

Groundwater report waters down aquifer-level data: Experts

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The latest groundwater data showing an increase in recharge and a decrease in extraction may not be offering an accurate representation, observe water experts, since the assessment units are too large in size and too few in number to present a micro-level picture.

The Dynamic Groundwater Resources of India 2022 report said the total annual groundwater recharge for the country this year has increased by 1.29 billion cubic metres (bcm), in contrast with the last assessment conducted in 2020.

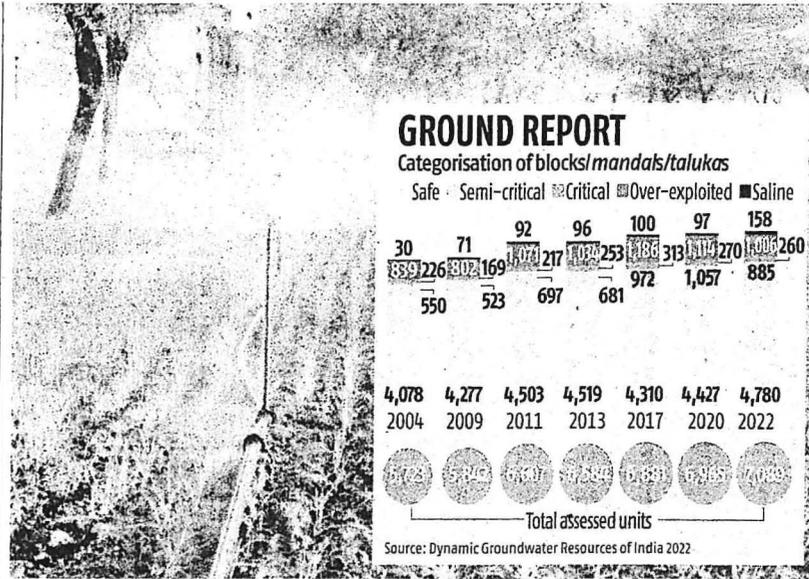
The total annual extractable groundwater resources have also increased by 0.56 bcm.

The annual groundwater extraction for irrigation, domestic, and industrial uses has also decreased by 5.76 bcm during this period.

“These variations are attributed mainly to the refinement of parameters, refinement in well census data, and the changing groundwater regime,” the report said.

“There is no ground reality change that will lead to extra reduction. It has been on an upward trend for six decades at the macro level. That recharge upwards also seems problematic as systems like wetlands and riverbeds are getting destroyed. We need convincing evidence,” says Himanshu Thakkar, coordinator with South Asia Network on Dams, Rivers, and People.

The agriculture sector is the predominant consumer of groundwater resources. About 87



per cent of the total annual groundwater extraction is for irrigation use. Only 30.69 bcm is for domestic and industrial consumption, which is about 13 per cent of the total extraction.

Aquifer-level picture missing

Several water experts raise questions about the

methodology used, in terms of selection of assessment units, which are at the administrative level of talukas or tehsils and do not give a micro-level scenario.

The micro-level data is essential for any usage plan to be made by either the government or the community, say experts.

“Groundwater does not follow administrative boundaries, but is governed by size, shape, and transmissibility of the aquifer. Therefore, its assessment based on administrative boundaries will not serve any real purpose,” says former water secretary Shashi Shekhar.

India being the highest extractor, groundwater assessment, says Shekhar, must be done by dividing the country into a 1x1 kilometre grid, each having an observation well with a piezometer that can seamlessly supply groundwater level to the aquifers.

“Such information will enable the government and the community to make a demand response with crop selection, while giving priority to meeting human and cattle needs,” he adds.

There are a total of 7,089 assessment units that have been observed in the study.

Shekhar says that the data is skewed because almost half of these units cover Tamil Nadu (TN) and the rest spread across the country.

“In TN, the data is collected at the ‘firka’ level that goes deeper than talukas. One taluka in TN would have the data of several firkas, which is why the data gives a better assessment of the groundwater situation in the state,” says Shekhar.

On average, there are only nine assessment units per district. “They are mainly tehsil-level units. This is clearly much larger than an aquifer-level assessment and can lead to misleading conclusions,” says Thakkar.

Thakkar also says it is important to see if there has been an increase in the areas that are critical or waterlogged.

Of the total 7,089 assessment units in the country, 1,006 units, or 14 per cent, have been categorised as over-exploited; 260 units, or 4 per cent, critical; 885 units, or 12 per cent, semi-critical; and 4,780 units, or 67 per cent, safe.

A K Gosain, professor of civil engineering, Indian Institute of Technology Delhi, also says the present-day technology can capture data much more accurately instead of the approximations used in the current report.

“You can find out actual recharge on the basis of land and soil use. Validating the current data with that of aquifers will not be possible. Even the lateral flow of groundwater is not possible to ascertain using the present assessment units,” says Gosain.

While water experts have welcomed that the assessment is being done once every two years, they have stressed that this data has to be passed on to the community, so that they can decide their water use based on groundwater level.

“This report does not nudge farmers for a demand response. It has limited scientific basis and no real use to the community,” says Shekhar.

The Central Ground Water Board under the Ministry of Jal Shakti monitors groundwater levels four times a year — January, April/May, August, and November.