

Groundwater Quality Scenario in Karnataka



World Bank Assisted
JAL NIRMAL PROJECT
Karnataka Rural Water Supply & Sanitation Project II

Prepared for
Karnataka Rural Water Supply & Sanitation Agency (KRWSSA), Bangalore.
Rural Development and Panchayat Raj Department,
Government of Karnataka, Bangalore

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DHARAM SINGH
Chief Minister



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MESSAGE

Karnataka State is very prone to water scarcity, as nearly half the state is drought prone. Optimum use of available water is of utmost importance and the need of the hour.

It is a matter of great satisfaction that Karnataka Rural Water Supply & Sanitation Agency (KRWS & SA), under Rural Development Panchayat Raj Department is committed to provide safe drinking water to all the rural habitations in the State. Understanding Water quality and its variation in each village across the State is a prerequisite to fulfill the commitment. Realizing this, KRWS & SA have developed an exhaustive information on Water Quality for the People of the State.

I am told the information on water quality in the State has been developed and organized in an easily retrievable fashion using the advanced technology of Geographic Information System (GIS). I am sure the report, maps and the database will go a long way in enhancing our understanding of qualitative distribution of Ground water across the State.


(DHARAM SINGH)

CHIRANJIV SINGH, IAS

ಅಪರ ಮುಖ್ಯ ಕಾರ್ಯದರ್ಶಿ ಮತ್ತು
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KARNATAKA GOVERNMENT SECRETARIAT
VIDHANA SOUDHA, BANGALORE - 560 001

MESSAGE

Government of Karnataka is committed to providing safe drinking water to all the rural habitations in the State. More than 1.5 lakh samples have been qualitatively analyzed for 14 parameters and the data is stored in G.I.S format for easy retrieval.

This volume of water quality report is a useful document. It has been prepared to assist everybody concerned with drinking water. The information contained in this report would be useful for them.

A handwritten signature in black ink, appearing to read 'Chiranjiv Singh'.

(CHIRANJIV SINGH)

Additional Chief Secretary and
Development Commissioner,
Government of Karnataka &
Chairman, KRWSSA



MESSAGE

Providing safe drinking waters for rural communities is a serious challenge in many rural habitations with in the State. Water sustains life and also is an important input for economic development of the state. Failure to provide safe drinking water & adequate sanitation services to all people seriously impairs progress and well-being of people.

Comprehensive analyses of water quality in all the habitations of the State and storing of information in easily retrievable fashion are crucial for planning for supply of safe drinking water to rural habitations.

In order to ensure effective planning of safe source, nearly 1,54,491 Water samples from 33,667 habitations of the State have been qualitatively analysed. Advanced technology of Geographic Information System (GIS) has been adopted to prepare water quality maps of the entire State.

This study presenting the Groundwater Quality Scenario in Karnataka provides valuable and comprehensive database, which would be of great use to planners, Engineers, NGO's, Academicians and others who are actively involved in supply of safe drinking water to the rural community.

(V.P. BALIGAR)
Secretary to Government of Karnataka,
RDPR Department &
Vice Chairman, KRWSSA



MESSAGE

Substantial success have been achieved in extending the coverage of Drinking Water Supply in the State. However, with depletion of Ground Water Sources, the problems of deteriorating water quality are increasingly going to fore. Water quality monitoring, unfortunately, has been a neglected area of drinking water supply management. However, in the recent past increasing efforts are being made by Government of India and State Government to monitor water quality.

The Karnataka Rural Water Supply and Sanitation Agency has used the Water Quality Monitoring Data collected by the Rural Development and Engineering Department and developed a comprehensive Water Quality Atlas and prepared Water Quality Reports which could be used by the officers in the field of water supply. In addition, this data has been used to develop Geographical Information System (GIS) based software which could be used and which will go a long way in systematic planning for water supply systems keeping the quality of ground water in mind. This publication of GIS Database could be useful for the World Bank Assisted Jal-Nirmal Project as well as the Government of India projects like "ARWSP" and "Swajaladhara"

A handwritten signature in black ink, appearing to read 'L.K. Atheeq', positioned above the printed name and title.

(L.K. ATHEEQ)
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EXECUTIVE SUMMARY

Water is an elixir for the mankind and its quality decides/controls the health of communities. As all the water that is available on the earth is not suitable for consumption, understanding its quality becomes the prime concern of any water supply program. As groundwater is found to be most appropriate source and at the same time has a geographical context, study of its quality, quantity and variation of both over large region is very important; particularly so in the context of rural water supply programs. Conventional method of keeping records of chemical analysis and trying to relate the influencing factors like geology, drainage, soil and the habitations needed for planning becomes laborious and time consuming and if the information has to be retrieved, it results in repetition of the whole activity. At the same time, the multitude information if linked properly and provided with a synoptic view creates a knowledge base that is essential for development oriented planning. In this regard, the **Karnataka Rural Water Supply And Sanitation Agency (KRWS&SA)**, took initiatives to adopt a Geographic Information System (GIS) approach to develop a Spatial Information and Knowledge base on the groundwater quality of Karnataka as part of its commitment to provide safe drinking water to rural communities under the *Jal-Nirmal Yojana* program.

The Rural Development and Engineering Department (RDED) has been analyzing the quality of any newly developed groundwater / surface water source in the state. During the year 2000-01, a programme of testing water quality by RDED for organised water supply scheme analysing 14 parameters has been carried out. Under this programme, a comprehensive study of the quality of groundwater being supplied in rural areas has been taken up and water quality mapping, building of GIS database and taluk and district profiles have been generated.

For testing the utility of GIS approach, Belgaum, Dharwad and Gulbarga districts were identified as pilot districts and later the exercise has been extended to the other project districts of Jal Nirmal Yojana (Bagalkot, Bidar, Bijapur, Gadag, Haveri, Koppal, Raichur and Uttara Kannada districts) and subsequently to the entire state. Utilising the chemical analytical data of water samples collected from bore wells in different villages by RDED, the taluk wise and the district wise groundwater quality profiles for pilot districts at first, followed by the project district and subsequently for all the 175 taluks comprising the 27 districts of the State were generated by IN-RIMT.

In all, 1,54,491 groundwater samples have been collected and analysed for 14 major parameters covering 33,667 villages / habitations out of the total 56,682 villages / habitations throughout Karnataka State by the Department of Rural Development and Engineering (RDED). The overall information on groundwater quality in the State is presented in the form of Tables for all the taluks of each district and a composite

table for the entire state. The GIS database has been used to develop maps showing spatial variation of specific water quality parameters.

The following observations are made on the general chemical characteristics of groundwater in Karnataka based on analysis of the secondary data.

Turbidity: About 26% of the sampled villages have been affected by higher turbidity and colour intensity. In the State, higher turbidity and colour intensity have been recorded mostly in the districts of Chikmagalur, Bangalore (Urban), Chitradurga, Mysore, Belgaum, Bagalkot, Koppal, Chamarajanagar, Shimoga etc. confined mainly to the southern and the western parts of the State.

Total Dissolved Salts (TDS): With about 4% of the sampled habitats being affected by the higher concentration of total dissolved solids in the groundwater, the higher TDS content recorded are mainly in the districts of Bagalkot, Bijapur, Raichur, Dharwad, Koppal, Bellary, Chitradurga, Gadag, Davanagere, Belgaum etc. located in the northern part and Mandya, Mysore and Bangalore Urban in the southern part of the State.

Total Hardness: Affecting about a quarter of the sampled villages, higher concentration of Total Hardness is recorded in the districts like Bijapur, Bagalkot, Belgaum, Chitradurga, Gulbarga, Dharwad, Gadag, Koppal, Bellary, Haveri and Davanagere districts in the north and central part and Mysore, Mandya, Tumkur, Chitradurga, Bangalore (R), Bangalore (U) and Kolar etc. in the south, stretching in a belt trending in NNW direction.

Chloride: Its effect on the water quality is limited to about 2% of the sampled villages and is predominant in Bijapur, Bellary, Koppal, Bagalkot, Gadag, and Davanagere districts.

Sulphate: About 3% of the affected sampled villages recording higher sulphate content are, mostly from Bijapur, Gadag, Gulbarga, Koppal, Bellary, Bagalkot and Belgaum districts located in the northern part of the State.

Fluoride: Higher concentration of fluoride has been recorded in nearly 17% of the sampled villages located mainly in the districts of Koppal, Bellary, Gulbarga, Davanagere, Bagalkot, Dharwad, Gadag, Chitradurga, Tumkur, Bijapur and Bangalore Urban etc. Isolated patches with concentration of greater than 4.5 ppm are seen in Gulbarga, Bellary, Koppal and parts of Bijapur districts. It is reported in the groundwater samples almost throughout the State.

Nitrate: With about 10% of the sampled villages being affected, higher nitrate concentration has been recorded from mainly Davanagere, Bellary, Bagalkot and Chitradurga districts in the central part and Chamarajanagara, Kolar, Tumkur and Mysore districts in the southern part of the State.

Iron: In the State, nearly 28% of the sampled villages located mostly in the districts of Mandya, Tumkur, Dakshina Kannada, Chikmagalur, Haveri, Dharwad, Belgaum, Udupi, Kodagu, Mysore, Shimoga, Gulbarga, Chitradurga, Bijapur, Bellary, Bangalore Urban, Bagalkot etc. have recorded higher iron content in the groundwater samples analysed and the higher concentration may be due to leaching by bacteria, rusting of the supply system or improper development of the source.

Bacteria: In the State, about 23% of the analysed samples covering 48% of the sampled villages are located mostly in Davanagere, Mandya, Koppal, Shimoga, Uttara Kannada, Kodagu, Gulbarga, Chikmagalur, Bidar, Belgaum and Bangalore Urban districts. The presence of bacteria indicates non-hygienic and improper sanitation conditions prevalent in the rural sector.

From the analysis of the secondary data presented in the accompanying tables, it is clear that, generally water quality problems in the state are due to Fluoride, Total dissolved salts, Iron, Total hardness, Nitrate and Bacterial contamination. Higher concentration of fluoride in drinking water is high in arid and semi-arid zones of the State.

Further, the water quality problems in the State are of two natures -

- (1) The presence of chemical contaminants like TH, TDS, Fluoride, Iron and Nitrate in excess of permissible levels and
- (2) Bacteriological contamination of water at the source due to unhygienic conditions at different points. The main reasons for groundwater / surface water contamination are -

- Pollution due to open-air defecation, agriculture and surface run-off in the catchment resulting in non-point source pollution of the surface water source.
- Washing, bathing and other activities around the water source (Dug well/ Bore well/ Hand pump / Mini water supply system etc.) by the public.
- Indiscriminate domestic waste disposal around the water source.
- Non-availability of Government land resulting in excavation of the wells at inappropriate sites.
- Uncovered cisterns and absence of regular cleaning of the supply system (Over head tank, Cistern etc).
- Non-existent regular monitoring of quality of water.
- Unhygienic collection of water for domestic consumption from pits due to low pressure in the supply pipe line.
- Frequent breakage / leakage in the system.
- Misuse of the supply system network by the user society as defecation places etc.
- Bacteriological contamination resulting in the increased incidences of water borne diseases repeatedly.

To mitigate these problems the following actions individually or in combination are beneficial. They are -

- ⇒ A detailed survey to identify the potential sources and locations of the contamination has to be carried out.
- ⇒ The source of water should be protected from all possible means of pollution / contamination.
- ⇒ Effective and continuous chlorination of the water being supplied.
- ⇒ Correct maintenance and prevention of damage to the existing supply system along with preparedness for crisis management during periods of sudden breakdown.
- ⇒ Regular water quality testing and monitoring.
- ⇒ Identification of alternate sources in the severely quality affected areas including supply from a distant source.
- ⇒ Sustained and effective sanitation and hygienic propaganda to achieve behavioral and attitudinal changes in the people.
- ⇒ Development of slightly removed sanitary blocks or good sewerage / drainage system.
- ⇒ Rejuvenation of some of the feasible abandoned bore wells.
- ⇒ Construction of good number of water conservation structures to aid in groundwater recharge.

In view of the fact that, a large number of villages / habitations are affected by higher concentration of Fluoride, Iron, TDS, TH and Nitrate and Bacterial incidence, the identification of non - affected source, adoption of proper measures (appropriate techniques), strict monitoring of the quality criterion, collection of samples from the developed sources and their analysis on regular basis and mapping of spatial variation of the quality systematically become imperative to achieve the long term objectives of the State Government for supply of safe drinking water to the communities.

**100% WATER QUALITY AFFECTED VILLAGES IN KARNATAKA
- DISTRICT WISE**

Sl. No.	District	Total Number of Villages/habitations	VILLAGES AFFECTED BY			
			Excess Fluoride (F)	Excess Iron (Fe)	Excess Nitrate (NO ₃)	Excess Total Dissolved Salts (TDS)
1	Bagalkot	705	13	13	2	9
2	Bangalore Urban	1308	58	87	0	2
3	Bangalore Rural	3067	84	47	7	4
4	Belgaum	1473	13	47	0	7
5	Bellary	1026	173	19	21	14
6	Bidar	779	1	0	1	1
7	Bijapur	774	54	8	3	21
8	Chamarajanagara	882	0	0	1	0
9	Chikmagalur	2495	3	97	0	0
10	Chitradurga	1597	92	23	7	12
11	Dakshina Kannada	1696	0	2	0	0
12	Davanagere	1220	66	0	50	1
13	Dharwad	441	9	18	10	8
14	Gadag	367	33	0	0	5
15	Gulbarga	1562	193	15	0	2
16	Hassan	3458	44	24	1	2
17	Haveri	771	6	26	3	0
18	Kodagu	852	0	5	0	0
19	Kolar	4161	255	49	178	17
20	Koppal	675	107	0	0	0
21	Mandya	2048	25	309	2	5
22	Mysore	2028	6	36	48	5
23	Raichur	955	73	6	2	20
24	Shimoga	3545	0	9	0	0
25	Tumkur	4063	273	603	466	40
26	Udupi	1489	0	27	0	0
27	Uttara Kannada	3872	11	52	1	9
	Total	47309	1592	1522	803	184

**100% WATER QUALITY AFFECTED VILLAGES IN KARNATAKA
- TALUK WISE**

Sl. No.	District	Taluk	Total Number of Villages/habitations	VILLAGES AFFECTED BY			
				Excess Fluoride (F)	Excess Iron (Fe)	Excess Nitrate (NO ₃)	Excess Total Dissolved Salts (TDS)
1	Bagalkot	Badami	177	6	5	2	3
		Bagalkot	110	1	-	-	3
		Bilgi	78	6	1	-	2
		Hungund	182	-	6	-	-
		Jamkhandi	77	-	-	-	-
		Mudhol	81	-	1	-	1
		<i>Bagalkot District Total</i>	705	13	13	2	9
2	Bangalore Urban	Anekal	305	15	35	-	-
		Bangalore-North	485	27	26	-	2
		Bangalore-South	518	16	26	-	-
		<i>Bangalore Urban District Total</i>	1308	58	87	0	2
3	Bangalore Rural	Channapatna	263	8	19	-	-
		Devanahalli	260	-	-	-	-
		Doddaballapur	403	1	1	-	-
		Hosakote	337	2	8	-	2
		Kanakapura	612	16	4	-	-
		Magadi	521	38	-	7	-
		Nelamangala	346	3	3	-	1
		Ramnagara	325	16	12	-	1
<i>Bangalore Rural District Total</i>	3067	84	47	7	4		
4	Belgaum	Athani	121	1	1	-	5
		Belgaum	179	-	7	-	-
		Chikkodi	146	-	2	-	-
		Gokak	143	3	1	-	-
		Hukkeri	140	-	2	-	-
		Khanapur	310	-	26	-	-
		Soundatti	123	1	1	-	-
		Raibag	110	-	-	-	-
		Ramdurg	67	8	2	-	2
		Bailhongal	134	-	5	-	-
<i>Belgaum District Total</i>	1473	13	47	0	7		
5	Bellary	Bellary	137	12	-	1	1
		Huvin Hadagali	107	13	-	-	-
		Hospet	116	6	-	-	-
		Kudligi	268	79	16	14	3
		Siruguppa	112	36	-	-	9
		Hagaribommanahalli	129	27	3	6	1
		Sandur	157	-	-	-	-
<i>Bellary District Total</i>	1026	173	19	21	14		

Contd.

Sl. No.	District	Taluk	Total Number of Villages/ habitations	VILLAGES AFFECTED BY			
				Excess Fluoride (F)	Excess Iron (Fe)	Excess Nitrate (NO ₃)	Excess Total Dissolved Salts (TDS)
6	Bidar	Aurad	194	-	-	-	-
		Basavakalyan	173	-	-	-	1
		Bhalki	154	-	-	-	-
		Bidar	152	1	-	1	-
		Humnabad	106	-	-	-	-
		<i>Bidar District Total</i>	779	1	0	1	1
7	Bijapur	Basavana Bagevadi	149	9	1	-	2
		Bijapur	178	-	6	-	2
		Indi	148	2	-	-	3
		Muddebihal	143	42	1	3	14
		Sindgi	156	1	-	-	-
		<i>Bijapur District Total</i>	774	54	8	3	21
8	Chamarajanagara	Chamarajanagara	283	-	-	1	-
		Gundlupet	227	-	-	-	-
		Kollegal	324	-	-	-	-
		Yelandur	48	-	-	-	-
		<i>Chamarajanagara District Total</i>	882	0	0	1	0
9	Chikmagalur	Chikmagalur	530	-	30	-	-
		Kadur	465	1	18	-	-
		Koppa	330	1	-	-	-
		Mudigere	336	-	13	-	-
		N.R.Pura	293	-	3	-	-
		Sringeri	209	1	6	-	-
		Tarikere	332	-	27	-	-
		<i>Chikmagalur District Total</i>	2495	3	97	0	0
10	Chitradurga	Challakere	304	29	16	-	3
		Chitradurga	289	27	3	2	-
		Hiriyur	305	17	-	-	1
		Holalkere	256	9	-	1	2
		Hosadurga	320	2	-	4	4
		Molkalmur	123	8	4	-	2
		<i>Chitradurga District Total</i>	1597	92	23	7	12
11	Dakshina Kannada	Bantval	320	-	2	-	-
		Belthangadi	413	-	-	-	-
		Mangalore	190	-	-	-	-
		Puttur	393	-	-	-	-
		Sulya	380	-	-	-	-
		<i>Dakshina Kannada District Total</i>	1696	0	2	0	0

Contd.

Sl. No.	District	Taluk	Total Number of Villages/habitations	VILLAGES AFFECTED BY			
				Excess Fluoride (F)	Excess Iron (Fe)	Excess Nitrate (NO ₃)	Excess Total Dissolved Salts (TDS)
12	Davanagere	Channagiri	279	2	-	1	-
		Davanagere	221	2	-	49	1
		Harapanahalli	100	30	-	-	-
		Harihar	227	17	-	-	-
		Honnali	194	1	-	-	-
		Jagalur	199	14	-	-	-
		<i>Davanagere District Total</i>	1220	66	0	50	1
13	Dharwad	Dharwad	142	1	-	-	-
		Hubli	75	-	4	-	-
		Kalghatgi	100	-	9	-	-
		Kundgol	60	3	-	10	7
		Navalgund	64	5	5	-	1
		<i>Dharwad District Total</i>	441	9	18	10	8
14	Gadag	Gadag	67	-	-	-	-
		Mundargi	63	9	-	-	-
		Nargund	36	8	-	-	3
		Ron	108	13	-	-	1
		Shirhatti	93	3	-	-	1
		<i>Gadag District Total</i>	367	33	0	0	5
15	Gulbarga	Afzalpur	106	27	-	-	-
		Aland	159	54	1	-	-
		Chincholi	203	53	3	-	-
		Chitapur	166	24	-	-	-
		Gulbarga	132	8	1	-	-
		Jevargi	149	20	2	-	-
		Sedam	126	1	3	-	-
		Shahapur	161	3	2	-	1
		Shorapur	215	-	1	-	1
<i>Gulbarga District Total</i>	1562	193	15	0	2		
16	Hassan	Alur	334	-	7	-	-
		Arkalgud	389	1	4	-	-
		Arsikere	542	40	-	1	1
		Belur	459	-	2	-	-
		Channarayapatna	476	2	-	-	1
		Hassan	524	-	1	-	-
		Holenarsipur	305	1	3	-	-
		Sakleshpura	429	-	7	-	-
		<i>Hassan District Total</i>	3458	44	24	1	2

Contd.

Sl. No.	District	Taluk	Total Number of Villages/habitations	VILLAGES AFFECTED BY			
				Excess Fluoride (F)	Excess Iron (Fe)	Excess Nitrate (NO ₃)	Excess Total Dissolved Salts (TDS)
17	Haveri	Byadgi	70	-	-	-	-
		Hangal	173	-	21	-	-
		Haveri	101	-	5	-	-
		Hirekerur	138	1	-	-	-
		Ranibennur	124	5	-	-	-
		Savanur	64	-	-	3	-
		Shiggaon	101	-	-	-	-
		<i>Haveri District Total</i>	771	6	26	3	0
18	Kodagu	Madikeri	203	-	-	-	-
		Somvarpet	377	-	3	-	-
		Virajpet	272	-	2	-	-
		<i>Kodagu District Total</i>	852	0	5	0	0
19	Kolar	Bagepalli	411	128	-	15	1
		Bangarpet	514	64	10	-	3
		Chikkaballapur	365	-	-	7	1
		Chintamani	388	1	-	17	-
		Gowribidanur	345	2	-	16	-
		Gudibanda	146	27	-	-	-
		Kolar	381	3	-	6	2
		Malur	408	28	39	2	2
		Mulabagilu	431	2	-	24	4
		Sidlaghatta	330	-	-	22	2
		Srinivasapura	442	-	-	69	2
		<i>Kolar District Total</i>	4161	255	49	178	17
20	Koppal	Gangavati	198	13	-	-	-
		Koppal	152	26	-	-	-
		Kustagi	176	49	-	-	-
		Yelburga	149	19	-	-	-
		<i>Koppal District Total</i>	675	107	0	0	0
21	Mandya	K.R.Pete	397	4	8	-	-
		Maddur	259	7	79	-	-
		Malavalli	295	1	122	-	2
		Mandya	292	8	23	2	-
		Nagamangala	484	2	60	-	3
		Pandavapura	189	2	8	-	-
		Srirangapatna	132	1	9	-	-
<i>Mandya District Total</i>	2048	25	309	2	5		

Contd.

Sl. No.	District	Taluk	Total Number of Villages/habitations	VILLAGES AFFECTED BY			
				Excess Fluoride (F)	Excess Iron (Fe)	Excess Nitrate (NO ₃)	Excess Total Dissolved Salts (TDS)
22	Mysore	H.D.Kote	405	1	2	-	-
		Hunsur	327	-	23	39	3
		K.R.Nagara	232	-	5	8	-
		Mysore	267	-	4	-	1
		Nanjangudu	280	2	-	-	-
		Piriyapatna	306	-	2	1	-
		T.Narsipura	211	3	-	-	1
		<i>Mysore District Total</i>	2028	6	36	48	5
23	Raichur	Deodurg	197	1	2	-	1
		Lingsugur	218	34	-	1	8
		Manvi	178	9	1	-	4
		Raichur	193	5	1	-	1
		Sindhanur	169	24	2	1	6
		<i>Raichur District Total</i>	955	73	6	2	20
		24	Shimoga	Bhadravati	219	-	9
Hosanagara	709			-	-	-	-
Sagar	793			-	-	-	-
Shikaripur	223			-	-	-	-
Shimoga	311			-	-	-	-
Soraba	383			-	-	-	-
Tirthahalli	907			-	-	-	-
<i>Shimoga District Total</i>	3545			0	9	0	0
25	Tumkur	Chikkanayakanahalli	336	9	135	21	2
		Gubbi	522	21	159	25	2
		Koratagere	354	38	98	40	1
		Kunigal	516	-	25	315	5
		Madhugiri	425	74	19	-	26
		Pavagada	231	80	1	-	2
		Sira	325	13	47	14	2
		Tiptur	357	3	11	15	-
		Tumkur	609	28	75	23	-
		Turvekere	388	7	33	13	-
		<i>Tumkur District Total</i>	4063	273	603	466	40
26	Udupi	Coondapur	639	-	-	-	-
		Karkala	500	-	-	-	-
		Udupi	350	-	27	-	-
		<i>Udupi District Total</i>	1489	0	27	0	0

Contd.

Sl. No.	District	Taluk	Total Number of Villages/ habitations	VILLAGES AFFECTED BY			
				Excess Fluoride (F)	Excess Iron (Fe)	Excess Nitrate (NO ₃)	Excess Total Dissolved Salts (TDS)
27	Uttara Kannada	Ankola	293	-	6	-	-
		Bhatkal	208	-	-	-	-
		Haliyal	161	-	-	-	-
		Honnavar	336	-	1	-	-
		Karwar	222	4	-	-	7
		Kumta	261	-	-	-	-
		Mundgod	133	-	-	-	-
		Siddapur	687	4	2	1	-
		Sirsi	613	-	10	-	-
		Supa (Joida)	447	3	2	-	2
		Yellapur	511	-	31	-	-
		<i>Uttara Kannada District total</i>	3872	11	52	1	9
		Total	47309	1592	1522	803	184