

GOVERNMENT OF INDIA  
MINISTRY OF JAL SHAKTI

DEPARTMENT OF WATER RESOURCES, RIVER DEVELOPMENT & GANGA REJUVENATION

**LOK SABHA**

**UNSTARRED QUESTION NO.1707**

ANSWERED ON 01.08.2024

**CONTAMINATION OF GROUND WATER IN CHENNAI**

1707. DR. KALANIDHI VEERASWAMY

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

- (a) whether the Government is aware of the fact that increasing amount of heavy metal contamination in ground water of North Chennai has led to non-usability of water for drinking purpose in the region;
- (b) if so, the details thereof along with the current level of heavy metal contamination in ground water of North Chennai;
- (c) the measures taken by the Government to address the issue of heavy metal contamination in ground water of North Chennai;
- (d) the details of potential health risks associated with consumption of heavy metal contaminated ground water in North Chennai along with the steps being taken to protect the affected population;
- (e) whether the Government identified the industries responsible for heavy metal contamination in North Chennai's ground water and if so, the actions taken to hold them accountable; and
- (f) the steps taken by the Government to provide clean and safe drinking water to the residents of North Chennai in the light of the ground water contamination issue?

**ANSWER**

**THE MINISTER OF STATE FOR JAL SHAKTI**

(SHRI RAJ BHUSHAN CHOUDHARY)

**(a) & (b)** Central Ground Water Board generates ground water quality data on a regional scale during various scientific studies and ground water quality monitoring throughout the country including North Chennai of Tamil Nadu. CGWB had carried out special studies in the industrial cluster of Tamil Nadu during 2011 and 2016. These studies indicate that during July 2011, the concentrations of heavy metals viz. Copper, Lead, Zinc, Nickel, Chromium in North Chennai were found to be within the permissible limit except Manganese and Iron. During May 2016, also the elements were within the permissible limit except Lead. The details are given in **Annexure A**.

Further, during 2019, ground water samples from National Hydrograph Network stations (NHS) in North Chennai were collected and analyzed for heavy metals including Copper, Lead, Zinc, Nickel, Cadmium, Chromium, Manganese, Iron and Arsenic. All the samples from North Chennai were found to be within the permissible limit of BIS (10500:2012). The details are given **Annexure B**. However, area specific intensive ground water sampling studies will be required to gauge the current trend.

(c) Water being a State subject, sustainable development and management of groundwater resources, including the quality aspect is primarily the responsibility of the State Government. However, the Central Government facilitates the efforts of the State Governments including Tamil Nadu through technical and financial assistance through its various schemes and projects. In this direction, the important steps taken by the Ministry of Jal Shakti and other central ministries are given below :-

- CGWB has prepared the Master Plan for Artificial Recharge to Groundwater- 2020 in consultation with States/UTs which is a macro level plan indicating various structures for the different terrain conditions of the country including Tamil Nadu. In Tamil Nadu, the Master Plan envisages construction of about 88 thousand Rain water harvesting and artificial recharge structures to harness about 960 Million Cubic Metre (MCM) of monsoon rainfall. The management plan has been shared with the state Government which is devising suitable action plan for its implementation in select priority areas.
- CPCB has made a comprehensive programme on water pollution for controlling point sources the main components of which are developing industry specific standards and general standards for discharge of effluents notified under the Environment (Protection) Act, 1986 by Ministry of Environment, Forest and Climate Change, Govt. of India to be enforced by the SPCBs / PCCs through consent mechanism; Establishment of Common Effluent Treatment Plants (CETPs) for cluster of Small Scale Industries; Installation of Online Continuous Effluent Monitoring Systems (OCEMS) by Grossly Polluting Industries for getting real time information on the effluent quality etc.
- Awareness generation programs/ workshop on various aspects of ground water including preventing ground water pollution and safe use of contaminated water are being conducted by CGWB periodically.
- Since ground water is the predominant source used for drinking and since its quality is found to deteriorate when drawn from greater depths, Ministry of Jal Shakti and other central ministries are implementing several programmes for recharging ground water and water conservation which are expected to improve the underground water table, thus improving the quality of ground water. Some of such programmes are Jal Shakti Abhiyan, AmrutSarovar Mission, MNREGS, PMKSY-WDC etc.
- CGWB constructs wells for Exploration of Ground Water. Successful contamination- free wells are handed over to the State Governments for gainful utilization.
- Data on ground water quality available with CGWB are made available in public domain through reports as well as through the web site (<http://www.cgwb.gov.in>) for use by various stakeholders. The data is also shared with concerned State Governments for taking necessary remedial measures.

(d) As per information received from Ministry of Health & Family Welfare, heavy metal contamination in groundwater can lead to neurological impairment, developmental delays in children, renal impairment, increased risk of cancer, etc.

(e) Heavy metal contamination can occur due to multiple reasons owing to factors which are geogenic and anthropogenic, or a combination of both. Ascertaining the true nature of contamination and actual factors responsible for it is possible only with detailed area specific studies.

(f) Water being a State Subject, providing clean and safe drinking water to the residents of including North Chennai part of Tamil Nadu is the responsibility of the concerned State Government. As per the information available from the Chennai Metropolitan Water Supply and Sewerage Board (CMWS&SB), the drinking water is being supplied to the Chennai city from both ground water based and surface water based sources. The problem of contamination, if any, is taken care of by treating the water thoroughly in the designated water treatment plants of CMWS&SB prior to distribution to households.

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**ANNEXURE-A**

**ANNEXURE REFERRED TO IN REPLY TO PART (a) & (b) OF UNSTARRED QUESTION NO. 1707 TO BE ANSWERED IN LOK SABHA ON 01.08.2024 REGARDING “CONTAMINATION OF GROUND WATER IN CHENNAI”.**

**The details of the special studies carried out by CGWB in Industrial Cluster in North Chennai**

S. No.	Heavy Metals	Range (mg/l)		Permissible limit of BIS in mg/l	% of Samples Exceed Permissible Limit	
		July 2011(n=12)*	May 2016 (n=12)		July 2011	May 2016
1	Copper	ND - 2.06	ND**	1.5	17	Nil
2	Lead	ND	ND-0.078	0.01	Nil	25
3	Zinc	0.03 – 4.89	ND	15.0	Nil	Nil
4	Nickel	ND	ND	0.02	Nil	Nil
4	Chromium	ND	ND	0.05	Nil	Nil
5	Manganese	0.19 - 1.57	0.012 – 0.24	0.3	50	Nil
6	Iron	0.09 – 11.83	ND-0.74	1.0	42	Nil

\*n – Number of Samples

\*\* ND – Not detectable, i.e. below the detection limit of the instrument

**ANNEXURE-B**

**The details of Heavy metal in Ground Water samples collected from the NHS in North Chennai**

S. No.	Location	Cr in mg/l	Fe in mg/l	Mnin mg/l	Cu in mg/l	Zn in mg/l	As in mg/l	Pb in mg/l	U in mg/l
		Permissible limit of BIS for drinking water							
		0.05 mg/l	1.0 mg/l	0.3 mg/l	1.5 mg/l	15.0 mg/l	0.01 mg/l	0.01 mg/l	0.03 mg/l
1	Tondiarpet	0.00014	0.02	0.33	0.00	0.08	0.00438	0.00098	0.00179
2	Tiruvottiyur	0.00573	0.46	0.09	0.00	0.16	0.0097	0.00222	0.00034
3	Vyasarpadi	0.00005	0.03	0.00	0.00	0.07	0.00665	0.00065	0.00026

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