

The Times of India- 02- July-2023

# Pollution in Yamuna goes up in June again

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**New Delhi:** Despite surplus rain in March, April and May, the pollution level in the Yamuna increased in June, shows a monthly analysis report by Delhi Pollution Control Committee (DPCC).

According to the data for June, the water samples collected from the first two locations of the river in the city, Palla and Wazirabad, were within the standard criteria for outdoor bathing. However, by the time the river reached ISBT bridge, the pollution level shot up. Dissolved oxygen (DO), a marker of presence of life in the river, faded away and the level of fecal coliform, indicating presence of raw sewage, rose.

According to the data, the maximum fecal coliform level in June was 4,30,000 units against 4,00,000 units a month earlier, showing high presence of untreated sewage in the Yamuna. In May, the river had shown sign of improvement for the

first time this year, however the fecal coliform level was still 160 times higher than the maximum permissible limit.

The Yamuna, thus, continues to be not suitable for drinking even after conventional treatment as the river continues to be polluted throughout its 22km stretch in Delhi. According to the DPCC data, the faecal coliform level in the river at the city entry point, before the confluence of Najafgarh drain, was 550 units, which is well within maximum limit of 2,500 most probable number (MPN)/100ml and the desirable limit of 500 MPN/100ml. However, the same at exit point worsens to 4,30,000 units, 173 times the maximum limit and about 860 times the desirable limit.

The water samples were collected on June 1 from eight points along the Yamuna — Palla, Wazirabad, ISBT bridge, ITO bridge, Nizamuddin bridge, Okhla barrage, Agra canal at Okhla barrage and Asgarpur where the Shahdara and Tughlaqabad drains converge.

The Hindu- 02- July-2023

# Water mission may miss 2024 target

Only three out of four rural households are likely to have drinking water tap connections by 2024; work has not even begun in 5% of homes



**Ground to cover:** During the launch of the scheme in 2019, only 16% of rural households in India had access to tap water. K. BHAGYA PRAKASH

**Jacob Koshy**  
NEW DELHI

**T**he government's ambitious 'Har Ghar Jal' initiative to provide all rural households in India with potable water connections by 2024 under its flagship Jal Jeevan Mission is likely to fall short of its target. Only 75% of village homes are likely to have taps delivering drinking water by April 2024, *The Hindu* has learnt from multiple sources and an analysis of publicly available data.

Despite the scheme having been announced by Prime Minister Narendra Modi in 2019, a time only 16% of rural households had tap water, officials say a slew of challenges – such as the pandemic, a dearth of qualified manpower in States, the scale of the exercise, State-specific issues and even the ongoing Russia-Ukraine war – meant that the project only picked up speed in several States in 2022.

"While the pandemic led to delays, the

Ukraine war resulted in major shortages of steel and cement, [which are] critical to the manufacture and connection of metal pipes. This led to major price revisions and considerable time was lost in renegotiating contracts and improving supply," a senior official told *The Hindu* on condition of anonymity. "There was also a huge problem in many States of not finding enough skilled manpower to make tanks, cisterns and water connections of acceptable quality," the official said.

"There are States, for instance Rajasthan, where actual availability of water is a challenge. In West Bengal and Kerala, there are problems with water contamination. So ensuring adequate water quality is an issue. It is not enough to just provide a piped connection," the official said and added, "We expect about 75% households to be covered by March 2024 and 80% by December."

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## Water mission may miss 2024 target

"Of the nearly 19.5 crore households that are targeted under the scheme, there are about one crore households (5% of the total) where work hasn't even begun. In every village that already has access to some source of water, it takes an average of eight months to connect all households and this is if they are extremely efficient," the official said. The Jal Jeevan Mission has a financial outlay of ₹3.60 lakh crore, with the Centre funding 50% of the cost.

### 'Functional' tap

The mission's stated objective is to provide 'functional' tap connections that give at least 55 litres per person per day, of potable or drinking water. According to data by the Jal Shakti Ministry, about 63% of rural households have tap connections, meaning that about 9.1 crore households have benefited from the programme since 2019.

### Few certified villages

However, these are figures reported by the States. There is a system of 'certification' wherein the gram panchayats in a village which district and block level authorities report as fully connected call a quorum, and upload a video attesting the veracity of the claim. Of the nearly 1,68,000 villages that are reported as 'Har Ghar Jal' where all houses have tap water, only 58,357 villages have been so 'certified', suggesting that the gap between reported and verified connections is wide.

In Uttar Pradesh, for instance, only 5.1 lakh – or 1% – of households reported tap connections when the scheme was launched. This grew to 32 lakh by August 2021 and then grew slower to 42 lakh by August 2022. In the last 10 months, however, the number of homes with connections has dramatically jumped to 1.3 crore, or about half the total rural households. However, of U.P.'s 98,455 villages, only 13,085 have reported being fully connected and only 2,837 of them have certified themselves. Thus, about 3% of U.P. villages can be said to be 100% certified as *Har Ghar Jal* villages.

In Rajasthan, 11 lakh households had tap connections in 2019, which has risen to about 44 lakh in June. Of its 43,249 villages, only 1,146 are reportedly fully connected, only half of which have been certified so. In West Bengal, where the number of connected households grew from 2.1 lakh to 62 lakh between 2019 and 2023, the number of villages reporting 100% connections are 2,654 or about 6% of the State's villages. Of these, only about a fourth are certified.

### Independent verification

"We upload what the States tell us, on the number of households covered. There are, however, two mechanisms for independent verification. We have an independent audit agency that conducts a survey by preparing a representative sample and interviewing respondents on whether the installed water connections are actually delivering water to their satisfaction. There is also a panel of National WASH (Water, Sanitation and Hygiene) experts who appraise a section of villages on the quality of services provided," the official told *The Hindu*.

One such survey was conducted in October 2022, covering 13,303 villages, of which 5,298 were reported as *Har Ghar Jal* villages and consisting of nearly 3,00,000 households. It was found that only 62% households had fully functional connections. Of the top 10 States that have reported over 96% of coverage, two – Bihar and Telangana – have zero villages that have certified their connection status. This was because both States did not rely on Central funds for the programmes, the official said.

"After self-certification verification, a 'Har Ghar Jal' village means prominently publicising both the Prime Minister and the Chief Minister's images on posters, if they have used Central funds. Some States don't want to do that," the official added. *The Hindu's* questions on this matter to officials in the Jal Shakti Ministry were not answered at the time of going to press.

Only eight States and Union Territories so far have reported all their villages as 100% connected, but nearly all of them were well connected in 2019 itself, according to data on the web portal. Haryana, Gujarat and Punjab – the largest of these States – already had over 50% coverage in 2019.



Deccan Herald- 02- July-2023

# ‘Even rains don’t help’: Groundwater crisis acute

**Inadequate recharge, over-exploitation and contamination of wells have left groundwater, the primary water source for many, unsafe**

**PAVAN KUMAR H**  
HUBBALLI, DHNS

**I**n Agumbe, known as the ‘Cherapunji of the South’, stands one of the oldest houses in the region — Doddamane. Part of the famed television series ‘Malgudi Days’ was shot in this house and later, it hosted a number of tourists every summer.

This season, its owner G K Ravikumar Pai (61), was hesitant to entertain guests as the 35 ft well, a major attraction, had just two ft of water left in it.

“For the first time in 145 years the water level was so low,” says Ravikumar.

Not just this well, nearly 80% of the open wells in Agumbe, were all but empty this summer.

Like many others, Ravikumar believes that the region is witnessing a water crisis in the last three to four years because of a rainfall deficit.

As against the 7,565 mm annual rainfall, Agumbe received just 3,695 mm of rainfall in 2020 (a 51% deficit).



**Pots lined up in front of a community tank in Hubballi's Byahatti village which is currently experiencing a water crisis.** DH PHOTO/GOVINDARAJ JAVALI

## INSIGHT

In 2021, the region had a 45% deficit of rainfall and in 2022, a 38% deficit.

Experts believe that rainfall deficit is just one of many reasons behind the depletion of groundwater levels in Malnad and Coastal Karnataka, where water was easily available in the past. Deforestation, concretisation, over-exploitation of groundwater for agriculture and poor rainwater harvesting systems are equal culprits. As a result, even places which have seen an increase in rainfall are also facing a water crisis.

As rainwater harvesting expert

Shree Padre points out, good rainfall does not always ensure the replenishment of groundwater tables. “Good rainfall does not necessarily ensure replenishment of groundwater table. It is the extent of percolation into the earth that matters. It is like a bank operation. Unless we deposit, we cannot withdraw, and now we are overdrawn. We have already started receiving notices,” he explains.

While people are using groundwater for agriculture, domestic and industrial purposes, there is little understanding about using the resource judiciously. Ideally, only 50% of groundwater resources should be extracted.

► **Groundwater crisis, Page 2**



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# Forests: First line of defence

## Groundwater crisis, from Page 1

Experts advise against using up the quantum of recharged groundwater due to ecological constraints.

But as rainwater harvesting expert Devaraj Reddy points out, Karnataka has used 70% of its extractable groundwater resources.

As per 'Dynamic Groundwater Resource of Karnataka', a 2023 study by the Central Groundwater Board (CGWB) and other institutions, Bengaluru, Chamarajanagar, Chikkaballapur, Chitradurga and Kolar have extracted more than 100% of the recharged groundwater.

Davangere, Ramanagara, Tumakuru and Vijayanagara have extraction between 90% and 100% of water.

Such indiscriminate withdrawal of limited groundwater resources is not without consequence.

These districts, located in the central, southern and eastern drylands of Karnataka, are increasingly dependent on groundwater, owing to limited surface water availability.

### Cropping patterns

The report reveals an interesting pattern of extraction — 89% of extracted groundwater is used for irrigation purposes, 10% is used for domestic purposes and 1% for industrial use.

The lack of surface water and poor irrigation systems contribute to a majority of farmers using borewells.

Despite the presence of two major rivers, the Krishna and the Malaprabha, most farmers in Belagavi still depend on borewells to irrigate their land. The district had more than 88,885 functioning borewells in 2022, according to the CGWB report. Most of the water thus supplied is used to cultivate sugarcane—a water-guzzling crop.

During the green revolution, farmers particularly experienced the need for water. This caused an indiscriminate number of borewells to pop up. "People overlooked the culture of rejuvenating the open wells and maintaining lakes and tanks the traditional way resulting in poor recharge of the water table," says Pramod Hanamgond, a professor from

Belagavi.

Wrong cropping patterns and an erratic supply of electricity are other reasons for the excess drawing of groundwater.

This is a situation that needs immediate intervention according to Padre. The priority should be 'more crop per drop', he explains.

"Forests are our first line of defence against drought. The more organic matter in the soil, the greater the percolation of water. With deforestation, we are creating more run-offs for the rainwater and reducing the water-holding capacity of the earth," he adds.

The effects of deforestation are clear in Malnad and coastal Karnataka where the land has lost capacity to retain water. Environmentalist Nagesh Hegde explains that even surface water evaporates quickly due to global warming and percolation of water into the ground takes a longer period due to silt accumulation in water bodies.

An increase in cropping area and the shift in focus to water-guzzling crops resulted in the indiscriminate installation of borewells, most of which were dug below permissible levels. This has also led to water contamination and a deterioration in quality.

According to the quality tests conducted across 1,245 borewells and 700 Atal BhooJal units in the state by the CGWB, samples from Ballari, Chitradurga, Davangere, Kalaburagi, Raichur, Kolar and Vijayanagara contained fluoride. Salinity was noticed in samples from Chitradurga and Koppal.

In 13 taluks, including Gadag, Chikkaballapur, Chitradurga, Vijayanagara and Yadgir, nitrate contamination was found.

### Drinking water

Traces of uranium, a nuclear substance, were also found in borewells that were used to supply drinking water to homes in Kolar and surrounding areas, says a 2020 report from the Indian Institute of Science. This is a matter of concern as the nuclear substance is a possible carcinogen.

Water contamination has proved fatal in many regions. At least eight people died, and several others were admitted to the hospital in a span of one year, in

Koppal and Raichur, according to reports. They complained of diarrhoea and other health issues after consuming contaminated groundwater.

Two villages where such incidents were reported received the Har Ghar Jal certificate. "We have tap connections but water has not flown in them till now. So, even to this day, we rely on water from a hand pump," says Raghuendra Nayak, of Raichur's Bekkalmaradi village, who lost his one-year-old nephew to contaminated water.

Under the programme, every house in the panchayat has a drinking water pipeline connection.

"Unfortunately, sewage water percolated into the groundwater and mixed with the water that we drew from the hand pump," recalls Nayak.

### Chemical contamination

Extracting groundwater 25-30 m below ground level can be harmful as chances of chemical contamination increase.

"Groundwater (from the hard-rock regions of India) generally hosts shallow aquifers up to depths of 25-30 m below ground level. Extracting from deeper levels is not sustainable as deeper aquifers take longer to recharge, have lower unit storages and may have higher dissolved solids," says hydrogeologist Himanshu Kulkarni, Advanced Centre for Water Resource Development and Management, Pune.

Unfortunately, due to poor management, most water bodies have either become defunct or are contaminated.

Kulkarni explains that there is no silver bullet solution as the problem is diversified. To start with, India should strictly adhere to the internationally accepted 'managed aquifer recharge' (MAR) techniques that help recharge an aquifer using surface or underground recharge techniques.

Failure to follow through on these guidelines can also prove devastating. In Kolar and Chintamani, the state government has taken the initiative to fill lakes and other water bodies, in an effort

## Bengaluru Urban's groundwater use exceeds its capacity for recharge

District	Annual groundwater extraction	Net annual groundwater available for future use
Bagalkot	52,498	19,587
Bengaluru Urban	31,919	0
Chikkaballapur	47,579	0
Chitradurga	54,531	1,696
Dharwad	17,591	11,440
Kalaburagi	26,478	37,037
Kolar	70,300	0
Mysuru	32,620	21,376
Tumakuru	68,514	14,644
Yadgir	18,496	24,347
<b>Karnataka</b>	<b>11,21,978</b>	<b>6,34,408</b>

Figures in hectare metre

to replenish groundwater.

"Replenishing groundwater seems like a good step. But the state government is filling lakes and other water bodies with second-level sewage-treated water instead of tertiary potable water. This is causing more damage," says Anjaneya Reddy, a Kolar-based activist.

A report from the Indian Institute of Science warns that this water could potentially be a health hazard through direct and indirect consumption.

In addition, according to Anjaneya, the government did not conduct an environmental, health and social impact study after discharging half-treated sewage water through the Koramangala-Challaghatta (KC) and Hebbal-Nagawara (HN) valley projects.

Balasubramanya B, Minor Irrigation Department Deputy Secretary, says currently they were 'pumping' secondary treated water from KC and HN Valley to Kolar and Chintamani taluks. "Tertiary treatment, which improves the water quality to potable, is a costly affair. The Bangalore Water Supply and Sewerage

Board is supposed to provide us with tertiary-treated water. However, it is not being done," he says.

He also adds that a dedicated staff has been appointed to test the quality of the water and based on the recommendation and quality suggestion by the Indian Institute of Science, Bengaluru, water was being supplied to the region.

These efforts have resulted in an improvement of groundwater level from 1,000 ft to 100 to 200 ft, according to the official. However, he did not respond to questions on the quality of water that was available.

"Government has to take necessary steps to ensure that tertiary treated water is supplied," he says.

### Percolation in cities

The dependence on groundwater, despite the potential for contamination, persists in even a metropolitan city like Bengaluru — about 50% of the city is dependent on groundwater.

"Water scarcity is not prevalent in central Bengaluru where there are more open spaces. However, the 'new' Bengaluru that has plinth-to-plinth buildings built upon 'encroached' lakes is facing a water crisis as there is no space for water to percolate," says Veena Srinivasan, a researcher with

Ashoka Trust for Research in Ecology and Environment.

She says that the government has no control over the number of borewells. This has worsened the situation. At least 20-30% of wastewater should be allowed to seep into the earth, she adds.

### Rainwater harvesting

The city's water needs could be met by utilising rainwater, says S Vishwanath, urban developer and 'A Million Recharge Wells' project initiator.

"There is no need for us to draw 1,450 million litres of water per day from the Kaveri. A Kaveri flows right beneath us. Even if we harvest 50% of the total rain that Bengaluru receives annually, we can get 1,500 million litres of water per day for 365 days."

Even though urban bodies claim that 85% of the city harvests rainwater, Devaraj Reddy says the reality comes to light every monsoon in the form of waterlogging. Unless rainwater harvesting norms are strictly implemented, as the late Jayalalithaa government did in Chennai in 2001, Bengaluru will continue to face drinking water and waterlogging problems.

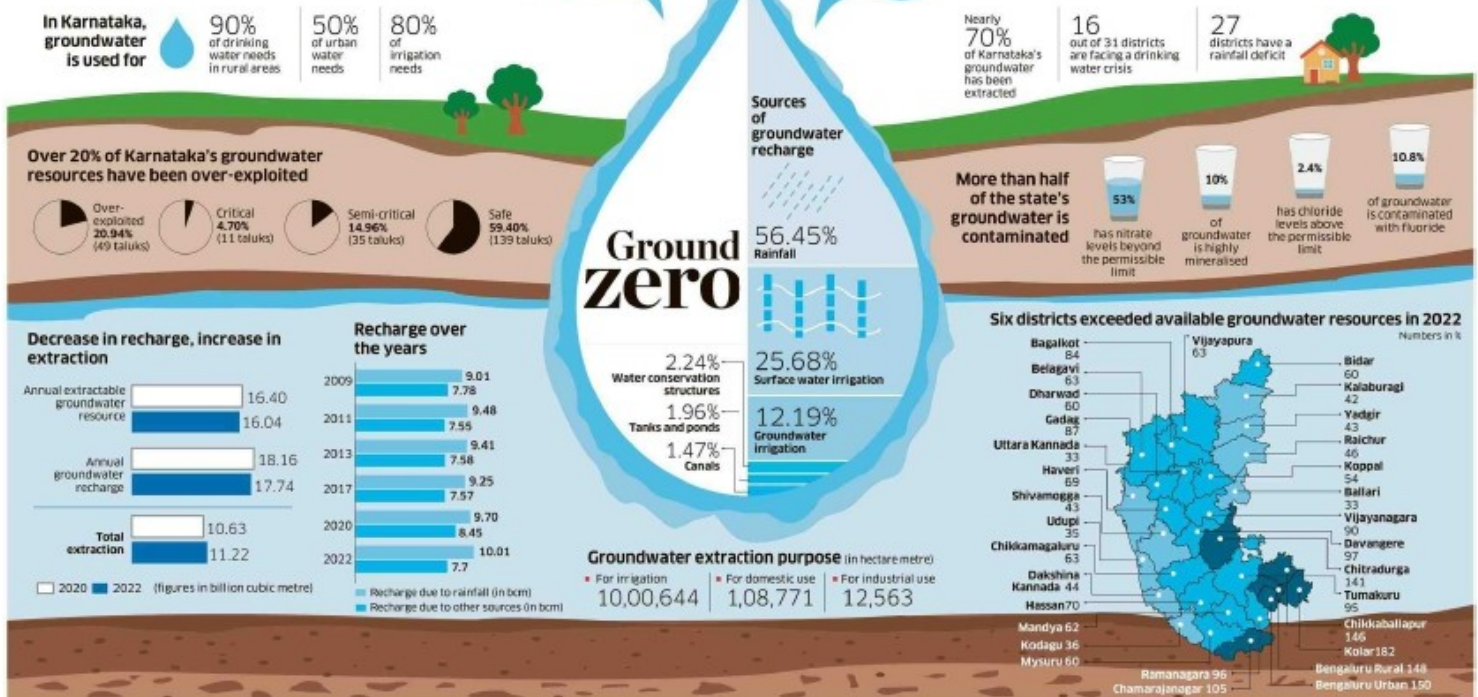
Officials in the Groundwater Directorate say that measures have been put in place to replenish the groundwater table through tank and lake filling projects. Over the last three years, groundwater levels and quality have improved, says Ramachandrarao, director of the Groundwater Directorate.

However, he acknowledges that some taluks are in need of special attention. He faults the concretisation of urban areas for the poor replenishment of groundwater. "A strict norm should be put in place to restrict drilling borewells," he says.

Some experts suggest a master plan of linking water bodies should be developed. In the absence of such a network, even though surface water is available, people will continue to depend on groundwater.

## Have your say

To express your opinion, e-mail us at: [insight@deccanherald.com](mailto:insight@deccanherald.com)



Source: National Ground Water Resources of India 2022

FIGURE 17 BY GROUNDWATER LEVELS AND QUALITY



The New Indian Express- 02- July-2023

# K'taka's reservoirs only 17% full, water situation is grim: Officials

As per IMD data, Karnataka as a whole has recorded a deficit of 52% rainfall till date

BOSKY KHANNA @ Bengaluru

WITH the state looking up to the rain gods to make up the deficit in monsoon, reservoirs in Karnataka are only 17-per cent full.

State government officials said the grim situation could lead to a drinking water crisis across the state and it needs to be addressed immediately.

According to the Karnataka State Natural Disaster Monitoring Centre (KSNDMC), the present storage is 148.22 tmcft as on July 1 as compared to 293.75 tmcft last year. The gross storage capacity is 865.20 tmcft.

Though the India Meteorological Department has forecast good rainfall for July, especially from July 3-7, officials in the water resources department and KSNDMC say it will



A view of low water level at Krishnaraja Sagar reservoir in Mandya. On Saturday, the level was down to 78.06ft against the full capacity of 124ft | UDAYASHANKAR S

not address the drinking water situation completely.

According to IMD data, the state as a whole has recorded a deficit of 52 per cent rainfall, recording 100.1mm rainfall,

against the norm of 208.5mm.

Government sources admitted that reservoir levels, if left untouched, are sufficient for the next 2-3 years. But now with the shortage in drinking

## Convene all-party meet to discuss Mekedatu: PMK

Chennai: PMK president Anbumani Ramadoss on Saturday urged the TN government to immediately convene an all-party meeting to discuss Karnataka's Mekedatu project. Anbumani, in a statement, said, "Karnataka Deputy CM DK Shivakumar has written to the centre seeking early approval for the Mekedatu project. He has tried to mislead the centre by alleging that TN is implementing Hogenakkal Combined Water Supply Scheme and other water supply schemes illegally." ENS

water, the focus is on drawing water from the reservoirs, causing panic. "So, if the reservoir levels are fully utilised, there is water only for the next 30-35 days," added a source.