Revamping India's groundwater monitoring network

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Groundwater level is the most important parameter in any study involving the evaluation, development and management of groundwater resources. Systematic monitoring of groundwater levels, which commenced with the establishment of the Central Ground Water Board (CGWB), has been of immense use in addressing several challenges like prioritization of areas for groundwater recharge, delineating areas prone to waterlogging, estimation of storage change in the aquifers, estimation of groundwater flow, etc. In a major boost to strengthen groundwater monitoring in the country, the Government of India has sanctioned a special project under which CGWB has envisaged to construct 9000 purpose-built wells (piezometers) in identified priority areas, which will be equipped with digital water-level recorders (DWLRs) and telemetry devices for acquisition and transmission of groundwater levels at increased frequency. The intended uses of the long-term high-frequency data include monitoring short-term and long-term changes in the groundwater levels, groundwater storage and recharge to the aquifers, monitoring the effects of climatic variability, estimating transboundary flow, assessing regional effects of groundwater development, quantifying impacts of water conservation and artificial recharge projects, and improved understanding of groundwater and surface water interactions. High-frequency groundwater level data also have the potential for steering multi-institutional collaborative research projects in the country, particularly for studying the impact of groundwater extraction on land subsidence, the relationship between groundwater levels and tectonic disturbances, and climate change impacts on the groundwater regime.

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