



DAILY EDITORIAL ANALYSIS

TOPIC

**WATER SECURITY IN A RAPIDLY
DRYING INDIA**

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WATER SECURITY IN A RAPIDLY DRYING INDIA

Context

- Indian cities are facing severe water stress, highlighting the urgent need to strengthen water security through sustainable and climate-resilient water management.

Status of water Scarcity in India

- Nearly three-quarters of the global population** lives in water-insecure countries, with four billion people facing severe water scarcity for at least one month a year.
- India has an uneven distribution of water resources with **4% of the world's water resources supporting 18% of the population**.
- Research by the Council on Energy, Environment and Water (CEEW) finds that **11 out of 15 major river basins** in India are experiencing water stress, with annual water availability **below 1,700 m³ per person**.
- Several of them, including the **Krishna, Cauvery, Mahi, and Tapi basins**, are below the water scarcity threshold of 1,000 m³ per person.

Challenges to Water Security

- Water Pollution:** Industrial effluents, untreated sewage, and agricultural runoff are polluting the rivers, lakes, wetlands, and groundwater resources.
- High Conveyance Losses:** Due to leakages and ageing distribution systems there is water loss during water transmission before reaching end users.
- Insufficient Wastewater Treatment:** It causes discharge of untreated sewage into rivers and lakes and makes them unfit for use.
- Climate Change:** Due to temperature rise and irregular monsoon the frequency of droughts has increased causing increasing water-related stress.
- Overexploitation of groundwater** for agriculture, industries, and domestic use has resulted in its decline in groundwater levels across several regions.
- Urbanisation:** Urban populations and industrialisation have increased water demand.
- Water-intensive crops cultivation** is consuming a large portion of India's freshwater resources, reducing overall water-use efficiency.

Government initiatives to Strengthen Water Security

- Jal Jeevan Mission:** The scheme expands assured irrigation, improves on-farm water efficiency, and promotes sustainable water conservation.
 - It strengthens irrigation through rainwater harvesting and efficient farm-level water distribution under Jal Sanchay (rainwater storage) and Jal Sinchan (efficient water application).
- River Basin Management (RBM) Scheme:** The scheme aims to facilitate integrated planning, investigation, and development of water resources at the river basin level.
- National Water Mission:** The mission focuses on conservation, minimising wastage, and ensuring equitable distribution of water resources.
- Pradhan Mantri Krishi Sinchai Yojana (PMKSY):** The scheme aims to enhance irrigation coverage and improve water-use efficiency through the principle of "Per Drop More Crop."
- Micro-Irrigation Fund:** The fund supports states in expanding drip and sprinkler irrigation systems to improve water efficiency.
- Atal Bhujal Yojana:** This scheme focuses on community-led groundwater management in water-stressed regions and promotes sustainable groundwater usage through behavioural change and local participation.

Other Measures Needed to Strengthen Water Security

- **Invest in climate-proofing water systems** through granular climate risk assessments of water infrastructure and services. Such assessments help prioritise investments in high to very high-risk locations, including coastal and low-lying areas.
 - ♦ Cities should leverage existing mechanisms like the **Urban Challenge Fund (UCF)** to support water risk assessments.
 - ♦ **Example:** Visakhapatnam (Andhra Pradesh) recently secured ₹1,501 crore under the UCF for water supply and drainage, part of which could support water risk assessments.
- **Shifting from a linear to a circular approach** to water use is essential to reduce pressure on freshwater resources.
 - ♦ Used water can be **treated and reused for activities** such as car washing, landscaping, and cooling data centres.
- **Scale up micro-irrigation systems**, including drip and sprinkler technologies that deliver water to crops more efficiently than flood irrigation. Expanding these systems requires large-scale interventions such as;
 - ♦ **Micro-irrigation subsidies** should be redesigned for small and marginal farmers by using 0.4 hectares instead of one hectare as the base unit.
 - ♦ **Farmers need support to shift to low-water, higher-value crops** such as horticulture and oilseeds to recover costs, as seen in **Andhra Pradesh's Rayalaseema region**.
- **Generate data at the river basin level** to improve decision-making as India has limited data on withdrawals, losses, and consumption at the basin scale. This makes it difficult to assess actual water use, gauge efficiency gains, or allocate water judiciously.
 - ♦ **Artificial Intelligence-based monitoring** of water conveyance infrastructure can help detect and measure losses and also generate data.
 - ♦ Cities such as **Delhi and Bhubaneswar (Odisha)** are installing smart bulk water meters to identify and reduce physical losses during distribution.

Concluding Remarks

- Water is an economic resource — it powers lives, livelihoods, and ecosystems. Reversing water bankruptcy will be the foundation of social welfare.
- Political will, transparent governance, and societal trust are the levers and by pulling them, India can still turn the tide toward a water-secure future.

Source: TH, PIB

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Daily Mains Practice Question

[Q] India's water crisis is less a problem of physical scarcity and more a failure of governance, data, and demand management. Critically examine.

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