



Concerns Regarding Groundwater Contamination | Haryana | 14 Jan 2025

Why in News?

According to a recent report released by the [Ministry of Jal Shakti](#), [groundwater](#) quality varies considerably across India, with certain states and UT such as **Arunachal Pradesh, Mizoram, Meghalaya** and **J&K** fully meeting [Bureau of Indian Standards \(BIS\) standards](#) while states like **Rajasthan, Haryana** and **Andhra Pradesh** facing widespread contamination.

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Key Points

- The northeastern states of **Arunachal Pradesh, Mizoram, and Nagaland**, along with **Jammu & Kashmir**, have showcased **exceptional [groundwater management practices](#)**.
- A notable concern in the report, based on quality data at **15,259 groundwater monitoring locations** and focused assessment at **4,982 trend stations across** the country in **2023**, is the "**elevated levels of [uranium](#) in several regions**".
- The samples with **high uranium concentrations** were clustered in areas identified as **over-exploited, critical, and semi-critical groundwater stress zones**, such as Rajasthan, Gujarat, Haryana, Punjab, Tamil Nadu, Andhra Pradesh and Karnataka.
 - Rajasthan and Punjab are shown as **regional hotspots of uranium contamination**.
- The report also reflects significant concerns over the quality of water due to high concentrations of **[nitrate](#), [fluoride](#), [arsenic](#), and [iron](#)** in groundwater.
- Almost **20%** of the samples exceeded the permissible limit for **nitrate** while **9%** of samples had **fluoride levels** above the acceptable limit.
 - **Arsenic contamination** was found in 3.5% of samples.
 - Fluoride concentration exceeding the permissible limit is a major concern in **Rajasthan, Haryana, Karnataka, Andhra Pradesh** and **Telangana**.
 - **Rajasthan, Tamil Nadu and Maharashtra** have some of the highest incidences of **nitrate contamination**, with over **40%** of water samples exceeding the permissible limit.
 - The report attributed it primarily to agricultural run-off and overuse of fertilizers.
 - Elevated **arsenic levels** were found in several states, particularly in the **floodplains of the [Ganga](#) and [Brahmaputra rivers](#)**, during the assessment.

- This includes regions of **West Bengal, Jharkhand, Bihar, Uttar Pradesh, Assam, and Manipur**, as well as areas in the **Punjab**, and Rajnandgaor district in **Chhattisgarh**.
- The report underlined that **Rajasthan, Delhi, Gujarat, Haryan, Punjab, Telangana, Andhra Pradesh** and **Karnataka** are the most severely affected by **high Electrical Conductivity (EC) value** in groundwater.
 - **EC** which is a measure of the ease with which water conducts electricity. It is actually the **measure of mineralization of water** and indicative of the **degree of salinity** of ground water.
 - It tells about how much **dissolved substances, chemicals, and minerals** are present in the water. Higher amounts of these impurities will lead to a **higher conductivity**.
- A **rising trend in EC levels** signals a **deeper issue of groundwater salinization**.

GROUNDWATER OVERUSE & DEPLETION

