The Hindu- 05- October-2021

Telangana opposes A.P.'s water project plan

Urges river board to stop work on new reservoir as part of HNSS-II

SPECIAL CORRESPONDENT
HYDERABAD

The Telangana government has raised its concern over the plan of neighbouring Andhra Pradesh to enhance the scope of Handri-Neeva Sujala Sravanthi (HNSS-lift irrigation project), a surplus water-based project taken up outside the Krishna Basin, by building a new reservoir with irrigation potential of 23,000 acres as part of the HNSS phase-two.

It has addressed a letter to the Krishna River Management Board on Monday requesting the latter to restrain Andhra Pradesh from constructing the new reservoir at Jilledubanda near Dharmavaram in Anantapur district with a storage capacity of 2.41 tmc ft water drawn from Srisailam, in violation of the A.P. Reorganisation Act.

Engineer-in-Chief (General-Irrigation) of Telangana C. Muralidhar wrote to KRMB Chairman M.P. Singh that the Jilledubanda reservoir is one of the new schemes taken up after bifurcation of combined Andhra Pradesh with a cost of ₹47,776 crore in violation of the APRA, without the appraisal of the river board and without the approval of the Apex Council.

The Jilledubanda scheme was given administrative approval with ₹680 crore in September last year and tenders were invited recently with an estimated cost of ₹609.14 crore. Water would be diverted to the new reservoir by constructing a cross regulator on the HNSS main canal at 377.1 km and water diverted from there would be given to the proposed ayacut in Bathalapalli, Mudigubba, Dharmavaram and Tadimarri mandals.

Mr. Muralidhar has brought to the notice of Mr. Singh that Telangana has already written several letters to the river board highlighting Andhra Pradesh's plans with a plea to stop that State from carrying the works.

The Times of India- 05- October-2021

BENGALURU: Despite an overall monsoon deficiency of 8 per cent this year, the state's reservoirs have sufficient water to meet the requirements of households, agricultural farms and industries for the next one year. According to the Karnataka State Disaster Management Authority (KSDMA), the water storage level in the 13 major reservoirs is 780 tmcft (thousand million cubic feet). Last year, it was a bit higher at 807 tmcft.

FLOW CHART: WATER LEVELS IN RESERVOIRS

	Figures in TMC	
	Gross capacity	Current storage (as on Oct 4)
Linganamakki	151.7	141.5
Supa	145.3	115.3
Varahi	31.1	19.4
Hydel	**328.1**	**276.4**
Harangi	8.5	8.1
Hemavathi	37.1	29.3
KRS	49.4	35.3
Kabini	19.5	17
Cauvery Basin	**114.5**	**89.9**
Bhadra	71.5	69.8
Tungabhadra	100.8	100.8
Ghataprabha	51	51
Malaprabha	37.7	36.7
Almatti	123	123
Narayanapura	33.3	33
Krishna Basin	**417.5**	**414.5**
Total	**860.2**	**780.8**

Water resources minister Govind Karjol is confident there won't be a problem. "The year's monsoon has satisfactorily improved the storage levels in dams. There is adequate water to cater to drinking water needs, and there won't be any issue in fulfilling the water requirements of the agricultural sector and industries," he said. He added that the majority of water bodies, including lakes, were brimming with rainwater, which had also helped recharge groundwater.

Rains were weak in the last week of August and first week of September, but they picked up subsequently, augmenting the inflows into dams. "Though the monsoon has officially ended, there is a forecast of rainfall in the coming weeks, so there is still a window for the storage in reservoirs to improve," said Manoj Rajan, commissioner, Karnataka State Natural Disaster Monitoring Centre (KSNDMC).

Residents of Bengaluru and Mysuru, which rely on Cauvery for drinking water, can breathe easy. The major reservoirs in the Cauvery basin, including Krishnaraja Sagar (KRS), Hemavathi, Kabini, and Harangi, are near-full. In the Krishna basin, the main reservoirs such as Bhadra, Tungabhadra, Ghataprabha, Malaprabha, Alamatti and Narayanapura also have good levels. Almatti dam, the biggest in the state, has a water level of 517 metres as against the full reservoir level (FRL) of 519 metres. It gets water from Koyna dam and some others in Maharashtra.

Similarly, Belagavi district's Ghataprabha reservoir, which had a major role in worsening the flood situation last year after operators waited for it to be almost full, has a water level of 650 metres currently as against the FRL of 662 metres. Malaprabha dam, also in Belagavi, which was one of the worst-hit last year, has storage up to 628 metres compared to the FRL of 633 metres. Linganamakki, Supa, and Varahi reservoirs (hydel) also have better storage levels than last year's cumulative storage capacity.

Deccan Chronicle- 05- October-2021

Adverse climate may be forecast 5-20 yrs ahead

DC CORRESPONDENT
HYDERABAD, OCT. 4

Water stagnates on the road at Miyapur, following rain on Monday. The city experienced light rain and CB CID Colony in KPHB recorded 47 mm rainfall, highest in the state. The IMD has not issued any rain warning. — *K. DURGA RAO*

A University of Hyderabad (UoH) and UK's University of Exeter uncovered for the first time that the Indian Ocean Dipole (IOD) decadal predictions can forecast climate processes with a lead of some years. Decadal prediction is an emerging field for forecasting climate for 5-20 years. The information will help stakeholders in strategising and decision-making.

For the research, UoH Prof. K. Ashok, his PhD student Feba Francis, and Prof. Satish Shetye, former chair professor of Centre for Earth, Ocean and Atmospheric Sciences; collaborated with University of Exeter's Prof. Mat Collins.

"A strong IOD is associated with meteorological events like heavy rainfall in India, while indicating drought or flood-like events in countries like Australia. This decadal prediction model though is still at a nascent stage," Prof. Ashok told *Deccan Chronicle*.

He underlined that decadal prediction is feasible for regions in mid-latitudes. Conversely, it is poor for regions in tropics.

Though results are only indicative, newly released predictions run with simulations may show better decadal prediction results, given the improved models and larger number of observations that have been assimilated, he said.

Deccan Chronicle- 05- October-2021

Aakar Patel

Why focus on sanitation is essential for a cleaner India

India has launched part two of the Swachh Bharat mission and Prime Minister Narendra Modi says that its aim is to make India's cities garbage-free. While announcing the programme, he was quoted as saying: "The garbage mountains in the cities will be processed and removed completely as part of the Swachta second phase. One such garbage mountain has been in New Delhi for long, it's also waiting to be removed."

This focus on littering and rubbish is what separates Swachh Bharat from the two other programmes for sanitation that were run earlier. In 1999, the Atal Behari Vajpayee BJP-NDA government began the Total Sanitation Programme, aimed at providing toilets across the country. In 2012, the programme was called Nirmal Bharat Abhiyan and this was renamed Swachh Bharat Abhiyan in 2014. When it was announced by the Prime Minister, he made all the participants take an oath whose text does not mention toilets and is focused on littering and garbage. On October 2, 2019, all the villages of India were declared 100 per cent open defecation-free (ODF). But a survey released the following month by the National Statistical Office — "Drinking water, sanitation, hygiene and housing conditions in India" — found that 28.7 per cent of all village households had no access to a toilet. Another 3.5 per cent of households had access to a toilet, but didn't use it. A place is declared ODF when its residents are deemed to have access to a toilet, even if it is a public one. Several states which had declared 100 per cent ODF in March 2018 were found by the survey conducted six months later to not have achieved this. The NSO said that in Gujarat 75.8 per cent, in Maharashtra 78 and in Rajasthan 65.8 per cent of rural households had access to any type of toilet — whether personal, communal or paid — though all three states had been declared ODF by the government. Madhya Pradesh had been declared ODF with only 71 per cent of households having access, while in rural Tamil Nadu access was only 62.8 per cent.

A survey done first in 2014 and then in 2018 by the IZA Institute of Labour Economics found that the number of people who had access to some type of toilet but still defecated in the open was constant between 2014 and 2018 at 23 per cent. The study found that at least 43 per cent of rural people in the states they surveyed — Bihar, Madhya Pradesh, Rajasthan, Uttar Pradesh — continued to defecate in the open.

One of the issues faced was that toilets were constructed but had no running water, rendering them unusable. This was caused by a mismatch of resources. In 2016-17, Swacch Bharat received about ₹14,000 crore but rural water infrastructure received only ₹6,000 crore. The water resources ministry estimated that a household needed a total of 40 litres of water a day, of which 15 to 20 litres was for sanitation. But even a well-supplied rural household received only between eight and 10 litres of water a day, and that was used up for cooking, drinking and washing, with sanitisation being the last priority. And many villages had no access to piped water at all. Why should there have been a focus on sanitation and not on littering or garbage? It is because the absence of sanitation affects the health of children. The National Family Health Survey 2019-20 revealed some awful numbers. On four key metrics which represent the nutritional status of children, states recorded a significant fall in 2019-20 compared to the levels in 2015-16. In states like Gujarat, Maharashtra and West Bengal, the share of anaemic and wasted (low weight for height) children was significantly higher than the levels seen 15 years earlier in 2005-06. This indicated a reversal of progress that had been hard to win. Even in states such as Kerala, which continued to lead in these indicators, the levels recorded in 2019-20 were poorer than the 2015-16 figures. The survey put out data for 22 states and Union Territories and an analysis of 10 major states was conducted. Anaemia among children was higher in all the 10 states in 2019-20 compared to 2015-16. In Gujarat, Himachal Pradesh, Maharashtra and West Bengal, a higher percentage of children were anaemic in 2019-20 than were in 2005-06. The percentage of wasted (low weight for height) children was higher in half of the 10 states. In Assam, Gujarat, Karnataka, Maharashtra and West Bengal, a higher percentage of children were wasted in 2019-20 compared to 2005-06. In seven of the 10 states analysed, a higher percentage of children were underweight (low weight for age) in 2019-20 compared to 2015-16. Stunting (low height for age) was higher in six out of the 10 states compared to 2015-16.

The study also found that incidence of diarrhoea had increased in half the states, including AP, Bihar, Gujarat, Maharashtra, Karnataka and West Bengal. In Bihar it was up from 10.4 per cent in 2015-16 to 13.7 in 2019-20. In 2021 the programme has been renamed Swachh Bharat 2.0, to continue till 2026 with a focus now on cities. But the initial campaign launched with little focus on its true objective (the health of children) appeared to have delivered on October 2, 2019 the reversal of that objective. And now we have moved to part two of the campaign, once again with a focus on the visual and aesthetic aspects, meaning garbage and littering, rather than on sanitation and hygiene.

The writer is a columnist and a senior journalist

Telangana Today- 05- October-2021

Stop Andhra from drawing excess water, TS to KRMB

STATE BUREAU
Hyderabad

Telangana has informed the Krishna River Management Board (KRMB) that the diversion of water by Andhra Pradesh will affect the needs of the Krishna basin areas of Telangana, and the new irrigation schemes of Andhra Pradesh would further worsen the situation.

In a letter to board Chairman, Telangana Irrigation and Command Area Development Engineer-in-Chief (General) C Muralidhar requested Krishna River Management Board to restrain Andhra Pradesh from proceeding ahead with the expansion of projects and restrain it from diverting water from Srisailam reservoir immediately since any expansion or new scheme taken up after June 2014, attracts the provisions of Section 85(8) of Andhra Pradesh Reorganisation Act (APRA)-2014.

In two earlier letters, the Irrigation Department had requested the Board to restrain Andhra Pradesh from expanding Handri-Neeva Sujala Sravanthi (HNSS) project and modifying the scope of the project subsequent to June-2014, as also new components to HNSS (which is in itself an unapproved surplus water-based project) without any appraisal by KRMB and approval of Apex Council.

Telangana maintains that the diversion of water by the neigbouring State will affect the needs of Krishna Basin areas

Invited tenders

It is learnt that the Andhra Pradesh government had invited tenders for the construction of the Jiledubanda reservoir with a capacity of 2.41 TMC to irrigate 23,000 acres in the Dharmavaram constituency in Anantapur district. In this connection, the Irrigation Department addressed the KRMB stating that the AP government issued several government orders and accorded administrative approval for taking up several new schemes and projects after bifurcation at a cost of about Rs.47,776 crore.

The construction of Jiledubanda reservoir was one such new scheme with administrative approval for Rs 680 crore. From Srisailam reservoir, as per the Central Water Commission (CWC) approvals during flood flows, only 34 TMC can be diverted by AP. But during this current water year, AP has already diverted 82.09 TMC from Pothireddypadu Head Regulator and 11.2 TMC from HNSS Lift Irrigation Scheme totalling 93.29 TMC from Srisailam reservoir which needs to be immediately stopped.

Works continuing

More importantly, AP did not plead for allocation of water out of dependable flows to the HNSS project under Section 89 proceedings before KWDT-II and Telangana are contesting the HNSS project before KWDT-II. In this regard, Telangana has brought these concerns to the notice of KRMB several times but so far the works have not been suspended by AP.

New Indian Express- 05- October-2021

'Fleecing' cinemas told to provide quality drinking water for free

If not, theatre owner must provide appropriate compensation, says court; govt told to conduct inspections, ensure adherence to order

R SIVAKUMAR @Chennai

THE Madras High Court directed the State government to ensure cinemas across the State provide quality drinking water for free to the audience if they do not allow them to bring it into the theatres.

"A cinema theatre that seeks to prohibit carrying of drinking water inside the cinema hall for security reasons must necessarily provide free and pure drinking water through water coolers installed inside the cinema halls, before such a prohibition can be enforced," said Justice SM Subramaniam in an order issued on a petition alleging overpricing of drinking water and edibles in a Chennai cinema.

He said water purifiers need to be installed with water coolers and disposable cups made available in sufficient numbers. If, for any reason, water supply is not available on a particular day, alternative arrangements need to be made. If not, the owner of the theatre would be liable to provide an appropriate compensation. The judge stressed that the drinking water should meet the prescribed standards of purification.

He directed government authorities, including the Commissioner of Civil Supplies and Consumer Protection, Joint Commissioner of Legal Metrology Department and the police, to hold surprise inspections at cinemas across the State within two months from receiving a copy of the order and ensure purified drinking water facilities, adequate for the seating capacity, are provided. Hygienic sanitation facilities should also be ensured.

The petitioner claimed he paid ₹30 for a 500-ml-bottle of water and ₹65 for a 400 ml Maaza bottle on 14 April, 2016, at S2 Cinema in Perambur | EXPRESS

Action of petition

The Joint Commissioner of Legal Metrology was directed to hold an inquiry into the complaint and take appropriate action. The petitioner, G Devarajan, alleged he had to pay ₹30 for a 500 ml bottle of water and ₹65 for a 400 ml Maaza bottle on 14 April, 2016, at S2 Cinema in Perambur. When he took the matter up with both the cinema hall administrators and Hindustan Coca-Cola, they did not respond properly.

> **A cinema theatre that seeks to prohibit carrying of drinking water inside the cinema hall for security reasons must provide free and pure drinking water, before such a prohibition can be enforced**
>
> Justice SM Subramaniam

The judge did not agree to the arguments of the cinema theatre and the cola company that before January 2018 dual pricing was allowed as relevant rules of Legal Metrology (Packaged Commodities) (Amendment) Rules - 2017 came into effect only in 2018. The change of hands of the theatre management in 2018 was also not accepted for condoning the act of overpricing.

Crisis OF OUR AGE

A view of the blocked Manali-Leh highway after landslides at Nehru Kund near Manali PTI

If climate change aberrations have emerged as a structural problem, the solution too has to come through better planning

ARIF MOHAMMAD

The earth is in flames somewhere and in others, it is under water. Rivers have stopped flowing in some places while in others, rocks from mountains are flowing down with enormous velocity causing unprecedented death and destruction.

These phenomena may be older than human civilization — being with it all throughout its course of evolution. The civilizational evolution — with flourishes and decline — is itself shaped by the manner and extent of humans' interaction with nature. Their threatening form, intensity, and frequency in the current time is, however, a worrying factor. These threatening phenomena indicate the fallacy on the part of humans in recklessly hampering our relation with nature.

A large part of the damage done to nature is irreversible and we will have to continue living in deteriorated surroundings with self-imposed restrictions. But still, there is a lot to prevent from getting trapped into a worse scenario.

As we are heading towards the COP26 climate conference to be held in Glasgow in November, all the nations should act on their promises of contributing their part of action to limit the global heating to the prescribed level.

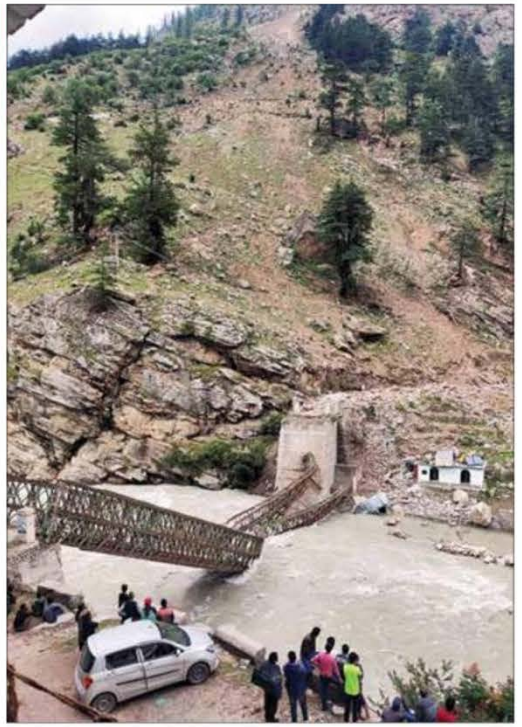
GLOBAL PHENOMENA

Apart from the pandemic that has been tormenting the entire world for over a year now, humans parallelly bore the brunt of natural disasters all across the globe. The wounds inflicted by the slurry of tropical cyclones along both the eastern and western coast of India in the last year are still fresh. The Uttarakhand mudslide once again threw the reminiscent of the 2013 catastrophe. Severe floods and flash floods across the country in states ranging from Assam in the Northeast to Kerala and Karnataka in the south — apart from the river plains in central India — have wreaked unprecedented havoc in some cases.

The situation is no better elsewhere. Just a few months back, China was struggling with one of the most severe floods in its history — affecting more than 11 million people. Nature's revenge on Germany was equally merciless as the country was ravaged by once in a century flood. Continued on P3

An earthmover machine removes a vehicle stuck in flood water near Bhagsunag, as heavy rains lashed the area after a cloudburst in McLeodganj PTI

People use a boat to wade through a flooded street after heavy rain in Jamnagar PTI



A bridge collapsed after a landslide at Batseri of Sangla Valley in Kinnaur district PTI

Towards the south, Australia is still struggling to make up for the humongous losses it incurred during the bushfires expanding from the last months of 2019 to the early months of 2020. The total area across which the fire raged was 74,000 square kilometres — that will surpass the total land area of many countries. Amazon too has witnessed massive forest fires lately. Apart from inflicting human settlements, forest fires burn down speechless lifeforms of the forests. Also, not to forget its monstrous ecological footprint.

As per a UN report, between the period 1970-2019, Africa recorded 1,695 disasters, causing the loss of 7,31,747 lives and USD five billion economically. Poorer nations including Ethiopia, Mozambique and Sudan have been the worst sufferers in the continent. These incidents just suggest that nature is sparing no part of the Earth.

CASCADING EFFECTS

Every natural disaster has a socio-economic fallout that costs people much more than the disaster itself. Receding floods leave behind them a dingy atmosphere, creating a space for vector-borne diseases. In most cases across rural areas, these ailments and death are digested in the belly of ignorant society; they even fail to make headlines. To be sure, the effects of natural disasters are inadequately documented. Accordingly, provisioning of relief and compensation as well as the implementation of mitigation and adaptation methods remain well below the mark.

The severity of seasonal floods in some of the flood-prone states of India has increased over the past few years. The residents of the affected region persistently remain under the shadow of flood effects and after-effects for most of the year. It becomes highly pertinent here to state that concerned authorities or institutions should prepare accountability reports documenting their efforts and the quantum of positive impact achieved. This is the least that one could expect from the government.

> Apart from the pandemic that has been tormenting the entire world for over a year now, humans parallelly bore the brunt of natural disasters all across the globe

Other natural disasters also have their own set of socio-economic fallouts. Droughts could leave a streak of malnourishment behind them. Extreme weather events including cyclones and landslides also leave behind them the need for reconstruction of personal properties. For average and poor households, the construction of a single house may mean years of family income.

SOLUTIONS

If climate change aberrations have emerged as a structural problem, the solution has to come through better planning. Surely, there cannot be a similar set of planning to mitigate and adapt to the varied set of natural disasters — the minutes will differ. But the basics have to be intact: there has to be political will, appropriate funding, aware masses, stricter regulations and proper monitoring and evaluation procedure for all the disasters in general.

The ambiguities surrounding the linkage of natural disasters and climate change have been removed. To hit at the core of the problem, the focus primarily has to be on reducing greenhouse gases emissions and creating natural as well as artificial carbon sinks. Fortunately, we don't need some rocket science to do so. It is common knowledge — among both educated and uneducated masses — that what things are good and bad for the environment. On the unfortunate side, the practice of that knowledge is lacking. Anthropogenic factors are key contributors to the depreciating situation.

The biggest transformations do spring up from the heart of society. The world is in want of young and spirited icons who would lead by example — inspiring millions. Every crisis awaits leaders who would reincarnate it into an opportunity and, to this greatest crisis of our age, young leaders should rise — from India, from the rest of the world and integrate their efforts into a decisive whole. Social awareness and action will thus have to be incorporated in domestic and global politics.

This apparently utopian vision may prove to be the best course of action. Collective consciousness gained our Independence 74 years ago, inspiring leaders uprooted social evils like the Sati system and restrictions on women education and widow remarriage some 200 years back. Won't it set us free from this biggest crisis of the day?

Views expressed are personal

Reaching EVERY DOORSTEP

Through a participatory approach, 'Jal Jeevan Mission' has not only facilitated universal access to safe drinking water but also reduced gender gaps and disease burden apart from eliminating caste segregation, enhancing gross enrolment ratio and resolving conflicts

BIBEK DEBROY & ADITYA SINHA

Water is probably the most essential yet understated among resources. Today, water is not just treated as a commodity; it is a prerequisite for human survival. At the global stage, there has been an acceptance of water as a human right. While these discussions started in the 1950s, in 2002, the adoption of General Comment No. 15 by the Committee on Economic, Social and Cultural Rights brought a paradigm shift in the debate on access to water. It brought water into the global human rights agenda: "The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses". We have come a long way since then. In 2010, the United Nations General Assembly adopted the resolution A/64/292 which "recognised the

Continued on P6

JJM should ensure that its short-term achievements and policy outcomes are sustained in the long run

right to safe and clean drinking water and sanitation as a human right that is essential for the full enjoyment of life and all human rights". The United Nations has also specifically dedicated a Sustainable Development Goal — SDG 6 — on water which aims at ensuring universal and equitable access to safe and affordable water by the year 2030.

However, discrepancies in the water supply have the potential to generate conflicts. The access to water (or lack of it) within the umbrella theme of hydro-politics is recurrent among some of the current international and intra-national conflicts. Whether it is a dispute over water in Nile Basin or Euphrates-Tigris dispute between Turkey, Syria and Iraq, water has a propensity to fuel conflict. Closer home, we also see multiple disputes on the water from Krishna, Cauvery, the Godavari to the water dispute between Punjab and Haryana.

One of the primary reasons for these disputes is the state's responsibility to provide access to water to its residents. Indiscriminate use of water, especially in areas where water is readily available, water pollution and climate change have led to water scarcity. Further, many developing countries lack basic water delivery infrastructure.

Relatively, very few developing countries have been able to make progress in overall access to clean and safe water. While the thrust should be on providing a sustainable source of residential water supply, developing countries have relied on the widespread use of common public water standpipes to provide access to water.

India is one of the exceptions which has made strides in providing access to clean and affordable tap water connections to residents of rural India through Jal Jeevan Mission (JJM). It is a decentralised, demand-driven and community-managed programme. The mission aims at providing safe and adequate drinking water [55 litres per capita per day (LCPD)] through individual household tap connections by 2024 to all households in rural India.

Through JJM which was launched on August 15, 2019, access to tap water has improved exponentially. We will talk about the quality of water at a later stage. Within a short span of two years, the mission has provided access to clean and afford-

Per capita water availability of water in India is around 1,000 m^3 for 820 million people

A boy walks past a graffiti depicting water crisis PTI

able tap water to 4,95,62,178 (25.78 per cent) rural households. Today, 8,19,25,016 i.e., 42.61 per cent of total rural households in the country have functional tap water connections, an increase of over 150 per cent.

Some states have done exceptionally well, while in others, there is a scope of scaling up of the JJM. Goa, Telangana, A & N Islands, Puducherry, Dadra & Nagar Haveli and Daman & Diu are some states and UTs having 100 per cent households with tap water connections. Haryana (99.99 per cent), Gujarat (87.40 per cent), Bihar (87.60 per cent) & Punjab (86.59 per cent) have also performed well. In Haryana, 6,789 villages out of 6,803 villages have access to functional tap water connections. The state will soon join Telangana in the club of states with 100 per cent functional tap water connections. In comparison, Uttar Pradesh (12.60 per cent), West Bengal (12.68 per cent), Chhattisgarh (12.82 per cent), Jharkhand (14.79 per cent) & Rajasthan (20.77 per cent) will have to perform exceptionally well for ensuring universal rural access to tap water by 2024. The disparity in tap water connections exists for three primary reasons:

(a) States had a different starting point in their quest for providing access to tap water connections. Telangana had launched Mission Bhagirathi in 2016, and Gujarat had provided access to 70 per cent of rural households even before the launch of JJM.

especially when it comes to gender equity. Some of these possible outcomes of JJM would be:

(1) Empirical evidence from developing countries suggests that proximity to water leads to a reduction of women's participation in their own agricultural production and other unpaid work. Thus, easy access to water provides an avenue for women to participate in market-based income-generating activities.

(2) Evidence also suggests that in the countries with significant gender gaps in schooling, with the increase in access to water, the enrolment of both boys and girls increases. Thus, JJM may also lead to higher gross enrolment ratios in future.

(3) In 2016, the total number of deaths attributed globally to inadequate drinking water, sanitation, and hygiene behaviours (WASH) was 8,29,000. For the same year, the mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (per 1,00,000 population) was 18.6 in India. In contrast, the world average was just 11.6. There is a causal link between inadequate WASH measures and the global disease burden. Complemented by Swachh Bharat Mission, JJM would ensure the burden of diseases such as diarrhoea, respiratory infections, malnutrition, schistosomiasis, malaria, soil-transmitted helminth infections, and

(b) While the Union government provides financial support and technical assistance to the state governments, the state governments implement the programme. Thus, the level of priority which a state accords to JJM varies. For instance, Puri in Odisha became one of the first cities in the country where drinking water can be accessed 24x7 in every household. While JJM only covers rural areas, Odisha was able to provide tap water connections to even urban areas. Contrary to popular belief, it is a bit difficult to provide tap water connections at the household level in urban areas. Odisha was also able to provide tap water connections to 66,000 slum dwellers.

(c) The topography, size and population of the state are some of the factors which determine the implementation of the programme. More than 80 per cent of rural households in states such as West Bengal and Uttar Pradesh with high population density are yet to make significant progress on this metric.

Nevertheless, providing access to potable water is not the sole achievement of JJM. Access to water tends to have a multiplier effect,

trachoma becomes minimal. Today, more than one crore households in 61 districts severely affected by Japanese Encephalitis-Acute Encephalitis Syndrome have access to clean drinking waters through taps due to JJM.

(4) JJM also marks a radical shift in governance. Since independence, India has moved from a paternalistic state to a state that appreciates participatory governance. Participatory governance moves beyond the traditional view, which sees citizens merely as voters or 'watchdogs'. It recognises that the citizen can play a critical role in the governance process. In participatory governance, the citizen contributes through direct deliberative engagement with the pressing issues of the time. JJM is a perfect example of participatory governance in play. Under the mission, the water supply system is operated and maintained by the Gram Panchayat or its sub-committee, i.e., Village Water & Sanitation Committee (VWSC) or Pani Samiti. The Samiti comprises 10-15 members, out of which at least 50 per cent are women. The Samiti is tasked to create the village action plan after discussion with all the key stakeholders. This entails the planning of strength-

ening and augmenting drinking water sources within the village.

(5) The universal nature of the JJM goes beyond spatial, economic and caste segregation in a stratified society. Caste has always mediated access to water in many parts of the country. Even in today's day and age, studies have shown that Dalits' access to public water sources is actively obstructed. JJM has helped in getting rid of social evil. Further, the JJM also recognises the level of stratification in villages and gives proportionate representation to weaker sections of the village in Pani Samiti.

(6) JJM has instilled accountability in public policy through a dashboard that provides real-time information on the number of functional potable water connections in the villages, districts, and states. It has details of all the schools and anganwadis in the village and whether they have access to functional water connections or not. By using sensor-based IoT devices, JJM constantly monitors the supply of drinking water to every village and which gets displayed on the dashboard. Further, the dashboard has details of Pani Samiti members as well as the pump operator. To test the quality of water and whether it is fit for drinking, field testing kits are provided to at least five women of every village.

Despite all its achievements in short-term and expected policy outcomes, the JJM should ensure that the habitations and villages which have already been covered do not slip back. Before JJM, the National Drinking Water Program (NDWP), launched in 2009, tried to provide safe and adequate water for drinking, cooking and other domestic needs to every rural person on a sustainable basis. However, only 14.83 per cent of the rural household had functional tap water connections after 10 years of the launch of NDWP.

One should quote the 2018 CAG report on performance audit of NDWP: "Coverage of rural habitations increased by only eight per cent at 40 LPCD and 5.5 per cent on the basis of 55 LPCD during 2012-17 despite the expenditure of ` 81,168 crores". The report further states the problem of slippages and how 4.76 lakh habitations had slipped back during the period 2012-2017. The reasons which the report gives for slipping back from universal access to water to partially covered are "excessive extraction of groundwater, the inadequacy of efforts to address, quality-related aspects, lack of sustainability of water sources, and inadequate/non-maintenance of water supply schemes".

Proximity to water leads to a reduction of women's participation unpaid work

This brings us to the issue of ensuring that there are sustainable sources of water. After all, JJM primarily deals with the retail end, i.e., water delivery. According to the Composite Water Management

Millennium Post- 05- October-2021

Index (2019), the per capita water availability is close to or lower than 1,000 m3 for 820 million people in India, which is also the official threshold for water scarcity as per the Falkenmark Index. JJM would have undoubtedly increased the access to water for a significant portion of the population, but still, the cloud of water scarcity looms large. Further, indiscriminate groundwater use, be it for domestic or agricultural use, has created severe water stress, especially in green revolution states. On average, 2,500 to 3,000 litres of water is used to grow 1 Kg of paddy. Cultivation of paddy in the states which are already reeling from the freshwater crisis further exacerbates the problem.

Cues could be taken from innovative water conservation schemes and practices of various state governments. Haryana gives an incentive of Rs 7,000/acre to farmers for non-paddy crops. It promotes crop diversification and helps in checking the depletion of the groundwater table. Mission Kakatiya in Telangana, which broadly aims at developing minor irrigation and renovating and restoring water tanks and ponds in villages, has contributed to up to four meters rise in the groundwater level. The Mukhya Mantri Jal Swavlamban Abhiyan in Rajasthan has adopted a participatory approach to making villages self-sufficient in water by reviving water bodies, water conservation, rainwater harvesting and building check dams. The Jal Shakti Ministry's "Catch the Rain" programme under National Water Mission, by acknowledging the contextual and geospatial realities, nudges all the stakeholders and state governments to create appropriate Rainwater Harvesting Structures (RWHS).

The common thread in all the successful water conservation, harvesting and delivery programmes across the world and India is the adoption of a participatory approach. Without involving the stakeholders, it is difficult to create sustainable water solutions. The use of participatory approaches to water management has been a watershed moment for water governance in India. In all likelihood, before the 75th year of adoption of the Constitution, 100 per cent of rural households in India will get access to potable tap water. Now the focus should be on water harvesting and conservation.

Views expressed are personal

Business Line- 05- October-2021

Mumbai start-up offers low-cost water storage solution

OUR BUREAU

Chennai, October 4

Three years ago, farmers of Dudhanwadi village in Maharashtra's Satara district were worried over their sericulture crop as their area fell under the rain-shadow region of the Western Ghats.

Village pradhan (chief) Bopatrao Jadhav looked at various options since the village was rain-fed. This led him to Avana, a division of Mumbai-based Emmbi Industries.

Frugal innovation

Avana came up with a solution that revolves around creating an artificial pond with a recyclable polymer lining at the bottom.

This preserves the water and stops it from seeping into the earth. It can be provided at one-tenth the cost of traditional methods to conserve water. "It is a frugal innovation. You dig a pit on or near the farm. You line it with a material that prevents seepage of water so that farmers can store excess water and use it when they need it later," said Maithili Appalwar, Chief Executive Officer (CEO), Avana.

Impressed with Avana's offer for a solution, Jadhav called for a meeting of the people in the village in which some growers came forward to set up ponds on their farms. The ponds were set up and soon, the results began to show.

Each farmer benefited by at least ₹25,000 that year through sericulture farming. Within a year, 48 such ponds were set up in Dudhanwadi.

In the four years of its existence, Avana has set up nearly 15,000 ponds through its Jalasanchay solution and conserving 54 billion litres of water that has helped over 81,000 people across seven States. It has also resulted in the farmers' income nearly doubling.

"We came up with liners that are durable, affordable and can be fully recycled. Once we got the fabric (used as the liner) ready we saw that leakages happened through the joints in the fabric. So, we designed the world's widest fabric so the number of joints got reduced and consequently the seepage," said Appalwar.

The liner is being produced at the parent firm Emmbi Industries' Silvassa unit using its patented "Protex" technology.

"Jalasanchay is an affordable solution to store rainwater, and also raises groundwater levels," she said, adding that she and her colleagues got their hands dirty visiting various villages and working out partnerships with panchayats.

Maithili Appalwar, CEO, Avana

Spreading awareness

Avana has also got into partnerships with non-governmental organisations to educate people about Jalasanchay. Overall, the firm, Appalwar's brainchild, has helped save 3.5 billion litres of water on over 6,000 farms. In addition, it arranges for bank loan facilities and offers post-sales service. Led by Appalwar, Avana's team with 150 young workers is working with farmers on various farm solutions in Maharashtra, Rajasthan, Karnataka, Madhya Pradesh, Andhra Pradesh, Punjab and Haryana.

Kapila Murghas bag

Another innovation that Avana has come up with is the "Kapila Murghas" bag, which can store fodder for cattle using a new fabric that is embedded with "fodder tex" technology.

The bag is four times stronger than existing bags in the market and has been endorsed by Baramati Krishi Vigyan Kendra and Gokul Dairy, Kolhapur. The bag has a quality food grade liner that assures safety of the fodder and cattle.