



सत्यमेव जयते

Ministry of Jal Shakti  
Department of Water Resources, RD & GR



# NATIONAL HYDROLOGY PROJECT CONNECT

(January - December 2020 | Newsletter)



A review of the National Hydrology Project (World Bank - supported initiative of Ministry of Jal Shakti) was held on 15<sup>th</sup> December 2020 by Minister of Jal Shakti, Shri Gajendra Singh Shekhawat and Minister of State, Shri Rattan Lal Kataria.

### PLEASE FOLLOW APPROPRIATE BEHAVIOR



WEAR A FACE MASK



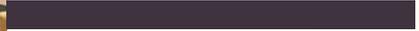
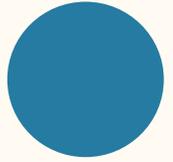
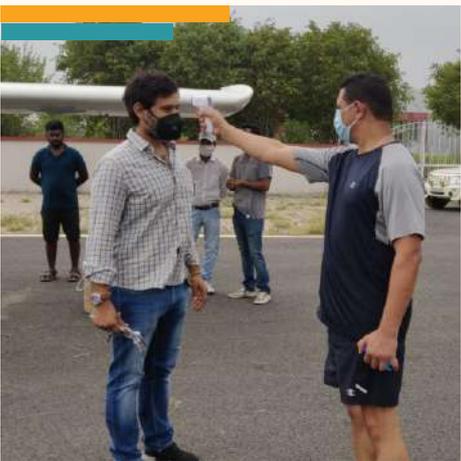
CLEAN AND DISINFECT



WASH YOUR HANDS  
FREQUENTLY



KEEP THE PROPER DISTANCE  
WITH OTHER PERSON



# Message From Secretary



The National Hydrology Project (NHP) implemented by Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti is a project of national importance considering that it establishes a nationwide platform for all States to collaborate and share data pertaining to water resources. Collecting data from scattered agencies has posed a constraint in effective management of water resources and policy level decision making. Under NHP, a nationwide repository of water resources data - National Water Informatics Center (NWIC) - has been established.

Real time as well as near real time data acquisition stations are being set up as part of project. A major advancement has been bringing all States on board for data sharing on water resources into Water Information Management System (WIMS), a centralized database system for all water related information dynamically connected to dissemination platform - India WRIS. The implementing agencies would also share solutions and knowledge products developed under NHP in public domain and encourage universities/research institutes to review and add value to them.

Implementing the success stories of optimum water usage on a basin scale for the large Indian basins would call for concerted actions between the co-basin riparian States. A comprehensive and widely shared database would facilitate coordination among State Governments and the Central Government for finding optimal solutions. It would stimulate analysis by the professionals and the academia and help generate awareness among the people, the real stakeholders, at large.

**Pankaj Kumar**  
Secretary  
DoWR, RD & GR  
Ministry of Jal Shakti, Government of India

# Message From Joint Secretary (A, IC & GW)



Growing demand for water, both domestic as well as irrigation/industrial, have put immense pressure on available water resources, both for surface & ground water. Managing the water resources in a scientific way to meet these demands in coming years will be the key task of Government initiatives. To transform the water sector, an open sharing of comprehensive and reliable data is required.

In this respect, the National Hydrology Project (NHP) being implemented by DWR, RD & GR under the aegis of Ministry of Jal Shakti is slowly bringing in a silent revolution in the water sector. In synchronization of the Digital India movement, measurement of the different components of the water cycle is being automated, to deliver information in real time to a central server. The National Water Informatics Centre (NWIC) has been established as a single nodal point for collection and dissemination of data in public domain via a comprehensive web-based system. The states are further encouraged to develop State Water Information Centers to have all data relevant for a region or state. Decision Support Systems and advanced models are being built as part under NHP for the benefit of stakeholders.

Under the NHP, 2600 Real Time Data Acquisition Systems (RTDAS) have been set up and contract for 7600 RTDAS have already been awarded under the project. It is also informed that Near Real Time Data Acquisition Systems (NRTDAS) as well as manual data acquisition stations are being set up as part of project. India WRIS & Water Information and Management System (WIMS) have been revamped during the project.

NHP implementing agencies have survived the difficult period of Covid-19 and done well. We are at mid-term and this brings greater expectations for the NHP family. Agencies were provided an exclusive opportunity to review the various activities under Project Implementation Plan afresh and make some necessary adjustments wherever required. Our objective in this should be to focus on the project's main activities and direct our efforts towards its implementation, without losing sight of the project's overall objectives.

The states also need to exercise greater amount of ownership, and come forward to prepare a plan for operation and maintenance costs of the enormous expanse of assets like the components of the RTDAS, the equipment for measurement of water quality parameters and more, which are being created under the project with huge expenditure from the public exchequer. We must learn from previous experiences where costly equipment have suffered from gradual degradation after expiry of the project period.

Our focus on improving the extent, quality, and accessibility of water resources information shall continue unabated. The project is unique in nature, and calls for appreciation and wholehearted dedication, to make it a success. The project goals, however difficult they may appear, are not beyond our capabilities to achieve; and we must jointly take the onus to make it happen.

## **Subodh Yadav**

Joint Secretary (A, IC & GW)

DoWR, RD & GR

Ministry of Jal Shakti, Government of India

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## Before We Begin

The country that we proudly call India emerged through the process of freedom struggle, followed by the assimilation of the princely states post-independence. We would be celebrating our 75<sup>th</sup> anniversary of independence in another year. But, the water of India remains divided still, within the boundaries of the states, the departments and so on. The history tells us about the kings and monarchs who donated generously for the construction of waterbodies, the maintenance of most of which depended mostly on trustees with land that generated revenue and were exempted from paying taxes, and partly through the community efforts. The sense of ownership amongst the real stakeholders and the users dwindled with the spread of the colonial agglomeration, as the water of the nation came under the control of the departments.

The departments, even after much of restructuring, falls short to recognise water as a unified whole, and continue to consider it under the categories of urban, rural, drinking, minor irrigation, water resources, ground water and so on. The management decisions are mostly reliant on heuristics and experience, rather than structured process of informed decision making that depends on real time data and analysis of cross-sector impacts for optimisation, before it is made. It is a matter of concern for the country that sends rockets to the moon and the mars, that flood deaths continue to ravage some part of the country on an annual basis. The understanding about management of water at a basin scale rather than the scale of administrative boundaries of the state is not uncommon, but the implementation is. Except for organisations like the Narmada Control Authority, the practise of optimal water allocation with benefit sharing between the multiple riparian states is difficult to find.

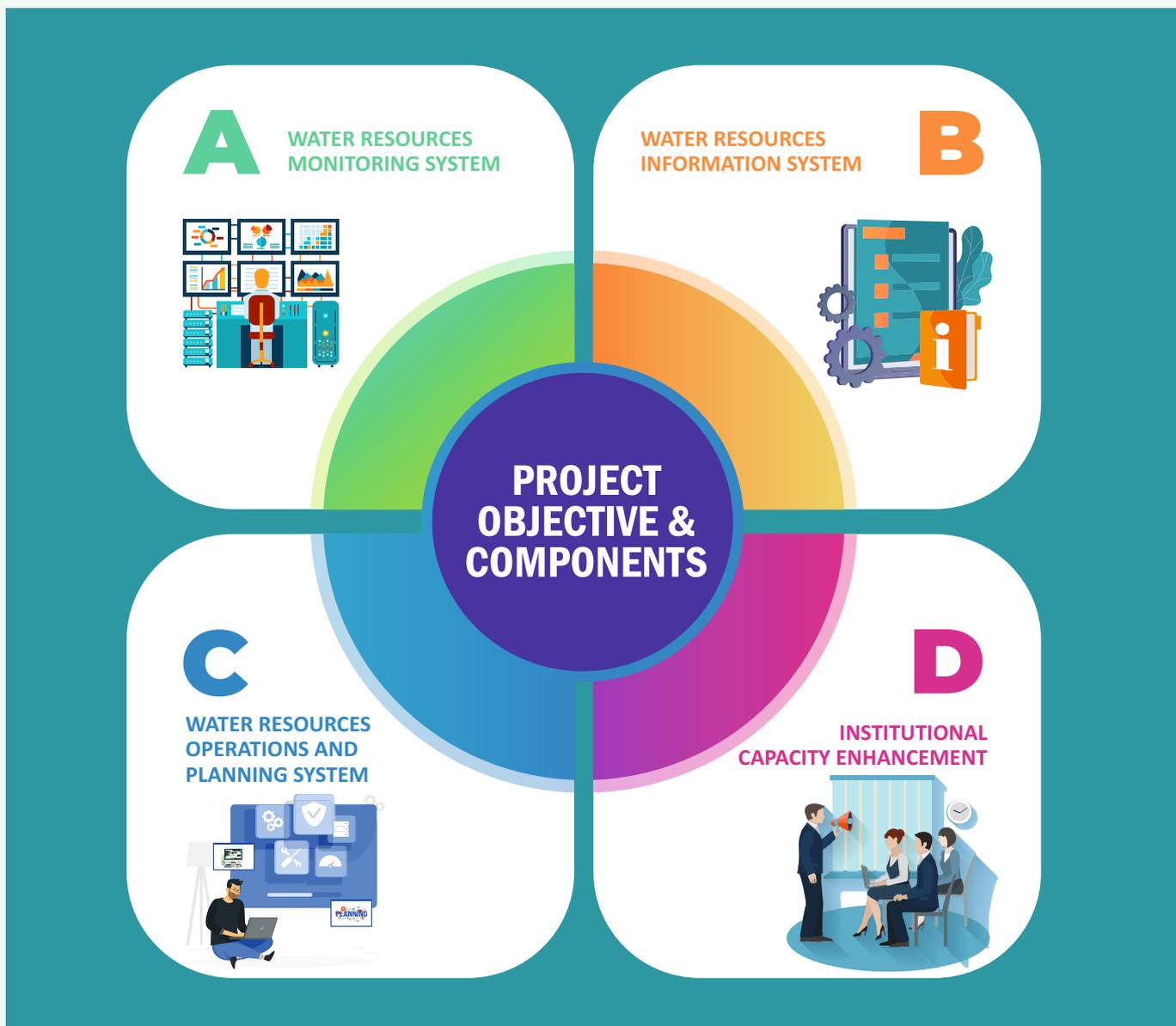
This sets the background where the National Hydrology Project was conceived, visualised to initiate revolutionization of the thought process, the approach and the application. It is regarded as the water sector compliment of the digital India mission, holding the potential to transform the sector for all the times to come. Much like the developed nations, all data related to the availability and quality of the life-saving liquid are to be collected, compiled and made available for public consumption, right at the click of a button. There are provisions for arriving at technical solutions to water related problems like flood forecasting, reservoir optimisation, irrigation efficiency improvement, spring rejuvenation, only to name a few. There are provisions for capacity building of the officers of the implementing agencies from the state, not only in the country, but also in abroad.

With the loan assistance of the World Bank, the project was initiated as a central grant scheme during 2016. Similar to the other projects, it was also suffering from initial hiccups, due to the unfamiliar World Bank procurement procedures and many more differences the project has brought from the conventional working procedure of the line departments. As a consequence, the progress of the project and its financial reflection was much less than that initially perceived. The emergence of the Covid19 virus and the consequent spread of the pandemic worldwide brought the project to its knees, bringing all progress to a screeching halt on and from 23<sup>rd</sup> March 2020. Amidst the global slowdown and the unforeseen restrictions, the project, however, could manage to gain momentum and make significant progress over the year by virtue of the extended vision and able guidance of the senior joint commissioners under the leadership of Project coordinator, Joint Secretary, MoJS. The next section attempts to draw a relationship to the project objectives in simple terms.

## What, Why and How

The management decisions can only improve towards optimality when the consequences for all the alternatives are well known. Also, it depends on the availability of reliable information with updates up to the recent time. It requires focussed efforts to convert input data into information that finally leads to decision. It is obvious that efficient handling of the entire process calls for expertise with the process and the system. Different data required for advanced water resources management at the needed frequency of observation and covering the total area in an adequate manner are seldom available. Whatever data are available for the past, are often not reliable. Also the process of data collection was time consuming and hence, only post analysis was possible, and that too months after any devastating event. So, it was necessary to install real time data acquisition systems, with telemetering facilities for transmitting data to a central server.

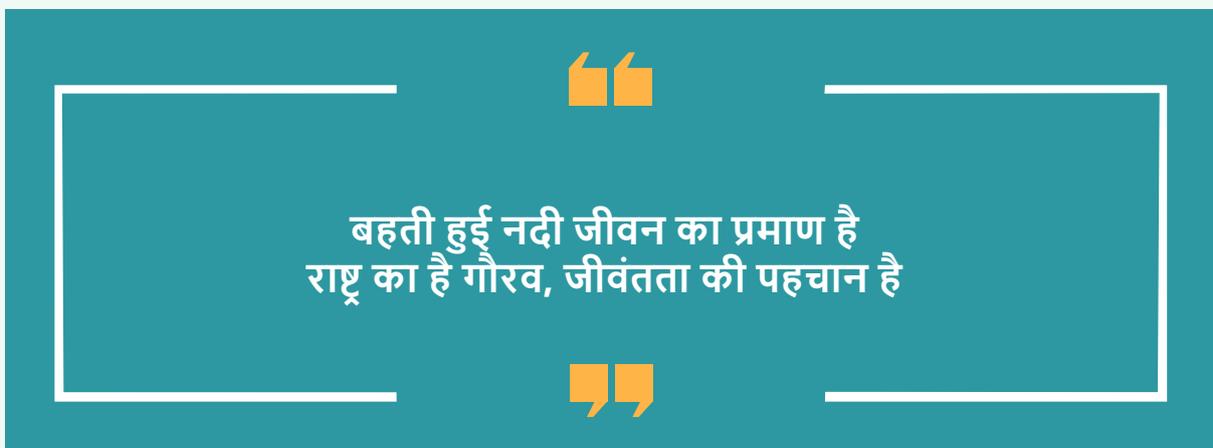
As reliable data will be available in public domain, data hiding and polishing before sharing it to the other co-basin states would be automatically ruled out. This is a logical step towards basin scale cooperation, wherein the national scale optimisation of benefits and losses takes the lead over the interest of the state or the department with pre-defined short term objectives focussed at the local advantages only. This will also help the flood forecasting in a great way, as data will be available for model calibration and validation to predict the impact of intense rainfall occurring in the upper catchment in real time. The evacuation process during floods may be planned earlier, gradually saving more lives and eventually obviating flood deaths. All the components of the cycle are to be captured for developing an understanding of their interdependence, as irrigation leads to recharge of ground water. All these data can be efficiently stored, analysed and disseminated only if a properly designed and developed advanced system is present to take care. The importance of this seamless collection of huge datasets can be best appreciated when the results of its analysis impact the lives and livelihoods of the people in a positive way. Even though specialists will be required to develop each system, trained officers in the departments are essential for its sustainability.



This leads to the four components of the National Hydrology Project. It is targeted to spread the benefits over the entire country. While the initial phase was focussed more on the installation of data acquisition equipment along with simultaneous development of computerised system for its handling, time has come to concentrate on solving at least a few of the myriads of water problems that continue to plague the country even in the third decade of this twenty-first century. We know about the desert countries who have attained water security. It is our duty and responsibility towards the next generations to ensure water security for all the citizens. With an annual rainfall of more than 1.2 metre, it should not be an impossible task. The degradation of water quality is not only affecting the health of the individuals, the Disability Adjusted Life Years (DALY) plays a role in the national growth rate as reflected through the reduction in Gross Domestic Product (GDP). The continued depletion of groundwater can only be reversed through well-planned artificial recharge schemes.

For better assessment of the surface water resources, 2219 Automatic Water Level Recorders have been planned till date, including those on the reservoirs for capturing storage as well as those on the rivers for obtaining discharge. For estimation of rainfall at a spatial scale in a more detailed manner, 1947 Automatic Rain Gauges have been planned. To improve on the assessment of other weather parameters like the temperature, humidity, evaporation, etc., 392 Automatic Weather Stations have been conceived. For assessing the groundwater stations, 11714 Digital Water Level Recorders have been planned. The IndiaWRIS is emerging as the single comprehensive repository of all data needed to analyse, model and manage the water resources of the country as a whole. It also includes tools for carrying out preliminary types of commonly used analysis. The states and union territories are planning to develop their own Water Resources Information System in synchronisation with the national portal, which will deal with data and tools that are more pertinent to a region only. The National Institute of Hydrology is involved in developing a master Decision Support System that includes various components of surface and groundwater assessment through use of advanced models, as well as data from observation stations and meteorological products. It also includes options for optimising reservoir operations. The same would be tested on a pilot, before being applied to various other basins. This will allow the water managers to visualise the impact of a decision before its actual implementation.

There are about 250 cases where it is being attempted to provide technical solutions to problems related to various components of the water resources. It includes topics like flood inundation forecasting, prediction of inflow volumes with a lead time of four weeks, comprehensive study of sedimentation in rivers with suggestion of mitigation measures for erosion problems, assessment of drought, to improvement of river water quality and spring rejuvenation. Trainings have been one of the main components of the project, and with Covid induced lockdown and initiation of virtual meetings online, the participation has increased greatly. Particularly, officers posted at remote locations who were seldom able to participate in physical trainings organised at a distant location or a different state due to various reasons, are now able to gain significantly by taking advantage of the virtual sessions. These developments are in line with the framework of the National Hydrology Project, described in the section that follows.



Sources by India Water Portal

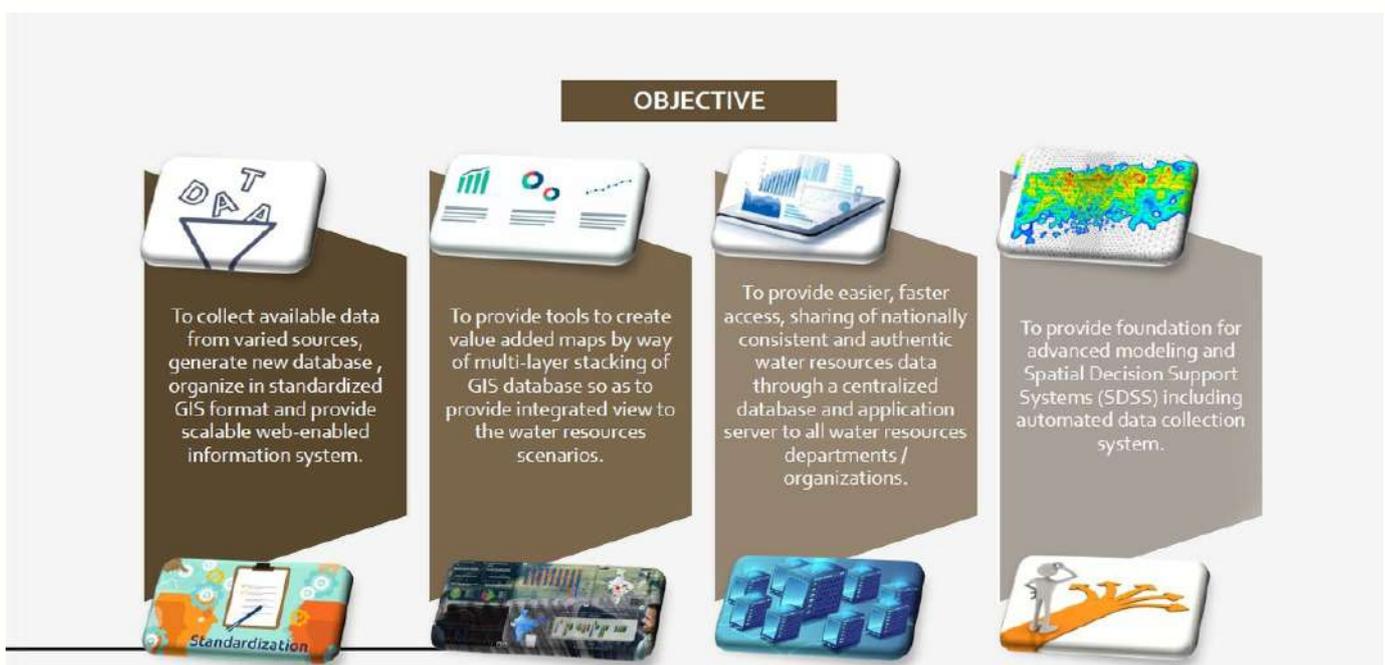
# The National Hydrology Project Plan

The Hydrology Project (HP) has been central to the efforts in India to improve the planning, development and management of its water resources, as well as flood forecasting and reservoir operations in real-time. The project—having completed two phases (Phase I from 1996 to 2003 and Phase II from 2006 to 2014) has established the backbone of a comprehensive Hydrological Information System (HIS) in 13 States/Union Territories. The HP has been instrumental in providing scientifically verified, uniformly accepted and widely accessed hydrological records covering all aspects of the hydrological cycle. The success of the first two phases of the project paved the way for the National Hydrology Project with World Bank loan assistance.

The National Hydrology Project has established a platform for water agencies in India to learn from each other, and encouraged them to modernize existing hydro-meteorological monitoring systems, move from manual to Real-Time Data Acquisition Systems (RTDAS), and develop tools for integrated water resources planning and management, to enhance the productivity and cost effectiveness of water-related investments. National Project Management Unit (NPMU) has been established in Department of Water Resources, River Development and Ganga Rejuvenation (DoWR, RD & GR) Ministry of Jal Shakti (MoJS). The NPMU is responsible for overall project planning, management and coordination; fund allocation; financial and procurement management; monitoring safeguards compliance; monitoring and evaluation (M&E) including the development and operation of a management information system (MIS) and regular progress reporting to the World Bank; and communications and outreach.

The State and Central Government Departments associated with water resources management are the Implementing Agencies (IAs) of the project. The IAs are supported financially as well as technically to execute the activities pertaining to upgradation of existing infrastructure and modernisation of management practices.

Overall, there are 48 implementing agencies (IAs): 9 Central Agencies including the lead IA (MoWR, RD&GR); 3 River Basin Organizations; and 36 state/UT Agencies dealing with surface and groundwater development and management. Out of 36 states/UTs participating in the project, 22 states/UTs have a joint department for surface and groundwater and, thus, would have one IA each. In remaining 7 states, the surface and groundwater departments operate under different secretariats, which reflect the compartmentalization of water sector institutions in India, including at the central level.



## Covid19 & the NHP Struggle

The NHP had to suffer a great blow due to the onset of the Covid19 at a time when it was about to spring into full action, which may probably be compared to a situation where the pilot calls for a halt due to technical glitch after the push back of the plane and moving to the runway. Delay due to lockdown and consequent non-availability of workers on construction activities, installation of RTDAS has suffered badly. Delay due to non-arrival of imported equipment on schedule lead to time overrun. Some activities related to capture of data during a particular time suffered a greater delay. Price escalation of input materials (due to increased transportation cost and delays) and increased manufacturing cost because of observation of social distancing norms, may lead to cost overrun. Site visit of central team was halted for a prolonged period. Physical trainings, with those involving hands on exercise was badly affected, because of restrictions of gathering and travel.

New processes and procedures were adapted to mitigate the delays in project progress. Some of these novel procedures may have a larger impact on the purchasers and suppliers and might become a new norm in the future. Online review meetings of agencies were carried out at regular intervals. IAs are being asked to involve all the members of PMU and field implementation units to the extent possible, to get an exposure to NHP and simultaneously expectations from them for enhancing performance under NHP. Modules of Management Information System (MIS) were further enhanced to take care of the requirement of IAs in view of new normal imposed by COVID. Engaging with the IAs and expert organisations through online platforms for early finalisation of the Terms of Reference (ToR) for Technical Solutions to Water Problems contributed to faster convergence. Introduction of online pre bid conferences with involvement of TAMC Experts for expeditious issue of clarifications and amendments has brought in an air of change which may last for long. Bid evaluation by the IAs has been expedited using online systems and coordination of support staff. ESHS Guidelines had to be modified to take care of Covid-19 guidelines. The IA's have been sensitised to review their cost estimates to ensure adequate responses from bidders, keeping in view the effect of Covid-19 on material, travel and other components. Under the consultancy assignments to deal with technical problems, more work is being allowed from home or registered office of the consultants to minimise on travel or relocation requirements. Special drive has been undertaken to bring all the IAs on the Water Information and Management System (WIMS) platform and are being pursued for focused attention on data digitization, compilation, data cleaning and regular updating. The introduction of the concept of transfer of allocated amounts to common reserve pool before reallocation to other agencies also played its role, encouraging the agencies to make rapid progress in procurement procedures.



## To Measure, Before We Manage

**RTDAS** stands for “**Real Time Data Acquisition System**”. It comprises of monitoring stations and equipment with real-time capability, telemetering data transmission, data storage & management and user interface. As part of the hydro-meteorological network, RTDAS includes Automatic Rain Gauges (ARG) Automatic Weather Stations (AWS) Automatic Water Level Recorders (AWLR). Availability of data in real time is crucial for water managers to decide on reservoir releases for passing an ensuing flood. During period of water scarcity, management decisions can be more optimised if data from all the reservoirs in the region and inflows from all stations are available not only for the past but also for the present. For sounding an alarm to evacuate, the flood forecasting system in countries like the Philippines rely also on the rainfall occurring on the upper catchments in real time, in addition to the water levels observed in the river upstream.

The data from non-recording type of instruments suffers from certain limitations of like missing the peak rainfall or flow events due to its occurrence during monsoon times and at odd hours. The manual data collection had another difficulty. Data observed by a person was recorded on paper and had to be communicated over the wireless or telephone, with possible chance of introduction of error at every stage. A person responsible to collect accurate data during the dead of the night when the rainfall is torrential, and the river is in spate may rather mind being safe inside and miss the data in times of very high floods.

With automatic data capture and transmission systems, the above-mentioned shortcomings would be precluded. The electronic machines installed on a mast fixed to concrete bridges will diligently continue to capture data round the clock and send it to the central server through INSAT, even under the most inclement weather conditions. The system has limited intelligence too, that will trigger a report to the centre in case anything malfunctions. Also, all weather data capture will now become a reality, as many of the manually operated stations in the hills had to remain inoperative for months because of the harsh weather conditions.

Hence RTDAS brings in the scope for automated flood forecasting and the dissemination of flood warnings, better day to day operation of hydro-power schemes and reservoir management and many more.



## Role of RTDAS in NHP

NHP facilitates the establishment/modernization of new and existing hydro-met monitoring systems including meteorology, streamflow, ground water, water quality and water storage measurements. The establishment of hydro-meteorological observation networks over the entire country being carried out under the National Hydrology Project will usher in a new era of water resources monitoring system.

Based on data from this equipment, many flood forecasting systems are being planned to be developed. Automated flood warnings can now be delivered to the public through the web and mobile applications, without any human interventions. This will help to improve evacuation and save more lives, and some movable property as well. Water quality modelling will get better, as continuous hourly data will be available for model calibration and validation. Sometimes precious data is lost due to accidents like fire or natural calamities like earthquake or flood. With data storage on the cloud, data security will be ensured as copies are always available.



The enclosure for collecting weather data



Close up of automatic rain gauge



Ground water level observation system



Data storage and transmission equipment

The project implementation plan envisioned to establish a network of 1947 ARG stations, 392 AWS stations and 2219 AWLR stations and 11714 DWLR stations under NHP by State and Central Agencies.-It is mandated that at least 10% of the weather stations being installed under the NHP will have to be installed at public places. This will help to create community awareness through the display of data.

A nationwide repository of water resources data at NWIC has already been established. Near Real Time Data Acquisition Systems (NRTDAS) as well as manual data acquisition stations are being set up as part of project. India WRIS & Water Information and Management System (WIMS) have been revamped during the project. The major success has been bringing all states on board for data sharing on water resources in to WIMS, a single platform for all water related information, a task hitherto left unaccomplished for long time.

During the Covid times, various measures to accelerate the progress of RTDAS installations were adopted in form of continuous hand holding of agencies and vendor through VCs and WhatsApp groups. To encourage the prospective bidders and to facilitate the installation vendors, the bid security for RTDAS replaced with bid securing declaration and performance security was reduced to 5% from earlier mandated 10%.

Installations were delayed due to restrictions on travel to sites by the vendors and the agencies personnel. However, still with continuous persuasions from National Project Management Unit and Technical and Management Consultant, there was a considerable progress within this year so far. The following is the progress of procurement and installation RTDAS stations done so far.

As on **31<sup>st</sup> December'20**, contract for installation of 6589 Real Time Data Acquisition Systems (RTDAS) stations have been awarded, and out of these, 1972 RTDAS stations have already been set up.

## PROGRESS OF AWARD OF RTDAS

- ✓ ARG Stations: **1292** nos.
- ✓ AWS Stations: **336** nos.
- ✓ AWLR Stations: **1250** nos.
- ✓ DWLR Stations: **3874** nos.

## PROGRESS OF INSTALLATION OF HYDROMETS

- ✓ Total ARG Stations installed: **240** through 5 Implementing Agencies
- ✓ Total AWS Stations installed: **24** through 6 Implementing Agencies
- ✓ Total AWLR Stations installed: **224** through 5 Implementing Agencies
- ✓ Total DWLR Stations installed: **1502** through 7 Implementing Agencies
- ✓ Agency completing the installation activity – ARG, AWS and AWLR: Andhra Pradesh (**67** nos.), Rajasthan (**247** nos.), Goa (**9** nos.), Jharkhand (**37** nos.), Haryana (**30** nos.) and DVC (**80** nos.)
- ✓ Agency completing the installation activity - DWLR: Punjab (**505** nos.), West Bengal (**25** nos.), Uttar Pradesh GW phase1 (**171** nos.), Tamilnadu (**295** nos.), Gujarat (**150** nos.), Kerala (**116** nos.) and Telangana GW (**240** nos.)

As on 31<sup>st</sup> December 2020

## SCADA for Optimised Water Allocation

The acronym SCADA stands for “**Supervisory Control and Data Acquisition**”. As the name suggests the SCADA System consists of two different components which are inter-related in terms of achieving the desired control function i.e. controlling based on data acquisition from remote sites.

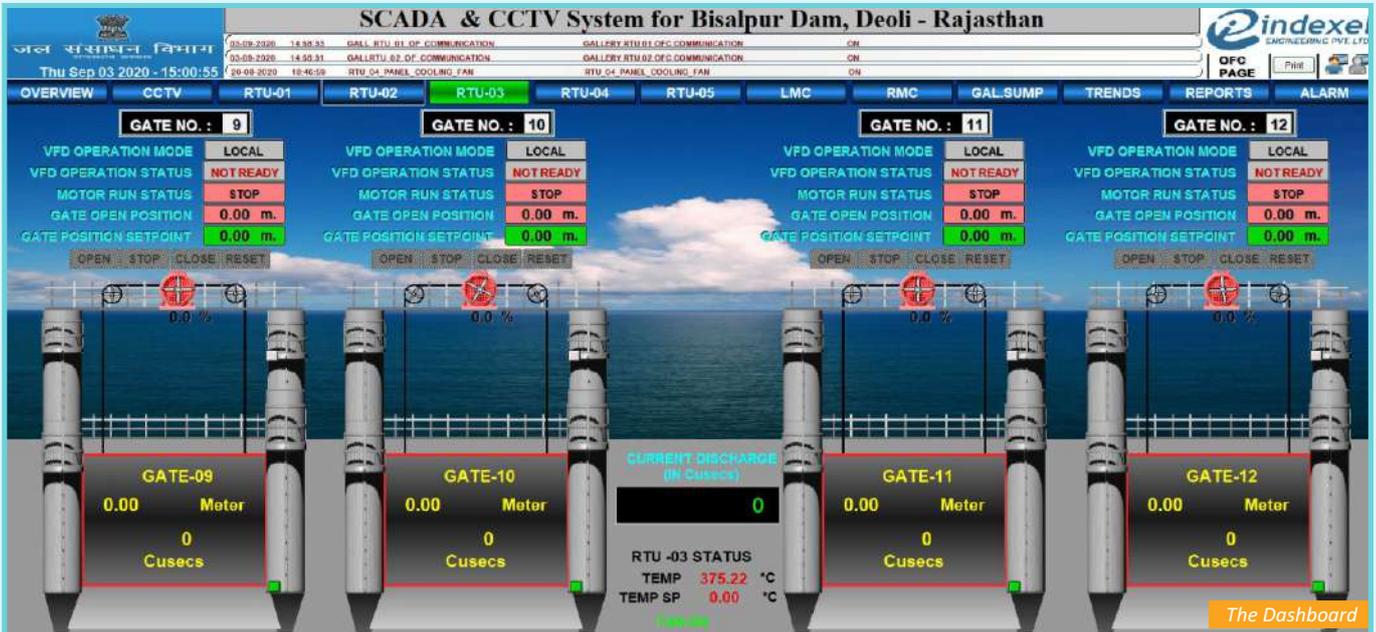
SCADA systems encompass the transfer of data between a SCADA based central host computer and a number of Remote Terminal Units (RTUs) and/or Programmable Logic Controllers (PLCs) installed at remote locations. The RTU/PLC system gathers desired Real-time information from various field instruments and transfers the information back to a central SCADA system for data acquisition and carrying out necessary analysis, generating control commands and displaying the information in a logical and organized fashion. SCADA system can be implemented through various communication methodologies for purposes of monitoring and controlling of a widespread distributed remote network.

## Role of SCADA Based Automation In NHP

In addition to real-time data acquisition systems, some barrages/reservoirs, canals, and groundwater operation systems will be equipped with the SCADA based remote-control. This will allow for remotely controlled operation of gates from a control room, allowing for system response on a real-time basis, enhancing the system efficiency, reducing the downtime by diagnostic analysis and making a saving on account of reduction in energy consumption and maintenance. In the NHP, SCADA based system are proposed for Barrage/Dams/Reservoirs, Canal Network Systems and Tube Well Automation. The prerequisites for Implementation of SCADA based system are electromechanical operation of gates, power supply availability and control structure condition. In order to minimise the losses, the SCADA system will allow limited release of water into a river channel at a controlled rate from an early period, in order to reduce the damages that occur due to a sudden high release later. The irrigation SCADA will maximise the benefits by saving water through a reduction in water supply after rainfall is observed in the area. The execution and commissioning of two SCADA system at Bisalpur comprised of comprehensive procurement process of acquisition of services.

# SCADA -Bisalpur Dam Automation

Bisalpur dam is located in Deoli, District Tonk, Rajasthan. Its storage capacity is 1095.840 Mcum. This dam has 18 gates. The work of automation of Bisalpur dam using SCADA was taken under National Hydrology project and now it is completed and tested. It has been commissioned during July 2020. Following are the highlights of the SCADA system of Bisalpur dam:



- Automatic Control of all 18 gates and 4 canal gates of Bisalpur Dam, and Head Regulators (LMC & RMC) situated at Bisalpur Dam. Besides Automatic Control through Automatic Reservoir Monitoring and Control (ARMAC), Provision for Manual operation of Gates shall be provided at site within RTU/PLC panel through push buttons.
- Installation of AWLRs are being carried out under a separate contract. These data will be linked to the SCADA of Bisalpur, so that inflow and outflow are available to the system.
- All the gates are now under camera surveillance on real time basis.
- It will enable the authorities to take decision in release of the flood afflux.
- Online Measurement, Display of water Level/discharge in SCADA system.
- Recording of all the above parameters, online storage of records for analysis.
- Generation of customized reports as per the input of Engineer in Charge.
- Reporting of all acquired/calculated variables on web pages for information sharing with all authorized personnel.
- Real time display of gate positions using Hi-tech solid-state gate position sensors.
- Real Time data monitoring of SCADA via client software's by Xen, SE, and Chief engineer using laptop with high-speed internet connection (4G/3G dongles).



## Quality Matters

The monitoring of water quality is one of the integral components of National Hydrology Project. It is intended to assist the Central and State Govt. agencies in setting up of a reliable and well-designed network of water quality stations for collection, transmission, processing, storage and dissemination of data covering Surface water and Groundwater. The establishment and upgradation of laboratories for testing of water quality is the indispensable part of the entire program on assessment of water quality for planning and execution of activities for improvement and remediation.

In view of directives of Government of India to take all necessary steps to ensure that the challenge and threat posed by the pandemic of Covid- 19 i.e. with effect from March 2020, working initiated remotely through electronic medium viz. email, mobile phone and video conferencing to interact with the Central and State Departments to pave the way to overcome the hindrance of field visits and interactions.

The stock taking of water quality laboratories developed so far under the Hydrology Project in the water resources department provided insights that there are 46 laboratories comprising of Level-I, Level II and Level II+ are operating and carrying out monitoring of water quality of groundwater at more than 10,000 locations, surface water at 488 locations and other water bodies at 284 locations. Overall status of strength of laboratory in terms of manpower, instrumentation, equipment's, analytical capability and accreditation gathered besides the monitoring locations covered by them on the ground water and surface water sources for water quality assessment. Information gathered on the water quality monitoring sites and facility of analysis of water quality parameters in the laboratories of States is being utilised for optimisation of strengthening of laboratories.

Strengthening and upgradation of laboratories developed under the erstwhile phases of Hydrology Project in Andhra Pradesh, Goa, Gujarat, Himachal Pradesh, Kerala, Maharashtra, Punjab, Puducherry, Tamilnadu and Telangana are progressing. Laboratories were supported to procure instruments for general water quality parameters comprising of pH meter, conductivity meter, spectrophotometer, flame photometers to name a few as well for assessment of trace metals and pesticides



*The Mobile Water Quality Lab, Tamil Nadu*

through Inductively Coupled Plasma-Optical Emission Spectroscopy, Atomic Absorption Spectrometers and Gas Chromatograph Mass Spectrometers. The strengthening of water quality monitoring activities is further augmented by introduction of mobile laboratories in some states to bridge the gap of stationary facility.



*DWRL ,Mohali - Punjab*

The North Eastern States comprising of Assam, Meghalaya, Manipur, Mizoram, Nagaland and Tripura did not have facilities for monitoring and analysis of water samples. These States were supported by guidance and preparation of vision & mission document for water quality assessment and development of laboratory (short and long-term activities with timelines). The development of laboratory has begun in Assam and Meghalaya whereas activities shall be taken up in other states during the financial year 2021-22.



A "Guideline for Setting up of Water Quality Laboratory and Network of Monitoring in Water Resources Departments" have been prepared for reference of all the agencies associated in the project activity as ready reckoner. A Real Time Data Acquisition System on water quality assessment of canals in Rajasthan have been initiated to resolve interstate dispute with Punjab and the same will be functional during February 2021.

The activities on laboratory development in the States will be expedited to attain the targeted plans with specific attention to North Eastern States. The data base generated under water quality component shall be integrated with Water Information Management System to gainful utilisation and dissemination to user groups.

## Solving Problems Technically

Under the NHP, agencies were encouraged to take up the assignments to arrive at technical solutions to address the various water resources problems of importance for the region/development of analytical tools, DSS etc. Keeping in view the usefulness of the study in water management, helpfulness of the outcome in terms of quick decision-making and practicality in implementation, these are expected to contribute to the transformation towards the advanced digital management of water resources. Tasks were planned with outcomes quantifiable and measurable in terms of the benefit obtained. These were taken up on pan India basis, with those of national importance for achievement of the project objective being given preference. The focus is on implementable solutions and solutions with an outcome that trickles down to reach the greater section of the society. The following topics are in focus:

- ◆ Flood controls and management including the urban flooding
- ◆ Water management of important cities / area/ basin keeping in view the future demand of various sector and identify future alternative and possible source of water
- ◆ Sedimentation study of reservoirs
- ◆ Irrigation benchmarking
- ◆ Water quality issues in the prime sources of water
- ◆ Equitable distribution of water
- ◆ Decision support system for important basins / large sub basins having a few major reservoirs which need an integrated water management approach
- ◆ Hydrological assessment of ungauged basin and future condition of due to development

The expected outcome for a few assignments is given below in brief:

## Expected Outcome of A Few Efforts

SNO.	DESCRIPTION	OUTPUT	EXPECTED OUTCOME
1	Decision Support System (Planning & Management)	Web based software allowing scenario analysis	Informed decision making in water resource management harmonising conflicting interests and investment optimisation
2	Reservoir sedimentation survey	Updated Area Elevation Capacity Curves	Better reservoir management
3	Flood forecasting	Level and inundation forecasts	Reduction in flood deaths and other losses
4	Multi reservoir optimisation study	Optimal reservoir operation policy	Reduced flood losses, increased irrigation and water supply benefits
5	Reservoir inflow forecast including EHP	Advanced information of inflows	Optimisation of reservoir releases and better flood management
6	Spring Rejuvenation	Increased availability of good quality water for longer time	Improvement in agriculture and health, increased income due to localised availability of water
7	High Resolution DEM/ DTM and geodata base	Flood inundation forecasting	Reduced flood deaths and losses through better 2D hydraulic modelling and evacuation planning.
8	Irrigation Benchmarking	Assessment of efficiency and suggestion for improvement measures	Increase in crop production, sustainability of precious water resources
9	Sand mining	Assessment of damage and suggestion of remedial measures	Reduction of bank erosion, reduction of reservoir sedimentation and improvement in water quality and environmental conditions
10	River rejuvenation	Suggestions for improvement in water quality and river flow	Improvement of riverine ecology

The status of various studies/knowledge products developed under NHP are given below:

- National Modelling Framework for Water Resource Assessment- **Developed, validation under process**
- Snow melt runoff models in Indian Himalayan Region- **Developed, validation under process**
- Water Accounting and Integrated Reservoir Operations for Narmada Basin – **Under progress**
- Extended Hydrological Prediction (EHP) for three river Basins- **Under Progress for Yamuna, Narmada, Cauvery basins**
- Purpose Driven Studies across the country- **36 studies under progress**
- Sedimentation studies for 7 river basins- **Under progress for Ram Ganga, Barak, Narmada, Cauvery, Kuttiyadipuzha, Peechi, Manglam**
- Development of Decision Support System, Planning and Management tool – **60 % completed**
- Development of inundation forecast for Ganga Basin – **Bidding process ongoing**
- Glacial lake Atlas of Indus Basin - **Prepared**
- Development of Shoreline management plan for Goa – **Under Progress**
- Flood inundation forecast for Godavari and Tapi Basin being developed- **Developed, validation under process**

Bit by bit, these will contribute to the silent transformation, that takes our water management forward from individual based to system based, from judgement based to information based, and allow improvement in efficiency through timely execution of the optimisation algorithms.

## Management Information System (MIS)

The Management Information System is to work as a regular management tool to help National Project Management units at all levels to track implementation progress, implementing agency performance and results, thus enabling them to monitor the physical and financial progress of the Project. The MIS Application has developed to cover and capture data for reporting purposes as stand-alone modules.



During this period of January to December 2020, the new features and improvements in MIS made are as follows:

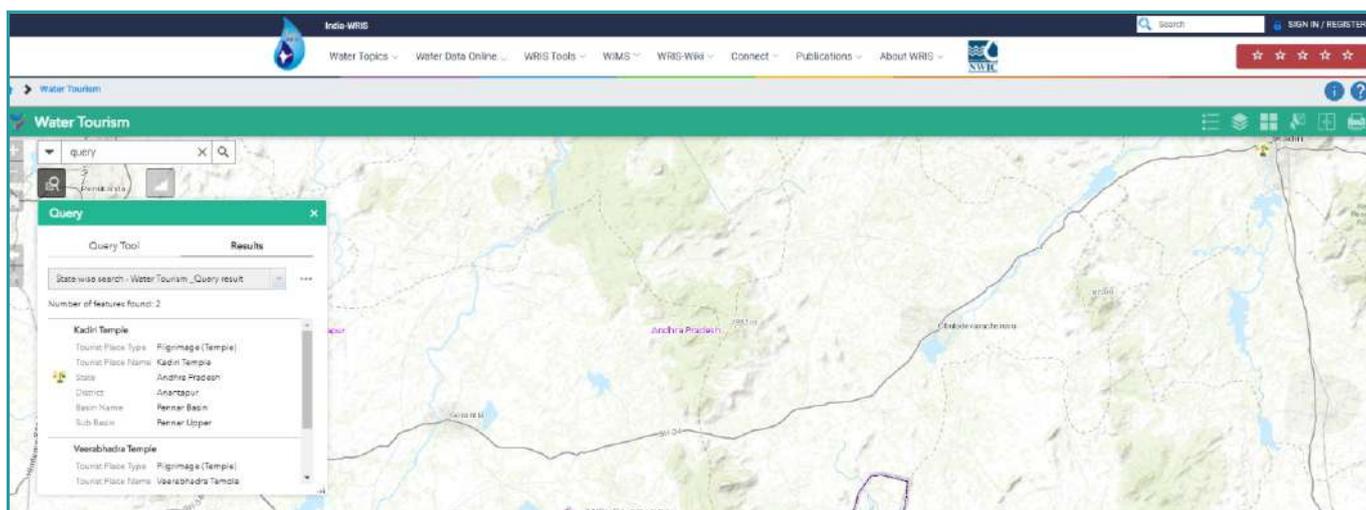
- Development of new web entry form for capturing the “Webinar Participants Detail” in MIS portal
- Development of new finance drilldown report for Agency wise Expenditure Entry (Last Day Entry)
- Development of new Separate Tab for ESHS (Guidelines/ Screening )
- Development of new Dashboard for State/ Central/ North Eastern Implementing Agencies Performance Progress (Planned Cost as a % of PIP)
- Development of report - Component wise Major Categories – Allocation Vs Expenditure, Procurement Data , Bid Document Review Data & Package wise AWP Mapping
- Development of Report ESHS - Screening Checklist for Admin & Agency Level
- Revised Finance Report – AWP vs Release vs Expenditure for FY 2020-21 & Procurement Package wise Linking with AWP
- Revised PDS module with budget & status details

MIS team is working tirelessly to make the MIS Portal user-friendly through various designing changes and happy to share various dashboards, 2nd International Summary Report, NHP's monthly e-Bulletin, and informatics banners. A New “AUDIO VISUALS” Sub-Menu has added under Resource Menu. Videos on Brief on NHP & WRIS can be accessed here. The New resources book “Manual Rainfall Data Validation” is now available on NHP web Portal for users.

## India Water Resource Information System (WRIS)

Recently, NWIC under National Hydrology Project has initiated the process for development of Integrated Water and Crop Information and Management System (IWCIMS) in collaboration with the state governments with a vision for development of tools for reservoir management at basin level, crop planning at block level, village level water budgeting, drought monitoring, smart grids for water transfer and water quality management. This whole system is envisaged to be a part of India WRIS and once completed would prove to be a milestone for sustainable water resources management in the country. Since the first version of revamped and up-scaled India WRIS was launched on 30<sup>th</sup> July 2019 more than 1,30,000-page views have been logged which shows the popularity of the system.

ArcGIS 10.6 suite with high-end configurations is in use with its full potential to provide many value added services for different stakeholders and public. India-WRIS holds a rich number of GIS layers which extends to around 110 themes. The management of these GIS layers is done with ArcGIS desktop. The generation and maintenance of metadata for the layers is done using Geoportal of ArcGIS, a new system for metadata publishing online. The Map services published on ArcGIS Server are fetched on JS API for ArcGIS for development of various theme modules offering enhanced mapping, visualization and querying tools. Customized GIS based tools to explore, access, analyse and download of water data and associated features are provided for user friendly experience.



The newly added modules are:

- Water Resources Project - Project Information along with Multi-Attribute Query by Spatial and Multi-Attributes Query are the tools newly added.
- Snow / Glacial - Snow cover/glacier lakes module provides facility for visualization and analysis of satellite data derived information pertaining to snow cover extent, glacial lakes & water bodies of the Indian Himalayan regions.
- Geoviewer - This module is an attempt to bring all the different sets of data on a single application for a comparative and interlinked view to derive a holistic picture with overlay. For assisting the same, many GIS based tools are provided for exploration of datasets.
- Agro ecological / Agro climatic Region - The module introduces Agro ecological and Agro climatic region layer which has specific significance in relation to water and other natural resources of our country.
- Minor Irrigation - Minor irrigation module of India-WRIS depicts data types of minor irrigation scheme including dug well, shallow tube well, deep tube well, surface flow irrigation scheme and surface lift irrigation scheme.
- Wasteland using 2005-06 satellite data by National Remote Sensing Centre (NRSC) in collaboration with various partner institutions.

## INDIA-WRIS AT GLANCE

39

Agencies Contributing

82,973

Total Monitoring Stations

125,993

Visitors

12,436

Surface Water Stations

276,850

Page Views

70,537

Ground Water Stations

As on 31<sup>st</sup> December 2020

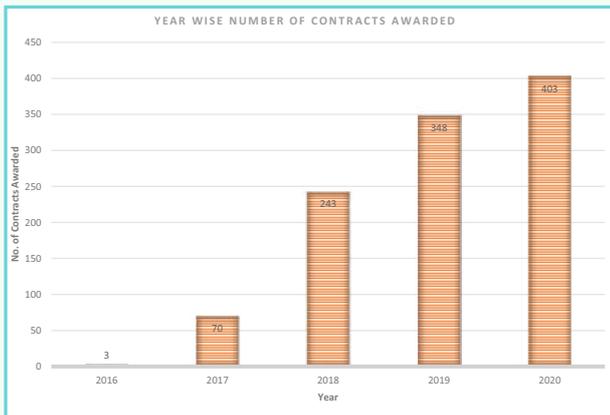
- Water Tourism - It aims to provide the basic details of water tourism sites regarding its spatial location (latitude/longitude), name of the site, name of the water body (if available), state & district to which it belongs and a brief description of the place. The country level database contains description of 1138 tourist locations of which 1036 are mainly classified as water tourism sites and few other major tourist spots and the database also contains a 292 Wild Life Sanctuaries and National Parks which mainly contains information regarding mammals, reptiles, and birds, established year, nearest city.
- Additionally, for Online Web Editor new states has been added namely, Jharkhand and Madhya Pradesh.

ठहरे हुए नदी-पोखर को फिर से नई रवानी दे।  
पानी दे, पानी दे।

Sources by India Water Portal

# Investing for A Better Tomorrow Finance and Procurement

During calendar year 2020, the field activities were badly impacted particularly during April-September due to ongoing Covid pandemic. In order to make up loss of time/delays earlier occurred in procurement processes due to various reasons, a concerted drive was undertaken to expedite procurement process. The virtual platforms were extensively used for frequent interactions with the entire team of IAs and for their capacity building in use of modern tools and technologies through online webinars and trainings. Even pre-bid conferences were held online due to restrictions on movement. The strength of online platforms was also extensively used for cross learning among IAs.



Considering procurement and financial parameters, as on 31<sup>st</sup> December 2020, more than 1067 contracts with contract amount of INR 1142 Cr. and package cost worth INR 1211 Cr have been awarded by various IAs which constitutes around 41% of total PIP allocation. In addition, 254 bid documents of more than Rs.732 crore have been cleared by NPMU, out of which 189 bids with estimated cost of Rs. 704 Crore have been floated during 2020

Total amount of contracts awarded under the NHP during 2020 is more than that awarded during the entire previous period. Total number of contracts awarded during 2020 is around 38% of the contract awarded since inception. In short from procurement prospective the year 2020 is the most fruitful year of the project. As a result of unparalleled achievement made during 2020 value of awarded and floated bids at present is more than 61 % of the total PIP allocation excluding Operational Head for which procurement packages are not created.



**₹ 1100<sub>cr</sub>**  
**CONTRACT AWARDED**

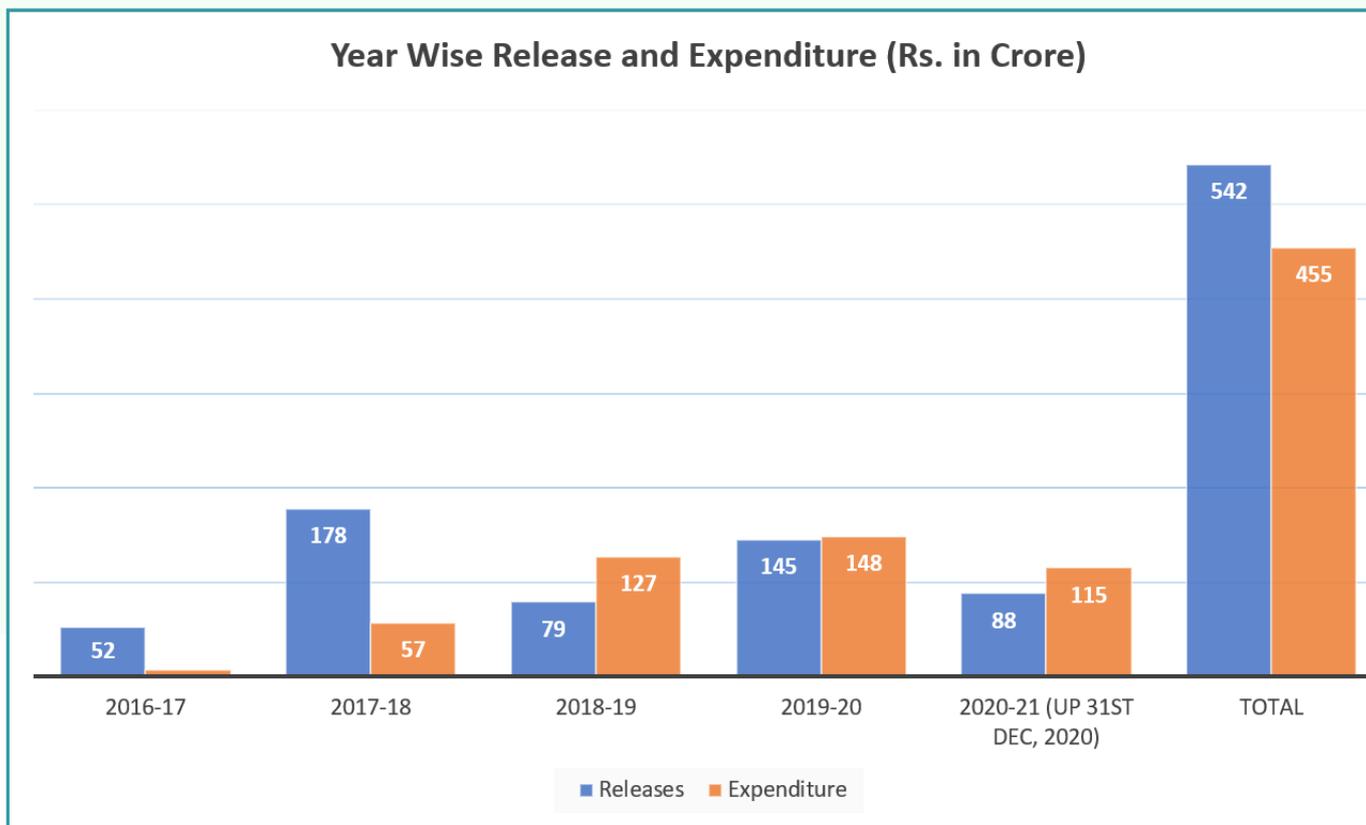
As on 31<sup>st</sup> December 2020

During COVID period whole team of NPMU and TAMC worked tirelessly and working hours were much more than regular work hours. Teams even worked on holidays and weekly offs. During lockdown period, SPMU staff of all IAs were also encouraged to work from home and they were continuously supported through web meetings, telephone calls, emails and WhatsApp messages. IAs were advised to arrange pre-bid meetings online. Region wise WhatsApp groups were created for continuous handholding of IAs to support them to continue to work despite all the lockdown restrictions. In line of the phrase 'Show Must Go On' inspirational emails were sent to all agencies requesting them to keep the ball rolling.

- During COVID-19 period of 2020 total 296 contracts worth INR 373.75 Cr were awarded.
- During COVID-19 period of 2020 total 333 bids worth INR 709.01 Cr were floated
- Total 130 Pre bid meetings were conducted during COVID-19 period most of which were online or combination of virtual and physical modes.
- To mitigate the effect of COVID-19 emphasis on preparation & floating of bids and Technical/Financial evaluation of bids was given.
- After declaration of Lockdown from 23<sup>rd</sup> March 2020 all agencies were immediately requested to extend

bid submission last dates and were further requested to do away with physical submission of required documents to avoid cancellation of bids.

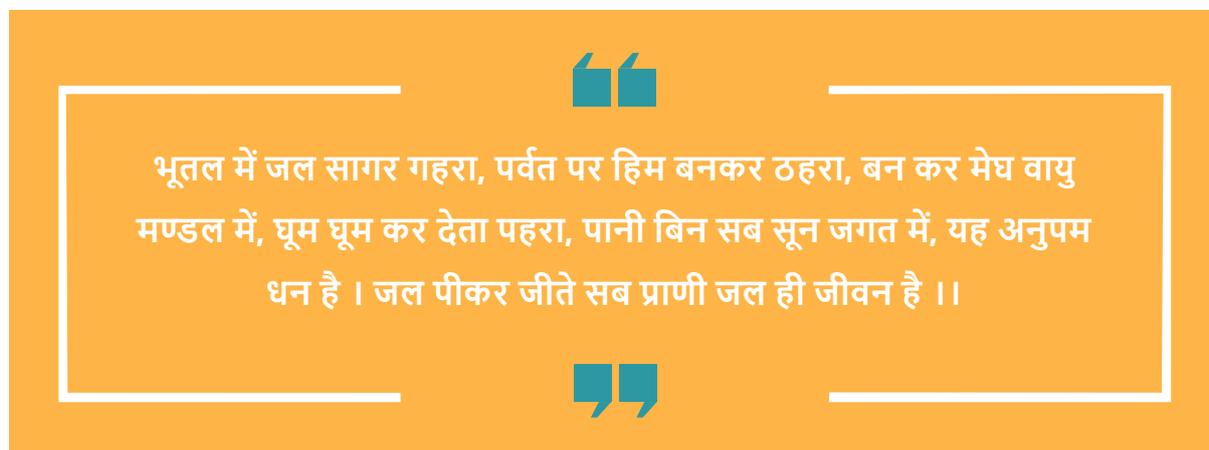
- Implementing agencies were requested to complete bid evaluation report by rotation, opening of all the technical and financial bids received, to make entries in MIS and STEP, prepare bid documents, RFP and ToRs, Preparation and submission of AWP and PP, etc.



As on 31<sup>st</sup> December 2020

As NHP family we have crossed the 100 cr Expenditure mark in the Month of December 2020 for the Financial year 2020-21, in addition to this, we also touched the milestone of Rs. 450 Crore as Total Expenditure. Our sincere gratitude to all who made this possible – Technical experts, all IAs and Vendors.

Since its inception in FY 2016-17 until 31<sup>st</sup> December 2020, a total expenditure of Rs. 455 Crore has been incurred under National Hydrology Project. Funds released to the IAs during the FY 2020-21, up to the month of December is Rs 87.92 Crores. The cumulative funds released till December 2020 is Rs.542 Crores.



Sources by SAHITYA DARPAN

## Agency Ranking - December 2020

State Agencies, UTs and RBOs excluding North East agencies including Assam (Total Agencies: 32 nos.):

Agency Name	Procurement	Finance	RTDAS	Studies	Updating MIS	Score	Ranking	Class
Marks	35	40	5	10	10	100		
Uttar Pradesh GW	35.00	12.38	5.00	5.00	3.77	61.76	1	Above average
DVC	23.03	13.11	4.82	7.50	3.73	52.71	2	
Assam	35.00	6.16	0.00	1.00	5.60	48.24	3	
Kerala SW	24.90	12.92	0.00	6.67	3.19	47.67	4	
Gujarat	26.76	8.66	1.06	7.50	3.47	47.44	5	
Rajasthan	24.83	7.96	3.11	4.80	5.11	45.81	6	
Haryana SW	28.17	8.91	1.67	1.00	4.75	44.94	7	
Telangana GW	12.43	13.12	5.00	7.00	5.16	42.71	8	
Maharashtra SW	27.80	4.30	0.00	1.67	4.00	38.15	9	Below average
Andhra Pradesh GW	14.32	13.75	0.00	4.67	5.41	38.14	10	
Uttarakhand	17.63	12.68	0.00	3.00	4.79	38.10	11	
Goa	18.68	6.92	3.75	5.00	2.74	37.47	12	
West Bengal SW	15.70	7.57	0.00	6.67	5.60	35.54	13	
Bihar SW	16.20	6.21	0.00	5.00	7.00	34.75	14	
Chhattisgarh	25.36	5.20	0.00	2.00	1.44	34.34	15	
Andhra Pradesh SW	13.09	7.06	4.72	3.00	5.40	33.61	16	
Madhya Pradesh	21.18	5.35	0.00	3.33	2.91	33.09	17	
Tamil Nadu	17.85	5.63	2.54	0.00	5.57	31.92	18	
Himachal Pradesh	15.55	11.15	0.00	1.67	2.60	30.97	19	
West Bengal GW	13.86	5.71	2.78	2.00	4.00	28.35	20	
Kerala GW	8.46	7.23	3.87	4.00	4.57	28.13	21	
Bihar GW	22.55	2.18	0.00	0.00	1.23	26.21	22	
Uttar Pradesh SW	15.66	6.10	0.00	0.00	3.59	25.60	23	Poor
Punjab	9.74	5.49	4.95	1.75	2.95	25.13	24	
Puducherry	7.92	13.40	0.00	1.00	1.26	23.82	25	
Karnataka SW	12.42	6.86	0.00	0.00	3.56	23.07	26	
Jharkhand	11.91	2.72	3.30	0.00	3.60	21.74	27	
BBMB	0.68	8.39	0.00	4.25	7.00	20.52	28	
Telangana SW	10.79	4.33	0.00	1.75	2.87	19.75	29	
Odisha	7.27	0.48	0.00	0.00	3.67	11.53	30	
Maharashtra GW	0.53	3.23	0.00	0.00	0.29	4.10	31	
Delhi	0.00	0.00	0.00	0.00	0.00	0.00	32	

North East Agencies except Assam (Total Agencies: 6 nos.):

Agency Name	Procurement	Finance	RTDAS	Studies	Updating MIS	Score	Ranking	Class
Marks	35	40	5	10	10	100		
Mizoram	35.00	11.47	0.00	2.71	7.49	57.25	1	Above average
Sikkim	35.00	12.95	0.00	0.00	5.67	54.15	2	
Meghalaya	35.00	7.63	0.00	4.14	5.26	52.03	3	
Nagaland	29.86	10.00	0.00	3.00	4.60	47.94	4	Below average
Manipur	23.23	12.66	0.00	1.75	2.21	40.24	5	Poor
Tripura	13.25	6.54	0.00	0.67	7.30	28.03	6	

हरा-भरा रखो इस जग को, वृक्ष तुम खूब लगाओ ।  
पानी है अनमोल रत्न, तुम एक-एक बूँद बचाओ ।

## Central Agencies (Total Agencies: 9 nos.):

Agency Name	Procurement	Finance	Studies	Trngs	Updating MIS	Score	Ranking	Class
Marks	30	40	12	8	10	100		
SOI	30.00	16.99	9.00	4.00	4.70	65.34	1	Above average
NIH	16.27	16.85	12.00	8.00	3.06	56.18	2	
NRSC	22.20	16.53	3.00	8.00	3.32	53.59	3	
CWC	17.55	3.85	8.67	6.00	5.52	42.00	4	Below average
CWPRS	11.09	8.84	12.00	5.00	2.39	39.32	5	
NWIC	9.04	5.08	3.00	4.00	3.00	24.37	6	Poor
NCA	8.78	1.37	4.00	0.00	3.55	17.88	7	
CGWB	12.70	1.14	0.00	0.00	2.96	16.97	8	
CPCB	0.85	11.80	0.00	1.00	2.25	16.05	9	

The monthly ranking of Implementing Agencies has been carried out continuously from May'20 based on various indicators keeping in view of the dynamics of the project, implementation progress for evaluating the performance of the agencies.

The Agencies are categorized into three groups – 1) States, UTs, and RBOs excluding North-East states but including Assam (Total Agencies = 32 nos.), 2) North-East states but excluding Assam (Total Agencies = 6 nos.) and Central Agencies (Total Agencies = 9 nos.). The parameters for ranking are Procurement, Finance, RTDAS hydromets, Studies, Trainings, and Updating MIS on regular basis.

The Satisfactory Performers in the month of December'20 are Uttar Pradesh GW, DVC, Assam from 1<sup>st</sup> group and Mizoram, Sikkim and Meghalaya from 2<sup>nd</sup> group and SOI, NIH, NRSC from 3<sup>rd</sup> group.

### ACHIEVEMENTS

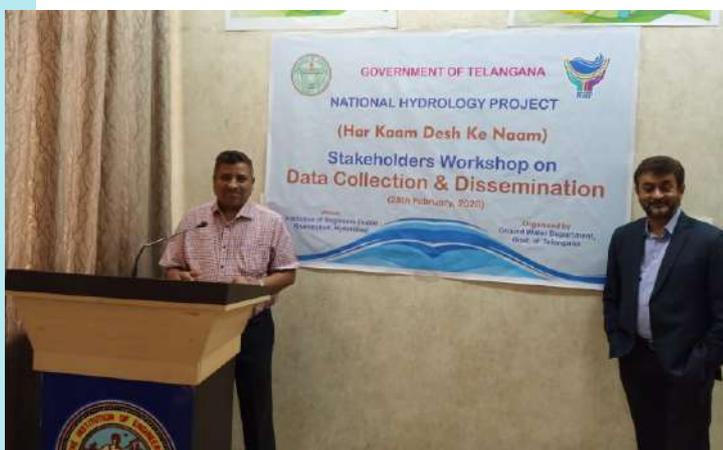
- ✓ No. of RTDAS hydromet awarded: **2,715** nos.
- ✓ No. of DWLR hydromet awarded: **3,874** nos.
- ✓ No. of RTDAS hydromet installed: **470** nos.
- ✓ No. of DWLR hydromet installed: **1,502** nos.
- ✓ No. of RTDAS hydromet commissioned: **286** nos.
- ✓ No. of DWLR hydromet commissioned: **497** nos.
- ✓ No. of Data Centres awarded: **14** nos.
- ✓ No. of Data Centres constructed: **4** nos.
- ✓ No. of Surface Water stations created in WIMS under NHP and non-NHP: **12,170** nos.
- ✓ No. of Groundwater stations created in WIMS under NHP and non-NHP: **70,525** nos.
- ✓ No. of State Implementing Agencies joined National water information portal i.e. IndiaWRIS: **36** nos.
- ✓ No. of Central Implementing Agencies joined National water information portal i.e. IndiaWRIS: **3** nos.
- ✓ Cumulative Expenditure for Calender year 2020: INR **165** crores

## Success Stories from the States

### Har Kaam Desh Ke Naam Campaign



Ministry of Jal Shakti launched 'Har Kaam Desh Ke Naam'. NHP took this opportunity to highlight the ongoing work of various Implementing agencies and the progress made under NHP. A one-day Stakeholders Workshop on "Data Collection & Dissemination" was organised by GroundWater Department, Government of Telangana on **28<sup>th</sup> February 2020** under National Hydrology Project at Hyderabad. This workshop was part of Har Kaam Desh Ke Naam campaign. The workshop was attended by senior officials from NPMU Sr. Deepak Kumar & Sr. Neeraj Kumar Manglik, Senior Joint Commissioner. A social media campaign was also part of it. The work of NHP has been shared with wide range of audience through NHP's social media channels during "Har Kaam Desh ke Naam" campaign.



### Inauguration of Hydrology Data Centre at DVC



The Hydrology Data Centre constructed under NHP was inaugurated on **7<sup>th</sup> July, 2020** on the occasion of 73<sup>rd</sup> Foundation Day of Damodar Valley Corporation (DVC). DVC is serving the nation for the last 72 years since its formation in 1948, DVC is one of the fine examples of River Board Organisation (RBO) in India. Due to its unique status and need for modernisation of its hydro-met network, DVC was included as one of Implementing Agency of NHP since its inception. The real time data, so obtained and its newly constructed data centre will pave the way for more scientific assessment of flood, water allocation etc and upgrading its forecasting activities for mitigation of flood in the basin.

## ELETS National Water Innovation Summit 2020



Elets National Water Innovation summit 2020 was held on **28<sup>th</sup> August** through virtual conference WRD, Rajasthan has been awarded in 2 categories - award of excellence in “Adopting New Age Technology” in water sector under NHP and leading state water boards to IGNP. Secretary WRD Rajasthan Sh. Naveen Mahajan received awards from Shri U.P. Singh, Secretary, DoWR, RD & GR. A panel discussion was also organised at Elet National Water Innovation summit through virtual medium.

## CWPRS Inaugurates TCCF (Testing, Calibration And Certification Facility) Centre for Groundwater Level Monitoring Sensors Under NHP

The inaugural function of the “Testing, Calibration and Certification Facility (TCCF) Centre for Groundwater Level Monitoring Sensors under NHP commenced with the unveiling of the plaque and cutting of ribbons by Mrs (Dr.) V. V. Bhosekar, Director, CWPRS, on **29<sup>th</sup> June, 2020**. Dr. C. Krishnaiah, (Scientist-D), welcomed the Director and other guests and described about the testing facility at the centre. He elaborated about the significance of variety of groundwater level measuring instruments such as Electronic Water Level sounder, Ground water level sensors (with vent and without vent) etc., which are installed at the centre for the above purpose. Facilities like 'Test Laboratory Complex' and 'observation well' are also available for testing of the ground water level sensors at the centre. Director, CWPRS in her speech, praised the efforts made by staff of GP division for timely completion of instruments procurements and other centre related jobs.

## Inauguration of Water Level Monitoring System (Demo of DWLR) and Automatic Weather Station at PMU of Ground Water Department, Telangana



Telangana GroundWater Department is regularly monitoring the water level data through a network of 964 existing piezometers in the state and disseminating the water level report to all allied sectors/end users every month. With the support of NHP to strengthen the groundwater monitoring network Ground Water Department has procured 240 Nos of Digital Water level Recorders (Telemetry system) during the month of **June-2020**. Dr. Rajat Kumar, Principal Secretary to Govt., I&CAD Dept, Govt of Telangana inaugurated the Demo DWLR along with Automatic Rain Gauge station installed at Ground Water PMU Office. The Secretary was apprised of the newly established monitoring network with DWLRs having real time data enhances the efficacy of water level data sharing and dissemination. The collected data from the monitoring station of PMU is being displayed daily on the display board established at PMU Office for public awareness. Which was relayed live on Ministry of Jal Shakti's Facebook page.

## A Two Day National Conference in the Perspective of Flood Management in Kerala



A two day National Conference on “Policies and strategies for flood management: Kerala Scenario” was organized by Kerala Surface Water Department on 23rd and 24th January 2020 under the aegis of World Bank-funded National Hydrology Project (NHP) and Dam Rehabilitation and Improvement Project (DRIP). The Conference was inaugurated by Honourable Chief Minister of Kerala and presided by Honourable Minister for Water Resources, Government of Kerala. The conference was graced with the presence of Additional Secretary, Department of Water Resources, River Development & Ganga Rejuvenation, Ministry of Jal Shakti, Government of India, Additional Chief Secretary, Government of Kerala, Secretary, Water resources and Power, Government of Kerala and Deputy Secretary (Projects), Government of Kerala. The conference was highly noted in terms of resource persons from the Ministry of Water Resources (MoWR), World Bank, NHP & DRIP and keynote speakers of International a domain that included experts such as Dr. Paul Van Meel, Water Advisor, Netherlands, Mr. Sun Xiang, Senior Engineer/Project Manager, Shenzhen Water Planning & Design Institute Co. Ltd, China, Dr. David Yates, National Centre for Atmospheric Research and Dr. Jonathan Quebbeman (RTI International), from the Water Resource sector. Other participants included experts from the Water Resource sector, Disaster Managers etc.

## Tackling the Real Problem Virtually

### How Capacity Building Waded Through the Covid-19 Pandemic:

The 2020 is an exciting period of this century. Feared with, people had virtually lost their hopes given the prevailing situation of COVID pandemic and its rising impact throughout the world. COVID has literally escalated a curfew on human movement and contact of human beings stalling innumerable scheduled activities. One such activity is Capacity Building in NHP. All residential trainings were cancelled as a result. Central Training Agencies (CTA) have not been able to organize any more residential training programs.

CTAs were not actually prepared to accept the challenges of the pandemic like lockdowns, travel restrictions and meeting constraints since they did not find any immediate solutions for imparting trainings to IAs. Most of the training topics intended for capacitating IAs under NHP are technology-driven; needed handholding support to the trainees, the contents and methodologies are supposed to be designed more in interactive mode through residential trainings.

Gradually, CTAs have overcome these issues by conducting trainings through webinars or online trainings by shifting to (1) Modern IT technology (2) Use of Audio-Video equipment and (3) Digital platforms. This has, in fact, created a crucial niche reaching more number of people.

## COMPARISON BETWEEN TRAININGS AND WEBINARS IN CONTEXT OF COVID-19

Period of study	Type of events	Total Trainings/Webinars	No.of days	Total participants
September 2019 - March 2020 (7 months)	Trainings	50	352	967
April 2020-October 2020 (7 months)	Webinars	58	150	2975

- With less number of webinar days (150 days) covered more number of participants -2975 (3 times more than that of covered in trainings).
- Webinars are found to be an appropriate methodology to reach maximum number of people.
- Lesser cost is involved in webinars like no travel cost is included, no risk of human movement no cost for Organising events.
- Webinars found to be easily and timely reachable.

Following are some of the trainings and webinars conducted in this year were highlighted. In year 2020, 28 trainings and 78 webinars were conducted benefitting larger number of staff of IAs.

### A Training on Hydrological Modeling Using HEC-RAS and HEC-HMS

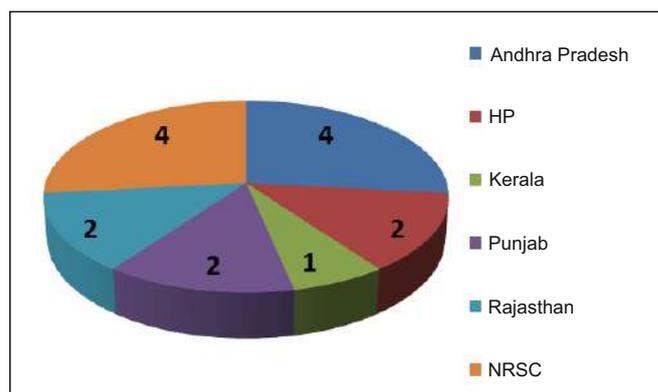


From 2<sup>nd</sup> to 6<sup>th</sup> March 2020, Telangana State Surface Water, Irrigation & CAD Department has hosted a training program on “Hydrological modelling using HEC RAS and HEC HMS “under NHP at WALAMTARI, Hyderabad. The training aimed at imparting to the in-service engineers involved in the activities of Irrigation and Command Area Development, Agriculture officials of Agriculture Department and farmers. There were 35 participants represented by Telangana GW and Andhra Pradesh SW.

### Remote Sensing & GIS Applications for Irrigated Command Area Inventory

From 24<sup>th</sup> Feb to 6<sup>th</sup> March 2020, a training program was held on “Remote Sensing & GIS Applications for Irrigated Command Area Inventory“. 21 officials participated in this course from Water Resources Departments of Central and State Governments as illustrated below

The course was designed with the following key contents - concepts of irrigated command area inventory, performance evaluation using remote sensing and GIS. A demo was given to participants on open sources GIS(QGIS), remote sensing applications in irrigated command areas, assessment of ground water potential etc. A guest lecture was also given on 'Geospatial irrigation data services through Odisha Irrigation Information System. Also shared 'Experience of Telangana Irrigation & CAD on use of geospatial technology' and 'Benchmarking for enhancing irrigation efficiency and water productivity in irrigation commands'.



Number of participants and IAs attended the two weeks training programme conducted during 24-Feb to 06-Mar, 2020



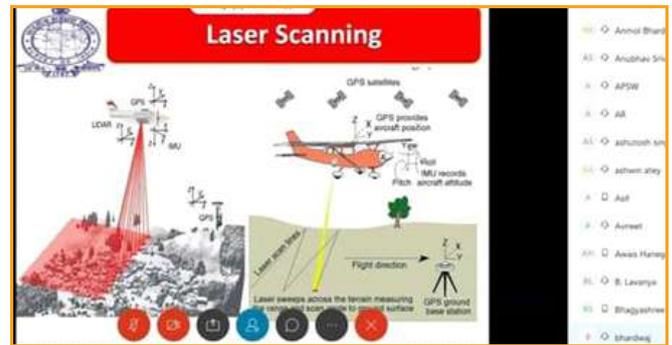
## Special Training on Use of GPS, Total Station and Digital Level



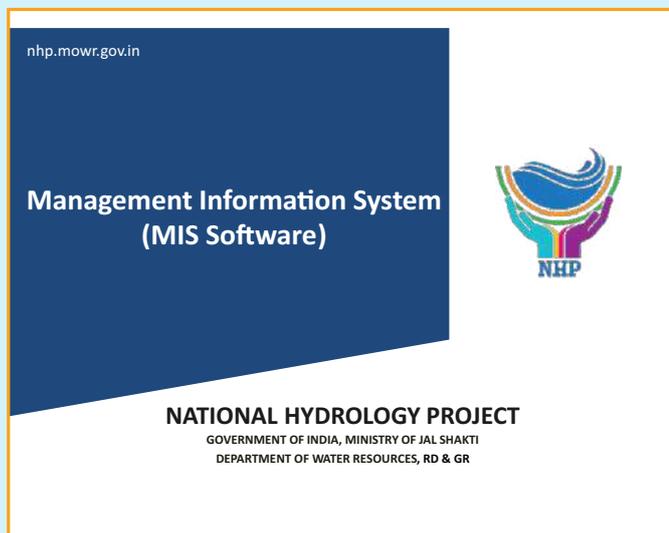
On **14<sup>th</sup> Sept' 20**, an online special training was conducted on "Use of GPS, Total Station and Digital level for NHP" by Survey of India. The training covered extensively on various components like GPS accuracies, Types of instruments, The Navstar System, GPS receivers, Observation principles, DOP etc. Sh. K. V. Ramana Murthy, SS, IIS&M, Hyderabad, Survey of India conducted the training for participants from implementing agencies under NHP. There were 55 participants virtually present in this program.

## Training on Creation of Digital Elevation Model (DEM)

Survey of India organized the training on "Creation of Digital Elevation Model(DEM)" on **25<sup>th</sup> August 2020** under National Hydrology Project. 113 Officers from different State Implementing Agencies participated in the training. The training was very useful for State Govt. Departments as it trained them to use the DEM and data generated under NHP.



## Weekly Hands on Training and Problem Solving on NHP MIS:

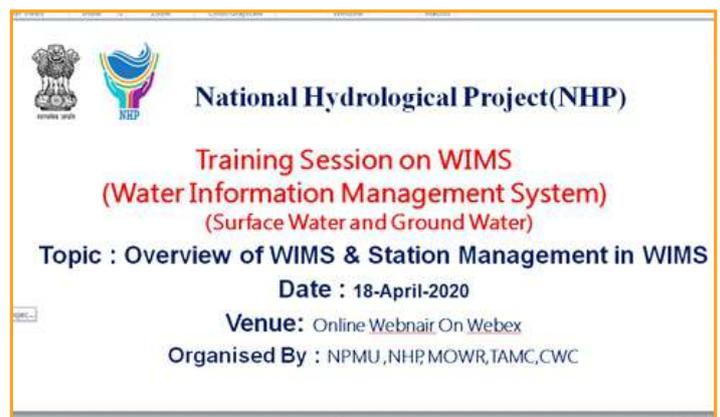


A unique initiative NPMU along with TAMC experts started organizing weekly hands-on trainings on resolving problems of operations of NHP MIS and WIMS to optimise situation of lockdown that arose due to Covid 19.

There were 5 webinars were organised on MIS. These sessions were facilitated by the MIS team. Major contents covered in these weekly sessions were about data entry operations and management systems relating NHP activities like Procurement related, training related, Income & Expenditure, documentation system and overall management of MIS. Most of the contents dealt were of practical in nature. There were 259 participants benefitted out of the 5 weekly sessions.

## WIMS Weekly Hands on Trainings (Data Entry, Q & A)

There were 11 webinars were conducted in this year like Flood Forecast Module in WIMS, User Management in WIMS, Telemetry Management. The Sub Topics covered were Creation of Flood Forecast, Data Type Mapping, Flood Data Entry, Inflow Forecast Data, Level Forecast Data, New Reports (From 2018), and Flood Forecasting Website. The sessions had in-depth interactions and clarifications with participants from IAs. The total participant of these webinars was 1033. All these sessions were facilitated by Mr.Meet Kumar Agarwal and his team.

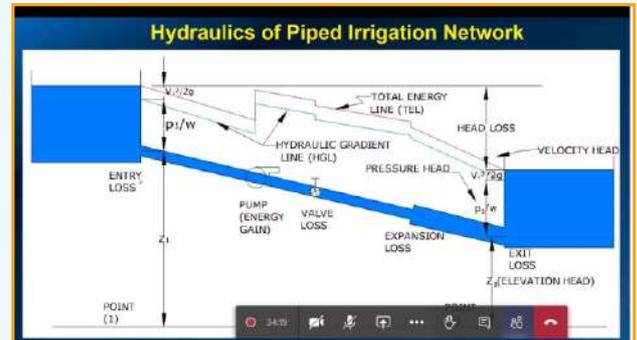


## Hands on Training Programme on STEP

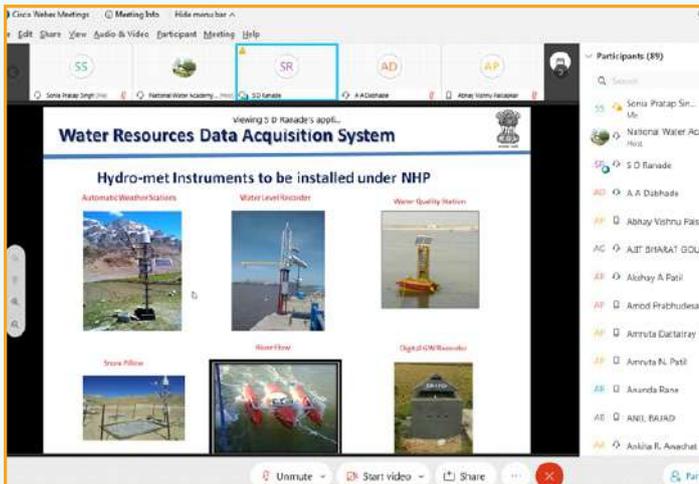
In a similar initiative Mrs. Pamela Patrick and Mr. Srinivas Devarakonda from World Bank facilitated the Hands-on Training Programme on STEP on **21<sup>st</sup> August 2020**. Some of the topics covered were handling complaints, procurement plans, activity details, road map and signing contract and so on. The sessions had in-depth interactions and clarifications with participants from IAs. The webinar was attended by 23 participants.

## Integrated Piped Irrigation and Micro Irrigation

Training on "Integrated Piped Irrigation and Micro Irrigation" was organised by Rajasthan during **12<sup>th</sup> to 15<sup>th</sup> October 2020**. It was inaugurated by Sh. Amarjeet Singh, Chief Engineer, QC & V and Nodal officer, SPMU-NHP and Sh. G.P Patel, Director, CBIP. The training program was jointly organized with CBIP, New Delhi for 40 officers of WRD, Rajasthan.



## Training Courses Conducted by Central Water and Power Research Station (CWPRS)

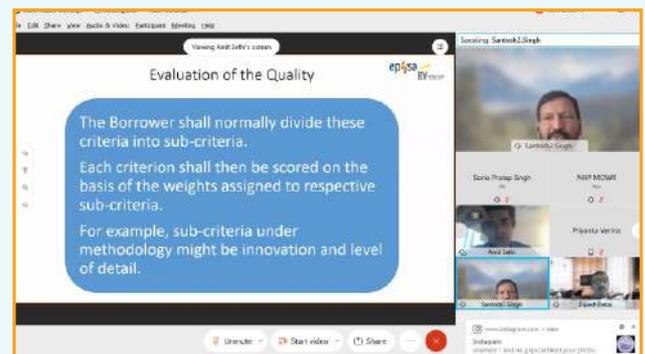


An online 5-days course was conducted by CWPRS on Hydro-Met & RTDAS equipment's and its installation for the Water Resources Department, Govt. of Maharashtra (SW) from **12<sup>th</sup> to 16<sup>th</sup> October**. There were 35 participants for class room training when the training was planned initially for **March 2020** at Pune. But due to the outbreak of Covid 19, the course was postponed. Subsequently, the course was scheduled in online mode. 86 participants had participated from WRD, Nashik of the rank SE, SDE, JE, etc. Director CWPRS inaugurated the event online. Sessions were conducted on various topics like - Overview of NHP,

Decision Support System, Basic Meteorology & Conventional Meteorological Instruments, Automatic Weather Station - Site Selection and Commissioning, Surface Water Level Instruments-Site Selection and Installation of SWLI, Data Collection Platform- Installation and Commissioning.

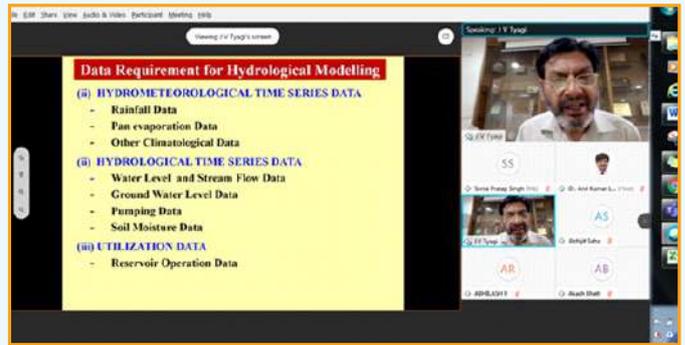
## Evaluation of Consultancy Bids for the Northern, Central, Western and Southern Implementing Agencies

On **23<sup>rd</sup> October 2020**, a webinar was held on the topic "Evaluation of Consultancy BIDS" under National Hydrology Project "for the Northern, Central, Western and Southern Implementing Agencies of NHP. The Purpose of the Workshop was to enhance the knowledge of the Implementing Agencies on the specific issue related to the Evaluation of Consultancy Bids. The Workshop received large attendance amongst the 61 representatives of the Implementing Agencies. Presentations were made by the RPEs of Northern and Southern Region covering the various Guidelines applicable to the Evaluation of Consultancy bids under NHP

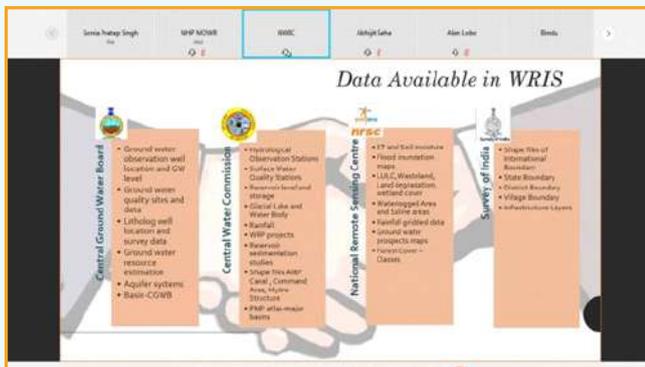


## Trainings and On-line Courses Conducted by NIH in 2020

During the year 2020, National Institute of Hydrology (NIH) conducted 15 trainings and online courses. The important topics covered are: 2 events of Hydrological Modelling Using HEC-RAS & HEC-HMS, 2 events of Hydro-informatics Workshops, MIKE Hydro Basin, Application of Water Accounting Plus (WA+) Tool for Water Resources Management, Assessment of Reservoir Sedimentation Using Geo-Spatial Technique and QGIS, Advanced Hydrology, Hydrological Modelling Using SWAT, Groundwater Quality and Stable Isotope Characterization for salinity study. These courses were conducted and facilitated by various scientists and experts with national and international experiential back ground. Total participants attended this program were 680. Most of the courses were packed with various online interactive sessions, discussions and practices of various applications.



## Online Training on INDIA-WRIS was Organized by NWIC



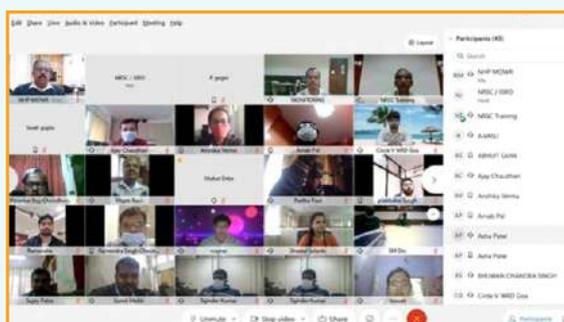
On **28<sup>th</sup> October 2020**, online training on India-WRIS was organized by NWIC and this was hosted by NHP MOWR. It was facilitated by Ms. Iti Gupta and Ms. Vineeta Sharma. The key contents were water topics WRIS tools, water data online, WIMS, WRIS applications, data available in WRIS, INDIA-WRIS modules. There were 30 participants in this event. During the year NWIC has conducted 4 online sessions on diverse topics relating to INDIA WRIS. Total participants attended these programs are 264. Online sessions are inevitably chosen by NWIC due to COVID-19 Pandemic situation.

## Efficient Irrigation & Water Management Practices

Two days of training held on "Efficient Irrigation & Water Management Practices" under the National Hydrology Project on **22<sup>nd</sup> & 23<sup>rd</sup> October 2020** in Aizawl. This training was organized by the Irrigation & Water Resources Department, Govt. of Mizoram. This training was inaugurated by Pu C Lalrinsanga Hon'ble Minister, IWRD, and Mizoram. The key contents were efficient management techniques and practices shared during the program.



## Trainings and Online Courses Conducted by NRSC



National Remote Sensing Centre (NRSC) has conducted 4 online courses on <sup>®</sup> Basics RS & GIS <sup>®</sup>Release of Glacial Lake Atlas of Indus River Basin & (2) Presentation on PDS on Vulnerability Assessment of Springs <sup>®</sup> 2 weeks GIS & RS application to water resources <sup>®</sup>Web-GIS based Spring Information System (ISHVAR) for Vulnerability Assessment and Hydro-Geological Investigation of Selected Springs for Sustaining Local Water Demand in Ravi Catchment of Himachal Pradesh. There were 235 participants in these 4 events.

These events have in-depth interactions, discussions and practice of various practical applications relating to RS and GIS. The experts and scientists have provided invaluable inputs and guidance to the participants to improve their knowledge and skills.

# Visits

## Visits

On **5<sup>th</sup> December** JS (A, IC&GW) & Project Coordinator (NHP), visited groundwater monitoring sites of I &FC Department, Govt. of NCT Delhi, and CGWB at Hiranki, Jangola, Palla, and Lodhi Garden. He overviewed the functioning of DWLR & reviewed manual observations in piezometers and dug well.



On 19th December JS (A, IC & GW) & Project Coordinator NHP along with a team from NPMU comprising of SJC-I, SJC-II and SJC-III, visited Okhla Barrage, Delhi on **19<sup>th</sup> December 2020** where the SCADA system for Automated Barrage Operations has been installed under NHP by Uttar Pradesh (SW). This is the 1st SCADA installed under the National Hydrology Project (NHP).



Sri. Kushagra Sharma SJC II NPMU along with Mr Amit Sethi, Regional Procurement Expert visited Roorkee, Uttarakhand and reviewed the work of Irrigation Department, Uttarakhand, on **9<sup>th</sup> November 2020** and work of NIH at Roorkee on **10<sup>th</sup> November 2020** through field visit and detailed discussion through meetings with Nodal Officers and other concerned officers.



Dr D Gnanasundar, SJC-III visited SPMU - Tamilnadu, and had discussion with Chief Engineer (SGSWRDC) at Chennai on **12<sup>th</sup> November 2020**. On the same day he had a review meeting with the Regional Director, SECR on construction of 60 piezometers by SECR, CGWB at Chennai. On **13<sup>th</sup> November 2020** SJC-III had review meeting with Nodal officer of SPMU at Puducherry.



The visiting team comprise of Sri Rakesh Kashyap SJC-I and Dr. Raja Ram Purohit, Deputy Director II, from NPMU visited Bhakra Beas Management Board had a Review Meeting with SPMU, and headed by Member (Power), BBMB at BBMB HQ, Chandigarh on **05<sup>th</sup> November 2020**. The team also reviewed the work of SPMU Punjab, headed by CE on **5<sup>th</sup> November 2020** at Mohali Punjab. The team met with Er. Satbir Singh Kadian, Nodal officer, Haryana, and reviewed the work on **6<sup>th</sup> November 2020**, at Sichai Bhawan Panchkula.

## Virtual Meetings

Just after imposition of first Lockdown in last week of **March 2020** NPMU/TAMC started gearing up to adopt innovative methods to keep the progress of the project on track. Emails were sent to all agencies to bring back their digital signatures to their home and start working from home for floating of bids, opening of floated bids, preparation of various documents and evaluation reports, etc. Regular VCs on daily basis was planned with NPMU and TAMC Experts from **1<sup>st</sup> April 2020**. Following virtual review meetings were held

A review was conducted by Shri U.P. Singh, Secretary and Sh. Subodh Yadav, Joint Secretary, DoWR, RD & GR, MoJS on Artificial Recharge Master Plan 2020, through VC. In this meeting, the Director AP GW explained that AP is using the GW data generated under NHP for prioritizing areas for GW recharge. Shri U.P. Singh appreciated the AP water resources information system, which has been extended and being maintained under NHP.

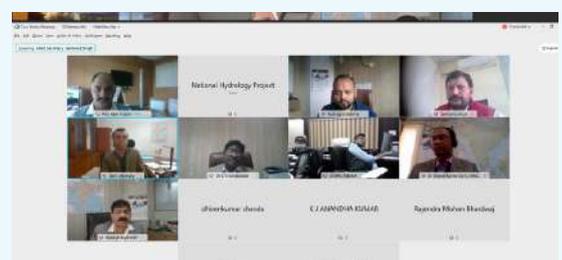
A meeting was convened to discuss various collaborative projects between Govt. of India and Australia on **24<sup>th</sup> June 2020**. Ms. Debashree Mukherjee, Additional Secretary (DoWR, RD & GR) chaired the meeting. The Proposals on “Capacity Development in Stream Flow Forecasting in Godavari Basin” and Program of Young Water Professional (YWP) under NHP along with other issues were discussed in the meeting with officials of Australia. It was decided to expedite these Proposals with mutual understanding & collaboration.

A video Conference was organised to discuss the status of DSS(PM) activity under NHP. The meeting was attended by NIH Scientists, NPMU Officers, TAMC Consultants, and DHI (India) consultants. During the meeting, held on **May 18, 2020**, Dr. NT Reddy, Technical Director- Solutions, DHI (India) Water & Environment Pvt. Ltd. presented the current status of the DSS(PM) activities and progress made so far.

A video conference was held with World Bank representatives on **20<sup>th</sup> May** to appraise the progress under various components of NHP and also to discuss about the way forward. The World Bank representatives appreciated the effort of NHP team for fruitfully utilising the Lock down time for reviewing the progress of the various Implementing Agencies individually and conducting Webinars to enable the Agencies to expedite the work. All the Experts from World Bank led by Team Leader and all the SJs and others from NPMU participated in this meeting.

A Presentation to Hon'ble Union Minister of Jal Shakti Sh. Gajendra Singh Shekhawat on Extended Hydrological Prediction (EHP) (MULTI WEEK FORECAST) was made by CWC on **15<sup>th</sup> May, 2020** at 16.30 hrs through Video Conference. CWC officials explained the need of EHP under NHP. The meeting was chaired by Hon'ble Union Minister Shri Gajendra Singh Shekhawat and attended by Secretary, Additional Secretary and all SJs apart from officials of CWC.

JS (A, IC & GW), DoWR, RD & GR and Project Coordinator (NHP) held series of implementation review meetings with the Central & State IAs under NHP [Tamil Nadu (**8<sup>th</sup> Dec**), CWPRS (**9<sup>th</sup> Dec**), Odisha (**10<sup>th</sup> Dec**), UP GW (**11<sup>th</sup> Dec**), SOI (**14<sup>th</sup> Dec**), Maharashtra SW (**15<sup>th</sup> Dec**), West Bengal GW (**16<sup>th</sup> Dec**), Bihar GW (**23<sup>rd</sup> Dec**)]. He meticulously reviewed implementation status of items as per IA's PIP and AWP



2020-21, present status, reasons for delay, likely impact on the objectives and plan to mitigate the adverse impact, detail timelines for completing bidding process and completion of awarded contracts and procurement of packages not initiated till date, detail plan for utilizing 100% of funds available with IAs by **31<sup>st</sup> March 2021** and frequency of review meetings at coordinator and project director level.

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JS (IC& GW), the Project Co-ordinator of NHP, convened a series of Review Meetings through Video Conferences (VC) with selected Agencies of Unit-III & Unit-II (Goa, Rajasthan, Jharkhand, Punjab, Kerala-GW, Assam, BBMB, AP-SW, Odisha, UP-SW, Gujarat, Uttarakhand, CPCB, AP-GW and UP-GW) from **17<sup>th</sup> June to 24<sup>th</sup> June 2020** to review the Progress of these agencies and to expedite the Project activities.

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In the month of **December, 2020**, NPMU & TAMC held Review Meetings at a regular intervals (**1<sup>st</sup> Dec, 8<sup>th</sup> Dec, 15<sup>th</sup> Dec, 29<sup>th</sup> Dec 2020**) virtually to discuss various issues related to Technical studies, Communication activities & IAs Success stories, NHP target and achievements, Project progress & review, NHP Expenditure, Hydrometric installation, Physical & Finance progress, SCADA status etc. These meetings were attended by SJCI, SJC II, and SJC III on the virtual platform, apart from other officers of NPMU and TAMC Experts.

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A meeting, chaired by SJC, was held through Video Conferencing on **21<sup>st</sup> October** with the North Eastern States (Except Assam) to discuss various issues related to RTDAS bids for which Letter of Agreement (LoA) being awarded by these agencies in the month of **October 2020**. As most of the NE States will be implementing real time monitoring for the first time, and as it will be a milestone in this part of India, hand holding may be useful for enabling and capacity building of the Water resource experts, so that sustainable development can be achieved.

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Netherland Joint Working Group was held on **22<sup>nd</sup> October 2020**, headed by Shri Rajiv Ranjan Mishra, DG, NMCG from Indian side. NHP was represented Shri Kushagra Sharma, SJC-II (NHP). During the meeting discussions was held on various topics for technical collaboration between India and Netherland like emerging concepts towards participatory approach, water budgeting, water as leverage and contribution of National Mission for Clean Ganga to name few.

- Weekly meeting on Project Document handling & WIMS Dashboard was organised on **11<sup>th</sup> November 2020** at NPMU level.
- Regular daily Virtual Conference with NPMU and TAMC started from **1<sup>st</sup> April 2020**, and progress were monitored on day to day basis.
- First review meeting through VC was held on **31<sup>st</sup> March 2020** which was attended by all IAs. Aim of this meeting was to sensitize all IAs of NHP to start using online resources to cope with the COVID-19 restrictions.
- First round of regular VCs with all IAs were held between **1-15 April 2020**. During these VCs various specific and general agenda were discussed and IAs were requested to take actions as per the decisions made in these virtual meetings.
- After first round of virtual meetings plan to mitigate impact of Covid-19 project progress was finalised.
- Review meeting of progress of IAs by JS and Coordinator:
- Review meeting of progress of agencies Odisha, UP SW, AP SW, Gujarat, Rajasthan, Uttarakhand, CPCB, AP GW and UP GW by JS were held during **17-19 June 2020**.
- Progress review meeting of Goa, Jharkhand and Haryana were held on **22<sup>nd</sup> June 2020**.
- Progress review meeting of Punjab, Tamil Nadu and Chhattisgarh were held on **23<sup>rd</sup> June 2020**.
- Progress review meeting of Kerala, Assam and BBMB were held on **24<sup>th</sup> June 2020**.

# Major Achievements & Media News of the Year 2020

## Major Launches

On 2<sup>nd</sup> December 2020, Sh. U.P. Singh, Secretary, DoWR, RD & GR released the “Glacial Lake Atlas of Indus River Basin” prepared by the National Remote Sensing Centre (NRSC) under NHP. The Atlas is available on the NHP website.

## Major Activity

LIDAR mapping recommenced during lockdown period. A total of 5,430 sq. km area surveyed aerially during the period from 28<sup>th</sup> May to 17<sup>th</sup> June 2020 (Survey of India)

## Award

NHP has been awarded with the prestigious CBIP Award on 19<sup>th</sup> February, of Excellence in Water Resources Information System for undertaking the initiative to upscale the web-based centralized Information System for Surface & Groundwater Resources, accessible to all the stakeholders, including the citizen of the country.

## Media Gallery 2020



Union Minister of Jal Shakti reviews progress made under National Hydrology Project in its mid-term

Prasad Ch. 15 DEC 2020 6:23PM by PIB Delhi

Briefing of the National Hydrology Project (NHP) was approved by the Ministry of Jal Shakti was carried out by Minister, Jal Shakti Shri Gopabandhu Singh Shukla and Minister of State, Jal Shakti Lal Kishore.

The National Hydrology Project (NHP) was started in the year 2016 as a Central Sector Scheme with 100% grant to implementing agencies on par with a budget outlay of Rs. 2463 Crore to be spent over a period of 8 years. The project aims at improving the cover, reliability and accuracy of water resources information and to strengthen the capacity of surface water management organisations in India. This NHP is facilitating acquisition of reliable information efficiency which would pave the way for an effective water resource development and management.

The Project, so far, has made significant progress in the fields of Water resource monitoring system (WRMS), water resource information system (WRIS), water resource operation and planning system and operational capacity enhancement. Minister Jal Shakti Shri Gopabandhu Singh Shukla reviewed the progress of the NHP in a nationwide repository of water resources data. NWSC has been established. NHP is focusing on establishment of real time data acquisition system (RDAS) on pan India basis. As on date, contracts for establishment of 4500 real time hydro-meteorological (hydro-meteorological – measuring rainfall and other weather parameters and hydrological – measuring river level and discharge) stations have been awarded out of which, 3500 stations have been awarded which would be directly contributing data to the operational data base. The Real time data acquisition system, the next real time data acquisition system and the manual data acquisition system would complement each other and would lay a strong foundation for advanced decision making for better water resource management. All such data would be available through web enabled India WRIS which is being specially under the NHP.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1681164>



THE NEW INDIAN EXPRESS

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### Kerala ranks 2nd in National Hydrology Project review

The hydrology project, fully funded by the World Bank, began in 2016. As part of the project, the bank will give a grant of ₹44 crore to the state for eight years.

Published: 21 Jun 2020 07:13:43 AM | Last Updated: 21 Jun 2020 07:13:43 AM

By Express News Service

THIRUVANANTHAPURAM: In what could be termed as a major achievement amid Covid-19 pandemic, Kerala secured second position in the ranking of National Hydrology Project at the national-level review in the surface water category by improving its position from the seventh spot. In January this year, the state had performed better by jumping from 13th rank to 7. Damodar Valley Corporation scored the first rank with a difference of 0.67 points with Kerala. The ranking was published by the Union Government.

The hydrology project, fully funded by the World Bank, began in 2016. As part of the project, the bank will give a grant of ₹44 crore to the state for eight years. The project is expected to be completed in 2024 which is being implemented by a total of 44 agencies.

It involves collection of data on the quality of water that flows through the 44 rivers in the state, on annual rainfall, improving quality and number of data collection instruments. The

<https://www.newindianexpress.com/cities/thiruvananthapuram/2020/jun/21/kerala-ranks-2nd-in-national-hydrology-project-review-2159360.html>



National Hydrology Project to develop water resource in Nagaland

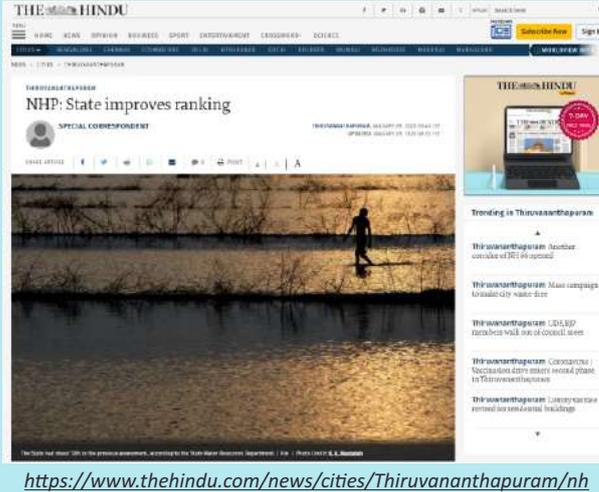
State Water Commission (SWC) (SWC) (SWC)

Kohima, July 23 (Mint): The Ministry of Water Resources, River Development & Gangs Rejuvenation (DoWR, RD & GR) is coordinating the implementation of National Hydrology Project (NHP) as a central scheme with World Bank assistance.

The Cabinet approved the implementation of National Hydrology project (NHP) on June 25, 2016. The project is for a total duration of 8 years, stated a DPR report.

All together there are 49 implementing agencies covering the entire nation, in which the Department of Water Resources is acting as the implementing agency for the State of

<https://www.morungexpress.com/national-hydrology-project-to-develop-water-resource-in-nagaland>



THE HINDU

NEWS | 2020 | THIRUVANANTHAPURAM

### NHP: State improves ranking

SPECIAL CORRESPONDENT

THIRUVANANTHAPURAM, JULY 23 (Hindu) — The state has improved its ranking in the National Hydrology Project (NHP) review, Kerala has secured the second position in the surface water category, according to the Union Government.

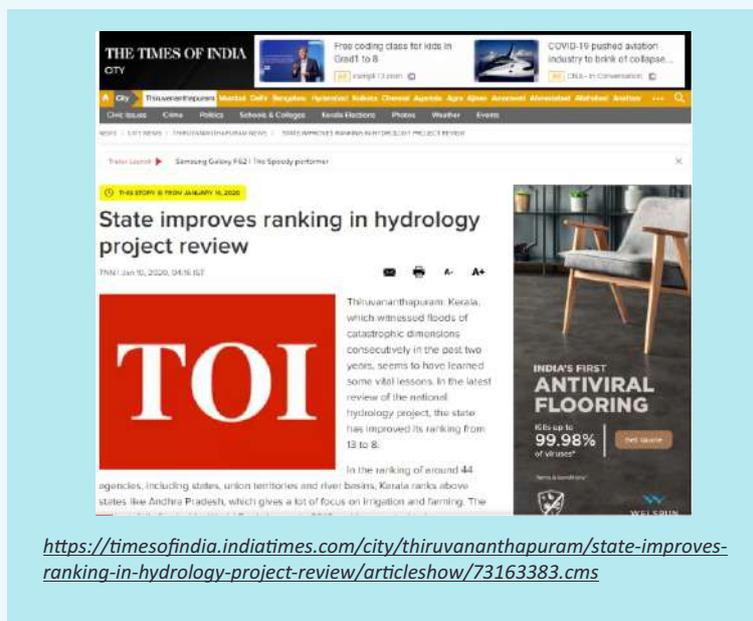
<https://www.thehindu.com/news/cities/Thiruvananthapuram/nhp-state-improves-ranking/article30517791.ece>



<https://www.thehindu.com/news/national/kerala/state-comes-second-in-nhp-rankings/article31871056.ece>



<https://www.tribuneindia.com/news/haryana/haryana-hailed-for-executing-hydrology-project-well-187214>



<https://timesofindia.indiatimes.com/city/thiruvananthapuram/state-improves-ranking-in-hydrology-project-review/articleshow/73163383.cms>

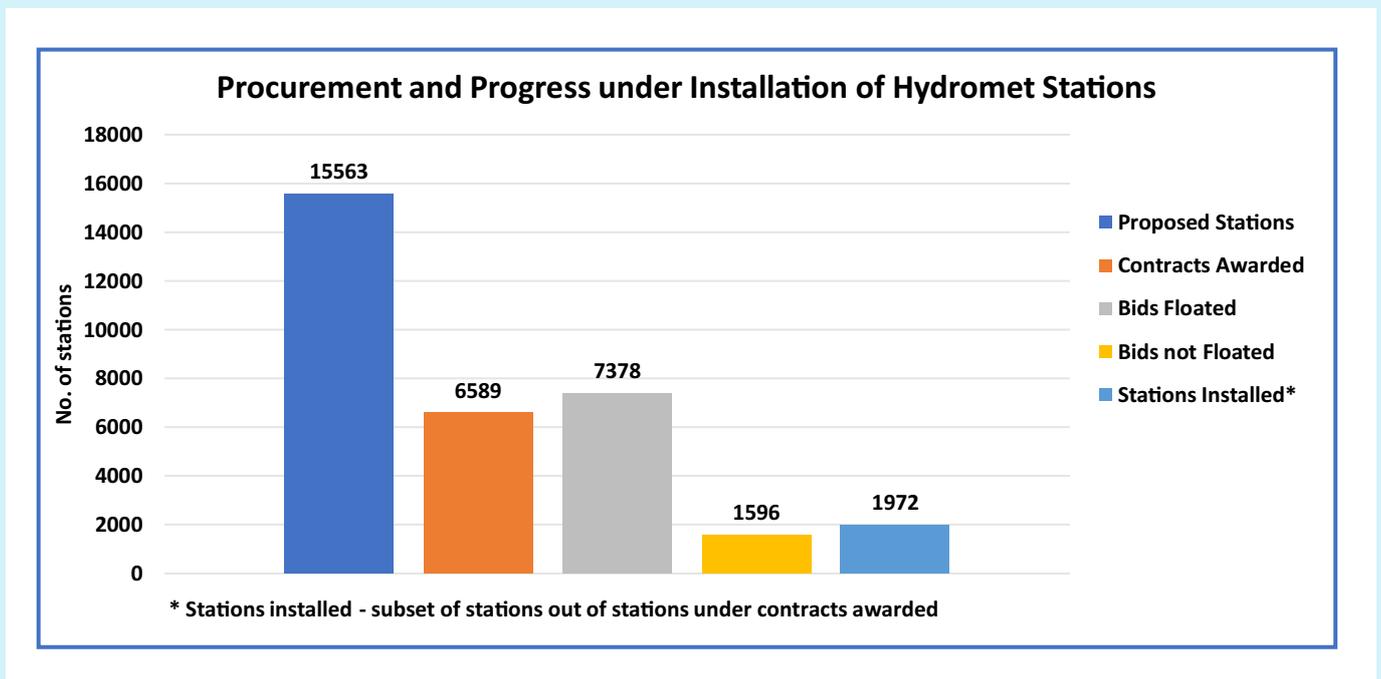
## And Miles to Go

With the continuous persuasion and support by NPMU/TAMC during lock down period, action on majority of the activities identified under CRP have been taken by the IAs as on date. However, it has been recognised that there is a need to review the Project Implementation Plans of all the IAs considering practical issues and knowledge, conceptual clarity and experience gained through the initial phase. This activity is being carried out with utmost care, and is expected to iron out many of the difficulties faced earlier. The activities are being categorised as Core and Non-core activities. The core activities are those which are directly in line with the planned outputs of NHP and are normally not funded under routine budgets of the Implementing Agencies. The non-core activities are those which would lead to the fulfilment of NHP objective, but in an indirect manner. Core activities would include installation of RTDAS, adoption of advanced techniques for acquisition of hydro-meteorological and spatial data, effective operationalisation of data cum training centres, IT infrastructure for data centres, implementation of SCADA, hiring of technical man power, capacity building initiatives, development of data acquisition and data dissemination process through advanced techniques, development of analytical tools, decision support system, carrying out assignments in the form of technical solutions to water sector problems which are primarily oriented towards providing implementable solutions, procurement of equipment to be used for water quality assessment, etc. Non-core activities would include routine operation and maintenance of SPMU, hiring of non-technical experts, procurement of furniture, IT equipment for PMU, conventional methods of data acquisition etc.

At the time of approval of AWP, the IA would be communicated about the category of each activity. The allocation towards core activity would be outside the purview of CRP whereas complete or part allocation of non-core activities would fall under CRP and in case the IA fails to take planned action against the activity, the allocation may become the part of CRP and would be open for allocation to other performing agencies/new agency to fund their Core activities. Accordingly, the PIP allocation of the IAs would be deemed to be modified. This mechanism is proposed to be made effective while approving AWP 2021-22. The proposals involving resource optimisation at basin scale across the state boundaries will be encouraged and for this purpose the state may provide funds to commensurate with the work load for its part. Supplementation of funds may be made possible for such activities where the upstream states are able to provide partial funding only.

The states are being motivated to install RTDAS and share data collected by agencies beyond the implementing agencies of the project. It is encouraged to create enabling environment for multi-department coordinated action (e.g., DMA, SW, GW, CADA). It is also urged to take up those essential tasks that are not possible outside NHP. Activities like basin scale reservoir optimisation for Krishna, Cauvery, Godavari, may be taken up under the NHP where the riparian states do not normally contribute in proper cooperative spirit to favour actions that support optimisation at a national level in spite of taking up actions that help to satisfy narrow gains. It may be planned to reduce flood deaths through inundation forecast, wherever such incidences are prevalent. The irrigated area may be increased through SCADA based optimised supply. FSR/DPR for water supply/ sanitation schemes may be prepared. Finally, the concept of basin scale water management may be taken to school/ college, for creating interest and better grooming of our future water resource managers.

The path ahead is steep and difficult, but with the concerted efforts of the centre and the states, the seasoned professionals and the learned academia, the hard-working field personnel and the support from the World Bank, together we have the potential to transform the water sector of the country in synchronisation with the digital India movement, and we will achieve it.



As on 31<sup>st</sup> December 2020

पानी बिन सब सून जगत में, यह अनुपम धन है ।  
जल पीकर जीते सब प्राणी, जल ही जीवन है ।।

Sources by India Water Portal



Sources by India Water Portal



## मैं पानी हूँ

मैं पानी हूँ  
मैं जल हूँ, मैं आपका आज हूँ  
मैं आपका कल हूँ  
रंगहीन, गंधहीन पानी  
झील नदी नालों  
पोखरों  
तालाब और कुँए का पानी  
वर्षा का पानी  
ओस का पानी  
बर्फ का जमा  
बादलों का वाष्पित पानी,  
मैं आपका पानी हूँ

नदियों में बहता  
बादलों में आसमान छूता  
उड़ता बरसता  
फिर बहता  
मैं पानी हूँ

मेरे बिना जीवन नहीं  
मेरे बिना जग नहीं  
मैं अनमोल हूँ  
मुझे संरक्षित करो  
मैं आपका पानी हूँ



# NHP Project Objective

## To Improve the

- extent
- reliability
- accessibility of water resources information &
- strengthen the capacity of targeted water resources management institutions in India.

## For

- Water Resources development and management in the country.

हरी-भरी जहाँ होती धरती, वहीं आते बादल उपकारी ।  
खूब गरजते, खूब चमकते, और करते वर्षा भारी ।

Sources by SAHITYA DARPAN

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## NATIONAL HYDROLOGY PROJECT

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