

JALANSH

The Monthly Newsletter of Central Water Commission

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S.K. Haldar,
Chairman, CWC
Message

CWC commenced its regular Flood Forecasting activity on 01.05.2021 in Brahmaputra, Teesta, Barak and Jhelum basins. It will be extended to the whole country from 01.06.2021. During the month, the country faced two cyclones namely Tauktae & Yaas on the west coast and east coast respectively. CWC closely monitored the flood situation associated with both the events and Special Flood Advisories were issued.

One of the important activities assigned to CWC is techno-economic appraisal of irrigation, flood control and multipurpose projects proposed by the State Governments. After the establishment of the techno-economic viability of the project, these are considered for acceptance and investment clearance. Besides these, the Hydro-power projects proposed by State Power Corporations / Electricity Boards / Private Sector Organizations for techno-economic clearance by Central Electricity Authority (CEA) are also scrutinized in CWC from the viewpoint of hydrology, civil design, inter-state issues and cost aspects of civil components. Technical aspects of water supply schemes are also appraised as and when referred to by the State Governments. Currently, project proposals estimated to cost about Rs. 1.10 lakh crore are under appraisal and CWC is providing its technical expertise in preparing the techno-economically sound proposals.

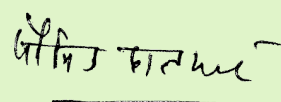
Apart from focusing on new projects, efforts are also underway to improve the performance of existing projects. Consultation with the State Governments continued during the

month for the various project proposals being considered under Support for Irrigation Modernization Programme (SIMP) in assistance with the Asian Development Bank (ADB).

CWC is one of the Implementing Agencies under the National Hydrology Project (NHP) playing a crucial role as a central technical coordination agency. Project activities related to the improvement of the water resources data acquisition system, reservoir sedimentation studies using Hydrographic Survey, Inundation Forecast in Ganga Basin and matters related to Integrated Reservoir Operations are progressing well.

The National Infrastructure Pipeline (NIP) is a first-of-its-kind, whole-of-government exercise to provide world-class infrastructure to citizens and improve their quality of life. The Water and Sanitation sector is one of the sectors identified under NIP which is overseen by the Inter-Ministerial Steering Committee (IMSC) headed by Secretary, DoWR, RD&GR. Recently, a cell has been established in CWC to support investible projects in coordination between the Central Government and the State Government. It would aim to grow the pipeline of investible projects and, in turn, attract/increase private investment.

In another development, CWC has taken over the management of coastal sites established in the States of Kerala, Tamilnadu and UT of Puducherry. These were set up in association with IIT, Madras. Setting up of more coastal sites is also underway in the other selected states such as Goa, Maharashtra and Gujarat in association with CWPRS, Pune and NIO, Goa. These efforts will strengthen the coastal data collection in the country for informed decision-making regarding coastal protection.



Review of Flood Preparedness for Flood Season 2021

In anticipation of the ensuing flood season in all the basins from 01.06.2021, Secretary, DoWR, RD&GR, MoJS took a review of the preparedness of Flood Forecasting Activity under CWC on 19.05.2021. He reviewed the entire process and was impressed by the activities already being undertaken by CWC and stressed the importance of proper reservoir operation by all stakeholders to avoid floods in the downstream. He directed CWC to prepare a draft DO Letter to be addressed to the Chief Secretaries of all States/UTs to impress upon their dam authorities to update/develop rule curves for all dams, use of inflow forecasting for advance release of excess flows from dams, expansion of inflow forecast network as well as structural measures like maintenance of embankments etc. He also mentioned that Flood Crisis Management Teams (FCMT)s for each system of reservoirs under Integrated

Flood Situation in the Country

Regular Flood Forecasting Activity commenced on 01.05.2021 in Brahmaputra, Teesta, Barak and Jhelum basins. During the period from 1st May to 31st May 2021, 88 flood forecasts (73 Level and 15 Inflow) were issued, out of which 75 (66 Level and 9 Inflow) forecasts were within the limit of accuracy with a percentage accuracy of 85.22%. Two (2) Nos. of Red Bulletin (for Extreme flood situation) and 22 nos. of Orange Bulletin (for severe flood situation) were issued in May month from Central Flood Control Room.

During the above period, Extremely Severe Cyclonic Storm "Tauktae" crossed Gujarat Coast and affected the States of Kerala, Mahe (UT of Puducherry), Tamilnadu, Karnataka, Goa, Maharashtra, Gujarat, Dadra & Nagar Haveli and Daman & Diu. Special Advisories were issued on 13.05.2021. On 20.05.2021, Chairman, CWC attended the meeting of the National Crisis Management Committee (NCMC) convened under the chairmanship of the Cabinet Secretary to review the rescue & relief measures being undertaken by various State Governments which were affected by the cyclone Tauktae. During the month of May, another Very Severe Cyclonic storm "Yaas" formed over the Eastern Bay of Bengal and affected the states Odisha and West Bengal. Special Flood Advisories were issued for Odisha, Jharkhand and West Bengal on 24.05.2021.

Summary of Flood Situation during May 2021

Extreme Flood Situation

No FF station observed Extreme Flood Situation. One Flood Monitoring station namely Thiruvarambu in

Review Meeting for the Progress of Works for Protection of Majuli Island

To review the progress of Majuli Protection works, a meeting was held under the chairmanship of Member(RM), CWC on 28.05.2021 through video conferencing. The meeting was attended by

Reservoir Operation for Flood Management should be constituted and FCMTs should meet frequently during the flood times to decide on the quantum of release to be undertaken by each of the systems of reservoirs. The DO Letter has since been issued by DoWR, RD&GR to all State Chief Secretaries.

As a prelude to the above meeting, Chairman, CWC conducted a review on 18.05.2021 in which every activity concerning the Flood Forecasting system was discussed including the provision of manpower in Regional Offices, Divisions/Sites/ etc. Chairman, CWC also took stock of the progress taking place in the development of 5-day Advisories and expansion of the activity to the hitherto uncovered States/UTs as well as basins.

Kanyakumari district of Tamilnadu observed Extreme flood situation on river Kodaiyar.

Severe Flood Situation

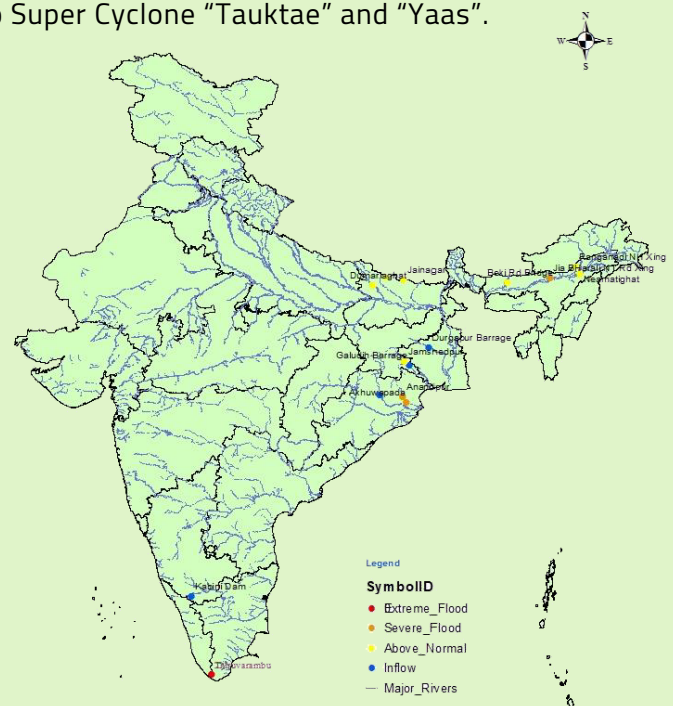
Three (3) FF Stations observed Severe Flood Situation in the States of Assam and Odisha.

Above Normal Flood Situation

Seven (7) FF Stations in Assam, Bihar and Jharkhand observed Above Normal Flood Situation.

Reservoirs having Inflow above threshold limit

Four (4) reservoirs received inflows above their threshold limit in Karnataka, Jharkhand, Odisha and West Bengal in association with very heavy rainfall due to Super Cyclone "Tauktae" and "Yaas".



1st Meeting of Expert Committee for finalizing Draft Sediment Management Policy

The first meeting of the Expert Committee for Finalizing Draft Sediment Management Policy was held on 31.05.2021 under the chairmanship of Member (RM). Experts from various Ministries / Departments namely Central Water and Power Research Station (CWPRS), Central Soil and Materials Research Station (CSMRS), National Institute of Hydrology, Ministry of Mines, Inland Waterways Authority of India (IWAI) were present in the meeting. At the outset, Member (RM), CWC and Chairman of the Expert Committee welcomed all the participants. Thereafter, a brief presentation was made by Director (Morphology & Climate Change), CWC about the draft Sediment Management Policy prepared earlier by Central Water Commission, which was circulated to all the members for observations/inputs. A brief presentation on "Sediment Management in Reservoir" was also made by the Project Director, DRIP. The Draft Sediment Management Policy was discussed in detail

60th Meeting of Upper Yamuna River Board

The 60th meeting of the Upper Yamuna River Board was held from 13.05.2021 to 15.05.2021 under the Chairmanship of Shri Kushvinder Vohra, Member(WP&P), CWC & ex-officio Additional Secretary to Government of India and Chairman, UYRB through Video Conferencing to consider the request of Delhi Jal Board (DJB) dated 8.5.2021 seeking the release of additional water through the River Yamuna to meet the water shortage in the NCT of Delhi. The meeting was attended by the representatives of Yamuna Basin States.

Earlier, an Interlocutory Application I.A. No.34991 of 2021 was moved by the Delhi Jal Board in Writ Petition W.P.(C) No.8/2021 before Hon'ble Supreme Court of India for seeking directions to the State of Haryana to ensure that enough water is supplied by the State of Haryana to the Government of the NCT of Delhi to maintain the level of water at the Wazirabad barrage at 674.50 feet.

The Hon'ble Court while disposing off the Writ Petition vide its order dated 7.5.2021; directed that "However, we grant liberty to the Petitioner to approach the Upper Yamuna River Board which was constituted for coordination, development and management of Yamuna

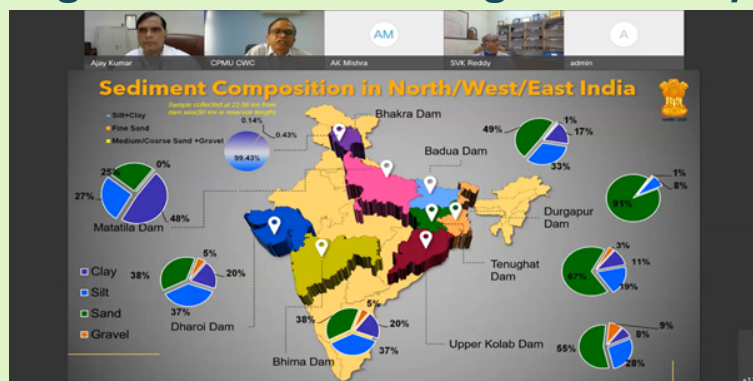
DRIP

Post Graduate Course on Dam Safety Rehabilitation in IIT Roorkee

IIT Roorkee has published an admission notice for the year 2021, which includes the newly started Post Graduate Course on Dam Safety Rehabilitation under DRIP Phase-II. All officials from partner States of DRIP Phase II are eligible to apply under the sponsorship

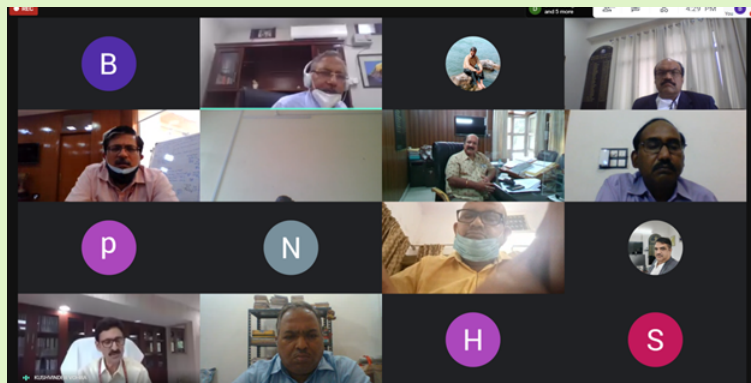
DEA-AIIB Tripartite Portfolio Review Meeting (TPRM)

Virtual Tripartite Portfolio Review Meeting (TPRM) was organized by DEA, Ministry of Finance on 25.05.2021 with Asian Infrastructure Investment Bank (AIIB) to review the readiness of partner States of DRIP Phase- II for loan negotiation. During the meeting, it was informed



and based on the deliberations, the following decisions were taken:

- The draft policy documents will be modified suitably incorporating the observations/inputs provided by the Committee members,
- The modified policy documents will be re-circulated among the Committee members within two weeks for further review/suggestions.



River to seek allocation of more water to meet the exigency of acute shortage of drinking water in Delhi....."

During the meeting, DJB presented the pressing need for the release of additional water through the river Yamuna. Representatives of Haryana and U.P. also presented the water scarcity situation in their States at present. After detailed discussions, it was decided that NCT of Delhi may send their request to Haryana and U.P for releasing some water in the Yamuna river as a special case which would be considered by them on an urgent basis.

category. Meeting of Screening Committee for scrutiny of nominations from CWC for various PG courses including the course mentioned above was held virtually under the Chairmanship of CE, HRM, CWC on 24.05.2021.

that DEA's project readiness criteria for loan negotiation with AIIB for funding of US\$ 250M is likely to be fulfilled by July, 2021. The meeting was attended by the representatives of DEA, AIIB, Ministry of Jal Shakti and CWC.

Meetings for Ujh Multipurpose Project

During the month of May, series of meetings were held in respect of Ujh Multipurpose Project under the Chairmanship of Shri Kushvinder Vohra, Member (WP&P), Central Water Commission. In these meetings, the possibility of re-designing & enhancement of socio-economic scenario for assessment of Benefit-Cost (BC) ratio and the status of statutory clearances for the Project were discussed.

The first meeting dated 10.05.2021 was participated by officials from SPR & Indus Wing (DoWR, RD & GR), MoJS, Water Resources Department (WRD), Govt. of J&K and CWC. After detailed discussions, it was decided that officers from J&K will explore the possibility of bringing an additional command under the project and inform the outcome in 10 days. It was informed that the Ministry of Power has made certain suggestions regarding the implementing agency for the project. The officers from DoWR, RD & GR were requested to take up the matter further with J&K and Ministry of Power for early decision in the matter. Project Authorities apprised that statutory clearances for Phase-I of the project have been obtained. Member (WP&P), CWC emphasized that

Support for Irrigation Modernization Programme (SIMP)

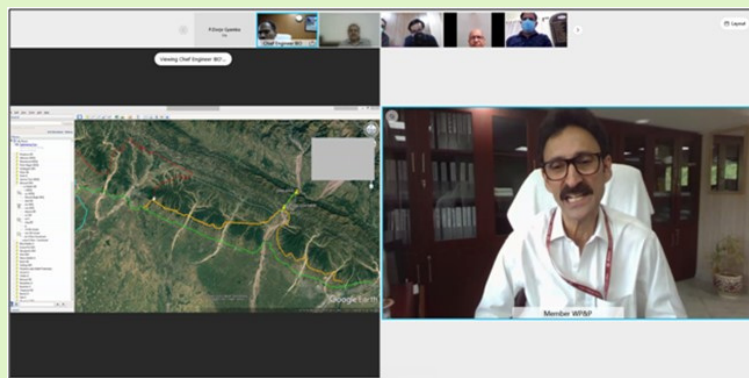
Member (WP&P), CWC held a meeting through video conferencing with the officials from Asian Development Bank (ADB), Consultants' Team and concerned CWC officials on 17.05.2021 to discuss various aspects related to the Support for Irrigation Modernization Programme (SIMP). CWC with the technical assistance from ADB has initiated SIMP which proposes the application of national and international best practices for modernizing Major & Medium Irrigation (MMI) projects in India to improve irrigation water use efficiency and crop water productivity. Member (WP&P) reviewed the process for shortlisting of project proposals submitted by the State Governments for which Irrigation Modernization Plans (IMP) are to be prepared under Batch-1 of SIMP.

Consultation meetings with the States for shortlisting of project proposals continued during the month of May

Training

Sr. No.	Name of the Program	Dates & Duration	No of participants	Category
a)	Hydro-meteorological Observation at Site	10-21 May 2021	185	Technical (PODL)
b)	Mandatory Cadre Training Program for Junior Engineers of Brahmaputra Board	10-22 May 2021	32	Technical (PODL)
c)	Purpose Oriented training program on "Irrigation Planning Aspects for Preparation of Detailed Project Reports.	10-21 May 2021	114	Technical (PODL)

In addition to above, the International Distance Learning



requisite clearances for Phase-II of the project may be expedited and the timeline for the same may be intimated within 10 days.

Further, during an internal meeting in CWC dated 25.05.2021, the number of suggestions/options were discussed especially regarding the increase in area under Zaid crop, cropping pattern, canal alignment, power potential studies, use of UGPL wherever feasible etc. to further improve the benefits from the project and optimizing the cost of the project. These matters were again discussed in the third meeting dated 28.05.2021 wherein officials of DoWR, RD&GR, CWC and Water Resources Department (WRD), Govt. of J&K participated.



also and six more States were covered as follows:

Sl. No.	State	Date	Projects Discussed
1	Telangana	03.05.2021	Kaddam Narayana Reddy Project
2	Madhya Pradesh	03.05.2021	Sanjay Sarovar Project Thanwar Dam
3	Uttarakhand	06.05.2021	Baur-Haripura
4	Andhra Pradesh	06.05.2021	Kurnool Kadapa Canal
5	Tamil Nadu	07.05.2021	Krishnagiri Project
6	Haryana	07.05.2021	Loharu Canal

Program in Hydrology: Advanced Topics in Hydraulics, Hydrological Sciences and Hydrometeorology was initiated on 31.05.2021. The programme is being organized in association with WMO & COMET, USA and will continue up to 16.07.2021. NWA is also conducting training programmes for school teachers and there has been very good response for such courses. This program is being conducted for nine (9) batches from 24.05.2021 to 11.06.2021.

Taking over of CMIS Sites by CWC from IIT Madras

CWC has initiated the development of "Coastal Management Information System (CMIS)" under the Plan Scheme "Development of Water Resources Information System (DWRIS)" during the 12th Five Year Plan (2012-2017). The CMIS envisaged setting up of sites along the coast of the maritime States/UTs of India for collecting data of relevant coastal processes. CMIS is a field activity wherein experience and expertise is needed. Hence, for implementation and creation of CMIS, CWC would suitably associate with the maritime State/UT Governments and Institutes/Agencies who possess similar expertise and experience.

In order to hear the views of the maritime State/UT Governments and Expert Institutes/Agencies, a "One-day Brainstorming Workshop on Implementation and Creation of Coastal Management Information System (CMIS)" was organized by CWC on 13.05.2014 at CWC, New Delhi. During the discussions, the preferred implementation model for CMIS was decided by signing of a tripartite Memorandum of Understanding (MoU) wherein, CWC would be the 'Project Implementer', the expert agency would be the 'Project Executor' and the concerned State/ UT Government would be the 'Project Facilitator'.

Implementation of Coastal Management Information System (CMIS) in the states of Tamil Nadu, Kerala and UT of Puducherry was awarded to IIT Madras and a tripartite MoU were signed among CWC, IIT, Madras and respective States/UTs (Kerala, Tamil Nadu and Puducherry) for the establishment of one coastal data collection site in each States/UT. The first phase of the project Coastal Management Information System (CMIS) began in November 2016 with a total outlay of Rs.896.05 lakhs. The first phase of the project culminated in June, 2019. The second phase began in February, 2019 and culminated by May, 2021 with 3 months extension. The establishment of three no. of coastal data collection sites (Devanari-Tamil Nadu, Karaikal-Puducherry and Ponnani-Kerala) has been completed under this project.

Various state of art equipment purchased under the project are as under:

1. Automatic Weather Station (AWS) – Measures - Wind Velocity, Wind Direction, Relative Humidity, Rainfall.
2. Directional Waver Recorder (DWR) - deployed at -15m water depth. Measures- Wave height, Wave period, Wave direction etc.



3. Acoustic Doppler Current Profiler (ADCP)-deployed at -7.5m water depth. Measures – velocity profile of water columns beneath.
4. Current Meter- A rotating current meter deployed at estuary area of respective sites for measuring flows.
5. Conductivity Temperature Depth (CTD) probe-measures the conductivity and temperature profile on the estuary area with depth.
6. Tide Gauge (TG) – measures tide level -installed only at sites where river is joining the sea (Ponnani, Kerala and Karaikal, UT of Puducherry)
7. Niskin Water sampler- For collecting water samples from ocean at varying depth starting at -5m till -20 m for the analysis of Suspended sediments.
8. Grab sampler- For the collection of seabed material sample for the analysis.
9. Echo sounder – For the Bathymetry survey
10. Water Scooter/ fiber boat- for near shore bathymetry survey using Echo sounder.
11. Sieve shaker- for sediment analysis.
12. RTK GPS - for beach profile and beach transect measurements.

The CMIS sites at Devanari, Karaikal and Ponnani have been taken over and will now be managed by CWC. Equipment available at the above 3 sites have been taken over by CWC field offices on 30th and 31st of May 2021. The equipment and other documents available at IIT, Madras will be taken over soon by CWC.

4th meeting of the Committee for planning BRICS Water Ministers Meeting & BRICS Water Forum during IWW-2021

The fourth meeting of the committee for planning the BRICS Water Ministers Meeting and BRICS Water Forum in India in 2021 was held under the Chairmanship of Shri Kushvinder Vohra, Member(WP&P), CWC and Ex-officio Addl. Secretary to Govt. of India, on 04.05.2021 through video conference. Officers of the Ministry of External Affairs, DoWR, RD & GR, CWC, CGWB and NWDA participated in the meeting.

After detailed discussions, actions were decided in respect of the following items:-

- Preparation of Concept Note on Sub-themes for BRICS

Design flood review study of Somasila Dam

The design flood review study of Somasila Dam has been completed by Hydrological Studies Organisation, CWC. The Somasila Dam is located on Pennar River near Somasila in the Nellore district of Andhra Pradesh. The project was commissioned in the year 1989. It is a multipurpose project on the river Pennar with a gross storage capacity of 2207.8 MCM. It is an earthen cum masonry dam of 754.7 meters length at the top with a maximum height (above deepest foundation level) of 38 meters. The Catchment area at the dam location is 50893.3 km² as estimated using SRTM 90 Meter DEM. The existing spillway capacity is 19680 cumec at FRL and 22370 cumec at MWL. The catchment was divided into 39 sub-catchments. Based on the size of the catchment & its shape, 3-day storm duration has been considered

Gararda Dam Project, Rajasthan

The Medium Irrigation Project with a 32.80 m high and 3.671 km long earthen dam at Gararda in district Bundi, Rajasthan is planned to provide irrigation facilities to a Culturable Command Area of 9161 ha. The Dam taps the discharge of the three Chambal basin drainage channels, namely Mangli Nala towards the left end, Dungari Nala in the middle and the Ganeshi Nala at the right end of Dam axis. There is a 600 m long and 6.9 m high masonry ogee type ungated spillway across the Mangli Nala.

WRD, Rajasthan completed the construction of the dam in 2010, but it was breached in the central portion across the Dungari Nala in a length of about 100 m during the first filling of its reservoir on 15.08.2010. At the request of WRD, Rajasthan, CWC is providing design consultancy for its rehabilitation/remedial measures and construction drawings for the rehabilitation work were issued during September 2017 to July 2019. Rehabilitation works for both the un-breached and breached dam portion were under progress.

Meanwhile, WRD Rajasthan recently informed CWC about the presence of boulder strata of 1.5 m to 2.0 m thickness, starting from the breached portion and extending towards the left, below the unbreached dam

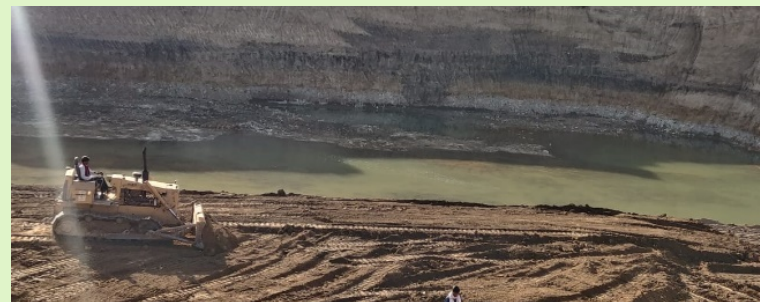
Water Forum

- Minute- to- Minute programme for BRICS Water Ministers' Meeting
- Study tour of BRICS Delegates to sewage treatment facility executed under Namami Gange Programme of DoWR, RD & GR.

It was also proposed that due to the COVID pandemic, advance planning for a Hybrid Platform involving Physical and virtual mode for IWW-2021 and BRICS Event may also be made.



for estimation of PMP. Since the catchment is divided into various smaller sub-catchments, channel routing of the flood hydrograph generated from each sub-catchment has been carried out through the subsequent streams/reaches in HEC-HMS software and synthesized to obtain the Probable Maximum Flood hydrograph at the location of Somasila dam.



section encountered during execution and requested for inspection of the dam site to suggest further course of action. A joint team of officers from Designs (NW&S) unit, CWC and CSMRS, New Delhi visited the dam site on 03.03.2021. The site inspection was followed by detailed discussions with the project authorities. The recommendations were conveyed in March 2021. The project authority was advised to remove the entire boulder/ cobble strata below the unbreached portion of the dam section. On completion of removal of the said layer, the approval of the drawings for the newly excavated portion of the dam has been conveyed on 29.05.2021. WRD, Rajasthan has reported that the work is under progress and targeted to be completed before the forthcoming monsoon.

Isarda Dam Project, Rajasthan

Isarda Dam Project is located near village Banetha in Tonk district of Rajasthan across river Banas, a tributary of river Chambal. The main objective of the Isarda Project is to store the available water of Banas River downstream of Bisalpur dam for drinking water purpose of Sawai Madhopur district. The gross storage capacity of the reservoir is 10.77 TMC at R.L.262.00 m (FRL). The Isarda Dam project envisages the construction of a 4.958 km long composite dam comprising of the concrete dam (OF & NOF) flanked by earthen embankments on both sides and 2 earthen embankment saddles of length 324.0 m and 354.0 m on the right side of the dam. The maximum height of the dam is 33.75 m from the foundation level.

CWC is providing design review consultancy and carries out vetting of construction drawings and detailed design engineering of the Project. The project authority requested CWC to visit the Isarda dam site and resolve the construction issues of the concrete dam as well as

Intra-State Links Project of Maharashtra

The intra-state links project of Maharashtra involves the transfer of surplus water of west-flowing Damanganga and Vaitarna river basins to the deficit Godavari basin for use in its upper reaches in the Nashik district. The project involves two nos. of links namely:

- Damanganga-Vaitarna-Godavari (Kadva-Dev Nadi) Link(DVG Link)
- Damanganga (Ekdare)-Godavari Link (DEG Link)

The DVG Link envisages diversion of 202 MCM of water from Damanganga and Vaitarna basins from four proposed dams and the existing Upper Vaitarna dam for use in the water-scarce Sinnar Tehsil of Nashik district in the Upper Godavari region through Kadwa and Dev Nadi (both tributaries of Godavari). 70% of the diverted water would be used to meet the Industrial needs along the Delhi – Mumbai industrial corridor and the remaining water would be used for irrigation and domestic water needs.

The DEG link involves the transfer of 143 MCM of surplus waters of Damanganga from the proposed Ekdare dam site to Waghad Dam in Godavari Basin by lift. Out of this, 15% of the water will be made available

Project Appraisal

One of the important activities assigned to Central Water Commission is techno-economic appraisal of irrigation, flood control and multipurpose projects proposed by State Governments. After assessing the techno-economic viability of the project, the Advisory Committee of DoWR, RD&GR on Irrigation, Flood Control and Multipurpose Projects headed by Secretary, DoWR, RD&GR considers the projects for acceptance and



the embankment dam. A joint team of officers from Designs (NW&S) unit of CWC and CSMRS visited the dam site on 10.02.2021. Based on the site inspection, lab/site records and deliberations by the team with the officers from the project site, recommendations were conveyed on 11.02.2021 for taking up further action by the project authority. After necessary action and compliance by the project authority, CMDD(NW&S), CWC has issued drawings and the work is reportedly under progress.

for local use and 85% will be diverted for drought-prone areas of the Marathawada region.

MoUs have been signed between CWC and NWDA for preparation of DPR designs and drawings of various components viz. dams, hydro-mechanical equipment, lifting arrangements, tunnels, canal and canal structures and preparation of design chapters for both the above-mentioned links.

Chief Engineer, Designs(NW&S) reviewed the status of investigations and data acquisition on 20.04.2021 with NWDA. All other concerned officers from CWC and NWDA participated in the meeting.

The concerned SE, NWDA made a presentation, which was followed by deliberations. He mentioned that, due to the COVID-19 pandemic, the work of data acquisition has been affected adversely. It was noted that there have been some changes in the project proposal from the PFR stage to the DPR stage. In the DVG link, five no. of dams were contemplated at the PFR stage. However, due to public hindrance, the dams are relocated/ shifted and now it involves 4 nos. of dams at Nilmati, Met, Koshimshet and Udhale sites.

thereafter recommends the same for investment clearance.

Besides these, the Hydro-power projects proposed by the State Power Corporations / Electricity Boards / Private Sector Organisations for techno-economic clearance by Central Electricity Authority (CEA) are also scrutinized in CWC from the view point of hydrology, civil

design, inter-state issues and cost aspects of civil components. Technical aspects of water supply schemes are also appraised as and when referred to by the State Governments. Total estimated cost of various

projects currently under appraisal in CWC is around Rs. 1.10 lakh crore.

The list of projects under appraisal in CWC as on 31.05.2021 is summarized as under:

A-Major/Medium/MPP/Irrigation/Drinking Water Projects

No.	Title of Project	Project Type	State	Basin/ River	CCA (Ha)	Estimated Cost (in Crore Rs.) & Price Level
1	Nabarangpur Irrigation Project	Major	Odisha	Godavari/ Indravati	15000	278.99 (2016)
2	Par-Tapi Narmada Link Project	Major/ Interlinking	Gujarat/ Maharashtra	Narmada/Par, Auranga, Ambika, Purna	232175	10211.21 (2014-15)
3	Bina Complex Irrigation and Multipurpose project	Major	Madhya Pradesh	Ganga/ Bina, Dhasan	96000	3735.9 (2017-18)
4	Middle Kolab Multipurpose Project	Multipurpose	Odisha	Godavari/ Kolab, Kerajodi Nallah	24543	1649.12 (2014)
5	Kalisindh Major Multipurpose Irrigation Project Phase-II	Major	Rajasthan	Chambal/ Kalisindh	10181	1236 (2014)
6	Eastern Rajasthan Canal Project	Major	Rajasthan	Ganga/ Chambal and its tributaries	202498	37247.12 (2014)
7	DPR for transfer of Rajasthan share of Yamuna Water at Tajewala Headworks to Churu and Jhunjhunu districts of Rajasthan by underground conveyance system and its utilization.	Major	Rajasthan	Ganga/ Yamuna	105000	23965.85 (2018-19)
8	Indrapuri Reservoir Project-PPR	Major	Bihar	Ganga/ Sone	823932	1111.4 (PFR)
9	Lower Vamsadhara Stage-1 Project	Major	Odisha	Godavari/ Sana Nadi	22150	611.40 (2018)
10	ERM of Loktak Lift Irrigation Project, Manipur	Major	Manipur	Loktak	12600	134.91 (2017)
11	Sonai Irrigation Project	Major	Assam	Sonai/Barak	10850	805.44 (2017-18)
12	Rukni Irrigation Project	Major	Assam	Rukni / Barak	17566	891.20 (2017-18)
13	ERM of Narayanapur Right Bank Canal	Major, ERM	Karnataka	Krishna/ Krishna	114428	2794 (2018-19)
14	Phina Singh Medium Irrigation Project	Multipurpose	Himachal Pradesh	Beas	4025	614.31 (2019-2020)
15	Attapady Irrigation Project - DPR	Medium	Kerala	Cauvery/Bhavani	6500	497.00 (2018-19)
16	Katepurna Barrage Medium Irrigation Project - DPR	Medium	Maharashtra	Katepurna/Tapi	4356	533.81 (2017-18)
17	Bordi Nalla Medium Irrigation Project	Medium, Multipurpose	Maharashtra	Tapi/ Purna	4649	515.96 (2016-17)
18	Diversion of Surplus water of Sabarmati basin for filling of Jawai Dam (PFR)	Drinking water	Rajasthan	Sabarmati/ Wakal, Pameri, Sabarmati, Sei	NA	6521.84

B-Flood Management Projects

SI No.	NAME OF SCHEME	STATE/UT	ESTIMATED COST (Rs. Crore)
1	Protection Of Neamatighat Area From Erosion Of River Brahmaputra prepared by Brahmaputra Board	Assam	27.88
2	Closing of Gap in Jiadhil L/B embankment from Barman gaon to Railway line (From Ch 8200 M to 17200 m) including A/E measures along the embankment	Assam	84.44
3	Rejuvenation of Lamphelpat waterbody to alleviate urban Flooding, providing sustainable Water Sources for Imphal City and Promoting Eco-Tourism	Manipur	650.00
4	Flood Protection work near General Ground at upstream of Decorai Irrigation Project at Seijosa in Pakke Kessang District	Arunachal Pradesh	100.00
5	Anti-erosion & Flood Management works to protect agricultural land from river Daru	Meghalaya	212.51
6	Flood protection work and soil erosion measures for the Leh Nallah	Laddakh	80.00
7	Flood Protection works and channelization of Suketikhad along with other tributaries under Beas catchment in Distt Mandi (HP)	Himachal Pradesh	485.23
8	Flood Protection works/anti erosion measures along different Khads under Jaswan Pragpur constituency in Distt Kangra (HP)	Himachal Pradesh	531.34
9	Flood Protection Measures For Swan River And Its Tributaries Joining the Beas Basin In Tehsil Amb District Una (Himachal Pradesh)	Himachal Pradesh	278.00
10	Providing Flood Protection Works To Seer Khad From Village Talwara To Balghat In Tehsil Ghumarwin/Jhandutta In District Bilaspur (Himachal Pradesh)	Himachal Pradesh	152.91

C-Hydro Electric Projects

Three Hydro Electric Projects are under appraisal in CWC as follows:

- Kirthai-I HEP by JKSPC Ltd. This 390 MW project has

been considered in the context of power shortage in the Northern region in general and in the country as a whole. The project has been conceptualized as a

run-of-the-river project under the ambitious cascading development programme of hydropower in the Chenab Basin having an estimated power potential of 10360 MW. Under the project, a concrete gravity dam is envisaged in the lower reaches of the Chenab Basin in Jammu & Kashmir. The submitted estimated cost is Rs. 3,974.95 crore.

- **Dugar HEP by NHPC Ltd.:** Dugar Hydroelectric Project (500 MW) is a run-of-the-river scheme proposed on river Chenab in Pangi Valley, Himachal Pradesh. The project component includes a concrete gravity dam. The submitted estimated cost is Rs. Rs.4426.20 crore.

National Hydrology Project (NHP) and Progress

The National Hydrology Project (NHP) was approved by the Government of India in the year 2016 with an overall cost of Rs. 3679.77 crore. CWC is one of the Implementing Agencies under NHP playing a crucial role as a central technical coordination agency. Under NHP, the Central Water Commission is focusing on the

Using Modern Technologies for measuring Hydro-meteorological data

Improvement of the Water Resources Data Acquisition System is one of the prime objectives of the National Hydrology Project. CWC is continuously improving and making a more reliable Data Acquisition System by using modern technologies for measuring hydro-meteorological data such as water Level, discharge, rainfall etc. In this connection, CWC is establishing various Real-time Data Acquisition System (RTDAS) and Velocity/Discharge measuring equipment such as

Reservoir Sedimentation Studies using Hydrographic Survey

The reservoirs should serve the intended functions for the planned life span along with a provision for the accumulation of sediment brought down by the rivers and their tributaries. Sedimentation not only occurs in the dead storage but also encroaches into the live storage, which impairs the intended benefits from the

Progress:

- Tender for Phase-I (32 no of reservoirs) has been awarded to M/s Tojo Vikas International Private Limited. The contract for the same was signed on 18.01.2021 for an amount of Rs. 3.635 crore (excluding taxes).

- The first deliverable of work i.e. Inception Report has been submitted.

Early Flood Warning System Including Inundation Forecast in Ganga Basin

Negotiation meeting with the lowest bidder i.e. M/s AECOM Asia Company Limited, Gurgaon for consultancy services for "Early Flood Warning System Including Inundation Forecast in Ganga Basin" under NHP has

Development of Decision Support System near to real-time for Integrated Reservoir Operation System of Ganga Basin

Techno-Financial Evaluation Report has been approved by the competent authority on 28.05.2021 for the consultancy services for "Development of Decision Support System near to real-time for Integrated

- **Pinnapuram Standalone Pumped Storage HEP by Greenko Group:** This project is a part Pinnapuram Integrated Renewable Energy Project (IREP) comprising of 1000 MW Solar, 550 MW Wind & 1200 MW hydel power. As informed, Pinnapuram Integrated Renewable Energy Project has been conceived as the World's First & Largest Gigawatt Scale integrated project with solar, wind and pumped storage hydro components. The Project area is located in Kurnool district in Andhra Pradesh, India and is 60 km away from the district headquarter Kurnool. The submitted estimated cost is Rs. 6049.14 crore.

following core activities:

- Water Resources Data Acquisition
- Water Resources Information System
- Water Resources Operation and Planning
- Institutional Capacity Enhancement

Velocity Radar System, ADCP etc. at various HO sites of CWC under NHP. Under NHP, CWC has already procured 14 No. of ADCP and it is further proposed to procure 29 no. of new ADCP as per the requisition from the field offices. Tender for the same has been floated on 06.05.2021. Tender for Procurement of 13 no. of Velocity Radar System has also been finalized and will be floated in the 1st week of June, 2021.

reservoirs. Therefore, the problem of sedimentation needs clear understanding and careful consideration as it impairs the desired functionality of the dams. The proposal under NHP envisages conducting the capacity survey of 32 important reservoirs of India under Phase-1.

been accepted by the Competent Authority.

- Reconnaissance Survey of 10 no. of reservoirs has been completed.
- Hydrographic survey of 3 no. of the reservoirs has also been completed up to 15.05.2021

been done in May 2021. Letter of Acceptance will be issued after the acceptance of the Minutes of the negotiation meeting.

Reservoir Operation System of Ganga Basin" under NHP. Negotiation meeting with the lowest bidder i.e. M/s Tractebel Engineering Pvt. Ltd in JV with Kisters AG, Germany, Gurgaon is scheduled to be held in June, 2021.

Study on the issue of Flood and Siltation in River Ganga and its Tributaries due to Farakka Barrage in the state of Bihar

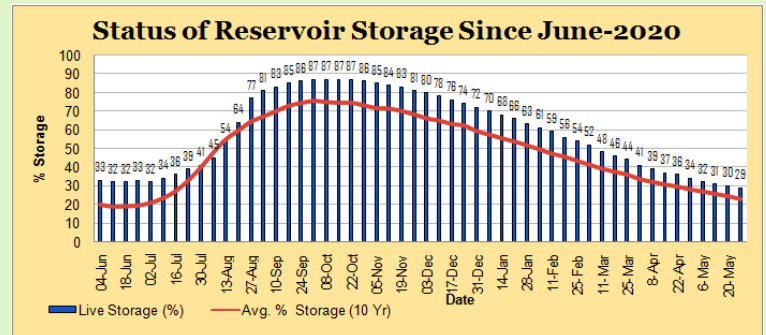
Inception Report on "Study on the issue of Flood and Siltation in River Ganga and its Tributaries due to Farakka Barrage in the state of Bihar" has been

submitted by the Consultant for the approval of CWC in May, 2021.

Reservoir Monitoring

CWC is monitoring the live storage status of 130 reservoirs of the country and issues a weekly reservoir bulletin every Thursday. Out of the above, 44 reservoirs have hydropower benefit with an installed capacity of more than 60 MW. The total live storage capacity of these 130 reservoirs is 174.233 BCM which is about 67.58% of the live storage capacity of 257.812 BCM created in the country.

As per the bulletin dated 27.05.2021, the live storage available in these reservoirs was 50.819 BCM which is 29.16% of the live storage capacity of these reservoirs. However, last year the live storage available in these reservoirs for the corresponding period was 59.526 BCM



and the average of the last ten years of live storage was 39.846 BCM. Thus, the live storage available in 130 reservoirs is 85% of the live storage of the corresponding period of last year and 128% of the ten year's average storage.

Financial Progress of Schemes /Components

(Amount in Rs. Crore)

Sl. No.	Scheme/Component Name	BE (2021-22)	Expenditure	Expenditure (in %)
1	Development of Water Resources information System (DWRIS)	166.100	8.127	4.89%
2	Investigation of Water Resources Development Schemes (IWRD)	12.000	1.107	9.23%
3	Flood Management & Border Areas Programme (FMBAP)	27.408	1.464	5.34%
4	Infrastructure Development (ID) Schemes	4.500	0	0%
5	National Hydrology Project	23.905	0.427	1.79%
6	Dam Rehabilitation and Improvement Project	25.000	1.75	7.00%

Data Corner- Status of Inter-Linking of Rivers Projects (Peninsular Component)

S. No	Name	Rivers	States concerned	Present Status
1	Mahanadi(Manibhadra) - Godavari(Dowlaiswaram) link	Mahanadi & Godavari	Odisha, Maharashtra, AP, MP, Telangana, Jharkhand, Karnataka, Chhattisgarh	FR Completed
2	Godavari(Inchampalli) - Krishna(Pulichintala) link	Godavari & Krishna	Odisha, Maharashtra, AP, MP, Telangana, Karnataka, Chhattisgarh & Maharashtra	FR Completed
3	Godavari(Inchampalli) - Krishna(Nagarjunasagar) link	Godavari & Krishna	Odisha, Maharashtra, Madhya Pradesh, Andhra Pradesh, Karnataka & Chhattisgarh	FR & Draft DPR Completed
4	Godavari(Polavaram) - Krishna(Vijayawada) link	Godavari & Krishna	-do-	FR Completed
5	Krishna(Almatti) -Pennar link	Krishna & Pennar	Maharashtra, Andhra Pradesh, Karnataka & Telangana	FR Completed
6	Krishna(Srisailem)-Pennar Link	Krishna & Pennar	-do-	FR Completed
7	Krishna(Nagarjunasagar) - Pennar (Somasila) link	Krishna & Pennar	-do-	FR & Draft DPR Completed
8	Pennar(Somasila)-Cauvery (Grand Anicut) link	Pennar & Cauvery	Andhra Pradesh, Karnataka, Tamilnadu, Kerala & Puducherry	FR & Draft DPR Completed
9	Cauvery(Kattalai)-Vaigai- Gundar link	Cauvery, Vaigai & Gundar	Karnataka, Tamilnadu, Kerala & Puducherry	DPR Completed
10	Ken-Betwa link	Ken & Betwa	Uttar Pradesh & Madhya Pradesh	FR & DPR (Ph-I, II & Comprehensive) Completed
11 (i)	Parbati-Kalisindh- Chambal link	Parbati, Kalisindh & Chambal	Madhya Pradesh, Rajasthan & Uttar Pradesh(UP requested to be consulted during consensus building)	FR Completed
(ii)	Parbati-Kuno-Sindh link	Parbati, Kuno and Sindh	MP and Rajasthan	PFR completed \$
12	Par-Tapi-Narmada link	Par, Tapi & Narmada	Maharashtra & Gujarat	DPR Completed
13	Damanganga- Pinjal link	Damanganga & Pinjal	Maharashtra & Gujarat	DPR Completed
14	Bedti-Vardal link	Bedti & Varda	Maharashtra, Andhra Pradesh & Karnataka	PFR Completed

\$Integration of Eastern Rajasthan Canal Project of Rajasthan and Parbati-Kalisindh-Chambal link.

As on 18.03.2021

•PFR-Pre Feasibility Report, •FR-Feasibility Report, •DPR-Detailed Project Report

Water Sector News

- ✦ DJB : Raw water level hit again, may affect supply (The Times of India, 01.05.2021)
- ✦ Monsoon onset over Kerala likely on June 1 (Millennium Post, 07.05.2021)
- ✦ Assam launches flood reporting system (Asian Age, 09.05.2021)
- ✦ Puducherry achieves 100% tap water connection (Deccan Chronicle, 11.05.2021)
- ✦ NHRC issues notice over bodies in Ganga (Deccan Chronicle, 14.05.2021)
- ✦ Uranium in 83% of drinking water samples : BARD (New Indian Express, 16.05.2021)
- ✦ Cyclone leaves 72 dead in Gujarat, Maharashtra (Deccan Chronicle, 20.05.2021)
- ✦ Rs. 1,000 cr cyclone aid for Gujarat (Telangana Today, 20.05.2021)
- ✦ West Bengal, Odisha prepare for possible cyclone hitting east coast (Millennium Post, 20.05.2021)
- ✦ World's largest iceberg to break off Antarctica (Telangana Today, 21.05.2021)
- ✦ NCMC reviews readiness for Yaas (Telangana Today, 23.05.2021)
- ✦ KRMB meet put off, AP for new office (Deccan Chronicle, 25.05.2021)
- ✦ 'Yaas' to make landfall tomorrow (Telangana Today, 25.05.2021)
- ✦ Yaas : HM holds review meet with three CMs (The Statesman, 25.05.2021)
- ✦ 13L people evacuated in WB, Odisha before Yaas (Deccan Chronicle, 26.05.2021)
- ✦ Speed up LI schemes : KCR (Deccan Chronicle, 26.05.2021)
- ✦ NGT appoints joint panel to inspect Mekedatu dam site (Deccan Herald, 26.05.2021)
- ✦ Mekedatu dam : NGT panel to check if construction is on, norms flouted (Business Line, 26.05.2021)
- ✦ 1 cr affected as Cyclone Yaas ravages West Bengal, Odisha (Asian Age, 27.05.2021)
- ✦ Srisailem hydel power plant to be fully operational by next month (Deccan Chronicle, 28.05.2021)

Gallery



Pre-Monsoon Inter-State Meeting with IMD, State Govt./Agencies on 'Flood Management Preparedness' for Monsoon-2021 for Tapi, Lower Narmada and Damanganga Basins on 11.05.2021 under the Chairmanship of Shri M. P. Singh, Chief Engineer, Mahi and Tapi Basin Organization, CWC, Gandhinagar



Polavaram Project, Andhra Pradesh - River Sluices- Concreting of Glacis

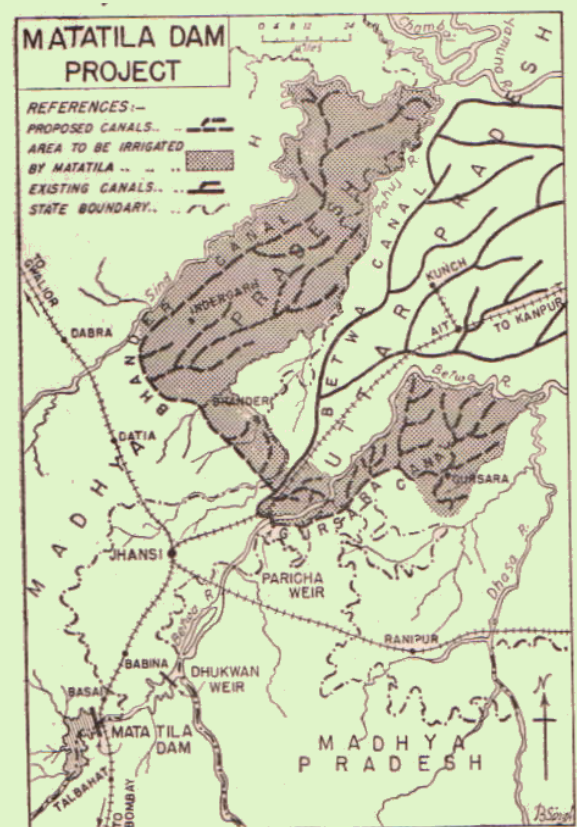
History-MATATILA – Project for Bundelkhand

The mainstay of the people of Bundelkhand, which comprises the south-western portion of Uttar Pradesh with many districts of Madhya Pradesh was agriculture. The topography of the country was such that irrigation facilities had to be restricted and beyond the resources of cultivators thus making them costly.

Agriculture, in this region, was mostly dependent on rainfall which was uncertain and unevenly distributed. The rivers had no supply of melted snow, and the only runoff they carry was from the monsoon rains. The land slopes steeply, with the result that the topsoil was washed away year after year impoverishing the countryside. The rivers swell up with the floods and dry up completely in winter and summer. The only alternative, therefore, for providing irrigation for this area was through buildings storage reservoirs.

Earlier Projects

In 1855, Capt. Trachy framed a proposal for making a storage reservoir at Parichha on the Betwa and a canal to command about 7 lakh acres lying between the Betwa, Pahuj and Yamuna. The Parichha dam was



constructed in 1881 and the Betwa canal began to run in 1885. In 1896, the Betwa canal irrigated 62,000 acres. Further requirement of storage was felt on the river and in 1910 the Dhukwan dam, about 40 miles upstream of the Parichha reservoir was built. These reservoirs had a small storage capacity and depended more on the inflow of the river to provide irrigation. The storage of the Parichha and Dhukwan reservoir was 2,420 mil cu ft and 2,434 mil cu ft respectively. These storages, along with the inflow after 15 October amounted to 10,000 mil cu ft. They could provide irrigation only for raising Kharif crops.

The Matatila Project

The Matatila project, named after the Goddess whose temple stands over a nearby ridge, comprises a 2,340-ft. long and 120-ft. high masonry dam situated 30 miles south of Jhansi across the Betwa river with earthen bunds on its flanks and two canals taking off from the dam to feed about four lakh acres. The rabi irrigation had developed considerably in the tract, and in 1941-42, 1,60,000 acres had been achieved. There was, however, plenty of potential for irrigation in the tract. Further sites were investigated and the Matatila reservoir, 35 miles from Jhansi and 12 miles upstream of the Dhukwan reservoir was proposed in 1951.

The main dam is of granite masonry and rises straight above the foundation. 140 lakh cu ft of masonry has been laid in the dam. There are two low head and two high head sluices in the body of the dam each 10 ft by 5 ft designed to discharge 1,000 cusec. Twenty two masonry piers have been constructed for operating and accommodating flood gates and the bridge over the spillway.

The project was divided into two stages. In the first stage, the dam rises up to the spillway crest and the reservoir stored 16,000 million cubic feet of water offering irrigation facilities for more than 2.64 lakh acres. The cost of this stage was Rs. 48 crores including provision for installing penstocks for the powerhouse. In the next stage, steel gates installed over the spillway crest, raised the reservoir capacity to 40,000 million cubic feet in an area of 50 sq miles. The additional storage was used for extending irrigation to the target area of more than four lakh acres through a 770-mile

MATATILA FEATURES AT A GLANCE	
LOCATIONS	35 miles from Jhansi, across the Betwa River, in U.P.
DAM	Type : Straight gravity, earth-cum-masonry Height : 120 ft above the river bed (Masonry dam) Length : 2,340 ft Spillway : 1,600 ft
RESERVOIR	Storage Capacity : 40,000 mil cu ft
CANALS	<ul style="list-style-type: none"> Betwa Canal System 300 ml Gursarai Canal System 120 ml Bhander Canal System 250 ml
BENEFITS	Irrigation : <ul style="list-style-type: none"> 3,00,000 acres (Rabi) 77,000 acres (Rice) 35,500 acres (Kharif) Power : <ul style="list-style-type: none"> 3x10.2 MW installed capacity
COST	Rs. 1,139 lakhs

canal network.

The Matatila reservoir submerges a total area of 35,495 acres, of which 7,958 acres was cultivated. A population of about 8,000 persons displaced from 45 villages in the two States was re-settled in the neighbouring areas and the margin of the new lake.

Cascade of Power

The Betwa River brought about 10 mil cu ft of seasonal monsoon run-off from 10,000 sq ml of the catchment area of the Parichha dam. The average slope of the river channel was 6 ft per mile with several steep rapids which had great potentialities for power development. The site selected for the Matatila dam was therefore such as to provide sufficient storage for developing power through regulated discharge successively at several power stations, stepwise, below the main regulating reservoir and the water to be ultimately used for irrigation through a canal system.

The entire work on the masonry dam was done by manual labour. The granite was quarried through manual labour as well as through compressed air-equipment. The dressed stones were prepared by skilled stone-cutters of Andhra Pradesh and Kerala States of South India.

The project was executed by Govt. of Uttar Pradesh and a canal system in Madhya Pradesh was also constructed by the Irrigation Department, Uttar Pradesh. The Project is a successful example of inter-state cooperation for water resources development.

Source: Bhagirath



Central Water Commission

An attached office of Dept. of Water Resources,
River Development and Ganga Rejuvenation,
Ministry of Jal Shakti, Govt. of India

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