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Dr. R.K. Gupta  
Chairman, CWC

## Message

It is a matter of great pleasure that under the Jal Jeevan Mission of the Ministry, 50% of rural households have been connected with tap water connection in the campaign to provide clean and safe drinking water to every rural household of the country. Further, Goa, Telangana, A&N Islands, D&N Haveli and Daman & Diu, Puducherry and Haryana have already achieved 100% household connections. Punjab, Gujarat, Himachal Pradesh and Bihar have coverage of more than 90% and are progressing fast towards attaining the status of 'Har Ghar Jal'.

The National Dam Safety Authority (NDSA) was constituted under the Dam Safety Act, 2021. Role of National Dam safety Authority is to liaise with state-level Dam Safety Organizations and the owners of the specified dams for standardisation of dam safety related data and practices, and related technical or managerial assistance. Further, the first meeting of NDSA was held under the chairmanship of Shri J. Chandrashekhar Iyer, Chairman, NDSA and Member (D&R), CWC on 19.05.2022. The officers from field offices of CWC are representing Regional offices of NDSA. In the meeting discussions were made regarding roles and functions of various members of NDSA, draft Organogram of the Authority was presented, and also the Members were appraised about the various provisions about expenditure of the Authority.

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. In this connection, the officers of CWC have visited/inspected many projects viz. Uhl-III HEP, Himachal Pradesh; Sardar Sarovar Dam Project, Gujarat; Bhadbhut Barrage Project, Gujarat; Barinam HEP, J&K; Lakhwar MPP, Uttarakhand; Mulla Periyar Dam; Annamayya dam, Andhra Pradesh and give their expert advice.

CWC commenced its regular Flood Forecasting activity on 01.05.2022 in Brahmaputra, Teesta, Barak and Jhelum basins. It will be extended to the whole country from 01.06.2022. During the month, 268 flood forecasts (261 Level and 7 Inflow) were issued, out of which 263 (258 Level and 5 Inflow) forecasts were within limit of accuracy with a percentage accuracy of 98.13%.

R.K. Gupta





## The 52nd CDRC Meeting

Date of Meeting	06.05.2022
Total cases considered	23
Commercial Cases	01
Non Commercial	22
No. Of cases recommended by the committee	17
No. Of deferred cases	05
No. of Rejected cases	01

## Sixteenth meeting of the "Task Force for Interlinking of River"

The sixteenth meeting of the "Task Force for Interlinking of River" was held on 17.05.2022 in the Shram Shakti Bhawan, New Delhi under the Chairmanship of Shri Sriram Vedire, Advisor, DoWR, RD&GR, Ministry of Jal Shakti and Chairman of the Task force for Interlinking of River. The meeting was held in hybrid mode. From CWC side, the meeting was attended by the Chairman, CWC and Member (WP&P), CWC.

- TFILR recommended to place the proposal of making the modified PKC link as part of NPP of ILR and declaring this project as a priority interlinking project before SCILR for consideration and approval.

## The Joint review-cum-discussion on issues/projects related to water resources/DDWS and NMCG pertaining to State of UP.

Dr. R.K. Gupta, Chairman, CWC and Shri J. Chandrashekhar Iyer, Member(D&R) has attended the joint review-cum-discussion on issues/projects related to water resources/DDWS (Department of Drinking Water & Sanitation) and NMCG (National Mission for Clean Ganga) pertaining to State of UP by Hon'ble Minister, MoJS with Hon'ble CM of Uttar

## Review Meeting on Ujh Multipurpose (National) Project, J&K.

A meeting was held on 13.05.2022 to review current status and way forward for Ujh Multipurpose (National) Project, J&K under the Chairmanship of Shri Gajendra Singh Shekhawat, Hon'ble Minister of Jal Shakti and in presence of Dr. Jitendra Singh, Minister of State (PMO). Officials from DoWR, RD & GR, Central Water Commission and Jal Shakti Department of Govt. of J&K attended the meeting.

In the meeting, issues and bottlenecks of Ujh Multipurpose Project was discussed in detail.



- Consideration of Mahanadi-Godavari as one of the priority link project was also discussed by the members of TFILR

Pradesh at Lucknow. During the visit Hon'ble Minister of Jal Shakti assessed the progress of implementation of DRIP Phase-II in Uttar Pradesh and directed the concerned officials to expedite the process of completing the preparatory activities to fulfill the readiness criteria of the World Bank and DEA, MoF, Gol for coming on-board DRIP Phase-II.

## The Consultation meeting regarding formulation of a new CAD&WM Scheme.

A meeting was held under the Chairmanship of Shri Pankaj Kumar, Secretary (D/o WR, RD&GR) on 17.05.2022 to discuss formulation of a new Command Area Development & Water Management (CAD&WM) Scheme. Officers from DoWR, RD&GR, NITI Aayog, CWC (represented by Shri Padma Dorje Gyamba, Chief Engineer (POMIO)) and Ministry of Agriculture & Farmers Welfare participated in the meeting.

During the meeting, discussions were held on the key aspects from the current CAD&WM scheme and the broad contours of the proposed new scheme. Following action points were identified as way forward towards firming up a proposal for expansion of the scope of CAD&WM works:

I. A scientific study on revision of cost norms for CAD&WM, based on CPWD norms / schedule of rates, may be worked out by CAD&WM wing of DoWR, RD&GR. Based on the recommended revised cost norms, the financial window available under the scheme to include projects other than the prioritized projects, including

additional projects being included under AIBP as well as other completed/ ongoing projects, may be estimated.

II. Water user associations (WUAs) play a very crucial role in CADWM programme. Capacity building of the WUAs is essential. The scope of their trainings may be enhanced by exploring the services of KVKs.

III. In the revised proposal, adequate flexibility for utilization of funds towards new projects and the balance of prioritized projects may be suitably incorporated. Further, flexibility towards need based inter-transfer of funds between AIBP & CADWM programme, may also be adequately provisioned to maximize benefits.

IV. A team led by CWC regional office at Maharashtra may be directed to visit a few CAD&WM projects for on-the-spot assessment of submissions of the State Government that farmers are reluctant to pay their share of 10% towards functional grant, and suggest way forward in this regard.





## Review the progress of the prioritized projects under PMKSY-AIBP & CADWM, and other Special Projects

Multiple meetings were held on 09.05.2022, 10.05.2022 and 13.05.2022 under the Chairmanship of Shri Pankaj Kumar, Secretary (WR, RD & GR) to review the progress of the prioritized projects under PMKSY-AIBP & CADWM, and other Special Projects being funded by DoWR, RD & GR, with special emphasis on projects costing over ₹500 crores. The Secretary/Principle Secretary/Additional Chief Secretary (Water Resources), Engineer in Chiefs and other senior

Officials from the various States, as well as from Central Water Commission and Department of Water Resources, RD & GR, Ministry of Jal Shakti, participated in the meeting.

On 09.05.2022, Issues and Bottlenecks of Gosikhurd Irrigation Project in Maharashtra were discussed in detail. Further, on 10.05.2022, issues related to Shapurkandi Dam Project in Punjab and Teesta Barrage Project in West Bengal were discussed in detail.

## Meeting on Issues of setting up of a monitoring and warning infrastructure in Rishiganga-Dhauliganga area.

A meeting was held on 17.05.2022 under the Chairmanship of Shri Pankaj Kumar, Secretary (D/o WR, RD & GR) to discuss issues of setting up of a monitoring and warning infrastructure in Rishiganga-Dhauliganga. The meeting was attended by Chairman(CWC), Member(RM), Director(FFM), Superintending Engineer(HOC) Dehradun, and officials from Uttarakhand State Disaster Management Authority (USDMA) and Uttarakhand Irrigation dept.

- In the meeting it was discussed that NTPC is already setting up its network in the area.
- It was decided that the infrastructure set-up by NTPC covering the same area is to be further strengthened, if required.
- It was decided that a joint site visit will take place by officials of CWC, Irrigation Dept Uttarakhand, USDMA for evaluation of the infrastructure and warning mechanism being set-up.

## Review meeting on Flood preparedness measures in the country and to discuss Future Action Plan and Agenda as sought by MHA

A meeting was held on 21.05.2022 under the chairmanship of Secretary (WR) regarding review of flood preparedness and action taken in reference to a meeting taken by Hon'ble HM on 15.06.2021.

The action taken on the identified action points were discussed in details for further review by Hon'ble MoJS before presentation to Hon'ble HM in June, 2022.

## Review meetings on the progress of Polavaram Irrigation Project

A meeting to review the issues of construction of main dam in the scoured portion of Gap I and Gap II of ECRF dam of PIP was taken by Shri Sriram Vedire, Advisor, DoWR RD&GR (MoJS) in the conference room of DoWR, RD & GR on 17.05.2022. The meeting was attended by officers of DoWR, RD & GR, Central Water Commission and Polavaram Project Authority (PPA), WRD (Govt. of Andhra Pradesh). In the meeting, a road map for finalizing treatment methodology of scoured portion and construction of ECRF dam was discussed.

Further, another meeting was also taken by Shri Pankaj Kumar, Secretary (WR, RD & GR), Ministry of Jal Shakti, Govt. of India, on 18.05.2022 to review progress of the Polavaram Irrigation project (PIP) and other related issues.

## One day workshop for development of DSS for IRO of Ganga Basin

An inception workshop on the work of development of DSS for IRO of Ganga basin was held on 06.05.2022 to apprise the stakeholders i.e. State Govt. officials and project authorities on the methodology to be adopted in the work.

The workshop was inaugurated by Member (RM) and was attended by Chief Engineer (FMO), Director (FFM), and Director (RO), Member Secretaries of all Flood Crisis Management Teams (FCMT) of Ganga basin, project authorities and State Govt officers.

The workshop was held in hybrid mode i.e. Physical as well as online.

## 2nd Meeting of Indian side of Joint Technical Committee for conducting the Joint Feasibility Study of the Ganga-Padma Barrage Project of Bangladesh

The second meeting of Indian side of the Joint Technical Committee (JTC) on revised ToR submitted held in hybrid mode on 05.05.2022. The meeting was by Bangladesh in February, 2022 for the Pre-chaired by Member, D&R and members of the Indian Feasibility Study for Optimum Utilization of the side of JTC including senior officials from MoJS, CWC, Ganges Water Received by Bangladesh under the MEA, IIT Roorkee, WAPCOS and CWPRS were present Provisions of Ganges Water Sharing Treaty, 1996 during the meeting.





## Study visit of the Standing Committee on Water Resources (2021-2022) and participated in the discussion with CWC officials at Chennai.

A study visit of the Standing Committee on Water Resources was held from 26-28th May 2022 at Chennai and Alappuzha. Shri R. K. Gupta, Chairman, Shri Kushvinder Vohra, Member(WP&P), Shri J. Chandrashekhar Iyer, Member(D&R), Shri T.K. Sivarajan, Chief Engineer(C&SRO) and other officers from CWC attended the discussions along with representatives from the Government of Tamil Nadu.

The subjects taken up for discussions with CWC during the meeting at Chennai are:

- (i) Measures taken for safety of Mullaperiyar Dam and reservoir management,
- (ii) Flash Floods in Chennai in the recent years and measures taken for Flood Control,
- (iii) Kaveri Waters Dispute with the adjoining States.

## Visit cum review meeting of Expert Project Review Committee to "Relining of Rajasthan feeder and Sirhind feeder" Project

An Expert Project Review Committee has been constituted to guide/oversee the overall implementation of the project "Relining of Sirhind Feeder from RD 119700 to 447927ft and Relining of Rajasthan Feeder from RD 179000 to 496000ft" in Punjab till completion and to examine the progress of the work from all angles.

The third visit cum review meeting of Expert Project Review Committee led by Shri Kushvinder Vohra, Member(WP&P) & Ex-Officio Additional Secretary to Gol, was done on 12th to 13th May 2022 to review the progress of works in respect of "Relining of Sirhind Feeder (SF) from RD 119700 to 447927 and Relining of Rajasthan Feeder (RF) from RD 179000 to 496000" of Punjab.

The committee visited the project site in specific chainages of RF from RD 257000 ft to RD 300000 ft, common bank breach site at RD 294400 ft of RF & RD 238600 ft of SF and Tail end of RF at RD 49600.

The committee inspected the various aspects of the under construction portion as well as portion already constructed during previous closures for both Sirhind & Rajasthan feeder. Committee made various observation/recommendations pertaining to quality of construction, physical progress, financial progress etc.

## Meeting with NHPC regarding Polavaram Multipurpose Project- Diaphragm Wall Health assessment using Geophysical technique

A meeting was held on 30.05.2022 at CWC, New Delhi, under the chairmanship of Member(D&R), CWC with Shri S. L. Kapil, Executive Director, NHPC and Chief Engineer, Designs(NW&S), CWC to discuss the health assessment of damaged Plastic Concrete Diaphragm Wall of proposed ECRF dam at Gap-II of Polavaram Irrigation Project, Andhra Pradesh by Geophysical techniques.

During the meeting CWC made a presentation on the plastic concrete diaphragm wall at Gap-II. Detailed discussions took place regarding the damages to the diaphragm wall that took place during the floods of 2019 and 2020. The objective of the investigation was laid out to be as:

- (a) Comprehensive health assessment of the



Visit of Expert Project Review Committee under Chairmanship of Sh. Kushvinder Vohra, Member (WP&P) to site of Rajasthan Feeder & Sirhind Feeder

### PROGRESS OF WORKS:

PROGRESS OF FEEDER

SIRHIND FEEDER (SF)			
Overall physical progress	74% (April 2022)	Total expenditure incurred	Rs. 490.52 Cr (April 2022)
		Cumulative CA released	Rs 203.651 Cr (April 2022)
RAJASTHAN FEEDER (RF)			
Overall physical progress	24% (March 2022)	Total expenditure incurred	Rs 359.27 Cr. (March 2022)
		Cumulative CA released	Rs 230.238 Cr (March 2022)

diaphragm wall to evaluate its hydraulic and structural integrity and

- (b) Detailed mapping of damages such as the extent & intensity of cracks and opened up panel joints (i.e. all possible leakage paths) to decide further course of action.

Shri Kapil, Executive Director (R&D, Geotech.), NHPC made a presentation on the geophysical techniques available at NHPC. He also presented several case studies wherein NHPC has used high resolution electrical resistivity imaging, seismic tomography and seismic refraction tomography.

The meeting concluded with the decision that NHPC shall visit the project site and finalise the required investigations.





## Review the status of updated 8th RCE of North Koel Project

North Koel Reservoir project is situated in the most backward tribal area in Palamu district of Jharkhand. The Project component includes

1. 67.86 meter High and 343.33 m long concrete Dam (Mandal Dam) on river North Koel, a tributary of river Sone,
2. balance works of Mohammadganj Barrage situated 96 km downstream of the dam site and
3. Left Main Canal (LMC) and Right Main Canal (RMC) - off-taking from Mohammadganj Barrage with their distribution systems.

The project will bring 1.14 lac hectare of drought prone area of Palamu, Garhwa, Aurangabad and Gaya district under irrigation. It also has the provision for supply of 44 MCM water for drinking and industrial water supply. The construction work in this project was started in the year 1972. The construction of Mandal dam was stalled in 1993 due to strict enforcement of new forest Conservation Act (1980). Till that time works of Mohammadganj Barrage were completed and works of Dam, RMC and LMC were partially completed. The completion of the balance works were held up till 2016 due to objection of MoEF&CC resulting in non-installation of gates of the dam. DoWR, RD & GR took up the long pending balance works of North Koel Reservoir Project 2017. The balance works of North Koel Reservoir Project have been approved at an estimated cost of Rs. 1,622.27 crore @ PL 2016.

7th RCE of the project was accepted by Advisory Committee of DoWR in its 142nd meeting held on 08.07.2019 for Rs. 3042.16 crore (PL 2019). The need for another cost revision (@PL 2021) arises mainly due price rise of labour and materials, along with additional provisions of structures (SLR Bridges & outlets) & other miscellaneous items.

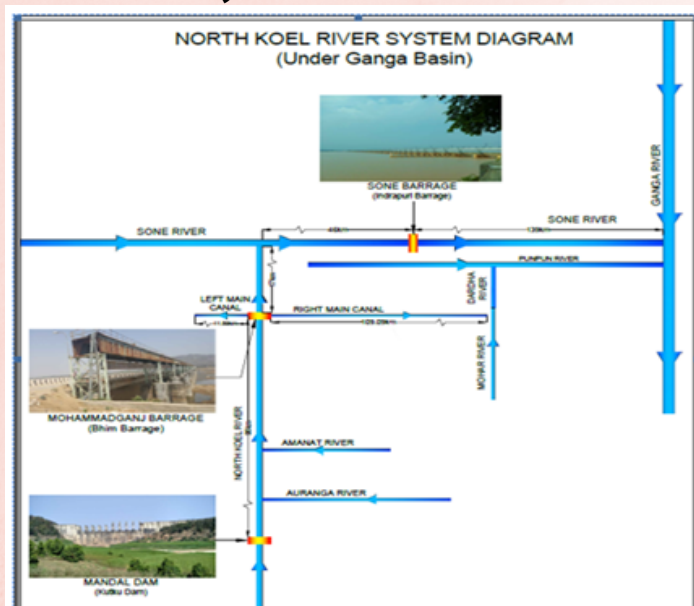
In this regard, Sh. Kushvinder Vohra, Member (WP&P), CWC & Ex-Officio Additional Secretary to GoI, took a

## The 6th Meeting of the Core Group of NWM meeting with CWC achievement

6th Meeting of the Core Group on Baseline Studies to assess Water Use Efficiency (WUE) of MMI projects was held under the Chairmanship of Ms. Debashree Mukherjee, AS & MD (NWM) on 10.05.2022. The Baseline Studies of 26 MMI projects has been taken up by National Water Mission to assess their WUE by engaging WALMI (Aurangabad), WALAMTARI

## Visit to Polavaram Irrigation Project

The officers from Designs (NW&S) Unit of CWC visited the on-going construction at Polavaram dam site on 11.05.2022. During the visit, the officers from PPA, WAPCOS, WRD, Government of Andhra Pradesh also joined the CWC design team. The team visited the spillway & its radial gates and inspected the ongoing works on Guide Bund of Approach Channel & right bank of Spill Channel. The team also visited the ongoing works of foundation improvement of ECRF dam at Gap-I & observed the damages in diaphragm wall in the scoured area of Gap-II. The team also inspected the upstream coffer dam and execution of works at



meeting on 23.05.2022 and again on 27.05.2022 through video conferencing, with the officials of WRD, Govt. of Jharkhand, WRD, Govt. of Bihar, DoWR, RD&GR, CWC and WAPCOS to review the status of updated 8th Revised Cost Estimate (RCE) of North Koel Reservoir Project (Bihar & Jharkhand).

In the meeting WAPCOS intimated the status of updation of cost revision of the project. After detailed deliberations Member (WP&P), CWC directed the concerned officials of WRD, Govt. of Jharkhand, WRD, Govt. of Bihar, CWC and WAPCOS to expedite and finalise the revised estimate immediately. The concerned officials of CWC were directed to firm up the Benefit-cost ratio computations immediately, based on the finalised revised cost and forward the same to WRD, Jharkhand & WRD, Bihar for their concurrence and also take immediate necessary action for firming up the TAC Note for the project, to be placed before the Advisory committee of DoWR, RD&GR for its approval.

(Hyderabad), NERIWALM (Tezpur) and CWRDM (Kozhikode). Technical Examination of the Study Reports is being carried out by POMIO, CWC. The Core Group in the meeting accepted Draft Final Reports in respect of 12 MMI projects (out of 26) which had been vetted by POMIO, CWC.



downstream coffer dams. The visit was concluded with a brief discussion on various issues with WRD, Govt. of AP and suggestions were made for expediting the works.





## 3rd meeting of the Working Group constituted to review the current methods of Benefit Cost Ratio

A Working Group under the chairmanship of Member (WP&P), CWC was constituted in July 2021 consisting of members from different Ministries. The Terms of Reference for the Working Group are:

### a) Benefit Cost Ratio (BC Ratio) :

1. To review the current methods of Benefit Cost Ratio being used for irrigation, flood control and multi-purpose projects, and come out with actionable suggestions to make them more realistic and rational.
2. The Working Group may also suggest methods for a comprehensive inclusion of indirect benefits that may accrue to the project, such as establishment of processing industries, expansion of consumer industries, retail trade, transport, tourism, communications, etc.

### b) Simplification of cost revision procedure for irrigation, flood control and multipurpose projects, not involving change of scope:

1. To recommend an appropriate mechanism for the automatic revision of cost, for major and medium irrigation, flood control and multipurpose projects, provided the scope and design aspects of the project remain same.

Earlier, two meetings of the said Working Group were

## Monitoring visit to Parwan Multipurpose Irrigation Project, Rajasthan

Parwan Major Multipurpose Irrigation Project, Rajasthan envisages a 38 m high Gravity dam in District Jhalawar on river Parwan, a tributary of river Kalisindh, which in turn is tributary of river Chambal. The project is having 43% area in Drought Prone Area Programme (DPAP).

The project was considered in 2nd Meeting of the Screening Committee of DoWR, RD & GR held on 09.03.2022 and consequently, included in PMKSY-AIBP in March 2022. The latest approved cost of the whole project is Rs. 6398.78 Cr (which includes costs of establishment & other miscellaneous charges) at Price Level 2014. The cost of the components included under PMKSY-AIBP is Rs. 1832.36 Cr with total Central Assistance of Rs. 733.86 Cr.

A team of CWC officers under the leadership of Dr. M.K. Sinha, the then CE (PMO) carried out 1st monitoring visit of the project on 26.05.2022.

### Central Assistance

First release of Central Assistance of Rs. 41.429 crore

## 27th ICOLD Congress organized by French Committee for Dams and Reservoirs (CFBR) took place in Marseille from May 27 to June 3, 2022.

Shri Vivek Tripathi, Director, CMDD (E&NE) Dte., being a member of International Commission on Large Dams (ICOLD) committee on Embankment Dams and also a member of subcommittee to revise the ICOLD Bulletin 48a, on coffer dams made a presentation on 28.05.2022 regarding a case study of Bhutan through Virtual Conference (VC) mode on the topic titled "Initial Plan, Challenges & Design Solution of Cofferdam of Punatsangchhu HE-I Project" under Water-Management for Dam Construction symposium of ICOLD.

held on 12.08.2021 and 05.04.2022 respectively. The 3rd meeting of the Working Group was held on 30.05.2022 under chairmanship of Shri Kushvinder Vohra, Member (WP&P), CWC & Ex-officio Additional Secretary to Govt. He informed the Members of Working Group about the Draft Report which was prepared based on the deliberations held during 1st and 2nd Meeting of the Working Group and shared among Members prior to the 3rd meeting for views and comments. During the meeting, deliberations were held to firm various points of Terms of Reference of the Draft Report of the Working Group and some of the draft paras of the Draft Report were modified.

As per the draft Report of the Working Group, acceptable BC Ratio has been brought down to 1.25 for projects for General category States & UTs. Further, in case where 50% or more CCA is located in drought prone area, tribal areas, flood prone areas, aspirational districts or areas of Bundelkhand, Marathwada & Vidarbha region, KBK region of Odisha, acceptable B.C. ratio should be 1.0. Further, for irrigation projects, where, less than 50% of the CCA is located in the above special category areas, B.C. ratio should be considered in proportion between 1.00 to 1.25 as acceptable depending on % of CCA of the project located in the above areas, on a proportionate basis.



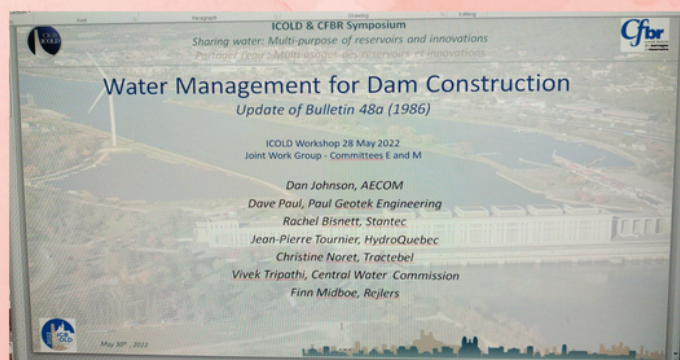
has been sanctioned to the project in March 2022.

### Component wise Overall Physical Progress (April 2022)

Head Work	Main Canal	Branch Canal	Distributary with minors & outlet
71.5%	38.16%	-	48.32%

### Financial progress

A cumulative expenditure of Rs. 4465.49 Cr has been incurred up to April 2022 against total approved project cost of Rs. 6398.78 Cr.





## Meeting of the Organizing Committee for ICID Events

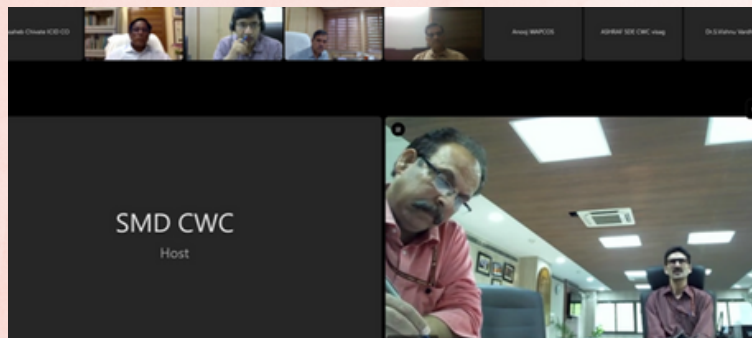
An Organizing Committee was constituted in April, 2022 to oversee the planning & management of the various aspects related to the organization of the 25th Congress and the 75th International Executive Council (IEC). The International Commission on Irrigation and Drainage (ICID), scheduled to be held in Vishakhapatnam, Andhra Pradesh in November, 2023 under the aegis of the Indian National Committee on Irrigation & Drainage (INCID), with the active support of CWC, Govt of Andhra Pradesh, Acharya N. G. Ranga Agricultural University, Guntur (AP) and ICID. The ICID Congress is being organized in India after a gap of about 6 decades.

The first meeting of the Organizing Committee was chaired by Shri Kushvinder Vohra, Member (WP&P), CWC & E-Officio Additional Secretary to Gol. The meeting was held online in two parts on 28.04.2022 and 10.05.2022. During the meeting, detailed deliberation were held on various aspects related to venue finalization for the events, the preparation of the detailed schedule, Theme of the event, second visit to Vizag and organization of the INCID Curtain Raiser event

## 1st National Dam Safety Authority Meeting

The first meeting of National Dam Safety Authority (NDSA) was held on 19.05.2022 in New Delhi, under the Chairmanship of Shri J. Chandrashekhar Iyer, Chairman, NDSA and Member (D&R), Central Water Commission (CWC). The meeting was attended by all the Members of NDSA - Member (Administration and Finance), NDSA - Ms Richa Misra, JS&FA, DoWR, RD & GR ; Member (Technical), & Member (Disaster & Resilience), NDSA - Shri S. K. Sibal CE, Design (N&W), CWC; Member (Policy & Research), NDSA - Shri Gulshan Raj, CE, DSO, CWC and Member (Regulation), NDSA - Shri Vijai Saran, CE, Design (E&NE), CWC, Shri S. S. Bakshi, Director (DSM), CWC.

The officers from field offices of CWC representing Regional offices of NDSA - Shri R. Thangmani Director(Mon), C&SRO, CWC Chennai (representing Southern Region NDSA); Shri Bhupesh Kumar, SE (C), IBO, CWC, Chandigarh (representing Northern Region, NDSA); Shri Sudhir Kumar, Director (M&A), BBO, CWC, Guwahati (representing East & North-East Region, NDSA) and Shri Umberje Harish Girish, Director(Mon.) MCO, CWC, Nagpur (representing Western Region



during the ICID and INCID Foundation day on 24th June 2022. The Committee deliberated upon the need for brainstorming at appropriate levels in CWC in conjunction with the ICID officials for the finalization of the Theme, Questions, and Sub-Questions for the 25th Congress. The scope of involving the expertise of WAPCOS for the professional management of the event was discussed with the representative from WAPCOS. Other preparatory works including the creation of INCID Website, INCID Logo and the next visit to Vizag to pencil-book the venue and identify & finalize other logistics were also discussed by the Committee.



NDSA) also participated in the meeting.

Shri O. P. Gupta, Director, Dam Safety Design Directorate -II, CWC and NDSA Secretariat, made a presentation on various Agenda Items. In the meeting, discussions were made regarding role and functions of various members of NDSA, draft Organogram of the Authority was presented, and also the Members were appraised about the various provisions about expenditure of the Authority. It was decided that NDSA, under the Act, shall address the dam owners to expedite filling and updation of the database in DHARMA software.

## Water Sector-News

- For groundwater recharge, 46 lakes to be revived in a year (The Times of India, 02.05.2022)
- Fears of glaciers vanishing exaggerated, says study (Business Standard, 04.05.2022)
- PM reviews prep to deal with heatwave, monsoon season (Hindustan Times, 06.05.2022)
- NDMA Panel says 'Do Not Allow Construction Near High Flood Level' (The Economics Times, 11.05.2022)
- India plans dam project as China seeks to divert river (Mint, 16.05.2022)
- Highest glaciers are melting rapidly (The Statesman, 21.05.2022)
- It's official : Gujarat government scraps Tapi-Narmada river-linking project (The Sunday Standard, 22.05.2022)
- Delhi's woes to get worse as UP, HP nix plans to give extra water (The Pioneer, 23.05.2022)
- T'gana emerges as state with 1 cr acres of fertile land due to robust irrigation system (Millennium Post, 27.05.2022)
- Water allocation still on basis of rules made in 1994 : Jain (The Times of India, 28.05.2022)
- Pakistan team in New Delhi to discuss Indus water - sharing (The Tribune, 29.05.2022)
- Flood situation improves in Assam, four more die (Millennium Post, 31.05.2022)





## Review of the progress of works of Bhadbhut Barrage Project, Gujarat

Bhabbhut Barrage is planned over mouth of Narmada River. The proposed barrage is 1.65 km long and will accommodate 6-lane Road-Bridge. 89 vertical fixed wheel Gates of size 15.5m (wide) x 10.5m (height) for spillway and one vertical fixed wheel Gates of size 18m (wide) x 10.5m (height) for navigation.

Shri Satish Kamboj, Director, Gate Design (N&W) Directorate and Shri Vivek Johri, Deputy Director, BCD (N&W) Directorate along with other officers visited Bhadbhut Barrage Project during 05-06th May, 2022 and inspected the civil as well as mechanical works being carried out at site. The visit also included discussions with Chief Engineer, Bhadbhut Barrage



Project and Secretary, WRD, Govt. of Gujarat. During the inspection of Mechanical Workshop at Site, solution to various problems raised by the field engineers such as limited capacity of planer were provided. Also inspected the process of Zinc coating of embedded parts.

## Status of establishment of Centre for Excellence in Dam Safety under DRIP Phase-II and Phase-III

As per the Union Cabinet approval to EFC for DRIP Phase-II & Phase-III, two Centers of Excellence (CoE) in Dam Safety are to be established. These CoEs will provide need based support to the dam owners in addressing the complex dam safety issues. These CoEs are proposed to be established in IIT Roorkee and IISc, Bangalore. Status in this regard is given as under:

### I. IIT Roorkee:

IIT Roorkee submitted the first draft proposal (Rs. 627 Cr) for International Centre of Excellence for Dams (ICED) in October 2020 to CWC. Secretary (DoWR, RD&GR) held a review meeting on September 22, 2021 to discuss this proposal. It was desired that IIT Roorkee may finalize the proposal based on official suggestions and joint consultation with CPMU DRIP. Subsequently, four rounds of review/discussions held between the CPMU and IIT Roorkee on four drafts submitted by IIT Roorkee incorporating the suggestions made on the previous draft each time. Member (D&R), CWC held a review meeting on May 25, 2022 in respect

of CoE wherein a detailed presentation was made by CE, DSO. IIT Roorkee submitted final proposal of ICED for Rs. 101 Cr to the Ministry on May 24, 2022. Also Draft Memorandum of Agreement (MoA) was submitted on June 02, 2022. Final ICED proposal along with MoA are under examination in CWC before recommendation to the Ministry for approval.

### II. IISc, Bangalore

The first round of discussion of CPMU, World Bank and IISc Teams was held on December 9, 2021 at IISc Bangalore. The areas of working were agreed in-principle. It was agreed that IISc Bangalore will not include the areas of IIT Roorkee. A virtual meeting with IISc Bangalore was held on 24.02.2022 in which final areas of working were deliberated in detail. It is informed by IISc that official proposal will be submitted in May 2022.

The draft proposal is still awaited from IISc. Ministry vide DO letter dated 01.06.2022 to Director, IISc has requested for expediting the submission of pending proposal.

## Review Meeting on the progress of DRIP Phase II in Tamil Nadu and NDSA related matters in Chennai.

CWC reviewed the progress of implementation of DRIP Phase-II in Tamil Nadu Water Resources Department and TANGEDCO. The progress review meeting of TN WRD & TANGEDCO was held under the Chairmanship of Shri J. Chandrashekhara Iyer, Member(D&R), CWC, New Delhi at the Committee Room, Office of the Engineer-in-Chief, TN WRD, Chepauk, Chennai on 27.05.2022. The meeting was attended by Shri Sandeep Saxena, Additional Chief Secretary, TN WRD, Govt. of Tamil Nadu, Shri Gulshan Raj, CE(CDSO) & Project Director, DRIP Phase-II & Phase-III, CWC, New Delhi, Engineer-in-Chief, TN WRD, Shri Samir Kumar Shukla, Director(FE&SA), CWC, Shri C. Ramesh, Chief Engineer, SPMU-DRIP, TANGEDCO, Shri Sivakumar, Project Director, SPMU-DRIP, TN WRD, P. Chandramohan, Project Director, SPMU-DRIP, TANGEDCO, Shri Prabhat Kumar, Dy. Director, FE&SA Dte., CPMU-DRIP Phase-II&III, New Delhi, and other senior officials of TN WRD and TANGEDCO.



Ongoing rehabilitation works on dams under TN WRD & TANGEDCO were reviewed and solutions to the issues being faced during the implementation of rehabilitation works were discussed. Member (D&R), CWC appreciated the progress of TN WRD & TANGEDCO. He also emphasized upon the mandatory actions to be taken under the recently passed Dam Safety Act, 2021 viz. establishment of State Committee on Dam Safety (SCDS) and State Dam Safety Organisation (SDSO) which are to be notified by 30.06.2022.





## Flood Situation in the Country

Regular Flood Forecasting Activity commenced on 01.05.2022 in Brahmaputra and Barak and Jhelum basins. During the period from 1st May to 31st May 2022, 268 flood forecasts (261 Level and 7 Inflow) were issued, out of which 263 (258 Level and 5 Inflow) forecasts were within limit of accuracy with a percentage accuracy of 98.13%. 49 nos. of Red Bulletin (for Extreme flood situation) and 61 nos. of Orange Bulletin (for severe flood situation) were issued in the month of May from Central Flood Control Room.

### Summary of Flood Situation during 01.05.2021 to 31.05.2021

#### Extreme Flood Situation

One FF station observed Extreme Flood Situation during.

Sl No.	State	District	River	Station	Period	
					From	To
1.	Assam	Nagaon	Kopili	Kampur	15/05/2022 1600 hrs	21/05/2022 2000hrs

No flood monitoring station observed Extreme flood situation during.

#### Severe Flood Situation for FF Stations

7 FF Stations observed Severe Flood Situation in the States of Assam.

#### Above Normal Flood Situation

11 FF Stations in Assam observed Above Normal Flood Situation.

## Inspection/Field Visit of Dam/Project

### Uhl-III, H.E.P., Himachal Pradesh

Uhl-III HEP (3x33.33=100MW) is envisaged by diverting water from tributaries of river Beas and discharging it after generation into river Beas itself. The project is situated in Joginder Nagar district of Himachal Pradesh and being developed by HPSEBL. The project is executed through a Special Purpose Vehicle, Beas Valley Power Corporation Ltd. (BVPCL) and HPPCL is working as designer to review the designs. The penstock of the project got ruptured during testing (load rejection) of 1st Unit running at 50% capacity on 17.05.2020. HPSEBL, Shimla requested advice of CWC on the hydraulic and structural design of penstock which is under restoration/rectification.

In this regard a site visit of the project is made by Narendra Singh Shekhawat, Director and M. S. Harshitha, Deputy Director, HCD (N&W) from 04.05.2022 to 06.05.2022. The site visit was accompanied by BVPCL officers, representative of M/s P&R Infra Projects Ltd. (Contractor and Design Consultants appointed for restoration/ replacement of the penstock) and designers of HPPCL.

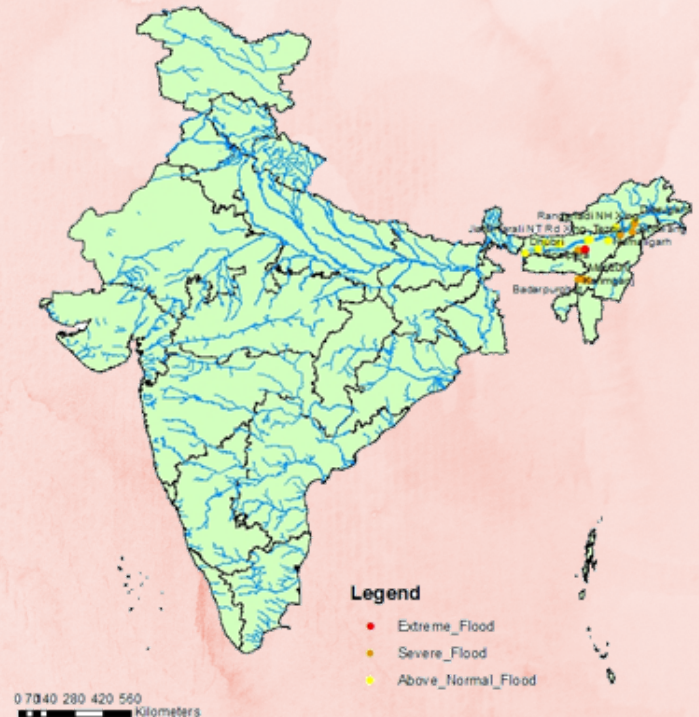
During visits of various components, detailed discussions were held on the penstock shell rupture behaviour, functioning of Expansion Joints, Thermal Stresses, settlement susceptibility of Ring Girder Supports, construction sequences of Ring Girder Supports, failure incidents of Ring Girder Bolts,

### Reservoirs having Inflow above threshold limit

2 reservoir received inflows above their threshold limit in Karnataka and Tamilnadu.

### Special Flood Situation Reports cum Advisories

One Special Flood Situation Report cum Advisories was issued for Kerala, Assam, Meghalaya, Arunachal Pradesh and West Bengal during.



construction of Anchor Blocks, slopes of different penstock reaches, and imperfection in alignment during penstock shell erection and other technical aspects. Based on the site visit, CWC conveyed technical observations and recommendations. Few more investigations and studies are also suggested to evaluate aspects of temperature stresses, 2nd stage concrete settlement, eccentricity of support foundations, construction quality issues, possibilities of geotechnical settlements, and any other reason that might have stressed the system to failure.



### Sardar Sarovar dam Project, Gujrat

Shri Gulshan Raj, CE (DSO) and Shri Satish Kamboj, Director, Gate Design (N&W) Directorate visited Sardar Sarovar Dam project, Gujarat on 04.05.2022 regarding problem faced by project authorities in implementation of modifications as suggested by the Expert Committee of CWC. The CWC officers explained the modifications and methodology in detail for execution of the work to be carried out in bringing the power intake stoplog in working condition.

### Barinium HEP, J&K

The proposed Barinium H.E. Project is located on River Chenab in Paddar Valley of District Kishtwar of J&K. During geological investigations overburden up to 90m was observed at Dam location. Based on the result of overburden, it was decided that existing location may be shifted to a new location. A joint visit was undertaken by officers of CWC New Delhi & Jammu and GSI, Jammu on 10-11th May 2022 to firm up the location of alternative axis of Dam site.

### Lakhwar MPP, Uttarakhand

Lakhwar multipurpose project is proposed to be constructed across river Yamuna, 5 km upstream of Vyasi HEP (120 MW) in Dehradun district of Uttarakhand. The benefits to accrue from the project include power generation at Lakhwar (300 MW), 33780 Ha additional irrigation and 78.83 MCM of water for domestic and industrial purposes. It is envisaged to construct a 204m high concrete gravity dam at Lakhwar, FRL at EL 796.0m and MDDL at 752.0m with a gross storage of 588 MCM and live storage of 331 MCM of water. Benching for Dam abutment & Intake, construction of diversion tunnel, partial excavation of PH, Adits and Collection Chamber has already been carried out by Irrigation Department, Uttar Pradesh till 1992 before stopping of work.

CWC team comprising Shri Anil Jain, Director, CMDD (N&W), Shri Narendra Singh Shekhawat, Director, HCD (N&W), Shri Randhir Kumar Choudhary, Dy. Director, CMDD (N&W) and Shri Amir Suhail, Assistant Director, HCD (N&W) along with officials of CEA, GSI and UJVNL

### Mulla Periyar dam by the Supervisory Committee

The Supervisory Committee on Mullaperiyar Dam inspected the Mulla Periyar dam on 09.05.2022. The inspection was carried out by the Supervisory Committee under the Chairmanship of Shri Gulshan Raj, Chief Engineer, Dam Safety Organisation, CWC alongwith the members Dr. Sandeep Saxena, Additional Chief Secretary WRD, Govt. of Tamil Nadu, Shri T. K. Jose, Additional Chief Secretary WRD, Govt. of Kerala, Shri R. Subramanian, Chairman, CTC cum ISWW, Govt. of Tamil Nadu and Shri Alex Varghese, Chief Engineer (I&A) Irrigation Deptt., Govt. of Kerala. During the inspection other officials of CWC, Govt. of Tamil Nadu and Govt. of Kerala were also present. In the inspection all the component of the dam i.e. main dam, earthen

### Annamayya dam, Andhra Pradesh

There was a Dam failure/breach incident of Annamayya Dam, Andhra Pradesh on 19.11.2021. The matter was



visited the Lakhwar Multipurpose Project (National Project) on 24.05.2022. Officials visited project area in general, a specific visit to the already excavated powerhouse complex and associated underground structures to understand the issues and the site conditions including the status of the existing excavations and measures/support system that have been taken earlier. The team also held extensive discussions with the Project Authorities on 25.05.2022 at UJVNL Limited office, Dehradun.



embankment, baby dam, galleries, hydro-mechanical component etc. were covered. During the inspection of the dam and discussion with the states officials no significant sign of distress to the dam was brought to the notice of the committee.

taken up by the Hon'ble Minister, MoJS and it was decided that CWC will investigate the causes of failure.





Accordingly, with the approval of Member(D&R), CWC, a team of officers from CWC comprising of Director Embankment (NW&S), Director Gates (NW&S) and Deputy Director, DSM were deputed at the site for examine the reasons leading to failure of the dam. The team visited the project site on 23.05.2022. The report is under preparation and shall be submitted soon. The project authorities informed that due to heavy inflows (more than spillway capacity) on 18.11.2021 and 19.11.2021, the water at upstream of reservoir overtopped the parapet wall, eroding the earthen bund completely.



## Progress/Note for NHP during month of May-2022

Sl. No.	Item	Current Status
1	Procurement of New Acoustic Doppler Current Profiler (ADCP)	<ul style="list-style-type: none"> <li>Supply Installation, Testing and Commissioning of <b>27 Nos.</b> ADCP out of <b>29</b> have been <b>completed</b>.</li> <li>Contract for procurement of "Supply Installation, Testing and Commissioning of <b>50</b> nos. ADCP is <b>awarded to M/s A&amp;S Creations on 23-05-2022</b>.</li> </ul>
2	Velocity Radar	Procurement of <b>19</b> no. of Velocity Radar System has been awarded to <b>M/s PAN India Consultant Pvt. Ltd.</b>
3	Out Board (OB) Engine	Re-Tender for "Supply Installation, Testing and Commissioning of <b>45</b> No. of (OB) Engine is <b>under process</b> .
4	Total Station	Tender for "Supply Installation, Testing and Maintenance of <b>33</b> nos. Total Station is <b>under process</b> .
5	Reservoir Sedimentation Studies Using Hydro Graphic Survey	Work for Phase-I ( <b>32</b> no of reservoirs) has been awarded in Jan, 2021. Procurement for Non-consultancy work of Reservoir Sedimentation Studies using Hydro graphic survey of additional <b>87</b> Nos reservoirs in India is <b>under process</b> .
6	Early Flood Warning System Including Inundation Forecast in Ganga Basin	Contract for the same was signed on 11.08.2021. Inception report has been submitted by the consultant and same is under scrutiny.
7	Consultancy work of Extended Hydrologic Prediction (EHP)	Consultancy work awarded. 2nd deliverable i.e., Data compilation Report has been submitted by the consultant and same is under scrutiny.
8	Study on the issue of Flood and Siltation in River Ganga and its Tributaries due to Farakka Barrage in the state of Bihar	Consultancy Services was awarded in March, 2021. Inception report (1 <sup>st</sup> deliverable) and Data Compilation report (2 <sup>nd</sup> deliverable) has been accepted and payment has been made for the same.
9	Supply of Water Quality Equipment's (GCMS and ICP-MS)	Delivery has been made and installation, testing and commissioning of all equipments has been completed. Another tender for the same for new lab is under process.
10	Real time Data Acquisition System in Narmada Basin	Contract Agreement signed in August, 2020. Installation at <b>16 ARG</b> station and <b>16 AWLR</b> has been <b>completed</b> .
11	Real time Data Acquisition System in Arunachal Pradesh	Contract Agreement signed in Nov, 2020. Data centre has been established. Installation at <b>20</b> stations has been <b>completed</b> .

## Financial Progress of Schemes as on 31.05.2022

(Amount rounded-off in ₹ Crore & Specific to CWC's component)

Sl. No.	Scheme/Component Name	BE 2022-23	Expenditure	Expenditure (in %)
1.	Development of Water Resources information System (DWRIS)	185.00	12.237	6.61%
2.	Investigation of Water Resources Development Schemes (IWRD)	08.000	0.884	11.05%
3.	Flood Management & Border Areas Programme (FMBAP)	23.203	1.494	6.44%
4.	Direction & Administration(D&A)-Major Works and OE(SAP)	11.15	0.000	0.000%
5.	National Hydrology Project	33.700	0.026	0.076%
6.	Dam Rehabilitation and Improvement Project (DRIP) Phase-II	100.00	0.040	0.04%





## DRIP

### First (1st) meeting of the Technical Committee of DRIP Phase II

11 FF Stations in The First (1st) meeting of the Technical Committee (TC) for Dam Rehabilitation and Improvement Project (DRIP) Phase II was held in two sittings, on 11.05.2022 and 17.05.2022, through video conferencing mode under the Chairmanship of Member(D&R), CWC. During the meeting, detailed presentations were made by CPMU and SPMUs with emphasis on agencies physical and financial progress, Project Readiness Criteria of DEA, DHARMA, Notification of SCDS, Constitution of SDSO and Constitution of State Level Steering Committee (SLSC) for DRIP. Members /

### Environment and Social (E&S) training to Rajasthan WRD officials given by World Bank

The Environment and Social Safeguard team of World Bank conducted a training programme on E&S Safeguards for the officials of Rajasthan WRD on 30.05.2022 at Jaipur, Rajasthan, followed by a field visit to Bisalpur dam on 31.05.2022. World Bank experts deliberated upon various topics of E&S Safeguards including Environment and Social Management Framework (ESMF), Environment and Social Commitment Plan (ESCP), Stakeholder Engagement Framework (SEF) and two dam specific documents viz. Environment and Social Due Diligence (ESDD) and

### Gallery/Azadi Ka Amrut Mahotsav



Representatives of the Assam observed Above Normal Flood Situation.



Environment and Social Management Plan (ESMP). The programme combined lectures, case studies and interactive sessions.



Shri Sanjay Awasthi, Joint Secretary (RD & PP) Ministry of Jal Shakti, RD & GR visited Jalasoudha, CWC, Bangalore on 09.05.2022 for reviewing performance and activities proposed for current financial year 2022-23.



A meeting was held with the experts from India Europe Water Partnership (IEWP) for discussions regarding preparation of Tapi River Basin Management plan at Surat. Shri Yoki Vijay Director Monitoring, CWC Gandhinagar led the meeting.



118th Meeting of Permanent Indus Commission at New Delhi



नर्मदा बेसिन संगठन, भोपाल, म.प्र. विज्ञान एवं प्रयोगिकी परिषद एवं नर्मदा समग्र द्वारा दिनांक 18.05.2022 एवं 19.05.2022 को भोपाल, म.प्र. में माननीय श्री प्रह्लाद सिंह पटेल, केन्द्रीय राज्य मंत्री, जल शक्ति मंत्रालय एवं माननीय श्री शिवराज सिंह चौहान, मुख्य मंत्री, मध्य प्रदेश के उपस्थिति में नदी उत्सव 2022 का आयोजन किया गया







Anti Terrorism Day Pledge at MERO, CWC, Bhubaneswar



78th India Bangladesh Joint Committee meeting at Dhaka

## Data Corner- Per Capita Average Annual Availability of Water in India during 2025 & 2050

Sl. No.	River Basin	Average Annual Water Resources (BCM)\$	Estimated Population (Million)#		Estimated Average Water per Capita Availability (cum)	
			2025	2050	2025	2050
1	Indus (up to Border)	45.53	69.2	81.41	657.95	559.27
2	Ganga-Brahmaputra-Meghna					
	a) Ganga	509.52	593.04	697.69	859.17	730.30
	b) Brahmaputra	527.28	48.06	56.54	10971.29	9325.79
	c) Barak & others	86.67	10.24	12.05	8463.87	7192.53
3	Godavari	117.74	89.18	104.92	1320.25	1122.19
4	Krishna	89.04	100.41	118.13	886.76	753.75
5	Cauvery	27.67	48.39	56.93	571.81	486.04
6	Subernarekha	15.05	15.52	18.26	969.72	824.21
7	Brahamani & Baitarni	35.65	16.18	19.04	2203.34	1872.37
8	Mahanadi	73	43.93	51.68	1661.73	1412.54
9	Pennar	11.02	16.02	18.85	687.89	584.62
10	Mahi	14.96	17.34	20.4	862.75	733.33
11	Sabarmati	12.96	17.34	20.4	747.40	635.29
12	Narmada	58.21	24.28	28.56	2397.45	2038.17
13	Tapi	26.24	24.44	28.75	1073.65	912.70
14	West Flowing Rivers from Tapi to Tadri	118.35	42.61	50.13	2777.52	2360.86
15	West Flowing Rivers from Tadri to Kanyakumari	119.06	53.84	63.34	2211.37	1879.70
16	East Flowing Rivers between Mahanadi & Pennar	26.41	38.97	45.85	677.70	576.01
17	East Flowing Rivers between Pennar and Kanyakumari	26.74	74.32	87.43	359.80	305.84
18	West Flowing Rivers of Kutch and Saurashtra including Luni	26.93	36.5	42.94	737.81	627.15
19	Area of Inland drainage in Rajasthan		11.73	13.79	-	-
20	Minor River draining into Myanmar (Burma) & Bangladesh	31.17	2.48	2.91	12568.55	10711.34
<b>Total</b>		<b>1999.2</b>	<b>1394.02</b>	<b>1640</b>	<b>1434.13</b>	<b>1219.02</b>

Source: B.P. Directorate, CWC, M/o Jal Shakti

\$: Reassessment of Water Availability in India using Space Inputs, 2019, CWC.

#: Report of the Standing Sub-Committee for assessment of availability and requirement of water for diverse uses in the country, August, 2000





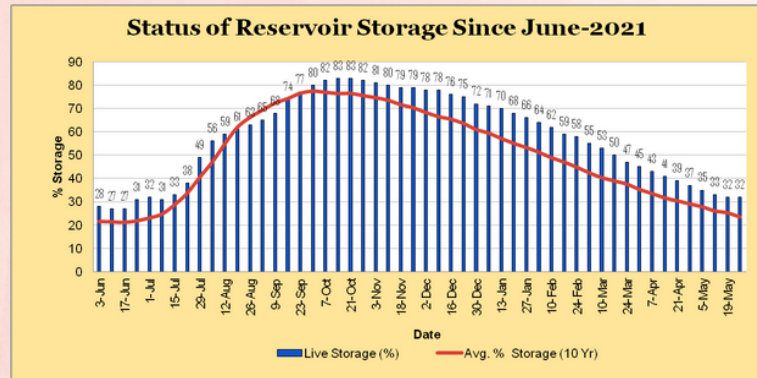
## Reservoir Monitoring

CWC is monitoring live storage status of 140 reservoirs of the country on weekly basis and is issuing weekly bulletin on every Thursday. Out of these reservoirs, 45 reservoirs have hydropower benefit with installed capacity of more than 60 MW. The total live storage capacity of these 140 reservoirs is 175.957 BCM which is about 68.25% of the live storage capacity of 257.812 BCM which is estimated to have been created in the country.

As per reservoir storage bulletin dated 26.05.2022, the total live storage available in these reservoirs is 56.398 BCM which is 32% of total live storage capacity of these reservoirs. However, last year the total live storage available in these reservoirs for the corresponding period was 52.026 BCM and the average of last 10 years

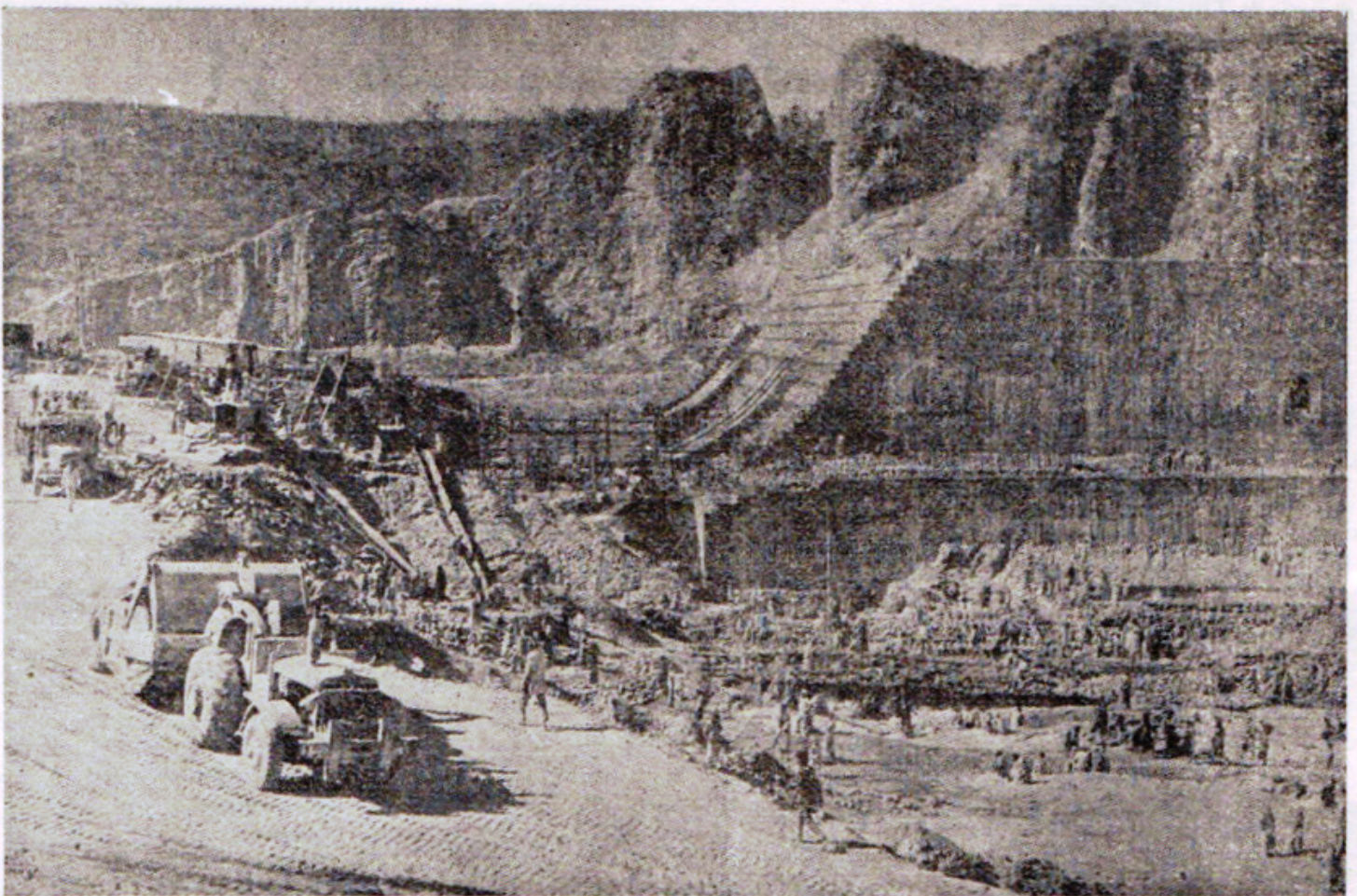
## History- Kadana Reservoir Project

GUJARAT State had a large area periodically subjected to famine and/or scarcity conditions. The recurring scarcity and famine condition had focused the attention for harnessing the available water resources of the State. Mahi river is one of the main rivers flowing through the State. The river originates in the



live storage was 41.332 BCM. Thus, the live storage available in 140 reservoirs as per the bulletin dated 26.05.2022 is 108% of the live storage of corresponding period of last year and 136% of storage of average of last ten years.

Vindhya hills near village Sardarpur in Madhya Pradesh and flows for about 167 km (104 mile) in this State. Thereafter it flows into the neighbouring State of Rajasthan for about 174 km (108 mile) and enters the Gujarat State a little below Bhukia village in Rajasthan. It runs through the Panchmahals and Kaira districts and meets the Gulf of Cambay after its



**KADANA RESERVOIR PROJECT** in Gujarat envisages the construction of a masonry dam, 61 m (200 ft) high and 106.14 m (348 ft) long, across the Mahi river about 70.8 km (44 mile) upstream of the Wanakbori weir and left bank canal taking off from it. Estimated to cost Rs 51.68 crore, the project will ultimately provide irrigation to 336 842 ha (832 350 acre) and generate 240 kW of Power. The dam and appurtenant works are planned to be completed by 1976. Spillway portion of the dam is seen here under construction.





westward journey of 242 km (150 mile) through the State.

### Mahi Project

Investigations for harnessing the water resources of the Mahi river were taken up as long back as in the year 1905 after the great famine of 1900. It was decided in 1948 to take up the Mahi Project in two stages.

#### Stage I

The Stage I consists of ungated pickup weir at Wanakbori in Balasinor taluka of Kaira District and a right bank canal there from to command 3.16 lakh ha (7.80 lakh acre) of land in the district.

#### Stage II

Stage II consists of storage reservoir across the Mahi river near village Kadana in Santrampur Taluka of Panchmahals district and direct left bank canal there from.

Mahi Project Stage I went through various stages of development. On account of low fair weather discharges in the river, the Stage I of the Project could not be as effective as it should be, particularly in scarcity and famine years. Therefore, the need for a storage reservoir was severely felt. The Stage II

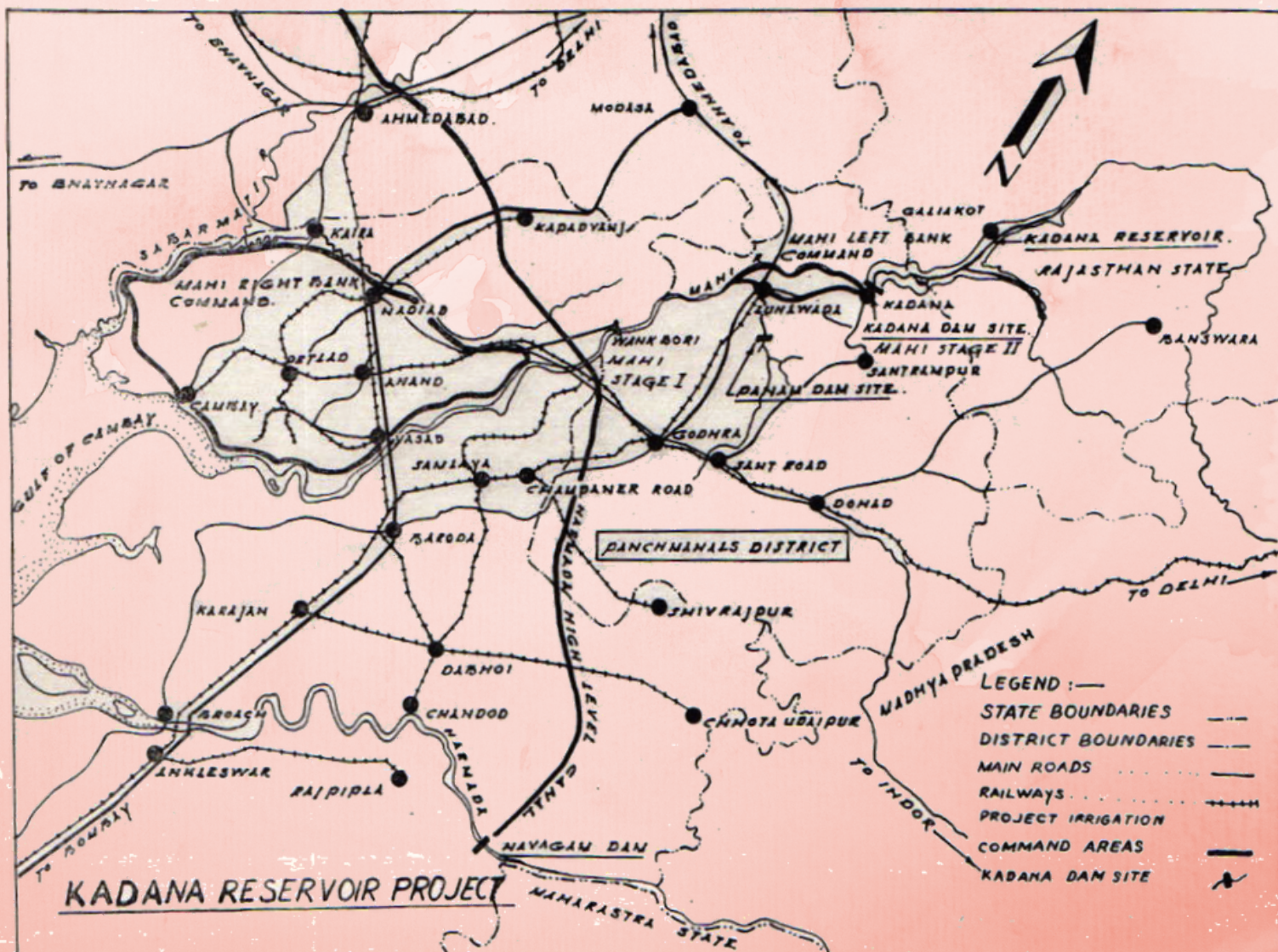
development, therefore, came up for active consideration. The proposed dam at village Kadana were involved some submergence in the neighboring Rajasthan State. After studying the relevant issues of submergence and the benefits from the dam, the Planning Commission cleared the Project in 1966.

### Hydro power

The hydroelectric part was also cleared by the Planning Commission in 1972. This was the first power station in our country with reversible turbines. Very little firm power was available from this project; but in order to cater for large fluctuations in the demand of electric power and to even out the peak demand, 4 turbines of 60 MW each had been installed in the power house. These turbines generated power when it was needed in the power grid and when the electric power was surplus, they work as pumps to pump water from downstream to the upstream.

### Kadana Dam

Kadana dam is a composite dam with 621.5 m (2 038 ft) masonry overflow and non-overflow portion. The length of the masonry dam includes 106.14 m (348 ft) length of the power dam. It is situated on the left bank in continuation of the spillway between spillway and left transition.





The maximum height of the masonry dam is 61 m (200 ft) above the foundation level whereas that for the earth dam is 32.94 m (108 ft) above the average ground level. Twenty-one radial gates 15.55 m x 14.8 m (51 ft x 48.5 ft) are provided on the crest of the spillway. For release of water for irrigation when the power house is not functioning, four bypass outlets are provided on the right blocks of the spillway.

### Geology

The rock foundations at the dam site and in the vicinity belong to Aravalli system. The area around the dam site comprises predominantly the quartzites, phyllites, slate, mica schists with intercalations of quartzites. The rocks have been folded. The folds are tight and are segmented by minor reverse faults traversing the limbs which are dipping towards upstream side. The inspection of faults in the area indicated that the faults features were local and accompanied by shearing. In the investigation stage it there was adequate indication of a number of faults. The foundations have, therefore, been provided with great care. Even the smallest fault of weak feature has been fully exposed and explored before deciding the foundation level and treatment in each block. The low dipping faults in particular, needed extensive exploration and treatment. Over 17 faults, in all, had been detected in the dam site. Each of these faults have been individually and when closer, collectively treated. The treatment were comprised, mainly, trench treatment, washing and grouting of the fault zone, combination of blocks to support blocks on weak foundations and also provided thrust blocks in bucket area to provide additional support where necessary. Drifts were also planned to increase shear resistance.

Construction of Kadana dam was started in 1968. Pending fixation of the contract for the main dam, as

advance action and to save time, work on three masonry blocks was taken up for diverting river water through them. Simultaneously the construction of cutoff for earth dam on left bank was also taken up partly departmentally and partly on contract. The work on the main dam was given on contract in the same year. Construction continued on contract up to February 1971, when it was felt that the work was lagging much behind the schedule. The work was, therefore, withdrawn and started departmentally since October 1971.

### Canals

An outlet is provided in the earth dam near the left abutment for direct irrigation through left bank canal system. The length of main canal is 42 km and that of branches is 168 km. The gross command area is 21000 ha and culturable command area is 19500 ha, whereas irrigable command area is 16500 ha.

KADANA RESERVOIR PROJECT (Features at a Glance)		
LOCATION :	A dam across the river Mahi at Kadana about 70.8 km (44 mile) upstream of Wanakbori weir, Taluka Santrampur, district Panchmahals of Gujarat States.	
DAM :	Type : Masonry and Earth Length : 1400 m (4590 ft) Max. Height : 61 m (200 ft)	
RESERVOIR :	Cross Storage :	1700 million cum (1.37 million acre ft)
	Live Storage :	1300 million cum (1.05 million acre ft)
CANAL :	Left Main Canal : 42 km (26 mile)	
BENEFITS :	Irrigation : 336842 ha (832350 acre) Power : 4x60MW = 240 MW	
COST :	Civil Works : Rs. 2550 lakh	
	Hydro Power : Rs. 2618 lakh	

(Source: Bhagirath 1973)

### Correction: -

Jalansh Volume 4: Issue No. 10, May-2022

<http://cwc.gov.in/sites/default/files/eng-may-22.pdf>

Sl. No.	Error in Particular	Page No.	Corrected
1.	Financial Progress of Schemes as on 30.05.2022- Heading- <b>BE 2020-21</b>	09	BE 2022-23
2.	Meeting to discuss Agenda Points related to Ground Water Usage, Micro Irrigation, <b>Cop</b> Diversification and Water Use Efficiency in the Agriculture Sector	04	Meeting to discuss Agenda Points related to Ground Water Usage, Micro Irrigation, <b>Crop</b> Diversification and Water Use Efficiency in the Agriculture Sector

Inconvenience caused to the readers is regretted.



### 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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