

Finding a way out of India's deepening water stress

Understanding sources used

1. Seeing India's looming water crisis through the locus of 'urban' and 'rural' not only allows a better grasp of the causative factors but also enables a stronger grip on the strategies to be deployed to reverse the water crisis.

2. Fundamental to this is a preliminary understanding of the sources from which the country draws water to meet its

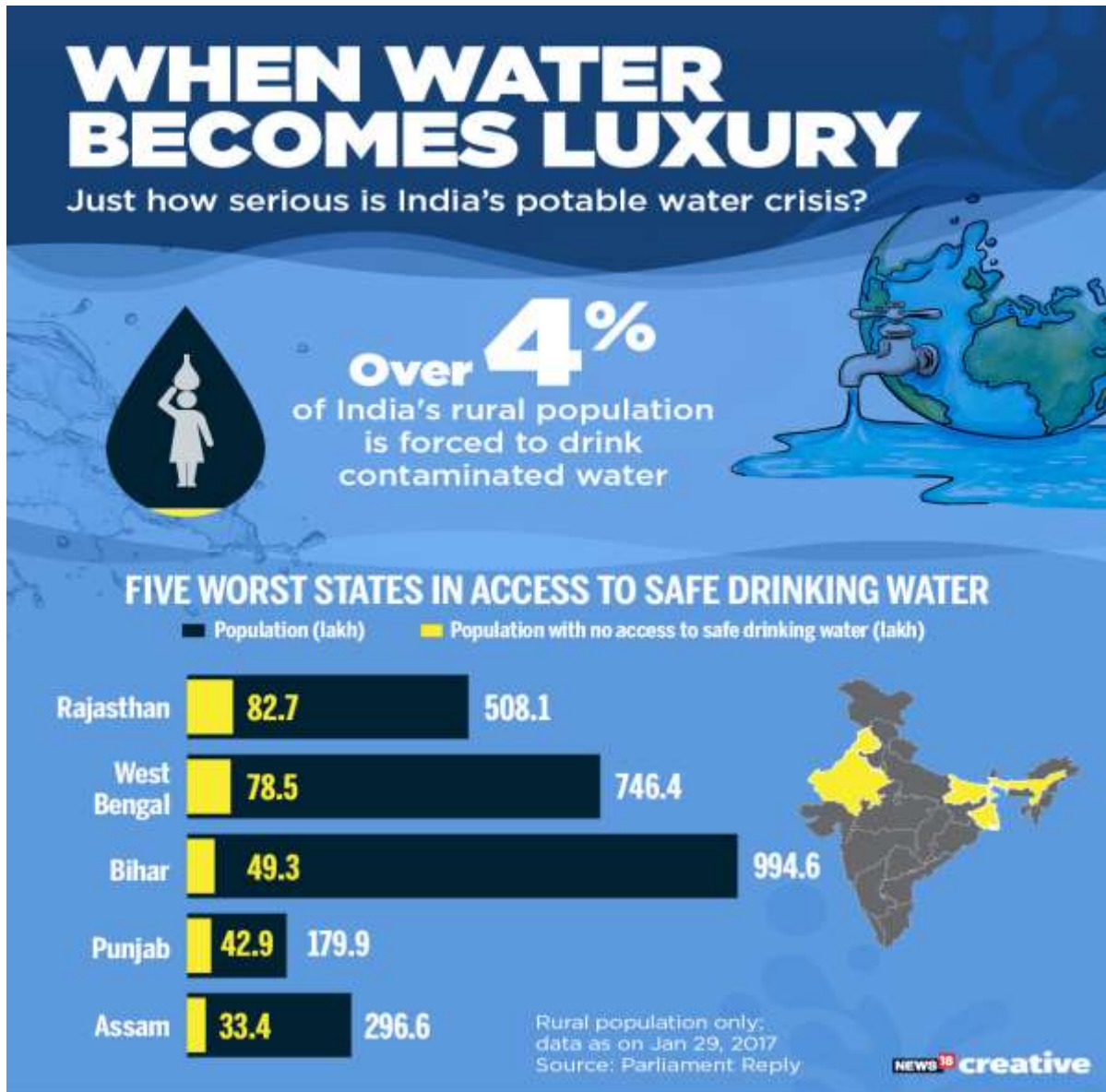
varying needs. In the rural areas, 80%-90% of the drinking water and 75% of the water used for agriculture is drawn from groundwater sources.

3. In urban areas, 50%-60% of the water supply is drawn from groundwater sources, whereas the remaining is sourced from surface water resources such as rivers, often located afar, in addition to lakes, tanks and reservoirs.

4. According to the composite water management index released by the think tank, NITI Aayog in 2019, 21 major cities (including Delhi, Bengaluru, Chennai, Hyderabad) were on the brink of exhausting groundwater resources, affecting about 100 million people.

5. The study also points out that by 2030, the demand for water is projected to be twice the available supply.





The Chennai case study:

1. A significant, and by no means less worrying, example of the water crisis that unfolded before our eyes were in Chennai in 2019, where life came to a standstill and parts of the city went without piped water for months.
2. Many have cited the poor rainfall received in Chennai in the previous year as one of the main reasons for the water crisis.
3. However, there is a need to understand the ground-level steps (or missteps) which have been equally responsible factors.

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4. Chief among these is that the city has been built by incrementally encroaching floodplains and paving over lakes and wetlands that would have otherwise helped the process of recharging groundwater. The lack of space for water to percolate underground prevented rainwater from recharging the aquifers.
5. This was further exacerbated by the loss of green cover (which would have otherwise helped water retention) to make way for infrastructure projects.
6. Such a situation, on the one hand, leads to flooding during normal rainfall due to stagnation, and on the other hand, leads to drought-like conditions due to the prevention of underground water storage.

It is only that this situation was more magnified in Chennai, but other cities in India would echo these manifestations in varying degrees owing to a lack of sustainable urban planning.

Need for synergy

1. If the Government is serious about addressing the water crisis in urban areas, the Ministry of Water Resources must reconfigure its relationship with other Ministries and Departments (Urban Development, Local Self-Government and Environment).
2. This would be for enhanced integration and coordination through effective land and water zoning regulations that protect urban water bodies, groundwater sources, wetlands and green cover while simultaneously working to enhance wastewater recycling and water recharge activities targeting aquifers and wells through rainwater harvesting.





The case study of rural Punjab

1. In rural areas, the situation is no different, as the acute water crisis in Punjab shows. The draft report of the Central Ground Water Board concluded that Punjab would be reduced to a desert in 25 years if the extraction of its groundwater resources continues unabated.
2. 82% of Punjab's land area has seen a huge decline in groundwater levels, wherein 109 out of 138 administrative blocks have been placed in the 'over exploited' category.
3. Groundwater extraction which was at 35% in the 1960s and 1970s, rose to 70% post the Green Revolution — a period which saw governments subsidising power for irrigation that left tubewells running for hours.
4. Concomitantly, the cultivation of water-intensive crops such as paddy has further aggravated water depletion, even turning water saline.
5. Immediate measures need to be taken to manage and replenish groundwater, especially through participatory groundwater management approaches with its combination of water budgeting, aquifer recharging and community involvement.
6. At the sectoral level, the Ministries and Departments of water resources must coordinate efforts with their counterparts in agriculture, the environment and rural development for greater convergence to achieve water and food security.
7. At the disciplinary level, governance and management should increasingly interact and draw from the expertise of fields such as hydrology (watershed sustainability), hydrogeology (aquifer mapping and recharge) and agriculture sciences (water-sensitive crop choices and soil health).
8. Again, the importance given to groundwater conservation should not ignore surface water conservation including the many rivers and lakes which are in a critical and dying state due to encroachment, pollution, over-abstraction and obstruction of water flow by dams.

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Traditional Water conservation Systems:

Khadin System

