                                             | 90                | 63                             | 1565.96                        | 1164.91                            |  |  |

| Projects Status as on 30 <sup>th</sup> November, 2021                                             |                                                                                                                           |                   |                                |                                |                                    |  |
|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------|--------------------------------|------------------------------------|--|
| SI.<br>No                                                                                         | Projects Undertaken                                                                                                       | No of<br>Projects | No of<br>Projects<br>completed | Sanction<br>Cost (Rs in<br>Cr) | Total<br>Expenditure<br>(Rs in Cr) |  |
|                                                                                                   | Institutional Dev                                                                                                         | elopment (        | Non -Infrastru                 | icture)                        |                                    |  |
| 7                                                                                                 | Ganga Knowledge Center                                                                                                    | 7                 | 2                              | 145.77                         | 30.61                              |  |
| 8                                                                                                 | Ganga Monitoring Center                                                                                                   | 1                 | 0                              | 46.69                          | 0.00                               |  |
| 9                                                                                                 | Industrial Pollution Abatement                                                                                            | 15                | 0                              | 1267.37                        | 287.79                             |  |
| 10                                                                                                | District Ganga Committee                                                                                                  | 1                 | 0                              | 2.30                           | 0.00                               |  |
|                                                                                                   | Sub Total                                                                                                                 | 24                | 1                              | 1460.31                        | 318.40                             |  |
| Project Implementation Support/Research & Study Projects/<br>Public Relations and Public Outreach |                                                                                                                           |                   |                                |                                | 101.20                             |  |
| 11                                                                                                | Project Implementation Support/<br>Research& Study Projects and<br>Public Outreach                                        | 22                | 5                              | 283.23                         | 101.38                             |  |
|                                                                                                   | Biodiversity                                                                                                              |                   |                                |                                |                                    |  |
| 12                                                                                                | Educating Schools &<br>Communities for conserving<br>habitat of Ganga River Dolphin                                       | 1                 | 1                              | 1.28                           | 1.28                               |  |
| 13                                                                                                | Assessment of fish & fisheries<br>of the Ganga river system for<br>developing suitable conservation<br>& restoration plan | 4                 | 3                              | 20.83                          | 9.25                               |  |
| 14                                                                                                | Biodiversity Conservation                                                                                                 | 4                 | 2                              | 141.95                         | 41.41                              |  |
|                                                                                                   | Sub Total                                                                                                                 | 9                 | 6                              | 164.06                         | 51.94                              |  |
|                                                                                                   |                                                                                                                           | Afforestati       | on                             |                                |                                    |  |
| 15                                                                                                | Afforestation                                                                                                             | 32                | 20                             | 470.49                         | 271.87                             |  |
|                                                                                                   | Composite Ecolo                                                                                                           | gical Task I      | Force & Ganga                  | Mitra                          |                                    |  |
| 16                                                                                                | Composite Ecological Task Force<br>and Ganga Mitra                                                                        | 5                 | 3                              | 199.29                         | 99.17                              |  |
|                                                                                                   | I                                                                                                                         | Bioremedia        | tion                           |                                |                                    |  |
| 17                                                                                                | Bioremediation                                                                                                            | 13                | 2                              | 235.89                         | 37.17                              |  |
|                                                                                                   | Construction of IHHL acr                                                                                                  | oss Gram P        | anchayats nea                  | ar Ganga Rive                  | er                                 |  |
| 18                                                                                                | Construction of toilets across<br>Gram Panchayats near Ganga<br>River ( States-UK, UP,BH,JH,WB)                           | 1                 | 0                              | 1,421.26                       | 1,020.44                           |  |
| Gra                                                                                               | nd Total                                                                                                                  | 357               | 172                            | 30,780.13                      | 12,423.73                          |  |



10 MLD STP in Ram Nagar, Varanasi inaugurated by the Hon'ble Prime Minister

#### **Major Achievements**

Inauguration of 10 MLD STP in Ramnagar, Varanasi District by Hon'ble Prime Minister: On 25<sup>th</sup> October 2021 Hon'ble Prime Minister inaugurated 10 MLD STP in Ramnagar, Varanasi District constructed at a total cost of Rs. 72.91 crore. He also inaugurated the project of beautification and conservation of 8 holy Kunds (ponds) in Varanasi, sanctioned at a cost of 18.96 crore.

**Inauguration of Ramana STP by Hon'ble Prime Minister-** On 23<sup>rd</sup> December 2021, the Hon'ble Prime Minister of India inaugurated the 50 MLD STP at Ramana, Varanasi. The foundation stone for 50 MLD STP project at Ramana was also laid by the Hon'ble Prime Minister. This 50 MLD STP is the 2<sup>nd</sup> STP developed on Hybrid Annuity Based PPP model at an estimated cost of Rs. 161.31 crore with 100% central assistance from Namami Gange Programme. This project includes interception of Assi river, Nakha & Samne Ghat Nalas, their diversion to existing Main Pumping Station at Nagwa, strengthening & protection of existing Rising Main and construction of 50 MLD Sewage Treatment Plant (STP) along with other appurtenant works such as bund wall, staff quarters and treated effluent disposal line. The development of this project will now avoid discharge of untreated sewage from Assi



Inauguration of (7 MLD & 1.5 MLD) STP in Ramnagar, Nainital by the Hon'ble Prime Minister

river and help improve the water quality of the holy river Ganga.

**Inauguration of Ramnagar STP by Hon'ble Prime Minister-** On 30<sup>th</sup> December 2021, Hon'ble Prime Minister inaugurated (7MLD & 1.5 MLD capacity) STP projects at Ramnagar, Nainital and laid the foundation stone for rejuvenation of 6 polluted river stretches for creation of total 30.30 MLD STP capacity in Udham Singh Nagar, Uttarakhand.

Under the Namami Gange Programme, a total of 160 sewerage infrastructure projects worth Rs 24,567.82 crore have been sanctioned for the creation of a total treatment capacity of 5,024 MLD and laying down of 5,227.29 km sewer network. The projects have been sanctioned in Uttarakhand, Uttar Pradesh, Bihar, Jharkhand, West Bengal, Haryana, Delhi, Rajasthan, and Himachal Pradesh. Out of these, 71 projects have been completed.

### 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.
- NMCG has sanctioned 29 numbers of projects in 18 packages worth of Rs. 10,429.61 crore. These projects are for the towns of Haridwar, Varanasi, Kanpur, Prayagraj, Mathura, Bareilly, Unnao, Shuklaganj, Agra, Meerut, Muzaffarnagar, Budhana, Moradabad, Patna, Kolkata Howrah, Bally, Baranagar, Asansol, Burdwan, Durgapur, North Barrackpore and Ayodhya. These projects shall create

/ rehabilitate sewage treatment capacity of 1,859 MLD.

• Of the 18 packages taken up on hybrid annuity-based PPP model, 1 package for 82 MLD STPs at Haridwar and 1 package for 50 MLD STP at Ramana has already been implemented and commissioned for 9 packages, works have already been awarded and are under implementation while 7 packages are under tendering process.

### **Industrial Pollution Management**

Inventory of Grossly Polluting Industries (GPIs) has been made for prioritized monitoring. GPIs are industries discharging pollution load of BOD 100 kg per day or more and/ or handling hazardous chemicals.

- Annual Inspection of GPIs by i. Independent Institutions-The GPIs are inspected on annual basis for compliance verification of the pollution norms and process modification. wherever required through third technical party institutions of repute.
- ii. Industry-Specific Improvement: Reuse and recycling of waste water 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 since March, 2019. Directions under section 18(1)(b) of Water Act, 1974 are issued in May, 2019 based on weekly inspection reports.

- Jajmau Tannery Cluster: There are 346 tanneries operating in Jajmau Cluster at Kanpur. They have installed primary effluent treatment plant and the effluent is collected and treated at 36 MLD CETP (9MLD tannery wastewater + 27 MLD sewage). NMCG has sanctioned the 20 MLD CETP project for Jajmau Tannery Cluster, Kanpur, UP worth Rs. 617 crore (Phase-I). The construction activities are under progress.
- Unnao and Banthar Tannery 0 Cluster: Banthar Tannery Cluster, Unnao, UP has 4.5 MLD CETP and has 28 Member Units. NMCG has sanctioned the project for upgradation 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 21<sup>st</sup> Feb 2020. The project is under tendering stage. Unnao CETP has 2.15 MLD CETP and has 14 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. 67.68 crore (excluding taxes).

**Textile Cluster:** 5 textile clusters namely Bhadohi, Pilkuwa, Rooma, Farrukabad and Mathura were selected for consideration of CETP. CETP is not feasible for Bhadohi.

• Mathura textile cluster: NMCG has approved the 6.25 MLD CETP project worth 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.

- 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 18 units are registered with CETP Rooma and 13 units presently connected with CETP Rooma.
- Pilkhuwa textile park: Pilkhuwa Industrial Park has been developed by Hapur Pilkhuwa Development Authority (HPDA). Pilkhuwa has 2.1 MLD CETP which is operational with 7 units contributing 2.1 MLD effluent.

### 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:** 97 locations by *Central Pollution Control Board (CPCB)* through respective *State Pollution Control Boards (SPCBs)* and collected data is compiled at CPCB.

Comparison of 2014 & 2021 (Jan-July) River water quality data of the entire stretch of river has been conducted for parameters such as Dissolved Oxygen (DO), Biochemical Oxygen Demand (BOD) and Faecal Coliform (FC).

# Real-Time Water Quality Monitoring Stations (RTWQMS):

a) 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.

b) Engagement of Data Qualification Consultant for 76 RTWQM stations: CPCB is in process of engagement of Data Qualification Consultant for validation of data from 76 RTWQM stations.

#### III. 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. The notified e-flow regime is as follows:

| S.<br>No. | Seasons   | Months               | (%) Percentage of Monthly<br>Average Flow Observed during<br>each of preceding 10-daily period |
|-----------|-----------|----------------------|------------------------------------------------------------------------------------------------|
| 1         | Dry       | November-March       | 20                                                                                             |
| 2         | Lean      | October, April & May | 25                                                                                             |
| 3         | High Flow | June to September    | 30**                                                                                           |

#### i. For Upper Ganga river basin (origin to Haridwar):

\*\*30% of monthly flow of high season flow.

#### ii. For river Ganga below Haridwar upto Unnao:

| S.<br>No. | Location of<br>Barrage | Minimum flow releases<br>immediately downstream of<br>barrages (In Cumecs)<br>Non- Monsoon (October to May) | Minimum flow releases<br>immediately downstream<br>of barrages (In Cumecs)<br>Monsoon (June to September) |
|-----------|------------------------|-------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| 1         | Bhimgoda               | 36                                                                                                          | 57                                                                                                        |
| 2         | Bijnor                 | 24                                                                                                          | 48                                                                                                        |
| 3         | Narora                 | 24                                                                                                          | 48                                                                                                        |
| 4         | Kanpur                 | 24                                                                                                          | 48                                                                                                        |

#### **Rural Sanitation**

12.38 Lakh Individual Household Latrines (IHHL) have been constructed across 4,507 villages in the States of Uttarakhand, Uttar Pradesh, Jharkhand, Bihar, and West Bengal. NMCG has released Rs. 829 crore to DoDWS, Ministry of Jal Shakti for the construction of IHHL, Rs. 124 crore for SLWM and Rs. 67.44 crore for afforestation in Ganga villages. All villages situated along the bank of river Ganga have been declared Open Defecation Free (ODF).

#### **Biodiversity**

Eight projects had been sanctioned to Wildlife Institute of India (WII), Dehradun, Central Inland Fisheries Research Institute (CIFRI), Kolkata & Centre for Environment Education (CEE), Lucknow at a total cost of Rs. 33.196 crore. The projects aim to develop a science - based aquatic species restoration plan for Ganga river by involving multiple stakeholders and to create awareness among the stakeholders for the conservation of aquatic species in Ganga. Encouraged by the successful conclusion of the phase-I projects, more comprehensive projects under phase II were awarded to WII and CIFRI as follows:

- 'Planning and Management of Aquatic Species Conservation and Maintenance of Ecosystem Services in the Ganga River Basin for A Clean Ganga' awarded to WII at a cost of Rs. 113.99 crore.
- Fish stock enhancement including Hilsa and livelihood improvement for sustainable fisheries and conservation in Ganga basin awarded to CIFRI at a cost of Rs. 13.51 crore.

Further, a project has been sanctioned to Uttar Pradesh State Forest Department for 'Expanding conservation breeding program of freshwater turtles and Gharial at Kukrail Gharial Rehabilitation Centre, Lucknow'. The project seeks to revive and restore population of these species in Ganga and the tributaries at a cost of Rs.3.13 crore.

#### 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 started from year 2016-17 onwards, and expenditure of Rs. 401.28 crore has been incurred so far by the 5 State Forest Departments for plantation in 29,334 hectares.

30 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. In the year 2021, one project has also been sanctioned to IIFM, Bhopal for "Mid-term evaluation of forestry plantations funded by NMCG".

|               | FY 2016-17 to 2020-21* |                 |                      |  |
|---------------|------------------------|-----------------|----------------------|--|
| State         | No. of                 | Cost            | Total Area Covered   |  |
| State         | projects               | (Expenditure in | under Plantation (in |  |
|               | sanctioned             | Rs. Cr.)        | ha.)                 |  |
| Uttarakhand   | 5                      | 117.97          | 11,735.8             |  |
| Uttar Pradesh | 5                      | 63.41           | 7,504.28             |  |
| Bihar         | 5                      | 91.63           | 7,175.89             |  |
| Jharkhand     | 5                      | 26.44           | 804                  |  |
| West Bengal   | 5                      | 22.46           | 2,114.7              |  |
| Sub total     | 25                     | 321.9           | 29,334.45            |  |
|               |                        | 2021-22 (ong    | oing)                |  |
| Uttarakhand   | 1                      | 26.39           | 2,834.16             |  |
| Uttar Pradesh | 1                      | 13.25           | 1,897.28             |  |
| Bihar         | 1                      | 27.20           | 995.67               |  |
| Jharkhand     | 1                      | 1.01            | Maintenance only     |  |
| West Bengal   | 1                      | 9.24            | 832.00               |  |

Details of the sanctioned projects are as under:

|                                 | FY 2016-17 to 2020-21* |                 |                      |  |  |
|---------------------------------|------------------------|-----------------|----------------------|--|--|
| State                           | No. of                 | Cost            | Total Area Covered   |  |  |
| State                           | projects               | (Expenditure in | under Plantation (in |  |  |
|                                 | sanctioned             | Rs. Cr.)        | ha.)                 |  |  |
| Sub total                       | 5                      | 77.08           | 6,559.11             |  |  |
| DPR- Forestry Intervention for  | 1                      | 1.18            | Completed            |  |  |
| Ganga (2015-16)-FRI Dehradun    |                        |                 |                      |  |  |
| Mid-term evaluation of forestry | 1                      | 1.1159          | Ongoing              |  |  |
| plantations - IIFM, Bhopal      |                        |                 |                      |  |  |
| Sub total                       | 2                      | 2.30            |                      |  |  |
| Grand total                     | 32                     | 401.28          | 35,893.16            |  |  |

\*Note: Costs mentioned for years 2016-17 to 2019-20 are the actual expenditure incurred by the respective State Forest Departments.

## IV. Research, Policy and Knowledge Management (Gyan Ganga)

#### Leading Research and Development

- Groundwater-Surface water **interface:** Namami Ganga is working with National Geophysical Research Institute (NGRI), Hyderabad to delineate the subsurface aquifers with focus on paleochannels from Kausambi to Kanpur to provide newer insights into disposition of the aquifers; extent and characteristics of the paleochannel and possible interaction of the aquifers with Ganga and Yamuna rivers.
- High Resolution GIS/LIDAR Mapping of River: NMCG has also initiated a landmark project along with Survey of India (SoI) on "Generation of high-resolution DEM & GIS ready database for part of River Ganga" using LiDAR Mapping.
- Study on Climate Scenarios & their impact: NMCG is working with IIT Delhi to map high resolution climate scenarios for basin-scale water resources management to improve understanding and scientifically rigorous estimates of climate change

and its impact on water resources in the Indo-Gangetic Plain.

- Urban River Front Planning: A guidance note for environmentally sensitive, climate adaptive and socially inclusive urban river front planning and development was developed in association with World Resources Institute (WRI).
- **Rejuvenation of small rivers:** A GIS based inventory of small rivers has being created along with district wise list of small rivers. The rejuvenation of these rivers will help in making Ganga aviral and nirmal. Recently this item has been got included as priority under MGNREGA.
- V. People River Connect (Jan Ganga)

## a) Ghat, Crematoria and River Front Development (RFD)

Total 61 projects (including one riverfront development project in Patna) have been sanctioned for the construction of 210 ghats and 57 crematoria. 177 ghats/ kunds and 46 crematoria have been completed. The State-wise status of ghats and crematoria projects have been provided below:

- Uttarakhand: 26 ghats and 26 crematoria are sanctioned along the Ganga river in Uttarakhand of which 22 ghats and 24 crematoria are completed.
- **Uttar Pradesh:** 99 ghats and 15 crematoria are sanctioned along the Ganga river in Uttar Pradesh of which 94 ghats and 13 crematoria are completed.
- **Bihar:** 56 ghats and 10 crematoria are sanctioned along the Ganga river in Bihar of which 30 ghats and 2 crematoria are completed.
- **Jharkhand:** 13 ghats and 3 crematoria are sanctioned along Ganga river in Jharkhand and all are completed.
- West Bengal: 16 ghats and 3 crematoria are sanctioned along the Ganga river in West Bengal of which 10 ghats and 3 crematoria are completed.

### b) Ghat Cleaning

IL&FS Environmental Infrastructure and Services Ltd. (IEISL) has been engaged

for cleaning of 84 ghats in Varanasi. Similar ghat cleaning activities have been taken up for cleaning of 87 ghats at Bithoor, Kanpur, Prayagraj and Mathura- Vrindavan in Uttar Pradesh at a cost of Rs. 12.97 crore for 3 years. Also, cleaning of 72 ghats of Haridwar, Uttarakhand has been taken up at a cost of Rs. 15.9 crore for 3 years.

# c) Important Activities (*under Jan Ganga*)

The **Mission Paani Waterthon**, an initiative by News18 and Harpic India was held on 26<sup>th</sup> January, 2021. Hosted by Akshay Kumar, the campaign ambassador, the event emphasized on 'Paani Ki Kahaani, Bhaarat Ki Zubaani', the theme to raise awareness about the water crisis in India. Namami Gange was also featured in the programme. DG, NMCG participated in the event and briefed about the Namami Gange interventions for the rejuvenation of the river Ganga, emphasizing the need for a behavioural change among the masses, to turn the Jal Andolan into Jan Andolan.



Namami Gange supported activities for maintaining water quality and sanitation during Kumbh

**Magh Mela in Prayagraj:** From 14<sup>th</sup> January 2021 Magh Mela an annual festival was started near the banks of river Ganga. This is the first big religious congregation organized amid COVID-19. State Mission for Clean Ganga, Uttar Pradesh along with District Ganga Committees and administration organized various cleanliness and massive awareness activities in Magh Mela at Prayagraj.

**Haridwar Mahakumbh:** The largest religious congregation Kumbh Mela commenced in Haridwar from 14<sup>th</sup> January 2021. Designated as an 'intangible cultural heritage of humanity by UNESCO, the kumbh mela's significance reverberates throughout the nation. Namami Gange has specifically supported activities for maintaining water quality and sanitation during Kumbh. All STPs have also been completed in 2020 for fully treating the sewage generated.

Classical Music **Event:** Bharatiyam and several organisations working for cleaning Yamuna organised an event 'Ragas for Yamuna', a classical music event which is an important step to connect people with river Yamuna. The event was inaugurated by lightning the lamp followed by a tree plantation drive by Shri Rajiv Ranjan Mishra, DG, NMCG. Shri Siddhartha Banerjee, inventor of Siddha Veena and Ustad Fateh Ali Khan on Shehnai, grandson of Ustad Bismillah Khan charmed the audience with their performances.

**Ganga Quest 2021**, an online competitive quiz organized by the National Mission for Clean Ganga (NMCG) and TREE Craze Foundation, was launched on 22nd March, 2021, during an event organized by NMCG and UNESCO with school children

and teachers to celebrate 'World Water Day-2021'. The Ganga Quest, is an online quiz on river Ganga and its ecosystem, which provides an opportunity for public in general and students/youths in particular, to participate and contribute towards knowledge building on important issues related with environment, river conservation and bio-diversity etc. The quiz organised last year (Ganga Quest 2020) received an overwhelming response with participation of more than 11.5 lakh individuals from all over country and NRIs and others from abroad. A unique aspect of the quiz is its bilingual nature, as it was conducted both in Hindi and English.

## Celebration of World Water Day, on 22<sup>nd</sup> March 2021:

- i. DG, NMCG chaired a programme "Rajat Ki Boonden", National Water Awards 2021, in association with Neer Foundation. During the programme, prizes were distributed to Shri Sachchidanand Bharti and Shri Arvind Chaturvedi, Editor, Dainik Jagaran.
- ii. DG, NMCG has participated in a hybrid event with school children and teachers to celebrate 'World Water Day-2021' organized by NMCG and UNESCO. During the celebrations the winners of a water conservation awareness programme were felicitated and winning animated short films were screened. UNESCO had launched this programme -entitled 'H2Ooooh! - Water-wise program for children of India' - nation-wide in September 2020, for school children in India, in partnership with the NMCG, the United Schools Organization (USO),

Water Digest and India-based global animation major Toonz Media Group.

iii. State-level Activities on World Water Day- To mark the World Water Day and spread awareness about Namami Gange Programme, Mayor, Rishikesh presided over a function and administered a cleanliness pledge to the local people. A nukkad natak was also organised and people wrote messages on a sign board installed at the event as a part of the signature campaign.

**World Earth Day:** NMCG celebrated World Earth Day in association with Vigyan Prasar and India Science TV Channel, on 22<sup>nd</sup> April 2021, through a live session on 'Restore Our Earth' by Padma Bhushan, Dr. Anil Prakash Joshi. Various field level activities were also organized for spreading awareness to restore earth and to conserve and protect the environment.

**International Biodiversity Day:** On 22<sup>nd</sup> May 2021, NMCG in association with Wildlife Institute of India on International Biodiversity Day organized 'Mask Up Express'- a unique animal mask making competition.

Final Round of Ganga Quest-2021 on World Environment Day and Ganga Quest Award Ceremony: The online quiz Ganga Quest 2021 concluded on 5th June, 2021, with the Grand Finale – Live Quiz-, coinciding with the World Environment Day, with its theme of 'Ecosystem Restoration'. Total 216 winners from round one of Ganga Quest 2021, which included 67 participants under Grade-1, 75 participants under Grade-II, 36 participants under Grade-III and 38 participants under Grade-IV, entered in the second phase of the competition

organised on 5<sup>th</sup> June 2021. The Quest attracted international participants from 113 countries like UAE, Oman, UK, Algeria, Bahrain, and Kuwait. While congratulating the winners of preliminary rounds among lakhs of participants, Shri Rajiv Ranjan Mishra, Director General, NMCG said, "Inline with the theme of World Environment Day 2021-Ecological Restoration, Ganga Quest focuses not only on Ganga but the entire ecosystem. The aim of the quiz is to ensure learning happens with fun." Hon'ble Minister of Jal Shakti, Shri Gajendra Singh Shekhawat congratulated and felicitated the winners of the Ganga Quest 2021.

Plantation Campaign - A massive plantation drive was kicked off by Shri Yogi Adityanath, Hon'ble Chief Minister, Uttar Pradesh along with, Smt. Anandiben Patel Hon'ble Governor, Uttar Pradesh by planting the saplings at Purvanchal expressway and Jhansi. This plantation drive started on 1<sup>st</sup> July to mark vriksharopan janandolan/ van mahoutsav continued in all districts of Uttar Pradesh till 7th July 2021. Shri Gajendra Singh Shekhawat, Hon'ble Minister of Jal Shakti and various other prominent Ministers of Uttar Pradesh Government also joined the major plantation campaign and planted a sapling at Siddhpur Dham in Chitrakoot in Uttar Pradesh. Various activities have been organized under the plantation campaign across the Ganga Basin States. The campaign laid special emphasis on medicinal and nutritious plants.

Launch of 'Rag-Rag Mein Ganga-II': Continuing with the celebration of Azadi ka Amrit Mahotsav, 'Rag-Rag Mein Ganga-II' was launched on 16th August, 2021. 'Rag-Rag Mein Ganga'- A travelogue series



Launch Ceremony of Rag Rag Mein Ganga-II

on Ganga - was produced by Doordarshan (Prasar Bharati) on behalf of NMCG and the Season-1 was telecast on DD National in the year 2019. Anchored by the noted actor Shri Rajeev Khandelwal, the travelogue series covered the cultural, mythological, and historical aspects about the river from Gaumukh to Ganga Sagar and the efforts undertaken by Namami Gange programme for the conservation and rejuvenation of river Ganga. The first season of the travelogue series created a vast resonance with the audiences as a repository of Ganga related knowledge and received a good review on IMDB rating. Considering the success, enormous popularity and overwhelming appreciation from the audiences across the country, the second season -'Rag-Rag Mein GangaII' - was launched by Shri Gajendra Singh Shekhawat, Hon'ble Minister of Jal Shakti; Shri Anurag Singh Thakur, Hon'ble Minister of Information & Broadcasting and Shri Prahlad Singh Patel, Hon'ble Minister of State for Jal Shakti. The program is being telecasted from 21<sup>st</sup> August 2021, every Saturday and Sunday at 8:30 PM on DD National.

**Stockholm World Water Week 2021:** Organized by Stockholm International Water Institute (SIWI), the World Water Week is the leading annual conference on global water issues, with sessions on various water-related topics, ranging from food security and health, to agriculture, technology, biodiversity, and the climate crisis. This year, the conference was held between 23<sup>rd</sup> to 27<sup>th</sup> August 2021,



A glimpse of 3-day Conference organized under Stockholm World Water Week

based on the theme 'Building Resilience Faster'. DG, NMCG delivered a session on 'Making Cities Water Positive through City Water Balance Plans' organized by USAID and Safe Water Network on 23<sup>rd</sup> August 2021. NMCG also hosted 3 sessions on- Integrated River Basin Management: Stakeholder Engagement on 24<sup>th</sup> August; Developing River Sensitive Cities on 25<sup>th</sup> August and Zero Liquid Discharge Cities on 26<sup>th</sup> August 2021.

#### Campaign on Azadi Ka Amrit Mahotsav:

On 15<sup>th</sup> August 2021, a massive Jan Andolan was organized based on the theme of 'Ganga Ka Sanrakshan Evam Azadi ka Amrit Mahotsav'. The campaign was launched by NMCG, in association with State Missions for Clean Ganga, District Ganga Committees, partner organizations and the participation by all volunteer cadres belonging to the mission.

**Campaign on 'Ganga Ka Sanrakshan Evam Azadi Ka Amrit Mahotsav':** On 15<sup>th</sup> August, NMCG launched a monthlong Jan Andolan based on the theme Ganga Ka Sanrakshan Evam Azadi ka Amrit Mahotsav' to reach out to all across the Ganga basin states. The campaign promotes the spirit of Ganga Ki Nirmal-Aviral Dhara by connecting it to the 'RagRag Mein Ganga-II' travelogue series. The second season of 'Rag-Rag Mein Ganga-II' is being aired from 21st August onwards, every Saturday and Sunday at 8:30 PM on DD National. The campaign was organized in association with State Governments, State Missions for Clean Ganga (SMCG), District Ganga Committees (DGC), partner organizations, along with the support of volunteer cadre of NMCG like Ganga Vichar Manch, Ganga Task Force, Ganga Doots, Ganga Praharis etc. During the campaign, NMCG and its partners have also organized several activities for India's 75<sup>th</sup> Independence anniversary such interaction with local communities, cultural shramdaan. and swachhta abhiyaan, plantation, Ganga chaupal, padyatra/triranga yatra, awareness drives, competitions, marathons, webinars and the Ganga swachhta shapath etc. at important locations on the banks of the river Ganga. Emphasis has been laid to involve children and youth to inculcate the message of clean Ganga in the younger generation.

**Ganga Utsav-A River Festival-2021:** From 1<sup>st</sup> to 3<sup>rd</sup> November 2021, NMCG celebrated Ganga Ustav- A River Festival 2021, under the ongoing celebrations



Outreach Activities conducted to support the campaign on 'Ganga Ka Sanrakshan Evam Azadi Ka Amrit Mahotsav'



NMCG organized Ganga Utsav - A River Festival 2021 and achieved Guinness World Record

conducted for Azadi ka Amrit Mahotsav  $75^{\text{th}}$ marking the year of India's Independence. The 5<sup>th</sup> Edition of Ganga Utsav was celebrated not just for river Ganga but all other rivers across the country. Over 150 districts in the country have already organized similar Nadi Utsavs. The celebrations were attended by Hon'ble Union Minister of Jal Shakti Shri Gajendra Singh Shekhawat; Hon'ble Union Minister of Tourism Shri G. Kishan Reddy; Hon'ble Minister for Law & Justice Shri Kiren Rijiju, Hon'ble Minister of State, Ministry of Jal Shakti Shri Prahalad Singh Patel; Shri Pankaj Kumar, Secretary, DoWR, RD & GR; Shri Rajiv Ranjan Mishra, DG, NMCG and other NMCG officials, dignitaries, experts and artists. The 3-day festival included cultural performances, Ganga dialogues, Kahani Junction, Live Paintings, Photo Exhibitions, Ganga Quest, etc. It was also marked by several important launches such as the Ganga Knowledge Portal, promo

for the upcoming film Ganga: River from the Skies, Chacha Chowdhary comic book series as well as books and reports such as Report of Ganga Quest-2021, 'Ganga Atlas: River of the Past', Re-Imagining Urban Rivers; Celebrating the spirit of Rivers, the Ganges Children Handbook and Training Module. During the event, NMCG also achieved the Guinness Book of World Record for the most photos of hand written notes uploaded on Facebook in one hour.

**River Cities Alliance:** On 25<sup>th</sup> November 2021, Hon'ble Union Minister of Jal Shakti Shri Gajendra Singh Shekhawat launched the River Cities Alliance. He was joined by Shri Pankaj Kumar, Secretary, DoWR, RD & GR, Shri Durga Shanker Mishra, Secretary, Ministry of Housing and Urban Affairs and Shri Rajiv Ranjan Mishra, DG, NMCG. The historical River Cities Alliance will give its 30-member cities from different parts of the country opportunities to ideate,



Group Photo of 30 cities joining City Alliance

discuss and exchange information for sustainable management of urban rivers. The Secretariat of the Alliance will be set up at National Institute for Urban Affairs (NIUA), with NMCG's support.

A Global Exhibition-cum-Dialogue - 'Ganga Connect- Journey of Ganga Rejuvenation': Organized jointly by the NMCG, cGanga and High Commission of India, the Ganga Connect Exhibition, a global exhibition and an outreach platform, showcased the multiple facets of the river system and connected with a range of interested partners. The exhibition was inaugurated by Hon'ble Union Minister Environment. Forest of & Climate Change and Labour & Employment, Shri Bhupender Yadav on 8th November 2021. The 17-day long exhibition began in Glasgow, Scotland and travelled through various cities in the United Kingdom including Cardiff, Birmingham, Oxford and London. The exhibition in London was inaugurated by H.E Gaitri Issar Kumar,



Ganga Connect - Global Exhibition-cum-Dialogue organized in UK



Expedition of Ganga Mashal from 8th November to 25th November 2021

High Commissioner of India on 23<sup>rd</sup> November 2021. The concluding session, i.e. community connect session of the Ganga Connect Exhibition was held on 25<sup>th</sup> November 2021 under the chairmanship of Hon'ble Union Minister of Jal Shakti Shri Gajendra Singh Shekhawat, in the presence of Shri Rajiv Ranjan Mishra, DG, NMCG. During the session various aspects of Ganga rejuvenation program, upcoming developments under the program and future roadmap of Ganga rejuvenation and other riverine ecology protection program in India were discussed with the Indian diaspora and international community.

**Expedition of 'Ganga Mashal':** The Ganga Mashal was flagged off on the last day of the Ganga Utsav, i.e., 3<sup>rd</sup> November 2021 from New Delhi by Hon'ble Union Minister of Jal Shakti Shri Gajendra Singh Shekhawat, Hon'ble Union Minister of Law and Justice Shri Kiren Rijiju, Shri Pankaj Kumar, Secretary, Ministry of Jal Shakti and Shri Rajiv Ranjan Mishra, DG, NMCG. Led by the Ganga Task Force, the activity was supported by NMCG, SPMGs, District Administration, National Cadet Corps (NCC), National Service Scheme (NSS), associated partner organizations,

voluntary organizations and field volunteers including Ganga Vichar Manch, Ganga Doot (NYKS), Ganga Praharis, Ganga Mitras, etc. The Mashaal Yatra started from Rishikesh, Uttarakhand on 8<sup>th</sup> November and ended at Bakkhali Sea Beach, West Bengal on 25<sup>th</sup> November 2021. The Ganga Mashaal travelled to 25 locations along the length of the Ganga River from Uttarakhand to West Bengal.

Launch of Continuous Learning and Activity Portal (CLAP): The Continuous Learning and Activity Portal (CLAP) was launched by Hon'ble Union Minister of Jal Shakti, Shri Gajendra Singh Shekhawat in the presence of Shri Rajiv Ranjan Mishra, DG, NMCG and other dignitaries on the inaugural day of 'Ganga Utsav- the River Festival 2021'. CLAP is an interactive portal that is working towards initiating conversations and action around the rivers in India. It aims to function as a single platform for all those who are interested in environment and rivers, and engaging them through various attractive games, quizzes, and other activities to enhance their knowledge on various matters pertaining to rivers, ecology, and environment in an interesting manner



NMCG organized 6th India Water Impact Summit from 9th to 14th December 2021

**6<sup>th</sup> India Water Impact Summit - 2021:** The 6<sup>th</sup> India Water Impact Summit (IWIS) was jointly held by cGanga and NMCG from 09-14 December 2021. The event was run through a hybrid mode (Online and Offline mode from NMCG in Delhi and IIT Kanpur). Theme of the summit was "River Resources Allocation: "Planning and Management at the Regional Level". The valedictory session was conducted in a hybrid mode by National Mission for Clean Ganga (NMCG), New Delhi and Centre for Ganga River Basin Management and Studies (cGanga), Kanpur. The session was graced by Shri Bisweshwar Tudu, Hon'ble Minister of State, DoWR, RD & GR, Shri Rajiv Ranjan Mishra, Director General, NMCG, Prof Vinod Tare, Founding Head, cGanga and Ms. Yamini Aiyar, President and Chief Executive of the Centre for Policy Research amongst others.

**Flag-In Ceremony of Ganga Mashaal:** The flag in ceremony for Ganga Mashaal was conducted on 16<sup>th</sup> December 2021 in the presence of Shri Gajendra Singh



Flag-In Ceremony of Ganga Mashal on 16<sup>th</sup> December 2021 in the presence of Shri Gajendra Singh Shekhawat, Hon'ble Union Minister for Jal Shakti

Shekhawat, Hon'ble Union Minister for Jal Shakti. He was joined by Shri Prahlad Singh Patel, Hon'ble Minister of State, Minister of Jal Shakti, Shri Bishweswar Tudu, Hon'ble Minister of State, Ministry of Jal Shakti, Shri Pankaj Kumar, Secretary, DoWR, RD & GR, Shri Rajiv Ranjan Mishra, Director General, NMCG and Lieutenant General Preet Mohinder Singh, Director General, Territorial Army. Ganga Mashaal was the expedition organised along the banks of Ganga in the five riparian Ganga States with an aim to reach out the masses and spread awareness about cleaning the holy river. The initiative was taken as part of Azadi Ka Amrit Mahotsav. The expedition was completed in 17 days. The Mashaal Yatra traversed a distance of 2,200 kms across 25 districts including Rishikesh, Haridwar, Kannauj, Sahibgunj, Barrackpore, Fort Williams-Kolkata and Bakkhali Beach.

**Nadi Utsav 2021:** Between 16<sup>th</sup>- 23<sup>rd</sup> December 2021, NMCG in collaboration with Ministry of Culture and Ministry of Tourism organised Nadi Utsav 2021 to celebrate all rivers in the country. The celebrations were organized under the four chosen themes of cleanliness, patriotism, nature and ecology, devotion and spirituality. Nadi Utsav 2021 was celebrated under the Azadi ka Amrut Mahotsav campaign. 22 States and 181 districts participated and celebrated rivers such as such as Brahmaputra, Indus, Narmada, Sabarmati, Mahanadi, Krishna, Godavari, Cauvery, Ganga, Yamuna, amongst several others.

#### VI. Arth Ganga

Taking forward the concept of Arth Ganga, especially for working out a mechanism for its implementation across the Ganga belt, NMCG has been interacting with all the State Governments, especially those on the banks of Ganga, as well as with line Ministries and Departments of Central Government, for developing a robust model for implementation of Arth Ganga by taking up key interventions in important sectors.

## 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,



Celebration of Nadi Utsav 2021 in 22 States and 181 Districts across India

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, D/o WR, RD & GR and comprises 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 4<sup>th</sup> Sept 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 11<sup>th</sup> August 2020 and the post construction management of Units-I and II will be by Gujarat under the supervision of Narmada Control Authority (NCA). Transfer of records and office equipment's from SSCAC to NCA is under process.

# PROGRESS OF SARDAR SAROVAR PROJECT (SSP)

### i) Sardar Sarovar Dam

As per decision of 89<sup>th</sup> meeting of NCA

held on 16<sup>th</sup> 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.138.68m was finalized by the SSRC in its 51<sup>st</sup> 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.130.75m only in the month of September, 2017. The reservoir got filled up to 138.68 m during the monsoon 2019 on 15<sup>th</sup> September. 2019 due to intermediate catchment contribution (between OSP & SSP) of 9,738 MCM and huge inflow in order of 47,242 MCM in SSP. An expenditure of Rs.71,455.61crore has been incurred on Sardar Sarovar Project up to March, 2021.

## ii) 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 458.138 km have almost been completed except Kachchh Branch Canal. 99.24% of distribution systems in NMC from 0 to 144.5 km up to minor level completed. In Rajasthan portion, work pertains to distributaries (flow & lift) including sub- distributaries, minors & Sub-minors were almost completed to 99.9%.

#### iii) Utilization of Water

Narmada water is being supplied to Central Gujarat/North Gujarat and Saurasthra region of Gujarat from the Sardar Sarovar Dam. Govt. of Gujarat has created an irrigation potential of 16.80 lakh ha out of which 12.74 lakh ha. has been actually irrigated during the water year 2020-21. Total quantum of 12,780.0 MCM was provided during the water year i.e., from July, 2020 to June, 2021 in Gujarat and Rajasthan portion, out of which 788.40 MCM water has been utilized by Rajasthan. Rajasthan has also created an irrigation potential of 2.46 lakh ha to utilize Narmada water. Drinking water is being

provided to 1,541 villages & and 3 towns – Sanchore, Bhinmal and Jalore Town of Jalore District in Rajasthan. 1.81 lakh ha area has been irrigated during the water year i.e. July, 2020 to June, 2021.

## Resettlement and Rehabilitation Aspects of SSP

The 37<sup>th</sup> Task Force Meeting of NCA on Rehabilitation and Resettlement issues of SSP was conducted on 26<sup>th</sup> November, 2020. Data on land and Project Affected Families (PAFs) till December, 2020 were complied and further updated on 31<sup>st</sup> March 2021 based on information furnished by the party States. The details are given below:

| Catagory                                    |           | Total       |                |         |
|---------------------------------------------|-----------|-------------|----------------|---------|
| Category                                    | Gujarat   | Maharashtra | Madhya Pradesh | Iotai   |
| Total number of fully affected villages     | 03        | 00          | 01             | 04      |
| Total number of partially affected villages | 16        | 33          | 177            | 226     |
| Total                                       | 19        | 33          | 178            | 230     |
| Total No. of Project Affected Families      | 4,765     | 4,180       | 23,603         | 32,548^ |
| Total number of PAFs resettled in           | GJ: 4,765 | GJ: 752     | GJ: 5,540      | 11,057  |
|                                             | MH: Nil   | MH: 3,428   | MH: Nil        | 3,428   |
|                                             | MP: Nil   | MP: Nil     | MP: 18,063     | 18,063  |
| No. of R&R sites planned/developed          | 236       | 14          | 88             | 338     |
| No. of R&R sites Operational                | 223       | 14          | 83             | 320     |

| Total number  | of villages and | families aff | fected and r | resettled at FR | L 138.68m |
|---------------|-----------------|--------------|--------------|-----------------|-----------|
| I otal number | of vinages and  | iammes an    | iecteu anu i | coefficu at rh  | L 120.00m |

^ The number of PAFs may change due to addition/deletion of genuine/false PAFs likely to be declared by GRA/State Governments.

### 7.3.7 BRAHMAPUTRA BOARD (BB)

The Brahmaputra Board was constituted by an Act of Parliament and

received the assent of the President on 1<sup>st</sup> September, 1980. The Brahmaputra Board Act, 1980 (No. 46 of 1980) provides for the establishment of a Board 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 Chairman, Brahmaputra under the Board (4 full time members and 17 part time members). The jurisdiction of Brahmaputra 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<sup>th</sup> January, 2019 which provides for establishment of regional offices headed by Dy. Chief Engineer/Superintending Engineer in all the State capitals of North Eastern States.

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-Jal Shakti and Secretary, DoWR, RD & GR, Govt. of India, Chairman of Central Water Commission as members and Chairman of Brahmaputra Board as the Member Secretary. Member (RM), CWC is a permanent invitee.

Ministry of Jal Shakti approved the restructuring proposal of Brahmaputra Board on 10.01.2019 creating new 9 (nine) regional offices of Brahmaputra Board with headquarter in each State capital of North Eastern Region and at Siliguri in West Bengal.

The North Eastern Hydraulic & Allied Research Institute (NEHARI): This institute was established under Brahmaputra Board at Rudreswar, North Guwahati as per clause 7 of Assam Accord in 1996. However, due to various reasons after initial good start, the institute declined in its functioning and thus the labs become dysfunctional. It was decided to renovate the laboratories during 2018-2021. Accordingly, a project was taken up since 2018-19 which has successfully been executed, renovating the entire infrastructure of the institute by making laboratories up to date. The renovated NEHARI was inaugurated on 14.01.2021 by the Hon'ble Minister Jal Shakti at Guwahati. An MoU for mutual cooperation in research and training activities between IIT Guwahati and NEHARI. Brahmaputra Board has also been signed.

## **Major Functions**

The main objectives of Brahmaputra Board are management & 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 within the jurisdiction of the Board.

## Achievements :

## i) Master Plans

Brahmaputra Board had taken up preparation of master plans of the main stem of the Brahmaputra and Barak alongwith 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 have been taken up during this year.

Two Master Plans (Tangani and Kynshi) are under process of approval of Govt of India. Draft Master Plan of Sankosh-Raidak basin has been approved by Board to submit for approval of Govt. of India. Modification of six draft Master Plans is continuing. Master Plans of Teesta basin are under preparation.

- ii) 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 summerised in Annexure-IX.
  - Under scientific dissemination and improvement of water management practices of local tribes and indigenous people of NE region, Board has taken Water Management (i) up 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.
  - Soft measures for Flood and Erosion Management- A pilot project of bio-engineering

measures for river bank erosion of Brahmaputra at two locations viz. (i) Right bank downstream of Kordoiguri of river Brahmaputra and (ii) Right bank at Dakhinpat at Majuli Island of river Brahmaputra at Majuli Island is under process of implementation

- For preparation of Detailed Project Report to check flash flood and erosion in BTC area by Pagla/Baitamari, Aie, Beki, Pagladiya, Sankosh, Gangia and Saralbhanga rivers, work has been allotted to WAPCOS as Project Management Consultant (PMC) and works are under progress.
- iii) 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 has been the cultural capital and the cradle of Assamese civilization since the 16<sup>th</sup> century. The inhabitants of Majuli are mostly tribal - predominantly from the Mising, Deori and Sonowal Kachari tribes. Majuli is also famous for pottery.

Majuli island has constantly been subjected to erosion by the mighty Brahmaputra. Responsibility for undertaking anti-erosion works for protection of certain spots in Majuli island was given to Brahmaputra Board in the year 1999. Physical activities on the ground started in the year 2004. The total area of the land mass of Majuli Main island was 502.21 sq km in the year 2004. Since the year 2004, with regular implementation of ant-erosion / bank protection measures by Brahmaputra Board, 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 has been approved by the then Ministry Water Resources and Ministry of DoNER allocated Rs 207 crore for the same. Execution of the scheme is in progress. 95.34% of the works 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 48% works completed till December 2021.



Protection of Majuli Island from flood and erosion of river Brahmaputra



Protection of Majuli Island from flood and erosion of River Brahmaputra



Protection of Majuli Island from flood and erosion of River Brahmaputra

## Restoration of Dibang and Lohit Rivers at Dhola - Hatiguli

The scheme "Avulsion of Brahmaputra at Dhola-Hatighuli (Measures for diversion of River 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 Brahmaputra Board was entrusted with the responsibility for execution of the scheme. Expenditure of Rs 83.93 crore has so far been incurred by Brahmaputra 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.

**Restructuring the Brahmaputra Board:** Brahmaputra Board has been restructured with 9 (nine) Regional Offices to have a foot print in every State under its jurisdiction for better coordination with the States in January 2019 which have been appreciated by all the North Eastern States. All the regional offices have started functioning in close coordination with the respective State Govt. to fulfil their requirements within the mandates of the Board and available resources.

#### 7.3.8 BETWA RIVER BOARD (BRB)

#### **ORGANISATION AND ITS COMPOSITION**

A decision to harness the available water resources of Betwa river was taken in a meeting held on 22<sup>nd</sup> July 1972 between Chief Ministers of Uttar Pradesh and Madhya Pradesh. Further Uttar Pradesh and Madhya Pradesh in a meeting held on 9<sup>th</sup> 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.

#### i) 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.

## ii) Planning and Present status of Rajghat Power House works

The estimate 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 further revised cost of the civil works of power house is Rs. 66.89 crore at December, 1999 price level and same has been furnished by BRB to MPPGCL. MPPGCL have 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 unit of Power House have been tested and commissioned during 1999-2000. From 1999-2000 to 2020-2021 (twenty one years), electricity generation from Rajghat Power House is 18,699.06 lakh units. The electricity generation during 2021-22 (upto 31.12.2021) is 491.82 lakh units. The completion cost of Rajghat Dam is Rs 300.60 crore at 2000 price level as per recommendation of Technical Advisory Committee and approved by the Executive Committee in its 88th meeting of BRB. The expenditure of dam is being booked in 0&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 194.15 crore and M.P. has paid Rs 122.47 crore against their due share up to December, 2021.

### 7.3.9 TUNGABHADRA BOARD (TB)

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. The working table for canal wise distribution of water to the States is prepared every year by the Tungabhadra Board in consultation with the State Governments and is reviewed from time to time during the water year. The regulation of water is carried out in accordance with the agreed working table.

# Physical and Financial achievements and new initiatives

#### i) Irrigation Wing

The Tungabhadra Reservoir a) has been filled up to the full reservoir level 497.740 m (1633.00 ft.) in this year. The inflow into the reservoir from June, 2021 to December, 2021 is 10,647.070 Million Cubic Meters (MCum) (376.009 TMC). The utilization by the Karnataka State, Andhra Pradesh & Telangana till end of December 2021 during the water year 2021-22 is as per the table below.

| SI.<br>No. | Name of theState | Allocation as<br>per KWDT<br>Award (TMC) | Prorata<br>Entitlement<br>on Abstraction<br>(TMC) | Actual<br>Utilizationin<br>TMC (As on<br>31.12.2021) | Actual<br>Utilizationin<br>MCum (As on<br>31.12.2021) |
|------------|------------------|------------------------------------------|---------------------------------------------------|------------------------------------------------------|-------------------------------------------------------|
| 1.         | Karnataka        | 138.990                                  | 138.990                                           | 81.160                                               | 2310.585                                              |
| 2.         | Andhra Pradesh   | 66.500                                   | 66.500                                            | 39.418                                               | 1116.160                                              |
| 3.         | Telangana        | 6.510                                    | 6.510                                             | 0.00                                                 | 0.00                                                  |
|            | Grand Total      | 212.000                                  | 212.000                                           | 120.578                                              | 3023.638                                              |

The evaporation losses from June, 2021 to December, 2021 are 156.417 MCum (5.524 TMC). The reservoir evaporation loss shall be shared by the State of Karnataka and Andhra Pradesh in the ratio of 12.50:5.50. The water surplus over spillway is 3572.374 MCum (126.161 TMC) in addition to 972.286 MCum (34.337 TMC) of water drawn for extra power generation by the powerhouses on both sides of dam without jeopardizing the irrigation interests during the water year 2021-22.

This year abstraction is 212.000 TMC which matches with the

figure as per KWDT award rewriting the records for the last 40 years. Since inception of the dam, this is the second time that the dam is getting/utilizing the full allocation of of water as per KWDT award. This is mainly due to continuous sufficient inflows into the TB dam thus maintaining FRL till 15.12.2021. Further, implementation of telemetry system to all the canals and early releasing of water to the canals in the month of July itself clubbed with extended rainfall in the catchment till first week of December contributed for record abstraction.

- **b)** Due to completion of modernization of RBHLC from Km 0.00 to 105.00 (except for widening of the few reaches), the velocity of water flow in the canal has improved a lot and the canal is now able to draw more than the designed discharge of 4,000 cusecs at its head and delivered a discharge of 2,350 cusecs recently and is able to deliver the design discharge of 2,575 cusecs at Andhra Pradesh border (against earlier discharge of 1,500 cusecs) subject to readiness of canal from AP side.
- c) Completion of modernization of power canal and modernization of RBLLC (old unlined Canal) upto 115 Km (out of 250 Km) have resulted in increased realization of 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.
- d) Transparency in Water Accounting and Measurement: Now the TB canals are habituated to be closed during good rainy spells and adopting optimum water usage methods as a mark of good water accountability.
- e) Dam Rehabilitation and Improvements Project works (i.e., under DRIP-II) for Tungabhadra Dam – Inspection by DSRP Team & World Bank Team;

Tungabhadra dam is included in the DRIP-II under the World Bank aided projects. Based on the 2015 observations/recommendations the Project Screening Template (PST) of Tungabhadra Dam was prepared for an amount of Rs.104.60 crore and submitted to Central Project Management Unit (CPMU), New Delhi, GoI through State Project Management Unit (SPMU), Bangalore, GoK. The CPMU has approved the civil works of Tungabhadra dam for an amount of Rs.100.92 crore. As per the suggestions of CPMU, the Government of Karnataka has constituted the State level DSRP team headed by Shri A.K Bajaj, Chairman, DSRP and the DSRP team had inspected the Tungabhadra Dam on 8<sup>th</sup> October 2021. Subsequently, the World Bank team, CPMU, New Delhi, GoI, SPMU, Bangalore, GoK, had visited the Tungabhadra Dam to look into the proposed works under DRIP-II on 8<sup>th</sup> December, 2021.

## ii) Hydro Electric Scheme

power houses are being Two maintained by the Tungabhadra Board with a total installed capacity of 72 MW and a target of 158 million units of power generation is envisaged during the water year 2021-22. Against this, the power generated till end of December 2020 is 140.20 million units. Anticipated power generation from January 2022 to March 2022 will be 64 million units by which the generation for the year 2021-22 would be 204 million units crossing 200 million units once again after 12 years for a worth of Rs. 61.20 crore. 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 viz., M/s NCL Energy Ltd., Hyderabad has been commissioned on 27.10.2004. The mini hydel plant comprising 3 units of 2.75 MW each generated 27.207 million units upto December 2021. The power generated is purchased by the transmission corporations of Karnataka and Andhra Pradesh in the agreed ratio of 20:80.

One hydel more new mini plant was implemented at the head of Rayabasavanna canal of Tungabhadra Project under BOOT systemthroughanindependentpower producer viz., M/s Khandaleru Power Company Limited, Hyderabad. The project construction was started in September, 2012 and commissioned in record time of 11 months i.e., 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 4.97 million units upto December 2021. The power generated is purchased by GESCOM, Gulbarga (Karnataka) at the rate of Rs.2.80 per unit.

### iii) Fisheries Wing

The Tungabhadra reservoir has a water spread area of 378 sq km at full reservoir level affording tremendous scope for development of fisheries. Quality fish seeds are produced and reared in the Board's fish farm to meet the demand of the public and for stocking in the reservoir to increase the biomass of fish wealth. The fishing rights of the reservoir for the year 2021-22 were awarded to M/s Koppal Fisheries Co-Operative Society, Koppalfor Rs.126.01 lakh.

In order to facilitate preservation of fish catch, the Board is running an ice-cum-cold storage plant. The gross earnings from the ice plant and fish farms upto December 2021 is Rs.33.86 lakh.

## 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 hydro power, 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 28<sup>th</sup> 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 2<sup>nd</sup> Revised Cost Estimate (2<sup>nd</sup> 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 crore.

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 2<sup>nd</sup> RCE as Rs. 47,725.74 crore at 2017-18 PL.

## Status of Land Acquisition and Resettlement & Rehabilitation

373 habitations of 222 revenue villages in 8 mandals are under submergence area and working area in West Godavari and East Godavari districts in Andhra Pradesh. Out of these, 165 revenue villages in 5 mandals (Chinturu, V R Puram, Yetapaka, Kunavaram & Devipatnam) are in East Godavari District and 57 revenue villages in 3 mandals (Polavaram, Kukunoor & Velairpadu) are in West Godavari District.

As per 141<sup>st</sup> meeting of Advisory Committee (2<sup>nd</sup> 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 112767.98 acres has been acquired till November 2021 and a balance of 14,494.9 acres of land is to be acquired.

| Details of Rehabilitation & Resettlement |                           |                              |                               |       |  |  |
|------------------------------------------|---------------------------|------------------------------|-------------------------------|-------|--|--|
| Sl.<br>No.                               | Item                      | upto EL+41.15m<br>(phase -1) | above EL+41.15m<br>(phase -2) | Total |  |  |
| 1                                        | Mandal Affected           | 5                            | 3                             | 8     |  |  |
| 2                                        | Revenue Villages Affected | 54                           | 168                           | 222   |  |  |
| 3                                        | Habitations Affected      | 115                          | 258                           | 373   |  |  |
| 4                                        | Habitations Shifted       | 25                           | 0                             | 25    |  |  |

| Details of Rehabilitation & Resettlement |                            |                              |                               |          |  |  |
|------------------------------------------|----------------------------|------------------------------|-------------------------------|----------|--|--|
| Sl.<br>No.                               | Item                       | upto EL+41.15m<br>(phase -1) | above EL+41.15m<br>(phase -2) | Total    |  |  |
| 5                                        | Balance Habitations        | 90                           | 258                           | 348      |  |  |
| 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        | 6,351                        | 0                             | 6,351    |  |  |
| 11                                       | Balance PDFs to be shifted | 16,663                       | 85,060                        | 99,655   |  |  |

#### **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 up to November, 2021 is as follows:

| Sl. | Description | % of Physical progress |
|-----|-------------|------------------------|
| No  |             | (up to Nov, 2021)      |
| 1   | Earthwork   | 86.23-                 |
| 2   | Concrete    | 80.26                  |
| 3   | Structures  | 68.98                  |

| SI.<br>No                               | Description          | % of financial<br>progress (up<br>to Nov, 2021) |
|-----------------------------------------|----------------------|-------------------------------------------------|
| 1                                       | Head works           | 75.15                                           |
| 2                                       | Right main canal     | 92.57                                           |
| 3                                       | Left main canal      | 71.24                                           |
| 4                                       | Total Project(Works) | 77.81                                           |
| 5                                       | LA and R&R           | 20.19                                           |
| Overall Project (Works +<br>LA and R&R) |                      | 42.56                                           |

#### **Expenditure on the Project**

Total expenditure of Rs. 18,335.64 crore has been incurred on the project

since inception till end of November, 2021. An expenditure of Rs. 4,730.71 crore was incurred before declaration of National Project i.e. 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. 11,600.16 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 29<sup>th</sup> May, 2014, consisting of:

- a) Minister of Water Resources, River Development and Ganga Rejuvenation, Government of India – Chairman;
- b) Chief Minister of the State of Andhra Pradesh – Member; and
- c) Chief Minister of the State of Telangana Member.

Two meetings of the Apex Council have been held so far. The  $1^{st}$  meeting was held on 21.09.2016. The  $2^{nd}$  meeting was held on 06.10.2020. Following decisions were taken in the  $2^{nd}$  meeting.

- Jurisdiction of KRMB: It was decided to notify the jurisdiction of KRMB.
- Formation of New Tribunal for Krishna Waters: GoTS requested for formation of a new tribunal for Krishna waters. It was decided that if GoTS withdraws the case from Supreme Court, GOI would consider the issue of constitution of Tribunal under section "3" of ISWRD Act, 1956 for necessary action after obtaining the opinion on legal aspects.
- 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 KRMB for appraisal and subsequent sanctions by Apex Council.
- Shifting of Headquarters of KRMB: It was decided to shift the Headquarters of KRMB to Andhra Pradesh.

## 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) 15.07.2021. dated: Besides various technical meetings, 13<sup>th</sup> (emergency), 14<sup>th</sup> and 15<sup>th</sup> (special) Board meetings were held on 09.08.2021, 01.09.2021 and 12.10.2021 respectively to resolve the issues of sharing of Krishna water, power generation issues and implementation of notification of jurisdiction of KRMB.

In the 14<sup>th</sup> meeting, the Board decided to constitute a Sub-Committee for Operationalization of the various clauses of the Gazette Notification S.O.2842 (E) dated: 15.07.2021 on KRMB. The interim report of this Sub-Committee was finalized in its 3<sup>rd</sup> meeting and road map was approved in the 15<sup>th</sup> meeting of the Board, incorporating handing over of all prioritized direct outlets of Srisailam and NS Projects to KRMB. Subsequently, the Sub-Committee undertook the field visits of Srisailam and NS Projects before its 4th and 5th meetings so as to study in depth the critical aspects of road map for transfer of the agreed components of the two projects to KRMB.

Ministry of Water Resources, River Development & Ganga Rejuvenation has constituted a committee vide their No.R-12011/7/2/2016-Pen order Riv dated: 05.10.2018 under chairmanship of Chairman, KRMB to resolve the issue of Krishna water supply to Chennai. Five meetings of the Committee have been held so far. Fifth meeting of the committee was held on 19.01.2021 via video-conference. During the water year 2021-22 as on 23.10.2021, a quantity of 6.350 TMC water was released from Srisailam reservoir and the quantity realized at A.P.-T.N. border was 5.080 TMC as against 12 TMC in a year to be realized at AP-TN border.

#### **Efforts in the Technological Advances:**

Water accounting is the foundation of effective water management. It consists of methods, tools, and practices to assess the volumes of water available and used throughout a water system. It is critical to water management at all scales, from large river basins to local irrigation districts or urban water utilities. The KRMB took a step towards technological advances by launching its website as "krmb.gov.in" mainly for water accounting. The project authorities have started uploading the data of inflows, outflows and water levels in various reservoirs. This helps KRMB to account for the water utilization in each reservoir/canal system. This also facilitates in issuing water release orders by the KRMB.

### GODAVARI RIVER MANAGEMENT BOARD (GRMB)

The GRMB was constituted vide Gazette Notification No: S.O.1403 (E) dated:

28<sup>th</sup> 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 issues raised by the State Governments, regular meetings were held at Board level.

During 2021-22, 10<sup>th</sup> (Emergency) Board Meeting was held on 09.08.2021 and 11<sup>th</sup> (Special) Board meeting was held on 01.09.2021 and 12<sup>th</sup> (Special) Board Meeting on 11.10.2021 under Chairmanship of Chairman, GRMB at Hyderabad on issues of Implementation of Gazette Notification.

Follow up action to implement the various clauses of notification has been initiated by GRMB office. Accordingly, a Sub Committee has been constituted in GRMB as per decision taken in 11<sup>th</sup> (Special) Board meeting. Till now 5 Sub Committee meetings were held in GRMB and various issues regarding implementation of provisions of Gazette Notification were discussed and decisions taken. Field visits have been undertaken by senior officers of GRMB and by CWC officers (who have been assigned work related to implementation of provisions of Gazette Notification in GRMB) during which discussions were held with State Government officers of both the States regarding Handing Over of Jurisdiction of Projects to GRMB. Till now Handing over Notes in respect of 12 Projects/ Components have been got ready in GRMB office for handing over the Jurisdiction of the same by the State Governments of Andhra Pradesh and Telangana.



Visit of Shri Gajendra Singh Shekhawat, Hon'ble Minister of Jal Shakti & Shri Rattan Lal Kataria, Hon'ble Minister of State for Jal Shakti to WAPCOS office, Gurugram on 1<sup>st</sup> July, 2021
# 8. PUBLIC SECTOR ENTERPRISES

# 8.1 WATER AND POWER CONSULTANCY SERVICES LIMITED (WAPCOS)

WAPCOS Limited is a "MINI RATNA-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 a technology driven Consultancy and Engineering, Procurement and Construction (EPC) organization with strong home country and global presence in water, power and infrastructure sectors. 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 diverse in nature. The is quality management systems of WAPCOS comply with the quality assurance requirements of ISO 9001:2015 for consultancy services in water resources, power and infrastructure development projects.

#### **OBJECTIVES**

• To perform the role of a premier agency for offering integrated package of services of scientific, technological and managerial quality for optimal planning and development of projects.

- To adopt modern technology and systems to build in quality, reliability and accuracy thereby ensuring customer satisfaction.
- To continue the pace of growth of domestic and overseas business and to transfer know-how to clients.
- To adopt international standards in surveys, investigations, designs, cost estimates, project planning including environmental studies and project management services for costeffective and integrated development of water resources, power and infrastructure projects.
- To promote research and development through interaction with other national and international agencies.
- To maintain pre-eminence in the field of consultancy through diversification in allied fields.
- To secure a fair monetary return to the enterprise as a result of its operations through improved productivity.

#### **FIELDS OF SPECIALIZATION**

# Main fields of specialization of the company cover:

 Irrigation, drainage and water management

- Ground water exploration and minor irrigation
- Flood control and river morphology
- Dams and reservoir engineering
- Water bodies & land conservation
- Agriculture
- Watershed management
- Natural resources management
- Hydropower
- Thermal power
- Pumped storage projects
- Transmission & distribution
- Rural electrification
- Non-conventional sources of energy
- Water supply, sanitation and drainage
- Environment
- Ports, harbours and inland waterways
- Urban and rural areas development
- Roads and highway engineering
- Buildings & townships
- Ropeways

The company provides concept to commissioning services for developmental projects in India and abroad.

#### **RANGE OF SERVICES**

WAPCOS' spectrum of services covers a wide range of activities e.g.

- Preliminary investigations/ reconnaissance
- Feasibility studies/planning/ project formulation
- Baseline and socio-economic surveys
- Field surveys & investigations and testing

- Institutional/human resource development
- Project management and construc tion supervision
- Operation & maintenance
- EPC/ turnkey & deposit works

WAPCOS has conducted survey investigation/pre-feasibility/DPRs and for more than 800 projects in irrigation, water resources and agricultural etc. contributing to development of over 20 million ha irrigation potential; more than 300 projects in ports and inland navigation; over 600 projects in water supply and sanitation, rural and urban development, roads and highwav engineering; EIAs for over 500 projects in the fields of irrigation, hydro/ thermal power, ports and harbours in India and abroad. Similarly, in hydro-power sector, WAPCOS has completed 54 hydro-power projects in 19 countries with an installed capacity of more than 22,000 MW, and over 110 hydro power projects in India with an installed capacity of more than 10,000 MW. In thermal power, the company has successfully completed 15 overseas projects with installed capacity of around 3,000 MW and more than 50 projects in India with an installed capacity of more than 15,000 MW. In transmission and distribution, WAPCOS has accomplished more than 130 projects in India and abroad.

#### **REGISTRATION WITH INTERNATIONAL ORGANIZATIONS**

WAPCOS is registered with various international funding agencies for participating in the funded projects, such as World Bank, Asian Development Bank, African Development Bank, Japan Bank for International Cooperation, United Nations Office for Project Services, French Development Agency, German Development Bank, New Development Bank, Asian Infrastructure Investment Bank, European Investment Bank, European Bank for Reconstruction and Development.

#### **OPERATIONS IN INDIA**

WAPCOS operates in all the States of India through more than 100 project offices spanning across almost all Government and Private sectors, with the pride of having involved in almost all the premier Government of India schemes such as Jal Jeevan Mission (JJM), Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Namami Gange-Integrated Ganga Conservation Mission, Smart City, Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY), Pradhan Mantri Awas Yojana (PMAY), Pradhan Mantri Krishi Sinchayi Yojana, Pradhan Mantri Gram Sadak Yojana, Integrated Power Development Scheme (IPDS), Interlinking of Rivers, Skill India, Swachh Bharat Abhiyan.

#### **OPERATIONS ABROAD**

Apart from India, WAPCOS has

successfully completed or has on-going consultancy assignments in countries covering Asia, Africa, CIS, Eurasia, Europe, North America, Oceania, Pacific Islands & South America. WAPCOS has footprints in 51 countries such as Angola, Afghanistan, Bangladesh, Belize, Benin, Bhutan, Burkina Faso, Burundi, Cambodia, Central African Republic, Chad, Cuba, DR Congo, Eritrea, Eswatini, Ethiopia, Fiji, Gambia, Ghana, Indonesia, Kenya, Lao PDR, Lesotho, Liberia, Madagascar, Malawi, Maldives, Mozambique, Mongolia, Myanmar, Nepal, Niger, Nigeria, Nicaragua, Papua New Guinea, Rwanda, Senegal, Sierra Leone, South Sudan, Sri Lanka, Suriname, Tanzania, Tajikistan, Timor Leste, Togo, Uganda, USA, Vietnam, Yemen, Zambia and Zimbabwe etc.

#### **CORPORATE SOCIAL RESPONSIBILITY**

WAPCOS undertakes CSR activities in different States of India. The Company undertakes CSR activities as specified in Schedule VII of the Companies Act, 2013 in the fields of school education, preventive health care programme for underprivileged people/ school students, empowerment of women through skill development activities and environmental



Rain Water Harvesting Structures at Government Schools of Haryana



Rain Water Harvesting at Humayun's Tomb Site Museum, New Delhi

sustainability etc. or any other sectors assigned by Government of India from time to time.

# 8.2 NATIONAL PROJECTS CONSTRUCTION CORPORATION LIMITED (NPCC)

National Projects Construction Corporation Limited (NPCC) was established on 9<sup>th</sup> 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 11 zonal offices in State capital of different States.

#### FIELDS OF SPCIALIZATION

- Townships and other residential buildings,
- Institutional buildings,
- Office complexes,
- Roads, bridges and fly-overs,
- Hospitals and health sector projects,
- Industrial structures,
- Surface transport projects,
- Environmental projects,
- Heritage projects,
- Thermal power projects,
- Hydro-electric power projects,
- Dams, barrages & canals,
- Tunnels and underground projects and
- Real estate works.

#### **MAJOR WORKS COMPLETED:**

- Construction of Border Out-Posts (BOPs), Border Roads, Border Fencing and Border Flood Lighting Works for Ministry of Home Affairs (MHA).
- Construction of various buildings for Assam Rifles in North Eastern States of Assam, Nagaland, Meghalaya, Tripura and Manipur.
- Pradhan Mantri Gram Sadak Yojana (PMGSY) Road Works at different locations in Bihar, Jharkhand, West Bengal and Uttarakhand.
- Development and construction of various buildings for Indira Gandhi National Tribal University Campus at Amarkantak (Madhya Pradesh).
- Completion of expansion chamber, ventilation shaft & excavation of penstock appurtenances under Hathiyari Hydro Electric Project at Dehradun (Uttarakhand).
- Dolaithabi Barrage, Manipur.
- National Institute of Electronics & Information Technology (NIELIT) works in North Eastern States.
- Construction of 3 bed rooms flats at Muthi [3 Blocks (G+11) of 24 Units each] of Jammu Development Authority, Jammu (UT of Jammu & Kashmir).
- Construction and renovation of sports infrastructure facilities for Maulana Azad Stadium, Jammu (UT of Jammu & Kashmir).
- Post Graduate Institute and 100 & 200 bed hospitals for yoga and naturopathy, Nagamangala, Mandya (Karnataka).

- Construction of Post Graduate Institute of Yoga & Naturopathy (PGIYNER) with 200 bedded hospitals at village Devarkhana, Jhajjar (Haryana).
- Establishment of 2<sup>nd</sup> Phase in National Institute of Health (NIH), Salt Lake, Kolkata (West Bengal).

#### **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.
- Development of Tourist Facilities at Mantalai, Sudh Mahadev and Patnitop(Union Territory of Jammu & Kashmir).
- Construction of Kendriya Vidyalaya Sangathan (KVS) schools in various locations in Jharkhand, Rajasthan, Gujarat, Chhattisgarh, Kerala, Karnataka, West Bengal, Arunachal Pradesh, Haryana, Odisha, Andhra Pradesh and Telangana.
- Construction of various buildings under Pradhan Mantri Awas Yojana (PMAY) at Jamshedpur (Jharkhand).
- Construction of various Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy (AYUSH) Institute at Sarita Vihar (New Delhi), Silchar (Assam), Shillong (Assam), Kolkata (West Bengal) and Jaipur (Rajasthan).
- Navodaya Vidyalaya works at various locations in Chhattisgarh, Madhya Pradesh, West Bengal, Arunachal Pradesh, Mizoram, Meghalaya, 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).
- Works under Rajendra Prasad Agriculture University in Pusa at Samastipur (Bihar).
- Construction of Software Technology Parks of India (STPI) infrastructure at various locations in Arunachal Pradesh, Bihar, Kerala and Uttar Pradesh.
- Construction of up-gradation of Industrial Training Institute (ITI) at Jabalpur, Rewa, Shahdol & Sagar (Madhya Pradesh).
- Construction of Hydro Engineering College in Bilaspur (Himachal Pradesh).
- Indian Agricultural Research Institute (IARI) works in Dhemaji (Assam).
- Different works of Regional Institutes for National Institute of Electronics & Information Technology (NIELIT) in North Eastern States of Assam, Arunachal Pradesh, Nagaland and Manipur.
- Construction of Rajiv Gandhi National Institute and Youth Development (RGNIYD) at Sriperumbudur (Tamil Nadu).
- 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 Seismological Research Lab for Ministry of Earth Sciences at Karad (Maharashtra).
- Construction of staff quarter and site development of Police Line Campus for Jharkhand Police Housing Corporation Limited (JPHCL) at Jamtara and Pakur (Jharkhand).
- Different works of Assam Rifles in North Eastern States of Assam, Nagaland, Meghalaya, Tripura and Manipur.
- Renovation, up-gradation and development of sports facilities at Bakshi Stadium, Srinagar (Union Territory of Jammu & Kashmir).
- Different works of Central Ground Water Board (CGWB) in Ambala (Haryana), Transport Nagar Jammu (Union Territory of Jammu & Kashmir) and Ahmedabad(Gujarat).
- Different works of Karnataka Slum Development Board (KSDB) at various locations in Karnataka.
- Different works of SC & ST Development Commission under Govt. of Odisha at various locations in Odisha.

- Construction of office building of Upper Yamuna River Board, Noida (Uttar Pradesh).
- Works under Council of Scientific and Industrial Research (CSIR) in Union Territory of Jammu & Kashmir and Union Territory of Chandigarh.
- Different works of Sports Authority of India (SAI) at various locations in Karnataka,Gujarat and Maharashtra.
- Construction of Veterinary Dispensaries and Polyclinics in Karnataka under Rural Infrastructure Development Fund (RIDF)- 24 scheme, Phase-1 for Department of Animal Husbandry, Bengaluru (Karnataka).
- Construction of drug warehouses 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.



Hydro Electric Project at Hathiyari (Uttarakhand)



Shri Pamkaj Kumar, Secretary, DoWR, RD & GR visited Hydraulic Laboratory, NEHARI on 16<sup>th</sup> September, 2021

# 9. INITIATIVES IN NORTH-EAST

### 9.1 NATIONAL INSTITUTE OF HYDROLOGY

To cater to hydrological needs of the North Eastern Region, Sikkim and northern part of West Bengal (Teesta basin), the Centre for Flood Management Studies for the Brahmaputra Basin (NIH-CFMS) has been actively interacting with the State, Central and academic organizations working in water resources in this region. The thrust areas of research at CFMS-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) socioeconomic aspect of flood disaster.

During the year 2021-22, CFMS Guwahati worked on following studies:

- Linear hydrological routing using satellite precipitation datasets for flood forecasting in parts of Brahmaputra Basin.
- Impact of climate change on runoff and sediment yield for Puthimari tributary of river Brahmaputra.
- Groundwater quality assessment of Morigaon district of Assam with emphasis on arsenic & fluoride contamination.

- Hydrological behaviour of two midsized mountainous catchments under the influence of climate and land use changes.
- Rainfall induced flood hazard risk vulnerability assessment in East Jaintia Hills, Meghalaya.
- River basin planning studies in Teesta basin up to confluence with Rangit river in Sikkim.
- Study on behaviors of flooding and unexpected drought like situations in Garo Hills District of Meghalaya.
- 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.

# 9.2 CENTRAL SOIL AND MATERIAL RESEARCH STATION

Thirty five projects, including four abroad and one in North- East region of India, were investigated by CSMRS. The investigations comprised field and laboratory investigations in the areas of soil, rock, rockfill, geosynthetics, concrete and its constituents. Dibang Multipurpose Project, Arunachal Pradesh belongs 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 2021 are summarized below:

| Sl. No | Activities                                                                                                                     | Achievements                                                                                                                                                                                                      |
|--------|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.     | Field Activities for Aquifer Mapping:                                                                                          | Under NAQUIM programme from January 2021 to December 2021 an area of 7,155 km <sup>2</sup> has been covered.                                                                                                      |
|        | Ground Water Exploration                                                                                                       | From January 2021 to December 2021,<br>CGWB has constructed 23 wells (EW- 15,<br>OW- 06, Pz - 02).                                                                                                                |
|        | Water Quality Analysis                                                                                                         | Around 3,530 water samples were analysed for the basic constituents and heavy metals.                                                                                                                             |
| 2.     | <ul> <li>Special study on ground water<br/>regime studies of Urban Agartala,<br/>West Tripura district.</li> </ul>             | An area of 77 km <sup>2</sup> has been covered.                                                                                                                                                                   |
|        | <ul><li>ii) Special study on spring studies and<br/>its management in Jampui Hills<br/>block, North Tripura district</li></ul> | 35 springs are inventoried and monitored.                                                                                                                                                                         |
| 3.     | Groundwater Resource Estimation (base year 2020)                                                                               | Groundwater Resource Estimation (as on<br>March 2020) was carried out for seven North<br>Eastern States. Reports shared with all the<br>States.                                                                   |
| 4      | Ground Water Regime Monitoring                                                                                                 | 618 ground water monitoring stations are<br>being regularly monitored four times a year<br>(January, March, August & November).                                                                                   |
| 5.     | Short Term Water Supply Investigation.                                                                                         | 20 investigations carried out                                                                                                                                                                                     |
| 6.     | Preparation of report                                                                                                          | 1 Ground Water Year Book, 7 NAQUIM reports<br>& 45 Micro Level Aquifer Management Plan<br>reports have been prepared.                                                                                             |
| 7      | Public Interaction Program (PIP)                                                                                               | 22 public interaction programmes have been conducted during 2021.                                                                                                                                                 |
| 8      | Regulation and control of ground water<br>development and management in the<br>country under CGWA                              | 208 NOCs issued.                                                                                                                                                                                                  |
| 9      | Training                                                                                                                       | 02 Tier III trainings have been organised in<br>NER under the aegis of RGNGWTRI (during<br>January 2021 - December 2021). Total<br>participants in these trainings were 198 out<br>of which 84 were female staff. |

#### PMKSY-HKKP- Ground Water Irrigation Schemes in North Eastern States:

Presently, 9 projects amounting Rs. 785.85 Crore under this scheme are being implemented in 6 NE States - Assam Phase-I & II, Arunachal Pradesh Phase-I & II, Tripura Phase-I & II, Nagaland, Manipur and Mizoram.

The total central assistance of these projects is Rs.707.39 crore of which 455.18

crore has already been released.

Under these projects, 10,898 irrigation wells have already been constructed (target 12,829 wells) as on 31<sup>st</sup> December 2021 with the creation of 22,929 ha. of command area (target 48,824 ha) benefitting 24,053 small & marginal farmers (target 48,452 farmers).

Relevant details of the Central Assistance (CA) are given below:

| S.<br>No. | State                      | Cost of<br>Proposal<br>(Rs. crore) | Central<br>Assistance<br>(Rs. crore) | Central Assistance<br>released<br>(Rs. crore) | Month<br>of CA<br>Release          |
|-----------|----------------------------|------------------------------------|--------------------------------------|-----------------------------------------------|------------------------------------|
| 1         | Assam- Phase-I             | 246.07                             | 221.07                               | 132.870                                       | Aug-19                             |
| 2         | Arunachal Pradesh- Phase-I | 45.3                               | 40.77                                | 24.460                                        | Aug-19                             |
| 3         | Arunachal Pradesh Ph –II   | 44.95                              | 40.25                                | 24.150                                        | Feb-20                             |
| 4         | Nagaland                   | 18.15                              | 16.25                                | 9.750                                         | Feb-20                             |
| 5         | Tripura Phase-I            | 13.31                              | 11.91                                | 7.150                                         | Jan-20                             |
| 6         | Manipur                    | 61.68                              | 55.51                                | 33.306                                        | Jul-20                             |
| 7         | Mizoram                    | 16.04                              | 14.46                                | 8.660                                         | Jul-20                             |
| 8         | Assam Phase II             | 292.01                             | 263.66                               | 157.68                                        | Feb & Jul<br>21 (in two<br>phases) |
| 9         | Tripura Phase II           | 48.34                              | 43.51                                | 26.10                                         | Dec'21                             |
|           | Total                      | 785.85                             | 707.39                               | 455.18                                        |                                    |

| Sl.<br>No. | State      | Cost of<br>Proposal Rs.<br>in crore | CA<br>(Entitled)<br>Rs. in crore | Beneficiary<br>(Small &<br>Marginal<br>Farmers) | Irri.<br>area in<br>ha | Fund released<br>Rs. in Cr/Remarks |
|------------|------------|-------------------------------------|----------------------------------|-------------------------------------------------|------------------------|------------------------------------|
| 1.         | Assam (14  | 246.069                             | 221.069                          | 19,643                                          | 19,116                 | Rs. 145.87 crore.                  |
|            | districts/ |                                     |                                  |                                                 |                        | 4,693 wells                        |
|            | Target     |                                     |                                  |                                                 |                        | constructed as on                  |
|            | 4,779      |                                     |                                  |                                                 |                        | 31.12.2021, 18,204                 |
|            | wells)     |                                     |                                  |                                                 |                        | ha command area                    |
|            |            |                                     |                                  |                                                 |                        | created, 18,160                    |
|            |            |                                     |                                  |                                                 |                        | farmers benefitted;                |

| SI.<br>No. | State                                                                        | Cost of<br>Proposal Rs.<br>in crore | CA<br>(Entitled)<br>Rs. in crore | Beneficiary<br>(Small &<br>Marginal<br>Farmers) | Irri.<br>area in<br>ha | Fund released<br>Rs. in Cr/Remarks                                                                              |
|------------|------------------------------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------|
| 2.         | Arunachal                                                                    | 45.30                               | 40.77                            | 3,350                                           | 1,785                  | 24.46 crore.                                                                                                    |
|            | Pradesh<br>(13<br>districts/<br>Target 473<br>wells)                         |                                     |                                  |                                                 |                        | 473 wells<br>constructed as on<br>31.12.2021, 1,786<br>ha command area<br>created, 3,350<br>farmers benefitted; |
| 3.         | Nagaland                                                                     | 18.15                               | 16.25                            | 264                                             | 666.75                 | Rs 9.75 crore.                                                                                                  |
|            | (5<br>districts/<br>Target 262<br>wells)                                     |                                     |                                  |                                                 |                        | 164 wells<br>constructed as on<br>31.12.2021                                                                    |
|            | -                                                                            |                                     |                                  |                                                 |                        | area created,                                                                                                   |
|            |                                                                              |                                     |                                  |                                                 |                        | 152 farmers<br>benefitted                                                                                       |
| 4.         | Tripura<br>Phase-I                                                           | 13.31                               | 11.91                            | 851                                             | 339                    | Rs 7.146 crore.                                                                                                 |
|            | (03<br>districts/<br>Target 231<br>wells)                                    |                                     |                                  |                                                 |                        | 204 wells<br>constructed as on<br>31.12.2021, 43.5<br>ha command area<br>created, 70 farmers<br>benefitted.     |
| 5.         | Mizoram                                                                      | 16.04                               | 14.44                            | 411                                             | 553                    | Rs.8.66 crore.                                                                                                  |
|            | Target 209<br>wells                                                          |                                     |                                  |                                                 |                        | 20 wells<br>constructed as on<br>31.12.2021, 39<br>ha command area<br>created, 31 farmers<br>benefitted.        |
| 6.         | Arunachal<br>Pradesh<br>(2 <sup>nd</sup><br>Proposal)<br>Target 519<br>wells | 44.95                               | 40.25                            | 3,633                                           | 1,957                  | Rs. 24.15 crore.<br>519 wells<br>constructed as on<br>31.12.2021, 603<br>ha command area<br>created, 1,120      |

| SI.<br>No. | State                                                    | Cost of<br>Proposal Rs.<br>in crore | CA<br>(Entitled)<br>Rs. in crore | Beneficiary<br>(Small &<br>Marginal<br>Farmers) | Irri.<br>area in<br>ha | Fund released<br>Rs. in Cr/Remarks                                                                                                 |
|------------|----------------------------------------------------------|-------------------------------------|----------------------------------|-------------------------------------------------|------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| 7.         | Manipur<br>(09<br>districts/<br>550 wells)               | 61.68                               | 55.51                            | 1,445                                           | 2,057                  | Rs.33.306 crore.<br>490 wells<br>constructed as on<br>31.12.2021, 1,850<br>ha command area<br>created, 1,110<br>farmers benefitted |
| 8.         | Assam<br>phase-II<br>(10<br>districts/<br>4920<br>wells) | 292.013                             | 263.67                           | 17,216                                          | 19,680                 | Rs. 157.68 crore.<br>4,131 wells<br>constructed as on<br>31.12.2021.                                                               |
| 9.         | Tripura<br>(Phase-II)<br>7 districts                     | 47.87                               | 47.87                            | 1,639                                           | 2,670                  | Rs. 26.10 crore.<br>204 wells<br>constructed as on<br>31.12.2021, 41<br>ha command area<br>created, 60 farmers<br>benefitted       |
|            | Total                                                    |                                     |                                  | 48,452                                          | 48,824                 | Total CA released to<br>NE area Rs 455.18<br>Cr                                                                                    |

Celebration of NADI UTSAV under the banner "Azadi Ka Amrit Mahotsav (AKAM)- Celebrating Rivers of India"

The "Nadi Utsav" was celebrated by CGWB, NER under the banner "Azadi Ka Amrit Mahotsav (AKAM)- Celebrating Rivers of India" at Dharapur (Rani Chapori) Maujuli-Island, Kamrup(M) district, Assam on 18.12.2021. The celebration started with the Nadi Puja followed by pledge taken by all the participants for cleanness and conservation of rivers. Around 50 people participated in the celebration from the nearby village. Importance of rivers in general and Brahmaputra in particular in the ancient and present culture was highlighted. Cleanliness drive was undertaken and saplings were planted by all the officers and staff.

# 9.4 DAM REHABILITATION AND IMPROVEMENT PROJECT

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 amounting to 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 crore, whereas MePGCL has awarded one tender amounting to Rs 27 crore.

# 9.5 NATIONAL PROJECTS CONSTRUCTION CORPORATION LIMITED

NPCC is working in eight north eastern States for the last 35 years for developing the infrastructure and other social amenities for up-liftment of socioeconomy 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 fencing in Tripura, Mizoram, Meghalaya for 640.723 km & 609.129 km road works for mostly in insurgency prone area. NPCC has today made the area accessible having network of road along the border fencing, where, there was no accessibility and BSF jawans used to move 20 to 30 km.

Indo-Bangladesh Border Floodlighting Works

> MHA, GoI sanctioned construction of border flood-lighting of Tripura and Meghalaya. NPCC has completed border flood light work of 677.60 km in Tripura and 341.60 km in Meghalaya. The border flood light is helping BSF to have 24 hour vigil over insurgent groups and illegal migrants.

### > Border Out Post (BOP) Works

NPCC has completed the construction of BOP works in difficult areas of north east: Tripura-47 posts (total 50), Mizoram-4 posts (total 21), Assam - 5 posts (total 6), Meghalaya-12 posts (total 17) and West Bengal-70 posts (total 94) for monitoring of the border activities by BSF.

National Institute of Electronics & Information Technology (NIELIT) Works:

NPCC is also playing a major role creating infrastructure for 10



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.

#### Assam Rifle 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 centres, library building, museum building,MT park, etc.

#### 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 proposed to take up a pilot project at two sites viz. right bank down-stream of Kordoiguri and at Dakhinpat in Majuli island in collaboration with IIT, Guwahati for 'hard and soft measures' termed as bioengineering method for flood and erosion management. 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 has been allotted to WAPCOS as Project Management Consultant (PMC). 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

The Institute caters to the needs of all the States of the North Eastern region. Participation of each State in the capacity building programme was recorded for the year 2021. State wise participants of training in 2021 (from January to December, 2021) is given below:

| Name of<br>state     | Total<br>number of<br>participant | Name of<br>State | Total<br>number of<br>participant |  |
|----------------------|-----------------------------------|------------------|-----------------------------------|--|
| Assam                | 2,332                             | Nagaland         | 03                                |  |
| Arunachal<br>Pradesh | 216                               | Tripura          | 00                                |  |
| Manipur              | 89                                | Sikkim           | 151                               |  |
| Meghalaya            | 02                                | Other states     | 236                               |  |
| Mizoram              | 01                                |                  |                                   |  |
| Total:               | 3,030                             |                  |                                   |  |

#### • Outreach Activity:

NERIWALM in collaboration with 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, Arunachal Pradesh have been initiated with community participation. Basic learning workshops were conducted for community members for effective water management through participatory approach.

### • Sponsored Training / Workshop / Seminars

Out of the 77 programmes conducted during the year, Institute received

sponsorship for 03 training/workshops, while 18 were conducted as self-financed and remaining 56 were conducted from Institute's funds.

#### • 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. The institute fulfilled this objective in 2019-2020 by opening Post Graduate Degree (M.Tech.) course in water resource management.

For academic purpose, NERIWALM is affiliated to Assam Science and Technology University, Guwahati. The course is approved by AICTE, Govt. of India. The duration of the degree course is two years and requires successful completion of 66 credits. In 2021, the third batch of M.Tech course has 10 students. The main subjects covered in the course are surface water, ground water, water quality, irrigation, onfarm development, integrated water management, resource research methodology and IPR, water legal aspects, etc.

#### • 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 2021-2022, institute has undertaken concurrent evaluation of irrigation project (PMKSY-AIBP) in Assam, concurrent evaluation of irrigation project PMKSY-HKKP in Meghalaya, good water management practices in NE region for better basin planning in Arunachal Pradesh.

# 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, 9 projects were sanctioned for conservation and pollution abatement of rivers Rani Chu in Sikkim at a cost of Rs.371.11 crore in 2 towns namely Gangtok and Singtam. The works sanctioned under the projects pertain 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 23.37 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 sewerage infrastructure facilities and river front development works.

**Nagaland:** For pollution abatement of rivers Diphu and Dhansiri at Dimapur, Nagaland, works have been sanctioned under NRCP at an estimated cost of Rs.82.80 crore. The works envisaged under the project pertain to construction of sewage treatment plant having treatment capacity of 25.43 mld and other allied sewerage works, low-cost sanitation, afforestation, etc. The scheme is presently under implementation.



Hon'ble Minister of Jal Shakti during inspection and interaction with Officers/ Officials of DoWR RD & GR on 12<sup>th</sup> Nov 2021

# 10 WING\$ OF THE DEPARTMENT, TRAINING & GOVERNANCE



Secretary, Ministry of Jal Shakti administering the Preamble reading on the occasion of Constitution Day (26.11.2021)

# **10. WINGS OF THE DEPARTMENT, TRAINING & GOVERNANCE**

#### **10.1 WINGS OF THE DEPARTMENT**

The work allotment of different wings/divisions of the Department is as below:

I. ADMINISTRATION, INTERNATION-AL COOPERATION AND GROUND WATER WING: HEADED BY JOINT SECRETARY (ADMN, IC & GW, CVO)

Administration: All matters pertaining to:-

- a) Administration All establishment matters/personnel matters related to officers and staff posted in Department. The wing is the Cadre Controlling Authority of posts borne on CSS/CSSS/ CSCS sanctioned in the Department (Proper), CWC and Central Soil & Materials Research Station.
- **b) General Administration** All matters related to procurement of consumables items & office equipments and their maintenance, etc.

**Establishment:** All administrative and establishment matters pertaining to:-

- a) Establishment I Central Water Commission (CWC)
- b) Establishment II- Central Soils & Materials Research

Station (CSMRS), Central Water & Power Research Station (CWPRS), National Institute of Hydrology (NIH) and North Eastern Regional Institute of Water & Land Management (NERIWALM)

- c) Establishment III Farakka Barrage Project (FBP), Ganga Flood Control Commission (GFCC), Upper Yamuna River Board (UYRB) and Brahmaputra Board (BB).
- Establishment IV National d) Development Water Agency (NWDA), Bansagar Control Board (BCB), Narmada Control Authority (NCA), Krishna River Management Board (KRMB), Godavari River Management Board (GRMB), Cauvery Water Management Authority (CWMA), Betwa River Board (BRB), Polavaram Project Authority (PPA) and Tungabhadra Board (TB).
- e) Ground Water Establishment -Central Ground Water Board (CGWB).
- f) National River Conservation Directorate (NRCD) -Administrative matters related to NRCD.

**PSUs** – All matters pertaining to NPCC Ltd. and WAPCOS Ltd.

ParliamentaryMatters-CoordinationofParliamentarymatters relating to the Ministry.

InternationalCooperation:ExternallyAidedProjectsandInternationalCooperation-PolicyMatters relating to projects/programmeswith the assistanceofWB, ADB, JICA, DIFD, UNESCOetc.Matters related to cooperationwith foreign countries in respect ofwaterissues, multilateral/bilateralagreements/cooperationincludingsigning of MOUs, foreign deputationand training.

#### Ground Water :

**Ground Water Desk –** All technical and developmental matters related to CGWB including budget, bilateral, ground water resources assessment, NAQUIM and artificial recharge, etc.

National Hydrological Project – Project coordination of National Hydrology Project & issues relating to international hydrological programme through NIH and representing the Ministry at World Water Forum, UNESCO etc.

AtalBhujalYojana-Projectcoordination& monitoring/implementationofABYforfacilitating sustainable ground watermanagementinidentifiedwaterstressed areas in sevenStates of thecountry.

**Central Ground Water Authority** (CGWA) – All matters pertaining to CGWA.

Chief Vigilance Officer (CVO)/

**Vigilance–** All matters relating to cases attracting vigilance angle and interpretation of CCS (Conduct) Rules, 1964/ CCS (CCA) Rules, 1965.

### II. RIVER DEVELOPMENT AND PUBLIC POLICY WING: HEADED BY JOINT SECRETARY (RD & PP)

#### **Policy:**

- a) Policy matters related to water resources development and management.
- b) General issues related to water availability, water conservation, efficiency of water use, application of latest techniques and technologies for efficient water management.
- c) Coordination of the meetings of National Water Resources Council, National Water Board, National Forum of Water Resources and Irrigation Ministers of States, Conference of Irrigation/ Water Resources Ministers.
- d) Coordination with various Ministries in respect of general issues related to water resources, particularly with Ministry of Agriculture, Ministry of Environment, Forests & CC, Ministry of Rural Development (Department of Land Resources), Ministry of Drinking Water & Sanitation, Ministry of Urban Development, Ministry of Power, etc.
- e) Coordination with International Commission on Irrigation and Drainage, UN organisations such as UNESCO, UN Environment, FAP etc.

#### **Basin Management:**

a) Administration and amendment of Inter State River Water Dispute (ISRWD) Act, 1956.

- b) Administration and amendment of River Boards Act, 1956: Matters relating to River Basin Organization.
- c) Dam Safety Act (legislative matters only).
- d) Setting up of water disputes Tribunals and reference of disputes to Tribunals under Inter -State River Water Disputes (ISWD) Act, 1956 along with administrative and legal matters connected therewith.
  - Ravi-Beas Water Tribunal (RBWT)
  - Krishna Water Dispute Tribunal
     (KWDT)
  - Vansadhara Water Dispute Tribunal (VWDT)
  - Mahadayi Water Disputes Tribunal (MWDT)
  - Mahanadi Water Disputes Tribunal (Mahanadi WDT)
- e) Administration of Uttar Pradesh, Bihar, Madhya Pradesh Reorganisation Acts, 2000: Work related to formation of Ganga Management Board (GMB).
- f) Schemes under XIIth Plan & further
  - i) Coordination of River Basin Management (RBM) Plan Scheme,
  - ii) Inter Linking of River (ILR)

# All issues related to PPP, SPVs for any project.

CoordinationDivision:-Coordination Matters of the Ministry.

**O&M:-** Matters relating to O&M activities and office procedure; Records

Management, the Departmental Records Room.

**Ganga Rejuvenation**– Policy matters related to Ganga rejuvenation.

#### **Peninsular River Wing**

- a) All work/issues related to the rivers Godavari, Krishna, Cauvery, Mahi, Sabarmati, Narmada, Tapi, West side flowing rivers from Tapi to Tadri and Tadri to Kanyakumari; Cauvery Award issues.
- b) All work/issues related to rivers Subarnarekha, Brahmani-Baitarani, Mahanadi, Pennar and rivers of A&N island & Pondicherry, east side flowing rivers between Mahanadi & Pennar and between Pennar and Kanyakumari, Kutch & Saurashtra including Luni. Islands of Dadra & Nagar Haveli and Daman & Diu; Rivers draining desert in Rajasthan. All works related to International Organizations, draught and Dam Rehabilitation Improvement Project (DRIP).
- c) Administrative and financial matters of Pen. Riv Wing including KRMB and GRMB.

#### **River Development Division**

**e-Governance**– IT functions and implementation of e-Office in the Department /coordination with Attached Offices/Subordinate Organizations in e-governance.

**IEC**– Issues relating to carrying out mass awareness activities/ programmes on water conservation under the Information, Education & Communication component of HRD/ CB Scheme. **ID-** Infrastructure development within Ministry.

### III. FINANCE WING: HEADED BY JOINT SECRETARY & FINANCIAL ADVISOR

#### FINANCE-I / BUDGET SECTION :

- Examination/compilation of Demand for Grants/ Budget Estimates/ Revised Estimates/ Supplementary Grants/SBE;
- Works related to budget circular of Ministry of Finance;
- Final requirement of funds/ surrender of funds/ co-ordination work related to Ministry of Finance, Appropriation accounts;
- Work relating to Parliamentary Standing Committee;
- Monitoring of expenditure on monthly basis;
- Examination of matters relating to reappropriation of funds/ issuing of reappropriation orders;
- Preparation of saving notes/ ATNs;
- Preparation of Budget Estimates/ Revised Estimates/Revised Estimates of Loans to Govt. servants (HBA & Other Advances) of the Department.

The actual expenditure on net basis in F.Y. 2020-21 was Rs. 7,232.09 crore. Budget Estimate (B.E.) for FY 2021-22 for the Department was Rs. 9,022.57 crore on net basis which has been increased to Rs. 18,008.70 crore in the Revised Estimates (R.E.) and the actual expenditure till 31.12.2021 is Rs. 6,327.03 crore. The scheme wise budget at a glance of the Department showing actual expenditure in F.Y. 2020-21, B.E. 2021-22, R.E. 2021-22 and expenditure up to 31.12.2021 is given at *Annexure-X*.

#### FINANCE-II / IFD :

- General Coordination on financial matters of the Ministry
- Scrutiny of all Plan schemes.
- Scrutiny of all financial proposals.
- Advise on all financial and allied matters referred by subject matter Divisions (SMDs).
- Advise on sanction of cases for deputation to foreign countries and on foreign travel.

#### **Controller of Accounts :**

- To advise and assist the Ministry of Water Resources on matters relating to finance, budget, accounting, expenditure management, establishment matters and personal claims of the employees.
- To administer the payments and accounting system through PAOs and DDOs of various departments in various units of the country, including pay and allowances, office contingencies, miscellaneous payments of admissible loans, advances to government servants etc.
- Public expenditure management through compilation and consolidation of monthly and annual receipts and expenditure of the Ministry to the Controller General of Accounts (CGA).
- To monitor expenditure progress.
- To prepare statement of central transactions, appropriation accounts, union finance accounts and receipts budget and submit to O/o CGA, Ministry of Finance.
- To prepare accounts at a glance for the year.

- To exercise the power of the Head of the Department for the accounting organization and managing the cadre with reference to career counseling, training, transfer, promotion, leave, vigilance and disciplinary matters etc.
- To provide general guidance to internal audit teams and liaison with the Ministry of Finance; and external auditors, i.e. C&AG of India.
- To maintain liaison with O/o CGA for banking structure and verify and reconcile all receipts and payments made on behalf of the Ministry through the banks.
- To ensure prompt payment of grants in aid, loans and bill and monitoring of repayments and utilization certificates.
- To ensure speedy settlement of pension and other retirement benefits, general provident fund and other personal claims cases.
- To translate accounting information into useful MIS for appropriate management decisions.
- To act as appellate authority for RTI cases in respect of accounting organization of the Department.
- To monitor the Action Taken Note (ATNs) relating to all C & AG/PAC paras.

### IV. STATE PROJECTS WING: HEADED BY COMMISSIONER (SPR)

 Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)- Accelerated Irrigation Benefit Programme for Major and Medium Irrigation/ Multipurpose projects. Polavaram Irrigation Project (National Project)/ Polavaram Project Authority.

- Surface Minor Irrigation Schemes / RRR of Water Bodies of NE States except Sikkim under Har Khet Ko Pani (HKKP) component of PMKSY.
- The advisory committee of DoWR,RD& GR on Irrigation, Multipurpose and Flood Control Projects for clearance of projects from techno-economic angle.
- Investment clearance of irrigation, Multipurpose and Flood Control Projects.
- National Projects (other than Interlinking of Rivers projects).
- Special package for irrigation projects to address agrarian distress in Vidharbha and Marathwada and other chronically drought prone areas in rest of Maharashtra.
- Relining of Rajasthan Feeder and Sirhind Feeder project.
- Audit and guidelines of PMKSY-AIBP / National Projects and updating of the data/information on various portals.

#### **MINOR IRRIGATION SECTION**

- Work related to Surface Minor Irrigation (SMI) schemes under Har Khet Ko Pani (HKKP) component of Pradhan Mantri Krishi Sinchayee Yojana (PMKSY).
- Work related to Repair, Renovation and Restoration (RRR) of Water Bodies Schemes under Har Khet Ko Pani (HKKP) component of Pradhan Mantri Krishi Sinchayee Yojana (PMKSY).

- V. COMMAND AREA DEVELOPMENT & WATER MANAGEMENT WING: HEADED BY COMMISSIONER (CAD)
- Release of central assistance to States and Union Territories for implementation of CAD Programme.
- Monitoring and review of CAD projects and evaluation studies. Examination of water management / CAD aspects major and medium irrigation projects received from CWC.
- Examination of 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.
- Regional meeting of CAD Secretaries.
- Examination and monitoring of CAD component of foreign aided projects.
- Organizing Training at national level on CAD activities\
- Coordination Committee of Ministry of Water Resources India Meteorological Department and Ministry of Agriculture.
- Coordination in agricultural matters including water rates for crops.
- Matters related to International Irrigation Management Institute.
- Nodal Wing for promotion, facilitation, guidance and coordination of Participatory Irrigation Management (PIM) in the country.

- Assistance to State Governments in the preparation of model / sample reports and scrutiny thereof, and liaison coordination in formulation of pipeline projects.
- Scrutiny and monitoring of evaluation reports prepared by various missions deputed by donor agencies.
- Scrutiny of draft agreements and other documents leading to signing of main agreements and other agreements involving technical assistance.

#### VI. FLOOD MANAGEMENT WING: HEADED BY COMMISSIONER (FM)

- India-Bangladesh matters.
- Implementation of Ganges Treaty (1996) with Bangladesh on the sharing of Ganga/ Ganges waters at Farakka during the lean season. All matters relating to the Joint Committee headed by Commissioner (FM) to oversee the implementation of the Treaty and arrangements for joint observations at Farakka (India) and Hardinge Bridge (Bangladesh) on river Ganga as per provisions of the Treaty.
- Matters relating to India-Bangladesh Joint Rivers Commission (JRC) headed by Union Minister of Water Resources, RD & GR and other Joint Committees/ Standing Committees between the two countries.
- All matters relating to India-Bangladesh water resources development/ projects on common / border rivers.
- Examination of multipurpose, major/ medium irrigation and power projects in Ganga basin from interna-

tional angle in light of Ganges Treaty 1996.

- Technical matters relating to Farakka Barrage Project.
- Implementation of State Sector Scheme "Flood Management Programme" in the country.
- Implementation of Central Sector Scheme "River Management Activities and Works related to Border Areas"
- Expert Committees / Task Forces
   / Working Groups on Flood
   Management
- National Disaster Management Authority matters related to floods.
- India-Nepal matters.
- Technical matters related to Ganga Flood Control Commission.
- 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.
- Matters related to raw water supply to Delhi. General matters of Ganga Basin.

## VII. BRAHMAPUTRA AND BARAK WING: HEADED BY COMMISSIONER (B & B)

 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.
- Matters related to visits of Parliamentary Standing Committee on Water Resources, Committee on Assurances and Committee on Petitions to North East and follow up for issues raised therein.
- Matters related to holding of High Power Review Board (HPRB) meetings of Brahmaputra Board in addition to Board meetings of Brahmaputra Board.
- Matter related to constitution of Technical Advisory Committee of Brahmaputra Board.
- Follow up for technical appraisal & clearance of DPRs of various projects of Brahmaputra Board.
- Coordination with Ministry of DoNER for various programmes/schemes for the North East Region.
- International matters in the field of water resources sector with China and Bhutan.
- Matters related to hydro-power development in North Eastern Region.

#### VIII. INDUS WING: HEADED BY COM-MISSIONER (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 headworks at Ropar, Ferozepur and Harike, BML-Hansi Branch-Butana Branch Multipurpose Link channel, court cases thereof etc.
- Central assistance for emergent counter protective works of rivers Ravi and Sutlej, works related to the monitoring committee thereof.
- Matters relating to the progress of Indira Gandhi Nahar Project, Indira Gandhi Nahar Board.
- Matters relating to Bhakra Beas Management Board.
- Resettlement of Pong Dam oustees

   High Level Committee and Sub-Committee meetings and related matters.
- Matters of Thein (Ranjit Sagar) & Shahpurkandi Dams, relating to sharing of Ravi Beas waters.

# Matters related to Indus Waters Treaty 1960 :

- Tours of inspection and meetings of Permanent Indus Commission.
- Work in connection with Secretary level meeting with Pakistan for talks at Govt. level.
- Collection and supply of daily gauge & discharge data of rivers to Pakistan.
- Supply of irrigated crop area statistics for the Western rivers of Indus Basin for Kharif and Rabi seasons on District wise/ Tehsil wise to Pakistan.
- Communication of flood warning messages to Pakistan from 1<sup>st</sup> July

to 10<sup>th</sup> of October on river Chenab, Jammu Tawi, Ravi, and Sutlej on request of Pakistan Commissioner received every year.

- Supply of information of hydro electric (H.E.) & storage projects on Western rivers as per Treaty, data collection from project authorities, analysis of consistency, review & supply.
- Dealing with issues raised on projects from Treaty angle from time to time.
- Interaction with Pakistan Commissioner on matters related to implementation of Treaty; also with L&T, PAI Divisions of Ministry of External Affairs on these matters and policy issues.
- Clearance of projects of Indus Basin from Treaty angle.

### IX. MINOR IRRIGATION STATISTICS WING: HEADED BY ADG (STAT)

- Implementation of Centrally sponsored Plan Scheme 'Rationalization of Minor Irrigation Statistics (RMIS) with 100% central funding.
- Conduct of census of Minor Irrigation schemes on quinquennial basis and ad-hoc methodological studies.
- Supply of information pertaining to Minor Irrigation to various Divisions of the Ministry, NITI Aayog, Central Water Commission, Central Ground Water Board etc.
- To review the performance of Statistical Cell created in different States/UT's under RMIS scheme and release of funds for their continuation.

- Release/revalidation of grants in aid to States/UT's for conduct of census and sample survey of MI schemes;
- Collection of quarterly progress reports on development of minor irrigation from different States/UTs scrutiny of data and finalization of All India/State wise figure relating to potential created/utilized in respect of Minor Irrigation schemes;
- Sample check of the data collected in the census/sample survey of Minor Irrigation schemes by States/UT's;
- Render technical advice to different divisions/organization on statistical issues including compilation and analysis of data and publication.

### X. ECONOMIC ADVISORY WING: HEADED BY ECONOMIC ADVISOR

Economic Advisory wing performs its functions through Hindi section and Planning Unit. Hindi section is deals with the matters of official Language while the Planning Unit is mainly engaged in collecting information from concerned divisions/scheme subject matter administering divisions for preparation of annual report of the Department; monitoring of National Infrastructure Pipeline projects - under which data on infrastructure projects are being collected, and monitored regularly; uploaded preparation of Output and Outcome Monitoring Framework for all central sector & centrally sponsored schemes and its quarterly updation on NITI Aayog dashboard; updation of India Code portal; DAPSC & DAPST components; holding of monthly Standing Audit Committee meetings etc.

### XI. NRCD WING: HEADED BY ADVISOR (NRCD)

The National River Conservation Directorate (NRCD), functioning under the DoWR, RD & GR, 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)'.

# 10.2 IMPLEMENTATION OF TRAINING POLICY OF THE DEPARTMENT

Administration Division administers the budget allocated under 'Training of DoWR, RD & GR officers' under HRD & Capacity Building Scheme to train officers/ officials of the Department in repute Institutes located in India and abroad in different fields, induction training on selection/ recruitment in the Department. Officers are 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. During FY-2021-22, no in-house training programme could be conducted due to COVID-19 pandemic. However, mandatory online training programme conducted by ISTM were attended by CSS & CSSS officers of this Department.

# 10.3 INTERNATIONAL YOGA DAY: 2021

International Day of Yoga was observed by this Department on 21.06.2021 on the theme **#be with yoga be at home** in compliance to the directions of Ministry of Ayush for virtual observance of IDY 2021. Department uploaded some videos on yoga on social media platform like Facebook, Instagram and Twitter etc. and in addition, 6 creatives on yoga related information have also uploaded on our social media platforms.

# 10.4 MEASURES ADOPTED DURING OUTBREAK OF 2<sup>ND</sup> WAVE OF NOVEL CORONAVIRUS

During the 1st quarter of the year 2021-22, in order to mitigate the calamity owing to the spike in the COVID-19 cases, a core whatsapp group was generated under the superintendence of Joint Secretary (Admin) comprising the officers of this Department which worked 24X7 during the peak period of the pandemic. To assess/ascertain and to get access the medical assistance to the officials of this Department following measures with the adequate use of technology were taken-

- Google form was generated and circulated on the intranet of the Department.
- Details of not only officials but their kith and kin who needed assistance were invited.
- With the vigorous effort of the group members several effected persons/ family members were provided the oxygen cylinder, bed/ICU beds, ambulance, concentrators, necessary medications etc.
- Even due to crunch and nonavailability of beds, the Covid infected persons were got admitted in the hospitals of NCR region.
- Masks and sanitizers were made available to the offices of the

Department and deep sanitization was carried out on day to day basis.

- Strict adherence to follow the norms of DoP&T, MHA, MoH&FW and NDMA issued from time to time were complied with.
- Every effort was made not to leave the officials/family members of this Department to feel deserted and distraught.

# 10.5 SPECIAL VACCINATION DRIVE

As a measure to further the Government of India's objective of providing vaccination against COVID-19 to all, on 24.06.2021, after significant strategic planning, a Special Vaccination Drive was conducted by a team of medics from the Delhi Administration vide a dedicated camp to vaccinate the officials of the DoW, RD & GR at Shram Shakti Bhawan, New Delhi. The effective management ensured compliance of COVID appropriate behaviour by following staggered time slots issued to each applicant via SMS alerts. In addition, to facilitate a seamless registration process on the COWIN portal, the staff operated three special desks, which helped in reducing the pressure on the medical team. 224 officials including their family members were vaccinated with COVISHIELD, out of which 191 applicants were aged 18 to 44 and 33 applicants were aged 45 and above.

# 10.6 SPECIAL CAMPAIGN FOR DISPOSAL OF PENDING MATTERS (2<sup>ND</sup> OCT TO 31<sup>ST</sup> OCT, 2021)

A Special Campaign for Disposal of

Pending Matters was undertaken by this Department and all Attached/ Subordinate and Autonomous Bodies during the period 2<sup>nd</sup> October to 31<sup>st</sup> October, 2021. Department of Administrative Reforms & Public Grievances (DARPG) was designated as Nodal Department to monitor the campaign.

With an aim for ensuring cleanliness in Government offices and to have a good work environment; to improve records management, review and weeding out of papers, General administration wing of this Department made relentless efforts.

During this special campaign, files of temporary nature were identified and weeded out as per the extant instructions. Further, redundant scrap material and obsolete items were discarded to improve cleanliness at work places.

### 10.7 SPECIAL CAMPAIGN DRIVE FOR CLEANLINESS

A month long special campaign to dispose the office scrap, weeding out of the physical files and cleanliness of office space and its surroundings was undertaken. 12 cleanliness campaigns were organized under Special Campaign drive held from 2<sup>nd</sup> October to 31<sup>st</sup> October, 2021.

On 10<sup>th</sup> November 2021, a team from Quality Council of India (QCI) physically inspected the Department located at Shram Shakti Bhawan and visited offices including conference hall, library, canteen, washrooms and chamber of the officers and remarked positively that the Department has been benefited under the cleanliness drive to improve work efficiency and maintain a healthy environment. It was suggested by QCI to add sanitary napkin vending machine in the toilet and immediate action was taken by General Administration Division and sanitary napkin vending machines were installed in the women's toilet located at Shram Shakti Bhawan.

On 12<sup>th</sup> November 2021, to review the progress of the Special Campaign Drive, Hon'ble Minister of Jal Shakti himself inspected all the sections/offices of the Department located at Shram Shakti Bhawan from 6:00 PM to 8:30 PM. During the inspection, Hon'ble Minister interacted with the officials of the Department and suggested various innovative measures.

# 10.8 CELEBRATION OF CONSTITUTION DAY, 2021

Department of Water Resources, RD & GR on the directions of Ministry of Parliamentary Affairs celebrated "Constitution Day" on 26<sup>th</sup> November, 2021 at 11.00 AM to read the Preamble of the Constitution. Secretary, Ministry of Jal Shakti administered the Preamble reading in the conference room of the Department along with few officers following the COVID protocol while remaing officials were requested to do the Preamble reading in their respective office spaces.

# **SPECIAL CAMPAIGN DRIVE FOR CLEANLINESS**



Shram Shakti Bhawan (before)



Shram Shakti Bhawan (after)



Shram Shakti Bhawan Back side Parking Area (before)



Shram Shakti Bhawan Back side Parking Area (after)



Back side Parking area (before)



Back side Parking area (after)



41 "Women Water Champions " felicitated by NWM

# **11. GENDER EMPOWERMENT / WOMEN WELFARE ACTIVITIES**

Women play a vital role in water resource management. The right approach and stepstakentowards 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 farmers 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 viz. (a) development of small nursery, (b) bee hives, (c) HDPE vermi bed, (d) PHM / processing units, and

(e) organic farming etc.

International Women's Day -2021 was organized by DoWR, RD & GR involving all women employees of the Department. A panel discussion was held on "Role of women in Sustainable Development and Management of Water Resources". The gathering was chaired by Additional Secretary (WR, RD & GR). Around 30 women officers and staff of the Department participated in the discussion.

A Gender 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.

An awareness generation programme on Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 was conducted in the office of Upper Yamuna River Board at R K Puram, New Delhi on 09.12.2021. In the awareness generation exercise, Dr. (Mrs.) Suman Chahar, who is the Chairperson of International Centre for Women (NGO), New Delhi and also an NGO Representative Member of the Internal Complaint Committee (ICC) of UYRB, was invited as



Participation of Women and vulnerable groups under Atal Bhujal Yojana

the guest to deliver a talk on the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 and highlighted its various aspects.

Under Atal Bhujal Yojana, participation of women and vulnerable groups is being ensured through membership in committees and attendance in meetings, which will also be checked during physical verification.

# Felicitating 41 "Women Water Champions"

WomenWaterChampions(WWCs) is an initiative by National WaterMission,UNDPIndiaandStockholmInternationalWaterInstitute(SIWI)tounderscorethe critical role of women inwaterconservationandmanagement &promotewomen'sleadershipinwater

governance. Taking into account that gender equality and water lie at the heart of the 2030 Agenda for Sustainable Development and in order to promote women's leadership in water governance and management, National Water Mission, in partnership with UNDP & Stockholm International Water Institute (SIWI), organised a webinar on virtual platform on 2<sup>nd</sup> June 2021 and wherein 41 women champions were felicitated. water 41 women stewards working at the grassroots level in the water sector were identified and their stories were compiled by UNDP- SIWI. A compendium of "Women Water Champions" was also released on that day in the form of e-book which is available on NWM's website. Some of the selected women were also invited to share their success stories during the 27<sup>th</sup> Water Talk organized on 18<sup>th</sup> June 2021.



Organizing competitions during Hindi Fortnight celebrated during 14.09.2021 to 30.09.2021
## **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 DoW, 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. 17 Regional Offices of 7 offices mentioned above were inspected by Parliamentary Committee on Official Language during the current year.

During the current year 2021-22 Hindi Advisory Committee was constituted in the Department. Due to COVID-19 pandemic, the Department has conducted one meeting of Official Language Implementation Committee. In this meeting, 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.

In order to encourage the use of Hindi in the official work of the Department, messages of the Hon'ble Union Minister of Jal Shakti and Hon'ble Minister of State for Jal Shakti and the appeal by Secretary, Department of Water Resources, River Development & Ganga Rejuvenation were issued. Hindi Fortnight was organized in the Department from 14.09.2021 to 30.09.2021, following the social distancing due to the Covid-19 pandemic. Before organizing the Hindi fortnight, all the offices and employees of DoW, RD & GR were given a pledge to do their maximum work in the official language Hindi. During the fortnight, 5 competitions - Hindi Debate & Hindi poetry recitation, Hindi Draft writing, Hindi Essay competition & Hindi Essay competition (for MTS level candidates) were organized. Officers and employees of the Department enthusiastically participated in these competitions. First, Second and Third prizes of Rs. 4,000/-, Rs. 2,500/- and Rs. 1,500/- respectively were given to winners of each of these competitions. There was also provision of four incentive prizes of

Rs. 1,000/-for each of these competitions. The prizes were given to 35 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. Winning offices are given cups and certificates. 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.



Shramdan activities- River: Tapti

## **13. STAFF WELFARE**

#### 13.1 MONITORING OF RESERVATION FOR SCs/ STs/ 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 Divyang 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 India on prevention of sexual of employees, harassment of women committee is functioning to а look into the complaints of the women working in the Main Secretariat of the Department. The composition of the Committee is as below:

| Sl.<br>No. | Name & Designation<br>(Shri/Smt./Ms)             | Designated<br>as |
|------------|--------------------------------------------------|------------------|
| 1          | Shalini Juneja, Under<br>Secretary (E-IV)        | Chairperson      |
| 2          | S.N. Pal, Under<br>Secretary (Coord.<br>Section) | Member           |
| 3          | Shalini Gupta, Section<br>Officer (E-I)          | Member           |
| 4          | Representative of<br>Nariraksha Samiti, NGO      | Member           |

The Complaints Committee shall be deemed to be the Inquiring Authority appointed by the Disciplinary Authority for the purpose of CCS (CCA) Rules, 1965 and its reports are to be treated as Inquiry Report. It will examine the complaints made against sexual harassment by women employee(s) and, if necessary, conduct an enquiry. On completion of the same, the committee will submit its findings to the Joint Secretary (Admn), DoW, RD & GR for further necessary action.

During the year ending 31<sup>st</sup> December, 2021, **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.

During the period from 1<sup>st</sup> January, 2021 to 31<sup>st</sup> December, 2021, 2,346 grievance petitions were received in this Department. Besides, 192 grievance petitions pending at the end of 31<sup>st</sup> December, 2020 were carried forward. Out of total 2,538 grievance petitions, 2,386 were settled during the above period. The list of Public/Staff Grievance Officers in the Department and its various organizations along with postal addresses is given at *Annexure-XI.* 



Administration of Pledge by Secretary, DoWR, RD & GR during Vigilance Awareness Week



## TRANSPARENCY & VIGILANCE



Shri G Asok Kumar, MD, NWM while receiving SKOCH Public Service Award on 18<sup>th</sup> December 2021

## **14. TRANSPARENCY & VIGILANCE**

#### **14.1 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, all the 17 manuals in respect of Department (Sectt.) and its organizations were uploaded on the Department's website mowr.nic.in. 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 concerned organizations.

The Coordination Section of DoW, RD & GR, has been assigned the task of accepting applications and the fees under the RTI Act. During the period from 01.01.2021 to 31.12.2021, 1,228 RTI applications and 48 RTI appeals were received which were forwarded to concerned Central Public Information Officers/ First Appellate Authorities in the Department/ Other Public Authorities for necessary action under RTI Act, 2005. The details of Central Public Informati on 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 overall guidance, supervision and control of Joint Secretary (Administration, IC & GW) & Chief Vigilance Officer, who acts as a part-time CVO. He is assisted by Director (Vigilance) and the Vigilance Section of the Department. Various matters pertaining to vigilance cases, complaints etc of all the employees of the Department and all Group A and retired officers of the attached/subordinate organizations under the Department, including Board level officers of PSUs are dealt by the Division.

The Vigilance Division functions as a link between the Ministry and the Central Vigilance Commission (CVC) and other authorities in vigilance matters. Further, this 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 concerned agencies/Departments.

Vigilance Division monitors the disciplinary cases and related matters of the organizations under the Ministry through periodic report and returns, extant policies/guidelines, investigations on complaints and preventive vigilance inspections etc. In addition, the Division prepares the "List of officers of Doubtful Integrity" and the "Agreed List" in consultation with CBI and shares with all concerned to closely watch the activities of concerned officers.

During the current year, Vigilance Awareness Week was observed by the Vigilance Division from 26<sup>th</sup> October, 2021 to 1<sup>st</sup> November, 2021. An essay competition was also organized to sensitize the environment which received wide participation from the employees of the Department. During the vigilance week special emphasis through awareness generation was given to encourage filing of complaints by individuals through PIDPI mode. Special drive was also taken up to bring long pending disciplinary logical conclusions. All cases to organization Heads/CVOs was also sensitized to effectively utilize the vigilance week period to sensitize the environment about vigilance awareness initiatives.

During the year (from 01.01.2021 to 31.12.2021), 68 complaints were received in the Department, out of which 50 complaints disposed of as per extant guidelines. In 04 disciplinary cases, CVC consultation was sought and matter appropriately addressed as per their advice. Further, 08 disciplinary cases submitted to UPSC for their advice on quantum of punishment. In 08 disciplinary cases appropriate penalty was imposed on the Government servants after following due process.

08 part-time CVOs were appointed during the period in various organisations/PSUs to improve the vigilance mechanism. Out of these, 03 CVOs were appointed in consultation with CVC, balance 05 CVOs were appointed by the Department after following the due process.

Due to Covid limitations only four Preventive Vigilance Inspections (PVI) of various organizations was taken up during the year with a view to check/identify various irregularities and corruption prone areas.



Clealniness activities under "Bharat ka Amrut Mahotsav" on 02.10.2021

## **15. APPOINTMENTS OF PERSONS WITH SPECIAL NEEDS**

Monitoring of the recruitment of persons with special needs is being done to ensure fulfilment of prescribed percentage of reservation for the category by the Department 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 wing is dealing with

reservation of persons with disabilities (divyangjan) in MTS posts. The vacancies in MTS grade are filled through SSC. As on 31.12.2021 the total strength in MTS grade was 77 out of which two persons are differently abled.

The relevant reservation rosters as prescribed are also maintained for planning the reservation of persons with special needs. Shri Mukesh Kumar, DS is Liaison Officer for persons with disabilities (divyangjan) in respect of the Department.

# **ANNEXURES**





#### STAFF IN POSITION IN THE DEPARTMENT OF WATER RESOURCES, RIVER DEVELOPMENT & GANGA REJUVENATION

|       | Total Employees | Rej |    |     |       |    |
|-------|-----------------|-----|----|-----|-------|----|
| Group | in position     | SC  | ST | OBC | Other | РН |
| А     | 112             | 14  | 06 | 02  | 90    |    |
| В     | 164             | 28  | 07 | 43  | 86    | 3  |
| С     | 122             | 35  | 09 | 26  | 52    | 2  |
| Total | 398             | 77  | 22 | 71  | 228   | 5  |

#### AS ON 31.12.2021

## LIST OF NAMES AND ADDRESSES OF SENIOR OFFICERS & HEADS OF ORGANISATIONS UNDER THE DEPARTMENT OF WATER RESOURCES, RIVER DEVELOPMENT & GANGA REJUVENATION

| S.<br>No. | Name of the Organisation                   | Head of the Organisation/<br>Senior Officer |
|-----------|--------------------------------------------|---------------------------------------------|
| 1.        | Department of Water Resources, RD & GR.    | Shri Pankai Kumar                           |
|           | Room No. 412. 4 <sup>th</sup> Floor.       | Secretary.                                  |
|           | Shram Shakti Bhavan, Rafi Marg, New Delhi. | Tel No. 23710305, 23715919,                 |
|           |                                            | Fax. 23731553.                              |
| 2.        | Department of Water Resources, RD & GR,    | Smt. Debashree Mukherjee,                   |
|           | Room No.404, 4 <sup>th</sup> Floor,        | Additional Secretary,                       |
|           | Shram Shakti Bhavan,                       | Tel No.23714609,                            |
|           | Rafi Marg, New Delhi.                      | Fax.23716894.                               |
| 3.        | Department of Water Resources, RD & GR,    | Shri Sukh Ram Meena,                        |
|           | Room No.6,2 <sup>nd</sup> Floor,           | Additional Director General (Stat.)         |
|           | Bwing, Lok Nayak Bhawan,                   | Tel No.24691080                             |
|           | Khan Market, New Delhi.                    | Fax.24691080                                |
| 4.        | Department of Water Resources, RD & GR,    | Shri Subodh Yadav,                          |
|           | Room No.403, 4 <sup>th</sup> Floor,        | Joint Secretary (Admn., IC & GW),           |
|           | Shram Shakti Bhavan, Rafi Marg, New Delhi. | Tel No.23710343                             |
|           |                                            | Fax:23730719                                |
| 5.        | Department of Water Resources, RD & GR,    | Shri Sanjay Awasthi,                        |
|           | Room No.406, 4 <sup>th</sup> Floor,        | Joint Secretary(RD&PP),                     |
|           | Shram Shakti Bhavan,                       | Tel No.23725477                             |
|           | Rafi Marg, New Delhi.                      | Fax:24369170                                |
| 6.        | Department of Water Resources, RD & GR,    | Shri Manoj Sethi,                           |
|           | Room No.401,4 <sup>th</sup> Floor,         | Joint Secretary & Financial Adviser,        |
|           | Shram Shakti Bhavan,                       | Tel No.23710297                             |
|           | Rafi Marg, New Delhi.                      | Fax.23710297                                |
| 7.        | Department of Water Resources, RD & GR,    | Shri A. S. Goel,                            |
|           | Room No.411, 4 <sup>th</sup> Floor,        | Commissioner (SPR),                         |
|           | Shram Shakti Bhavan,                       | Tel No.23710107.                            |
|           | Rafi Marg, New Delhi.                      |                                             |
| 8.        | Department of Water Resources, RD & GR,    | Shri A. S. Goel,                            |
|           | Room No.236, 2 <sup>nd</sup> Floor,        | Commissioner (CADWM)                        |
|           | 'B' wing, Krishi Bhavan,                   | (Addl. Charge)                              |
|           | Rafi Marg, New Delhi-110001                | Tele fax No.23382256                        |

| S.   | Name of the Organisation                                | Head of the Organisation/       |
|------|---------------------------------------------------------|---------------------------------|
| NO.  |                                                         | Senior Officer                  |
| 9.   | Department of Water Resources, RD & GR,                 | Shri Atul Jain,                 |
|      | Room No.827,8 Floor,                                    | Commissioner (Flood Management) |
|      | CGO Complex, Lodi Road,                                 | Tel No. 24368238                |
| - 10 | New Delhi-110 003                                       | Fax. 24362780                   |
| 10.  | Department of Water Resources, RD & GR,                 | Shri T.S. Mehra,                |
|      | Room No.204, 2 <sup>nd</sup> Floor,                     | Commissioner (B&B)              |
|      | CGO Complex, Lodi Road,                                 | Tel No.24364724.                |
|      | New Delhi-110 003                                       |                                 |
| 11.  | Department of Water Resources, RD & GR,                 | Shri P.K. Saxena,               |
|      | Room No.814, 8 <sup>th</sup> Floor,                     | Commissioner (Indus)            |
|      | CGO Complex,                                            | Tel No.24361540                 |
|      | Lodi Road,                                              | Fax.24361540                    |
|      | New Delhi-110 003                                       |                                 |
| 12.  | Department of Water Resources, RD & GR,                 | Dr. R. Sathish,                 |
|      | Room No.815, 8 <sup>th</sup> Floor,                     | Economic Adviser                |
|      | Block-11, CGO Complex                                   | Tel No.24368941                 |
|      | New Delhi-110 003                                       |                                 |
| 13.  | Department of Water Resources, RD & GR, 2 <sup>nd</sup> | Smt. Priyanka Kulshreshtha,     |
|      | Floor, B wing,                                          | Deputy Director General         |
|      | Lok Nayak Bhawan,                                       | Tel No.24699496                 |
|      | Khan Market, NewDelhi.                                  |                                 |
| 14.  | National River Conservation Directorate,                | Shri B. B. Burman,              |
|      | Antyodaya Bhawan, CGO Complex, Lodi Road,               | Advisor (NRCD)                  |
|      | New Delhi- 110003                                       | Tel No.24365020                 |
|      |                                                         | Fax. 24369382                   |
|      | Attached Offices                                        | 6                               |
| 15.  | Central Water Commission,                               | Shri R K Sinha,                 |
|      | Room No.326, Sewa Bhawan, R. K. Puram, New              | Chairman                        |
|      | Delhi                                                   | Tel No. 26715351,               |
|      |                                                         | Fax: 26108614.                  |
| 16.  | Central Soil and Materials Research Station,            | Dr. R Chitra,                   |
|      | Room No. 111, Hauz Khas,                                | Director                        |
|      | New Delhi-110016                                        | Tel No. 26961894, 26967985      |
|      |                                                         | Fax: 26967985                   |
|      | Subordinate Offic                                       | es                              |
| 17.  | Farakka Barrage Project,                                | Shri R. Azhagesan,              |
|      | P.O. Farakka Barrage,                                   | General Manager                 |
|      | Distt. Murshidabad-742212, West Bengal.                 | Tel No. 03485-253644,           |
|      |                                                         | Fax: 03485-253608.              |

| S.  | Name of the Organisation                                 | Head of the Organisation/      |
|-----|----------------------------------------------------------|--------------------------------|
| No. | Name of the organisation                                 | Senior Officer                 |
| 18. | Ganga Flood Control Commission,                          | Shri M. S. Dhillon,            |
|     | Sinchai Bhawan, 3 <sup>rd</sup> floor,                   | Chairman                       |
|     | Patna-800015                                             | Tel No.0612-2217294            |
|     |                                                          | Fax:0612-2217960               |
| 19. | Central Water and Power Research Station,                | Director ( VACANT)             |
|     | P.O. Khadakwasla,                                        | Shri Y.N. Srivastava,          |
|     | Pune-411024                                              | Additional Director            |
|     |                                                          | Tel No.020-24380552,           |
|     |                                                          | Fax:020-24381004.              |
| 20. | Central Ground Water Board, Bhujal Bhawan,               | Dr. Nandakumaran P,            |
|     | Faridabad-121001.                                        | Chairman                       |
|     |                                                          | Tel No. 0129-2477101,          |
|     |                                                          | Fax: 0129-2477200.             |
| 21. | Bansagar Control Board,                                  | Shri M.W. Paunikar,            |
|     | Bansagar Colony, Rewa, Madhya Pradesh,                   | Secretary                      |
|     | 486001.                                                  | Tel No.07662-226318            |
|     |                                                          | Fax:07662-242433               |
| 22. | Upper Yamuna River Board                                 | Shri K. Vohra,                 |
|     | 201,"S", Sewa Bhawan, R. K. Puram, New                   | Chairman                       |
|     | Delhi-110016                                             | Tel No. 26108590               |
|     |                                                          | Fax: 26195289                  |
|     | Public Sector Underta                                    | akings                         |
| 23. | Water and Power Consultancy Services (India)             | Shri R. K. Agrawal,            |
|     | Limited,5 <sup>th</sup> Floor, 'Kailash',                | Chairman & MD                  |
|     | 26, Kasturba Gandhi Marg, NewDelhi.                      | Tel No.23313881                |
|     |                                                          | Fax: 23314924                  |
| 24. | National Projects Construction Corporation               | Shri R. K. Agrawal,            |
|     | Limited, Plot No.148,                                    | Chairman & MD                  |
|     | Sector-44,                                               | Tel No.0124-2385219,           |
|     | Gurugram, Haryana-122003.                                | Fax: 0124-2385219.             |
|     | Registered Societies/Autonomous Bodi                     | es/Statutory Bodiesetc.        |
| 25. | National Mission for Clean Ganga, Department             | Shri G Asok Kumar,             |
|     | of Water Resources, RD & GR,1 <sup>st</sup> Floor, MDCNS | (Shri Rajiv Ranjan Mishra upto |
|     | Building,                                                | 31.12.2021),                   |
|     | India Gate, NewDelhi-110002                              | Director General (NMCG)        |
|     |                                                          | Tel No. 23049528               |
| 26. | National Water Mission, 2 <sup>nd</sup> Floor,           | Smt. Debashree Mukherjee,      |
|     | Block-III, CGO Complex, Lodi Road, New                   | Mission Director               |
|     | Delhi-110 003                                            | Tel No. 011-24365200           |

| S.  | Name of the Organisation                         | Head of the Organisation/    |
|-----|--------------------------------------------------|------------------------------|
| No. | Name of the organisation                         | Senior Officer               |
| 27. | National Institute of Hydrology,                 | Shri J. V. Tyagi,            |
|     | Jal Vigyan Bhawan, Roorkee,                      | Director                     |
|     | Uttarakhand-247667.                              | Tel No. 01332-272106         |
|     |                                                  | Fax: 01332-272123/273976     |
| 28. | National Water Development Agency,               | Shri Bhopal Singh,           |
|     | 18-20, Community Centre,                         | Director General             |
|     | Saket, New Delhi-110017                          | Tel No.26519164              |
|     |                                                  | Fax:26513846                 |
| 29. | North Eastern Regional Institute of Water and    | Dr. Pradip Kumar Bora,       |
|     | Land Management,                                 | Director (NERIWALM)          |
|     | Dolabari, Tezpur, Sonitpur, Assam-784027         | Tel No. 03712-268107,        |
|     |                                                  | Fax. 03712-268007            |
| 30. | Narmada Control Authority,                       | Sh. Aditya Sharma,           |
|     | Narmada Sadan, Sec-B, Scheme No.74-C, Vijay      | Executive Member & HoD,      |
|     | Nagar, Indore-452010                             | Tel No. 0731-2557276,        |
|     |                                                  | Fax: 0731-2559888.           |
| 31. | Brahmaputra Board, Basistha, Guwahati,           | Shri Rajiv Yadav,            |
|     | 781029                                           | Chairman                     |
|     |                                                  | Tel No. 0361-2301099         |
|     |                                                  | Fax 0361-2301099             |
| 32. | Betwa River Board,Nandanpura, Shivpuri           | Shri Sheel Chandra Upadhyay, |
|     | Highway, Jhansi-284003                           | Secretary                    |
|     |                                                  | Tele fax. No.0510-2480183    |
| 33. | Tungabhadra Board,                               | Shri D.M. Raipure,           |
|     | Tungabhadra Dam, Taluk: Hospet, Distt:Bellary,   | Chairman                     |
|     | Karntaka -583225                                 | Tel No. 040-29808740         |
|     |                                                  | Fax 040-29808742             |
| 34. | Krishna River Management Board, Jalasoudha,      | Shri M.P.Singh,              |
|     | Errum Manzil,                                    | Chairman                     |
|     | Hyderabad, 500 082.                              | Tel No. 040-23301659.        |
| 35. | Godavari River Management Board,                 | Shri J. Chandrashekhar Iyer, |
|     | 5 <sup>th</sup> Floor, Jalasoudha, Errum Manzil, | Chairman                     |
|     | Hyderabad-500 082.                               | Tel No.040-23313163          |
|     |                                                  | Fax 40-23313162              |

## LIST OF PRIORITY PROJECTS (AIBP WORKS) REPORTED COMPLETED/ALMOST COMPLETED

| S.<br>No. | State              | Name of the Project                                   | Ultimate Irrigation<br>Potential (inTh.Ha.) |
|-----------|--------------------|-------------------------------------------------------|---------------------------------------------|
| 1         | Andhra<br>Pradesh  | Maddigedda                                            | 1.42                                        |
| 2         | Assam              | Champamati                                            | 25.00                                       |
| 3         | Chhattisgarh       | Maniyari Tank                                         | 14.52                                       |
| 4         |                    | Kharung                                               | 10.30                                       |
| 5         | Jammu &<br>Kashmir | Rajpora Lift                                          | 2.43                                        |
| 6         |                    | Restoration & Mod. of Main Ravi Canal                 | 50.75                                       |
| 7         |                    | Tral Lift                                             | 6.00                                        |
| 8         | Karnataka          | Sri Rameswar Irrigation                               | 13.80                                       |
| 9         |                    | Bhima LIS                                             | 24.29                                       |
| 10        |                    | Karanja                                               | 29.23                                       |
| 11        | Madhya<br>Pradesh  | Singhpur Project                                      | 10.20                                       |
| 12        |                    | Mahuar Project                                        | 13.78                                       |
| 13        |                    | Sagad Project                                         | 17.06                                       |
| 14        |                    | Sindh Project PhaseII                                 | 162.10                                      |
| 15        |                    | Indira Sagar Project Canal                            | 62.20                                       |
| 15        |                    | Phase-I &II (km. 0 to km.142)                         | 02.20                                       |
| 16        |                    | Omkareshwar roject Canal Phase-IV (OSPlift)           | 54.63                                       |
| 17        |                    | Indira Sagar Project Canal Phase-V<br>(KhargoneLift ) | 33.14                                       |
| 18        |                    | Bansagar Unit 2                                       | 154.54                                      |
| 19        |                    | Barriyarpur LBC                                       | 43.85                                       |
| 20        |                    | Sanjay sagar(Bah)Project                              | 17.81                                       |

| S.<br>No. | State        | Name of the Project                                                          | Ultimate Irrigation<br>Potential (inTh.Ha.) |
|-----------|--------------|------------------------------------------------------------------------------|---------------------------------------------|
| 21        |              | Bargi diversion ProjectPh-I                                                  | 21.19                                       |
| 22        |              | Mahi Project                                                                 | 33.75                                       |
| 23        |              | Mahan Project                                                                | 19.74                                       |
| 24        | Maharashtra  | Bawanthadi(IS)                                                               | 27.71                                       |
| 25        |              | Lower Panzara                                                                | 6.79                                        |
| 26        |              | Dongargaon                                                                   | 2.77                                        |
| 27        |              | Warna                                                                        | 54.75                                       |
| 28        |              | Nandur MadhmeshwarPh-II                                                      | 20.50                                       |
| 29        |              | Upper Kundalika                                                              | 2.80                                        |
| 30        |              | Lower Dudhna                                                                 | 44.48                                       |
| 31        |              | Khadakpurna                                                                  | 23.86                                       |
| 32        |              | Dhom Balakwadi                                                               | 18.10                                       |
| 33        | Manipur      | Dolaithabi                                                                   | 7.54                                        |
| 34        | Odisha       | Upper Indravati(KBK)                                                         | 85.95                                       |
| 35        |              | Rukura-Tribal                                                                | 7.65                                        |
| 36        |              | Ret                                                                          | 8.50                                        |
| 37        |              | Telengiri                                                                    | 13.83                                       |
| 38        |              | Lower Indra                                                                  | 35.87                                       |
| 39        | Punjab       | Kandi Canal Extension(Ph.II)                                                 | 23.33                                       |
| 40        |              | Rehabilitation of I <sup>St</sup> Patiala Feeder and Kotla<br>Branch Project | 68.62                                       |
| 41        | Rajasthan    | Narmada Canal                                                                | 245.88                                      |
| 42        |              | Mod.of Gang Canal                                                            | 69.69                                       |
| 43        | Telangana    | Gollavagu Project                                                            | 3.85                                        |
| 44        |              | Rallivagu project                                                            | 2.43                                        |
| 45        |              | Mathadivagu Project                                                          | 3.44                                        |
| 46        | UttarPradesh | Bansagar Canal                                                               | 150.13                                      |

### CENTRAL ASSISTANCE & STATE SHARE RELEASED FOR AIBP WORKS OF 99 PRIORITY PROJECTS UNDER PMKSY (AS ON 31.12.2021)

|     |                | Releases under PMKSY-AIBP |                                             |                 |                                             |                           |                                             |
|-----|----------------|---------------------------|---------------------------------------------|-----------------|---------------------------------------------|---------------------------|---------------------------------------------|
| CI  |                | 2016-17 t                 | o 2020-21                                   | 2021-2<br>31.12 | 2 (upto<br>2021)                            | Total 2016-<br>22 (upto 3 | 17 to 2021-<br>1.12.2021)                   |
| No. | State          | CA<br>Released            | State Shar<br>erelease<br>through<br>Nabard | CA<br>Released  | State Shar<br>erelease<br>through<br>Nabard | CA<br>Released            | State Shar<br>erelease<br>through<br>Nabard |
| 1   | Andhra Pradesh | 22.63                     | 489.34                                      | 0.00            | 0.00                                        | 22.63                     | 489.34                                      |
| 2   | Assam          | 0.00                      | 108.10                                      | 0.00            | 0.00                                        | 0.00                      | 108.10                                      |
| 3   | Bihar          | 110.24                    | 0.00                                        | 0.00            | 0.00                                        | 110.24                    | 0.00                                        |
| 4   | Chhattisgarh   | 41.08                     | 0.00                                        | 0.00            | 0.00                                        | 41.08                     | 0.00                                        |
| 5   | Goa            | 0.00                      | 0.00                                        | 0.00            | 0.00                                        | 0.00                      | 0.00                                        |
| 6   | Gujarat        | 4,082.96                  | 3,611.03                                    | 357.28          | 0.00                                        | 4,440.24                  | 3,611.03                                    |
| 7   | UT of J&K      | 39.71                     | 0.00                                        | 0.00            | 0.00                                        | 39.71                     | 0.00                                        |
| 8   | Jharkhand      | 756.73                    | 518.10                                      | 0.00            | 0.00                                        | 756.73                    | 518.10                                      |
| 9   | Karnataka      | 1,186.62                  | 0.00                                        | 0.00            | 0.00                                        | 1,186.62                  | 0.00                                        |
| 10  | Kerala         | 0.00                      | 0.00                                        | 0.00            | 0.00                                        | 0.00                      | 0.00                                        |
| 11  | Madhya Pradesh | 608.82                    | 909.58                                      | 29.74           | 173.52                                      | 638.55                    | 1,083.10                                    |
| 12  | Maharashtra    | 1,863.95                  | 11,248.28                                   | 179.36          | 1,031.30                                    | 2,043.31                  | 12,279.58                                   |
| 13  | Manipur        | 228.35                    | 335.12                                      | 11.75           | 0.00                                        | 240.10                    | 335.12                                      |
| 14  | Odisha         | 1,208.86                  | 3,084.06                                    | 0.00            | 100.74                                      | 1,208.86                  | 3,184.80                                    |
| 15  | Punjab         | 52.42                     | 0.00                                        | 0.00            | 0.00                                        | 52.42                     | 0.00                                        |
| 16  | Rajasthan      | 458.56                    | 259.01                                      | 0.00            | 0.00                                        | 458.56                    | 259.01                                      |
| 17  | Telangana      | 937.54                    | 0.00                                        | 0.00            | 0.00                                        | 937.54                    | 0.00                                        |
| 18  | Uttar Pradesh  | 1,397.91                  | 5,553.06                                    | 0.00            | 878.12                                      | 1,397.91                  | 6,431.18                                    |
| 19  | UTof Ladakh    | 2.98                      | 0.00                                        | 0.00            | 0.00                                        | 2.98                      | 0.00                                        |
|     | Total          | 12,999.35                 | 26,115.68                                   | 578.13          | 2,183.68                                    | 13,577.48                 | 28,299.36                                   |

#### **ANNEXURE-VI**

#### CENTRAL ASSISTANCE & STATE SHARE RELEASED FOR CADWM WORKS OF PRIORITY PROJECTS UNDER PMKSY (AS ON 31.12.2021)

|            |                    | 2016-17 to     | 2016-17 to 2020-21 2021-22 (upto<br>31.12.2021) Total 2016-17 to 2021   22 (upto 31.12.2021) 22 (upto 31.12.2021) |                |                                                | 17 to 2021-<br>1.12.2021) |                                                |
|------------|--------------------|----------------|-------------------------------------------------------------------------------------------------------------------|----------------|------------------------------------------------|---------------------------|------------------------------------------------|
| Sl.<br>No. | State              | CA<br>released | State<br>Share<br>release<br>through<br>NABARD                                                                    | CA<br>released | State<br>Share<br>release<br>through<br>NABARD | CA<br>released            | State<br>Share<br>release<br>through<br>NABARD |
| 1          | Andhra<br>Pradesh  | 69.18          | 0.00                                                                                                              | 0.00           | 0.00                                           | 69.18                     | 0.00                                           |
| 2          | Assam              | 7.55           | 0.00                                                                                                              | 0.00           | 0.00                                           | 7.55                      | 0.00                                           |
| 3          | Bihar              | 35.82          | 0.00                                                                                                              | 0.00           | 0.00                                           | 35.82                     | 0.00                                           |
| 4          | Chhattisgarh       | 21.71          | 0.00                                                                                                              | 0.00           | 0.00                                           | 21.71                     | 0.00                                           |
| 5          | Goa                | 3.84           | 0.00                                                                                                              | 0.00           | 0.00                                           | 3.84                      | 0.00                                           |
| 6          | Gujarat            | 1,719.15       | 0.00                                                                                                              | 0.00           | 0.00                                           | 1,719.15                  | 0.00                                           |
| 7          | Jammu &<br>Kashmir | 3.57           | 0.00                                                                                                              | 0.00           | 0.00                                           | 3.57                      | 0.00                                           |
| 8          | Jharkhand          | 0.00           | 0.00                                                                                                              | 0.00           | 0.00                                           | 0.00                      | 0.00                                           |
| 9          | Karnataka          | 75.28          | 0.00                                                                                                              | 0.00           | 0.00                                           | 75.28                     | 0.00                                           |
| 10         | Kerala             | 2.69           | 0.00                                                                                                              | 0.00           | 0.00                                           | 2.69                      | 0.00                                           |
| 11         | Madhya<br>Pradesh  | 294.761        | 174.280                                                                                                           | 0.00           | 0.00                                           | 294.761                   | 174.280                                        |
| 12         | Maharashtra        | 120.02         | 112.070                                                                                                           | 0.00           | 0.00                                           | 120.02                    | 112.070                                        |
| 13         | Manipur            | 0.00           | 34.900                                                                                                            | 0.00           | 0.00                                           | 0.00                      | 34.900                                         |
| 14         | Odisha             | 131.964        | 233.84                                                                                                            | 0.00           | 11.66                                          | 131.964                   | 245.500                                        |
| 15         | Punjab             | 18.08          | 0.00                                                                                                              | 0.00           | 0.00                                           | 18.08                     | 0.00                                           |
| 16         | Rajasthan          | 51.389         | 60.140                                                                                                            | 33.71          | 60.78                                          | 85.099                    | 120.92                                         |
| 17         | Telangana          | 36.34          | 0.00                                                                                                              | 0.00           | 0.00                                           | 36.34                     | 0.00                                           |
| 18         | Uttar<br>Pradesh   | 156.00         | 0.00                                                                                                              | 0.00           | 0.00                                           | 156.00                    | 0.00                                           |
|            | Total              | 2,747.35       | 615.23                                                                                                            | 33.71          | 72.44                                          | 2,781.06                  | 687.670                                        |

#### **ANNEXURE-VII**

## **STATE/UT WISE DETAILS OF CENTRAL ASSISTANCE RELEASED UNDER FMP/FM COMPONENT OF FMBAP**

| CI         | Funds released under FMP |                           |             |             |         | Total free da |          |
|------------|--------------------------|---------------------------|-------------|-------------|---------|---------------|----------|
| 51.<br>No. | State                    | During XI<br>and XII Plan | 2017-<br>18 | 2018-<br>19 | 2019-20 | 2020-<br>21   | released |
| 1          | Arunachal<br>Pradesh     | 169.60                    | 21.18       |             |         |               | 190.78   |
| 2          | Assam                    | 813.75                    | 245.49      | 142.12      | 85.03   |               | 1,286.39 |
| 3          | Bihar                    | 907.82                    |             | 16.58       |         |               | 924.41   |
| 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<br>Pradesh      | 387.85                    | 87.50       | 162.60      | 176.41  | 11.87         | 826.22   |
| 9          | Jammu &<br>Kashmir       | 422.52                    | 110.40      | 52.20       | 92.74   | 10.14         | 688.00   |
| 10         | Jharkhand                | 22.71                     |             |             |         |               | 22.71    |
| 11         | Karnataka                | 23.80                     |             |             |         |               | 23.80    |
| 12         | Kerala                   | 118.90                    | 19.05       |             |         |               | 137.95   |
| 13         | Manipur                  | 90.70                     |             |             |         |               | 90.70    |
| 14         | Meghalaya                | 3.81                      |             |             |         |               | 3.81     |
| 15         | Mizoram                  | 16.41                     | 0.48        |             |         |               | 16.89    |
| 16         | Nagaland                 | 83.12                     |             | 10.84       |         |               | 93.96    |
| 17         | Odisha                   | 101.12                    |             |             |         | 15.79         | 116.91   |
| 18         | Puducherry               | 7.50                      |             |             |         |               | 7.50     |
| 19         | Punjab                   | 40.43                     |             |             |         |               | 40.43    |
| 20         | Sikkim                   | 91.84                     |             |             |         |               | 91.84    |
| 21         | Tamilnadu                | 59.82                     |             |             |         |               | 59.82    |
| 22         | Tripura                  | 23.62                     |             |             |         |               | 23.62    |
| 23         | Uttar Pradesh            | 401.91                    | 13.55       | 15.58       | 39.15   |               | 470.18   |
| 24         | Uttrakhand               | 203.61                    |             | 4.63        | 35.58   |               | 243.82   |
| 25         | West Bengal              | 802.01                    | 65.03       | 23.65       | 117.12  |               | 1007.81  |
|            | Total                    | 4,873.07                  | 562.67      | 428.20      | 546.01  | 37.79         | 6,447.76 |

## STATE-WISE AREA PROTECTED AND POPULATION BENEFTTED UNDER FLOOD MANAGEMENT ROGRAMME DURING XI & XII PLAN

| SI.<br>No | State             | Projects (in<br>number) | Area protected<br>(hectares) | Population<br>benefitted (number) |
|-----------|-------------------|-------------------------|------------------------------|-----------------------------------|
| 1         | Arunachal Pradesh | 21                      | 47,616.53                    | 2,01,209                          |
| 2         | Assam             | 105                     | 6,70,314.46                  | 1,60,63,422                       |
| 3         | Bihar             | 42                      | 28,67,117                    | 2,23,45,566                       |
| 4         | Chhattisgarh      | 3                       | 100.05                       | 35,596                            |
| 5         | Goa               | 2                       | 300                          | 27,000                            |
| 6         | Gujarat           | 2                       | 319.97                       | 46,400                            |
| 7         | Haryana           | 1                       | 1,41,279                     | 10,53,441                         |
| 8         | Himachal Pradesh  | 6                       | 14,461.81                    | 2,75,694                          |
| 9         | Jammu &Kashmir    | 19                      | 2,31,987.654                 | 15,31,505                         |
| 10        | Jharkhand         | 3                       | 17,700                       | 1,96,500                          |
| 11        | Karnataka         | 2                       | 18                           | 80,000                            |
| 12        | Kerala            | 2                       | 3,841                        | 10,756                            |
| 13        | Manipur           | 22                      | 39,315                       | 2,01,640                          |
| 14        | Mizoram           | 1                       | 135.68                       | 312                               |
| 15        | Nagaland          | 14                      | 2,463.42                     | 1,63,000                          |
| 16        | Odisha            | 66                      | 1,93,749                     | 11,54,300                         |
| 17        | Punjab            | 4                       | 11,383                       | 55,500                            |
| 18        | Sikkim            | 28                      | 48,727.87                    | 2,06,534                          |
| 19        | Tamil Nadu        | 5                       | 3,19,516.9                   | 20,17,103                         |
| 20        | Tripura           | 11                      | 1,964                        | 88,480                            |
| 21        | Uttar Pradesh     | 24                      | 2,64,862                     | 39,64,469                         |
| 22        | Uttarakhand       | 16                      | 23,529.3                     | 1,31,122                          |
| 23        | West Bengal       | 16                      | 93,736.7                     | 23,57,250                         |
|           | Total             | 415                     | 49,94,438.4                  | 5,22,06,799                       |

## **'SURVEY & INVESTIGATION' AND PREPARATION OF DETAILED PROJECT REPORTS OF MULTIPURPOSE PROJECTS BY BRAHMPUTRA BOARD**

| Sl.<br>No. | Name of Project                |        | Basin       | Installed<br>Capacity (MW) | Status                                                                                                                                    |
|------------|--------------------------------|--------|-------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| A. Co      | mpleted DP                     | 'R     |             |                            | ·                                                                                                                                         |
| 1.         | Dihang (Siang)<br>Dam Project  |        | Brahmaputra | 20,000                     | Single-stage project DPR was<br>completed in 1983 by the Board.<br>Handed over to NHPC under 3<br>stage development in 2000               |
| 2.         | Subansiri<br>Project           | Dam    | Brahmaputra | 4,800                      | Single stage project DPR was<br>completed in 1983 by the Board.<br>Handed over to NHPC under 3<br>stage development in 2000               |
| 3.         | Tipaimukh<br>Project           | Dam    | Barak       | 1,500                      | DPR completed in 1995. Handed over to NEEPCO in 1999                                                                                      |
| 4.         | Bairabi Dan<br>Project         | 1      | Barak       | 75                         | Handed over to Govt. of Mizoram in 2000                                                                                                   |
| 5.         | Pagladiya<br>Project           | Dam    | Brahmaputra | 3                          | Under implementation<br>of Brahmaputra Board.<br>Fieldactivitieshaltedduetonon-<br>completion of zirath survey by<br>Government of Assam. |
| B. DP      | <b>PR</b> Partially            | comple | eted        |                            |                                                                                                                                           |
| 1.         | Dibang Dam<br>Project          |        | Brahmaputra | 4,900                      | S & I Executed by the Board and<br>DPRpartially completed. Handed<br>over toNHPC in 2006 and under<br>execution by NHPC.                  |
| 2.         | Lohit Dam Project              |        | Brahmaputra | 3,000                      | S & I completed. Project<br>entrusted to private developer<br>by Govt. of Arunachal Pradesh in<br>2009.                                   |
| 3.         | Kynshi Stage-I<br>Dam Project  |        | Others      | 450                        | S & I was under final stage of completion.                                                                                                |
| 4.         | Kynshi Stage-II<br>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.<br>No. | Name of<br>Project                                                        | State                | Basin       | Installed<br>Capacity<br>(MW) | Status                                                                                                        |  |
|------------|---------------------------------------------------------------------------|----------------------|-------------|-------------------------------|---------------------------------------------------------------------------------------------------------------|--|
| 1.         | Kulsi Multi-<br>Purpose Project<br>(Identified<br>as National<br>Project) | Assam & Meghalaya    | Brahmaputra | 55                            | DPR completed.<br>Decision for<br>ownership for<br>implementation is<br>underway.                             |  |
| 2.         | Noa-Dehing<br>Dam Project<br>(Identified<br>as National<br>Project)       | Arunachal Pradesh    | Brahmaputra | 71                            | Government<br>of Arunachal<br>Pradesh has taken<br>over the project<br>vide their letter<br>dated 09.01.2019. |  |
| 3.         | Simsang Dam<br>Project                                                    | Meghalaya            | Others      | 65                            | Work for<br>preparation of                                                                                    |  |
| 4.         | Jiadhal Dam<br>Project                                                    | Arunachal<br>Pradesh | Brahmaputra | 70                            | DPRs is entrusted<br>to WAPCOS and is<br>in progress.                                                         |  |
| 5.         | Killing Dam<br>Project                                                    | Assam & Meghalaya    | Brahmaputra | 85                            | Under survey & investigation.                                                                                 |  |

Status of Projects currently under S & I and DPR preparation is as under:

| Sl.<br>No. | Name of Project                                                        | State                | Basin       | Installed<br>Capacity<br>(MW) | Status                                                                                                                                                        |  |
|------------|------------------------------------------------------------------------|----------------------|-------------|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 1.         | Kulsi Multi-<br>Purpose Project<br>(Identified as<br>National Project) | Assam &<br>Meghalaya | Brahmaputra | 55                            | DPR completed.<br>Decision for ownership<br>for implementation is<br>underway.                                                                                |  |
| 2.         | Noa-Dehing<br>Dam Project<br>(Identified as<br>National Project)       | Arunachal<br>Pradesh | Brahmaputra | 71                            | Government of<br>Arunachal Pradesh<br>offered to execute in<br>joint venture with<br>NHPC and requested<br>to Ministry of Power to<br>allot the work to NHPC. |  |
| 3.         | Simsang Dam<br>Project                                                 | Meghalaya            | Others      | 65                            | Works for preparation of DPRs is entrusted to                                                                                                                 |  |
| 4.         | Jiadhal Dam<br>Project                                                 | Arunachal<br>Pradesh | Brahmaputra | 70                            | WAPCOS.                                                                                                                                                       |  |
| 5.         | Killing Dam<br>Project                                                 | Assam &<br>Meghalaya | Brahmaputra | 85                            | In dialogue with<br>NEEPCo, for handing<br>over the project.                                                                                                  |  |

#### **ANNEXURE-X**

#### **BUDGET AT A GLANCE**

| Scheme/ Office/<br>Component                            | Actuals<br>2020-21 | BE<br>2021-22 | RE<br>2021-22 | Exp. upto<br>31.12.2021<br>(tentative) | BE<br>2022-23 |
|---------------------------------------------------------|--------------------|---------------|---------------|----------------------------------------|---------------|
| Central Sector Schemes                                  |                    |               |               |                                        |               |
| Farakka Barrage Project                                 | 35.76              | 53            | 56            | 30.67                                  | 110.98        |
| DRIP                                                    | 30.51              | 25            | 25            | 13.01                                  | 100           |
| National Ganga Plan                                     | 500                | 600           | 1400          | 600                                    | 1600          |
| Ghat works for Beautf. of<br>River Front                | 0                  | 0.01          | 0             | 0                                      | 0             |
| National River<br>Conservation Plan                     | 800                | 850.01        | 500           | 350                                    | 1200          |
| River Basin Management                                  | 147.76             | 199           | 177.3         | 122.84                                 | 97            |
| Development of Water<br>Resources Information<br>System | 128.53             | 175           | 160           | 110.48                                 | 185           |
| Ground Water Management<br>& Regulation                 | 132.97             | 275           | 170           | 94.37                                  | 375           |
| National Hydrology Project                              | 134.44             | 200           | 412           | 236.97                                 | 800           |
| Human Resources<br>Development/ Capacity<br>Building    | 17.02              | 29.5          | 0             | 12.2                                   | 0             |
| Infrastructure<br>Development                           | 10.83              | 20            | 0             | 6.42                                   | 0             |
| R&D and NWM                                             | 29.57              | 29.5          | 40.5          | 19.97                                  | 52.88         |
| Atal Bhujal Yojana                                      | 123.03             | 330           | 330           | 135.46                                 | 700           |
| Sub Total                                               | 2,090.42           | 2,786.02      | 3,270.8       | 1,732.39                               | 5,220.86      |
| Centrally Sponsored Schemes                             |                    |               |               |                                        |               |
| PMKSY-Har Khet Ko Pani                                  | 773.49             | 900.5         | 863.56        | 543.52                                 | 784.97        |
| AIBP and CADWM                                          | 0                  | 0             | 3700          | 0                                      | 4,281.69      |
| FMBAP                                                   | 97.05              | 342.99        | 225           | 15.06                                  | 450           |
| Irrigation Census                                       | 9.54               | 15            | 26            | 11.86                                  | 52.78         |
| Servicing of loans from<br>NABARD under PMKSY           | 2,973.81           | 3,600         | 3,745         | 2,856.97                               | 4,585         |

| Scheme/ Office/<br>Component                                                                    | Actuals<br>2020-21 | BE<br>2021-22 | RE<br>2021-22 | Exp. upto<br>31.12.2021<br>(tentative) | BE<br>2022-23 |
|-------------------------------------------------------------------------------------------------|--------------------|---------------|---------------|----------------------------------------|---------------|
| Special Package for<br>Marathawada, Vidarbha<br>and other drought prone<br>areas of Maharashtra | 400                | 400           | 600           | 400                                    | 800           |
| National River<br>Conversation Plan- Other<br>Basins                                            | 99.87              | 100           | 232.68        | 79.21                                  | 250.68        |
| Interlinking of river                                                                           | 0                  | 0             | 4,300         | 0                                      | 1,400         |
| Sub Total                                                                                       | 4,353.76           | 5,358.49      | 13,692.24     | 3,906.62                               | 12,605.12     |
| Establishment                                                                                   |                    |               |               |                                        |               |
| Secretariat - Economic<br>Services                                                              | 80.42              | 106.5         | 230.04        | 68.29                                  | 146           |
| Attached, Subordinate & O                                                                       | ther offices       |               |               |                                        |               |
| Central Water Commission                                                                        | 353.24             | 389.46        | 375.6         | 297.56                                 | 410.8         |
| Central Soil & Material<br>Research Station                                                     | 21.89              | 22.89         | 22.96         | 18.2                                   | 31.1          |
| Central Water & Power<br>Research Station                                                       | 65.36              | 73            | 73            | 58.85                                  | 80            |
| Sardar Sarovar<br>Construction Advisory<br>Committee - SSCAC                                    | 0.07               | 0             | 0             | 0                                      | 0             |
| Bansagar Control Board                                                                          | 0.3                | 0.4           | 0.4           | 0.26                                   | 0.5           |
| Upper Yamuna River Board                                                                        | 1.04               | 2.5           | 1.29          | 2.53                                   | 2             |
| Central Ground Water<br>Board                                                                   | 233.01             | 237.5         | 271.68        | 205.36                                 | 282           |
| National Institute of<br>Hydrology                                                              | 25.02              | 33.5          | 41            | 27.26                                  | 45            |
| National Water<br>Information Centre                                                            | 2.11               | 2.31          | 3.26          | 1.88                                   | 3.5           |
| National River<br>Conservation Directorate                                                      | 5.45               | 5.5           | 6.5           | 4.43                                   | 7.5           |
| NERIWALM                                                                                        | 0                  | 4.5           | 8.9           | 3.4                                    | 11            |
| Brahmaputra Board                                                                               | 0                  | 0             | 0             | 0                                      | 50            |
| NWDA                                                                                            | 0                  | 0             | 0             | 0                                      | 59            |
| NWA                                                                                             | 0                  | 0             | 8             | 0                                      | 10            |
| RGI                                                                                             | 0                  | 0             | 3.03          | 0                                      | 3.5           |
| Sub Total                                                                                       | 787.91             | 878.06        | 1,045.66      | 688.02                                 | 1,141.90      |
| Total                                                                                           | 7,232.09           | 9,022.57      | 18,008.7      | 6,327.03                               | 18,967.88     |

### 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.<br>No. | Name of the<br>Organization                                                      | Address                                                                                                                  | Name & Designation of<br>P.G./ S.G. Officer                                          |
|------------|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 1.         | Department of Water<br>Resources, River<br>Development and Ganga<br>Rejuvenation | Room No. 01, 'B' Wing,<br>Shastri Bhavan, New<br>Delhi-110001<br>(Tel No. 011-23074005)                                  | Shri A. C. Mallick<br>Deputy Secretary (Coord.)<br>Email Id: dscoord-mowr@<br>nic.in |
| 2.         | Narmada Control<br>Authority                                                     | Narmada Sadan, Sector-B,<br>Scheme No. 74, Vijay Nagar,<br>Indore - 452010(MP)<br>(Tel No. 0731-2551144)                 | Dr. Tejram Nayak,<br>Secretary and Grievance<br>Redressal Officer                    |
| 3.         | Bansagar Control Board                                                           | Bansagar Control Board, Samab<br>Colony, Rewa (MP)<br>(Tel No. 07662-226318),<br>07552-2551834                           | Shri M.W. Paunikar<br>Secretary and<br>Grievance Officer                             |
| 4.         | Betwa River Board                                                                | Betwa River Board, Nandanpura,<br>Jhansi-<br>284003 (U.P)<br>(Tel No. 0510-2480279)                                      | Shri M.K. Jain<br>Assistant Engineer & Public<br>Grievance Officer                   |
| 5.         | Central Ground Water<br>Board                                                    | CGWB, CHQ, Faridabad,<br>(Tel No. 0129-2477125 &<br>(Fax No. 0129-2412524)                                               | Dr. A. Asokan,<br>Director (Admn)<br>& Public Grievances officer                     |
| 6.         | Central Soil and<br>Materials Research<br>Station                                | Room No. 316, CSMRS,<br>Olof Palme Marg, Hauz Khas,<br>New Delhi- 110 016<br>(Tel No. 26581370)<br>FAX No26853108        | Shri Hari Dev,<br>Scientist 'E' (RM-I)<br>&Director (Grievances)                     |
| 7.         | Central Water<br>Commission                                                      | Room No. 313(S), Sewa Bhawan,<br>R.K. Puram,<br>New Delhi-110066,<br>(Tel No. 011 26187232)<br>(Fax No. 26195516)        | Shri Praveen Kumar<br>Secretary &Grievances<br>Officer                               |
| 8.         | Central Water & Power<br>Research Station                                        | Central Water & Power Research<br>Station, P.O. Khadakwasla<br>Research Station, Pune - 411024<br>(Tel No. 020-24103402) | Dr. J. D. Agrawal,<br>Scientist - E and Grievance<br>RedressalOfficer                |

| Sl.<br>No. | Name of the<br>Organization                              | Address                                                                                                                                              | Name & Designation of<br>P.G./ S.G. Officer                                                    |
|------------|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| 9.         | Farakka Barrage Project                                  | P.O. Farakka Barrage, Distt.<br>Murshidabad, West Bengal-<br>742212<br>(Tel No. 03485-253335)                                                        | Shri Sandeep Kumar,<br>Superintending Engineer<br>(Coord.) & Director (Staff<br>Grievances)    |
| 10.        | Ganga Flood Control<br>Commission                        | Ganga Flood Control<br>Commission,<br>Sinchai Bhawan, III <sup>rd</sup> Floor,<br>Patna-800015 (Tel No. 0612-<br>2215222) (Fax No. 0612-<br>2222294) | Shri Sanjeev Kumar<br>Director Coord. &<br>Director ( Staff Grievances<br>& Public Grievances) |
| 11.        | National Institute of<br>Hydrology                       | Jal Vigyan Bhawan,<br>Roorkee , Uttarakhand,<br>- 247667<br>(Tel No. 01332249216)                                                                    | Shri Omkar Singh,<br>Scientist- F,<br>Public Grievance Officer                                 |
| 12.        | National Projects<br>Construction<br>Corporation Limited | NPCC Ltd., Plot No. 148, Sector<br>-44, Gurugram, Haryana-<br>122003                                                                                 | Shri Nitin Saxena,<br>Senior Manager (Law)<br>Grievances Redressal<br>Officer                  |
| 13.        | National Water<br>Development Agency                     | 18-20, Community Centre,<br>Saket,<br>New Delhi-110017<br>(Tel No. 26852735)                                                                         | Shri R.K. Jain, Chief<br>Engineer (HQ) & Grievance<br>Officer                                  |
| 14.        | Water & Power<br>Consultancy Services<br>(India) Ltd.    | 76, C, Sector-18, Gurugram,<br>Haryana-122015,<br>Tel No:- 0124-2344425                                                                              | Dr. Aman Sharma,<br>Director (Staff/Public<br>Grievance)                                       |
| 15.        | Brahmaputra Board                                        | Basistha, Guwahati - 781029<br>(Tel No. 0361-2300128)                                                                                                | Shri Soumitra Kumar Deb,<br>Executive Engineer (HQ)<br>(Staff/Public Grievances)               |
| 16.        | Upper Yamuna River<br>Board                              | Upper Yamuna River Board,<br>Wing No. 4, Ground Floor, West<br>Block No. 1,<br>R.K. Puram, New Delhi-<br>110066<br>(Tel 011-26174147)                | Shri R. D. Deshpande<br>Member Secretary                                                       |
| 17.        | Tungabhadra Board                                        | Tungabhadra Board,<br>Tungabhadra Dam,<br>Taluk: Hospet, Distt: Bellary,<br>Karnataka State, PIN: 583225<br>Tel 08394-259113                         | Shri G Naga Mohan,<br>Secretary & Director of<br>Grievances                                    |
| 18.        | National Mission for<br>Clean Ganga                      | 1 <sup>st</sup> Floor, Major Dhyanchand<br>National Stadium, New Delhi<br>110002.                                                                    | Shri Binod Kumar,<br>Director (NMCG) &<br>Grievance Officer                                    |

## LIST OF CENTRAL PUBLIC INFORMATION OFFICERS/ APPELLATE AUTHORITIES IN THE VARIOUS WINGS/ SECTIONS OF THE DEPARTMENT OF WATER RESOURCES, RIVER DEVELOPMENT & GANGA REJUVENATION

| S.<br>No. | Name & Designation of<br>CPIO Appointed (S/Shri/<br>Smt/Kum)                                                           | Name of the<br>Section/ Desk/work                                                      | Name & Designation of<br>the Appellate Authority<br>appointed (S/Shri/Smt/Kum)                                       |
|-----------|------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| 1         | S.B. Pandey,<br>Under Secretary (Admn.)<br>Tel No.011-23714350<br>Email: <u>usadmn-mowr@nic.</u><br>in                 | Administration<br>Section/General<br>Admin Section/Cash<br>Section & SC/ST/<br>OBCCell | N. P. Joshi, Deputy Secretary<br>(Admn/Gen. Admin/ Cash)<br>Tel No.011-23714734<br>Email: <u>np.joshi@nic.in</u>     |
| 2         | A.K. Das, US(E-I)<br>Tel No.011-23716928<br>Email: <u>use1-mowr@nic.in</u>                                             | E-ISection                                                                             | Chandan Mukherjee, Deputy<br>Secretary(E-I/E-III)                                                                    |
| 3         |                                                                                                                        | E-IIISection                                                                           | Tel No.011-23711459<br>Email: <u>chandan@nic.in</u>                                                                  |
| 4         | B.H. Thangmawi Vaiphei,<br>Under Secretary (IEC/ID &<br>e-Gov) Tel No.011-23766944<br>Email: <u>bht.vaiphei@nic.in</u> | IEC/e-Governance<br>Cell & ID                                                          | Girraj Goyal,<br>Director (IEC,ID&e-Gov)<br>Tel No.011-23766369<br>Email : <u>diregovmowr@nic.in</u>                 |
| 5         | S. N. Pal,<br>Under Secretary (Coord.)<br>Tel No.011-23074033<br>Email: <u>uscoord-mowr@nic.in</u>                     | Coordination Section                                                                   | A. C. Mallick,<br>Deputy Secretary (Coord.),<br>Tel No.011-23074005<br>Email: <u>dircoord-mowr@nic.in</u>            |
| 6         | B. L. Meena,<br>Under Secretary (EA & IC &<br>Parl.) Tel No.011-23383078<br>Email: <u>usea-mowr@nic.in</u>             | Parliament and<br>EA & IC                                                              | Mukesh Kumar, Deputy<br>Secretary<br>(Parliament, EA & IC)<br>Tel No.011-23382428<br>Email:- <u>dsea-mowr@nic.in</u> |
| 7         | Shalini Juneja,<br>Under Secretary<br>(E-IV&PSU)<br>Tel No.011-23711946<br>Email: <u>shalini.juneja88@gov.in</u>       | E-IV &<br>Public Sector<br>Undertakings (PSU)                                          | Subrata K. Basu,<br>Deputy Secretary,<br>(E-IV & PSU)<br>Tel No.011-23714374<br>Email : <u>basu-sk@nic.in</u>        |

| S.<br>No. | Name & Designation of<br>CPIO Appointed (S/Shri/<br>Smt/Kum)                                                   | Name of the<br>Section/ Desk/work       | Name & Designation of<br>the Appellate Authority<br>appointed (S/Shri/Smt/Kum)                                    |
|-----------|----------------------------------------------------------------------------------------------------------------|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| 8         | Arvind Joseph Soreng,<br>Under Secretary(PP)<br>Tel:011-23714350<br>Email: <u>uspp-mowr@nic.in</u>             | PP ( Policy)                            | Vivek Pal,<br>Senior Joint Commissioner (PP),<br>Tel:011-23719503<br>Email: <u>sjcpp-mowr@nic.in</u>              |
| 9         | Akshaya Kumar Sahoo,<br>Under Secretary(GWE)<br>Tel.No.011-23716928<br>Email: <u>ak.sahoo38@nic.in</u>         | GWE                                     | Ashok Kumar,<br>Deputy Secretary(GWE),<br>Tel No.011-23711988<br>Email: <u>ashok.kumar@nic.in</u>                 |
| 10        | Jitendra Kumar,<br>Under Secretary (Budget/<br>Fin-I) TelNo.011-23719627<br>Email: <u>jitendra.kr80@nic.in</u> | Budget/Fin-I                            | Ashok Kumar Patro,<br>Deputy Secretary (Budget/Fin-I)<br>Tel No.011-23711360<br>Email: <u>ak.patro@nic.in</u>     |
| 11        | Y.P. Yadav,<br>Under Secretary(IFD/Fin-II)<br>TelNo.011-23719302<br>Email: <u>yp.yadav48@gov.in</u>            | IFD/Fin-II                              | Ashok Kumar Patro,<br>DeputySecretary(IFD/Fin-II) Tel.<br>No.011-23711360<br>Email: <u>ak.patro@nic.in</u>        |
| 12        | Prashant Malik<br>Under Secretary (E-II&Vig)<br>Tel No.011-23350131                                            | E-II                                    | Vijay Kumar Srivastava, Deputy<br>Secretary (E-II)<br>Tel No.011-23711486<br>Email:<br>vijayk.srivastava25@nic.in |
| 13        | Email <u>usez-mowr@mc.m</u>                                                                                    | Vigilance                               | Ashish Kumar,<br>Director (GW & Vigilance)<br>Tel No.011-23716747<br>Email: <u>ashish.kumar74@gov.in</u>          |
| 14        | Bisny Suresh Kumar,<br>Under Secretary (GW)<br>Tel No.011-23716928<br>Email: <u>usgw2-mowr@nic.in</u>          | Ground Water                            | Ashish Kumar,<br>Director (GW & Vigilance)<br>Tel.No.011-23716747<br>Email: <u>ashish.kumar74@gov.in</u>          |
| 15        | Anil Kumar,<br>Assistant Director(OL)<br>Tel No.011-23714374<br>Email: <u>hindi-mowr@nic.in</u>                | Official Language<br>Section            | Vijay Singh Meena, Director(OL)<br>Tel No.011-23714374<br>Email: <u>vs.meena25@nic.in</u>                         |
| 16        | Kaushal Kumar,<br>Under Secretary (B&B)<br>Tel No. 011-24367116<br>Email : <u>kaushalkmr-cwc@nic.</u><br>in    | Matters of<br>Brahmaputra<br>&BarakWing | Ajay Kumar Gupta,<br>Senior Joint Commissioner<br>(B&B) Tel No.011-24367128<br>Email: <u>ak.gupta28@gov.in</u>    |
| S.<br>No. | Name & Designation of<br>CPIO Appointed (S/Shri/<br>Smt/Kum)                                                      | Name of the<br>Section/ Desk/work                                                                                                                                                                                                          | Name & Designation of<br>the Appellate Authority<br>appointed (S/Shri/Smt/Kum)                                          |
|-----------|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| 17        | Brijesh Kumar,<br>DeputyDirector(NHP)Tel.<br>No.011-21420148<br>Email: <u>brijesh.kumar68@gov.</u><br><u>in</u>   | National Hydrology<br>Project                                                                                                                                                                                                              | Rakesh Kashyap,<br>Senior Joint Commissioner(NHP)<br>Tel No.011-24367081<br>Email: <u>sjc3nhp-mowr@nic.in</u>           |
| 18        | Rajesh Sharma,<br>Under Secretary (FM)<br>TelNo.011-24362517<br>Email: <u>rajeshsharma-cwc@</u><br>gov.in         | Flood Management<br>Wing                                                                                                                                                                                                                   | Rajeev Singhal<br>Sr. Joint Commissioner(FM)<br>TelNo.011-24392095<br>Email: <u>sjcfm4-mowr@nic.in</u>                  |
| 19        | Bamane Mohan Jinnappa,<br>Deputy Director (Planning)<br>Tel No.011-23466683<br>Email:- <u>bamane.m@gov.in</u>     | Planning Unit                                                                                                                                                                                                                              | Ch. David, Director(Planning)<br>Tel No.011-24366683<br>Email:- <u>david.ch63@gov.in</u>                                |
| 20        | Saurabh Kumar,<br>Deputy Secretary (CADWM)<br>Tel.No.011-23388977<br>Email: <u>saurabh.k01@nic.in</u>             | CAD related matters                                                                                                                                                                                                                        | A S Goel, Commissioner (CAD)<br>Tel.No.23382256<br>Email: <u>ashoksgoel-cwc@nic.in</u>                                  |
| 21        | R.N. Singh,<br>Deputy Commissioner<br>(Basin Management)<br>Tel No.011-24368344<br>Email: <u>dcbm-mowr@nic.in</u> | River Basin<br>Management,<br>Administration<br>of UP, Bihar, MP<br>Reorganisation Act,<br>Inter State<br>Water Disputes<br>Act, Inter State<br>WaterDisputes<br>Tribunal, technical<br>matters of NWDA and<br>Inter-<br>Linking of Rivers | Rakesh Kumar,<br>Sr. Joint Commissioner (Basin<br>Management)<br>Tel No.011-24367109<br>Email: <u>sjcbm-mowr@nic.in</u> |
| 22        | Veeresh,<br>Deputy Commissioner (SPR-I)<br>Tel No. 011-23385186<br>Email: <u>veeresh-cwc@gov.in</u>               | SPR-I                                                                                                                                                                                                                                      | Anup Kr. Srivastava,<br>Sr. Joint Commissioner(SPR-I),<br>Tel No.011-23385186<br>Email:- <u>aksriv-cwc@nic.in</u>       |
| 23        | Kanchan Bala Hamza,<br>Under Secretary (Pen.River)<br>Tel No.011-23383261<br>Email : <u>uspenriv-mowr@nic.in</u>  | Peninsular River<br>Wing                                                                                                                                                                                                                   | T. D. Sharma<br>Sr. Joint Commissioner (Pen.<br>River)<br>Tel No.011-23383059<br>Email: <u>sharma.td69@nic.in</u>       |

| S.<br>No. | Name & Designation of<br>CPIO Appointed (S/Shri/<br>Smt/Kum)                                                                                            | Name of the<br>Section/ Desk/work                   | Name & Designation of<br>the Appellate Authority<br>appointed (S/Shri/Smt/Kum)                                                  |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| 24        | Ashish Dubey,<br>Assistant Commissioner<br>(Minor Irrigation)<br>TelNo.011-23387834<br>Email: <u>ashishdubey-cwc@gov.</u><br>in                         | Minor Irrigation                                    | Manoj Kumar Meena,<br>Sr. Joint Commissioner(MI)<br>Tel.No.011-23387834<br>Email: <u>sjcmi-mowr@nic.in</u>                      |
| 25        | M.L.Franklin,<br>SectionOfficer(Projects)<br>Tel No.011-23711370<br>Email: <u>mlfranklin-cwc@nic.in</u>                                                 | Project Section                                     | Amit Kumar Jha,<br>SeniorJoint Commissioner (SPR-<br>II)<br>Tel No.011-23710131<br>Email: <u>sjcpr-mowr@nic.in</u>              |
| 26        | Rajveer Singh,<br>Deputy Commissioner (Indus)<br>Tel No.011-24360332<br>Email: <u>dcindus-mowr@nic.in</u>                                               | Indus Wing                                          | Naveen Kumar,<br>Sr. Joint Commissioner(Indus)<br>TelNo.011-24362539<br>Email: <u>sjcindus1-mowr@nic.in</u>                     |
| 27        | Anshika Bhatnagar,<br>SEO(MIStat)<br>Tel No.011-24656135<br>Email: <u>bhatnagar.anshika@gov.</u><br>in                                                  | Minor Irrigation<br>Statistics                      | Smt.SoumyaPKumar<br>Director(MIStats)<br>Tel No.011-24647129<br>Email:soumya.kumar@gov.in                                       |
| 28        | Tejdeep Singh, Scientist 'D',<br>(National Water Mission)<br>Tel No.011-24362133<br>Email:t.singh-cgwb@gov.in                                           | National Water<br>Mission                           | Debashree Mukherjee,<br>Additional Secretary & Mission<br>Director (NWM)<br>Tel No. 011-24365200<br>Email: <u>md.nwm@gov.in</u> |
| 29        | Krishan Lal Ahuja,<br>Under Secretary, NMCG<br>Tel No.011-23049506<br>Email:<br><u>krishanahuja63@gmail.com</u>                                         | Namami Gange                                        | Binod Kumar, Director, National<br>Mission for Clean Ganga<br>Tel No.011-23049417<br>Email : <u>binodkumar.ofb@nic.in</u>       |
| 30        | Pramod Kumar Patra,<br>Under Secretary (National<br>River Conservation<br>Directorate)<br>Tel No.24361057<br>Email:- <u>pramod.patra1983@</u><br>gov.in | National River<br>Conservation<br>Directorate(NRCD) | Arvind Prasad Singh,<br>Deputy Secretary(NRCD)<br>Tel No.24369380<br>Email: <u>arvindp.singh@nic.in</u>                         |

| S.<br>No. | Name & Designation of<br>CPIO Appointed (S/Shri/<br>Smt/Kum)                                                      | Name of the<br>Section/ Desk/work | Name & Designation of<br>the Appellate Authority<br>appointed (S/Shri/Smt/Kum)                                    |
|-----------|-------------------------------------------------------------------------------------------------------------------|-----------------------------------|-------------------------------------------------------------------------------------------------------------------|
| 31        | K.H.Sivaramakrishnan, Under<br>Secretary (Atal Jal/NHP)<br>Tel No. 011-24367069<br>Email :- <u>kh.siva@gov.in</u> | Atal Jal                          | Vivek Chaudhary,<br>Deputy Secretary<br>(Atal Jal/NHP)<br>Tel No. 011- 23711875<br>Email : <u>ds1-dowr@gov.in</u> |

**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 th eallotted work.In case any CPIO/Appellate Authority proceeds on leave/training, th econcerned 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.

## LIST OF OTHER IMPORTANT PUBLICATIONS OF DOWR, RD & GR AND ITS ORGANIZATIONS DURING 2021-22

| Sl. No. | Publication                                                                        | Publishedby | Website                       |
|---------|------------------------------------------------------------------------------------|-------------|-------------------------------|
| 1.      | Water Resources at a Glance,<br>2021                                               | CWC         | cwc.gov.in                    |
| 2.      | Hydrological Data (Unclassified)<br>Book- 2021                                     | CWC         | cwc.gov.in                    |
| 3.      | Water and Related Statistics (Bi-<br>annual)                                       | сwс         | cwc.gov.in                    |
| 4.      | Glacial Lake Atlas for Ganga<br>River Basin                                        | NRSC/ NHP   | https://www.nrsc.gov.in/      |
| 5.      | Guidelines for Selecting and<br>Accommodating the Inflow<br>Design Floods for Dams | DRIP/CWC    | www.damsafety.in              |
| 6.      | Manual for Assessing Hydraulic<br>Safety of Existing Dams                          | DRIP/CWC    | www.damsafety.in              |
| 7.      | Annual DRIP Bulletin (January<br>2020 to March 2021)                               | DRIP/CWC    | www.damsafety.in              |
| 8.      | Jal Charcha (Monthly)                                                              | DoWR,RD& GR | http://jalshakti-dowr.gov.in/ |
| 9.      | Jalansh (Monthly)                                                                  | СWC         | cwc.gov.in                    |
| 10.     | Bhujal Samwad (Quarterly)                                                          | CGWB        | http://cgwb.gov.in            |



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