



# Depletion of Groundwater

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## Why in News

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Recently, an analysis of water level data done by the **Central Ground Water Board (CGWB)** indicates that about **33% of the wells monitored have registered decline in ground water levels in the range of 0 – 2 metres.**

- Moreover, a **decline of more than 4.0 m** has also been observed in a **few pockets of metro cities** like New Delhi, Chennai, Indore, Madurai, Vijayawada, Ghaziabad, Kanpur, and Lucknow, etc.
- CGWB is periodically **monitoring the ground water levels** throughout the Country including metro cities on a regional scale, through a network of monitoring wells.

## Key Points

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- **About Groundwater Extraction in India:**
  - The **UNESCO World Water Development Report, 2018** states that India is the largest extractor of groundwater in the world.
  - The contribution of groundwater to national **gross domestic product** is never measured.
  - According to the CGWB, with **230 billion metre cube of groundwater drawn out each year** for irrigating agriculture lands in India, many parts of the country are experiencing rapid depletion of groundwater.

The total estimated groundwater depletion in India is in the range of 122–199 billion metre cube.

- **Reason for Groundwater Extraction:**

- **Green Revolution:** 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.
  - Further, Subsidies on electricity and high **MSP (Minimum Support Price)** for water intensive crops.
- **Industries Requirement:** Water contamination as in the **case of pollution by landfills, septic tanks, leaky underground gas tanks**, and from overuse of fertilizers and pesticides leading to damage and depletion of groundwater resources.
- **Inadequate Regulation:** Inadequate regulation of groundwater encourages the exhaustion of groundwater resources without any penalty.
  - In India, **construction of irrigation wells does not require any clearance** and no records are maintained of abandoned wells.
  - Several hundred wells are constructed in India every day and even more are abandoned when they run dry.
- **Federal Issue: Water being a State subject**, initiatives on water management including water conservation and water harvesting and making available adequate drinkable water to citizens in the Country is primarily States' responsibility.

However, important measures including funding of various projects are taken by the Central Government.

## **Steps taken by the Central Government to Control Groundwater Depletion**

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- **Jal Shakti Abhiyan:** Government of India launched Jal Shakti Abhiyan (JSA) in 2019, intended to improve water availability including groundwater conditions in the water stressed blocks of **256 districts in India**.
- **Master Plan for Artificial Recharge to Groundwater - 2020:** CGWB in consultation with the state governments has prepared **The Master Plan - 2020**.
  - It envisages construction of about 1.42 crore Rain water harvesting and artificial recharge structures in the Country to harness **185 Billion Cubic Metre (BCM)**.
  - In addition, the government has also launched the **Catch the Rain' campaign** to promote rainwater harvesting.
- **National Water Policy (2012):** The policy advocates rainwater harvesting and conservation of water and highlights the need for augmenting the availability of water through direct use of rainfall.

It also advocates conservation of river, river bodies and infrastructure should be undertaken in a scientifically planned manner through community participation.

- **Atal Bhujal Yojana: Atal Bhujal Yojana** (ABHY) scheme (co-funded by **World Bank** funding, for sustainable management of ground water with community participation is being taken up in the identified over-exploited and water stressed areas.
- **Convergent Approach:** Central Government supports construction of water harvesting and conservation works primarily through **Mahatma Gandhi National Rural Employment Guarantee Scheme** and **Pradhan Mantri Krishi Sinchayee Yojana – Watershed Development Component**.
- **Aquifer Mapping and Management Programme:** The CGWB has taken up **Aquifer Mapping and Management Programme**.  
The program is aimed to delineate aquifer disposition and their characterization for preparation of aquifer/ area specific groundwater management plans with community participation.
- **Atal Mission for Rejuvenation and Urban Transformation (AMRUT):** The Mission focuses on development of basic urban infrastructure in the **AMRUT** cities, such as water supply, sewerage & septage management, storm water drainage, green spaces & parks, and non-motorized urban transport.
- **Various State Government Initiative:** A number of States have done notable work in the field of water conservation/harvesting for sustainable management of water resources. For example,
  - **Mukhyamantri Jal Swavlamban Abhiyan’ in Rajasthan,**
  - **‘Jalyukt Shibir’ in Maharashtra,**
  - **‘Sujalam Sufalam Abhiyan’ in Gujarat,**
  - **‘Mission Kakatiya’ in Telangana,**
  - **Neeru Chettu’ in Andhra Pradesh,**
  - **Jal Jeevan Hariyali in Bihar,**
  - **‘Jal Hi Jeevan’ in Haryana**

## Way Forward

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- **Concept of Pani Panchayats:** The Prime Minister of India has taken a step in the right direction by highlighting the importance of water conservation and the need to adopt appropriate measures to make water conservation a mass movement.  
In this context, **decentralizing the water conservation to rural level or strengthening Pani Panchayats can be very effective.**
- **Restricting Illegal Encroachment of Water Bodies:** Encroachment and diversion of water bodies and drainage channels must not be allowed and wherever, it has taken place, it should be restored to the extent feasible and maintained properly.  
Further, the **extraction charges collected should be used for restoration of groundwater.**

- **Micro irrigation:** Micro Irrigation techniques like **sprinkler or drip irrigation should be encouraged.**
  - In drip irrigation, water is run through pipes (with holes in them) either buried or lying slightly above the ground next to the crops. Water slowly drips onto the crop roots and stems.
  - Unlike spray irrigation, very little is lost to evaporation and the water can be directed only to the plants that need it, cutting back on water waste.
- **Artificial Recharge of Groundwater:** It is the process of spreading or impounding water on the land to increase the infiltration through the soil and percolation to the aquifer or of injecting water by wells directly into the aquifer.
- **Groundwater Management Plants:** Installing groundwater management plants at local levels, will help the people in knowing the groundwater availability in their area making them use it wisely.

**Source: PIB**