Rising Concern About Continuous Depletion Of Groundwater Level in Bengaluru

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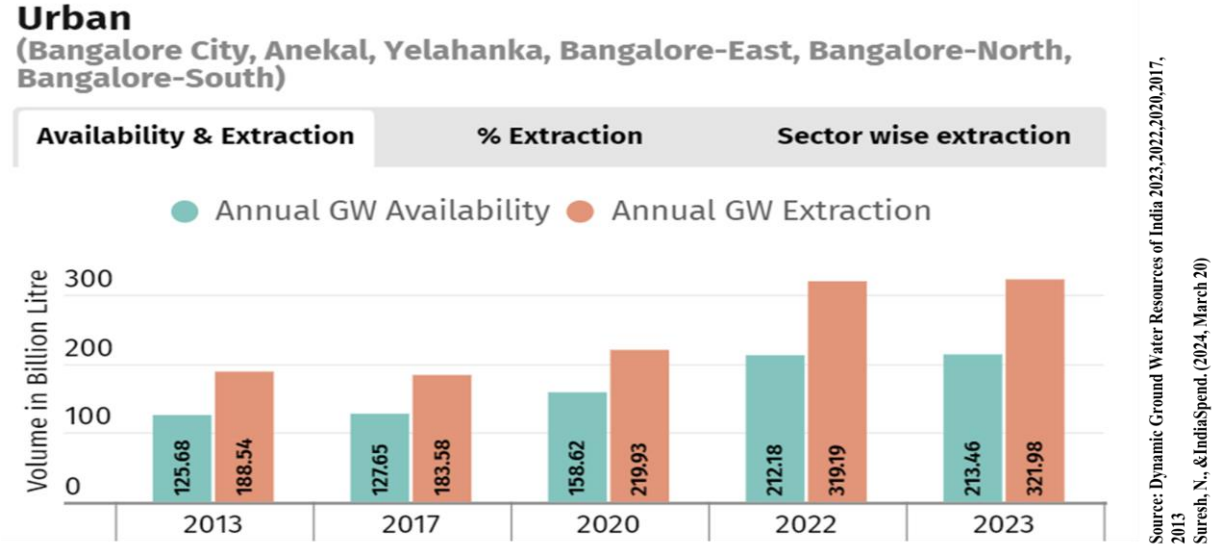
India is the largest user of groundwater in the world, with groundwater accounting for about 40% of the total water supply for irrigation and over 85% of rural water supply. Over the past few decades, groundwater levels in many parts of India have been steadily declining. According to a report by the Central Ground Water Board over 60% of India's districts have reported a decline in groundwater levels.

While we talk about certain regions of India, one of the prominent metropolitan cities of India, Bengaluru has been hit by acute water shortage due to groundwater depletion. The IT hub of India has witnessed the highest dip in groundwater levels this summer. The analysis was made on the groundwater level records tracked from the months of December, January and February. The current requirement for drinking water and industries in Bengaluru is 2,600 million litres per day, according to CM Siddaramaiah.

The East side of Bengaluru gas faced the most acute water shortage and in this summer, the groundwater levels dipped up to 10.8 meters.Besides Bengaluru East, groundwater levels in the rest of the four sub-districts in Bengaluru urban, namely Bengaluru South, Anekal, Bengaluru North and Yelahanka have receded a drop of more than four meters below ground level. Other sub-districts like Doddaballapur, Devanahalli and Hoskote have also experienced a notable decline in the water table.
This drop has been noticed in around 90% of the sub-districts of Karnataka. According to the report, the groundwater in most of the sub-districts is now available at 20-30 meters below the ground level. Although the levels have reached 30-40 meters below the



Source: Dynamic Ground Water Resources of India 2023,2022,2020,2017, 2013
Suresh, N., &IndiaSpend. (2024, March 20)

ground level at Bengaluru East and Anekal.Sharma, S. (2024, February 23)

A combination of factors like urbanization, over-extraction of groundwater, pollution and inadequate water management practices contributes to rising water shortage and the levels of groundwater depletion in Bengaluru.

In the last two decades, Bengaluru has experienced rapid urbanization and population growth. The population has doubled owing to better job opportunities, better climatic conditions and higher standard of life. The water demand for domestic, industrial and commercial purposes have increased along the way. The Bengaluru Water Supply and Sewerage Board has stated that the city's water demand is projected to increase to 2010 million liters per day by 2031 far exceeding the available water resources.

There has been a 1055% increase in concrete area over five decades.The green cover has reduced significantly and there has also been 18% loss in vegetation cover and 79% loss of water bodies. Removal of forest cover up to 18% in the Cauvery basin area has influenced the rainfall pattern over this area.(Thakur, A. 2020, January 19).

Besides rapid urbanization, lack of awareness about soil ecology, chemical-intensive agricultural practices, and lack of action against commercial exploitation of groundwater by authorities are the prime reasons behind the declining trend of the groundwater table.
As a solution, the Karnataka Water Policy has been planned for effective management of water and approved by the state cabinet in 2022 but it still appears to be a distant dream. More than a decade ago, hydrogeologists KC Subhash Chandra and GV Hedge made some suggestions to the authorities like:
Implementation of effective rooftop rainwater harvesting in all houses and buildings which exceed 100 square metres of roof top
Prevention and plugging the enroute leakage and transmission loss of 30-40 % of Cauvery River water getting pumped to Bengaluru for meeting the city water requirement
Conservation, protection and freeing the precious storm water of 17,500 hectares metre of Bengaluru
Treating 70% of the sewage or wastewater generated in the city and making it potable. (Chandra, K. C. S., & Hegde, G. V. ,2024, March 22).

While these cannot be implemented immediately, some of the immediate solution includes supplying water through tankers. Besides, the authorities should treat the water of major lakes like Ulsoor, Hebbal, Yele Mallappa Shetty, Agara, Bellandur and 1Vartur up to tertiary level in a fool-proof manner and supply. This water can be used for different purposes. The native citizens play a crucial role too in conserving water and using the available the precious water resources judiciously (Chandra, K. C. S., & Hegde, G. V.,2024, March 22).

As an environmentally aware student and citizen, my suggestions to overcome this crisis includes maximum implementation of watershed management, aquifer recharge and holistic urban planning to protect the water resources and enhance ecosystem. Revitalising lakes and tanks for storing water is also a promising solution to Bengaluru's water crisis.

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