

GOVERNMENT OF INDIA  
MINISTRY OF JAL SHAKTI  
DEPARTMENT OF WATER RESOURCES, RIVER DEVELOPMENT & GANGA REJUVENATION

**LOK SABHA**

**UNSTARRED QUESTION NO. 648**

ANSWERED ON 06.02.2025

**RISING LEVEL OF CONTAMINANTS IN GROUNDWATER**

648. SHRI RAMPRIT MANDAL                      SHRI DINESH CHANDRA YADAV  
      PROF. SOUGATA RAY                      SHRI KAUSHALENDRA KUMAR  
      SHRI ASADUDDIN OWAISI                SHRI SELVAGANAPATHI T.M.

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

- (a) whether it is a fact that according to the report of the Central Ground Water Board, excessive traces of nitrates in groundwater found at alarming level in 440 districts of the country and if so, the details thereof State-wise as of 2017 and 2023 along with the reasons therefor;
- (b) whether it is also a fact that nitrate in groundwater has been rapidly increasing in other districts as only 359 districts were reported in the year 2017 and if so, the details thereof;
- (c) whether it is true that about 56 per cent of the country's districts have excessive nitrates and if so, the details thereof;
- (d) whether it is also true that central and southern parts of the country are reporting an increasing trend of nitrates provoking worry and if so, the details thereof;
- (e) whether the fluoride level in groundwater has also been found beyond the safe limit and if so, the details thereof; and
- (f) whether the Government has assessed the adverse impact on human health and crops associated with such high levels of nitrates and fluoride and if so, the details thereof along with the measures taken/being taken by the Government in this regard to provide potable drinking water to the people?

**ANSWER**

**THE MINISTER OF STATE FOR JAL SHAKTI**

(SHRI RAJ BHUSHAN CHOUDHARY)

**(a) & (b)** The Annual Groundwater Quality Report 2024 prepared by the Central Ground Water Board (CGWB) is based on the ground water sampling and analysis from 15,259 monitoring locations spread across the country. As per the report, localized occurrences of nitrate beyond the prescribed limits for drinking were reported in groundwater samples collected from some isolated spots, which are spread across 440 districts in India. The State-wise lists of districts wherein nitrate beyond permissible limit has been reported in one or more isolated locations for the year 2023 and 2017 are presented in **Annexure-I** & **Annexure-II** respectively.

Although the number of districts wherein nitrate beyond permissible limit has been reported in one or more isolated locations have increased from 359 in 2017 to 440 in 2023, however there is no evidence to establish its spread from one district to another. Nitrate contamination in groundwater is primarily Anthropogenic in nature, influenced by various factors such as the excessive use of fertilizers, agricultural runoff, improper wastewater management etc. Further, the increase in the number of affected districts is also attributed to enhanced sampling frequency and expanded groundwater quality monitoring in the proximity of reportedly affected areas as per updated SoP. This can be observed from the fact that despite the rise in the number of districts where contamination was reported, there has been a slight decline in the overall proportion of samples exceeding permissible nitrate levels, decreasing from 21.6% to 19.8% from 2017 to 2023.

(c) Out of 788 total districts in India, nitrate beyond permissible limit has been reported in one or more isolated spots of 440 districts in 2023.

(d) As can be seen from **Annexure- I & Annexure –II**, in central and Southern parts of the country, the number of districts wherein nitrate has been reported beyond permissible limit in isolated pockets between 2017 to 2023, have remained constant in Karnataka and Maharashtra, shown decline in Kerala and Madhya Pradesh and shown increase in Andhra Pradesh, Telangana and Tamil Nadu respectively.

(e) As per the Annual Groundwater Quality Report 2024, presence of Fluoride beyond the prescribed limits for drinking was reported in groundwater samples from some of the isolated parts of 263 districts in India.

(f) Drinking water having Fluoride or nitrates above the permissible limits over a sustained period is known to cause several adverse health effects. As per the available research and literature, long-term consumption of water contaminated with of Fluoride in drinking water may expose people to risks of crippling skeletal and/ or dental fluorosis. Likewise, nitrate contamination may cause birth defects in infants, thyroid complications and certain types of cancers.

Further, Water is a state subject and the responsibility of ground water management, including taking initiatives for improving ground water quality and mitigate the contamination issue, lies primarily with the state governments. However, several steps have been taken by the Central Government in the direction of improving groundwater quality. Some of the important ones are mentioned below:-

- i. 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. Further, half-yearly Bulletins, carrying the gist of findings are also circulated after every round of ground water quality monitoring.
- ii. 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

groundwater in parts of Punjab, Haryana, Andhra Pradesh, Uttar Pradesh, Bihar, Chhattisgarh, Jharkhand and Assam States.

- iii. Central Pollution Control Board (CPCB) in association with State Pollution Control Boards/Pollution Control Committees (SPCBs/PCCs) is implementing the provisions of the Water (Prevention & Control) Act, 1974 and the Environment (Protection) Act, 1986 to prevent and control pollution in water. CPCB has made a comprehensive programme on water pollution for controlling point sources by developing industry specific standards and general standards for discharge of effluents. As per the directives of CPCB, Online Continuous Effluent Monitoring Systems (OCEMS) are installed by the industrial units in the country for getting real time information on the effluent quality.
- iv. To make provision of potable tap water supply in adequate quantity, of prescribed quality and on regular & long-term basis to every rural household by 2024, since August, 2019, Government of India in partnership with States, is implementing Jal Jeevan Mission (JJM) – Har Ghar Jal.
  - Under the JJM, Bureau of Indian Standards’ BIS:10500 standards have been adopted as prescribed norms for quality of tap water service delivery.
  - While allocating the funds to States/ UTs, 10% weightage is given to the population residing in habitations affected by chemical contaminants.
  - More than 2000 water quality-testing laboratories have been set up in the country. Besides this, five persons, preferably women are identified and trained from every village for testing the water samples through Field Test Kits (FTKs).
  - Under JJM, while planning for potable water supply to household through tap water connection, priority is given to quality-affected habitations. Since, planning, implementation and commissioning of piped water supply scheme based on a safe water source takes time, purely as an interim measure, States/ UTs have been advised to install community water purification plants (CWPPs) especially in Arsenic and Fluoride affected habitations.

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**ANNEXURE-I**

**ANNEXURE REFERRED TO IN REPLY TO PART (a) & (b), (d) OF UNSTARRED QUESTION NO. 648 TO BE ANSWERED IN LOK SABHA ON 06.02.2025 REGARDING “RISING LEVEL OF CONTAMINANTS IN GROUNDWATER”.**

**The State-Wise Details of Nitrate Contamination in Ground Water for Year 2023**

S.No.	State	No. of districts having NO <sub>3</sub> >45 mg/L	Parts of districts having Nitrate > 45 mg/L
1	Andhra Pradesh	25	Alluri Sita Rama Raju, Anakapalli, Ananthapur, Annamayya, Bapatla, Chittoor, East Godavari, Eluru, Guntur, Kakinada, Konaseema, Krishna, Kurnool, Nandyal, Nellore, NTR, Palnadu, Parvathipuram Manyam, Prakasham, Sri Satya Saisrikakulam, Tirupathi, Visakhapatnam, Vizianagaram, West Godavari, YSR Kadapa
2	Bihar	15	Arwal, Bhagalpur, Bhojpur, Buxar, Jehanabad, Kaimur, Katihar, Madhepura, Madhubani, Muzzafarpur, Patna, Saharsa, Samastipur, Sheohar, Sitamarhi
3	Chhattisgarh	20	Balod, Balodabazar, Bemetara, Bilaspur, Dhamtari, Durg, Gariyabandh, Janjgir Champa, Jashpur, Kanker, Kawardha, Korba, Koriya, Mahasamund, Mungeli, Raigarh, Raipur, Rajnandgaon, Surajpur, Surguja
4	Delhi	7	New Delhi, North, North West, South, South East, South West, West
5	Gujarat	23	Ahmedabad, Amreli, Anand, Arvali, Bharuch, Bhavnagar, Chhota Udepur, Dahod, Devbhoomi Dwarka, Jamnagar, Junagadh, Kachchh, Kheda, Morbi, Panchmahal, Porbandar, Rajkot, Sabarkantha, Surat, Surendranagar, Tapi, Vadodara, Valsad
6	Haryana	21	Ambala, Bhiwani, Faridabad, Fatehabad, Gurugram, Hisar, Jhajar, Jind, Kaithal, Karnal, Kurukshetra, Mahendragarh, Mewat, Palwal, Panchkula, Panipat, Rewari, Rohtak, Sirsa, Sonapat, Yamunanagar
7	Himachal Pradesh	6	Bilaspur, Hamirpur, Mandi, Sirmour, Solan, Una
8	Jammu & Kashmir	6	Baramulla, Jammu, Kathua, Kupwara, Rajouri, Samba
9	Jharkhand	9	Chatra, Garhwa, Gumla, Hazaribagh, Latehar, Loherdaga, Palamu, Ranchi, Simdega
10	Karnataka	27	Bagalkot, Belgaum, Bellary, Bengaluru Rural, Bidar, Bijapur, Chamarajanagara, Chikballapur, Chitradurga, Davanagere, Dharwad, Gadag, Gulbarga, Hassan, Haveri, Kodagu, Kolar, Koppal, Mandya, Mysore, Raichur, Ramanagara, Shivmoga, Tumkur, Uttara Kannada, Vijayanagara, Yadgir
11	Kerala	10	Alappuzha, Idukki, Kannur, Kollam, Kozhikode, Malappuram, Palakkad, Pathanamthita, Thrissur, Trivandrum
12	Madhya Pradesh	39	Agar Malwa, Anuppur, Balaghat, Barwani, Bhind, Burhanpur, Chhindwara, Damoh, Datia, Dewas, Dhar, Guna, Gwalior, Harda, Indore, Jabalpur, Jhabua, Katni, Khandwa, Khargone, Mandla, Mandsaur, Morena, Narsinghpur, Neemuch, Panna, Rajgarh, Ratlam, Rewa, Sagar, Satna, Shahdol, Shajapur, Sheopur, Shivpuri, Sidhi, Tikamgarh, Ujjain, Umariya

13	Maharashtra	32	Ahmednagar, Akola, Amravati, Aurangabad, Beed, Bhandara, Buldhana, Chandrapur, Dhule, Gadchiroli, Gondia, Hingoli, Jalgaon, Jalna, Kolhapur, Latur, Nagpur, Nanded, Nandurbar, Nashik, Osmanabad, Parbhani, Pune, Raigad, Sangli, Satara, Sindudurg, Solapur, Thane, Wardha, Washim, Yavatmal
14	Odisha	15	Anugul, Balangir, Bargarh, Cuttack, Dhenkanal, Kendujhar, Khordha, Koraput, Mayurbhanj, Nayagarh, Nuapada, Puri, Sambalpur, Sonapur, Sundargarh
15	Pondicherry	1	Pondicherry
16	Punjab	20	Amritsar, Barnala, Bathinda, Faridkot, Fazilka, Ferozepur, Gurdaspur, Hoshiarpur, Jalandhar, Ludhiana, Mansa, Moga, Muktsar, Nawanshahr, Pathankot, Patiala, Rupnagar, Sangrur, Sas Nagar, Tarn Taran
17	Rajasthan	30	Ajmer, Alwar, Banswara, Baran, Barmer, Bharatpur, Bhilwara, Bikaner, Bundi, Chittaurgarh, Churu, Dausa, Ganganagar, Hanumangarh, Jaipur, Jaisalmer, Jalore, Jhalawar, Jhunjhunu, Jodhpur, Karauli, Nagaur, Pali, Pratapgarh, Rajsamand, Sawai Madhopur, Sikar, Sirohi, Tonk, Udaipur
18	Tamil Nadu	31	Ariyalur, Chennai, Coimbatore, Cuddalore, Dharmapuri, Dindigul, Erode, Kancheepuram, Kanyakumari, Karur, Krishnagiri, Madurai, Nagapattinam, Namakkal, Nilgiris, Perambalur, Pudukkottai, Ramanathapuram, Salem, Sivaganga, Thanjavur, Theni, Thiruvannamalai, Tirunelveli, Tiruvallur, Tiruvarur, Trichy, Tuticorin, Vellore, Villupuram, Virudhunagar
19	Telangana	32	Adilabad, B.Kothagudem, Hanamkonda, J.Bhupalapally, Jagtial, Jangaon, Jogulamba, Kamareddy, Karimnagar, Kb Asifabad, Khammam, Mahabubabad, Mahabubnagar, Mancherial, Medak, Medchal Malkanjgiri, Mulugu, Nagarkurnool, Nalgonda, Narayanpet, Nirmal, Nizamabad, Pedapalle, R. Sircilla, Rangareddy, Sangareddy, Siddipet, Suryapet, Vikarabad, Wanaparthy, Warangal, Yadadri Bhuvanagiri
20	Tripura	2	North Tripura, West Tripura
21	Uttar Pradesh	48	Agra, Aligarh, Allahabad/ Prayagraj, Amethi, Amroha, Auraiya, Baghpat, Balrampur, Banda, Budaun, Bulandshahar, Chitrakoot, Etah, Etawah, Fatehpur, Firozabad, G.B. Nagar, Ghaziabad, Ghazipur, Gorakhpur, Hamirpur, Hapur, Hathras, Jalaun, Jaunpur, Jhansi, Kanpur Dehat, Kanpur Nagar, Kasganj, Kaushambi, Lalitpur, Lucknow, Mahoba, Mainpuri, Mathura, Meerut, Mirzapur, Moradabad, Pilibhit, Rampur, Sambhal, Sant Ravidas Nagar, Shahjahanpur, Shrawasti, Siddharth Nagar, Sonbhadra, Unnao, Varanasi
22	Uttarakhand	5	Almora, Dehradun, Haridwar, Nainital, Udham Singh Nagar
23	West Bengal	18	Alipurduar, Bankura, Birbhum, Cooch Behar, Dakshin Dinajpur, Darjeeling, Hooghly, Jalpaiguri, Jhargram, Malda, Murshidabad, Nadia, North 24 Parganas, Paschim Bardhaman, Paschim Medinipur, Purulia, South 24 Parganas, Uttar Dinajpur

**ANNEXURE-II**

**ANNEXURE REFERRED TO IN REPLY TO PART (a) & (b), (d) OF UNSTARRED QUESTION NO. 648 TO BE ANSWERED IN LOK SABHA ON 06.02.2025 REGARDING “RISING LEVEL OF CONTAMINANTS IN GROUNDWATER”.**

**The State-Wise Details of Nitrate Contamination in Ground Water for Year 2017**

S.No.	State	No. of districts having NO <sub>3</sub> >45 mg/L	Parts of districts having Nitrate > 45 mg/L
1	Andhra Pradesh	13	Anantapur, Chittoor, East Godavari, Guntur, Kadapa, Krishna, Kurnool, Nellore, Prakasam, Srikakulam, Visakhapatnam, Vizianagaram, West Godavari
2	Bihar	20	Arwal, Aurangabad, Begusarai, Bhabhua, Bhagalpur, Bhojpur, Buxar, Gaya, Jehanabad, Khagaria, Madhubani, Muzaffarpur, Nalanda, Nawada, Patna, Rohtas, Samastipur, Sheikhpura, Supaul, West Champaran
3	Goa	2	North Goa, South Goa
4	Gujarat	30	Ahmedabad, Amreli, Anand, Arvalli, Banas Kantha, Bharuch, Bhavnagar, Botad, Chhota Udaipur, Dahod, Devbhumi Dwarka, Gandhinagar, Jamnagar, Junagadh, Kachchh, Kheda, Mahesana, Mahisagar, Morbi, Narmada, Navsari, Panch Mahals, Patan, Porbandar, Rajkot, Sabarkantha, Surat, Surendra Nagar, The Dangs, Vadodara
5	Haryana	18	Ambala, Bhiwani, Faridabad, Fatehabad, Gurgaon, Hisar, Jhajjar, Kaithal, Karnal, Mahendragarh, Mewat, Palwal, Panchkula, Panipat, Rewari, Rohtak, Sirsa, Yamunanagar
6	Himachal Pradesh	1	Solan
7	Jammu & Kashmir	6	Reasi, Jammu, Kathua, Rajouri, Samba, Udhampur.
8	Jharkhand	17	Bokaro, Deoghar, Dhanbad, Dumka, E. Singhbhum, Giridih, Gumla, Jamtara, Khunti, Koderma, Lohardaga, Pakur, Ranchi, Sahibganj, Saraikela, Simdega, W. Singhbhum
9	Karnataka	27	Bagalkot, Bangalore Rural, Bangalore Urban, Belgaum, Bellary, Bidar, Bijapur, Chamarajanagar, Chickballapur, Chickmagalur, Chitradurga, Davanagere, Dharwad, Gadag, Gulbarga, Hassan, Haveri, Kodagu, Kolar, Koppal, Mandya, Mysore, Raichur, Shimoga, Tumkur, Udipi, Yadgir
10	Kerala	13	Ernakulam, Idukki, Kannur, Kasargod, Kollam, Kottayam, Kozhikode, Malappuram, Palakkad, Pathanamthitta, Thrissur, Trivandrum, Wayanad
11	Madhya Pradesh	48	Agar Malwa, Alirajpur, Ashok Nagar, Balaghat, Barwani, Betul, Bhind, Bhopal, Burhanpur, Chhatarpur, Chhindwara, Damoh, Datia, Dewas, Dhar, Guna, Gwalior, Harda, Hoshangabad, Indore, Jabalpur, Jhabua, Katni, Khandwa, Khargone, Mandla, Mandsaur, Morena, Narsinghpur, Neemuch, Panna, Raisen, Rajgarh, Ratlam, Rewa, Sagar, Satna, Sehore, Seoni, Shahdol, Shajapur, Sheopur, Shivpuri, Singrauli, Tikamgarh, Ujjain, Umaria, Vidisha
12	Maharashtra	32	Ahmednagar, Akola, Amravati, Aurangabad, Beed, Bhandara, Buldhana, Chandrapur, Dhule, Gadchiroli, Gondia, Hingoli, Jalgaon,

			Jalna, Kolhapur, Latur, Nagpur, Nanded, Nandurbar, Nashik, Osmanabad, Parbhani, Pune, Ratnagiri, Sangli, Satara, Sindhudurg, Solapur, Thane, Wardha, Washim, Yavatmal
13	Punjab	17	Bathinda, Faridkot, Fatehgarh Sahib, Fazilka, Ferozepur, Gurdaspur, Hoshiarpur, Jalandhar, Kapurthala, Mansa, Muktsar, Nawanshahr, Pathankot, Patiala, Rupnagar, Sangrur, SAS Nagar
14	Rajasthan	31	Ajmer, Alwar, Banswara, Baran, Barmer, Bharatpur, Bhilwara, Bundi, Chittaurgarh, Churu, Dholpur, Dungarpur, Ganganagar, Hanumangarh, Jaipur, Jaisalmer, Jalore, Jhalawar, Jhunjhunu, Jodhpur, Karauli, Kota, Nagaur, Pali, Pratapgarh, Rajsamand, Sawai Madhopur, Sikar, Sirohi, Tonk, Udaipur
15	Tamil Nadu	20	Chennai, Coimbatore, Dharmapuri, Dindigul, Erode, Kancheepuram, Kanyakumari, Karur, Krishnagiri, Namakkal, Perambalur, Salem, Thiruvannamalai, Tirunelveli, Tiruppur, Tiruvallur, Trichy, Tuticorin, Villupuram, Virudhunagar
16	Telangana	10	Adilabad, Hyderabad, Karimnagar, Khammam, Mahbubnagar, Medak, Nalgonda, Nizamabad, Ranga Reddy, Warangal
17	Uttar Pradesh	42	Agra, Aligarh, Allahabad, Baghpat, Ballia, Balrampur, Banda, Budaun, Chandawali, Chitrakoot, Etah, Faizabad, Farrukhabad, Fatehpur, Firozabad, Gaziabad, Gonda, Hamirpur, Hathras, J P Nagar, Jalaun, Jaunpur, Jhansi, Kanpur Dehat, Kanpur Nagar, Kashiramnagar (Kasganj), Kaushambi, Lalitpur, Lucknow, Mahoba, Mathura, Meerut, Mirzapur, Moradabad, Muzaffarnagar, Pilibhit, Saharanpur, Shrawasti, Sitapur, Sonbhadra, Unnao, Varanasi.
18	West Bengal	12	Bankura, Birbhum, Cooch Behar, Dakshin Dinajpur, Darjeeling, Jalpaiguri, Jhargram, Malda, Paschim Bardhaman, Paschim Medinipur, Purba Bardhaman, Purulia.

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