



WATER STRESS IN INDIA - GS III MAINS

Q. Recently, Delhi faced the worst water scarcity in its history. Bring out the causes behind the rising water stress in Indian cities and suggest measures to reduce the same. (15 marks, 250 words)

News: *Delhi government moves Supreme Court over water supply from Haryana, Uttar Pradesh*

What's in the news?

- The Supreme Court directed the Himachal Pradesh government to release 137 cusecs of water it has in surplus and asked Haryana to do the needful to resolve the drinking water crisis in Delhi.
- This came after the AAP government in Delhi had approached the SC (alleging the BJP-government in Haryana for stopping Yamuna's water supply), amidst a surge in water demand during prolonged heatwave.

Key takeaways:

Delhi gets most of its water from the Yamuna, Ravi-Beas and Ganga rivers.

- From the Ganga, via the Upper Ganga Canal in UP, Delhi receives 470 cusecs/ roughly 254 million gallons per day (MGD) of water.
- Two channels (carrier lined channel (CLC) Munak and the Delhi sub-branch (DSB) canals) entering Delhi from Haryana supply Delhi (1094 cusecs) with water from the Yamuna and Ravi-Beas rivers.
- The Delhi Jal Board (DJB) also takes water directly from the Yamuna and supplements its river-water supply with ground water drawn from Delhi's tube wells and wells.

According to the **Composite Water Management Index released by NITI Aayog in 2019**, five of the world's 20 largest cities under water stress are in India, with Delhi being second on the list.

Reasons for Water Scarcity in Delhi:

1. Over-extraction of Groundwater:

- According to the Economic Survey 2023-24, Delhi has a daily water demand of 1,290 MGD, of which the DJB currently produces 1,000 MGD. The gap is met by Delhi's groundwater reserves.

2. Pollution of Water Sources:

- High ammonia levels (more than 2.5 parts per million) in the Yamuna have long contributed to poor water supply in parts of Delhi.
- Numerous drains and rivulets discharge toxic waste from small and medium industries into the Yamuna river, eventually affecting Delhi's clean water supply.

3. Impact of Climate Change:



- According to the draft of the Delhi State Action Plan on Climate Change, the city is projected to incur economic losses of Rs 2.75 trillion by 2050 as a result of climate change impacts.
- Rising temperatures and erratic precipitation patterns pose significant challenges to the city's water supply.

4. Inefficient Water Management:

- The Opposition alleges that the annual water shortage during summers is solely because of the inefficient water management of the state government.
- The Central Water Commission's inefficient role in managing the three barrages in Wazirabad, ITO, and Okhla indicates poor coordination and transparency among Delhi, Haryana, and Uttar Pradesh governments.

5. Inter-state Water Disputes:

- Water disputes between Haryana and Delhi have centred around the allocation of water from the Yamuna river.
- Haryana alleges that Delhi is drawing more water than allocated under various agreements.

6. Water Treatment Plant (WTP) Capacity:

- The WTP in North Delhi's Wazirabad was functioning below its capacity because the Yamuna did not have enough water (due to deficit rainfalls) for the DJB to draw from the Wazirabad reservoir.

Challenges Posed by Water Scarcity:

1. Health issues:

- With the reduced availability of clean water, marginalized communities living in unauthorised colonies often have to rely on unsafe water sources, leading to waterborne diseases.
- Insufficient water supply also hampers the maintenance and cleanliness of public toilets. When water is scarce, sewage systems can fail, which increases the risk of diseases such as cholera.

2. Socio-economic Impact:

- Increased illness due to poor hygiene and sanitation leads to higher healthcare costs for individuals and the government.
- Frequent illnesses impact productivity as people miss work or school, affecting their economic well-being and academic opportunities.
- The dependence on water tankers for domestic needs can be unreliable and costly, leading to further economic strain for the marginalised communities.

Measures needed to be taken to Address Water Scarcity:

1. Water Conservation and Management:

- Recently, the Delhi government ordered a crackdown on water misuse, authorising inspection teams to fine offenders using pipes to wash cars, allowing water tanks to overflow, and using domestic water supply for construction.



- The teams are also authorised to disconnect illegal water connections at construction sites or commercial establishments.
- To stop waste discharge from entering Yamuna, the National Green Tribunal (NGT) and the State Pollution Control Boards need to take the initiatives.
- Water rationing strategies must be announced during summer months.

2. Technological Interventions:

- The DJB, in collaboration with Hitachi India, is using field sensors and smart metres at the Pitampura water distribution network.
- Such technological intervention could enable remote and real-time monitoring and control of plant operations.

3. Infrastructure Development:

- The DJB can be more commercially-oriented and customers (households, businesses and industries) should be prepared to pay for the 'real cost' of supply.
- The DJB has recently increased infra charges for new water connections.

4. Policy and Governance Reforms:

- State and city governments should consider water resource availability in the region while creating city plans and providing permits for new establishments.
- They must restrict any development activities that are not sustainable in terms of management.

5. Community Participation in Rainwater Harvesting:

- Delhi's rainwater harvesting potential amounts to a staggering 907 billion litres annually.
- To effectively implement rooftop rainwater harvesting, various awareness campaigns can be organised at the community level.

6. Managing Groundwater Sustainably:

- Implementing community-based management of groundwater resources, adopting managed aquifer recharge techniques to replenish groundwater levels, and enacting stricter regulations to prevent over-extraction are essential measures.

7. Raising Awareness and Education:

- Educating communities about the water crisis, promoting responsible water use practices in homes and industries, and encouraging collective action are vital aspects of creating a culture of water conservation.

8. Promoting Use of Waste Water:

- High priority for recycling and reuse of water. For example, Wastewater usage can be increased in Thermal power plants and industrial establishments and for irrigation. This will reduce India's industrial water footprint.



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**P.L. RAJ IAS & IPS ACADEMY | 1447/C, 3rd floor, 15th Main Road,
Anna Nagar West, Chennai-40. Ph.No.044-42323192, 9445032221
Email: plrajmemorial@gmail.com Website: www.plrajiacademy.com
Telegram link: <https://t.me/plraji2006> YouTube: P L RAJ IAS & IPS ACADEMY**