

INDIA'S GROUNDWATER GOVERNANCE IS IN BETTER SHAPE

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'As one of the fastest growing economies, India will need adequate groundwater resources to manage anthropogenic pressures' | Photo Credit: Getty Images

Data show that India, with nearly 18% of the world's population, occupies about 2.4% of the total geographical area and consumes 4% of total water resources. A World Bank report says that India is the largest groundwater user. A rapidly growing economy and population are straining the country's groundwater resources.

As a vast country, India has distinct and varying hydro-geological settings. Groundwater is the backbone of India's agriculture and drinking water security in rural and urban areas, meeting nearly 80% of the country's drinking water and two-thirds of its irrigation needs. Groundwater is pivotal to India's water security. The fact that the theme of UN World Water Day 2022 was 'Groundwater, Making the Invisible Visible' is a reflection of the importance given to the resource across the globe.

The central government is working to achieve the goal of sustainable groundwater management in collaboration with States and Union Territories. In this process, certain important deliverables have been identified that include a reduction in groundwater extraction to below 70%, increasing the network of groundwater observation wells, installing digital water level recorders for real-time monitoring, periodic monitoring of groundwater quality, aquifer mapping and data dissemination, having better regulation of groundwater extraction by industries, and promoting participatory groundwater management and even periodic groundwater resource assessment.

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In May 2019, a much-needed step of policy reform was done under the leadership of the Prime Minister with the creation of Jal Shakti Ministry (a merger of the erstwhile Ministries of Water Resources, River Development and Ganga Rejuvenation along with Drinking Water and Sanitation). This was to give impetus to the management of water resources with special focus on demand and supply management. Realising the importance of community participation, the Jal Shakti Abhiyan was launched subsequently to transform Jan Shakti into Jal Shakti through asset creation, rainwater harvesting ('Catch the Rain' campaign) and extensive awareness campaign.

Initiatives have also been taken for the effective management and regulation of groundwater, examples being the Atal Bhujal Yojana (ABY) and the National Project on Aquifer Management (NAQUIM). With the goal of “participatory groundwater management”, ABY looks to inculcate behavioural change made possible by incentivisation. NAQUIM, which is nearing completion, envisages the mapping of sub-surface water bearing geological formations (aquifers) to help gather authentic data and enable informed decision-making. Around 24 lakh square kilometres of the country has been mapped from the available mappable area of nearly 25 lakh sq. km. A heli-borne based survey (state-of-the-art technology), has also been used along with traditional exploratory methods for rapid and accurate aquifer mapping. The remaining area is likely to be mapped by March 2023. Region-wise aquifer management plans are being prepared and shared with States.

There are around 65,025 monitoring stations in India, which include 7,885 automated stations. The numbers are set to go beyond 84,000; in this, the number of automated stations will rise to over 35,000, with a special focus on identified high groundwater extracting industrial and urban clusters and groundwater stressed regions. Besides other quality-related exercises, samples from fixed locations are obtained to check for the presence of heavy and trace metals. Dynamic groundwater assessments will be done annually now and a groundwater estimation committee formed to revise the assessment methodology. A software, ‘India-Groundwater Resource Estimation System (IN-GRES)’, has also been developed.

The completion of groundwater assessment in 2022 in about five months (against the two to three years) shows that a time-bound and scientific approach is being adopted to monitor precious water resources. The findings of the groundwater assessment also indicate a positive inclination in the management of groundwater.

According to the latest assessment, there has been a 3% reduction in the number of ‘overexploited’ groundwater units and a 4% increase in the number of ‘safe’ category units as compared to 2017. There was an improvement in groundwater conditions in 909 units. The assessment also showed a reduction in annual extraction (of about 9.53 billion cubic meters); the data for irrigation, industrial and domestic use, respectively, is 208.49 BCM, 3.64 BCM and 27.05 BCM. Overall extraction saw a declining trend, of about 3.25% since 2017.

Some of this success may be attributed to implementation of comprehensive groundwater guidelines in 2020 for regulation in various sectors and making the processes of issuing a no-objection certificate transparent and time-bound using a web-based application. The government’s interventions in enabling a positive impact on the overall groundwater scenario in India, reflect the spirit of cooperative federalism in managing this precious resource. That around 9.37 BCM of additional groundwater potential was created through artificial water conservation structures is an example of this impact.

As one of the fastest growing economies, India will need adequate groundwater resources to manage anthropogenic pressures. It is important to ensure source sustainability to provide safe drinking water to all rural households by 2024, under the Jal Jeevan Mission.

Communities will have to manage their groundwater resources better with the help of various government agencies and non-governmental organisations. In the context of climate change, as uncertainties will increase with connection with groundwater resources, efforts must be made to find solutions that are essential for sustainable development. The groundwater resource assessment report 2022 shows a brighter future for groundwater situations in the country as the initiatives taken by various governments have begun yielding results. This is a new beginning and steps must be taken to make India a water surplus nation, thus fulfilling the objective of a key United Nations Sustainable Development Goal, of water for all.

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