

GOVERNMENT OF INDIA
MINISTRY OF JAL SHAKTI

DEPARTMENT OF WATER RESOURCES, RIVER DEVELOPMENT & GANGA REJUVENATION

RAJYA SABHA

UNSTARRED QUESTION NO. 103

ANSWERED ON 25.11.2024

STUDY OF GROUNDWATER

103. SHRI NEERAJ SHEKHAR

Will the Minister of **JAL SHAKTI** be pleased to state:

- (a) whether as per the MoU of Central Ground Water Board (CGWB) with Geological Survey of India (GSI) in 2022 for the study of Uranium, Lead, Arsenic, Fluoride and Mercury contamination of groundwater in parts of Punjab, Haryana, Andhra Pradesh, Uttar Pradesh, Bihar, Chhattisgarh, Jharkhand and Assam States, eight studies were to be undertaken;
- (b) if so, the details thereof;
- (c) the details of studies undertaken and are yet to be completed along with the reasons therefor; and
- (d) the outcome of completed studies for heavy metal contamination in groundwater Statewise?

ANSWER

THE MINISTER OF STATE FOR JAL SHAKTI

(SHRI RAJ BHUSHAN CHOUDHARY)

(a) & (b) Central Ground Water Board (CGWB) has entered into an MoU with Geological Survey of India (GSI) in 2022 for the study of Uranium, Lead, Arsenic, Fluoride and Mercury contamination of ground water in parts of Punjab, Haryana, Andhra Pradesh, Uttar Pradesh, Bihar, Chhattisgarh, Jharkhand and Assam States. The objectives of the MoU are to assess the level of contaminants in water from diverse sources such as dug wells, hand pumps, deep bore wells/tube wells, and surface water used for drinking water and irrigation. Additionally, it includes the analysis of these elements in soil, sediments, rocks, and anthropogenic wastes. The objectives also involve studying the spatial and depth-wise distribution of these elements, correlating them with geological aspects, and suggesting mitigation measures. The MoU is valid for a period of 5 years from the date of signing.

A total of 08 studies have been taken up under the MoU in the states of Andhra Pradesh (1 Study), Assam (1), Bihar (3), Chhattisgarh (1), Punjab & Haryana (1), and Uttar Pradesh (1). Out of 8 studies taken up under the MoU, five have been completed viz. 3 studies in Bihar and one each in Chhattisgarh and Andhra Pradesh.

(c) Studies taken in Assam and Punjab & Haryana are of two year duration and are as per schedule. The study in Uttar Pradesh is in final stage. The details of the studies are as follows:

State/UT	Title	Study duration (No. of years) starting and ending year	Reasons for delay
Punjab & Haryana	Geo-environmental studies of trace element and heavy metal contamination in the groundwater of Punjab and Haryana	2 Years (2023-24 & 2024-25)	As per schedule
Assam	Study on Uranium, Lead, Arsenic, Fluoride and Mercury Contamination of Ground Water in the industrial area of North Guwahati, Kamrup, Assam	2 yrs (2023-24 to 2024-25)	As per schedule
Uttar Pradesh	Study on Uranium, Fluoride contamination of Ground Water in Mathura, Hathras and Aligarh Districts of UP	2 Years (2022-23 & 2023-24)	Delay in core drilling

(d) The details and major findings of the completed studies along with heavy metal contamination aspect is provided below :

State/UT	Study Title	Major Findings
Andhra Pradesh	Uranium Contamination in Ground Water in & around Tummalapalle Uranium Deposit, Vemula Mandal, YSR Kadapa district, A.P	Sporadic occurrence of Uranium found, which is mainly attributable to geo-genic factors. High Uranium concentration zones are observed in areas that are mostly characterized by Peninsular gneissic rock. Additionally, concentrations beyond permissible limits in respect of the following heavy metals were reported: Mn (6% samples), Fe (16% samples), Ni (2% samples), As (1% samples), Se (6% samples), Pb (4% samples) and U (42% samples).
Bihar	Arsenic Contamination in Maner block (Patna district) and Barhara Block (Bhojpur District)	21% of the analysed samples showed more than permissible concentration of Arsenic: Higher concentration of Arsenic in groundwater in interfluvial zones of the Ganges and Sone river.
Bihar	Uranium contamination in parts of Bhagalpur, Bihar Sharif, Gopalganj, Katihar Madhepura, Muzaffarpur, Nawada, Purne, Siwan & Vaishali district.	Only 17 no of GW samples out of 343 Groundwater and Soil samples had more than permitted Uranium Concentration; The contamination appears to be site specific rather than of general nature.
Bihar	Fluoride contamination in Amas Block, Gaya district	Around 41% of the samples analysed showed more than permissible Fluoride concentration; It is inferred that rocks of the Chhotanagpur Gneissic Complex are the prime source of Fluoride contamination in soil and groundwater.
Chhattisgarh	Fluoride contamination in Bagbahara area, Mahasamund and Gariabandh district, Chhattisgarh.	Around 31% of the samples analysed showed more than permissible Fluoride concentration; Contamination mainly due to geogenic factors and observed mainly along a 5-6 km wide and 35-40 km long shear zone; Additionally, concentrations beyond permissible limits in respect of the following heavy metals were reported: Mn (25.5% samples), Fe (12% samples),

The complete study reports have been made available in public domain on the website of CGWB.