5. India's Water Crisis- Geography

1. Why in News

1. Central Water Commission (CWC) flagged sharp decline in water levels across India
2. CWC monitors 166 reservoirs and 20 river basins nationally
3. Water levels in major reservoirs fallen below 40% of total capacity
4. Several reservoirs at critically low or zero levels
5. Bihar's Chandan dam completely dry
6. Southern India facing steepest drop ahead of peak summer
7. Risk of summer water shortage rising, particularly in south and west

2. Current Water Crisis Situation

Reservoir Status

1. Most of India's 20 river basins operating between 30-60% capacity
2. Only few basins above 60% range
3. Southern India worst affected - 36 reservoirs below 40% (highest in country)
4. Widespread decline suggesting systemic crisis
5. Critical shortage anticipated during summer months

What are Water Reservoirs?

1. Natural or artificial storage spaces for water collection
2. **Types -** Rivers, lakes, glaciers, groundwater aquifers, dam reservoirs, tanks, canals
3. Ensure steady water supply for drinking, irrigation, industry, power generation

3. Reasons for Reservoir Capacity Decline

Siltation (Sediment Deposition)

1. Accumulation of silt and debris over time
2. Reduces effective storage capacity
3. Most Indian reservoirs losing 1-2% capacity annually
4. Dead storage increasing, live storage decreasing

Catchment Area Degradation

1. Deforestation removes natural barriers
2. Mining activities destabilize soil
3. Overgrazing reduces vegetation cover
4. Increased soil erosion and sediment inflow into reservoirs

Encroachment and Urbanization

1. Illegal occupation of reservoir areas
2. Construction in feeder channels
3. Reduces effective storage space
4. Disrupts natural water flow patterns

Eutrophication and Aquatic Weeds

1. Nutrient pollution from agricultural runoff and sewage
2. Excessive algae and weed growth
3. Occupies storage space
4. Affects water quality

Climate Variability

1. Erratic rainfall patterns
2. Prolonged droughts reduce inflow
3. Accelerated sedimentation during intense rainfall events
4. Reduced snowmelt from glaciers

4. Water Scarcity in India - Context

Alarming Statistics

1. India - 18% of world's population but only 4% of freshwater
2. World Bank classifies India as water-stressed country
3. Severe scarcity predicted by 2040 due to demand, poor management, climate change
4. Groundwater extraction - 60.4% average stage (CGWB 2024)

Major Causes

Urbanization and industrialization - Water pollution making sources unfit for consumption
Agricultural practices - Inefficient irrigation, excessive groundwater extraction
Climate change - Irregular rainfall, affected river and aquifer recharge
Poor infrastructure - Inadequate water management systems

Water Governance Framework

Constitutional Provisions
State Subject - Water under Entry 17, State List (Seventh Schedule)
Union Role - Inter-state river regulation under Entry 56, Union List
Article 262 - Parliament adjudicates inter-state water disputes

5. Key Governance Issues

Fragmented Institutional Framework

1. Water in State List causes jurisdictional conflicts
2. Lack of coordinated approach across states
3. Inter-state disputes delay resolution

Engineering-Centric Approach

1. Historical focus on dams, canals, irrigation infrastructure
2. Supply augmentation prioritized over sustainability
3. Ecological impacts neglected
4. Demand management ignored

Agricultural Policy Challenges

1. Promotion of water-intensive crops (rice, wheat)
2. Excessive groundwater extraction for irrigation
3. Minimal crop diversification incentives

Lack of Ecosystem Approach

1. Land-water-ecosystem interlinkages ignored
2. Environmental flows (e-flows) neglected
3. River and wetland degradation

Weak Data Systems

1. Unreliable, fragmented water data
2. Poor planning and inefficient allocation
3. Unregulated extraction continues

Neglect of Demand Management

1. Focus on supply increase, not demand reduction
2. Limited water-use efficiency measures
3. Inadequate conservation practices
4. Irrational or absent water pricing

6. Government Initiatives

Jal Shakti Abhiyan (2019) - Water conservation and groundwater recharge in stressed districts
AMRUT 2.0 (2021) - Urban water security in all ULBs; water body rejuvenation; green spaces development
Amrit Sarovar Mission - Develop 75 water bodies per district
NAQUIM (National Aquifer Mapping Program) - Aquifer delineation for sustainable management
Atal Bhujal Yojana - Groundwater management in critical/overexploited blocks

Jal Jeevan Mission (2019) - Tap water connections for every rural household; prescribed quality water on regular basis

7. Conclusion

India needs comprehensive water governance framework moving beyond fragmented, engineering-dominated approaches. Water must be treated as shared, finite resource requiring coordinated sectoral management. Focus should shift from supply augmentation to sustainability, efficiency, and equity ensuring long-term water security.

Source - https -//www.downtoearth.org.in/water/reservoir-levels-have-fallen-in-eight-states-with-water-storage-falling-below-40-three-river-basins-also-in-crisis