

What India Is Doing To Tackle Its Water Crisis

Per capita water availability has fallen 75% since Independence. But it looks like the country has finally got its act together and several measures are now in place to conserve and rejuvenate our water bodies

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The situation is dire. In the 75 years since Independence, annual per capita availability of water has declined by 75% - from 6,042 cubic meters in 1947 to 1,486 cubic meters in 2021. Not only are we staring at depletion of groundwater and pollution of surface water, but also vanishing water bodies - ponds, lakes, tanks, wetlands - thanks to encroachment. Provisional data from the country's first census of water bodies shows 18,691 of 9.45 lakh water bodies - or 2% - have been encroached. The number is likely to be much higher as figures from states like UP, Maharashtra, Karnataka, MP and Rajasthan are still not in.

But the good news is people have woken up to the reality of this crisis, and there are now several projects aimed at rejuvenating rivers and recharging aquifers. "Water scarcity is a major inhibitor to growth. I think we all recognise this and that's why the Jal Shakti Abhiyan (JSA) was started in 2019 as a movement for water conservation, recharge and rainwater harvesting in 256 water-stressed districts," said Debashree Mukherjee, additional secretary and director, National Water Mission.

The JSA now covers all 740 districts in the country. States are implementing it, while the Centre provides the nudge. The states are also preparing an inventory of water bodies, which should make encroachment in the name of building infrastructure or setting up industries difficult. Experts flagged many issues - from policy gaps to legislative provisions - that have been affecting overall water management in the country. Water being a state subject invariably leads to a political tug of war when it comes to water-sharing between states.

"The present policy environment in the water sector is very fragmented and facing 'hydro-schizophrenia'. There's no integration of surface and groundwater; drink-

ACROSS STATES, RIVERS ARE IN POOR HEALTH

351 Number of polluted stretches on 323 rivers across India as identified by CPCB. Findings show that none of the major rivers, including the Ganga, Yamuna, Jhelum, Chenab, Ravi, Sutlej, Beas, Brahmaputra, Narmada, Godavari, Mahanadi, Krishna and Cauvery, have been spared the effects of pollution



Assessment of 521 rivers by CPCB was based on the tracking of their biochemical oxygen demand (BOD), which is an indicator of organic pollution

Top 10 States (Polluted River Stretches)



Drivers Of Pollution

Discharge into rivers of sewage and industrial effluents.
Issues with the operation and the maintenance of sewage/effluent treatment plants.
Inadequate water in rivers, which hampers the natural cleaning process through dilution.

Then There's The Encroachment Of Water Bodies



State	No. of Water Bodies	Encroached Upon
Andhra Pradesh	1,90,777	3,920
Assam	1,72,492	11
Jharkhand	1,07,598	560
Tamil Nadu	1,06,957	8,366
Himachal Pradesh	88,017	42
Telangana	64,056	3,032
Kerala	55,734	111
Gujarat	54,069	22
Bihar	45,793	871
Punjab	16,012	1,578
Haryana	14,898	50



RePlanet is a joint initiative between Coca-Cola and The Times of India with Climate Trends as the knowledge partner

ing water and irrigation, and departmental coordination. The national water policy is very irrigation-centric," said Eshwer Kale, lead researcher at Pune-based Watershed Organisation Trust. Kale also felt that rainfed agriculture in the country has to be incentivised, given its high contribution to India's food and nutrition security.

Reports have flagged how use of over 85% fresh water in agriculture has led to a crisis in several states, including Punjab, Haryana and western UP, with excessive dependence on groundwater in cultivating water-guzzling crops such as paddy and sugarcane showing a huge policy gap in

managing water resources. Indiscriminate use of water for irrigation and absence of conservation efforts have left over 10% of water bodies in rural areas redundant. According to the fifth minor irrigation census, conducted with reference year 2013-14, there are 5,16,303 water bodies in rural areas which are being used for minor irrigation.

Of these, 53,396 are not in use for various reasons such as non-availability of water, siltation, salinity etc. With water bodies vanishing or becoming unusable, the Centre has decided to build 50,000 water bodies - Amrit Sarovar - across the country by August 15 next year to conserve water. Each Amrit Sarovar will have an approximate area of one acre with a holding capacity of 10,000 cubic meters.

The initiative, launched on April 24, aims to develop and rejuvenate 75 water bodies in each district as part of Azadi Ka Amrit Mahotsav (75 years of Independence) celebrations. The project seeks to refocus various schemes,

The Solution? Integrated Watershed Development

It is an approach that seeks to rejuvenate rivers/water bodies and recharge aquifers through afforestation. The target is to achieve rejuvenation of 13 rivers across 26 states and UTs

Himalayan rivers
Jhelum, Chenab, Ravi, Sutlej, Beas, Yamuna, Brahmaputra

Peninsular rivers
Narmada, Godavari, Mahanadi, Krishna, Cauvery

Inland drained river | Luni



Source: Data shared by Centre in Parliament during the Budget Session 2022, CPCB
Graphic: Sunil Singh

Forestry Interventions Can...

Absorb rainfall | Rein back run-off | Regulate hydrological cycle | Reduce soil erosion | Improve water infiltration | Recharge aquifers | Serve as biological filters | Enable bioremediation

...And Bring About 7,417 sqkm increase in forest cover and 1,889 million cubic meter per year groundwater recharge (Projected figures)

Note: In addition to these 13 rivers, the government has a separate comprehensive plan to rejuvenate river Ganga through multiple actions, including afforestation

including MGNREGS and Watershed Development Component. Over 12,000 sites have so far been finalised for creation of water bodies by states.

Meanwhile, the Centre has urged states to focus on enumerating, geo-tagging and making an inventory of all existing water bodies on priority under the JSA so that encroachment can be prevented. "Those of us who have worked in urban districts know that water bodies disappear if we don't actually ensure they are part of the revenue records," said Mukherjee. She underlined the need to have an inventory of water bodies so that the country's water conservation programme can continue in a more scientific manner.

Hitting rock bottom in the land of five rivers

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It doesn't get more ironic than this. Punjab is the shortened version of Punjab (the land of five rivers). True, post-Partition, Punjab was left with only two and a half rivers - Satluj, Beas, and part of Ravi - but a state with even two and a half rivers should not plunge into the kind of water crisis that Punjab has. No one had seen water tankers in Punjab before, but now they are a common sight. Things have come to such a pass that people are being forced to buy water, sometimes even unpurified water.

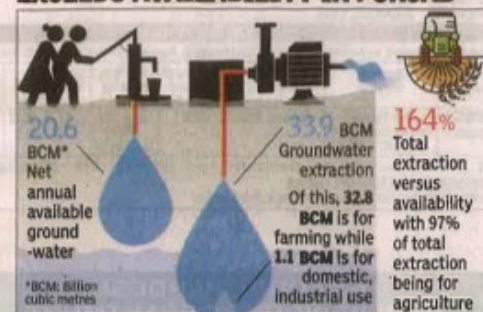
And there's even more irony in the case of Punjab. The Green Revolution helped India become self-reliant in foodgrain production, but it also triggered the water crisis in Punjab. Farmers switched to water-intensive paddy cultivation, and things have gone downhill ever since. Experts estimate that Punjab may completely run out of groundwater in another 16 or 17 years. Besides, excessive use of pesticides has led to ground and surface water getting contaminated.

Then, in 1997, the SADB-UP government made electricity free for the farm sector. Nothing better than that to incentivise groundwater extraction at a whole new scale. Paddy cultivation boomed, but the water table started plunging rapidly.

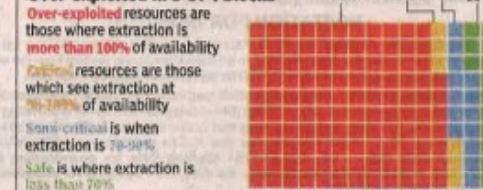
Out of the total cultivable area of less than 41 lakh hectares, water-guzzling paddy, which includes basmati, is grown in over 31 lakh hectares - or over 75% of the land. And it takes about 5,000 litres of water to grow 1 kg of rice, according to scientists at the Punjab Agricultural University. To make matters even worse, 73% of the irrigation is dependent on groundwater and only 27% on canal water.

"Going by the water situation in Punjab, we will have

GROUNDWATER EXTRACTION FAR EXCEEDS AVAILABILITY IN PUNJAB



Water Resources Over-exploited in 3 Of 4 Blocks



to adopt crop diversification very seriously. The present water usage model is not going to work anymore. We need to value the importance of water," said Prof Gian Singh, who has written a number of books on groundwater depletion in Punjab.

There's also the issue of contamination of groundwater as well as surface water. Heavy chemicals - fluoride, chloride, nitrate - were found in water and in some districts there were even traces of uranium. Water contamination is

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poses in many of the areas in the state. It is causing lots of disorders, including autism and mental retardation. A study was conducted in the last few years to assess the body burden of toxic metals and the urine samples of autistic children were sent to a research lab of German scientist Dr E Blaurrock-Busch, an authority on heavy metal testing, and the results were

frightening.