



RSTV Big Picture: India's water crisis

- **Context:**

- There is a **downward trend in water levels in at least 71 of 91 reservoirs** across India according to data released by the Central Water Commission. The situation is particularly grim in the north-western region (Gujarat and Maharashtra) and in the southern states of Kerala and Tamil Nadu. The cumulative water storage in 91 reservoirs plummeted to 29,189 BCM, which is just 18 per cent of the total capacity.
- Nearly 50 per cent of India grapples with drought-like conditions, yet the newly formed Jal Shakti Ministry's union minister Gajendra Singh Shekhawat termed the water shortage facing the country media hype.
- Last month Centre issued a "drought advisory" to Maharashtra, Gujarat, Karnataka, Andhra Pradesh, Telangana and Tamil Nadu, asking them to use water judiciously.
- About **42 per cent of India is 'abnormally dry'**. This is 6% more than last year, according to the Drought Early Warning System.
- A report titled Status of trace and toxic metals in Indian rivers 2018 by Central Water Commission has highlighted that **42 rivers in India have at least two toxic heavy metals in quantities beyond the permissible limit**.
- A new study by researchers has found **widespread uranium contamination in groundwater from aquifers in 16 Indian states**.
- A September 2018 paper published jointly by the Indian Institutes of Technology, Indore and Guwahati says that **at least 133 of the 634 districts that the paper studied face drought almost every year**.

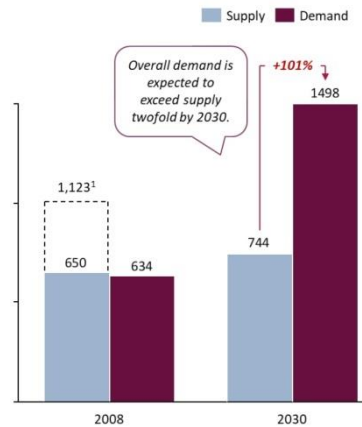
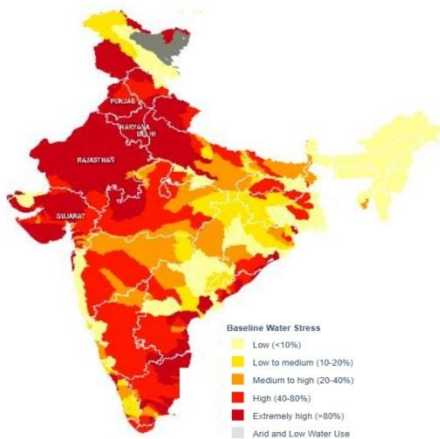
- **Background:**

- Water is a State subject. India is undergoing the worst water crisis in its history.
- The total water resource base for India is shown below:

Parameter	Unit (Billion Cubic Meter/Year)
Annual water availability	1,869
Usable water	1,123
Surface water	690
Ground water	433

Sources: Water and Related Statistics, April 2015, Central Water Commission; PRS.

- More than 600 million people are facing acute water shortages.
- Critical groundwater resources accounting for 40% of water supply are being depleted at unsustainable rates.
- India (16% of global population) holds only 4% of world freshwater.
- Droughts are becoming more frequent, creating severe problems for India's rain-dependent farmers (~53% of agriculture in India is rainfed).
- When water is available, it is likely to be contaminated, resulting in nearly 200,000 deaths each year.
- Interstate disagreements are on the rise pointing to the fact that limited frameworks and institutions are in place for national water governance.
- World Bank indicates that by 2030 India's per capita water availability may shrink to half, which will push the country into 'water scarce' (annual per-capita water availability is less than 1000 cubic meters) category from the existing 'water stress' (annual per-capita water availability is less than 1700 cubic meters) category.
- With nearly 70% of water being contaminated, India is placed at 120th amongst 122 countries in the water quality index.
- 75% of households do not have drinking water on premise. 84% rural households do not have piped water access.
- India is the largest user of ground water in the world. About 80% of India's drinking water needs is dependent on groundwater.

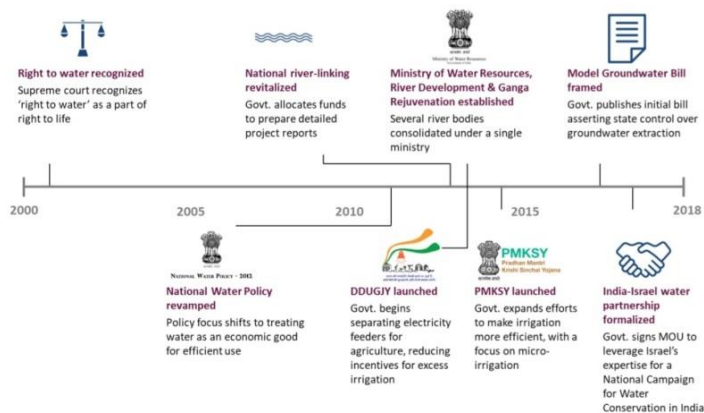


INDIA'S BASELINE WATER STRESS INDIA'S DEMAND AND SUPPLY OF WATER (BCM)

About Composite Water Index:

- Index evaluates states on nine broad sectors and 28 indicators.
- 14 of the 24 states scored below 50% on water management and have been classified as low performers.
- 21 Indian cities including Delhi, Bengaluru, Chennai and Hyderabad will run out of groundwater by 2020, affecting 100 million people.
- Annual per capita availability fell from 1,820 cubic meters in 2001 to 1,545 cubic meters in 2011.
- Underperformance of states like Uttar Pradesh, Bihar, Rajasthan and Haryana poses significant water and food security risks.
- Many water-scarce states have performed better in the Index like Gujarat, Madhya Pradesh.
- Groundwater, the source of 40 percent of India's water needs, is depleting at an unsustainable rate. India is the world's largest groundwater extractor – accounting for 12 percent of global extraction.
- If mitigation measures are not implemented, India faces a 6 percent loss in its gross domestic product by 2050, when the demand for water will exceed the supply.
- 54 percent of India's groundwater wells are declining.

Water Policy timeline in India:



Recommendations of Standing Committee on ground water:

- Creation of database on natural and artificial recharge of water.
- Study of Dark Blocks (over-exploited assessment units) should be initiated.
- Recommendations regarding ground water withdrawal for agriculture: (i) on-farm water management techniques and adoption of improved irrigation methods, (ii) implementation of 'Master Plan for Artificial Recharge to Ground Water', and (iii) revamping agricultural power pricing structure.
- Water should be brought under concurrent list of the Constitution.
- A Master Plan for Artificial Recharge to Ground Water needs to be created.
- Synergy between MGNREGS and ground water management.
- Census of water bodies and installation of water meets on tube wells needs to be undertaken.



- Ministry of Water Resources in coordination with Central Pollution Control Board should devise an effective mechanism to identify critically polluted areas located in dark blocks.
- Enforcement of No Objection Certificates by Central Ground Water Authority.
- **Central Ground Water Authority guidelines for ground water extraction:**
 - Introduction of the concept of Water Conservation Fee.
 - Encouraging use of recycled and treated sewage water by industries.
 - Provision of action against polluting industries, and measures to be adopted to ensure prevention of ground water contamination in premises of polluting industries/ projects.
 - Mandatory requirement of digital flow meters, piezometers and digital water level recorders.
 - Mandatory water audit by specified industries abstracting ground water.
 - Mandatory roof top rain water harvesting except for specified industries.
 - Monthly water level data shall be submitted to CGWA through the web portal.
- **Model Bill for the Conservation, Protection, Regulation and Management of Groundwater features:**
 - Right to water for life.
 - Common pool resource: Groundwater would not be a free resource; even paid use will be allowed in a sustainable manner ensuring equitable availability to all.
 - Principle of subsidiarity: More say to end-users of water, Panchayats and local bodies.
 - Top priority in the use of groundwater ought to be in meeting drinking, sanitation, food security, sustenance agriculture, needs of women and only after that for industry.
 - There would also be groundwater security boards and groundwater protection zones that would be overseen by State bodies.
- **Draft National Water Framework Bill 2016:**
 - It aims to decentralise water management and give more power to panchayats to decide how water can be better used.
 - It promises to give every person the right to a minimum amount of safe water.
 - Further the state is obliged to protect and conserve water.
 - A graded pricing system for domestic water supply should be introduced.
 - It asks governments to strive for rejuvenation of river systems by ensuring Aviral Dhara, Nirmal Dhara, and Swachh Kinara.
- **How India can manage its water resources:**
 - Usage of efficient irrigation methods.
 - Implementation of an urban water policy to harvest rainwater in Indian cities and regulate groundwater usage.
 - Increasing the water recycling capacity.
 - Performance around groundwater augmentation can significantly improve with the strengthening of groundwater regulations and strict implementation on the ground. Steps such as improvement of monitoring network and continuous monitoring of groundwater level and groundwater quality, strict implementation of rainwater harvesting and continuous operation and maintenance of the same will also help states manage their groundwater better.
 - Good initiatives taken by certain states:
 - Community Managed Water Supply Programme (Gujarat)
 - Bhagirath Krishak Abhiyan (Madhya Pradesh)
 - Data for groundwater management (Andhra Pradesh)
 - Reviving ancient system of maintaining and managing water bodies by local communities themselves such as Jhalaras in Rajasthan.
 - Pricing of Irrigation Water as advocated by the Vaidyanathan Committee.
 - Water Literacy Movement.
 - Surplus water from one year can be stored locally in an unconfined aquifer, withdrawn in subsequent years by the 'banker' and transferred to supplement the water resources of the 'client' when needed.
 - Water treatment: Using Green remediation techniques such as Phytoextraction and Chemical and biological treatment for industrial discharge along with establishment of common effluent treatment facilities for smaller industries.

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