

# Urban Water Security

learnings from 3 Indian cities for mainstreaming circularity in used water management

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India is taking its used water or municipal wastewater seriously. The focus in its recent Union Budget for 2024 on reusing treated water in urban centres marks a significant step toward addressing India's growing water stress. Embracing a circular economy approach - where treated municipal used water is reused, especially for industrial and agricultural needs - offers a sustainable way to manage urban water resources. A study by the Council on Energy, Environment and Water (CEEW) revealed that reusing treated used water for irrigation could have generated INR 966 billion in revenue in 2021 alone, irrigating an area almost nine times the size of New Delhi. Scaling up these practices can ease the strain on freshwater resources and revitalise urban water bodies such as rivers and lakes, which often suffer from untreated sewage discharge. The Budget's emphasis on reusing treated used water in 100 cities for irrigation and filling tanks is a particularly wel-

come move.

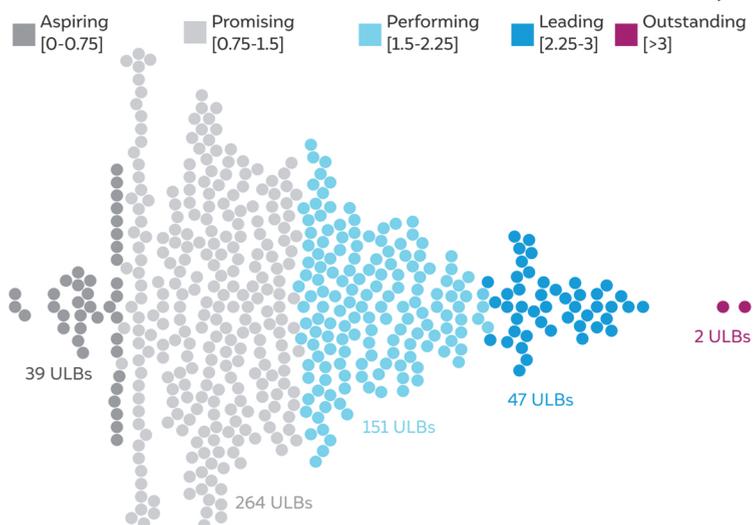
### Who are the key authorities?

This mainstreaming of used water treatment and reuse at the city level will require strengthening of municipal governance. Urban local Bodies (ULBs) are the primary authorities managing domestic used water management

in Indian cities. CEEW's innovative Municipal Used Water Management (MUWM) index evaluates the performance of over 500 ULBs based on five themes: Finance, Infrastructure, Efficiency, Governance, and Data and Information. The results are encouraging: 80 per cent of ULBs have made notable progress in one

▼ Figure 1 - 52% of ULBs fall under the 'promising' category as per the composite score (Source: Gupta et al. 2024)

### Ranking of 503 ULBs on the MUWM index



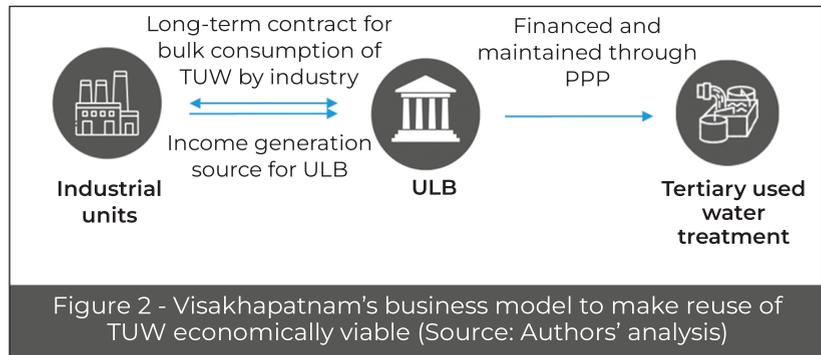
or more areas or have undertaken specific interventions to improve their overall performance. The majority of these (52 per cent) also fall in the 'promising' category (Figure 1). Such national-level assessments can drive healthy competition and foster cross-learning, helping build a network of water-smart cities.

### Which ULBs are doing well and why?

Some cities stand out for having made notable strides in mainstreaming used water management.

Visakhapatnam stands out with its self-financing model for treated used water which creates value for the city. Currently, almost 30 per cent of its treated used water is reused for various industrial and commercial purposes by the Visakhapatnam Port Trust, ESSAR Industry, and Vizag Golf Course. The new Visakhapatnam Sewerage and Recycled Water project will also supply as much as 79 million litres per day of tertiary treated water to industries like Hindustan Petroleum Corporation Limited. The treatment technology upgradation is jointly financed by the ULB and a private sector company. The sale of treated used water to industries also generates revenue for the ULB.

Indore, known as a 'water plus' city, reuses 30 per cent of its treated used water which is supplied to the city as well as surrounding villages. Their strategy involves reusing treated used water for diverse urban and peri-urban purposes. This includes horticulture, landscaping, irrigation, construction, vehicle washing, urinal washing, fountains, divider washing, and footpath cleaning. The city's infrastruc-



ture - pipelines, hydrants, and tankers - ensures a steady supply of treated used water. Moreover, the treated sludge is used as fertiliser to produce compost which ensures complete resource recovery and provides enormous economic benefits to the municipality. In 2020-21 alone, the municipal corporation earned INR 1.32 crore from the sale of treated used water and sludge and saved INR 1.09 crore by replacing the freshwater with treated used water. This was a result of the reduction of costs associated with procurement, conveyance, and treatment of freshwater, which reduced dependence on fertilisers.

Mysuru's Vidyaranyaapuram sewage treatment plant (STP) combines conventional treatment with waste stabilisation ponds, processing 51 million litres of domestic sewage daily through nature-based solutions. The STP, established in 2002, sells part of the treated used water for reuse to a golf club and the Forest Department. The project was also able to cut annual energy charges by 46 per cent through the introduction of beneficial microorganisms and enzymes in the waste stabilisation pond. This improved efficiency by reducing the need for aeration pumps and sludge generation in the treatment process. Used water

treatment ponds thus provide low-cost, energy-efficient and, in some cases, carbon-neutral alternatives to conventional treatment systems.

### Way Forward

Despite these achievements, most Indian cities still reuse less than 10 per cent of their treated used water. To expand and scale up water reuse practices, ULBs need to develop targeted action plans and city-specific used water management strategies. Public awareness campaigns can also play a crucial role in gaining social acceptance for treated water reuse. Circular water management is vital for building urban resilience and offers a profitable investment opportunity, as demonstrated by cities like Indore and Visakhapatnam. The Union Budget's focus on bankable projects for urban water management is promising. With the right policies and investments, more Indian cities can replicate the successes of Visakhapatnam, Indore, and Mysuru, leading the way towards a water-secure future ■

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