India's Water Crisis

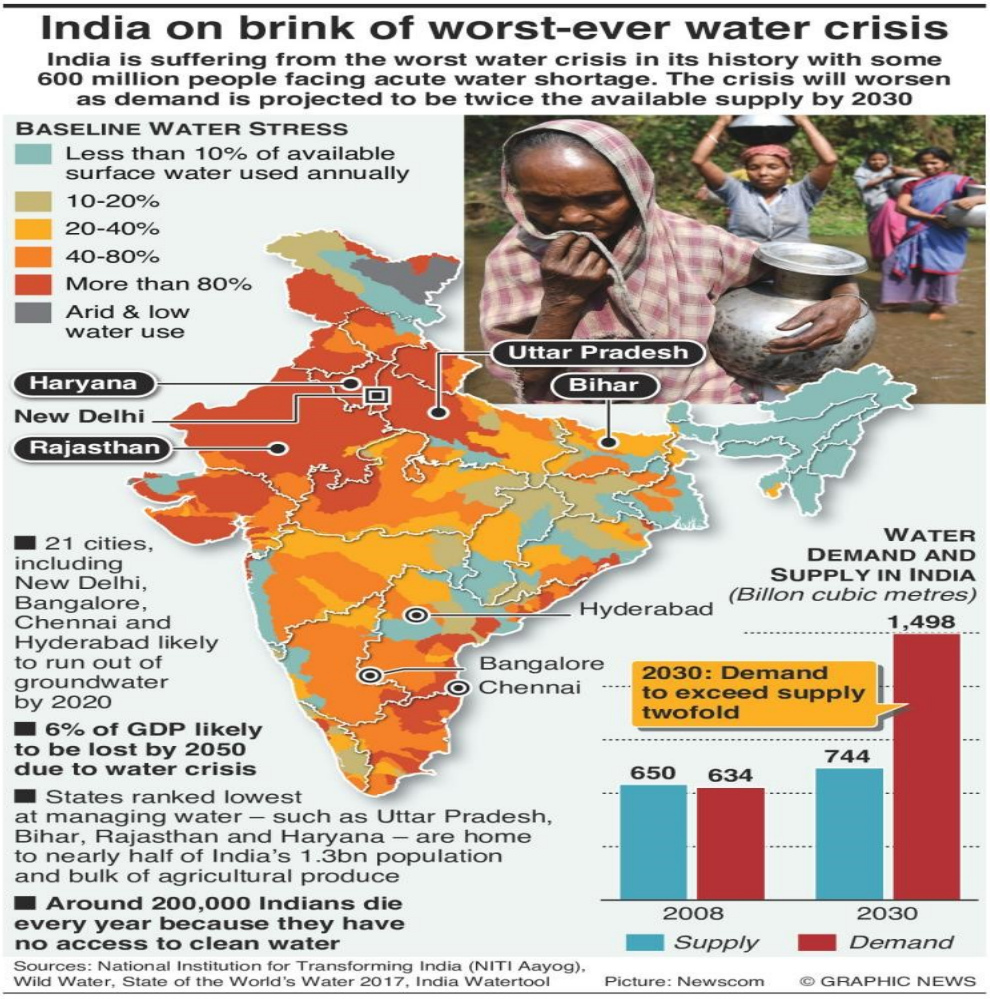
Why in news?

Global rating firm Moody's has recently warned that India's growing water shortage and frequent climate change-driven natural disasters can negatively affect the country's sovereign credit strength.

What is water crisis?

- India *only possesses 4% of the world's fresh water*.
- According to India's Ministry of Water Resources,
  - **Water Stress** – When water levels are below 1,700 cubic meters
  - **Water scarcity** – When water supply is below 1,000 cubic meters
- India's average annual water availability per capita is likely to drop to 1,367 cubic meters by 2031 from an already-low 1,486 cubic meters in 2021.

According to World Bank, 163 Million Indians lack access to safe drinking water.



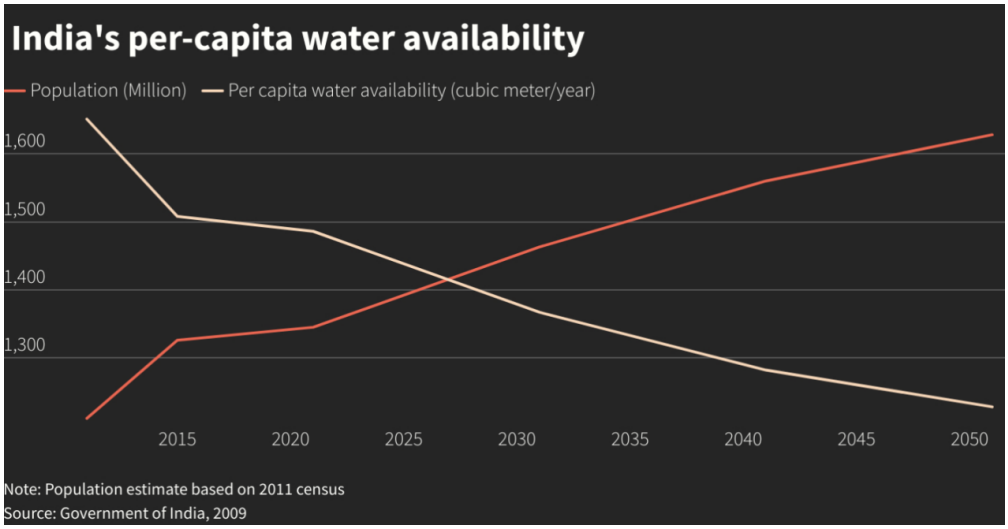
Water Shortage in New Delhi
• **Water sources** – Delhi depends heavily on its neighbouring States of Himachal Pradesh, Uttarakhand, Punjab, Haryana, and Uttar Pradesh to fulfil its drinking water needs. • The capital's raw water supply comes from four sources with approximately 40% of it coming via Yamuna through Haryana. • The raw water is treated in Delhi's Water Treatment Plants (WTPs) and sent across through its pipelines that covers over 15,000 kilometres. • **Issues in Munak Canal** - The canal, which *falls under the Haryana government*, starts from Haryana and enters Delhi with raw water. • The water shortage is due to a *leakage* in the Munak Canal, and the *lack of cleaning of pipelines* and WTPs. • **Tanker economy** – The presence of *privately run tankers* which are finding illegal sources of water and *selling them at high rates* is adding to the issue.

Why there is rising water shortage in India?

- **Impacts of climate change** – Events like *irregular monsoons, prolonged droughts, and severe floods*, all of which disrupt the availability of water.

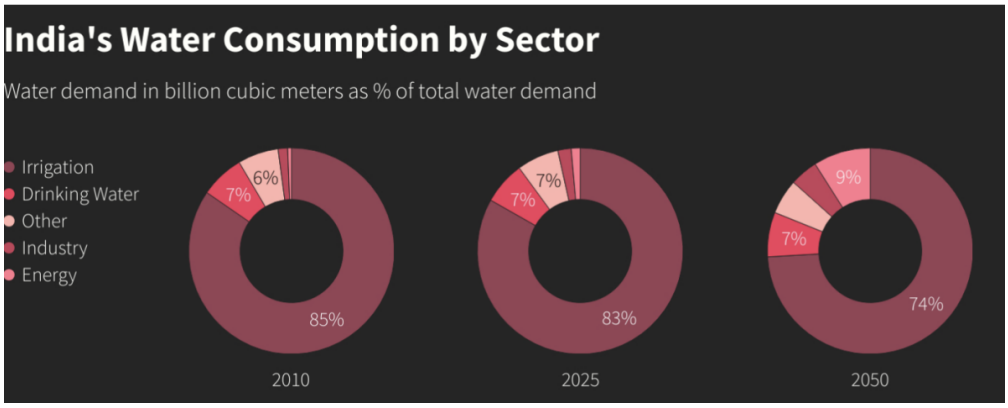
  The Indian Ocean warmed at a rate of 1.2 degrees Celsius per century during 1950-2020, and this will intensify to 1.7-3.8 degrees Celsius during 2020-2100.

  - **Heat wave in 2024** – The temperature hitting 50 degrees Celsius in Delhi and the northern Indian States, strained water supply.
  - **Floods** – Flooding in northern India and Cyclone Biparjoy in Gujarat in 2023 caused economic losses of $ 1.2-1.8 billion and damage to infrastructure.
- **Rising population growth** – India's rapidly growing population *increases the demand for water* for drinking, sanitation, and other domestic uses.



- **Rapid urbanization** – It puts immense *pressure on water resources*, with cities requiring more water for residential, commercial, and industrial purposes.
- **Higher agricultural demand** – Agriculture consumes a significant portion of India's water resources, especially through practices like flood irrigation, which are highly inefficient.

- This sector accounts for *about 80% of the total water usage* in the country.



- **Growing industrial activities** – This require substantial amounts of water, further straining the available resources.
- **Over-extraction of groundwater** – Excessive reliance on groundwater for agriculture and domestic use leads to *rapid depletion of aquifers.*
  - India's groundwater use is roughly *one-quarter of the global usage* with total usage surpassing that of China and the United States combined.
- **Water pollution** – Dumping of industrial discharge, agricultural runoff, and untreated sewage contaminates water bodies, *reducing the availability of clean and usable water*.
- **Conflicts and governance Issues** – Disputes over water rights and usage between states and regions can exacerbate water scarcity.
  - *Cauvery river water dispute* between Karnataka and Tamil Nadu is conflicted between supplying drinking water and for irrigation.
- **Heavy reliance on South-west monsoon** – India relies substantially on monsoon rain for its water supply, but is also prone to severe and extreme weather conditions.
  - Monsoon rainfall is lessening
  - In 2023, monsoon rainfall in India was 6% less than the average for 1971-2020.

What are the impacts of water shortage?

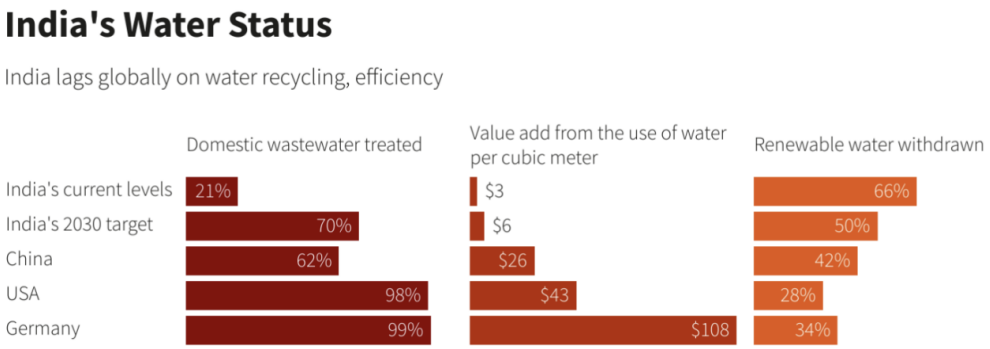
- **Reduces agricultural productivity** – Water shortages lead to *reduced agricultural productivity*, affecting the livelihoods of millions of farmers.
  - It can exacerbate volatility in India's growth and undermine the economy's ability to withstand shocks, as more than 40% of the country's workforce is employed in agriculture.
- **Shrinks industrial growth** – Industries that depend heavily on water like textiles and manufacturing face *operational challenges and reduced output*, impacting economic growth.
- **Induce health issues** – Lack of access to clean water leads to the *spread of waterborne diseases* such as cholera, dysentery, and typhoid.
  - The waters of the *Yamuna, Ganga and Sabarmati flow the dirtiest* with a deadly mix of pollutants both hazardous and organic.
- **Creates social conflicts** – Competition for limited water resources can lead to conflicts between communities, regions, and even states, *exacerbating social tensions and instability*.
- **Loss of Biodiversity** – Water scarcity affects ecosystems, leading to the *loss of*

habitats for aquatic and terrestrial species, and threatening biodiversity.

- **Disruptions in electricity production** – Coal power plants in water-stressed areas can face operational disruptions thereby affecting electricity production.
- **Detrimental to credit health** – As rising food inflation and decline in income may spark social unrest.

What are measures taken by India?

- **Recycling waste water –** The government has planned to triple the *wastewater recycling to 70%* by the end of the decade.
  - Experts say nearly 90% of water supplied to homes can be recycled.



- **Controlling fresh water extraction** – Steps are being taken to reduce the extraction of fresh water from groundwater, rivers, and lakes to less than 50% from the current 66%, the highest rate in the world, by the end of the decade.
- **Improving agricultural practices** – A national village-level program will be launched this year to *recommend crops to farmers based on local water availability*.
- **Lake Refurbishment and construction** – The government has ordered the building or refurbishing of at least 75 lakes in each of the 785 districts, with work started or completed on more than 83,000 lakes to help recharge the water table.
- **Rural tap water program** – Since 2019, the government has launched a nearly $50-billion program to provide all rural households with tap water, increasing coverage from 17% to 77% of over 193 million households.
- However, not all pipes have water, according to residents and experts.
- **Urban sewage treatment capacity** – The government is expanding sewage treatment capacity to increase the recycling rate in urban areas from 44%, enabling more water to be used in industries, agriculture, and other sectors.
- **Investment in Water Distribution and Reuse** – Between 2021 and 2026, the government plans to invest about $36 billion to ensure equitable water distribution, wastewater reuse, and the mapping of water bodies.

What lies ahead?

- **Increase financial support** - In the long term, investment in water management can mitigate risks from potential water shortages.
- **Modernize sanitation policies** - India needs modern sanitation policies *to conserve and wisely use water sources*.
- **Capacity building of users** - Common Sense Practices and Training can help protect

groundwater sources.

- **Follow best practices** – Updating irrigation techniques and rainwater harvesting can help preserve freshwater sources.

References

1. The Indian Express| Water shortage affects India's Credit Health
2. The Hindu| Delhi's Water Crisis

