

BEFORE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH

NEW DELHI

O.A. No. 728 OF 2023

IN THE MATTER OF:

Suomoto Arsenic found in Groundwater in 25 States,
Fluoride in 27 States: Government

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Through

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1. Background:

A news article entitled “Arsenic found in groundwater in 25 states, fluoride in 27 states: Govt” published in national daily “Hindustan” on 30.11.2023. This news article details that Arsenic has been detected in groundwater in parts of 230 districts in 25 states and fluoride in 469 districts in 27 states by referring the written reply of Hon’ble Union Minister of State for Jal Shakti Ministry at Rajya Sabha on December 4, 2023. In a written reply, the Minister said that the groundwater contamination reported by the Central Ground Water Board (CGWB) is mostly geogenic in nature and does not show significant change over the years. The

CGWB under the Ministry of Jal Shakti conducts regular monitoring and assessment of groundwater quality including groundwater contamination of Arsenic and Fluoride. This Hon'ble tribunal took *Suo moto* cognizance and issued notice to Central Ground water Authority.

In the response of the notice CGWB submitted its report dated 18.12.2023 wherein presence of arsenic in various Districts and 25 States and fluoride in various Districts and 27 States is admitted. It is also admitted that both the chemicals/metals have very serious toxic effects on human body and health and cause health hazards. In the report, 27 districts, where cases of Arsenic > 0.01 mg/L, have been recorded in groundwater and 19 districts, where the fluoride in ground water exceeds 1.5 mg/L are reported from Bihar. Name of these districts are as below:

Parts of Districts in Bihar having As > 10 ppb (0.01 mg/l)	No of Districts
Araria, Begusarai, Bhagalpur, Bhojpur, Buxar, Darbhanga, Katihar, Khagaria, Kishanganj, Lakhisarai, Munger, Patna, Purnea, Samastipur, Saran, Vaishali, E. Champaran, Gopalganj, Sheohar, Supaul, Madhepura, Muzaffarpur, Saharsa, Siwan, W.	27

Champanan, Sitamarhi, Madhubani.	
Parts of Districts having Fluoride (>1.5mg/L)	No of Districts
Aurangabad, Banka, Bhagalpur, Gaya, Jamui, Kaimur(Bhabua), Munger, Nawada, Rohtas, Jahanabd, Lakhisarai, Sheikhpura, Nalanda, Saharsa, Supaul, Samastipur, Sheikhpura, Nalanda, Muzaffarpur.	19

On the date of hearing dated 20.12.2023, the concerned State Governments are included as the party and Hon'ble Tribunal directed to notice them. It is directed that "The issue raised in the present matter with regard to presence of arsenic and fluoride in ground water in such large number of States and Districts is very serious and requires urgent preventive and protective steps by all concerned authorities".

2. In compliance to the NGT order (Para - 6) a high level meeting has been held on 22.01.2024 & 29.01.2024 under the chairmanship of Chief Secretary, Bihar with all concerned departments and necessary direction has been issued.
3. **Efforts taken to provide safe drinking water to rural households by Public Health Engineering Department, Government of Bihar**

Public Health Engineering Department (PHED), Government of Bihar is mandated to provide safe drinking water to all rural households of the State. For this purpose, PHED has executed various programs and schemes to assure the access of clean drinking water to all households. Earlier Handpumps were installed at public places and in cluster of rural households to fetch safe water with travelling a long distance.

As part of the Water Quality Component, PHED is implementing Water Quality Monitoring and Surveillance actions to address the issues of water quality.

Monitoring of the quality of drinking water sources is the routine work of the Department. It has been mandated in the Standard Bidding Document for installation of New Handpump that the new handpumps would only be installed if the quality of the source found 'safe' by laboratory test. Also, the monitoring of water quality is conducted periodically and any drinking water sources is found above the permissible limit, are painted with Red Colour and respective officer counsel dependent families not to use this water source for drinking and cooking purpose. Hazardous of consuming fluoride contaminated water

are briefed. Safe water sources are being jointly identified by the local villagers as short-term measure.

Assurance received from them. As the follow up action, fresh water sample prepared and collected by the District Laboratory. Result yet to confirm.

Aiming to replenish water resources in Bihar and achieve affordability, sustainability in rural/urban water supply, the Government of Bihar launched '*Har Ghar Nal Kal Jal Nishchay*' programme in September 2016. This aims to provide adequate and safe potable water supply to all individual households in the state by means of tap connection through piped water supply scheme. Following key strategies were rolled to achieve the goal for providing tap water supply within the premise of every rural household:

- The State Government assigned task to the Public Health Engineering Department (PHED) and Panchayati Raj Department (PRD) for all Gram Panchayats (rural areas) in the state of Bihar.
- Ward of the Gram Panchayat will be the implementation unit.

- Those rural wards where any drinking water source has been reported as contaminated with Arsenic or Fluoride or Iron, will be considered as 'quality affected ward' and PHED will work there.
- Water Sample of each borewell would be tested in the Water Testing Laboratory of PHED and after test result as 'safe to consume', that borewell will be used as the direct source of water supply. In case of presence of arsenic or fluoride or iron in tested water above of permissible limit, water treatment unit (WTP) would be installed to treat water before supplying it.
- Quality of supplied water will be monitored periodically and test results will be reviewed at every supervisory level.
- Rural community will be engaged in water quality surveillance and facility of water quality testing at grassroot level will be ensured through Field Test Kits.
- In geographical terms, the PHED was assigned the task of 56,544 wards (including 30,272 quality affected wards). In all the remaining non quality areas the Panchayati Raj Department was given this task in 58,107 wards).

- Currently, drinking water in 4709 wards are affected with arsenic, 3789 are affected with fluoride and 21,709 are affected with iron contamination. Of these, work has been completed in 4683 arsenic-affected, 3780 fluoride-affected and 21,282 iron-affected wards.

Under the *Har Ghar Nal Ka Jal* Resolve, the State Government is investing predominantly in water supply systems using an inclusive development approach. Faced with the emerging issue of contamination of water sources, without a clear indication of the reasons and severity of the problem, the Government of Bihar has made commitment on State's investment to improve water quality and provide 70 lpcd uninterrupted potable water supply within premise of household through tap. Through this component, the *Har Ghar Nal Ka Jal* also aimed to (i) strengthen water quality monitoring and develop mitigation measures; (ii) finance cost-effective water supply schemes with WTP to treat arsenic, fluoride, iron; (iii) construction of surface water supply schemes to supply safe drinking water to more than 1600 rural wards, where contamination by arsenic and fluoride was found.

A detailed diagnostic process was undertaken for mapping the magnitude of chemical contamination in groundwater and their treatment technologies were scrutinized to see their efficiency in ensuring safe and potable water supply. Durability and user-friendly technology of water treatment, operational criteria of water treatment plants and reject management protocols were finalized and standardized by engaging expert agencies like CSIR-NEERI, Nagpur and UNICEF. The treatment technology of arsenic, fluoride and iron has been considered and oxidation, co-precipitation and adsorption onto coagulated flocs, lime treatment, adsorption on to sportive media, ion exchange resins and membrane techniques were identified as viable technologies for the purpose. Contractors were directed to enter into MoU's with CSIR approved technology Water Treatment Plant (WTP) manufacturing agencies. To take care of sustainability and other quality issues they had to also include a 5 years O&M period where services of preventive maintenance, replenishment of media & other repairing protocols would be carried out by the WTP agency/contractor.

If Hand pumps found with arsenic/fluoride contamination its spout has been painted with red colour and public has been made aware not to use this H.P water for drinking purposes but only to use it for bathing or other purposes (Copy enclosed).

Towards resolving the fluoride issue in 10 Gram Panchayats (89 wards; 8791 HHs including Schools and Anganwadi Centers) in Rajauli Block of Nawada district, a Multi Village Scheme has been commissioned with capacity of 10 MLD water from Phulwariya Dam as water source. Similarly, in Silao Block of Nalanda district, a battery of tube wells developed in the river bed of Panchane caters to 15 fluoride affected Gram Panchayats and covers more than 17 thousand FHTCs. In the 06 villages of Khadagpur Block of Munger district Khaira Multi Village Water Supply Scheme has been commissioned by tapping water from Khadagpur Jheel to make relief to 2145 fluoride households. Tackling the arsenic contamination concerns of villages which lie on the banks of the Ganga River, 7 Multi Village Schemes have been designed and constructed covering more than 2 lakhs

households of Buxar, Bhojpur, Patna, Vaishali, Begusarai and Bhagalpur districts.

Beside commissioning the piped water supply schemes, the Department has also strengthened the Water Quality Monitoring and Surveillance through a State Level NABL accredited Water Quality Testing Lab at Patna, 38 District Water Quality Testing Labs, 75 Sub Divisional Water Quality Testing Labs and 09 Mobile Water Quality Testing Labs. A protocol of water quality testing and test result reporting system has been operationalised and on spot water quality surveillance mechanism of water supply at scheme level ensured through Pump Operators.

While most of the schemes to tackle quality issues were Ward Level schemes (WLS), there were some schemes which consisted of Single Village schemes under the World Bank / NRDWP project and some Multi Village Schemes (MVS) under the erstwhile NRDWP project.

The Department has also developed a Water Quality Monitoring Protocol for testing and sharing test results to water users to ensure surveillance system is in place. It has

been directed to test water samples of arsenic and fluoride affected areas monthly, quarterly in iron affected and minimum once in four months in non-quality affected wards.

The detailed status of coverage by PHED in quality affected rural wards is enumerated below.

The work in some wards has not been completed due to court cases and site issues. But people there are getting potable water through Handpumps of which water samples has been tested and found free from contamination.

Chemical Contamination	Affected Wards	No. of HHs	Schemes/Wards Completed	FHTC given
Arsenic	4,709	6.98 lakh	4,683	6.74 lakh
Fluoride	3,789	4.67 lakh	3,780	4.64 lakh
Iron	21,709	36.03lakh	21,282	35.13 lakh
TOTAL	30,207	47.68 lakh	29,745	46.51 lakh

FHTC-Functional Household tap connection.

4. In order to ensure recharging of ground water, dilution of contaminated water and also prevention of rain water run-off (wastage), various programme of public well renovation,

construction of soak-pits near hand pumps, roof top rain water harvesting, rejuvenation/new construction of ponds, is being conducted under ambitious project **Jal Jeevan Hariyali Mission (JJHM)** under Rural development Department, Bihar.

5. That the State of Bihar through Public Health Engineering Department and Panchayati Raj Department has taken series efforts to provide contaminated free water to all the inhabitations of Bihar through different water supply schemes under ambitious project known as Mukhyamantri Har Ghar Nal Ka Jal Scheme.