

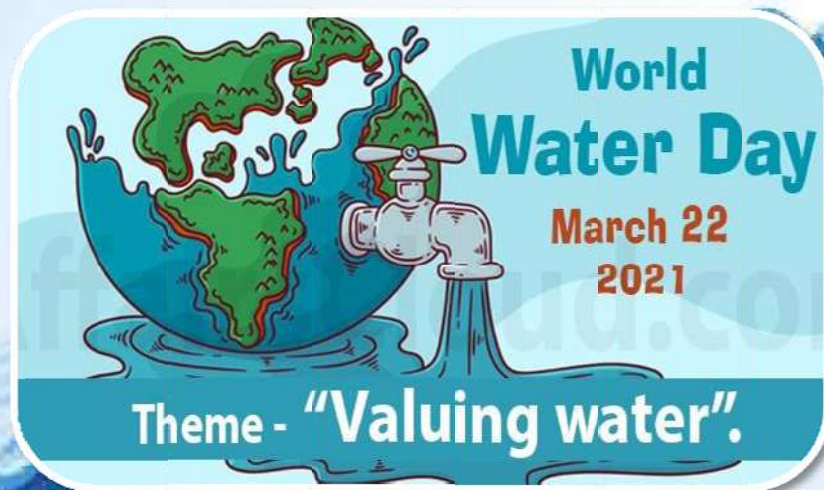
JAL-VIKAS

April-2021



जल विकास

अप्रैल-2021



राष्ट्रीय जल विकास अभिकरण की आंतरिक पत्रिका
(Inhouse Bulletin of National Water Development Agency)

Activities of NWDA during the Quarter at a Glance



Signing of MoA for Implementation of KBLP of NWDA by the Hon'ble Union Minister of Jal Shakti and Chief Minister's of MP and UP in Virtual Presence of Hon'ble PM, Government of India



Signing of MoA event of Ken Betwa Link Project in Virtual Presence of Hon'ble PM, Government of India was held on 22.03.2021 in the August gathering of Officials of MoJS, DoWR, RD&GR



NWDA Officials while taking the Pledge when World Water Day Celebrations held on 22.03.2021 at NWDA(HQ), New Delhi



DG, NWDA while attending the Meeting with Chairman, CWC to review the integration of P-K-C link with E-R-C-P on 22-01-2021



CE(South) NWDA in discussions with the Officials of Maharashtra Government on their Intra-State and P-T-N Link Projects



From Director General's Desk

It gives me great delight in placing the quarterly issue of "Jal Vikas-April 2021" of NWDA. The reporting period of the issue is starting from 01st January to 31st March 2021. The in-house bulletin gives a recap of works and functions of NWDA particularly with respect to Interlinking of Rivers (ILR) Programme of the Department of Water Resources, River Development & Ganga Rejuvenation (DoWR, RD&GR), Ministry of Jal Shakti (MoJS), Government of India and related activities carried out by NWDA mainly during the reporting period.

During the reporting period, despite facing the pandemic situation, NWDA Officials made concerted efforts to achieve the set targets for the year 2020-21. As a result, the DPR of Godavari (Inchampalli)-Cauvery (Grand Anicut) link project could be finalized. Feasibility reports of Ganga-Damodar-Subernrekha, Subernrekha-Mahanadi and Rajasthan-Sabarmati links were completed and circulated to concerned States. A number of important meetings were organised during the period mostly using virtual platform. The planning and layout of 7th India Water Week which is a very prestigious event of Ministry of Jal Shakti, was also finalised after wide consultations and meetings of Scientific Committee and Organising Committee.

It gives me immense pleasure to mention about the concerted efforts of the Hon'ble Minister of MoJS paid the dividend in building up consensus on water sharing issues between States of Uttar Pradesh (UP) and Madhya Pradesh (MP) for the implementation of Ken-Betwa Link Project (KBLP) on priority basis and signing of the Tripartite Memorandum of Agreement on 22-03-2021 in the august presence of Hon'ble Prime Minister of India. Hon'ble Prime Minister quoted the event as a "historical" and "revolutionary step" towards changing the future of the drought prone Bundelkhand region. The occasion was a rejoicing moment for NWDA fraternity too.

When turning the inner pages of the magazine, you will find an article on "Importance of Micro Irrigation in Improving Water Productivity"; brief detailing on Technical Digest; ILR in Parliament; Water Resources in Media; Glimpses of NWDA; Involvement of NWDA in PMKSY; Implementation of e-Office in NWDA; Appointments, Promotions and Retirements of NWDA Officials; and Family Corner Article etc.

The last, but not the least my sincere thanks extend to the entire Editorial Team of Jal Vikas in assembling the articles and bringing the April 2021 Issue of Jal Vikas to a value added one. Our efforts to further improve and expand the Jal Vikas Issues of NWDA will continue and that could be more enhanced, if your supports by way of contributions and suggestions timely flows.


(Bhopal Singh)
Director General

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Smt. Nirmala Singh, Steno Grade-II and	
Smt. Radha, Lower Division Clerk, Multi Disciplinary Unit (MDU), NWDA.	

The views and opinions expressed by the Authors are their own and not necessarily of NWDA



Functions of National Water Development Agency

The then Ministry of Irrigation [now Ministry of Jal Shakti; Department of Water Resources, River Development & Ganga Rejuvenation (MoJS; DoWR, RD & GR)], Government of India, formulated a National Perspective Plan (NPP) in the year 1980 for optimum development and utilization of Water Resources of our country India. The NWDA was set up as a Society under the Ministry in July 1982 to give a feasible shape to the proposal of the NPP with the following functions:

- To carry out detailed surveys and investigations of possible reservoir sites and interconnecting links in order to establish feasibility of the proposal of Peninsular Rivers Development Component (1981)* and Himalayan Rivers Development Component (1994)* forming part of the NPP for Water Resources Development prepared by the then Ministry of Irrigation (now MoJS; DoWR, RD & GR) and Central Water Commission(CWC).
- To carry out detailed studies about the quantum of water in various Peninsular River Systems (1981)* and Himalayan River Systems (1994)* which can be transferred to other basins/States after meeting the reasonable needs of the basin/States in the foreseeable future.
- To prepare feasibility report of the various components of the scheme relating to Peninsular Rivers Development (1981)* and Himalayan Rivers Development (1994)*.
- To carry out surveys and investigations work and prepare Detailed Project Reports(DPRs) of river linkproposals under the NPP for Water Resources Development and thereafter approach concerned States for obtaining concurrence for implementation of the project (2020)*.
- To prepare Pre – Feasibility Reports (PFRs)/ Feasibility Reports (FRs) (2006)*/ DPRs (2011)* of the Intra – State links as may be proposed by States. The concurrence of the concerned co-basin States for such proposals may be obtained before taking up their FRs / DPRs.
- To undertake/construct/repair/renovate / rehabilitate / implement the projects either of its own or through an appointed agency /organization/PSU or Company and the projects forming part of Interlinking of Rivers, for completion of projects falling under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)of which projects under Accelerated Irrigation Benefits Programme (AIBP) are also included and similar other projects (2016)*.
- NWDA to act as a repository of borrowed funds or money received on deposit or loan given on interest or otherwise in such manner, as directed by the then Ministry of Water Resources, River Development and Ganga Rejuvenation (now theMoJS; DoWR, RD & GR) and to secure the repayment of any such borrowed funds/money deposits/loan etc. by way of mortgage, pledge, charge or lien upon all or any other property, assets or revenue of the society both present and future (2016)*.
- To do all such other things the Society may consider necessary, incidental, supplementary or conducive to the attainment of above objectives (1981)*.

*Year of Gazette Notification



Highlights of NWDA Activities

- DG, NWDA and CE (HQ), NWDA attended a meeting with Hon'ble Minister for Jal Shakti for discussing the issues on MoA of Ken-Betwa Link Project on 06.01.2021.
- DG, NWDA attended the 45th meeting of the "Classified Data Release Committee" held on 07.01.2021.
- CE (HQ), NWDA attended the meeting conducted for reviewing the pending status of VIP/PMO (PG) and Miscellaneous Public Grievances held under the Chairmanship of JS (RD&PP) through video conferencing on 08.01.2021.
- DG & CE (HQ), NWDA attended the meeting convened by Member (WP&P), CWC with Nodal Officers of IEWP held on 08.01.2021.
- SE, NWDA and EE, ID-Valsad/Vadodara held discussions with Chief Engineer (SG) Additional Secretary and SE (CDO), Gandhinagar regarding DPRs of Damanganga-Pinjal and Par-Tapi-Narmada Link Projects and Damanganga-Sabarmati-Chorwad Intra-State Link Project held on 08.01.2021.
- DG, NWDA attended the meeting convened by Hon'ble Union Minister for Jal Shakti with Hon'ble Chief Minister of Madhya Pradesh regarding signing of the MoA for implementation of the KBLP and integration of P-K-C link with E-R-C-P of Rajasthan held on 09.01.2021.
- CE (South), NWDA held discussions with Additional Secretary, WRD, Government of Karnataka on 11.01.2021 regarding preparation of the DPR of Bedti-Varada Link Project.
- DG, NWDA and other Officials of NWDA attended the inspection meeting of IInd Sub-Committee of Sansadiya Rajbhasa Samiti held at Bhubaneswar on 11.01.2021. The Sub-Committee appreciated the working of NWDA in Hindi.
- CE (HQ), NWDA attended the Inter-Ministerial Meeting held on 11.01.2021 regarding India's BRICS Chairmanship in 2021 at Sushma Swaraj Bhawan (BRICS Secretariat), Chanakyaपुरi, New Delhi.
- DG & CE (North), NWDA held meeting with Engineer-in-Chief (PD), Government of Odisha on 11.01.2021 in EIC Office and discussed issues on Intra-State and Inter-state links of Odisha State.
- DG, NWDA attended the meeting convened by Member (WP&P), CWC relating to PR-2 e-flows (IEWP) held on 13.01.2021.
- DG & CE (HQ), NWDA attended the meeting convened by Member (D&R), CWC to discuss the planning and design issues related with the KBLP held on 14.01.2021.
- CE (HQ), NWDA attended the meeting held on 14.01.2021 Chaired by JS (PP&RD) to review the progress of "Social Media Activities" through video conference.
- DG, NWDA held a meeting on 15.01.2021 with Additional Chief Secretary, WRD and Principal Chief Conservator of Forests, Government of Madhya Pradesh for implementation of KBLP.
- President of Damanganga Dharan Prakalpgrasth Samiti of Nirgude Village visited the Investigation Division, Nashik, NWDA and discussed with EE (ID-I) regarding issues of DEG and DVG Intra-State Link Projects on 18.01.2021.
- EE(ID-I), Nashik attended the meeting at Nirgude Village on 22.01.2021 and apprised about the modified components of the DEG/DVG Intra-State Link Projects to People Representatives and requested them to allow NWDA to carry out the field works pertaining to the preparation of the DPRs of DEG/DVG.
- First meeting of the Steering Committee of 7th IWW-2021 held on 18.01.2021 under the Chairmanship of JS (PP&RD).

- DG, NWDA attended the meeting convened by Member (WP&P), CWC on 18.01.2021 with GIZ and Nodal Officers of IEWP 1.
- DG, NWDA held a meeting to review the updation of NWDA website on 19.01.2021.
- DG, NWDA attended technical meeting held on 20-01-2021 with all Nodal Officers under the Chairmanship of Secretary (WR, RD&GR) to discuss about the progress on the Nine Priority Areas of Phase I under EU-India Water Partnership and Way-Forward to phase II.
- DG, NWDA held a meeting on 21.01.2021 with Member (WP&P) on BRICS Conference and IWW-2021-the 7th event in the Series.
- DG & CE (HQ), NWDA attended a meeting on 22.01.2021 under the Chairmanship of Chairman, CWC to review the status of issues related to water sharing, exchange of water between Madhya Pradesh and Rajasthan for Parbati-Kuno-Sind (P-K-S) and Eastern Rajasthan Canal Project (E-R-C-P).
- DG, NWDA and other Officials of NWDA attended the presentation on Project Management by M/s ASTTE held on 25.01.2021 at NWDA (HQ), New Delhi.
- DG and CE (HQ), NWDA attended the review meeting held on 27.01.2021 by Shri Sriram Vedire, Advisor, MoJS for integration of P-K-C link with E-R-C-P.
- 3rd Meeting of the Committee for planning "BRICS Water Ministers Meeting" and "BRICS Water Forum" was held on 28.01.2021 under the Chairmanship of Member (WP&P), CWC, where NWDA Officers participated.
- CE (South), NWDA, visited Chennai on 29.01.2021 in connection with the DPR work of Godavari (Inchampalli)-Cauvery (Grand Anicut) Link Project (Segment of Somasila-Kattalai Canal) and held discussions with Chairman, Cauvery Technical Cell and Chief Engineer (Plan Formulation), WRD, Government of Tamil Nadu.
- DG, NWDA and CE (HQ) attended the Fourth meeting of the Core Group constituted for regular consultations and advising the Scientific Committee on the matters of IWW-2021 held at ICID, New Delhi on 01.02.2021.
- DG, NWDA attended the programme observing the celebration of the "World Wetlands Day" on the theme of "Water Wetlands, Life: Inseparable Coexistence" held on 02.02.2021 through video conference.
- CE (HQ) attended the Combined meeting of CBIP Executive Committee (234th Meeting) and Annual General Body (79th meeting) through video conference on 04.02.2021.
- DG, NWDA attended the 46th Meeting of CDRC held at the Committee Room, CWC, Sewa Bhawan, R.K. Puram, New Delhi on 05.02.2021.
- DG, NWDA delivered a lecture on "Challenges of Inter-State Issues in Inter-Linking of River Projects in India" in the webinar on "Interstate River Water Disputes in India" hosted by NWA, CWC, MoJS, Pune held on 08.02.2021 through video conference.
- The Secretary, DoWR, RD & GR, MoJS held a meeting on 09.02.2021 with Additional Chief Secretaries of the Governments of Madhya Pradesh and Uttar Pradesh regarding finalization of the MoA for implementation of the KBLP.
- A meeting was held on 16.02.2021 by the Officials of WRD, Government of Maharashtra regarding review of works for the preparations of the DPRs of Damanganga (Vaitama) Godavari (Kadwadev Nadi) & Damanganga (Ekdare) — Godavari link Projects, in the chamber of Additional Chief Secretary (WRD project and Development), Government of Maharashtra, Mumbai, where CE (South); SE, Valsad; and Executive Engineer of Nashik (ID-I& II), NWDA participated.
- DG, NWDA attended the programme "Reviving our Rivers through Geospatial Technology and Collaboration at India Geospatial Leadership Summit" on 16.02.2021 through video conference, wherein Director (MDU) participated as one of the Panelists of the Session.
- A review meeting was taken by DG, NWDA on status of works during the year 2020-21 and programme for the year 2021-2022 through VC for the offices of CE(South) and CE (North) respectively on 18.02.2021 and 19.02.2021.

- DG, NWDA, CE (HQ), CE (South) respectively attended the Second meeting of the Scientific Committee of 7th IWW-2021 held under the chairmanship of Chairman, CWC at New Delhi on 22.02.2021.
- DG, NWDA attended the Inaugural Session and Plenary Session of "ICOLD Symposium on Sustainable Development of Dams and River Basins" held on 24.02.2021 at Constitutional Club of India, New Delhi.
- Thirteenth meeting of the "Task Force for Interlinking of Rivers" was held in New Delhi on 25.02.2021 under the Chairmanship of Shri Sriram Vedire, Advisor to Minister of Jal Shakti and Chairman, TFILR.
- Meeting of the Tender Committee under the Chairmanship of CE (South), Hyderabad, was held through VC on 25.02.2021 for award of Solar Power studies pertaining to DEG link to GERMI, Ahmedabad.
- CE (HQ) attended the Review Meeting of EFC of RBM Scheme for the period 2021-26 held by JS (RD & PP) on 26.02.2021.
- DG, NWDA attended the Meeting on 26.02.2021 chaired by Hon'ble Finance Minister to discuss the post-budget action points for infrastructure roadmap ahead through Video Conference.
- DG, NWDA took a meeting with CE(S) and other concerned officials of NWDA on layout issues of Bedti-Varada link project through Video Conference on 01.03.2021.
- CE (HQ) attended for Presentation of EFC of RBM Scheme held on 02.03.2021 in the chamber of JS (RD&PP), MoJS, New Delhi.
- DG, NWDA attended Meeting to review National Projects held on 03.03.2021 by the Hon'ble Minister of Jal Shakti in the Committee Room of DoWR, RD & GR.
- CE (HQ) attended a meeting for Review of Scope of Work of Project Management Unit (PMU) of PMKSY scheme held under the Chairmanship of Commissioner (SPR) for the period of 2021-26 on 05.03.2021.
- DG, NWDA attended a meeting with Additional Secretary, MoJS, New Delhi on 08.03.2021 regarding Public Investment Board (PIB) Note.
- e-Office has been implemented for file Management system in NWDA Hqrs with effect from 09.03.2021
- 134th Quarterly meeting of Raj Bhasha Working Committee was held under the Chairmanship of DG, NWDA on 16.03.2021.
- DG, NWDA attended and delivered a talk in the "2nd National Water & Sanitation Innovation Summit" organized by Eletsin Partnership with the Ministry of Jal Shakti, Government of India through VC on 18.03.2021.
- DG, NWDA and other officials of NWDA attended the signing of MoA on KBLP and "Catch the Rain Program" organized on the 22-03-2021 on the occasion of World Water Day at Dr Ambedkar Bhawan, New Delhi.
- Hon'ble Member of Parliament Shri Ranjeet Singh Naik Nimbalkar visited the NWDA (HQ) Office of NWDA on 24.03.2021 and discussed the status of Kolhapur-Sangli/Sangole Intra-State Link Project of Maharashtra and Krishna-Bheema Link DPR prepared by the State of Maharashtra.
- DG, and CE (HQ), NWDA attended 2nd meeting of the Organising Committee of 7th IWW-2021 held on 25.03.2021 in Shram Shakti Bhawan, New Delhi.
- Swachchata Pakhwada was organised during the period 16th – 31st March 2021 at different Offices coming under CE (South) and CE (North) jurisdictions and Headquarters. Rallies and workshops were also organised during this period.
- World Water Day was observed, and pledge was taken on the 22.03.2021 in all Offices of NWDA.

Importance of Micro Irrigation in Improving Water Productivity

Jancy Vijayan*, Nikunj Malik**

1. Introduction

India has the second largest net irrigated area in the world, after China. The net and gross irrigated area account for nearly 48 % and 69% respectively of the 140 million hectare (Mha) of agricultural land in India¹. The remaining 51.2 % is reported as rainfed. Although considerable area has been brought under irrigation since independence; there is much scope for its expansion in the future and is needed to ensure food security of the nation and over all economical development, especially of rural India. But, water demand for irrigation of agriculture land finds competition from domestic use, industrial and hydroelectric projects. Moreover, the irrigation efficiency reported under canal irrigation is not more than 40% and for ground water schemes, it is as 69%. As such, almost 50% of the water release at the project head is lost in transmission of the canal outlet. Additional losses occur in water courses, which is directly proportional to their length, duration of water flow and climatic conditions of the region. Hence, considerable scope exists for enhancing the water use efficiency to bring additional area under irrigation. For that scientific management of irrigation water is necessary to improve crop productivity, efficiency of irrigation and alleviate irrigation related problems such as shortage of irrigation water, water logging, salinity etc.

According to a recent estimate, 34 countries in the world will be going to face water scarcity by 2025 AD indicating that per capita availability of fresh water supplies will be less than 100 m³ /person/year. A country with renewable water availability on an annual per capita basis exceeding about 1700 m³ will suffer only occasional or local water problems. Below this threshold, countries begin to experience periodic or regular water stress. As per study, it is reported that India with 1400 m³ will come into water stressed category in the year 2025 AD. Rising demand for urban and industrial water supplies will pose a serious threat to irrigated agriculture and the allocation of water for agriculture may come down to 50% from the present level of 70%-80%. However, Micro Irrigation Management in selected cropping pattern could achieve required food and fibre production for the increasing population of India along with the adaptations of improved technologies for water resources conservations, storage creations, recycling and recharge in aquifers.

2. Need of Modern Irrigation Technologies

- The productivity of irrigated land is low compared to its potential,
- The productivity per unit water is very low,
- Water available for irrigation is becoming scarce,
- Cost for generating water source is ever increasing,
- The predominance of soils with low water retention capacities and very low hydraulic conductivities make the Arid and Semi-arid regions an ideal case for light and frequent irrigations through micro irrigation,
- Micro irrigation will increase the irrigation cover using the existing available water,
- Micro irrigation with fertigation facility will enhance production per unit input and
- Micro irrigation is a co-ordinated and controlled water management system for poor, shallow and sloppy soils, where water is made to flow under pressure through a net work of pipes of varying diameters, the main-line, the sub-main lines and the lateral lines with appropriately placed emitters along the length of the latter through which water is discharged directly to the root zone.

*Director (MDU) and ** Junior Engineer, MDU, NWDA, New Delhi-110017

In this paper we focus on the advantages of micro irrigation, namely **Sprinkler irrigation** and **Drip irrigation** over conventional method of irrigation or surface irrigation in improving the productivity of water.

3. Sprinkler Irrigation

In this method, water is carried through a network of pipes under medium to high pressure and is forced through a nozzle of small diameter and sprayed on the ground or crop in such a way that the run-off and deep Percolation losses are avoided. Thus, irrigation is given under controlled conditions upto the root depth of plants, as needed.



3.1 Advantages of Sprinkler Irrigation

- It is affordable and completely easy to set up and need not to spend much on labour cost for setting it up.
- The interference with cultivation for setting up the sprinkler irrigation is very less and not facing a huge loss.
- Automation on frequent application of water could be possible.
- The water distribution will always be equal.
- The amount of water being supplied can be controlled to save water depending upon the requirements of plants.
- Sprinkler irrigation is suitable for setting up in almost all types of soils and terrain.
- This system can also be used for cooling during summer season.

3.2 Research Data for India

Table 1A & 1B give comparative advantage of sprinkler irrigation method over surface method of irrigation in terms of Water Saving and Increase in Yield²:

Table1A-Water Saving

Crop	Water depth required in sprinkler irrigation (cm)	Water depth required in surface irrigation (cm)	Water saved(%)
Bajra	7.82	17.78	56
Jowar	11.27	25.40	56
Wheat	14.52	33.02	56
Potato	30.00	60.00	50
Cotton	29.05	40.64	29

Table 1B- Increase in Yield or Water Productivity:

Crop	Yield in sprinkler irrigation (q/ha)	Yield in surface irrigation (q/ha)	Yield increase by sprinkler (%)
Bajra	8.33	6.92	20
Jowar	6.62	4.92	35
Wheat	28.24	26.61	6
Gram	9.91	6.55	51
Chillies	21.52	17.41	24
Groundnut	16.00	13.00	23

4. Drip Irrigation

Drip irrigation is a micro-irrigation system that has the potential to supply water and nutrients by allowing water to drip slowly to the roots of plants:



4.1 Advantages of Drip Irrigation

- Drip irrigation system could provide water supply, fertilizers and nutrients to the roots of every plant simultaneously and effectively.
- Drip irrigation gives efficiency in water application,
- In levelled field, implementation of drip irrigation is more economic,
- Drip irrigation helps to provide moisture to roots and the zone could be hydrated,
- Soil erosion and weed growth could be reduced,
- Water distribution can be controlled according to the necessity,
- Drip irrigation need not require much labour cost in daily operation, and
- Drip irrigation can also be made functional under low water pressure.

4.2 Research data for India

Table 2A& 2B give comparative advantage of drip irrigation method over surface method of irrigation in terms of Water Saving and Increase in Yield³:

Table2A- Water Saving

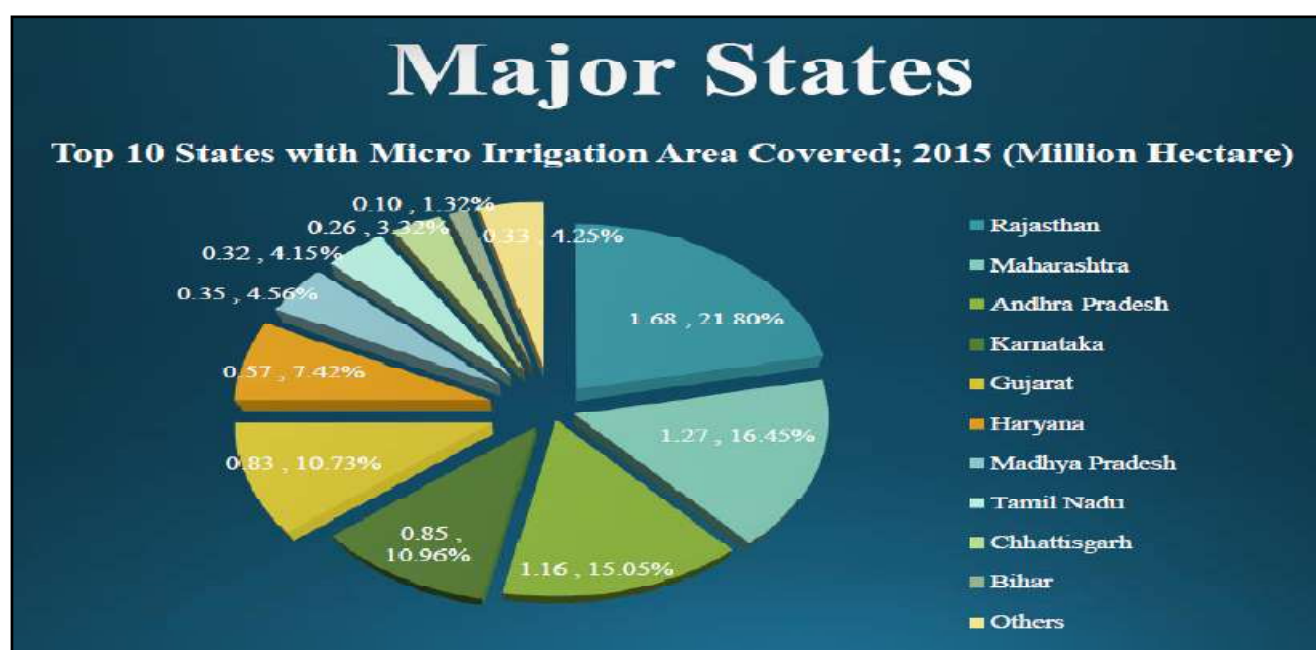
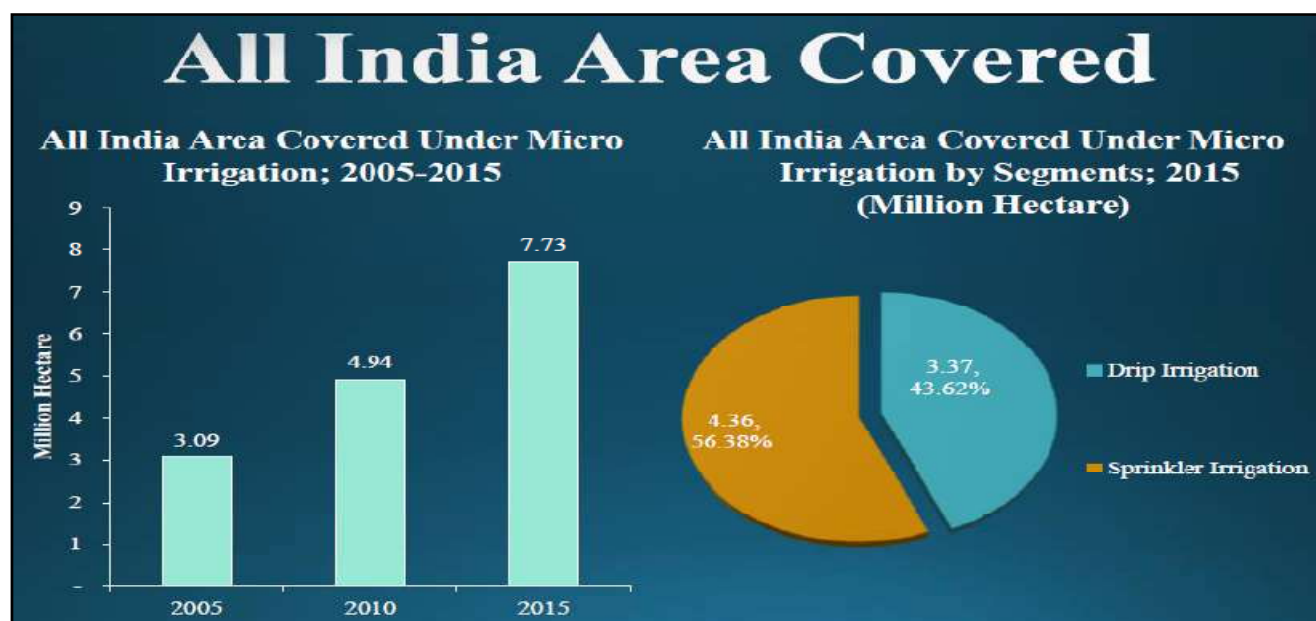
Table1A- Water Saving Crop	Water consumption in drip irrigation (cm)	Water consumption in surface irrigation (cm)	Water saved(%)
Onion	45.1	60.2	25
Sugar beet plants	37.1	49.5	25
Potato	15.0	20.0	25

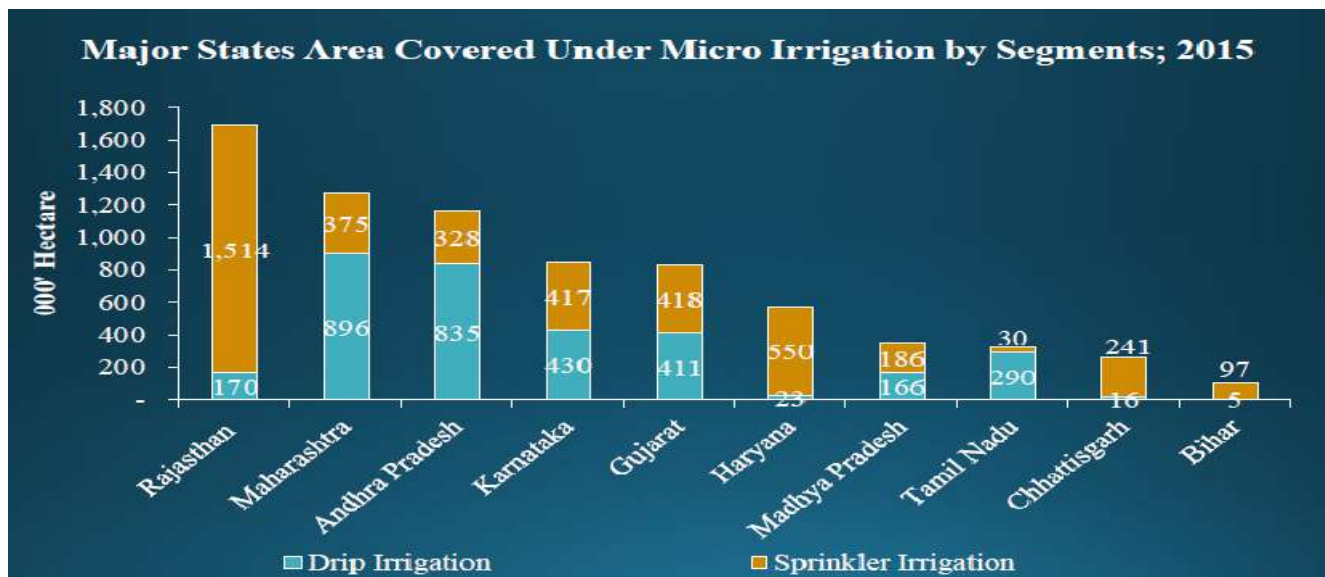
Table 2B Increase in Yield or Water Productivity:

Crop	Yield(q/ha) in drip irrigation	Yield(q/ha) in surface irrigation	Yield Increase by drip irrigation (%)
Cotton	32.5	26.0	53
Lady Finger	113.1	100.0	55
Tomato	88.7	61.9	27
Brinjal	133.0	124.0	50

It is very clear from the above table that water consumption under flood or surface irrigation is too high but in case of drip and sprinkler irrigation, water consumption is less and gives higher water productivity.

5. Growth of Micro Irrigation in India





In this era of water scarcity while preferring the micro irrigation method over conventional method of irrigation, we could achieve better improved utilisation of available water resources and also high yield from various crops.

6. Worldwide Growth of Micro Irrigation

Name of Country	Total irrigated area (Mha)	Sprinkler irrigation (ha)	Drip irrigation (ha)	Total (ha) sprinkler and drip irrigation	% of total irrigated area
USA	21.4000	3,380,000	1,050,000	4,430,000	21.0
China	53.3000	1,200,000	267,000	1,467,000	2.8
France	1.6100	-	-	1,450,000	90.0
Spain	3.3400	800,945	562,854	1,363,799	40.8
India	57.000	658,500	260,000	918,500	1.6
Austria	0.0800	760,000	3,000	763,000	100.0
Mexico	6.2000	-	-	600,000	10.0
Egypt	3.3000	450,000	104,000	554,000	17.0
Germany	0.5320	530,000	2,000	532,000	100.0
South Africa	1.3000	255,000	220,000	475,000	36.5
Italy	2.7000	345,000	80,000	425,000	16.0
Slovak Republic	0.3100	310,000	2,650	312,650	99.0
Iran	8.0500	199,075	53,717	252,792	3.1
Israel	0.2310	70,000	161,000	231,000	100.0
Great Britain	0.1600	156,000	2,000	157,000	99.0
Syria	1.2800	93,000	62,000	155,000	12.0

It is also reported that various experiments were conducted at different Research Institutions/ Universities in India, Israel, Jordan, Spain, USA, Australia using drip irrigation method and the results showed that in the drip method, the water saving was about 40-70% with an yield increase of about 10-100% in different crops⁴.

Under the present scenarios, it is important on how to improve water policies and management practices to see how the water availability can be used as an engine for economic growth and social development which could generate additional employments, alleviate poverty and hunger, and thus improve the standard of living of millions of people.⁵

7. Conclusion

Sustainable water development is all about addressing issues like conservation during its availability, supply and demand, efficiency of use, good planning and management, risks and uncertainties and other similar technical and governance-related issues and implementing the proven technologies with research backup timely in field. From the research studies conducted on micro irrigation, the micro irrigation is started using and can be successfully used in more agricultural areas to increase the productivity of water not only in India, other South Asian Countries but also in other regions of Worldwide Countries, but with appropriate considerations and concerns to account for local conditions.

When we think about the important National and International Days of the quarter and during every year too, which recognized and adopted for Celebrations and Creating Awareness to all its Stakeholders and decision Makers by the Worldwide Communities and Organizations, like "World Wetlands Day-2021", International Women's Day-2021", "World Water Day-2021", "International Day of Action for Rivers-2021", and "International Day of Happiness-2021", with the respective themes, 'Wetlands and Water', 'Choose to Challenge', 'Valuing Water', 'Rights of Rivers', and 'Happiness For All, Forever', **it is prima facie needed to make easiness in availability of water timely and spacially based on demand to its user sectors-whether it is for Agriculture, Domestic, Industrial,Power or Environment.**

As one of the steps in the direction as indicated above, NWDA has taken care to save water through suggesting advanced and improved methods of water applications for the irrigation of agricultural lands(the highest water consuming sector) pertained to the command areas of its proposed link projects, namely Ken-Betwa, Par-Tapi-Narmada, Godavari-Cauvery [in various interconnected reaches of the three links projects viz; Godavari (Inchampalli/Janampet) – Krishna (Nagarjunasagar); Krishna (Nagarjunasagar) – Pennar (Somasila); and Pennar (Somasila)-Cauvery (Grand Anicut)], and Vaigai-Gundar link projects coming under the NPP Rivers Development Component and the Intra-State link projects of Damanganga(Ekdare)- Godavari(Waghad) of Maharashtra Government. **The water so saved through from the irrigation sector is planned mainly to be used for domestic and environmental sectors to improve the quality of life and thereby go in for optimum utilization of water resources as aWay-Forwardstep to fulfil the objectives of NWDA functions.**

8. References

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Technical Digest

The technical work programme of NWDA for the year 2020-21 has been finalized by DG, NWDA. The finalized programme pertained to various Investigation Circles and Divisions of NWDA spread across various regions of our Country. The work programme namely contains DPR /FRs/PFRs preparations of various link projects both coming under the NPP as well as Intra-State as proposed by various State Governments of India; Post DPR activities; Modifications and scrutiny of FRs and Revision of Water Balance Studies (WBS) of River Basins/Sub-basins.

The present status of the progress achieved on the above cited works during the reporting period starting from 1st January 2021 to 31st March 2021 were as follows:

I. Present Status of Preparation of DPRs

Sl. No.	Name of Link Project	Present Status of Preparation of DPRs
1.	Godavari(Inchampalli /Janampet)– Cauvery (Grand Anicut) Link Project	The DPR of Godavari (Inchampalli)-Cauvery (Grand Anicut) link project is finalized and the same is being circulated to party states.
2.	Bedti – Varada Link Project	The DPR is taken up for two alternatives viz., Alt-I: Bedti - Varada NPP link proposal envisaging diversion of 276 MCM and Alt-II: Bedti (Suremane) - Dharma (Varada) link project envisaging diversion of 327 MCM.
3.	Cauvery (Kattalai) – Vaigai – Gundar Link Project	Draft DPR has been prepared and circulated to the concerned states viz Tamil Nadu, Kerala, Karnataka and UT of Puducherry for their observations/comments.
4.	Parbati-Kuno-Sindh Link Project	DG and CE (Hq), NWDA attended a review meeting convened by Advisor, Ministry of Jal Shakti in respect of integration of P-K-C link with E-R-C link project on 27.1.2021. Draft PFR of this link project was circulated to Madhya Pradesh and Rajasthan Governments. Comments from Rajasthan Govt. are being attended. Estimation work for preparation of the DPR is in progress.
5.	Damanganga – Vaitarna – Godavari Link Project (Intra-State Link)	The CSMRS team visited the ID-II, Nashik during 6 - 8th January 2021 and examined the borehole core samples of the D-V-G link and selected samples for laboratory testing. A team from Archaeological survey of India, Aurangabad visited both ID-I & ID-II, Nashik and carried out the Archaeological surveys for the D-E-G and D-V-G link projects. A note on Pinjal-Vaitarna tunnel link is sent and the proposal along with MoU is yet to be finalised by WRD, NMPD, Nashik. The approval for the revised Hydrology Report by CWC is awaited from WRD, NMPD, Nashik. On 18.02.2021 CWC submitted the Sedimentation Studies for the four proposed dams viz. Nilmati, Met, Koshimshet and Udhale. The DPR preparation is in progress.

6.	Damanganga (Ekdare) – Godavari Link Project (Intra-State link)	Geological Survey of India team visited Nashik during the period from 25th - 31st January 2021 and carried out Geological mapping of the Ekdare dam and the field area, additional 50 m on both U/s & D/s, and additional 3 locations of Nilmati, Met & Udhale dam axes. On 16.02.2021, CE(South), NWDA along with SE, Valsad and EE, ID-I, Nashik held meeting with the Addl. Chief Secretary, WRD, Government of Maharashtra to discuss the progress of the DPR works of D-V-G and D-E-G link projects. Topographical survey of the Ekdare reservoir and Canal alignment are under progress. PFR of the D-E-G link has been finalised and submitted to WRD, Govt of Maharashtra.
7.	Damanganga – Sabarmati – Chorwad Link Project (Intra- State Link)	Realignment work of the link alignment in Sabarmati-Chorwad reach of D-S-C is in progress. As per the suggestions of Gujarat Government, alternatives for connecting (a) D-S-C with Narmada canal near Raska weir and (b) D-S-C with Kalpasar project through Bhadbhut barrage are being explored. Modified PFR for Sabarmati-Chorwad reach submitted by the Division Office, after compliance of the observations of CE (South) Office, is in scrutiny in Circle Office.

II. Present Status of Post DPR Activities

Sr. No.	Name of Link Project	Present Status of Post DPR Activities
1.	Ken – Betwa Link Project (KBLP)	A tripartite MoA for the implementation of the project has been signed jointly by the Hon'ble Union Minister for Jal Shakti and Hon'ble Chief Ministers of Madhya Pradesh and Uttar Pradesh on 22-03-2021 in the virtual presence of Hon'ble Prime Minister of India. The signed copy of the MoA has been handed over to the Engineer-in-Chiefs of respective States of UP and MP on 30.03.2021. PIB Memorandum for implementation of KBLP has been prepared and sent to MoJS.
2.	Par – Tapi – Narmada Link Project (PTNLP)	The PTNLP is discussed in the 3 rd meeting of the Sub-Committee for Consensus Building. The issue is being pursued by NWDA and MoJS with Gujarat and Maharashtra Governments to get consensus on the MoU on sharing of water. The DPR is presently under appraisal in CWC.
3.	Damanganga-Pinjal Link Project (DPLP)	The DPLP is also discussed in the 3 rd meeting of the Sub-Committee for Consensus Building. The issue is being pursued by NWDA with the Government of Maharashtra and Gujarat to get consensus on the MoU on sharing of water.
4.	Wainganga (Gosikhurd) – Nalganga ((Purna / Tapi) Link Project (Intra-State)	Simulation study of Gosikhurd submitted by the State Govt. is under scrutiny in Division Office. Desktop study for extension of the W-N link upto Pentakali dam through pipeline and tunnel is in completion stage.

5.	Kosi-Mechi Link Project (Intra-State)	DPR was accepted and recommended respectively by the Advisory Committee and Investment Clearance Committee of DoWR, RD& GR in its 129th and 40th meetings held on 22.10.2020 for investment clearance under State Plan.
6.	Ponnaiyar-Palar Link Project (Intra- State)	DPR has been completed and the EIA studies for getting Environment Clearance from State Environment Impact Assessment Authority is in progress.

III. Present Status of Modifications of FRs of Link Project

Sr. No.	Name of Link Project	Present Status of Modification of FRs
1.	Yamuna – Rajasthan Link Project	FR has been finalized and its final copies are under preparation in field office for circulation.
2.	Rajasthan–Sabarmati Link Project	FR of Rajasthan — Sabarmati link is circulated to concerned states on 24.02.2021.
3.	Ganga-Damodar-Subarnarekha Link Project	FR of the link project has been completed and circulated on 19.03.2021.
4.	Subarnarekha-Mahanadi Link Project	FR of Subarnarekha-Mahanadi link project is circulated to concerned states on 23.02.2021.

IV. Present Status of Preparation of FRs/PFRs

Sr. No.	Name of Link Project	Present Status of Preparation of FRs/PFRs
1.	FRs of Manas-Sankosh – Tista – Ganga (M-S-T-G) and Mahanadi (Barmul) –Rushikulya – Godavari (Dowlaiswaram) Link Project	The draft FRs of the link projects have been finalized and circulated to the concerned States. NWDA has initiated system studies of M-G link project through outsourcing to NIH, Roorkee. The study will also consider the effect of Groundwater Recharge/Climate Change etc. Expression of interest has also been invited from Academic Institutions /Organisations for the System Studies of M-S-T-G, G-D-S and S-M link projects and process for award of works etc are in progress.
2.	FR of Gandak – Ganga Link Project	FR of Gandak – Ganga Link Project has been completed and circulated to concerned states on 26.02.2021.
3.	PFR of Nagavalli-Vamsadhara Rushikulya link Project	The PFR of Nagavalli-Vamsadhara Rushikulya Intra-State link Project of the State Government of Odisha is under progress.

V. Present Status of Revision on Water Balance Studies

Revisions of the WBS reports are generally done after a period 10 years of the completion of the preliminary WBS earlier conducted for the same basin/sub-basin and the event of availability of more data and alternative studies are needed at various locations of the river basin/sub-basin.

The targeted fixed for different river basins/sub-basins are at various stages of completions. Efforts are being made to complete the revision work of water balance studies as per the planned target/work plan of NWDA.

ILR in Parliament

Here, the ILR issues raised and were discussed in both the houses of Parliament during the Winter Session of the reporting period starting from 01st January to 31st March, 2021 and projected on the Parliament of India website (Lok Sabha and Rajya Sabha) are incorporated for information to our readers/stakeholders.

A. Lok Sabha

1.1 The details of the rivers proposed to be interlinked across the country along with the present status thereof; whether the Government proposes to inter-link the Cauvery-Krishna-Ganga rivers; if so, the details thereof along with action taken thereon; whether a meeting of the Special Committee on ILR was held recently; and if so, the details of issues discussed therein along with the follow up action taken thereon?

The National Perspective Plan (NPP) was prepared by the then Ministry of Irrigation (now Ministry of Jal Shakti) in August 1980 for water resources development through inter basin transfer of water, for transferring water from water surplus basins to water-deficit basins. Under the NPP, NWDA had identified 30 links (16 under Peninsular Component & 14 under Himalayan Component) for preparation of FRs. The details of above river linking projects viz. Rivers, States concerned is given at Annexure-I.

Under the NPP, it is proposed to link Ganga to Cauvery river through a series of links viz., Ganga (Farakka)-Damodar-Subernarekha, Subernarekha-Mahanadi of Himalayan Component and Mahanadi-Godavari-Krishna-Pennar-Cauvery link system under Peninsular Component. The proposal envisages diversion of surplus waters to be delivered by the preceding Manas-Sankosh-Teesta-Ganga(M-S-T-G) link upstream of Farakka barrage through Ganga-Damodar-Subernarekha(G-D-S) link and further South. NWDA has completed the draft FRs of G-D-S and Subernarekha-Mahanadi(S-M) links and circulated among party States in July 2020. The feasibility reports of the links viz., Mahanadi-Godavari, Godavari-Krishna, Krishna-Pennar, Pennar-Palar-Cauvery link projects have also been completed and circulated to party States.

Moreover, alternate study to divert unutilized waters of Indravati sub-basin of Godavari basin has been carried out and the draft DPR of Godavari-Cauvery link project consisting of three links viz; Godavari (Inchampalli/Janampet) – Krishna (Nagarjunasagar), Krishna (Nagarjunasagar) – Pennar (Somasila), Pennar (Somasila)-Cauvery (Grand Anicut) link projects has been prepared and circulated to party States in March 2019 by NWDA.

The eighteenth meeting of the SCILR was held on 07.12.2020. In the meeting, various issues including the status of priority links under the NPP, status of proposals of various intra-state link with NWDA, status of works of sub-Committees constituted to assist SCILR were discussed. The suggestions of the State Governments were also discussed for implementation of ILR programme.

As a follow up, matter of Par-Tapi-Narmada link project has been discussed in the Sub-Committee – IV meeting held on 10.12.2020. Also, the status of Intra-State links of Bihar State has been reviewed in the meeting held on 28.01.2021 by NWDA with the Government of Bihar.

IBWT Links, States and Rivers Involved, and Status of PFRs/FRs/DPRs

Sl. No	Name of link	Rivers	States concerned	Status of PFR/FR/DPR
Peninsular Component				
1	Mahanadi (Manibhadra) – Godavari (Dowlaiswaram)	Mahanadi & Godavari	Odisha, Maharashtra, AP, Karnataka, & Chattisgarh	FR Completed
2	Godavari (Inchampalli) – Krishna (Pulichintala)	Godavari & Krishna	-do-	FR Completed
3	Godavari (Inchampalli) – Krishna (Nagarjunasagar)	Godavari & Krishna	Odisha, Maharashtra, MP, AP, Karnataka & Chattisgarh,	FR Completed
4	Godavari (Polavaram) – Krishna (Vijayawada)	Godavari & Krishna	Odisha, Maharashtra, AP, Karnataka, & Chattisgarh	FR Completed
5	Krishna (Almatti) – Pennar	Krishna & Pennar	-do-	FR Completed
6	Krishna (Srisailem) – Pennar	Krishna & Pennar	-do-	FR Completed
7	Krishna (Nagarjunasagar) – Pennar (Somasila)	Krishna & Pennar	Maharashtra, AP & Karnataka,	FR Completed
8	Pennar (Somasila) – Cauvery (Grand Anicut)	Pennar & Cauvery	AP, Karnataka, Tamil Nadu, Kerala & Puducherry	FR Completed
9	Cauvery (Kattalai) – Vaigai – Gundar	Cauvery, Vaigai & Gundar	Karnataka, Tamil Nadu, Kerala & Puducherry	FR Completed
10	Bedti – Varda	Bedti & Varda	Maharashtra, AP & Karnataka	PFR Completed
11	Netravati – Hemavati	Netravati & Hemavati	Karnataka, Tamil Nadu & Kerala	PFR Completed
12	Pamba – Achankovil – Vaippar	Pamba, Achankovil & Vaippar	Kerala & Tamil Nadu,	FR Completed
13	Ken-Betwa	Ken & Betwa	UP & MP	FR & DPR (Ph-I, II & Comprehensive) Completed
14	Parbati – Kalisindh – Chambal	Parbati, Kalisindh & Chambal	MP, Rajasthan & UP (UP requested to be consulted during consensus building)	FR Completed
15	Par-Tapi-Narmada	Par, Tapi & Narmada	Maharashtra & Gujarat	FR & DPR Completed
16	Damanganga – Pinjal	Damanganga & Pinjal	Maharashtra & Gujarat	FR & DPR Completed
Himalayan Component				
1.	Manas-Sankosh-Tista-Ganga (M-S-T-G)	Manas-Sankosh-Tista-Ganga	Assam, West Bengal, Bihar & Bhutan	PFR Completed
2.	Kosi-Ghaghra	Kosi & Ghaghra	Bihar, UP & Nepal	PFR Completed
3.	Gandak-Ganga	Gandak & Ganga	-do-	Draft FR Completed (Indian portion)
4.	Ghaghra-Yamuna	Ghaghra & Yamuna	-do-	FR Completed (Indian portion)

5.	Sarda-Yamuna	Sarda & Yamuna	Bihar, UP, Haryana, Rajasthan, Uttarakhand & Nepal	FR Completed (Indian portion)
6.	Yamuna-Rajasthan	Yamuna & Sukri	UP, Gujarat, Haryana & Rajasthan	Draft FRCompleted
7.	Rajasthan-Sabarmati	Sabarmati	-do-	Draft FRCompleted
8.	Chunar-Sone Barrage	Ganga & Sone	Bihar & UP	Draft FRCompleted
9.	Sone Dam – Southern Tributaries of Ganga	Sone & Badua	Bihar & Jharkhand	PFR Completed
10.	Ganga(Farakka)-Damodar-Subernarekha	Ganga, Damodar & Subernarekha	West Bengal,Odisha & Jharkhand	Draft FR Completed
11.	Subernarekha-Mahanadi	Subernarekha& Mahanadi	West Bengal & Odisha	Draft FR Completed
12.	Kosi-Mechi	Kosi &Mechi	Bihar , West Bengal & Nepal	PFR Completed Entirely lies in Nepal
13.	Ganga (Farakka)-Sunderbans	Ganga & Ichhamati	West Bengal	Draft FRCompleted
14.	Jogighopa-Tista-Farakka (Alternative to M-S-T-G)	Manas, Tista& Ganga	-do-	(Alternative to M-S-T-G Link)

1.2 The details of proposed ILR projects in Tamil Nadu; whether the Government proposes to inter-link Amaravthi, Shanmughanadhi and Kudaganarurivers; if so, the details thereof; whether the Government is planning to renovate Velliyenai, Panjapatti, Thalavapalayam lakes and connect them to Amaravthi, Shanmughanadhi and Kudaganaru rivers; and if so, the details thereof?

Under the Peninsular Component of the NPP, three link projects have been planned for benefitting the state of Tamil Nadu, namely i) Pennar-Palar-Cauvery ii) Cauvery-Vaigai-Gundar and iii) Pamba-Achankovil-Vaippar link projects.

NWDA has completed the FRs of the above three links and sent to concerned State Governments. The DPR of Cauvery-Vaigai-Gunder link project has also been completed by NWDA and sent to concerned State Governments.

Works related to water resources development & management are planned, funded, executed and maintained by the State Governments themselves as per their own resources and priorities. In order to supplement the efforts of the State Governments, Government of India provides technical and financial assistance to State Governments to encourage sustainable development and efficient management of water resources through various schemes and programmes such as scheme for Repair, Renovation and Restoration (RRR) of Water Bodies (WB) etc., under PMKSY. No proposal regarding renovation of Velliyenai, Panjapatti and Thalavapalayam lakes has been received from the Government of Tamil Nadu under the RRR of WBs scheme. As regards interlinking of Amaravthi, Shanmughanadhi and Kudaganaru rivers, it is not a part of the ILR programme of the NPP. Further, no request to study the said proposal has been received by NWDA from the Government of Tamil Nadu.

1.3 The present status of inter-linking of Palar-Pennar and Krishna river basins in Kolar district of Karnataka; (b) whether anyrepresentation/request

has been received by the Government in this regard and if so, the details thereof; and (c) the action taken by the Government in this regard?

The NPP was prepared by the then Ministry of Irrigation (now Ministry of Jal Shakti) in August 1980 for water resources development through inter basin transfer of water, for transferring water from water surplus basins to water-deficit basins. Under the Peninsular component of NPP for water resources development, the following three link projects have been conceived as passing near the Kolar district of Karnataka State:

- i. Krishna (Almatti) – Pennar link;
- ii. Pennar-Palar-Cauvery (part of Godavari – Cauvery link); and
- iii. Krishna (Srisaillam)-Pennar link.

NWDA has completed the PFRs and FRs of these links and sent to the party States. The draft DPR of Godavari-Cauvery link project has also been completed in which the Pennar-Palar-Cauvery link project is an integral part and has been sent to Party States.

The MoJS has received a representation from Shri S. Muniswamy, Hon'ble Member of Parliament regarding linking of Palar-Pennar and Krishna River Basins to address water scarcity problem in Kolar district of Karnataka. Considering the study conducted by NWDA under the NPP, three links passing near the Kolar district are mentioned above. Out of these, the nearest link to Kolar district is Krishna (Almatti) – Pennar link. The Krishna (Almatti) – Pennar link is conceived for diversion of a part of the Krishna waters from Almatti reservoir to the Pennar river in partial exchange to the surplus water of Mahanadi and Godavari rivers proposed to be brought to the Krishna basin. Supply of water from this link to Kolar district will involve a lift of around 400 m.

Regarding the drinking water requirement of Kolar district from this link, the proposed irrigation requirement in Middle Krishna, Tungbhadra and Vedavati sub-basins in Karnataka State from the link will have to be reduced appropriately to make up for the drinking water supply of 6.7 TMC (190Mm³) to Kolar district. However, this diversion also depends on diversion from Mahanadi- Godavari and Manas-Sankosh-Teesta-Ganga links.

1.4 The details of the rivers proposed to be linked in Rajasthan and Maharashtra along with the present status of the DPR and Krishna-Bhima stabilization Project of Maharashtra; whether the concerned State Governments have accorded their consent to the DPR related to the said rivers; if so, the details thereof; whether the Union Government intends to address the water crisis permanently by taking appropriate action during the financial year 2021-22, if so, the details thereof; and the time by which the said works are likely to be executed?

NWDA has prepared the PFRs of two Intra-State link projects of Rajasthan and sent to the Government of Rajasthan. However, these two links are found as not feasible on techno- economic grounds. Also, the Government of Maharashtra has suggested to prepare PFRs of twenty Intra-State link projects, out of which NWDA prepared PFR of seventeen links and remaining three links were withdrawn by the Government of Maharashtra. Further, out of above seventeen links, DPR of one project, namely, Wainganga (Goshikurd) – Nalganga (PurnaTapi), has been prepared by NWDA and sent to the Government of Maharashtra in November 2018.

The Government of Maharashtra also conceived a proposal named Krishna-Bhima stabilization project to transfer flood waters by gravity from various rivers/streams in upper Krishna sub-basin of Krishna basin through a series of links. The PFR of this link

project was prepared by NWDA as an Intra-State link and sent to the Government of Maharashtra in 2011.

In respect of projects benefiting the Rajasthan State under the NPP, as given at Annexure-II, draft PFR/FR have been prepared, while, for the projects benefiting the Maharashtra State under the NPP, DPR of the two links have been prepared. The Party States of Maharashtra and Gujarat have conveyed their concurrence for the DPRs of the above two link projects. The envisaged benefits through the projects under the NPP for Rajasthan and Maharashtra are also given at Annexure-II. Further, the proposed construction period for these projects is also given at the Annexure-II. No ILR project under NPP has reached the stage of execution.

Annexure-II

ILR projects under NPP benefitting States of Rajasthan and Maharashtra

S. No.	Name of link and rivers concerned	States concerned	Present status	Proposed benefits	Proposed construction time in years
Projects benefitting State of Rajasthan					
1	Rajasthan-Sabarmati link; Sabarmati	Uttar Pradesh, Gujarat, Haryana & Rajasthan	FR completed and circulated to concerned States	To irrigate about 5.35 lakh ha in Jaisalmer, Barmer and Jalore districts of Rajasthan	10
2	Yamuna- Rajasthan link; Yamuna & Sukri	Uttar Pradesh, Gujarat, Haryana & Rajasthan	Draft FR completed and circulated to concerned States	To irrigate about 2.44 lakh ha in Ganganagar, Bikaner, Jodhpur and Jaisalmer of Rajasthan	10
(i)	Parbati- Kalisindh-Chambal link; Parbati, Kalisindh & Chambal	Madhya Pradesh, Rajasthan & Uttar Pradesh	FR Completed (UP requested to be consulted during consensus building)	About 0.43 lakh ha of area will be irrigated in Jhalawar, Kota and Chittorgarh districts of Rajasthan State [* Integration of E-R-C Project of Rajasthan and Parbati – Kalisindh – Chambal link].	5
(ii)	Parbati- Kuno-Sindh link; Parbati, Kuno and Sindh	MP and Rajasthan	PFR completed*		
Projects benefitting State of Maharashtra					
1	Par-Tapi- Narmada link; Par, Tapi & Narmada	Maharashtra & Gujarat	DPR Completed and sent to concerned States in 2015	The project will provide irrigation to about 5000 hain Nashik district of Maharashtra and 2.27 lakh ha in Gujarat State	7
2	Damanganga- Pinjal link; Damanganga & Pinjal	Maharashtra & Gujarat	DPR Completed and sent to concerned States in 2014	The link project will provide about 895 MCM (including Pinjal component) of waters to Mumbai city for domestic water supply	7

1.5 The present status of ILR projects in the country particularly Cauvery - Godavari project in the State of Tamil Nadu and the funds allocated to the State for the purpose so far; the steps being taken by the Government to expedite the projects; whether any other proposal sent by the State of Tamil Nadu in this regard is still pending with the Government; and if so, the details thereof along with the action taken by the Government thereon?

The draft DPR of Godavari-Cauvery link project consisting of three links viz; Godavari (Inchampalli/Janampet) – Krishna (Nagarjunasagar), Krishna (Nagarjunasagar) – Pennar(Somasila), Pennar (Somasila)- Cauvery (Grand Anicut) link projects has been completed by NWDA and circulated to party States in March 2019. The comments of the party States have been deliberated in a virtual meeting held on 18.09.2020.

Since no ILR projects including the Godavari-Cauvery link project has reached to the stage of execution, as such no funds have been allocated for the project.

The Government is pursuing the ILR program in a consultative manner. A "Special Committee on Interlinking of Rivers" has been constituted in September 2014 for the implementation of ILR programme. Eighteen meetings of the SC-ILR have been held so far. Further, a Task Force for Interlinking of Rivers (TF-ILR) has been constituted by MoWR, RD & GR (now MoJS) in April 2015 and twelve meetings of the Task Force have been held so far. Efforts have been made for building consensus among the concerned States and setting out road maps for implementation of the projects.

The Godavari-Cauvery link project is planned in two phases. Phase-I relates to identifying the surplus waters in Godavari basin without affecting the interests of the co-basin States and transferring these waters upto Cauvery through Godavari-Cauvery link project; and Phase-II relates to linking Brahmaputra-Ganga-Subernarekha-Mahanadi-Godavari rivers thus enriching the Phase-I with suitable modifications. The draft DPR of Godavari-Cauvery link has been prepared considering the Phase-I option only.

The Government of Tamil Nadu requested that the last leg of the Godavari-Cauvery link project, namely, Pennar-Palar-Cauvery link canal reach may be taken at higher elevation after crossing Palar river by pumping from Dusi Mamandur Tank and terminate at Kattalai barrage instead of Grand Anicut in Phase-I itself. A preliminary draft concept note has been prepared by NWDA on the suggested higher level canal alignment. However, the same is subject to establishing its techno-economic viability. Further, the Government of Tamil Nadu requested that the Poondi reservoir may be linked with Araniyar reservoir so that 609 tanks with a capacity of 15 TMC can be filled. However, integration of Araniyar reservoir with Poondi reservoir is linked with the firming up of Phase-II of the proposal.

The envisaged total diversion under Phase-I is only 247 TMC, out of which, after meeting the enroute requirements in Telanagana and Andhra Pradesh, only 83 TMC could be planned at Andhra Pradesh-Tamil Nadu border. Government of Tamil Nadu has requested for providing 200 TMC of water for meeting their water requirements in the Phase-I of the project itself. However, the possibility of providing additional quantum of water to Tamil Nadu is linked with water to be brought through Phase-II of the project.

1.6 Whether the Government has any plan/policy to inter-link various rivers in most flood affected area of Darbhanga district of Bihar which faces catastrophic flood every year; and if so, the details thereof?

Under the Himalayan Component of the NPP, the Kosi-Ghaghra link project has been identified for diversion of 7482 MCM of waters from the proposed Chatra barrage to the Ghaghra (Karnali) river envisaging irrigation benefits to un-irrigated areas of various districts of Bihar including Darbhanga district. NWDA has completed the pre-feasibility report of the link project. The ILR project will provide major benefits, including irrigation, apart from the incidental benefits of flood control.

B. Rajya Sabha

1.1 Whether Government is contemplating any special scheme for inter-linking of rivers in the country; if so, the details thereof and the manner in which the new schemes are different from the earlier schemes which are already being implemented; and the rivers which are likely to be inter-linked under river inter-linking scheme in Southern part of India and the time by which it is likely to be completed?

See the details given under Lokh Sabha item 1.1 and at Annexure-I. Out of the 16 links identified under the Peninsular Component of the NPP, the first 12 ILR projects from S.No. 1 to 12 may be considered for transfer of water to Southern part of India. In addition to the above, the details of intra-state river linking projects received in NWDA pertaining to Southern part of India and their status is mentioned at Annexure – III.

The implementation of river link projects involves various steps. The stage of implementation of a project would be reached after its DPR is prepared with the consensus of concerned States and the requisite Statutory clearances are obtained. Thus, the implementation of the projects will take varying periods of time.

Annexure-III

Intra – State Link Proposals Received in NWDA Pertaining to Southern States

S. No	Name of Intra-State link	Name of rivers	Present status of PFR / DPR
	Tamil Nadu		
1	Ponnaiyar – Palar link	Ponnaiyar&Palar	PFR and DPR Completed
	Karnataka		
2	Almatti (Bagalkot)-Malaprabha Sub-basin	Almatti&Malaprabha	Prima facie not found feasible
3	Malaprabha-Tungabhadra Sub-basin	Malaprabha&Tungabhadra	Prima facie not found feasible
4	Bedti– Dharma –Varada link	Bedti, Dharma & Varada	PFR Completed
5	Bhadra-Vedavathi (Vani Vilasa Sagar) link	Bhadra & Vedavathi	Government of Karnataka has withdrawn the proposals
6	Diversion of west flowing rivers schemes (Barapole-upper Cauvery link)	Barapole& upper Cauvery	
7	Diversion from Bedti&Aghanashini to Varada	Aghanashini& Varada	PFR Completed

1.2 Whether FR on Godavari (Polavaram) – Krishna (Vijayawada) rivers inter-linking has been completed by Government; if so, the details thereof;

whether Government has earmarked any fund for completing this rivers linking project; if so, the details thereof; and if not, the reasons therefor?

The Godavari (Polavaram) – Krishna (Vijayawada) link project is one of the links under Mahanadi-Godavari-Krishna-Pennar-Cauvery-Vaigai-Gundar link system under Peninsular Component of the NPP. The NWDA had prepared the FR of the project and circulated to the concerned States in 1999. However, the Government of Andhra Pradesh proposed the Polavaram Right Bank Main Canal with a carrying capacity of 453 cumec for providing irrigation to a CCA of 139740 ha besides transferring 2265 MCM of Godavari waters to Krishna. The alignment of the link canal proposed by NWDA was the same as that of the Right Bank Main Canal as proposed by the State Government. However, the Govt of Andhra Pradesh has implemented the link canal part of the project (Right Bank Main Canal) according to their own planning. Central Assistance through LTIF of NABARD under PMKSY-AIBP scheme has been released to Polavaram Irrigation Project. An amount of Rs.10848.36 Cr has been released to the Polavaram Irrigation Project since 01.04.2014 as Central Assistance.

1.3 Whether some States have requested to declare the ILR in the country including Godavari and Cauvery, a National Project for the benefit of lakhs of people in Telangana, Andhra Pradesh and Tamil Nadu and also made a strong case for rejuvenating Cauvery river, and its tributaries on the lines of 'Namami Gange Programme' conservation mission and to accord sanction and extend financial assistance to States to take projects further to expedite the same in the country; and if so, action taken so far and if not, the reasons therefor?

The Kosi-Mechi link scheme of Bihar was submitted by the Government of Bihar for inclusion in the scheme of National Project and this scheme has been recommended by the High-Powered Steering Committee in the meeting held on 24.11.2020 for inclusion in the scheme of National Projects.

The Government of Tamil Nadu has requested to consider the proposal relating to Cauvery-Vaigai-Gundar link project as a National Project. The Government of Karnataka has also requested to consider the Yettinihole integrated drinking water project as an extended part of Netravathi-Hemavathi link project and requested to declare it as a National Project. Inclusion of any project in the category of National Projects depends upon fulfilment of various criteria as per the scheme of National Projects including acceptance by Advisory Committee of MoJS, DoWR, RD & GR from techno-economic angle, investment clearance, and availability of funds.

Cleaning and rejuvenation of rivers is a continuous process and Central Government is supplementing the efforts of the State Governments and Union Territories in addressing the challenges of pollution of rivers by providing financial and technical assistance through schemes like National River Conservation Plan (NRCP) and Namami Gange. The Government of Tamil Nadu has recently (November 2020) submitted a DPR for rejuvenation of Cauvery River and its tributaries on the lines of Ganga River rejuvenation, namely "Nandanthai Vaazi Cauvery" at an estimated cost of Rs.1631.32 crores, out of which an amount of Rs.713.39 crores proposed under NRCP. Inclusion of a proposal under NRCP depends on various criteria including availability of adequate funds under the plan, conformity of the project to NRCP guidelines, technical feasibility, and appraisal by individual agency and commitment of State Government to bear the matching share.

Apart from the above, projects for pollution abatement of six rivers in Tamil Nadu namely Adyar, Cooum, Vaigai, Vennar, Cauvery and Tamrabarni have been sanctioned under the NRCP at a total cost of Rs.908.13 crore for thirteen different towns.

Yamuna body tells CPCB to find sources of river pollution

HT Correspondent

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NEW DELHI: The National Green Tribunal-appointed Yamuna Monitoring Committee has asked the Central Pollution Control Board (CPCB) to identify pollution sources leading to high levels of ammonia in the Yamuna river and submit a report by January 10.

The directions were issued, after Delhi Jal Board (DJB) alleged that Haryana had not stopped discharging industrial pollutants in the river despite repeated reminders.

In a letter written by the DJB last week, the department had urged the CPCB to take immedi-

ate remedial measures to control the pollution being released into the river.

"It has also been reported that the reason primarily is the industrial effluent/untreated domestic sewage entering Yamuna through drains number 6 and 8 and through the Rohtak regulator," the panel, comprising former Delhi chief secretary Shailaja Chandra and retired NGT expert member B S Sajwan, said.

It added, "Considering the recurring nature of the problem, it is incumbent upon the CPCB and Haryana State Pollution Control Board (HSPCB) to put in place a robust surveillance system, particularly during the criti-

cal winter months, for monitoring the activities of the industries and the functioning of STPs and also take coercive action against defaulting units."

The panel asked the CPCB to associate with Haryana pollution board and depute a team to identify point sources of pollution leading to high levels of ammoniacal nitrogen in the Yamuna and submit a report by January 10.

The Delhi Jal Board said that the high levels of ammonia in the Yamuna had forced them to reduce or stop water production at its plants at least five times this year, affecting water supply in several parts of national capital.

शुद्ध जल मौलिक अधिकार : सुप्रीम कोर्ट

नदियों में प्रदूषण पर कोर्ट ने लिया स्वतः संज्ञान, कहा-साफ पानी सुनिश्चित करना राज्यों का दायित्व

जगरण ब्योरे, नई दिल्ली: सुप्रीम कोर्ट ने बुधवार को नदियों में प्रदूषण और उससे लोगों की सेहत पर पड़ने वाले दुष्प्रभावों पर चिंता जताते हुए कहा कि साफ पर्यावरण व प्रदूषण रहित जल (शुद्ध जल) व्यक्ति का मौलिक अधिकार है और इसे सुनिश्चित करना कल्याणकारी राज्य का संवैधानिक दायित्व है। कोर्ट ने मामले पर स्वतः संज्ञान लेते हुए कहा कि संविधान का अनुच्छेद-21 जीवन का अधिकार देता है और इसमें गरिमा के साथ जीवन जीने व शुद्ध जल का अधिकार शामिल है। कोर्ट ने यह भी कहा कि अनुच्छेद-47 और 48 में जन स्वास्थ्य ठोक करना और पर्यावरण संरक्षित करना राज्यों का दायित्व है। साथ ही प्रत्येक नागरिक का कर्तव्य है कि वह प्रकृति जैसे वन, नदी, झील और जंगली जानवरों का संरक्षण व रक्षा करे। दरअसल, कोर्ट ने नदियों को प्रदूषण मुक्त करने के मामले में सुनवाई शुरू की है और इसकी शुरुआत यमुना को प्रदूषण मुक्त बनाने से की है।

अहम मसला

- सर्वोच्च अदालत सबसे पहले यमुना नदी के प्रदूषण पर करणी सुनवाई
- कहा-वन, नदी, झील और जंगली जानवरों का संरक्षण नागरिकों का कर्तव्य



दिल्ली समेत पांच राज्यों और केंद्र को नोटिस

कोर्ट ने दिल्ली सरकार की अर्जी पर हरियाणा को नोटिस जारी कर जवाब मांगा है। साथ ही नदियों में प्रदूषण के मुख्य मामले को नदियों को प्रदूषण मुक्त करने के नाम से अलग केस के रूप में सुनवाई के लिए पंजीकृत करने का आदेश दिया है। कोर्ट ने मुख्य मामले में सबसे पहले यमुना के प्रदूषण पर सुनवाई शुरू की है और दिल्ली, हरियाणा, उप्र, उत्तराखंड, हिमाचल, केंद्रीय पर्यावरण सचिव, वन एवं जलवायु परिवर्तन सचिव, शहरी विकास मंत्रालय और केंद्रीय प्रदूषण नियंत्रण बोर्ड (सीपीसीबी) को नोटिस जारी किया है।

सीपीसीबी से मांगी रिपोर्ट

कोर्ट ने सीपीसीबी को निर्देश दिया कि वह रिपोर्ट दाखिल कर बताए कि यमुना किनारे के किन-नगर निकायों ने जरूरत के हिसाब से सीवेज ट्रीटमेंट प्लांट नहीं लगाए हैं या फिर वे यह सुनिश्चित नहीं कर रहे हैं कि सीवेज का पानी नदी में न जाए। इसके अलावा सीपीसीबी रिपोर्ट में नदियों में प्रदूषण के अन्य स्रोत भी बताए। कोर्ट ने इस मामले की सुनवाई में मदद करने के लिए वरिष्ठ वकील मीनाक्षी अरोड़ा को न्यायमित्र नियुक्त किया है।

कोर्ट ने कहा, पहले के किसी आदेश पर असर नहीं

सुप्रीम कोर्ट ने कहा, इस मामले में दिए गए आदेश कोर्ट द्वारा पहले जारी निर्देश या किसी ट्रिब्यूनल के आदेश को कम नहीं करते। साथ ही डीजेबी की अर्जी को भी इसी मामले के साथ सुनवाई के लिए संलग्न करने और मामले को 19 जनवरी को सुनवाई पर लगाने का आदेश दिया।

डीजेबी ने कहा, ज्यादा क्लोरीन मिलाई तो कैसर होने की आशंका

दिल्ली जल बोर्ड ने अपनी अर्जी में शिकायत की है कि हरियाणा से आने वाले पानी में अमोनिया की मात्रा बहुत अधिक है और वह पानी पीने योग्य नहीं है। बोर्ड ने यह भी कहा है कि अगर पानी साफ करने के लिए ज्यादा क्लोरीन मिलाई जाएगी तो उससे कैसर होने की आशंका रहती है। उसका कहना है कि हरियाणा के सीवेज ट्रीटमेंट प्लांट काम नहीं कर रहे हैं।

प्रधान न्यायाधीश एसए के बोबडे, एस बोपन्ना और वी. रामासुब्रमणियम की पीठ ने हरियाणा से आ रहे पानी में प्रदूषण की शिकायत करने वाली दिल्ली जल बोर्ड (डीजेबी) की अर्जी पर सुनवाई

के दौरान उक्त टिप्पणियां कीं। कोर्ट ने कहा कि मौजूदा अर्जी यमुना में अमोनिया बढ़ने की शिकायत से जुड़ी है। यह न सिर्फ इंसानों की सेहत, बल्कि जल पर निर्भर रहने वाले हर जीव के लिए महत्वपूर्ण

मुद्दा है। अत्यधिक बढ़ती जनसंख्या, आधुनिक रहन-सहन, बड़े पैमाने पर बढ़ती मानवीय गतिविधियों व उद्योगों ने साफ जल की मांग बढ़ाई है। पानी का सीधा संबंध व्यक्ति की सेहत से है। ये स्थापित बात है कि प्रदूषित

जल की आपूर्ति लोगों में बीमारियों का मुख्य कारण है। शुद्ध जल और साफ पर्यावरण व्यक्ति के जीवन के अधिकार के तहत आता है। कैजरीवाल ने कहा, सभी को 24 घंटे साफ पानी देना प्राथमिकता >> पृष्ठ 3

Scripting a social revolution through water



RAJAN LAL KATARIA
UNION MINISTER OF STATE, JAL SHAKTI,
SOCIAL JUSTICE & EMPLOYMENT

The daily schedule of my parents hinged on securing two square meals for their family. My father worked as a shoe-maker, while my mother toiled hard as a wage labourer. I remember her ordeal, walking tirelessly up to the designated well, each day, just to fetch drinking water. Her resolve to secure water for her children gave her the grit to brave all physical and social hardships she faced in the process.

I grew up in a small village in Haryana. Being from a poor Dalit family, poverty and exclusion were the only flavour of life. The daily schedule of my parents hinged on securing two square meals for their family. My father worked as a shoe-maker, while my mother toiled hard as a wage labourer. I remember her ordeal, walking tirelessly up to the designated well, each day, just to fetch drinking water. Her resolve to secure drinking water for her children gave her the grit to brave all physical and social hardships she faced in the process.

As a child, I distinctly remember my eagerness to listen to the Republic Day and Independence Day speeches. They offered the only ray of hope amidst the gloomy darkness of poverty. Each year, I would await an announcement on providing drinking water to our houses as it directly affected my mother and my family. Much to my amazement and disgust, the brittle promises were often made and then broken.

Later in life, I was fortunate enough to witness piped water connections in my village, but this time, the caste-caste matrix dictated the esteemed beneficiaries. The poor and marginalised were again devoid of their basic right to clean drinking water. Years passed and by 2019, as a nation, could provide piped water supply to a mere 1.23 crore rural households out of a total of 18.83 crore.

It was after 72 years of Independence, in 2019, that from the precincts of the Red Fort, our Prime Minister



TACKLING CRISIS: Potable water to every rural household is the mission's aim. **MANU KETRO**

Narendra Modi announced his resolve to provide piped water connections to every rural household under the government's flagship programme — Jal Jeevan Mission. Present at the Red Fort at that historic moment, my past flashed in front of my eyes. I remembered the words of Atal Bihari Vajpayeeji in 1990, while on a visit to my village to perform the *Kanyadaan* of my sister, he termed piped water supply as a conduit to secure dignity of life for each household. That moment, I considered myself fortunate to serve in the newly formed Jal Shakti Ministry and work towards fulfilment of his vision. It was a golden opportunity and the entire team, led under the

dynamic leadership of our Prime Minister, is working tirelessly to accomplish the monumental task.

As we march towards Republic Day celebrations, instead of making tall promises, I seek to put forth our report card in public domain. In a short span of just one year, 3.04 crore households have been provided piped water connections as against the coverage of 3.28 crore households since independence. Goa has emerged as the first state to achieve 100% coverage under JMM and as on date, 51 districts, 632 blocks, 37,956 gram panchayats and 70,843 villages have achieved the target of *Har Ghar Jal*. The drudgery of women and girls has reduced and

there has been an improvement in their "ease of living".

But there is something more significant that is happening as an implication of this mission.

A water connection is being provided to one and all irrespective of caste, community, religion and socio-economic status with an approach that "no one is left behind". Villages with a majority of SC/ST population are also considered as priority areas under the scheme which aims to secure 55 litres per capita per day (LPCD) of water. This secular and inclusive approach is primarily benefiting the people from backward castes and is proving to be a silent revolution.

The mission mandates provisioning of water supply infrastructure on an unprecedented scale. It requires skilled manpower like plumbers, masons, electricians, filter pump operators etc, which shall be met by skilling people from the respective villages, thereby opening up vistas for their employment. So far, skill missions have tried to address the supply side constraints by imparting skill trainings. This mission shall address both the supply as well as demand side constraints by generating the demand for requisite skills in all the villages.

The entire mission follows a bottom-up approach. It requires formation of village water supply committees/panchayats that shall prepare a village action plan for themselves. Interestingly, these committees

must have 50% women members since they are known to have a first-hand experience of problems faced on account of fetching water from a distance for day to day use. They are also known to be more efficient in the delivery of smooth operation of any scheme. Women and water are the very source of life. The mission seeks to leverage their innate potential and channelise it into a tool for their empowerment.

Lastly, information technology has been leveraged to collate and display nationwide data on a portal, www.jalshakti.gov.in, for ensuring real-time monitoring, transparency and public scrutiny. A Rashtriya Jal Jeevan Kosh (RJK) has been set up for accepting donations/contributions from people who have moved from villages, but still nurture a love for their native place. Soon, they will be able to donate, at the click of the mouse, for specific water supply related works by interacting with the members of the panchayat through this portal.

Hence, Jal Jeevan Mission is not merely a scheme. Its multi-dimensional impact on our society shall be positively etched in Indian history. Its outcome is not limited to the aggregate of connections provided. It is the resolve of *Atmanirbhar Bharat* to address the long-standing need of providing potable water to every rural household by ushering in a social revolution marked by people's participation, empowerment, convergence, inclusion and equity.

The Tribune Mon, 25 January 2021
<https://paper.tribuneindia.com/c/57375830>

Why You Can't Wash Your Hands Of Froth In Yamuna

High Phosphate Content In Detergents One Of Biggest Causes

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New Delhi: A study conducted by Delhi Pollution Control Committee (DPPCC) on the formation of froth in the Yamuna has stated that the toxic foam was created mainly by the presence of phosphates and surfactants in the river.

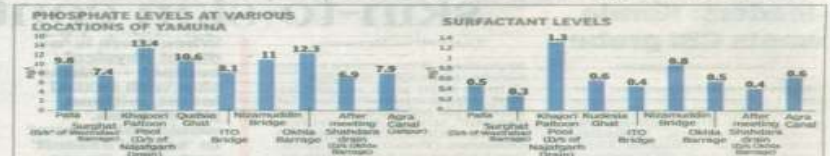
The National Green Tribunal-appointed Yamuna Monitoring Committee, which had asked DPPCC and Central Pollution Control Board (CPCB) to submit a report on the issue, stated in its fifth report to NGT that the primary reason was high phosphate content in detergents finding their way into the river through various drains.

According to DPPCC, the phosphate and surfactant concentrations were found to be higher than the standard norm in the Yamuna. While surfactants come mainly from households, industrial laundering and other cleaning operations, phosphates are used extensively in the treatment of boilers.

The samples were collected in August from nine locations, including the drains at Najafgarh and Barapullah and the supplementary drains, and treated water from sewage treatment plants (STPs), to identify the pollutants in the river.

The DPPCC study revealed that the phosphate level ranged from 6.9mg/l to 13.42mg/l while the surfactant level varied from 0.27 mg/l to 1.58. The maximum phosphate and surfactant concentrations were observed at Khajoori Paltoon Pool—downstream of Najafgarh drain—with 13.42 and 1.28mg/l, respectively. The prescribed standard for dissolved phosphate is maximum 3.0mg/l and for surfactant, 0.2mg/l.

According to the study, at the outfall of Najafgarh drain before it falls into the Yamuna, the phosphate level was 74.8 mg/l. "The study indicates that phosphorus contributions in from the upper stretches of Najafgarh drain. It may be due to stagnation of water, eutrophication, or degradation of organic matter within the drain and deposition of water hyacinth at the long stretch of Najafgarh drain. At upstream of Okhla Barrage, such kind of deposition of water hyacinth was found due to the presence of high amount of nutrients."



THE DIRTY PICTURE

Source of phosphates & surfactants

- Phosphates are extensively used in the treatment of boiler water and orthophosphates are applied to agricultural or residential cultivated land as fertilisers. These are carried into the water.
- Surfactants enter water mainly through discharge of aqueous wastes from households, industrial laundering and other cleaning operations.

How foam is formed

The phosphoric compounds in normal cases get settled in the sludge/riverbed. On release of water from barrage/reservoir at a particular height, the settled compounds get agitated and foam forms.

Action taken by DPPCC

- No. of industries/units inspected in November for froth formation in the Yamuna: 192
- No. of industries/units not having ETPs: 18
- No. of ETPs found non-operational: 15
- No. of industries/units found violating norms: 57

*ETP: Effluent treatment plant

Meanwhile, the surfactant level at upstream of Najafgarh and outfall of Najafgarh drain before its confluence with the Yamuna was 1.8mg/l and 2.17, respectively. The 62km long Najafgarh drain receives waste water through several sub-drains and most of it is from industrial units located along its basin. CPCB said, "Use of deter-

gents and foaming agents has increased substantially due to awareness among public to maintain hygiene as a precautionary measure to protect from Covid-19." The presence of surfactants and phosphates was observed at three monitored locations between downstream Wazirabad and downstream Okhla, indicating discharge of untreated sewage or partially treated sewage or industrial effluent containing harmful

ry chemical. It stated. CPCB recommended that the entire sewage generated from the stretch of Delhi required proper treatment and all detergent-manufacturing

units in the country should be directed to manufacture detergents only as per the Bureau of Indian Standards specifications after obtaining the BIS certification. The monitoring committee said, "The problem arising due to the release of detergents with high phosphoric contents into rivers and waterbodies will remain till the manufacturers comply with the BIS standards for detergents."

DPPCC, which is running a drive against industries in this matter, said its teams had inspected 192 units, of which 102 were polluting the Yamuna. Of these, 18 units didn't have effluent treatment plants (ETPs) while 15 ETPs were non-functional. DPPCC has issued show-cause notice to 17 units and closure notice to another 38.

192
INDUSTRIAL UNITS CHECKED BY DELHI POLLUTION CONTROL COMMITTEE

NGT dissolves two Yamuna panels

Tribunal Asks Chief Secys of Delhi, Neighbouring States To Take Charge

TIMES NEWS NETWORK

New Delhi: National Green Tribunal on Thursday dissolved the Yamuna Monitoring Committee, along with another committee led by former Punjab and Haryana High Court Judge Pritam Pal, asking the NCR states to instead act on all previous judgements issued by the green tribunal and the Supreme Court over the last two decades.

Taking the recommendations made by the YMC on record, NGT directed the chief secretaries of Delhi, Haryana and Uttar Pradesh to personally monitor the progress being made and submit periodic reports to the Central Monitoring Committee, which is



Delhi government had recently informed the tribunal that upgradation of STPs in UP and Haryana was likely to take three to five years

headed by Jal Shakti Abhiyan secretary.

"From the report of the committee, it is clear that the major problem of preventing pollution by discharge of sewage, industrial effluents and other pollutants remains

unaddressed. Thus, on the part of concerned authorities in the states of Delhi, Haryana and UP, further actions in terms of the earlier orders of this tribunal as well as the current recommendations of the commit-

tee need to be taken. This may be overseen by the chief secretaries of the concerned states on regular basis by constituting a cell of experts on the subject for meaningful monitoring in coordination with authorities like DDA, IDMC, DPCC, DJB etc," said a bench headed by NGT chairperson Justice Adarsh Kumar Goel.

"Non-adherence to timelines must result in adequate and stringent action against accountable persons. Timely completion of projects must be ensured, otherwise for generations, the problem will remain untackled," the bench added, stating interim measures like phytoremediation needed to be employed where

permanent solution was being delayed.

Asking the river rejuvenation committees of Delhi, Haryana and UP to ensure inter-departmental coordination for the execution of action plans, the tribunal said quarterly reports on these should now be submitted to the chief secretaries on a quarterly basis, who may thereafter give their own quarterly reports to the central committee.

Delhi government had recently informed the tribunal that upgradation of sewage treatment plants (STPs) in Uttar Pradesh, Haryana and Delhi to reduce foam formation in the Yamuna was likely to take another three to five years.

'Planned thermal plants could kill 8.4L'

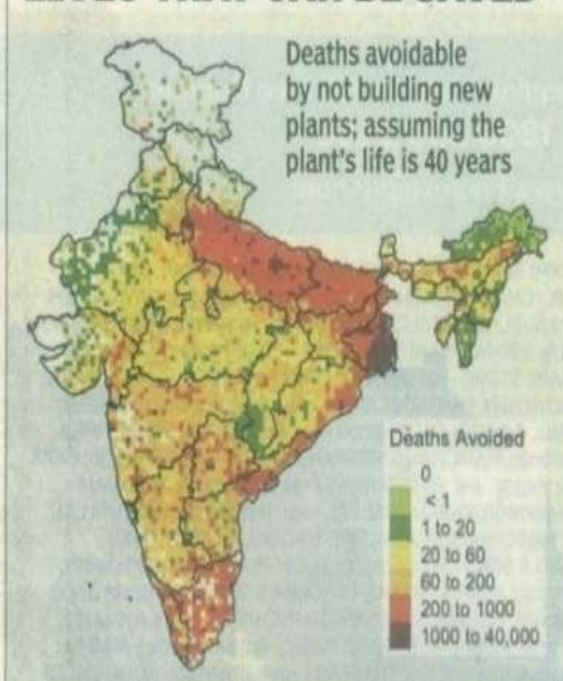
Chandrima.Banerjee
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If India were to set up every coal-powered plant it has planned, its power generation capacity would go from 200GW in 2018 to 300GW by 2030. The cost of this expansion, however, would be 8.4 lakh lives.

A study by researchers from University of Maryland, Urban Emissions Info, University of Massachusetts Amherst and Texas Tech University, published by the National Academy of Sciences of the USA, has found that 78,000 deaths in India were already attributable to coal plants in 2018, the base year for the study. If all coal plants in the pipeline were set up, deaths linked to them would go up to 1,12,000 annually. And the lifetime impact of these new plants is estimated to be 8,44,000 premature deaths.

"We first run the model using estimates of emissions of PM2.5, NOx and SO2 from

LIVES THAT CAN BE SAVED



all sources except power plants in 2018... We run the model again, adding power plant emissions from 2018... In the third run, we add emis-

sions from planned plants," lead author Dr Maureen Cropper told TOI. Then, mortality was calculated for stroke, ischemic heart dis-

ease, chronic obstructive pulmonary disease, lower respiratory infections, diabetes mellitus and lung cancer.

They found that ambient PM2.5 in 2018 was 53.5µg/m3 — higher in the Indo-Gangetic plain and in areas with high coal-powered plants than in southern India — which would increase to 55.9µg/m3 if all planned plants started operating. With new plants, the share of coal-fired power plants to PM2.5 would go up from 9% in 2018 to 13% by 2030 across the country.

"In Bihar, Jharkhand, Odisha, and Chhattisgarh, over 75% households burn solid fuels for cooking; in UP, West Bengal, MP, and Rajasthan, approximately two-thirds of households do," the paper said. "When people are already inhaling a lot of PM2.5 from household air pollution, the impact of power plant emissions is much smaller than if they were not exposed to household air pollution," Cropper explained.

The problem of ageing dams

India's ageing dams can threaten water security, affect farmers' income, and increase flooding

J. HARSHA

Dams and reservoirs are believed to secure our water needs for the future. However, data and studies show that they can threaten our water security. Here is how.

It is not a secret anymore that India's dams are now ageing and concomitantly, reservoir water is being replaced by soil, technically known as silt or sediment.

Becoming obsolete

India is ranked third in the world in terms of building large dams. Of the over 5,200 large dams built so far, about 1,100 large dams have already reached 50 years of age and some are older than 120 years. The number of such dams will increase to 4,400 by 2050. This means that 80% of the nation's large dams face the prospect of becoming obsolete as they will be 50 years to over 150 years old.

The situation with hundreds of thousands of medium and minor dams is even more precarious as their shelf life is even lower than that of large dams. Krishna Raja Sagar dam was built in 1931 and is now 90 years old. Similarly, Mettur dam was constructed in 1934 and is now 87 years old. Both these reservoirs are located in the water-scarce Cauvery river basin.

As dams age, soil replaces the water in the reservoirs. Therefore, the storage capacity cannot be claimed to be the same as it was in the 1900s and 1950s.

To make matters worse, studies show that the design of many of our reservoirs is flawed. In a paper, "Supply-side Hydrology: Last gasp", published in 2003 in *Economic & Political Weekly*, Rohan D'Souza writes that the observed siltation rate in India's iconic Bhakra dam is 139.86% higher than originally assumed. At this rate, he wrote, "the Bhakra dam is now expected to function for merely 47 years, virtually halved from the original estimate of 88 years". Similarly, the actual siltation rate observed for the Hirakud, Maitan and Ghod dams are way higher at 141.67%, 808.64% and 426.59%, res-



pectively. Studies in later years showed similar findings.

Almost every scholarly study on reservoir sedimentation shows that Indian reservoirs are designed with a poor understanding of sedimentation science. The designs underestimate the rate of siltation and overestimate live storage capacity created.

Therefore, the storage space in Indian reservoirs is receding at a rate faster than anticipated. Reservoirs are poised to become extinct in less than a few decades with untold consequences already under way.

Consequences

When soil replaces the water in reservoirs, supply gets choked. The cropped area begins receiving less and less water as time progresses. The net sown water area either shrinks in size or depends on rains or groundwater, which is over-exploited. Crop yield gets affected severely and disrupts the farmer's income. In fact, the farmer's income may get reduced as water is one of the crucial factors for crop yield along with credit, crop insurance and investment. It is important to note that no plan on climate change adaptation will succeed with sediment-packed dams.

The flawed siltation rates demonstrated by a number of scholarly studies reinforce the argument that the designed flood cushion within several reservoirs across many river basins may have already depleted substantially due to which floods have become more frequent downstream of dams. The flooding of Bharuch in 2020, Kerala in 2018 and Chennai in 2015 are a few examples attributed to downstream releases from reservoirs. The nation will eventually be unable to find sufficient water in the 21st century to feed the rising population by 2050, grow abundant crops, create sustainable cities, or ensure growth. Therefore, it is imperative for all stakeholders to come together to address this situation urgently.

J. Harsha is Director, Central Water Commission, Government of India. Views are personal and not that of the Central Water Commission

PM calls for water conservation drive

Modi regrets he could not make effort to learn Tamil, a 'beautiful language'

SPECIAL CORRESPONDENT
NEW DELHI

Prime Minister Narendra Modi on Sunday said there was a need to start conserving water right away and that the Jal Shakti Ministry would be launching a 100-day "catch the rain" campaign soon.

Mr. Modi was speaking during his monthly radio address, *Mann Ki Baat*, when he said there was a need to have collective responsibility on water conservation.

"In most parts of India, rainfall begins in May-June. Can we right away start a 100-day campaign for the sake of cleaning up the water sources around us and conserving rainwater? With this very thought in mind, in a few days from now, Jal Shakti Abhiyan 'catch the rain' is being initiated by the Jal Shakti Ministry," he said, according to the English translation of his address provided by the government.



Since it was National Science Day on Sunday, Mr. Modi said the youth should learn about the history of science in India and scientists.

'Self-reliant India'

"Friends, when we talk of science, many a time people restrict it to physics, chemistry or labs, but the spread of science is much more than that. And there is a lot of contribution of the power of science to the Atmanirbhar Bharat campaign. We have to move science forward with the mantra of 'Lab to Land',"



said the Prime Minister.

For making India more self-reliant, Mr. Modi said it was not just "bigger things", such as missiles, aircraft, tanks and Metro trains, that would achieve the goal. He cited the example of a farmer in Uttar Pradesh who has started growing chia seeds.

"Friends, nowadays you must be hearing a lot about chia seeds. People connected to health awareness give a lot of importance to it and it has a lot of demand too in the world. In India, it is mostly sourced from abroad, but now people are taking

up the challenge to be self-reliant in chia seeds, too. Similarly, Harishchandra ji of Barabanki in Uttar Pradesh has begun farming of chia seeds. Cultivation of chia seeds will also increase his income and will help in the self-reliant India campaign too," he said.

Answering a question from a listener about the one thing he felt he "missed", Mr. Modi said, "I pondered this over and told myself that one of my shortcomings was that I could not make much effort to learn Tamil, the oldest language in the world."

"I could not make myself learn Tamil! It is such a beautiful language, which is popular all over the world. Many people have told me a lot about the quality of Tamil literature and the depth of the poems written in it. India is a land of many languages, which symbolises our culture and pride," the Prime Minister said.

Phase 2 of Jal Shakti Abhiyan to commence from April: Govt

HT Correspondent

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NEW DELHI: The Union government will launch from April 2021 "Jal Shakti Abhiyan 2", a programme to manage and conserve rainwater and recharge the aquifers in the country, part of the Centre's target to provide tapped drinking water to every household by 2024, Union minister of state for Jal Shakti Ratan Lal Kataria said on Tuesday.

The Jal Shakti Abhiyan is the ministry's flagship water-conservation campaign. The next leg of the programme, dubbed "catch the rain where it falls, when it falls", will be rolled out across the country's 734 districts, covering over 600,000 villages, the minister said, adding that the Prime Minister's Office had cleared the project.

During the campaign, geotagging of all water bodies throughout the nation will be carried out, which shall form the basis for assessment of the rejuvenation efforts for water bodies across the country, an official said on condition of anonymity.



Villagers in Bengal's Purulia district dig a large catchment area for rainwater harvesting.

SAMIR JANA/HT ARCHIVE

According to data from the state-run policy think tank, NITI Aayog, nearly 600 million Indians face "high to extreme water stress" and the country's water demand is likely to double by 2030, potentially costing a 6% loss in gross domestic product by 2050.

Under the scheme, the government focuses on rainwater harvesting and water conservation, including initiatives such as renovation of traditional water

bodies and tanks, reuse of water and recharge structures, watershed development and afforestation in 256 districts.

"In the first phase, interventions were made in 10,104,338 water conservation and rainwater harvesting projects, 7,536,381 renovation of traditional and other water bodies, 7,485,025 reuse and recharge structures and 9,696,381 watershed development," Kataria said, quoting figures from his ministry.

India sustains 18% of the world's population and 15% of global livestock with just about 4% of global fresh water resources. India's most water-stressed blocks are in Tamil Nadu (541), followed by Rajasthan (218), Uttar Pradesh (139) and Telangana (137).

On average, the country receives 1,170mm of rainfall, most of it during the summer monsoon months, but only 10-20% of that is currently tapped. Teams of central government officials shall visit each district to sensitise and motivate the public to undertake water harvesting and conservation measures. Nearly 174,000 village-based youth clubs under Nehru Yuva Kendra shall be mobilised for the programme, for which financial sums shall be provided at district level. During the first phase, too, nearly 400 top government officials had travelled across the country to boost efforts to conserve water.

The Jal Shakti ministry was formed in 2019 by integrating other existing ministries to ensure Har Ghar Jal by 2024.

OVER THE HORIZON

Arunabha Ghosh



Save the Himalayan river systems

They are under stress. It's time to devise a new development pathway and decentralise water governance in the region

This February was unusually warm. Delhi experienced average temperatures of 4.3 degree Celsius above normal, recording the warmest February (barring 2006). Less noticed was that many Himalayan states witnessed below-average rainfall. From January to mid-February, Himachal Pradesh, Jammu and Kashmir and Uttarakhand had 56%, 24% and 33% less precipitation, respectively. I spent much of February in Uttarakhand. Every local villager or forest guard I spoke to mentioned low rains and their concerns about water availability through the spring and summer.

The Himalayas-Hindu Kush region (known as the Third Pole because of the amount of water stored as ice) is home to 10 major river systems. More than half of India's water resources are supplied by the tributaries of these river systems. The melting glaciers supply year-round water and the average economic productivity of the

Himalayan rivers is nearly twice that of peninsular river systems. Beyond the large rivers are three million springs, which feed 64% of the irrigated land in the Indian Himalayan Region (IHR). These springs are the lifeline of mountain communities (50 million people across 12 Himalayan states), even as the larger rivers support the livelihoods of more than 500 million in the Indo-Gangetic plains. But they are facing multiple stresses.

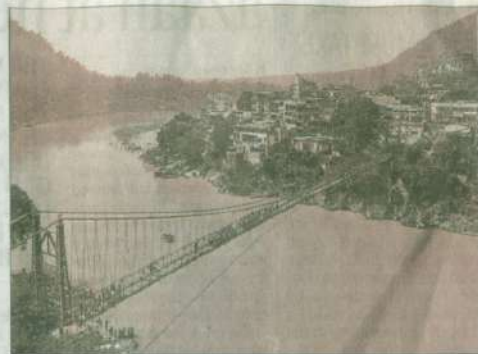
First, reduced water flow. The Himalayan glaciers have been receding at alarming rates. In 2001, NASA images showed that Gangotri had shrunk by 850 metres since 1975. Later, an Isro analysis of 2,190 Himalayan glaciers found that three-quarters of them were rapidly retreating, by 3.75 km on average in 15 years. Low rainfall and absent snowfall impact the springs, rivulets and rivers that moderate the hydrogeology of the region. In 2018, NITI Aayog reported that nearly half the springs in IHR were drying up. In Almora, 83% of springs had dried up over 150 years. Even in more pristine Sikkim, the water supply from half the springs had reduced.

Second, pollution. It is well-known that we treat our major rivers as drains. More than six billion litres of sewage is dumped into the Ganga daily, but the capacity to treat it is just a fifth of that quantity. The Yamuna's

course through Delhi is just 2% of its length but it receives 70% of the river's pollution. Less known is that water pollution is affecting the upper reaches of the Himalayan rivers. A 2016 study found the water quality index to be unsuitable for drinking purposes for rivers supplying half the water in Uttarakhand.

Third, construction and deforestation. The construction of large dams, canal diversions and hydropower projects has direct and indirect impacts. Obstruction of the river flow, even for run-of-the-river projects, increases siltation, reduces the efficacy of hydropower projects over time, while reducing farm productivity downstream. When hydropower projects divert rivers into underground tunnels, such as for the tributaries of Indus or Alaknanda or Mandakini, the surface water flow recedes. For non-glacial rivers (such as Gomti, Panar, Kosi), deforestation is the main threat, thanks to ill-planned construction. In Uttarakhand, 45,000 hectares of forest land have been diverted to other uses since 1980. As a result, water infiltration into the ground reduces. So, even when erratic rains arrive, mountain springs do not get recharged nor do non-glacial rivers get their water supply.

Fourth, the climate crisis. The World Meteorological Organization



The Himalayas-Hindu Kush region is home to 10 major river systems. They are suffering from reduced water flow, pollution, deforestation and construction and the climate crisis

SHUTTERSTOCK

estimates that the decadal rise in temperatures in the Himalayan region is 0.4°C higher than the global average. The Fifth Assessment Report of the Intergovernmental Panel on Climate Change had stark warnings: Himalayan glaciers would retreat 45% by 2100 if surface temperatures rose by 1.5°C. Basically, even if the goals of the Paris Agreement were met, IHR is likely to face severe impacts. If temperatures, instead, rose to 3.7°C (closer to the trajectory that the world is currently on), glaciers would be 68% smaller by 2100, fragmenting rivers, impacting flows and affecting seasonal water availability. Pollution concentrations would also increase during droughts; warmer water temperatures and reduced dissolved oxygen reduce the self-purifying capacity of Himalayan rivers.

There are no silver bullet solutions, but two approaches should be at the core of the response. First, IHR needs alternative development pathways, the absence of which makes the construction industry the default option. More sustainable models—high-valued-added agriculture, less water-in-

tensive natural farming, food processing, ecotourism, investments in non-hydropower forms of renewable energy, or monetising the preservation of natural capital—cannot be restricted to pockets or pilots. Alternatives must be designed and deployed at scale to get buy-in from communities and policymakers. Secondly, decentralised water governance, especially of springs, is imperative. Then communities can understand the conditions of their spring waters, determine appropriate use, and protect or increase forest cover, because their livelihoods depend on replenished water resources.

Our mythology is replete with stories about the origins of the Himalayan rivers and their holiness. But it is a myth that our rivers can continue to be self-cleaning, self-healing and self-flowing beyond a point. The Himalayan water systems are under increasing stress and they need our attention—and course correction.

Arunabha Ghosh is CEO, Council on Energy, Environment and Water. The views expressed are personal.

NREGS funds must be used to save water: PM

HT Correspondent

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NEW DELHI: Prime Minister Narendra Modi on Monday said maximum funds from the National Rural Employment Guarantee Scheme should be utilised for projects to augment water conservation and supply till the onset of monsoon, as he launched the Jal Shakti Abhiyan's second leg on the occasion of World Water Day.



PM Narendra Modi

Modi launched the "Jal Shakti Abhiyan: Catch the Rain" campaign via video conferencing and also watched over an agreement between the Union minister for Jal Shakti Gajendra Shekhawat and the chief ministers of Madhya Pradesh, Shivraj Singh Chauhan and Uttar Pradesh, Yogi Adityanath, to implement the Ken Betwa link project, the first project of the national perspective plan for the interlinking of rivers.

The Jal Shakti Abhiyan is the Jal Shakti ministry's flagship water-conservation campaign. The next leg of the programme, dubbed "catch the rain where it falls, when it falls", will be rolled out across the country's 734 districts covering over 600,000 villages. Modi listened to gram panchayat leaders from various parts of the country on ongoing efforts to conserve water.

The prime minister said that

the majority of rainwater during the monsoon months is simply washed away. Conserving rainwater will ease the pressure on groundwater in stressed areas. According to official data, 254 districts in the country are said to face acute water stress.

He said the campaign, which will run from March through November, should focus on conserving every drop of water.

"I would want to see that every penny of MNREGA till the rainy season comes, should be utilised for this purpose. Money available under MNREGA should not go anywhere else other than for whatever is required for readiness to conserve water," the prime minister said. Modi said a major step had been taken for the Ken-Betwa link canal, adding that "rapid development is not possible without water security and effective water management".

U.P., M.P. sign agreement on Ken-Betwa interlinking work

Deal comes amid protests over submerging of sanctuary

JACOB KOSHY
NEW DELHI

The governments of Uttar Pradesh and Madhya Pradesh have signed an agreement that nudges forward a long-stalled multi-crore, controversial project to link the Ken and the Betwa rivers and irrigate the water-deficient Bundelkhand region, spread over both States, and provide electricity.

Several obstacles have dogged the project. For one, the project will partly submerge the Panna Tiger Reserve in M.P. and affect the habitat of vultures and jackals. After years of protests, however, it was finally cleared by the apex wildlife regulator, the National Board for Wildlife, in 2016.

Monsoon blues

Then, the States were unable to come to an agreement



A view of the Betwa river in the Bundelkhand region near Jhansi. *FILE PHOTO

on how water would be shared, particularly in the non-monsoon months.

The project involves transferring surplus water from the Ken river in Madhya Pradesh to the Betwa in Uttar Pradesh and irrigating 3.64 lakh hectares in the Bundelkhand region of both States. The project involves building a 77-metre-tall and a

2-km-wide Dhaudhan dam and a 230-km canal.

The original project was conceived in two distinct phases but now they are learnt to be combined. This influences how the entire scheme is funded. The Centre was originally to fund 90% of the cost (₹37,611 crore in 2018) but a final decision is still outstanding.

However U.P., it is learnt, wanted a greater share of the water which Madhya Pradesh was unwilling. This prevented the signing of an agreement on water sharing that was ready in 2018.

On Monday, the agreement was signed by both Chief Ministers in an event that Prime Minister Narendra Modi, attended online. "This is a historic moment that is much more than the mere signing on paper," he said in his address.

Project to link Ken, Betwa rivers to cost ₹38,000cr

BOON FOR 13 DISTRICTS OF BUNDELKHAND REGION

To benefit water-starved Bundelkhand region of UP and MP
DISTRICTS TO BE COVERED IN MP
 > Panna, Tikamgarh, Chhatarpur, Sagar, Damoh, Datia, Vidisha, Shivpuri and Raisen
DISTRICTS TO BE COVERED IN UP
 > Banda, Mahoba, Jhansi and Lalitpur

The project will provide an annual irrigation of 10.6 lakh hectares (8.1 lakh ha in MP and 2.5 lakh ha in UP)	It will provide drinking water supply to a population of about 62 lakh (41 lakh in MP and 21 lakh in UP)
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Ken-Betwa link canal 221km (including 2km-long tunnel)	<ul style="list-style-type: none"> > Daudhan Dam > Lower Orr Dam > Kotha Barrage > Bina complex multipurpose project 	Total cost of the project ₹37,611 crore
WATER-SHARING BETWEEN MP AND UP		
Annual gross yield in Ken basin up to Daudhan dam in a normal year	6,590 million cubic metre (MCM)	
MP to utilise	2,350 MCM	UP to utilise 1,700 MCM
Release of water from Daudhan reservoir during non-monsoon period (Nov to May) to:		Power generation
MP	1,834 MCM	HYDRO 103 MW
UP	750 MCM	SOLAR 27 MW

MP, UP sign river link pact in PM's presence

India's first river interlinking project, connecting the Ken and Betwa rivers in Madhya Pradesh and Uttar Pradesh, is finally set to be implemented. After resolving their differences over sharing of water, the two CMs, Shivraj Singh Chauhan and Yogi Adityanath, signed a tripartite agreement with the Centre in the PM's virtual presence. **TNN**

> Continued from P1

The pact was signed in the virtual presence of the PM. The project will be implemented at an estimated cost of more than Rs 37,600 crore. The dispute between the states could be settled after UP agreed to drop its demand for a higher share.

Even MP has had to compromise. The Centre did not agree to its demand to allow it to use the entire quantum of surplus water at the Daudhan dam site in the upper catchment area. The dam is one of the key components of the project. Though forest clearance for the Daudhan reservoir is awaited, the Centre will create a special purpose vehicle, the Ken-Betwa Link

PM launches 'Catch the Rain' campaign

Pitching for leveraging works under MGNREGA to create rainwater harvesting structure in the country, Prime Minister Narendra Modi on Monday said he would like every single penny of the employment guarantee scheme to be used to build capacity for rainwater conservation till the Monsoon arrives. Strongly advocating water conservation during the launch of the Jal Shakti Abhiyan: Catch the Rain' campaign on World Water Day, he said, "The MGNREGA's money should not go anywhere (ahead of rainy season) and I would like everyone to contribute to make this campaign successful." **TNN**

Project Authority for implementation of the project in eight years and will bear 90% of the total cost. Speaking on the occasion, Prime Minister Narendra Modi said the agreement was important to realise former Prime Minister Atal Bihari Vajpayee's dream in the interest of millions of fam-

ilies in UP and MP. Noting that the project would benefit the entire Bundelkhand region, he said rapid development was not possible without water security and management. He added that the vision of India's development and self-reliance is dependent on water resources and connectivity.

Glimpses of NWDA

1. Meetings held for Damanganga-Ekdare–Godavari (DEG) and Damanganga-Vaitarna-Godavari (DVG) Link Projects

On 18.01.2021, Shri M.N. Rao, Executive Engineer, Investigation Division-I, Nashik held discussions with Shri Prasant Bhadane, President of Damanganga Dharan Prakalpgrasth Samiti of Nirgude village for the issues raised by the Samiti and obtaining their support in attaining the target of the work on the above cited link projects. The Samiti representatives requested Shri M.N.Rao to participate in the Public Awareness Programme scheduled at Nirgude village on 22.01.2021 to clear the doubts in the minds of the Project Affected People (PAP).

In response to the invitation, Shri M.N. Rao attended the meeting held on 22.01.2021 and apprised the modified components of the DEG/DVG link projects to the PAP and representatives of the Samiti and requested them to stop the Public Hindrance in advancing the the project targets and allowing NWDA to carry out the field works pertaining to the DPRs of the link projects.



Shri M.N.Rao while interacting in the meeting held at Nirgude on 22.01.2021 and field visit

2. 13th Meeting of Task Force for ILR

The Thirteenth Meeting of the Task Force for Interlinking of Rivers (TF-ILR) was held on 25-02-2021 at New Delhi through video conferencing under the Chairmanship of Shri Sriram Vedire, Chairman, TF-ILR and Advisor, MoJS, DoWR, RD & GR.

In his opening remarks, Chairman of the TF-ILR mentioned that Central Government is very keen to implement the ILR programme. He expressed that the consensus amongst the states of the corresponding links would emerge soon so that the ILR projects for which DPRs are already prepared would get implemented. On the behalf of TF-ILR, Chairman appreciated the efforts of NWDA for trying to build up the consensus amongst States and appreciated MoJS for taking the ILR Programme forward in a coordinated manner

While taking up the agenda items of the meeting, DG, NWDA briefed about the present status of Parbati-Kalisindh-Chambal (PKC) link that the Chairman of TF-ILR is having frequent consultations and meetings in the matter and informed that the latest review meeting was held by him on 27-01- 2021 with Chairman CWC; DG, NWDA; and other Senior Officers of CWC, NWDA and WAPCOS. After deliberations, it was decided to go ahead with the planning the components of ERCP in two phases and NWDA was

asked to organize meetings with both the States to discuss the matter and seek their opinion and also try to obtain consensus for Phase-I initially. NWDA was asked to start the work of preparation of FR/DPR phase-wise starting with phase-I.

Chairman of TF-ILR informed that there have been several meetings held by MoJS with both MP and UP and huge efforts were made to sort out the issues of KBLP. He also informed that Hon'ble Minister of Jal Shakti has discussed the matter with both Chief Ministers and was able to build consensus on many critical issues and applauded the efforts of the Hon'ble Minister for Jal Shakti in sorting out the pending issues and making both the Governments of UP and MP agree to sign the MoU for implementation of the KBLP at the earliest. The Chairman, TF-ILR also stated that the M-S-T-G link is very critical for any progress on Mahanadi-Godavari and Godavari-Cauvery link systems. He suggested that the preparation of DPR of the link with alternative-II be taken up. It was agreed to suggest MoJS to start involving Ministry of External Affairs for taking the work on M-S-T-G link further forward.

DG, NWDA gave a brief background of the proposal of Diversion of Godavari waters upto Cauvery basin (Phase-I) and its present status. He informed that NWDA has circulated the draft DPR of this link to the concerned states and most of the states conveyed their suggestions/observations on the draft DPR. DG, NWDA also informed that the issue of Mahanadi-Godavari link was deliberated with the Officials of the Government of Odisha in the meeting held by him on 11.01.2021 at Bhubaneswar. The Government of Odisha is looking forward for the proposed water transfer from Subarnarekha to Mahanadi (S-M) link project before considering the proposal of diverting water from Mahanadi through the M-G link project.

3. International Women's Day 2021: "Choose to Challenge"



The International Women's Day (IWD) is celebrated on 8th March every year. The theme of the IWD-2021 was "Choose to Challenge". A discussion forum was arranged under the Chairmanship of DG, NWDA on 08-03-2021 in NWDA (HQ) at Palika Bhawan, New Delhi. The Chief Guest of the event was Dr. Suman Chahar, Chairperson of International Centre for Woman and Child. In her address especially to the Women Officials of NWDA, she reiterated that each woman must take Challenges in her professional career and choose to move ahead for giving quality of life to Herself and Her Children, Family and Society as a whole.

The International Women's Day (IWD) is celebrated on 8th March every year. The theme of the IWD-2021 was "Choose to Challenge". A discussion forum was arranged under the Chairmanship of DG, NWDA on 08-03-2021 in NWDA (HQ) at Palika Bhawan, New Delhi.

The Chief Guest of the event



Here, it is pertinent to inform that Smt. Radha, LDC, NWDA(HQ) had been shortlisted as a winner based on her submission in Online Slogan Writing competition on the theme of IWD-2021 held by Delhi Metro Rail Corporation (DMRC). She received a Memento and Certificate of Appreciation from DMRC on 31.03.2021. Congratulations to Smt. Radha on her achievement and making the challenge to a success.

4. Implementation of e-Office in NWDA

The e-Office Project is one of the Mission Mode Project under the National e-Governance Plan, Department of Information Technology, Ministry of Electronics and Information Technology of India. The project is being implemented by the Department of Administrative Reform and Public Grievances (DARPG), Ministry of Personnel, Public Grievances and Pensions of India to improve efficiency in government processes and service delivery mechanisms.

"Transparency is the key to good governance & e-governance is the only effective way of transparent governance."

- Narendra Modi, Hon'ble Prime Minister of India

Accordingly, e-Office environs have been introduced under the effective guidance and support of DG, NWDA for file management system in NWDA Hqrs and certain field offices of NWDA with effect from 09.03.2021 onwards. National Informatics Centre (NIC) and its Supportive Team provided training programmes through video conferencing on 11.02.2021 and 24.03.2021. Hands on practical sessions also arranged by the NIC Team to NWDA Officers/Staff for building up awareness and confidence in working in e-Office module.

5. Swachhata Pakhwada Celebrations Held in NWDA

Launched in April 2016, this is an initiative under the Swachh Bharat Mission. Swachhata Pakhwada is inspired by the Hon'ble Prime Minister, Shri Narendra Modi's vision to engage all Union Ministries and Departments in Swachhata-related activities, thereby making Swachhata "everyone's business".

Accordingly under the Guidelines of Ministry of Jal Shakti, DoWR, RD & GR, NWDA observed Swachhata Pakhwada during 16th – 31st March, 2021 and various Cleanliness Awareness drives were conducted in NWDA Head Quarters as well as various field offices of NWDA:



NWDA HQ, Palika Bhawan, New Delhi



ID, NWDA, Kolkata



Swachhata Sandesh Rally held by NWDA (HQ), Saket, New Delhi



6. Signing of MoA for Implementation of Ken-Betwa Link Project

The Memorandum of Agreement (MoA) for the implementation of KBLP of NWDA had been signed by the Hon'ble Union Minister of Jal shakti and Chief Ministers of MP and UP in the virtual presence of Hon'ble Prime Minister on 22.03.2021. India's first river interlinking project, connecting the Ken and Betwa rivers in Madhya Pradesh and Uttar Pradesh, is finally set to be implemented.

After resolving the differences over sharing of water by the Hon'ble Union Minister of Jal shakti, the Chief Ministers of the two States, Shri Shivraj Singh Chouhan (MP) and Shri Yogi Adityanath (UP) signed the Tripartite Agreement. The Hon'ble Prime Minister, who witnessed the signing of the agreement virtually, called it as a **"historical"** and **"revolutionary step"** towards changing the future of the drought-prone Bundelkhand region and said, "Today, this agreement will realise the dream of Atal-ji for the betterment of people of Uttar Pradesh and Madhya Pradesh."



It was an historical event for NWDA fraternity, as after NWDA's establishment this was the first occasion, where a MoA signed under the ILR programme for implementation.

*World Water Day
Celebration in
NWDA*



The idea for this international day goes back to 1992, the year in which the United Nations Conference on Environment and Development in Rio de Janeiro took place. That same year, the United Nations General Assembly adopted a resolution by which 22 March of each year was declared World Day for Water, to be observed starting from 1993 onwards.

The World Water Day 2021 theme is **“Valuing Water”**. One of the quotes on Valuing water is

‘When the well is dry, we learn the worth of water.’ -Benjamin Franklin

The intention is to inspire people around the world to learn more about water-related issues and to take action to make a difference. According to the UN, over two billion people are living with the risk of reduced access to freshwater resources, and by 2050, at least one in four people is likely to live in a country affected by chronic or recurring shortages of fresh water. Today, with Covid-19, there is an additional focus on hand-washing and hygiene. But washing hands is a difficult challenge in many developing countries, where experience shortage of water. So, Let us celebrate World Water Day by Practising ways to conserve water and ractising 5 Valuing Water Principles



1. **Recognize and embrace water’s multiple values** to different groups and interests in all decisions affecting water;
2. **Reconcile values and build trust**;
3. **Protect the sources** ;
4. **Educate to empower** – promote education and awareness among all stakeholders about the intrinsic value of water and its essential role in all aspects of life;
5. **Invest and innovate** – ensure adequate investment in institutions, infrastructure, information and innovation to realize the many benefits derived from water and reduce risks.

World Water Day 2021 has been celebrated in NWDA and Pledge has been taken by the NWDA Officials in HQ as well as Regional offices on this occasion held on 22 March, 2021.



Pledge taken by the NWDA Officials in. HQrs on the occasion of World Water Day 2021 held on 22.03.2021.

Involvement of NWDA in Pradhan Mantri Krishi Sinchayee Yojana

During 2015-16, Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) was launched by the Central Government with an overarching vision to ensure access to protective irrigation for all agricultural farms in the country, and to produce 'per drop more crop', thus bringing much desired rural prosperity.

Accelerated Irrigation Benefits Programme: Central Government launched the Accelerated Irrigation Benefits Programme (AIBP) in the year 1996-97 to provide Central Assistance (CA) to Major/Medium Irrigation (MMI) projects in the country, with the objective to accelerate implementation of such projects which were in advanced stage of completion. After the launch of the PMKSY, the AIBP became a part of the PMKSY. Under PMKSY-AIBP, 99 projects have been prioritized for implementation. The progress of the projects in physical as well as financial terms is monitored through the field units of CWC and Nodal Officer nominated for each of the 99 priority projects regularly, using Management Information System (MIS) developed for this purpose.

NWDA has been identified to act as an agency for borrowing resources from Long Term Irrigation Fund (LTIF) and release Central Assistance (CA) received from NABARD to concerned State Government(s) to complete the PMKSY-AIBP projects in a time bound manner. NWDA has signed a contract agreement in October 2017 with M/S WAPCOS Limited for "Establishment of Project Monitoring Unit (PMU). The PMU established under the Chairmanship of CE(HQ), NWDA to work in coordination with Ministry of Jal Shakti, NABARD and M/S WAPCOS and release CA as and when due to the concerned State(s).

Release of Fund made by NWDA (Rs. in Crores) under PMKSY-AIBP to various States up to 31.03.2021				
S.No	Names of States covered under PMKSY-AIBP	Fund released upto 2019-20	Fund released during the year 2020-21	Total fund released upto 31.03.2021
1	Andhra pradesh	91.8100	0.00	91.8100
2	Assam	3.5500	4.00	7.5500
3	Bihar	131.9433	14.1200	146.0633
4	Chhattisgarh	56.3400	6.4496	62.7896
5	Goa	0.00	3.84	3.8400
6	Gujarat	5457.4987	177.9566	5635.4553
7	J & K	34.0722	12.1800	46.2522
8	Jharkhand	756.7300	0.00	756.7300
9	Karnataka	940.7570	242.5600	1183.3170
10	Kerala	0.00	2.6900	2.6900
11	Madhya pradesh	747.8350	63.2800	811.1150
12	Maharashtra	1448.7098	348.0768	1796.7866
13	Manipur	204.8440	23.51	228.3540
14	Odisha	1229.9677	110.857	1340.8247
15	Punjab	112.4160	165.5300	277.9460
16	Rajasthan	385.0750	124.87	509.9450
17	Telangana	511.0440	162.8200	673.8640
18	Uttar pradesh	1156.0720	397.84	1553.9120
Projects Name				
19.	Polavaram Project	7664.1600	2234.2000	9898.3600
20.	North Koel Project	659.7000	61.5200	721.2200
	Grand Total	21592.5247	4156.3000	25748.8247

Appointments, Promotions and Retirements of NWDA Officials

Actions taken during the reporting period starting from 1st January 2021 to 31st March 2021:

Sl.No	Name & Designation	Deputation/Direct	Place of Posting
1	Shri Khan Mohd. Yusuf Mohd. Shafique, Assistant Engineer	Direct w.e.f. 31.03.2021	ID-II, NWDA, Nashik

Promotions:

Sl. No.	Name & Designation	Post and Date of Promotion	Place of Posting on Promotion
1.	Shri Rajender Kumar, Lower Division Clerk	Upper Division Clerk w.e.f. 10.01.2021	NWDA (HQ), New Delhi.
2.	Shri Ashok Bhatele, Junior Engineer	Assistant Engineer w.e.f. 14.01.2021	ID-II, NWDA, Nashik
3.	Shri Hari Om Varshney, Junior Engineer	Assistant Engineer w.e.f. 19.03.2021	Chief Engineer (North), NWDA, Lucknow
4.	Shri M. Satayanarayana, Lower Division Clerk	Upper Division Clerk w.e.f. 26.03.2021	ID, NWDA, Hyderabad

Retirements:

Sl. No.	Name & Designation	Date of Retirement
1	Shri Shubham Chaudhary, Junior Engineer, NWDA(HQ) New Delhi	19.01.2021 (Resigned)
2	Shri S. Narayana Murthy, Draft Man, Gr.II, ID, Bengaluru	31.01.2021
3	Shri K. Adivishnuvu. LDC, ID, NWDA, Bhubaneswar	31.01.2021
4	Shri K.P. Gupta, Chief Engineer (North), NWDA, Lucknow	28.02.2021
5	Shri Shiv Shankar Singh, UDC, ID, NWDA, Patna	28.02.2021
6	Shri R.K. Sharma, EE, HQs. NWDA, New Delhi	31.03.2021
7	Smt. D. Jnana Prasuna, ID, NWDA, Hyderabad	31.03.2021 (Voluntary Retirement)
8	Shri P.C. Gupta, EE, ID, NWDA, Valsad	31.03.2021
9	Shri Nirbhaya Das Shukla, JE, ID, NWDA, Bhopal	31.03.2021
10	Shri Thomas George, Steno. Gr.I, ID, NWDA, Hyderabad	31.03.2021
11	Shri Dal Bahadur, MTS, O/o CE(North), Lucknow	31.03.2021
12	Shri Sahil Balayan, LDC, NWDA (HQs.), New Delhi.	22.03.2021 (Resigned)

Participation of NWDA Officials in Trainings/ Seminars/ Conferences

The Number of NWDA Officials who had attended various trainings / seminars/ workshops etc. during the reporting period starting from 1st January 2021 to 31st March 2021 was 5. The names of the events in which the officials participated were as per the list shown below:

1. Online Training Programme on "Role of technology in Community Level Disaster Mitigation" organized by Centre for Disaster Management, Lal Bahadur Shastri National Academy of Administration (LBSNAA), Mussoorie.
2. Training Workshop on "Biodiversity Conservation" conducted by Wildlife Institute of India, Dehradun.
3. ICOLD Symposium on "Sustainable Development of Dams and River Basins" and APG Symposium on "Water and Dams" organized by INCOLD, DRIP and CWC.
4. 21st, 22nd, 23rd and 24th Water Talks (e-Talks), arranged by National Water Mission, MoJS.

हिन्दी के बढ़ते कदम

1. दिनांक 09-10.01.2021 को अन्वेषण सर्किल और अन्वेषण प्रभाग, भुवनेश्वर कार्यालयों का राजभाषा संबंधी निरीक्षण सहायक निदेशक (राजभाषा) द्वारा किया गया। इस निरीक्षण में दोनों कार्यालयों में राजभाषा की प्रगति की समीक्षा की गई तथा राजभाषा संबंधी कार्यों में गति लाने के उपायों पर गहन चर्चा की गई।
2. दिनांक 11.01.2021 को संसदीय राजभाषा समिति की दूसरी उप समिति द्वारा राष्ट्रीय जल विकास अभिकरण, अन्वेषण सर्किल, भुवनेश्वर का निरीक्षण किया गया। बैठक की अध्यक्षता समिति के संयोजक, उपाध्यक्ष महोदय श्री भर्तृहरि महताब ने की। तत्पश्चात् महानिदेशक श्री भोपाल सिंह ने अपने साथियों का परिचय समिति से करवाया। भुवनेश्वर कार्यालय के कार्यकलापों के बारे में चर्चा आरम्भ करने का अनुरोध किया। समिति ने प्रश्नावली पर गहन चर्चा की। समिति के सदस्य श्री मनोज तिवारी ने रा.ज.वि.अ. के हिन्दी संबंधी कार्यों की प्रगति की सराहना की एवं कहा कि वे यह देखकर अत्यंत प्रसन्न हैं, कि भुवनेश्वर हिन्दी संबंधी नियमों तथा निर्देशों का पूरा अनुपालन कर रहा है। श्री भर्तृहरि महताब जी ने ध्यान देने योग्य बातें एवं समिति का प्रतिवेदन श्री भोपाल सिंह, महानिदेशक को सौंप कर निरीक्षण बैठक का समापन किया।
3. दिनांक 16.03.2021 को महानिदेशक महोदय की अध्यक्षता में राजभाषा कार्यान्वयन समिति की तिमाही बैठक आयोजित की गई। पिछली बैठक के निर्णयों की अनुवर्ती कार्रवाई और पत्राचार की स्थिति पर विचार किया गया। इस बैठक के विचारणीय विषयों पर विस्तार से चर्चा की गई एवं उन पर निर्णय लिए गए।
4. दिनांक 30.03.2021 को अन्वेषण सर्किल और अन्वेषण प्रभाग, वलसाड कार्यालयों का राजभाषा संबंधी निरीक्षण कॉन्फ्रेंसिंग द्वारा सहायक निदेशक (राजभाषा) द्वारा किया गया। इस निरीक्षण में दोनों कार्यालयों में राजभाषा की प्रगति की समीक्षा की गई तथा राजभाषा संबंधी कार्यों में गति लाने के उपायों पर गहन चर्चा की गई।
5. दिनांक 31.03.2021 को अन्वेषण सर्किल, ग्वालियर कार्यालय का राजभाषा संबंधी निरीक्षण वीडियो कॉन्फ्रेंसिंग द्वारा सहायक निदेशक (राजभाषा) द्वारा किया गया। इस निरीक्षण में कार्यालय में राजभाषा की प्रगति की समीक्षा की गई तथा राजभाषा संबंधी कार्यों में गति लाने के उपायों पर गहन चर्चा की गई।
6. दिनांक 31.03.2021 को अन्वेषण प्रभाग, भोपाल कार्यालय का राजभाषा संबंधी निरीक्षण वीडियो कॉन्फ्रेंसिंग द्वारा सहायक निदेशक (राजभाषा) द्वारा किया गया। इन निरीक्षण में कार्यालय में राजभाषा की प्रगति की समीक्षा की गई तथा राजभाषा संबंधी कार्यों में गति लाने के उपायों पर गहन चर्चा की गई।

स्वच्छता हर व्यक्ति के लिए आवश्यक है। स्वच्छता कई प्रकार की हो सकती है जैसे कि, सामाजिक, व्यक्तिगत, वैचारिक आदि। हमें हर क्षेत्र में इसे अपनाना चाहिये क्योंकि सबके मायने अलग होते हैं। विचारों कि स्वच्छता हमें एक अच्छा इंसान बनाती है, तो वहीं व्यक्तिगत स्वच्छता हमें हानिकारक बीमारियों से बचाती है। इस लिये स्वच्छता के सार्वभौमिक विकास हेतु हमें सदैव प्रयासरत रहना चाहिये।

स्वच्छता का महत्व

हर व्यक्ति को हर उम्र में कुछ स्वच्छता संबंधित नियमों का पालन करना आवश्यक होता है जैसे कि, सदैव खाने से पहले और बाद में हाथों को साबुन से धुलना, रोज नहाना, अपने दांतों को साफ करना, नीचे गिरे वस्तुओं को न खाना, अपने घर को साफ रखना, घर में उचित सूर्य के प्रकाश कि व्यवस्था हो, अपने नाखूनों को साफ रखना, केवल घर ही नहीं अपितु आस-पास के परिवेश को भी स्वच्छ रखना, अपने कार्यालय या कोई भी सार्वजनिक स्थान पर कूड़ा न फैलाना, सूखे और गीले कचड़े को अलग-अलग हरे और नीले कूड़ेदान में डालना आदि।

स्वच्छता से होने वाले फायदे

स्वच्छता के कई फायदे हैं जैसे कि स्वच्छता संबंधी अच्छी आदतें हमें कई बीमारियों से बचाती हैं। कोई भी बीमारी न केवल शरीर के लिए हानिकारक है, अपितु खर्च भी बढ़ा देता है। जैसेगंदे पानी व भोजन के सेवन से पीलिया, टाइफाइड, कॉलेरा वगैरे परिवेश मे मच्छर के कारण मलेरिया, डेंगू, चिकनगुनिया जैसी जानलेवा बीमारियां फैलती हैं।

हम स्वच्छता संबंधी नियमों का पालन कर के देश के लाखों रुपये, जो बीमारियों पर खर्च होते हैं, बचा सकते हैं। व्यक्तिगत स्वच्छता के साथ-साथ वैचारिक स्वच्छता हमें एक अच्छा इंसान बनाती है। जो सदैव अपने विकास के साथ दूसरों का भी भला सोचता है और जब देश के सभी लोग ऐसी भावना के साथ जीने लगेंगे, तो वो दिन दूर नहीं जब देश स्वच्छता के साथ-साथ प्रगति के पथ पर भी तेजी से आगे बढ़ने लगेगा।

स्वच्छता संबंधी अभियान

भारत सरकार ने स्वच्छ भारत नामक अभियान चलाया है जिसकी शुरुआत 2 अक्टूबर 2014 को गांधी जयंती के मौके पर की गई। इस अभियान के तहत सरकार ने शहर एवं ग्रामीण दोनों क्षेत्रों में स्वच्छता को बढ़ावा दिया है और पूरे भारत को खुले में शौच मुक्त करने का प्रण लिया है। अब तक 98 प्रतिशत भारत को खुले में शौचमुक्त बनाया जा चुका है। इसी प्रकार कई अन्य अभियान हैं जैसे निर्मल भारत, बाल स्वच्छता अभियान आदि। सबका उद्देश्य भारत में स्वच्छता को बढ़ावा देना है।

निष्कर्ष

स्वच्छता संबंधी आदतों से हमारा स्वास्थ्य ठीक रहेगा और हम अपने परिवेश की भी सफाई आसानी से कर पाएंगे। एक छोटी सी कोशिश मात्र से हम पूरे देश को साफ कर सकते हैं। हमें बच्चों में छोटी अवस्था से ही स्वच्छता संबंधी आदतें डालनी चाहिए, क्योंकि वे देश के भविष्य हैं जिस देश के बच्चे सामाजिक, वैचारिक और व्यक्तिगत रूप से स्वच्छ होंगे उस देश को आगे बढ़ने से कोई नहीं रोक सकता। अतः जिम्मेदार नागरिक स्वच्छता अपनाएं और देश के विकास में अपना योगदान दें।

पानी का मोल

राधा, अवर श्रेणी लिपिक, राजविअ, दिल्ली

पानी-पानी सोच के सब मानुष है घबराये
पर पानी के मोल को क्यों वह समझ न पाये,
पानी ज्यादा देख के क्यों वह है बिखराये
जब पानी न आये तो बूंद-बूंद को है बचाये
पानी की बरबादी को क्यों अभी समझ न पाये
जब पानी न रहे तब तो कैसे जीया जाये
प्रकृति के इस मोल को क्यों न हम है चुकाये
पानी की हर बूंद को क्यों न हम संभाल पाये
जब प्रकृति से हम खिलवाड़ करें धरती हमें समझाये
बांध बनाकर नदी को हम कभी रोक न पाये
जब-जब हम नदी की इस धार को रोक कर है इतराये
तब-तब नदी ने अपने रूप को है विशाल रूप बनाये
पानी बचाने के लिए हे प्राणी आज तुम लियो यह प्रण
एक-एक बूंद को सहेजे जैसे हो कोई रण
पानी रहे जब धरती पर तभी हमारा है अस्तित्व
बिन पानी नही रहे कोई प्राणी और न कोई जीव
पानी की बरबादी को रोकने का लें आज संकल्प
पानी की हर बूंद बिना नहीं जीवन का कोई विकल्प

NWDA Activities during the Quarter at a Glance



संसदीय राजभाषा समिति की दूसरी उप समिति की निरीक्षण बैठक दिनांक 11.01.2021



Meeting Convened by Chairman, CWC on 22-01-2021 to review the Integration of P-K-C Link Project With E-R-C-P of Rajasthan State



Visit of CE (South) NWDA and team alongwith WRD Officers of Tamilnadu Government to Dusi Mamandur tank offtake point of Kattalai canal on 27.01.2021.



Discussion with Tamilnadu WRD Engineers on PPC Link Project by CE (South), NWDA and Team at Ponnaiyar site on 29.01.21



CE (South) with Chairman, Cauvery Technical Cell and Chief Engineer (Plan Formation), Government of Tamilnadu on PPC Link Project.

The Jal Vikas Issue can also be accessed at www.nwda.gov.in

राष्ट्रीय जल विकास अभिकरण, 18-20 सामुदायिक केंद्र, साकेत
नई दिल्ली - 110017 द्वारा प्रकाशित