



## Groundwater Crisis in India

---

 [drishtias.com/printpdf/groundwater-crisis-in-india](https://www.drishtias.com/printpdf/groundwater-crisis-in-india)

### Why in News?

---

- New research has shown that the largest groundwater depletion in the world is happening in the parts of northern India.
- Delhi is the epicentre of this fast-developing crisis, and it's getting worse by the day.

Groundwater is the water that seeps through rocks and soil and is stored below the ground. The rocks in which groundwater is stored are called aquifers. Aquifers are typically made up of gravel, sand, sandstone or limestone.

### Stats

---

- The United Nations Educational, Scientific and Cultural Organization (UNESCO) World Water Development Report states that India is the largest extractor of groundwater in the world.
- Two-thirds of the total amount is abstracted in Asia with India, China, Pakistan, Iran and Bangladesh as major consumers.
- 21 major cities of India are expected to run out of groundwater as soon as 2020, affecting around 100 million people, the think tank's new report states.
- About 75% of households do not have drinking water at home, 84% rural households do not have piped water access, and 70% of India's water is contaminated, with the country currently ranked 120 among 122 in the water quality index.
- By 2030, the country's water demand is projected to be twice the available supply, implying severe water scarcity for hundreds of millions and an eventual loss of around 6% of the country's GDP.

### Importance

---

- Groundwater is supporting livelihoods of over 26 crore farmers and agricultural labourers.

- Groundwater is one of the most important water sources in India accounting for 63% of all irrigation water and over 80% of rural and urban domestic water supplies.
- Wells, including dug wells, shallow tube-wells and deep tube wells provide about 61.6% of water for irrigation, followed by canals with 24.5%.

## Reasons for Depletion

---

- **Increased demand** for water for domestic, industrial and agricultural needs and limited surface water resources lead to the over-exploitation of groundwater resources.
- There are **limited storage facilities** owing to the hard rock terrain, along with the added disadvantage of lack of rainfall, especially in central Indian states.
- **Green Revolution** enabled water intensive crops to be grown in drought prone/ water deficit regions, leading to over extraction of groundwater.
- **Frequent pumping of water** from the ground without waiting for its replenishment leads to quick depletion.
- **Subsidies on electricity and high MSP for water intensive crops** is also leading reasons for depletion.
- **Water contamination** as in the case of pollution by landfills, septic tanks, leaky underground gas tanks, and from overuse of fertilizers and pesticides lead to damage and depletion of groundwater resources.
- **Inadequate regulation** of groundwater laws encourages the exhaustion of groundwater resources without any penalty.
- Deforestation, unscientific methods of agriculture, chemical effluents from industries, lack of sanitation also lead to pollution of groundwater, making it unusable.

## Impact

---

- India rank 120 among 122 countries in the water quality index, an astounding 2,00,000 people die each year due to polluted water.
- Droughts are becoming more frequent, creating severe problems,

## Solution

---

- There should be restrictions to cut off the access to groundwater in areas identified as "critical" and "dark zones", where the water table is overused or very low.
- There is a need to treat water as common resource rather than private property to prevent its overexploitation
- Problems and issues such as water logging, salinity, agricultural toxins, and industrial effluents, all need to be properly looked into.
- Research and scientific evaluations should be done before forming any policy.
- Water depletion can be controlled by reducing electricity subsidies.

- Another way of efficiently using groundwater is by encouraging farmers to adopt micro-irrigation techniques such as drip irrigation and micro-sprinklers. Government has initiated schemes like DRIP programme, more drop per crop, Krishi Sinchai Yojana to ensure economical water use practices in agriculture.
- Bottom-up approach by empowering the local community to become active participants in managing groundwater.
- Creating regulatory options at the community level such as panchayat is also one among the feasible solutions.
- Traditional methods of water conservation should be encouraged to minimize the depletion of water resources.
- Technology should be used extensively for determining the relationship between surface hydrological units and hydrological units below the ground, identification of groundwater recharge areas, mapping of groundwater etc.
- Artificial recharge of tube wells, water reuse, afforestation, scientific methods of agriculture should also be done.
- Imparting key hydrogeological skills to nonprofits and rural practitioners to improve decentralised water management in India.

## **Conclusion**

---

No single action whether community based, legislation, traditional water harvesting systems, or reliance on market forces will in itself alleviate the crisis in India. The effective answer to the freshwater crisis is to integrate conservation and development activities – from water extraction to water management – at the local level; making communities aware and involving them fully is therefore critical for success. All this will ultimately pave the way for combining conservation of the environment with the basic needs of people.