Piezometers

April 25, 2023

In news– Ministry of Jal Shakti is Planing for network of groundwater sensors to monitor quality, contamination levels.

Current process-

- Currently, such information is only measured a handful of times a year and communicated via reports of the Central Groundwater Board(CGB).
- **The CGB currently relies on a network of about 26 thousand groundwater observation wells** that require technicians to **manually measure** the state of groundwater in a region.
- **The CGWB is in charge of the National Aquifer Mapping Program (NAQUIM)**, that as of March has mapped the country's aquifers at a resolution of 1:50000 and under the second phase of the programme – expects to improve the resolution by five times in the country.
- **So far, an area of 25.15 lakh square km has been covered under the NAQUIM studies.**

Piezometers: the new initiative-

- Under the new initiative, **around 16,000-17,000 digital water level recorders will be connected to piezometers in the wells.** Piezometers measure groundwater levels, the recorders will transmit the information digitally.
- In the next three years, the CGWB aims to increase its network from the existing 26,000 to about 40,000.
- When combined with similar networks possessed by other institutions – State bodies, agriculture and meteorology departments – India will have about 67,000 digitally recordable units to monitor groundwater dynamics.
- Establishing a network that will **continuously measure groundwater quality, feed it into a centralised network such as that of the National Water Informatics Centre**

(NWIC) and available for monitoring would make groundwater visible much the same way as air quality, meteorological variables –air pressure, moisture, precipitation.

- It can potentially **provide groundwater forecasts to farmers** that would be useful for sowing, and updated advisories that can influence groundwater extraction policies by States.
- Except for information on water flow governed by international treaties, most of this information will be publicly accessible.

Nitrate contamination in some regions-

- In the latest **Ground Water Resource Assessment-2022,** the total annual groundwater recharge in the country has been assessed as 437.60 billion cubic metres (BCM).
- The annual extractable groundwater resource has been assessed as 398.08 bcm, with actual extraction of 239.16 bcm.
- The average stage of groundwater extraction for the country as a whole works out to be about 60.08%.
- Anything above 70% is considered "critical" though there are **regions in Punjab, Haryana, Delhi and Rajasthan with groundwater blocks with over 100% extraction.**
- Reports over the years suggest tha**t 85% of rural India uses groundwater for drinking and domestic purposes**.
- In cities with a population of over 10 lakh, about 40% have seen water levels in monitored wells either stay stable or drop.
- **Groundwater contamination, the CGWB says, is mostly "geogenic" (natural) and hasn't significantly changed over the years.**
- However, nitrate contamination – a result of the **use of nitrogenous fertilisers has been observed.**
- Sections of nearly **409 districts have been confirmed with fluoride contamination** and parts of **209 districts**

have noted arsenic contamination.