

GOVERNMENT OF INDIA
MINISTRY OF WATER RESOURCES,
RIVER DEVELOPMENT & GANGA REJUVENATION
LOK SABHA
UNSTARRED QUESTION NO. 402
ANSWERED ON 25.02.2016

CONTAMINATION OF GROUNDWATER

402. SHRIMATI BHAVANA PUNDALIKRAO GAWALI PATIL
SHRI MALLIKARJUN KHARGE
SHRI KRUPAL BALAJI TUMANE

Will the Minister of WATER RESOURCES, RIVER DEVELOPMENT AND GANGA REJUVENATION be pleased to state:

- (a) the norms fixed for fluoride and other chemical contents in supply of water for various purposes including drinking water in the country;
- (b) whether the Government is aware that groundwater in various parts of the country including Punjab is contaminated and contain dangerous chemicals, metals including other arsenic contents thereby leading to harmful effects on human beings and affecting drinking water supply;
- (c) if so, the details thereof by indicating the present status of such contamination including fluoride contents in the groundwater in comparison to the last three years, State/location-wise; and
- (d) the steps taken/proposed to be taken by the Government to improve the situation along with the details of the schemes chalked out and funds released/spent for the purpose, if any?

ANSWER

THE MINISTER OF STATE FOR WATER RESOURCES, RIVER DEVELOPMENT AND
GANGA REJUVENATION
(PROF.SANWAR LAL JAT)

- (a) The norms fixed for fluoride and other chemical contents in supply of water for various purposes including drinking water are given in **Annexure I**.

(b)&(c) Ground water quality data generated by Central Ground Water Board (CGWB) indicates that ground water in various parts in Ten (10) States for Arsenic, Twenty (20) States for Fluoride, Twenty One (21) States for Nitrate, Twenty Six (26) States and Union Territories for Iron, and Fifteen (15) States for Heavy Metals such as Lead, Chromium and Cadmium have concentration higher than the norms, on the date of analysis, prescribed by the Bureau of Indian Standards. State/UT-wise list / parts of the districts where ground water was found contaminated is given at **Annexure-II**. Status of contamination of ground water for last three years (2012-15) is given at **Annexure-III**. Further, Department of Water Supply & Sanitation (DWSS), Government of Punjab has informed that the till date there are 2697 sources where ground water quality is affected by various contaminants like Uranium, Arsenic and Fluoride etc beyond prescribed norms.

(d) Government of India through Ministry of Drinking Water & Sanitation (MoDWS) supplements the efforts of the States by providing them technical and financial support to the schemes being developed for drinking water supply in the States. MoDWS has informed that 20% of the allocated funds under National Rural Drinking Water Programme (NRDWP) are earmarked for water quality problems. Further, the States may also utilize up to 67% of funds released under NRDWP for improving water quality of ground and surface water. Ministry of Drinking Water and Sanitation have informed that as a long term measure, all the State Governments have been advised to provide piped water supply from alternate safe sources to all water quality affected habitations with priority to cover Fluoride and Arsenic affected habitations. Since these mega schemes take a long gestation period for commissioning, the States have advised to set up community water treatment plants in all the remaining Arsenic, Fluoride, Heavy Metals, toxic elements, pesticides and fertilizers affected habitations as a short term measure and provide 8-10 lpcd (litre per capita per day) of safe drinking water on or before March, 2017.

DWSS, Government of Punjab has informed that they have taken various steps which include installation of 1824 RO plants; in addition, NITI Aayog, has allocated Rs. 39.35 crore to Punjab for covering all the arsenic and fluoride affected areas in 2016 with at least 8 lpcd water.

ANNEXURE - I

Annexure referred in reply to Lok Sabha Unstarred Question No. 402 to be answered on 25.02.2016 regarding “Contamination of Groundwater”

Drinking Water Standards of BIS (IS: 10500: 2012)

S.No	Parameters	Desirable limits mg/l	Permissible limits mg/l
Essential Characteristics			
1	Colour Hazen unit	5	15
2	Odour	agreeable	agreeable
3	taste	agreeable	agreeable
4	Turbidity (NTU)*	1	5
5	pH	6.5-8.5	No relaxation
6	Total Hardness, CaCO ₃	200	600
7	Iron (Fe)	0.3	No relaxation
8	Chloride (Cl)	250	1000
9	Residual Free Chlorine	0.2	1
10	Fluoride (F)	1.0	1.5
Desirable Characteristics			
11	Dissolved Solids	500	2000
12	Calcium (Ca)	75	200
13	Magnesium (Mg)	30	100
14	Copper (Cu)	0.05	1.5
15	Manganese (Mn)	0.1	0.3
16	Sulphate (SO ₄)	200	400
17	Nitrate (NO ₃)	45	No relaxation
18	Phenolic compounds	0.001	0.002
19	Mercury (Hg)	0.001	No relaxation
20	Cadmium (Cd)	0.003	No relaxation
21	Selenium (Se)	0.01	No relaxation
22	Arsenic (As)	0.01	0.05
23	Cyanide (CN)	0.05	No relaxation
24	Lead (Pb)	0.01	No relaxation
25	Zinc (Zn)	5.0	15
26	Total Chromium	0.05	No relaxation
27	Alkalinity	200	600
28	Aluminum (Al)	0.03	0.2
29	Boron (B)	0.5	1

* NTU = Nephelometric Turbidity Unit

Safe limits for Electrical Conductivity for Irrigation Water

S.No.	Nature of soil	Crop growth	Upper permissible safe limit of Electrical Conductivity in water $\mu\text{mhos/cm}$ at 25°C
1	Deep black soil and alluvial soils having clay content more than 30% soils that are fairly to moderately well drained.	Semi-tolerant	1500
		Tolerant	2000
2	Heavy textured soils having clay contents of 20-30% soils that are well drained internally and have good surface drainage system.	Semi-tolerant	2000
		Tolerant	4000
3	Medium textured soils having clay 10-20% internally very well drained and having good surface drainage system.	Semi-tolerant	4000
		Tolerant	6000
4	Light textured soils having clay less than 10% soil that have excellent internally and surface drainage system.	Semi-tolerant	6000
		Tolerant	8000

Tolerance Limits for Industrial Effluence (IS : 2490, Part-I-1981)

S. No.	Characteristic	Maximum tolerance limits for industrial effluents discharged (mg/l)			
		Into inland surface water	Into public sewers	On land for irrigation	Marine/Coastal Area
1	Colour and Odour	Absent	-	Absent	Absent
2	Suspended solids	100	600	200	a)For Process waste water 100 b)For cooling water effluent 10 percent above total suspended matter of effluent
3	Particle size of suspended solids	Shall pass 850 micron IS Sieve	-	-	a)Floatable solids, solids max. 3 mm b)Settleable solids max 856 microns
4	Dissolved solids (inorganic)	2100	2100	2100	
5	pH value	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
6	Temperature °C	Shall not exceed 40 in any section of the stream within 15 meters down stream from the effluent outlet	45 at the point of discharge	-	-
7	Oil and grease	10	20	10	20
8	Total residual chlorine	1.0	-	-	1.0
9	Ammonical nitrogen (as N)	50	50	-	50
10	Total kjeldahl nitrogen (as N)	100	-	-	100
11	Free ammonia (as NH ₃)	5.0	-	-	5.0
12	Biochemical Oxygen Demand (5 days at 20°C)	30	350	100	100

13	Chemical Oxygen Demand	250	-	-	250
14	Arsenic (as As)	0.2	0.2	0.2	0.2
15	Mercury (as Hg)	0.01	0.01	-	0.01
16	Lead (as Pb)	0.1	1.0	-	2.0
17	Cadmium (as Cd)	2	1.0	-	2.0
18	Hexavalent Chromium (as Cr ⁺⁶)	0.1	2.0	-	1.0
19	Total Chromium (as Cr)	2.0	2.0	-	2.0
20	Copper (as Cu)	3.0	3.0	-	30
21	Zinc (as Zn)	5	15	-	15
22	Selenium (as Se)	0.05	0.05	-	0.05
23	Nickel (as Ni)	3.0	3.0	-	-
24	Boron (as B)	2.0	2.0	2.0	-
25	Percent sodium	-	60	60	-

Annexure-II

Annexure referred in reply to **Lok Sabha Unstarred Question No. 402** to be answered on **25.02.2016** regarding **“Contamination of Groundwater”**

States Wise Details of Affected Districts with Ground Water Contamination by different Chemical Constituents

S. No.	State/UT	Fluoride (above 1.5 mg/l) (Name of the Districts)	Nitrate (above 45 mg/l) (Name of the Districts)	Arsenic (above 0.05 mg/l) (Name of the Districts)	Iron (above 0.05 mg/l) (Name of the Districts)	Heavy metals: Lead (above 0.01 mg/l) Cadmium (above 0.003 mg/l) Chromium (above 0.05 mg/l) (Name of the Districts)
1	Andhra Pradesh	Visa khapatnam, West-Godavari Krishna, Guntur, Prakasam, Nellore, Chittoor Kadapa, Kurnool, Ananthapur, Sirkakulam	Srikakulam, Vizianagaram, Visa khapatnam, East-Godavari, West-Godavari Krishna, Guntur, Prakasam, Nellore, Chittoor Kadapa, Kurnool, Ananthapur,		Vishakhapatnam Krishna, Guntur, Nellore, Kurnool, Chittoor, Cuddapah,	
2	Telangana	Adilabad, Karimnagar, Khammam, Warangal, Mahabubnagar, Medak, Nalgonda, Rangareddy, Nizamabad	Adilabad, Nizamabad, Karimnagar, Warangal Khammam, Hyderabad, Mahabubnagar, Medak, Nalgonda, Rangareddy,		Adilabad, Hyderabad, Karimnagar, Mahabubnagar, Medak, Nalgonda, Nizamabad, Ranga Reddy	Lead : Rangareddy, Nalgonda Cadmium: Rangareddy Chromium: Rangareddy
3	Assam	Goalpara, Kamrup, KarbiAnglong, Nagaon, Golaghat, Karimganj		Sivsagar, Jorhat, Golaghat, Sonitpur, Lakhimpur, Dhemaji, Hailakandi, Karimganj, Cachar, Barpeta, Bongaigaon, Goalpara, Dhubri, Nalbari, Nagaon, Morigaon, Kamrup, Darrang & Baksha	Cachar, Darrang, Dhemaji, Dhubri, Goalpara, Golaghat, Hailakandi, Jorhat, Kamrup, KarbiAnglong, Karimganj, Kokrajhar, Lakhimpur, Morigaon, Nagaon, Nalbari, Sivsagar, Sonitpur	
4	Arunachal Pradesh				Changlang, East Siang, Lohit, Papumpare	
5	Bihar	Aurangabad, Banka, Bhagalpur, Gaya, Jamui, Kaimur (Bhabua), Munger, Nawada, Rohtas, Jahanabd, Lakhisarai, Sheikhpura, Nalanda	Aurangabad, Banka, Bhagalpur, Bhojpur, Darbhanga, Kaimur(Bhabua), Patna, Rohtas, Saran, Siwan	Begusarai, Bhagalpur, Bhojpur, Buxar, Darbhanga, Katihar, Khagaria, Kishanganj, Lakhisarai, Munger, Patna, Purnea, Samastipur, Saran, Vaishali	Aurangabad, Begusarai, Bhojpur, Buxar, East Champaran, Gopalganj, Katihar, Khagaria, Kishanganj, Lakhiserai, Madhepura, Muzaffarpur, Nawada, Rohtas, Saharsa, Samastipur, Siwan, Supaul, West Champaran	
6	Chhattisgarh	Bastar, Balod, Balrampur, Bemetra, Bijapur, Durg, Kanker, Kondagaon, Korba, Koriya, Raigarh,	Bastar, Bilaspur, Dantewada, Dhamtari, Jashpur, Kanker, Kawardha, Korba, Mahasamund, Raigarh,	Rajnandgaon	Bastar, Dantewada, Kanker, Koriya,	Lead: Korba Cadmium: Korba Chromium: Korba

S. No.	State/UT	Fluoride (above 1.5 mg/l) (Name of the Districts)	Nitrate (above 45 mg/l) (Name of the Districts)	Arsenic (above 0.05 mg/l) (Name of the Districts)	Iron (above 0.05 mg/l) (Name of the Districts)	Heavy metals: Lead (above 0.01 mg/l) Cadmium (above 0.003 mg/l) Chromium (above 0.05 mg/l) (Name of the Districts)
		Surajpur, Surguja	Raipur, Rajnandgaon			
7	Delhi	East Delhi, New Delhi, North West Delhi, South Delhi, South West Delhi, North Delhi, West Delhi	East Delhi, Central Delhi, New Delhi, North Delhi, North West Delhi, South Delhi, South West Delhi, West Delhi			Lead : Along Najafgarh drain in North, West and South-west districts Cadmium : Southwest Chromium : Northwest, South, New Delhi, East
8	Goa				North Goa , South Goa	
9	Gujarat	Ahmedabad, Amreli, Anand, Banaskantha, Bharuch, Bhavnagar, Dahod, Gandhinagar, Jamnagar, Junagadh, Kachchh, Mehesana, Panchmahals, Patan, Porbandar, Rajkot, Sabarkantha, Surendranagar, Vadodara	Ahmedabad, Amreli, Anand, Banaskantha, Bharuch, Bhavnagar, Dahod, Jamnagar, Junagadh, Kachchh, Kheda, Mehesana, Narmada, Navsari, Panchmahals, Patan, Porbandar, Rajkot, Sabarkantha, Surat, Surendranagar, Vadodara		Ahmedabad, Banaskantha, Bhavnagar, Kachchh, Mehesana, Narmada,	
10	Haryana	Ambali, Bhiwani, Fatehabad, Faridabad, Gurgaon, Hissar, Jhajjar, Jind, Kaithal, Karnal, Kurukshetra, Mahendargarh, Panchkula, Palwal, Panipat, Rewari, Rohtak, Sirsa, Sonapat, Yamuna Nagar	Ambala, Bhiwani, Faridabad, Fatehabad, Gurgaon, Hissar, Jhajjar, Jind, Kaithal, Karnal, Kurukshetra, Mahendargarh, Panchkula, Panipat, Rewari, Rohtak, Sirsa, Sonipat, Yamuna Nagar	Ambala, Bhiwani, Faridabad, Fatehabad, Hissar, Jhajjar, Jind, Karnal, Panipat, Rohtak, Sirsa, Sonapat, Yamunanagar.	Ambala, Bhiwani, Faridabad, Fatehabad, Gurgaon, Hissar, Jhajjar, Jind, Kaithal, Karnal, Kurukshetra, Mahendargarh, Panipat, Rohtak, Sirsa, Sonipat, Yamuna Nagar	Lead: Ambala, Bhiwani, Faridabad, Fatehabad, Gurgaon, Hissar, Jhajjar, Jind, Kaithal, Karnal, Mahendargarh, Panchkula, Panipat, Rewari, Rohtak, Sirsa, Sonapat. Cadmium: Bhiwani, Gurgaon, Jhajjar, Jind, Kaithal, Rewari, Rohtak. Chromium: Fatehabad
11	Himachal Pradesh		Una, Solan, Hamirpur, Kangra, Mandi, Kullu			
12	Jammu & Kashmir	Kupwara	Jammu, Kathua, Anantnag, Kupwara		Baramulla, Budgam, Kathua, Kupwara, Pulwama, Srinagar	Lead: Jammu (Gangyal), Bari Brahma, Kathua Cadmium: Kathua
13	Jharkhand	Bokaro, Dhanbad, Garhwa, Giridih, Godda, Gumla, Koderma, Pakur Palamu, Ranchi, Sahebganj, Khunti	Sahebganj	Chatra, Deoghar, East Singhbhum, Giridih, Ranchi, West Singhbhum	Lead: Jamshedpur	
14	Karnataka	Bagalkot, Bangalore(Rural), Bangalore(Urban),	Bagalkot, , Bangalore, Belgaum, Bellary, Bidar, Bijapur, Chikmagalur,	Raichur and Yadgir district	Bagalkot, Bangalore, Belgaum, Bellary, Bidar, Bijapur, Chikmagalur,	

S. No.	State/UT	Fluoride (above 1.5 mg/l) (Name of the Districts)	Nitrate (above 45 mg/l) (Name of the Districts)	Arsenic (above 0.05 mg/l) (Name of the Districts)	Iron (above 0.05 mg/l) (Name of the Districts)	Heavy metals: Lead (above 0.01 mg/l) Cadmium (above 0.003 mg/l) Chromium (above 0.05 mg/l) (Name of the Districts)
		Belgaum, Bellary, Bidar, Bijapur, Chikaballapur, Chamarajanagar, Chikmagalur, Chitradurga, Davanagere, Dharwad, Dakshina Kannada, Gadag, Gulburga, Hassan, Haveri, Kolar, Koppal, Mandya, Mysore, Raichur, Ramnagara , Shimoga, Tumkur, Yadgir, Uttara Kannada, Udupi	Chitradurga, Davanagere, Dharwad, Gadag, Gulburga, Hassan, Haveri, Kodagu, Kolar, Koppal, Mandya, Raichur. Shimoga, Udupi, Uttar Kannada		Chitradurga, Dakshina Kannada, Davanagere, Gulburga, Hassan, Haveri, Kodagu, Kolar, Koppal, Mysore, Raichur, Shimoga, Tumkur, Udupi, Uttar Kannada	
15	Kerala	Palakkad, Alappuzha, Idukki, Ernakulam, Thiruvananthapuram	Alappuzha, Idukki, Kollam, Kottayam, Kozhikode, Malappuram, Palakkad, Pathanamthitta, Thiruvananthapuram, Thrissur, Wayanad		Alappuzha, Ernakulam, Idukki, Kannur, Kasaragod, Kollam, Kottayam, Kozhikode, Malappuram, Palakkad, Pathanamthitta, Quilon, Thiruvananthapuram, Thrissur, Wayanad	Lead: Ernakulam , Kollam Chromium: Kollam
16	Madhya Pradesh	Alirajpur, Balaghat, Barwani, Betul, Bhind, Bhopal, Chhatarpur, Chhindwara, Datia, Dewas, Dhar, Dindori, Guna, Gwalior, Harda, Jabalpur, Jhabua, Khargon, Mandla, Mandsaur, Morena, Narsinhpur, Neemuch, Panna, Raisen, Rajgarh, Ratlam, Sagar, Satna, Sehore, Seoni, Shahdol, Shajapur, Sheopur, Sidhi, Shivpuri, Singrauli, Ujjain, Vidisha	Alirajpur, Anuppur, Ashok Nagar, Balaghat, Barwani, Betul, Bhind, Bhopal, Burhanpur, Chhatarpur, Chhindwara, Damoh, Datia, Dewas, Dhar, , Dindori, Guna, Gwalior, Harda, Hoshangabad, Indore, Jabalpur, Jhabua, Khandwa, Khargon, Katni, Mandla, Mandsaur, Morena, Narsimhapur, Neemuch, Panna, Raisen, Rajgarh, Ratlam, Rewa, Sagar, Satna, Sehore, Seoni, Shahdol, Shajapur, Sheopur, Shivpuri, Sidhi, Singrauli, Tikamgarh, Ujjain, Umaria, Vidisha		Balaghat, Barwani, Betul, Bhind, Bhopal, Chhatarpur, Chhindwara, Damoh, Datia, Dewas, Dhar, Dindori, Guna, Gwalior, Hoshangabad, Indore, Jabalpur, Jhabua, Khandwa, Katni, Mandla, Mandsaur, Narsinghpur, Neemuch, Panna, Raisen, Rajgarh, Ratlam, Rewa, Sagar, Satna, Sehore, Seoni, Shahdol, Shajapur, Shivpuri, Sidhi, Tikamgarh, Ujjain, Umaria, Vidisha, East Nimar	Lead: Balaghat, Barwani, Damoh, Datia, Dewas, Dhar, Dindori, Guna, Gwalior, Raisen, Rajgarh, Satna, Sehore, Shajapur, Shivpuri, Vidisha
17	Maharashtra	Ahmednagar, Beed, Chandrapur, Bhandara, Dhule, Gadchiroli,	Ahmednagar, Akola, Amravati, Auragabad, Beed, Bhandara, Buldana,		Ahmednagar, Amravati, Beed, Buldana, Chandrapur, Dhule,	Lead: Ahmed Nagar, Akola, Aurangabad, Beed, Buldana, Dhule, Gadchiroli, Jalna, Kolhapur,

S. No.	State/UT	Fluoride (above 1.5 mg/l) (Name of the Districts)	Nitrate (above 45 mg/l) (Name of the Districts)	Arsenic (above 0.05 mg/l) (Name of the Districts)	Iron (above 0.05 mg/l) (Name of the Districts)	Heavy metals: Lead (above 0.01 mg/l) Cadmium (above 0.003 mg/l) Chromium (above 0.05 mg/l) (Name of the Districts)
		Gondia, Jalna, Nagpur, Nanded, Ratnagiri, Sangli, Satara, Sindhudurg, Solapur, Wardha, Yavatmal	Chandrapur, Dhule, Gadchiroli, Gondia, Hingoli, Jalgaon, Jalna, Kolhapur, Latur, Mumbai, Nagpur, Nanded, Nandurbar, Nasik, Osmanabad, Parbhani, Pune, Sangli, Satara, Solapur, Wardha, Washim, Yavatmal		Gadchiroli, Jalna, Kohlapur, Latur, Nandurbar, Nashik, Osmanabad, Parbhani, Ratnagiri, Satara, Thane, Wardha, Washim, Yavatmal	Latur, Nagpur, Nanded, Osamabad, Parbhani, Pune, Sangli, Wardha, Washim, Yavatmal
18	Manipur			Bishnupur, Thoubal	Bishnupur, Thoubal	
19	Meghalaya				East Garo Hills, East Khasi Hills, Jaintia Hills	
20	Nagaland				Dimapur	
21	Odisha	Angul, Balasore, Bhadrak, Bargarh, Bolangir, Boudh, Cuttack, Deogarh, Dhenkanal, Jajpur, Kandhamal, Keonjhar, Khurda, Mayurbhanj, Nayagarh, Nawapara, Ganjam, Jagatsinghpur, Kalahandi, Koraput, Puri, Rayagada, Sambalpur, Sonapur, Sundargarh	Angul, Balasore, Bargarh, Bhadrak, Bolangir, Boudh, Cuttack, Deogarh, Dhenkanal, Gajapati, Ganjam, J.Singhpur, Jajpur, Jharsuguda, Kalahandi, Kendrapara, Keonjhar, Khurda, Koraput, Malkangiri, Mayurbhanj, Nawapada, Nayagarh, Phulbani, Puri, Sambalpur, Sundergarh, Sonpur		Balasore, Bargarh, Bhadrak, Cuttack, Deogarh, J.Singhpur, Jajpur, Jharsuguda, Kalahandi, Kandmahal, Keonjhar, Kendrapara, Khurda, Koraput, Mayurbhanj, Nayagarh, Puri, Rayagada, Sambalpur, Sundergarh, Sonpur	Chromium (Hexavalent) - Sukinda valley in Sukinda block of Jajpur District
22	Punjab	Amritsar, Barnala, Bhatinda, Fazilka, Faridkot, Fatehgarh Sahib, Ferozpur, Gurdaspur, Jalandhar, Ludhiana, Mansa, Moga, Muktsar, Pathankot, Patiala, Ropar, Sangrur, SAS Nagar (Mohali), Tarn-Taran	Amritsar, Barnala, Bhatinda, Faridkot, Fatehgarh Sahib, Ferozpur, Gurdaspur, Hoshiarpur, Jalandhar, Kapurthala, Ludhiana, Mansa, Moga, Muktsar, NawanShahr, Patiala, Ropar, Rupnagar, Sangrur, Tarn-Taran	Mansa, Amritsar, Gurdaspur, Hoshiarpur, Kapurthala, Ropar.	Bhathinda, Faridkot, Fatehgarh Sahib, Ferozpur, Gurdaspur, Hoshiarpur, Mansa, Rupnagar, Sangrur	Lead: Amritsar, Bathinda, Ferozpur, Gurdaspur, Muktsar, Ropar Cadmium: Fatehgarh Sahib, Ludhiana, Nawansahar, Patiala, Ropar, Sangrur, Sasnagar, Tarantaran Chromium: Amritsar, Bathinda, Gurdaspur, Kapurthala, Mansa, Ropar, Barnala, Sangrur, Sasnagar, Tarantaran
23	Rajasthan	Ajmer, Alwar, Banswara, Barmer, Bharatpur, Baran, Bhilwara,	Ajmer, Alwar, Banswara, Baran, Barmer, Bundi, Bharatpur,		Ajmer, Alwar, Banswara, Baran, Barmer, Bharatpur, Bhilwara, Bikaner, Bundi,	Lead: Jhunjhunu Dist (Khetri Copper Deposit), Pali, Jaipur (Sambhar Lake, Sanganer)

S. No.	State/UT	Fluoride (above 1.5 mg/l) (Name of the Districts)	Nitrate (above 45 mg/l) (Name of the Districts)	Arsenic (above 0.05 mg/l) (Name of the Districts)	Iron (above 0.05 mg/l) (Name of the Districts)	Heavy metals: Lead (above 0.01 mg/l) Cadmium (above 0.003 mg/l) Chromium (above 0.05 mg/l) (Name of the Districts)
		Bikaner, Bundi, Chittaurgarh, Churu, Dausa, Dhaulpur, Dungarpur, Ganganagar, Hanumangarh, Jaipur, Jaisalmer, Jalore, Jhalawar Jhunjhunu, Jodhpur, Karauli, Kota, Nagaur, Pali, Pratapgarh, Rajsamand, Sirohi, Sikar, Sawai Madhopur, Tonk, Udaipur	Bhilwara, Bikaner, Chittaurgarh, Churu, Dausa, Dhaulpur, Dungarpur, Ganganagar, Hanumangarh, Jaipur, Jaisalmer, Jalore, Jhalawar, Jhunjhunu, Jodhpur, Karauli, Kota, Nagaur, Pali, Partapgarh, Rajsamand, Sirohi, Sikar, SwaiMadhopur, Tonk, Udaipur		Chittaurgarh, Churu, Dausa, Dhaulpur, Dungarpur, Ganganagar, Hanumangarh, Jaipur, Jaisalmer, Jalore, Jhalawar, Jhunjhunu, Jodhpur, Karauli, Kota, Nagaur, Pali, Pratapgarh, Rajsamand, Sikar, SawaiMadhopur, Sirohi, Tonk, Udaipur	
24	Tamil Nadu	Coimbatore, Dharmapuri, Dindigul, Erode, Karur, Kancheepuram, Krishnagiri, Namakkal, Madurai, Pudukotai, Ramanathanpuram, Salem, Sivagangai, Theni, Thiruvannamalai, Tiruchirapally, Thirunelveli, Tirupur Vellore,	Chennai, Coimbatore, Cuddalore, Dharmapuri, Dindigul, Erode, Kancheepuram, Kanyakumari, Karur, Madurai, Namakkal, Nilgiris, Perambalur, Pudukotai, Ramanathanpuram, Salem, Sivagangai, Theni, Thiruvannamalai, Thanjavur, Tirunelveli, Thiruvallur, Trichy, Tuticorin, Vellore, Villupuram, Virudhunagar		Namakkal, Salem	Lead : Dindigul, Tiruvallur, Kancheepuram Cadmium : Tiruvallur Chromium: Cuddalore, Dindigul, Erode, Kanchipuram, Tiruvallur
25	Tripura				Dhalai, North Tripura, South Tripura, West Tripura,	
26	Uttar Pradesh	Agra, Aligarh, Etah, Kashiram Nagar, Firozabad, Jaunpur, , Mahamaya Nagar, Mainpuri, Mathura, Mau, Sonbhadra, Varanasi and Unnao	Agra, Aligarh, Allahabad, Ambedkar Nagar, Auraiya, Azamgarh, Badaun, Baghpat, Balrampur, Banda, Barabanki, Bareilly, Basti, Bijnor, Bulandsahr, Chitrakoot, Etah, Fatehpur, Firozabad, GB Nagar, Ghaziabad, Ghazipur, Hamirpur, Hardoi, Hathras, Jaunpur, Jhansi, Kannauj, Kanpur Dehat, Lakhimpur, Mahoba, Mathura, Meerut,	Bahraich, Balia, Balrampur, Bareilly, Basti, Bijnor, Chandauli, Ghazipur, Gonda, Gorakhpur, LakhimpurKheri, Meerut, Mirzapur, Muradabad, Rai Bareilly, SantKabir Nagar, Shajahanpur, Siddarthnagar, SantRavidasNagar, Unnao	Azamgarh, Ballia, Balrampur, Etawah, Fatehpur, Gazipur, Gonda, Hardoi, KanpurDehat, Kanpur Nagar, Lakhimpur, Lalitpur, Mau, Siddartnagar, Unnao	Lead: Muzzafar Nagar, Mathura, Moradabad, Allahabad, Bhadohi, Ghaziabad, Jaunpur, Kanpur, Raebareli, Sonbhadra Cadmium: Varanasi city, Unnao Chromium : Kashi Vidyapeeth, Varanasi, Kanpur, Unnao

S. No.	State/UT	Fluoride (above 1.5 mg/l) (Name of the Districts)	Nitrate (above 45 mg/l) (Name of the Districts)	Arsenic (above 0.05 mg/l) (Name of the Districts)	Iron (above 0.05 mg/l) (Name of the Districts)	Heavy metals: Lead (above 0.01 mg/l) Cadmium (above 0.003 mg/l) Chromium (above 0.05 mg/l) (Name of the Districts)
			Mau, Moradabad, Muzaffarnagar, Mirzapur, Raebarelli, SantRavidas Nagar, Shajahanpur, Sitapur, Sonbhadra, Sultanpur, Shravasti, Siddarth Nagar, Unnao			
27	Uttarakhand		Dehradun, Haridwar, Udhamsinghnagar			
28	West Bengal	Bankura, Birbhum, Dakshindinajpur, Malda, Purulia, Uttardinajpur, South 24 Praganas	Bankura, Bardhaman	Bardhaman, Hooghly, Howrah, Malda, Murshidabad, Nadia, N-24 Parganas, S- 24 Parganas	Bankura, Bardhaman, Birbhum, Dakhindinajpur, E. Midnapur, Howrah, Hugli, Jalpaiguri, Kolkatta, Murshidabad, N- 24 Parganas, Nadia, S-24 Parganas, Uttardinajpur, West Midnapur	Lead: Malda, Murshidabad, Nadia, N-24 Pargana, S-24 Praganas, Kolkata Cadmium: N-24 Praganas, S-24 Prganas Chromium: N-24 Praganas, Murshidabad
29	Andaman& Nicobar				Andaman	

Annexure referred in reply to Lok Sabha Unstarred Question No. 402 to be answered on 25.02.2016 regarding “Contamination of Groundwater”

Years wise Status of Ground Water quality affected districts (2012-13 to 2015-16)

S.N.	States	Arsenic(>0.05 mg/l)				Fluoride (>1.5 mg/l)				Nitrate (>45 mg/l)				Iron			
		2012-13	2013-14	2014-15	2015-16	2012-13	2013-14	2014-15	2015-16	2012-13	2013-14	2014-15	2015-16	2012-13	2013-14	2014-15	2015-16
1	Andhra Pradesh	0	0	0	0	11	11	11	11	13	13	13	13	7	7	7	7
2	Telangana	0	0	0	0	9	9	9	9	10	10	10	10	8	8	8	8
3	Assam	18	18	19	19	6	6	6	6	0	0	0	0	18	18	18	18
4	Bihar	15	15	15	15	12	12	11	13	10	10	10	10	19	19	19	19
5	Chhattisgarh	1	1	1	1	13	13	13	13	12	12	12	12	4	4	4	4
6	Delhi	0	0	0	0	7	7	7	7	8	8	8	8	0	0	0	0
7	Goa	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2
8	Gujarat	0	0	0	0	19	19	19	19	22	22	22	22	6	6	6	6
9	Haryana	13	13	13	13	18	18	18	20	17	17	17	19	17	17	17	17
10	Himachal Pradesh	0	0	0	0	0	0	0	0	6	6	6	6	0	0	0	0
11	Jammu & Kashmir	0	0	0	0	2	2	1	1	4	4	4	4	6	6	6	6
12	Jharkhand	1	1	1	1	7	7	12	12	11	11	11	11	6	6	6	6
13	Karnataka	2	2	2	2	21	21	21	29	22	22	22	22	22	22	22	22
14	Kerala	0	0	0	0	5	5	5	5	11	11	11	11	15	15	15	15
15	Madhya Pradesh	0	0	0	0	32	32	32	39	50	50	50	50	42	42	42	42

S.N.	States	Arsenic(>0.05 mg/l)				Fluoride (>1.5 mg/l)				Nitrate (>45 mg/l)				Iron			
16	Maharashtra	0	0	0	0	13	13	13	17	20	20	20	30	30	30	30	20
17	Manipur	2	2	2	2	0	0	0	0	0	0	0	0	2	2	2	2
18	Meghalaya	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3
19	Orissa	0	0	0	0	15	15	18	25	28	28	28	28	27	27	27	21
20	Punjab	6	6	6	6	16	16	16	20	20	20	20	20	10	10	10	9
21	Rajasthan	0	0	0	0	30	30	30	33	33	33	33	33	33	33	33	33
22	Tamil Nadu	0	0	0	0	18	18	18	18	27	27	27	27	2	2	2	2
23	Tripura	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4	4
24	Uttar Pradesh	20	20	20	20	13	13	13	13	46	46	46	46	15	15	15	15
25	Uttarakhand	0	0	0	0	0	0	0	0	3	3	3	3	0	0	0	0
26	West Bengal	8	8	8	8	9	9	7	7	2	2	2	2	15	15	15	15
27	Andaman Nicobar	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
	Total number of districts	86	86	87	87	276	276	280	317	387	387	387	387	297	297	297	297

