



GOVERNMENT OF KARNATAKA  
GROUND WATER DIRECTORATE

KARNATAKA STATE  
GROUND WATER QUALITY EVALUATION REPORT - 2018



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**Sri.C.MruthyunjayaSwamy**  
Secretary to Government

Minor Irrigation & Ground Water  
Development Department  
VikasaSoudha, Bengaluru-560001

## FOREWORD

I am very happy to inform that the Ground Water Directorate is publishing the “The Karnataka state Ground water Quality Evaluation Report” with base year 2018. The Study involved monitoring of the Observation dug wells and Borewells spread over the different parts of the State and the report consists of Hydrometeorological conditions, Drainage system, Geology, Soils, Hydrogeological conditions, Dynamic Ground Water Resources and Ground Water Quality.

This report will be very helpful to concentrate in the areas where urgent action is needed for improving ground water levels and also to plan the Minor Irrigation programmes, drinking water supply schemes etc. Majority of the rural drinking water supply schemes depends upon groundwater reserves and its quality. Therefore, for sustained groundwater supplies, this precious source needs to be protected both qualitatively and quantitatively. Further the time has come to take up large number of Rain Harvesting Structures (RHS) to harvest rain water and reduce pressure on extracting ground water.

As stressed in the report, it is of utmost urgency to take steps to stop further decline of Ground water table and to recharge the ground water body with various recharge structures from Government agencies, private institutions and individuals as well.

I must appreciate the efforts put by all the officers of the Ground water Directorate involved in this exercise. Without their commitment and dedication such work would not have been possible.



**Sri.H.R.Ramakrishna**  
Director



**Ground water Directorate**  
KhanijaBhavan, Dr.D.DevarajUrs Road  
Bengaluru-560001

## PREFACE

The Groundwater Directorate is monitoring the ground water levels and ground water quality from the Observation dug wells and bore wells spread over the different parts of the State to evaluate the ground water resources and its quality. The ground water levels are being recorded once in a month in the Observation wells and bore wells and are tabulated to know the rise and fall of the water levels depends upon the rainfall precipitation and ground water extraction. Similarly the ground water samples were collected during the pre-monsoon season (April and May) as BASE samples and were analysed in the Chemical laboratories. TREND Samples were collected during post-monsoon season (October and November) were analysed in the chemical laboratories. The results were catagorised with the Drinking water Specifications IS-10500 Standard to know the suitability of ground water for domestic consumption.

The Karnataka State Ground water Quality Evaluation Report-2018 brought by the Ground water Directorate, Governament of Karnataka, Bengaluru, shall be a material of reference and applicability to the common man, farmers, Govt Departments and Non Govt Organisations (NGOs) for the preparations of plans and programmes, implement and management of ground water based projects. The present report consist of Hydrometerological Conditions, Drainage system, Geology, Soils, Hydrogeological conditions, Dynamic Ground Water Resources, Ground Water Quality, Suggestions and Recommendations to improve the ground water resources and its quality by roof water harvesting & Ground water recharge methods. Ground water Awareness Programmes were conducted by the District Ground water offices in the different parts of the respective Districts in the state for creating awareness regarding Groundwater resources, Ground water Quality and roof water harvesting & Ground water recharge methods to the school/college students, Govtservents, NGOs, farmers and public were also incorporated. Ground water has now been a precious natural resource which deserves a call for its judicious usage and recharge.

## **II. Acknowledgements**

It is an honour and privilege to express the deepest gratitude to the Director, Sri.H.R. Ramakrishna, C.E and then Director, Sri.Ravindrappa.C.E, Groundwater Directorate, who has extended all the required support to carry out the present study.The deepest sense of gratitude to the Director, Department of Mines and Geology Sri. N.S.Prasannakumar, I.A.S., for the kind permission and arrangements for the analysis of the ground water samples.

The deepest sense of gratitude to Smt. SannaborammaSubramani, then Additional Director(I/c), Ground water Directorate for useful discussions and suggestions during investigation and finalization of this report.

Grateful acknowledge for the persistent support and encouragement from Smt. K.N.Sumathi, Chief Chemist, Directorate office, who was laboratory mentor for the analysis work.

Sri.K.V.R.Choudhari, Senior Geologist is gratefully acknowledged for critical review of the report.

Special thanks to Sri.G.Jayanna, Deputy Director (I/c), Ground water Directorate, Bengaluru for kind arrangements in the preparation of water quality maps. Smt. Jagadhiswari and Sri.H.M.Nagaraju, Geologists, Sri.M.R.Premachandra, Chemist, for the involvement in collection and processing the data from District Ground water Offices are also acknowledged.Sincere thanks to Senior Geologists and Geologists of respective districts for undertaking collection of ground water samples.

Special thanks to Sri.S.G.Bharabhari, Sri. N.R.Thippaiah Reddy, Sri.M.R.Premachandra, Dr.M.B.Deepa, Sri.M.R.Manjunath, Sri.H.R.Naveena, Mrs.Jayasheela.Sri.ShivarajGurumath, Mrs.K.Ramya, Smt.Rachamma Chemists carried out the chemical analysis of water samples.

Special efforts by Sri.I.Suresh and Smt.Sulochana, Project Assistants Karnataka State Remote Sensing Applications Centre, Bengaluru in the preparation of water quality maps are duly acknowledged.

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### **III. ABSTRACT**

The utilization of Ground water in the state is increased by many folds, much above the surface water usage as per the estimation of the usage of Ground water in TMCs. This has led to the depletion of resources as well as a drop in the water level. The excessive utilization of ground water resulted in quality problems as well. Hence, lots of recharge avenues were implemented as a massive drive. Ultimately, recharged groundwater gets the chemical ingredients dissolved on its way to depth to reach the aquifer. The deeper the exploitation, the more the Aquifer connectivity and more the dissolved salts. This exercise is an attempt to throw light on the general scenario on the Ground water quality in the state. The same is attempted through the sampling of Ground water in the vicinity of the observation wells distributed in the state, it may not represent a whole but a site-specific view can be arrived. It is clearly seen there is an increasing trend in the Fluoride, most unlikely Nitrate is spurring up, which is the most alarming ingredient as it is not mineralogical but it is an induced chemical by sewerage pollutants and excessive use of Fertilizers. It gets added either dissolved or left in the soil where in the entire nitrate is not used by the plant due to scanty moisture or rainfall through ground water runoff. At specific sites, excessive total hardness in the Ground water is found. It is commonly observed in higher ranges wherever the deeper to moderate thickness of black cotton soil is found and also the areas, which are encircled by black soils. Most probably, this is due to less return recharge and the dissolution and addition of excessive calcium content to the Groundwater.

Ultimately, it is the subsurface Geology extent and stages of weathering phenomenon that releases the chemicals to the ground water. The deeper the depth, higher the water yields, more the aquifer connectivity enlarges the opportunity of enrichment of chemicals. The excessive drawdown induces faster migration as well as excessive dissolution. Fluoride is one of the chemicals, which endangers humans. Past studies have thrown much light on this issue. The increase of fluoride is assumed due to the presence of micaceous minerals, Feldspars and secondary minerals in which Fluoride occurs as a replacement mineral. These facts are the causes to spur the fluoride content within the water. Suggestions are also briefed to combat these quality problems at large.

### **IV. INTRODUCTION**

These geological formations were subjected to natural degradation and weathering since millions of years, this has led to structural and related deformation. Each formation has got its inherent character like lineation, foliation, schistosity, bedding and granularity in their mineralogy. The denudation, deformation, weathering and tectonic effects have led to the creation of weaker zones and these weaker zones ultimately the storehouse for groundwater resource.



The groundwater is dynamic body with its character of finding its way induces chemical leaching, leading to the dissolution of the minerals releasing chemicals getting added to its character. The very presence of these chemicals finally decides the quality of the groundwater.

The rainfall and the return recharge are the continuous nourishing features in adding the groundwater resource, along with they also add the chemicals, pollutants leading to the contamination of the groundwater. It is the Human effort all the way to recharge the groundwater to replenish this natural resume and also to see that the same is made to use for irrigation and for human consumption. The science never sleeps; it is always at the behest of protection of human race along with animals and plants by providing potable resource for the sustained development to generations to come.

## **V. HYDROMETEOROLOGICAL CONDITIONS.**

**A. Climate and Rainfall:** In Karnataka typical monsoon is experienced. Bulk of the annual rainfall is received during the south-west (June-September) and north-east (October-December) monsoons. Pre-monsoon thunder storms also contribute signify cant to considerable rainfall. Humid to semiarid climatic conditions prevail in the state. In general, rainfall varies from around 400 mm in the eastern fringe of the state to more than 4000 mm in the west (plate 2). The state can be broadly classified into four distinct climatic zones. These are:

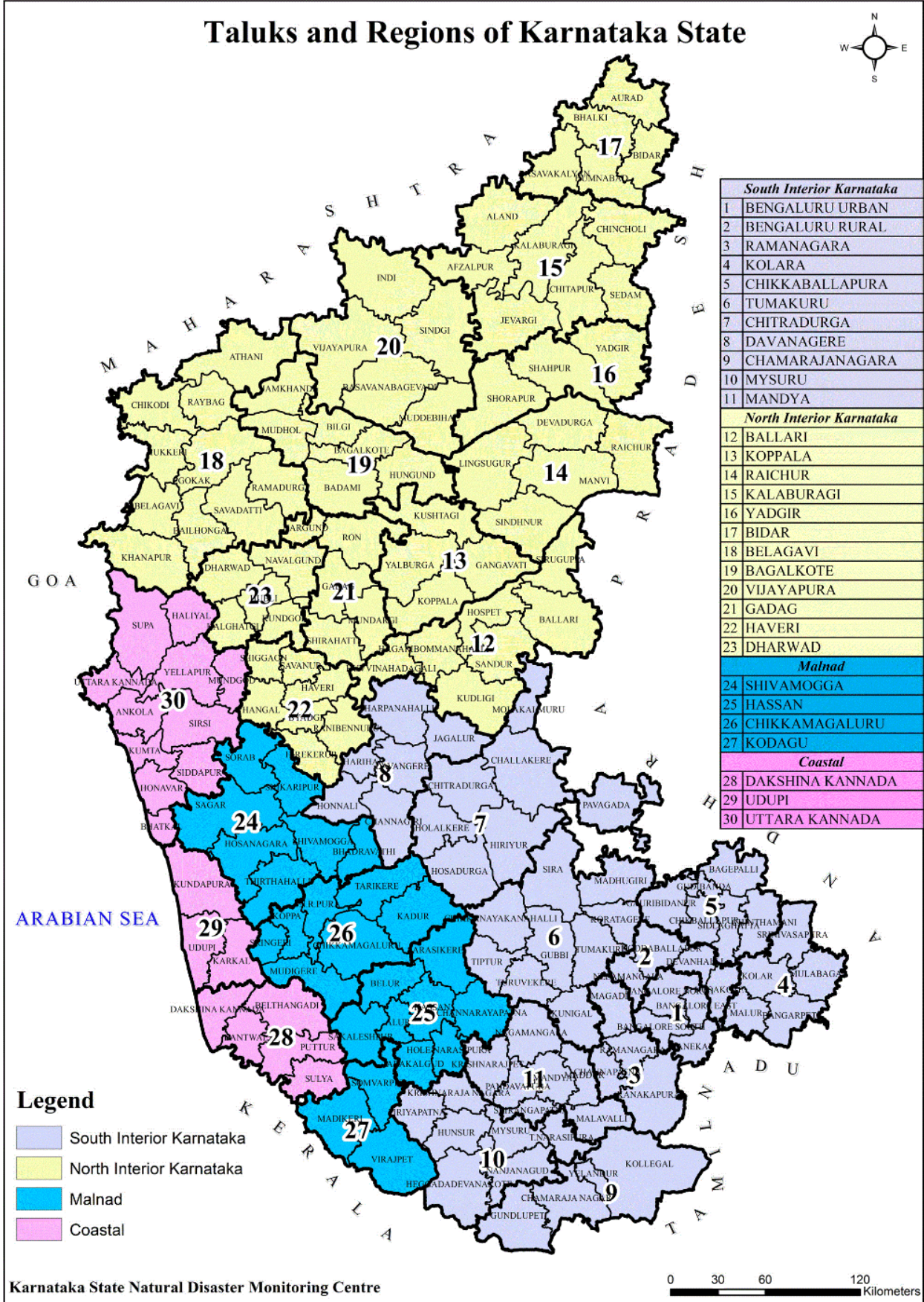
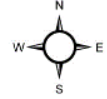
**i. Narrow Coastal Zone along the West Coast:** The whole of Dakshina Kannada, Udupi and western parts of Uttara Kannada district come under this zone. The rainfall generally increases from the coast towards the mountains on the east and from north to south. Average rainfall is around 4000 mm and bulk of this rainfall occurs during the southwest monsoon period lasting from June to September. July is the wettest month.

**ii. The Mountain (Malnad) Zone:** Parts of Belagavi, Uttara Kannada, Shivamogga, Chikkamagaluru, Hassan, Kodagu and Mysuru districts fall under this zone. The area is composed of series of mountains and dense tropical forests. Rainfall is over 5000 mm on hilltops and around 2000 mm in the adjoining forest areas. However, Agumbe in Shivamogga district records a rainfall over 7000 mm annually on an average. The southwest monsoon yields the bulk of the rainfall and July is the wettest month. The rainfall decreases from west to east.

**iii. The Northern Plains:** Eastern part of Belagavi and whole of Bidar, Vijayapura, Bagalkote, Ballari, Kalaburagi, Dharawad, Gadag, Haveri, Raichur and Koppal fall in this zone. Bulk of the rainfall occurs in the winter months. The rainfall decreases from the west to east. On an average about 700 mm rainfall is received annually. September is usually the month of peak rainfall.

Map-1

# Taluks and Regions of Karnataka State



South Interior Karnataka	
1	BENGALURU URBAN
2	BENGALURU RURAL
3	RAMANAGARA
4	KOLARA
5	CHIKKABALLAPURA
6	TUMAKURU
7	CHITRADURGA
8	DAVANAGERE
9	CHAMARAJANAGARA
10	MYSURU
11	MANDYA
North Interior Karnataka	
12	BALLARI
13	KOPPALA
14	RAICHUR
15	KALABURAGI
16	YADGIR
17	BIDAR
18	BELAGAVI
19	BAGALKOTE
20	VIJAYAPURA
21	GADAG
22	HAVERI
23	DHARWAD
Malnad	
24	SHIVAMOGGA
25	HASSAN
26	CHIKKAMAGALURU
27	KODAGU
Coastal	
28	DAKSHINA KANNADA
29	UDUPI
30	UTTARA KANNADA

**Legend**

- South Interior Karnataka
- North Interior Karnataka
- Malnad
- Coastal

**iv. The Southern Plains:** Parts of Shivamogga, Chikkamagaluru, Hassan, Mysuru and whole of Mandya, Tumakuru, Bengaluru and Kolar districts fall in this zone. In these parts, rainfall ranges from 1000 mm to around 400 mm. Considerable rainfall occurs during the pre-monsoon months due to thunderstorms. Both the monsoons are active giving copious amounts of rainfall. The peak rainfall is found to occur in September/October with a secondary peak occurring in May. The average rainfall in these parts is around 700 mm.

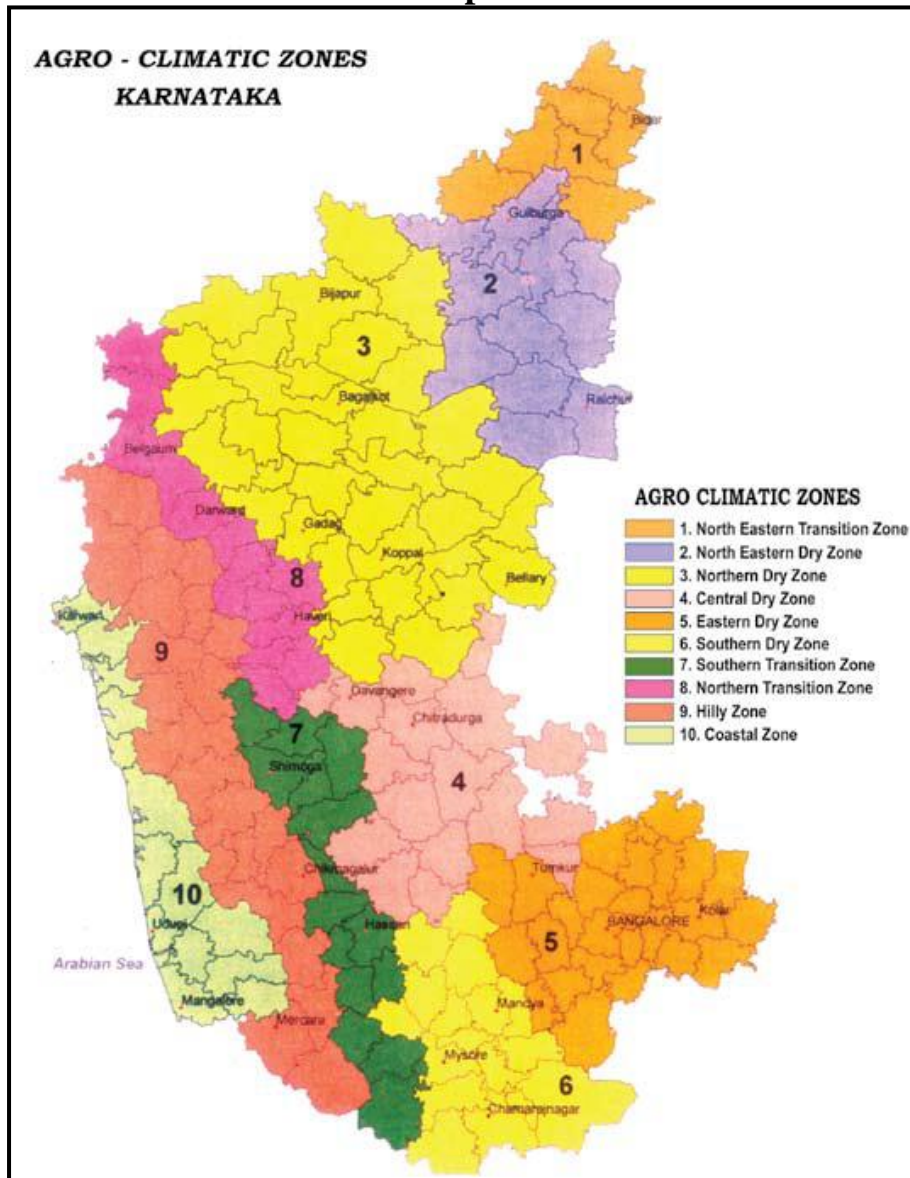
## **B. AGRO CLIMATIC ZONES.**

The criteria taken into account in defining the Agro-climatic zones are: (a) Rainfall pattern-quantity and distribution; (b) Soil types, texture, depth, physical and chemical properties; (c) Elevation and topography; and (d) Major crops and vegetation. These zones formed the basis for the identification of problems, formulation of research programmes and recommendations for adoption and implementation of development programmes for all land based activities. Under this concept, the 10 Agro-climatic zones were identified (Table 3.1). There are five dry zones (2, 3, 4, 5 and 6) with relatively low rainfall and more erratic distribution. The characterization of these is based, mainly, on the soils and cropping patterns. Similarly, along the eastern part of the hill zones and to the west of the dry zones, with a relatively high rainfall with a less erratic distribution and a small portion in the northeastern part of the state were also identified as transitional zones (1, 7 and 8). The hill and coastal belts are the two distinct Agro-climatic zones (9 and 10). Thus, the 10 zones are as shown in Table-1.

**Table-1**

<b>AGRO CLIMATIC ZONES OF KARNATAKA</b>		
<b>Zone No. &amp; Name</b>	<b>District ( No. of Taluks)</b>	<b>Name of Taluks</b>
<b>1. North Eastern Transition Zone</b>	Bidar (5) & Kalaburagi (2).	Aland, Bhalki, Basvakalyan, Bidar, Chincholi, Humnabad, Aurad.
<b>2. North Eastern Dry Zone</b>	Kalaburagi (5) Yadgir (3) & Raichur (3)	Afzalpur, Chitapur, Kalaburagi, Jewargi, Sedum, Shahapur, Yadgir, Shorapur, Raichur, Deodurga, Manvi.
<b>3. Northern Dry Zone</b>	Koppal (4), Gadag (4), Dharwad (1), Belgaum (5), Vijayapura (5), Bagalkot (6), Ballari (7), Davangere (1), Raichur (2)	Gangavathi, Koppal, Kushtagi, Lingasugur, Sindhanur, Yelburga, Badami, Bagalkote, Bagewadi, Bilgi, Vijayapura, Hungund, Indi, Jamkhandi, Mudhol, Muddebihal, Sindhagi, Ballari, Hagaribommanahalli, Harapanahalli, Hadagali, Hospet, Kudligi, Sandur, Siruguppa, Ron, Navalgund, Naragund, Gadag, Mundargi, Ramdurga, Gokak, Raibag, Soundatti, Athani.
<b>4. Central Dry Zone</b>	Chitradurga (6), Davangere (3), Tumakuru (6), Chickmagalur (1), Hassan (1)	Challakere, Chitradurga, Davanagere, Harihara, Hiriur, Hosadurga, Holalkere, Jagalur, Molkalmuru, Arasikere, Kadur, Madhugiri, Pavagada, Koratagere, C.N.Halli, Sira, Tiptur.
<b>5. Eastern Dry Zone</b>	Bengaluru Rural (4), Ramanagara (4) Bengaluru Urban (3), Kolar (5), Chikkaballpur (6) Tumakuru (2).	Gubbi, Tumakuru, Anekal, Bengaluru South, BengaluruNorth, Channapatna, Devanahalli, Doddabalapur, Hosakote, Kankapura, Magadi, Nelamangala, Ramanagar, Bagepalli, Bangarpet, Chikkabalapur, Chintamani, Gudibanda, Gowribidanur, Kolar, Malur, Mulbagal, Sidalaghatta, Srinivasapura.
<b>6. Southern Dry Zone</b>	Mysuru (4), Chamarajnarag(4), Mandya (7), Tumakuru (2), Hassan (2).	K.R.Nagar, T.Narasipur, Mysuru, Kollegal, Nanjangud, Turuvekere, Kunigal, Nagamangala, Srirangapatna, Malavalli, Maddur, Mandya, Pandavapura, K.R.Pet, Channarayapatna, Hassan, Chamarajanagar, Yelandur, Gundlupet.
<b>7.Southern Transition Zone</b>	Hassan (4), Chickmagalur (1), Shivamogga (3), Mysuru (3), Davanagere (2).	H.D.Kote, Hunsur, Periyapatna, H.N.Pura, Alur, Arkalgud, Belur, Tarikere, Bhadravathi, Shivamogga, Honnali, Shikaripura, Channagiri.
<b>8. Northern Transition Zone</b>	Belgavi(4), Dharwad(3), Haveri(6), Gadag (1).	Hukkeri, Chikodi, Bailhongal, Belgavi, Haveri, Shiggaon, Shirahatti, Kundagol, Savanur, Hubli, Dharwad, Byadgi, Hirekerur, Raneebennur.
<b>9. Hilly Zone</b>	U.Kannada(6), Belgavi (1), Dharwad (1), Haveri (1), Shivamogga (4), Chickmangalur (5), Kodagu (3), Hassan (1)	Sirsi, Siddapura, Yellapura, Supa, Haliyal, Mundgod, Khanapur, Soraba, Hosanagar, Sagar, Thirthahalli, Koppa, Sringeri, Mudigere, Narasimharajapur, Chickmagalur, Kalaghatagi, Hangal, Sakleshpur, Virajpet, Somwarpet, Madikere.
<b>10. Coastal Zone</b>	Udupi (3), D. Kannada (5), U.kannada (5)	Karwar, Kumta, Honnavar, Bhatkal, Ankola, Bantwal, Udupi, Belthangadi, Karkala, Kundapura, Mangalore, Puttur, Sulya.

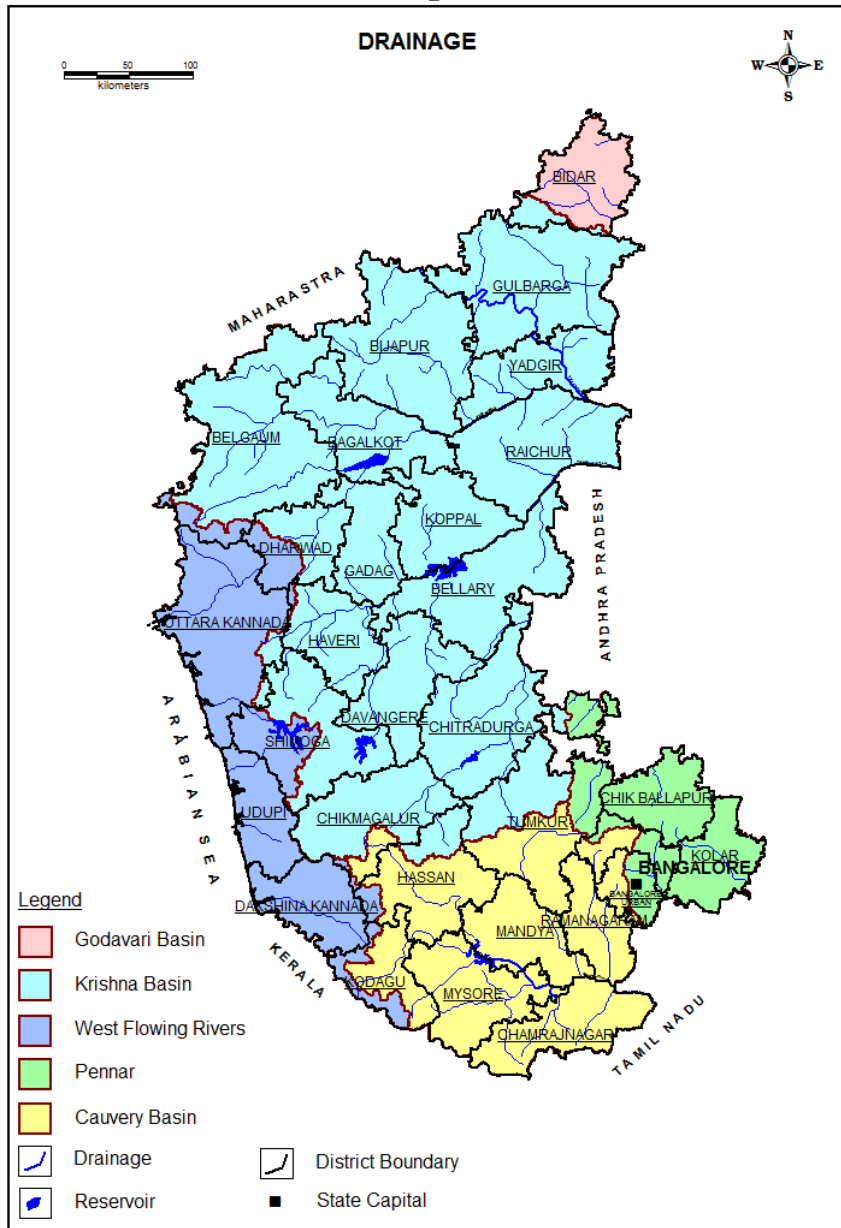
Map-2



### C. DRAINAGE

The state of Karnataka is drained by the rivers Krishna, Cauvery, Godavari, West flowing minor rivers, Palar, Pennar and Ponnaiyar. The river Krishna with its major tributaries viz. Bhima, Malaprabha, Ghataprabha, Tungabhadra, Upper Krishna and Vedavathi drains nearly 60% of the State's area. Cauvery and its tributaries viz. Arkavathi, Hemavathi, Kabini, Shimsha, Suvarnavathi and Upper Cauvery drain about 18% of the area; Palar, Pennar and Ponnaiyar which originate from the Nandi hills in the southern part of the State drain about 7% of the area; About 2% of the area in the northern district of Bidar is drained by the Godavari river system; The remaining area is drained by the west flowing rivers such as Kalinadi, Netravathi, Sharavathi, Sita and Swarna etc.

Map-3



## VI. GEOLOGY

Karnataka State is underlain by rock types ranging in age from Archaean to Recent. Major portion of the State is covered by Peninsular Gneisses, Granites and Dharwad Schists of Archaean age. Substantial area in the northern part of Karnataka is underlain by basalts, which form a continuation of the Deccan Traps occurring in Maharashtra. The sedimentaries comprising Bhima and Kaladgis occupy a small area in the northern districts. The recent alluvium is restricted to a narrow belt in the coastal area and along stream courses. The geological succession in the state is presented below:

### Geological Succession in Karnataka State

Age	Series/System	Formation
Recent	Soil & Alluvium	Sand and Clay
Pleistocene	Laterite	Laterite
Tertiary to Mesozoic Basalts	Deccan Trap Basalt	Hard massive & vesicular
~~~~~ unconformity ~~~~~		
Lower Palaeozoic to upper Precambrian	Bhima Series	Quartzites, Sandstone, Limestone, Shale and Conglomerates
~~~~~ unconformity ~~~~~		
Upper Precambrian	Kaladgi Series	Quartzites, Sandstones, Limestones, Shale and Conglomerates.
~~~~~ unconformity ~~~~~		
Lower Precambrian	Dharawad system Volcanics, meta sediments, Greenstone	Dharawad Schists meta sediments Greenstone formations
~~~~~ unconformity ~~~~~		
Archaean	Peninsular Gneissic complex	Gneisses, Granites, Charnockites, Khondali

The Archaean crystalline rocks occupy nearly 79% of the total geographical area of the state. Excepting Bidar district and northern parts of Belagavi, Bagalkote, Vijayapura and Kalaburagi district, Archaean crystalline rocks occur in the remaining parts of state. The gneissic complex is composed of composite gneisses, migmatites, granites and Quartz veins. Charnockites are exposed over a limited extent in the Southern most parts of the state in Kodagu and Mysuru districts. The weathered zone in these crystalline extends from less than a meter to about 20m the thickness in general and at places it is as deep as 60-90m. In parts of Belagavi, Bengaluru and Kolar districts the weathered material is more of clayey in nature.

The Dharawada mainly composed of slates, phyllites and schists form the second major group of rocks occurring in about 40000sq. km of the state. These are subdivided into three main types namely Chitradurga group, Dharawad sub group and Sargur group. They are wide spread in parts of Uttara Kannada, Dharawad, Shivamogga, Chitradurga and Chikkamagaluru districts where as in other districts their occurrence is limited in extent as small strips distributed throughout gneissic terrain. This group consists of volcanic rocks such as rhyolites, felsites etc., limestone, conglomerates, quartzite (ferruginous), meta sediments as amphibolites and schists. The schists and related argillites form the valley portions, but in general, the Dharawads form high grounds. The weathered zone extends down to about 20m in the valleys. The Dharawad rocks have regional strike of NNW-SSE, which tends to N-S in the southern part of Mysuru and even to NE-SW direction near the southern border.

Meta-Sedimentary formations of Bhimas, Kaladgis and Badamis are exposed over an area of 9640 sq km in the state. The major litho units in the group are sandstone, quartzite, shale, slate, limestone and dolomite. The Kaladgi formations are exposed over a length of 160 km between Krishna and Malaprabha rivers in Belagavi and Vijayapura districts. The formation comprises of conglomerates, quartzite, limestone and shales, which are divided into lower and upper series. The upper most sandstone formations exposed at Badami and further east which are thick bedded and gritty are designated as Badami sandstone. This horizon is considered as younger and equivalent to Bhima/Vindhyas. This formation however, occupies higher altitudes occupying ridges and hence is of less importance from ground water point of view. In the central part of the basin the Kaladgis are well developed with the presence of all litho units while towards west only the lower series consisting mainly the arenaceous members are exposed. The Kaladgis are partly overlain by Deccan trap. The formations are folded giving rise to a series of ridges and valleys. The valleys are mainly occupied by limestone and shale. The limestone formation occupies a wide area in between Lokapur and Bagalkote. Generally the limestones are horizontally bedded and have very low permeability. At places it is ed and cavernous. A narrow band of dolomite overlies the limestone. In the southern and karsti northern valleys, i.e. South of Bilgi and at Kulgeri respectively, the shales are purple in colour.

The regional trend of the formations and the axial planes of the folds are WNW-ESE. A major fault zone runs in limestone formation marking the contact between an anticline and syncline along Kaladgis-Kardigud in the Lokapur valley. Another major fault zone runs along Gaddanakeri in the basin cutting Bagalkote valley. A number of minor faults and major fracture zones are identify the quartzite and the drainage in this area seems to be controlled by structure. The basin in the central part i.e. along Bilgi-Gaddankari-Kulgeri is severely disturbed while towards east and west of zone, the tectonic intensity is not displayed. Exploratory drilling in this area revealed the presence of major fracture/shear zones down to a depth of 200m.

The Bhima basin lies east of the Kaladgis stretching in NE-SW direction. The major part of the basin lies in Kalaburagi district, except for a small strip in the Vijayapura district between Muddebihal and Talikot. The Bhimas are represented by conglomerates, sandstones, shales and limestones, which could be sub divided into three series lower, middle and upper. The lower and middle series consist of the sequence of these three lithological units, while the upper series is represented mainly in purple shales. Among the lower series the limestones are well developed over a wide area and are popularly cance from known as 'Shahabad'stones. The middle series forms a narrow strip and are of little sign in ground water point of view. The shales are purple colored and laminated and the limestones are variegated but predominantly grey colored and thick bedded. The formations do not show any metamorphism. They are in general horizontally bedded or dip at less than 5° towards west. However, this trend is not maintained in the distributed zones. ed in the basin at different places.

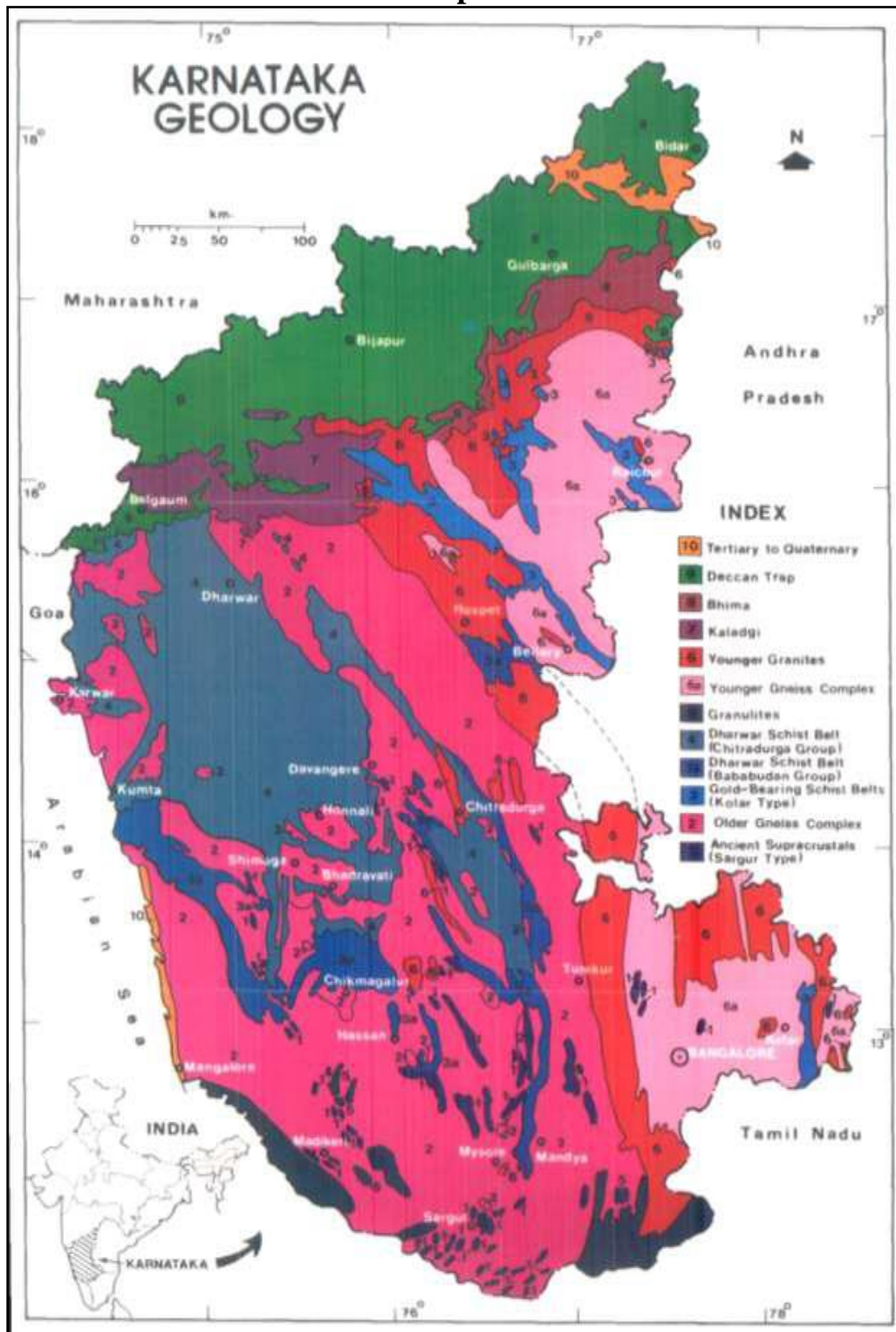


The number of faults of relatively lesser magnitude are identified displaced block is also gently folded on the western side. Thrust faults and the gravity faults are also cationed at a few places. The formations are highly fractured in these distributed zones. Karst identified marks fault zones in the limestones formations. The drainage in the Bhima basin is considered to be of tectonic origin. The curvilinear trend of Bhima river course seems to be controlled by the two axes of unced by the superposed folds and also faults. Similarly, the streams of lower orders are also in fracture system in granitic terrain and folding pattern in the Bhima formations.

Deccan trap forms the northern part of the state. Both massive basalt as well as vesicular basalt is encountered in the area. The maximum thickness of about 600 to 800m trap is reported around Kolhapur in Maharashtra but becomes thinner to about 70m or less towards the fringe as observed in parts of Kalaburagi, Bagalkote and Belagavi districts of Karnataka. The inter-trappean beds are of small extent and appear to have been formed in local depressions only or near to the southwestern edge of the flows of zeolitic trap are observed between 506m and 610m trap area. In Vijayapura district, three contour each with a thickness of about 6m. In the southern part of Kalaburagi district only zeolitic trap bed which is exposed at higher elevation in the southern most part and at the ground surface unit is identified around Kalaburagi. The weathered zone in traps varies from traces about 15m bgl. Traps are considered cult to recognize any structural deformities to be not involved in any tectonic disturbances. It is also identified in Bhima basin ne grained and massive. However some faults identified in them as they are generally are considered to be extending into the traps also. At some places in Kaladgis the traps are reported to enclose fragment of quartzite.

Laterite perhaps of different genetic histories such as residual and transported are found overlying different formations in different parts of the state. It occurs along the coast in Dakshina Kannada, Udupi and Uttara Kannada districts overlying schists and granites with a maximum thickness of about 40m. In Kaladgis, laterite also occurs as isolated patches in the valleys capping shales and basalt. The thickness in this part is 2 to 10m. The Laterite capping on Deccan trap is extensive in parts of Bidar and Kalaburagi districts. However laterite as an aquifer is having limited areal extent of about 1300 sq. km. ned to the highest ridges and Its occurrence is also reported in the Belagavi district. Generally it is con peaks. The Laterite formed in the vesicular traps are deep yellowish brown in color. Localized patches of laterites are encountered in other parts of the state also, overlying the granites and Dharawads.

Map-4

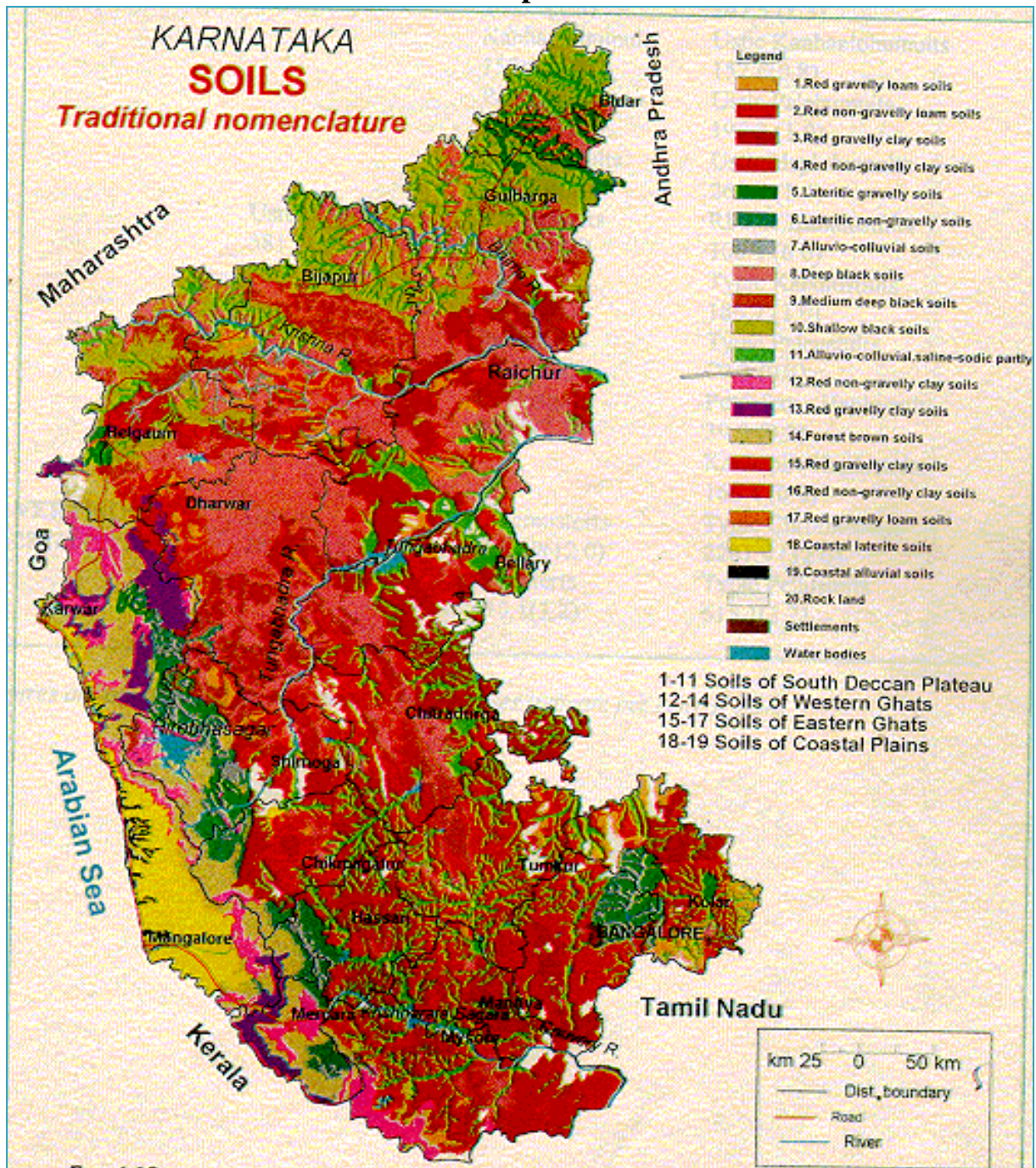


The alluvium of recent age is limited to only certain river courses in the west coast. Alluvial patches are located along Tungabhadra, Suvarnamukhi and Chitravathi river courses. The thickness of alluvium is variable generally and a maximum thickness of 15m is reported in the Chitravathi basin. The alluvium consists of unconsolidated sediments such as pebbles, gravel, sand, silt and clays. In the coastal area the thickness ranges from negligible to about 30m.

## VII.SOILS

Soils of the state can be grouped into 9 classes. They follow mainly the rock types but vary widely due to the effects of climate and topography.

Map-5



**i. Shallow Black Soils:** These occur in the trap region and to some extent are also developed in schist, shale and limestone in parts of Belagavi, Vijayapura, Kalaburagi and Bidar districts. These are dark greyish brown, dark brown to dark reddish brown, usually calcareous and are clayey loam to clay in texture. They have ltration characteristics. An area of about 2350 sq. km is covered under shallowmoderate to poor in black soil in the state.

**ii. Medium Black Soils:** They are derived from Deccan traps and occupy large tracts of Belagavi, Vijayapura, Kalaburagi and Bidar districts. They are comparatively light in colour on high lands than in valleys. Their texture ltration rate of 2.5 ltration characteristics are poor to moderate. Invaries from loam to clay. Their in cm/hr has been recorded in Kalaburagi district. An area of about 36150 sq. km is covered under medium black soil in the state.

**iii. Deep Black Soils:** They occupy large tracts in Raichur district and in parts of Belagavi, Vijayapura, Chitradurga, Ballari and Kalaburagi districts. They are dark black in colour and have high clay content. They are derived from a variety of parent rocks like traps, schists, gneisses and sedimentary rocks. They are mostly transported, occurring in the basins of major river valleys and depressions. In texture, they are generally clay loam to clay. Accumulations of lime, gypsum and soluble salts at varying depths in the ltration rates of 0.5 to 1.2ltration characteristics. Inle often pose problems. They have poor inpro cm/hr in Ballari, 0.6 to 3.6 in Raichur and 0.8 to 2.8 cm/hr in Dharawad have been recorded. An area of about 21770 sq. km is covered under deep black soil in the state.

**iv. Red Sandy Soils:**They are derived from the acidic type of rocks like granite and gneisses and occupy large tracts in Kolar, Bengaluru, Tumakuru, Mandya and Mysuru districts. These are light textured, varying from ltration characteristics. In sand or gravely to loamy and are highly leached. They have good in rate of 4.5 cm/hr in Ballari, 6.5 to 11 cm/hr in Raichur, 1 to 5 cm/hr in Dakshina Kannada and 5 cm/hr in Chikkamagaluru and Mysuru districts have been recorded. An area of about 57,100 sq. km is covered under red sandy soil in the state.

**v. Mixed Red and Black Soils:** Red and black soils occur together and are found in parts of Belagavi, Vijayapura, Dharawad, Raichur, Ballari and Chitradurga districts. They are derived from gneisses, schists and sedimentary ned to the upland area while in the low lands and valleys, rocks. The highly permeable red soils are con ltration characteristics occur. An area of about 19100 sq. km is black soils of poor to medium in covered under mixed red and black soils in the state.

**vi. Red Loamy Soils:** They occur in small strips in Shivamogga, Chikkamagaluru, Hassan and Mysuru districts and in the valley portions adjacent to hills and Western Ghats. They are transported in origin and are loamy to ltration rate of 1.8 to 6.9ltration characteristics. In silty texture, they have moderate to good in cm/hr is recorded in these soils in Dharawad district. An area of about 26700 sq. km is covered under red loamy soil in the state.

**vii. Lateritic Soils:**These soils occur mostly in the malnad and coastal districts of Uttara Kannada and Dakshina Kannada and parts of Belagavi, Shivamogga, Chikkamagaluru, Hassan, Udupi and Kodagu. In Bengaluru, Kolar and Bidar districts also, patches of lateritic soils are seen. They occur under two modes: a) High level, insitu and b) Low level, transported. In malnad and coastal districts, these are derived from the Dharawad schist's and peninsular

gneisses. They have moderate to good infiltration rate of 0.6 to 3 cm/hr has been infiltration characteristics. In Dakshina Kannada district, infiltration recorded. An area of about 14,200 sq. km is covered under lateritic soil in the state.

**viii. Lateritic Gravely Soils:** They occur in patches in the southern parts of Dakshina Kannada district, Northern parts of Shivamogga and northeastern part of Bengaluru district. They are similar to lateritic soils in their properties. An area of about 3700 sq. km is covered under lateritic gravelly soil in the state.

**ix. Alluvial Soils:** These are developed over the alluvium deposited by west patch along the coast in the districts of Dakshina Kannada and Uttara Kannada. These are coarse infiltration characteristics. In sandy soil infiltration textured sands, sandy loams or loams and have good infiltration rate of 17 cm/hr is recorded in Kodagu district and 28 cm/hr in Chikkamagaluru district. In coastal alluvium, rates of 90 to 114 cm/hr are recorded in sand. An area of about 800 sq. km is covered under alluvial soil in the state.

## VIII. HYDROGEOLOGICAL CONDITIONS

**A. Hydro geological provinces:** Karnataka State can be considered as having three major hydro geological provinces. They are the Hard Rock province, Deccan Trap province and Metamorphosed sedimentary province as described below. Ground water occurs in these provinces under unconfined to semi confined conditions and under confined conditions in depth. The rock units of provinces do not have the primary porosity, under confined conditions therefore the occurrence and movement of ground water is through secondary porosity developed through weathering, fracturing and tectonic deformation undergone by the rocks. The main source of recharge to the aquifers is by precipitation and also by applied irrigation. In addition to these along the coast a thin band of alluvium is encountered.

**i. The Archaean Crystalline Hard Rock Province:** Archaean crystalline hard rocks are represented by the gneisses, schists, granites and khondalites, which occupy up to 79% of the area of the state below. The availability of groundwater in the phreatic zones in these state as can be seen from the formations is controlled by the degree of weathering and lithological unit of the area. The schists and khondalites are more susceptible to weathering and hence are having better yield in the phreatic zones compared to Granites. Generally the depth of weathering goes down to 30m in these formations and they sustain dug wells. In contrast, the yield of bore wells is controlled by the tectonic history of the area and the lithology encountered. Thus equi-granular rocks when subjected to differential stress tend to develop open (tensile) joints in the direction of stress and shear joints at about 230 to the direction of stress, where as rocks having linear minerals tend to absorb the stress and the linear minerals

reorient along the stress direction. Thus Granites, Pegmatites and Charnockites yield better compared to Schists, Phyllites and Gneisses.

Further, the analysis of the results of groundwater exploration in the state indicated that the tectonic history has an important bearing on the yield of bore wells. Thus all the lineaments are not equally potential. The NE-SW lineaments are the most potential followed by E- W, NNW-SSE and NW-SE in the order of preference even though the NW- SE lineament is the most commonly occurring one. The yield of bore well in the province is as high as 30 lps with a transmissivity of upto 2000 m<sup>2</sup>/day in ideal conditions tapping tensile joints in granites/ pegmatites and other equi-granular rocks.

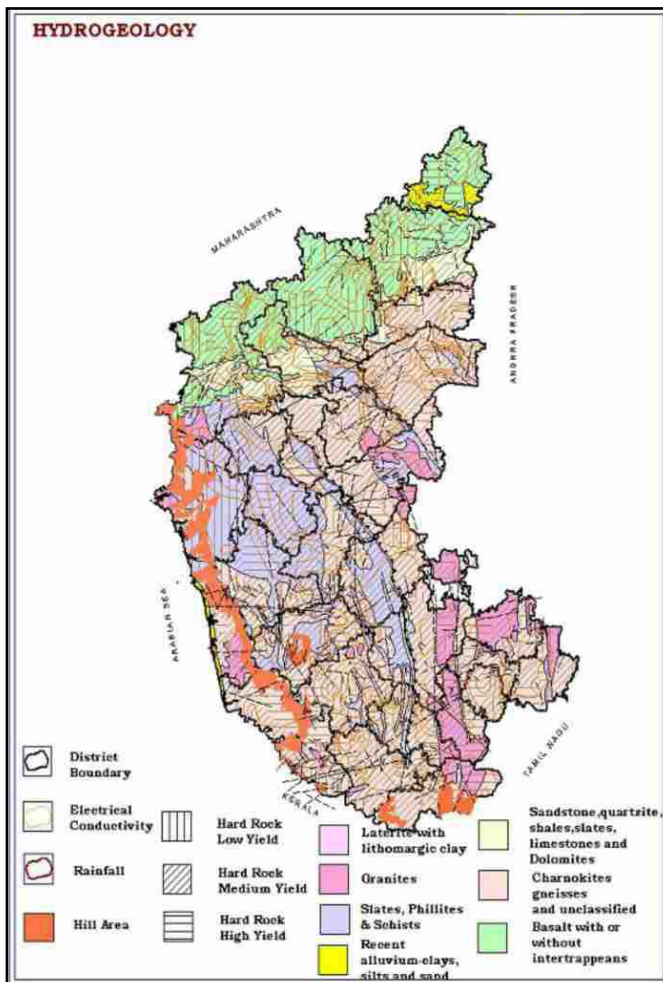
**ii. Deccan Traps:** The Deccan trap constitutes about 15% area of the state occupying Bidar, Vijayapura, major parts of Kalaburagi, Belagavi and northern parts of Bagalkote districts. The vesicles and amygdalae are the porous media for the traps. Generally these porous media are secondary materials like Quartz, Zeolites, Bauxites and Clays. The Deccan traps also act like a crystalline formation. Zeolitic traps and Amygdalae and vesicular properties of the trap facilitate occurrence and movement of ground water in traps. Further at the trap crystalline fringe area in ows. The Karnataka part, the traps have minor dip, which carry the water through contact zone of the intra trappean red bole beds act as an aquiclude. The weathered zone occurs up to a depth of 20 m bgl ned conditions occur below 20 to 40 m in the Deccan trap. The jointed and fractured and semi con Deccan traps carry the ground water to deeper depths. Depth of bore wells drilled in traps ranges from c capacity of 40 to 175 m. The general yield of wells in traps is low and drawdowns are high. The speci the wells in Deccan traps ranges from 0.05 to 34 l/min/m draw down. The yield of bore wells ranges from 4 to 1440 m<sup>3</sup>/day. The transmissivity of the traps ranges from 1 to 369 m<sup>2</sup>/day.

**iii. The Sedimentary Provinces:** The sedimentary rocks province is represented by the Kaladgis, Bhimas and Badamis, also known as consolidated sedimentaries and it constitutes about 5% of the area of the state spread over parts of Kalaburagi, Bagalkote, Belagavi and Vijayapura districts. The primary porosity that usually exists in these formations has been lost due to the process of consolidation and compaction. Amongst these formations, limestones form very poor aquifers as they are mostly horizontally bedded and devoid of solution activity except along the contact zones. Except in Ramdurg, Soundatti, Badami and Hungund areas the sandstones do not form aquifers because it occupies the higher altitudes as ridges. The shales are very rarely seen as aquifers but act as collector ponds than as c yield of 0.03 Wherever sandstone occurs as an aquifer it has a speci yield of 0.005 to 0.04. Discharge of the bore wells drilled in lime stonethe Bhima series has speci ranges from 100 to 300m<sup>3</sup>/day. Depth of the bore wells drilled varies from 94 to 120 m. ne to coarse alluvial materials like.

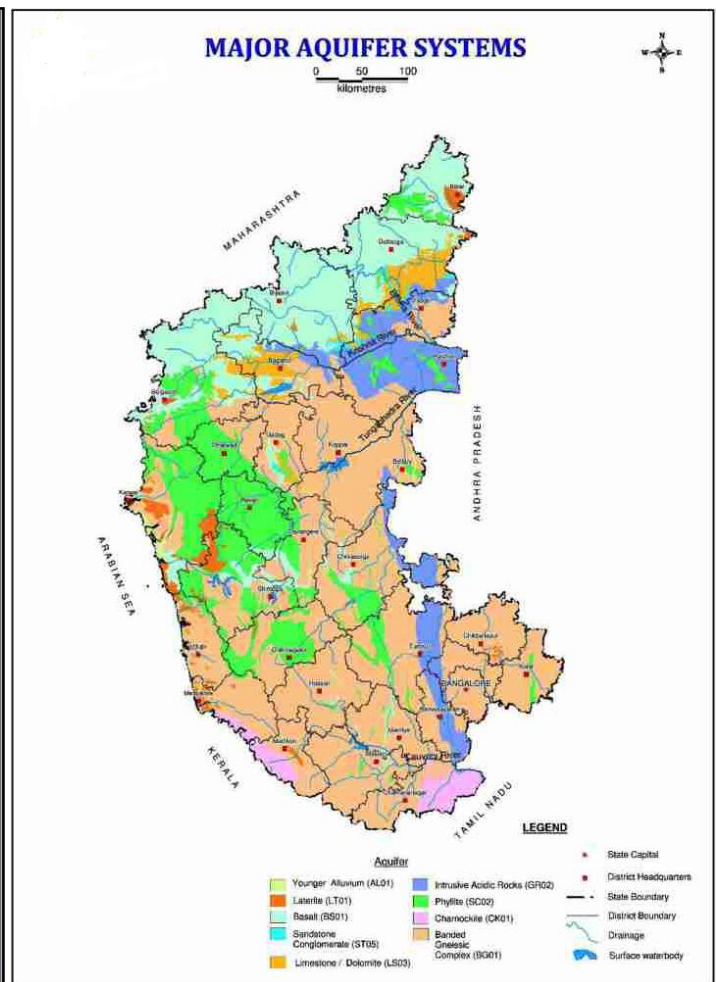
**iv. Alluvium:** Alluvial deposits occur as an aquifer comprised of sand, gravels and pebbles. It constitutes little over 1% area of the state. The river banks show the presence of alluvial deposits to a depth of 2 m to 20 m and the coastal tract accounts up to 40 m. The river that records alluvial/colluvial deposits are the Pennar, Kumudavati, the Tungabhadra, Suvarnavati, Chitravati and lower Hagari river. The yield of these river alluvial deposits ranges from 10 to 500 m<sup>3</sup>/hour. The coastal alluvial deposits yield from 2400 to 4800 m<sup>3</sup>/day. The transmissivity ranges from 2 to 4,348m<sup>2</sup>/d.

**v. Laterites:** Laterites are seen as a capping, scattered over the country rock in all the three cult as it forms potential groundwater provinces. The demarcation of the area under Laterite is dif aquifer only if it is having considerable thickness. In other places especially on the eastern parts of the state, it is absent or occurs as a thin capping over the country rock. However these are more predominant in the western parts of the state, where it forms potential phreatic aquifer. These are highly porous and permeable; as a result gets fully recharged after monsoon. The aquifer drains out due to subsurface out ow in the post monsoon period. The dug wells tapping these aquifers located in slopping ground gets dried up during summer months, even if the groundwater utilization in the area is on a low key.

**Map-6**



**Map-7**



## B.Ground Water Levels

The Ground water levels were recorded in the observation dug wells and borewells once in a month periodically. The deepest or maximum ground water levels were recorded during the pre-monsoon season and the shallow or minimum groundwater levels were recorded during monsoon or post-monsoon season and the average 12 months groundwater levels were computed. Table no-2 shows pre-monsoon, post-monsoon and average groundwater levels of 30 Districts are given below.

**Table-2**

Ground water levels during the year 2018(mts bgl)				
Sl.No.	District	Max	Min	Avg
1	Bagalkote	57.1	2.25	15.69
2	Bengaluru Rural	123.8	0.65	27.07
3	Bengaluru Urban	56.32	5.1	23.74
4	Belgavi	83.95	0.6	10.66
5	Ballari	49.15	0.75	10.21
6	Bidar	67.3	3.6	17.43
7	Vijayapura	87.49	0.52	18.28
8	Chamarajanagar	39.57	1.1	17.5
9	Chikkaballapura	137.5	3.75	48.41
10	Chikkamangaluru	90.1	0.1	16.12
11	Chitradurga	115.76	1.55	21.66
12	Mangalore	53.53	1.14	10.41
13	Davanagere	45.85	0.15	10.92
14	Ddgarawada	85.4	0.6	19.67
15	Gadaga	48.82	0.55	12.98
16	Kalaburagi	19.95	19.95	19.95
17	Hassan	56.35	9.22	12.08
18	Haveri	63.95	GL	18.96
19	Kodagu	56.04	0.024	11.54
20	Kolar	175.8	7.06	74.1
21	Koppal	38.37	1.15	12.34
22	Mandya	37.81	0.41	9.42
23	Mysuru	39.28	0.6	10.63
24	Rachiur	26.7	1.2	6.43
25	Ramanagar	102.38	0.5	21.01



26	Shivamogga	37	1.8	8.99
27	Tumakuru	171.05	1.96	29.69
28	Udupi	18.79	0.14	6.33
29	Karwar	42.15	0.5	6.76
30	Yadgiri	21.6	0.97	5.77

Table-3 shows pre-monsoon, post-monsoon and average groundwater levels of 43 Over Exploited Taluksare given below.

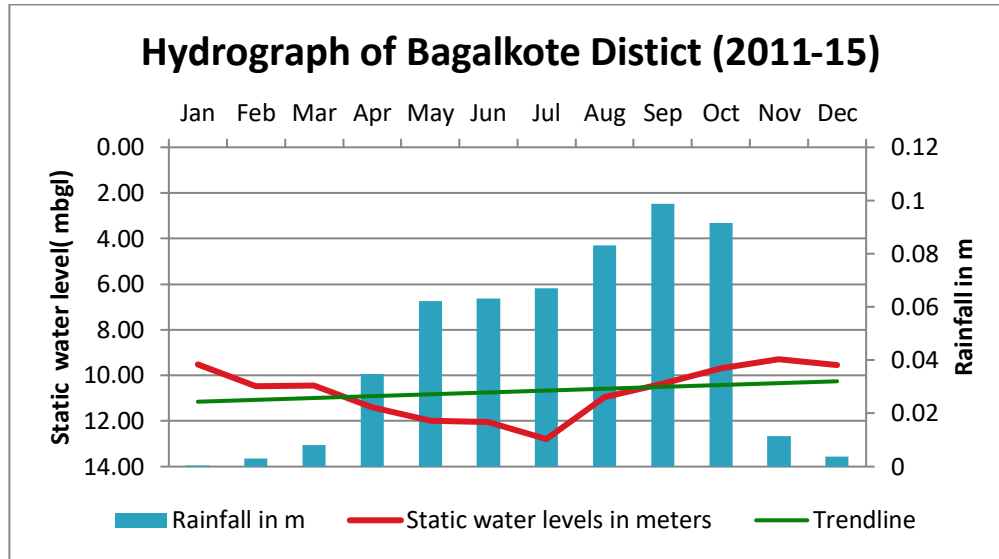
**Table-3**

<b>Ground Water levels in Over Exploited Taluks during the year 2018(mts bgl)</b>					
<b>Sl.No.</b>	<b>District</b>	<b>Taluk</b>	<b>Max</b>	<b>Min</b>	<b>Avg</b>
1	Bagalkot	Badami	57.1	5.2	31.28
2		Bagalakote	39.2	3.5	20.92
3	Bengaluru Rural	Devanahalli	54.65	0.15	32.54
4		Doddaballapur	57.25	0.65	24.94
5		Hosakote	123.8	0	67.07
6	Bengaluru Urban	Nelamangala	55.25	22.25	24.14
7		Anekal	56.32	6.21	32.53
8		Bangalore East	38.72	20.6	20.62
9		Bangalore North	51.82	5.1	20.15
10	Belagavi	Bangalore South	26.5	14.3	28.65
11		Ramadurga	46.25	0	10.19
12		Athani	39.1	2.65	8.61
13	Ballari	Saundatti	83.3	26.4	22.49
14		H.B.Halli	17.3	13.7	20.9
15	Chamarajanagar	Gundlupet	38.74	3.3	19.05
16	Chikkaballapura	Chikkaballapura	137.5	13.51	65.29
17		Chintamani	149	40.82	47.61
18		Gauribidanur	137.09	3.75	50.59
19		Gudibande	22.74	10.25	18.67
20		Shidlaghatta	135.91	4	52.32
21	Chikamagaluru	Kadur	73.5	4.05	23.16
22	Chitradurga	Chitradurga	50.83	2.45	29.16
23		Holalkere	60.9	2.88	16.13
24		Challakere	32.25	3.75	15.87
25		Hiriyur	54.04	2.66	18.11
26	Davanagere	Channagiri	31.15	0.65	8.87
27		Harpanahalli	49.15	2.3	15.96
28		Jagalur	28.66	12.9	21.99
29	Gadag	Gadag	14.45	0.55	8.85
30		Ron	48.82	12.92	22.26
31	Hassan	Arsikere	86	6.5	33.54
32	Kolar	Bangarpet	128.9	7.06	68.91
33		Kolar	126.4	8.65	83.49
34		Malur	175.8	25.88	85.81
35		Mulbagal	118	14.68	64.12
36		Srinivasapura	119.1	24.65	71.5
37	Ramanagara	Kanakapura	30.98	3.65	12.8
38		Ramanagar	43.75	10	18.83

39	Tumakuru	Chikkanayakanahalli	171.05	7.61	42.07
40		Koratagere	96.09	4.3	32.92
41		Madhugiri	73.31	6.88	17.36
42		Tiptur	101.8	11.93	41.62
43		Tumkur	83.52	6.44	28.97

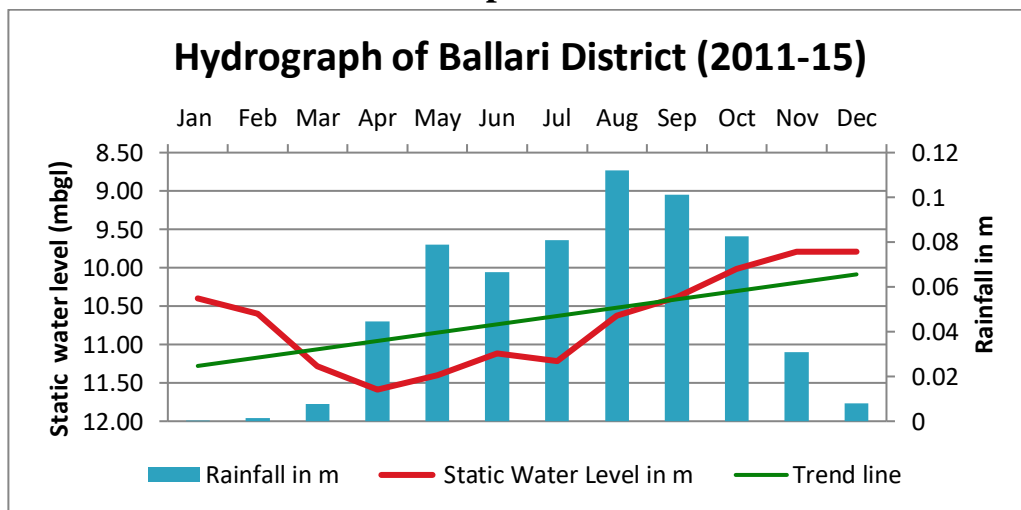
### C.HYDROGRAPHS

**Graph-1**



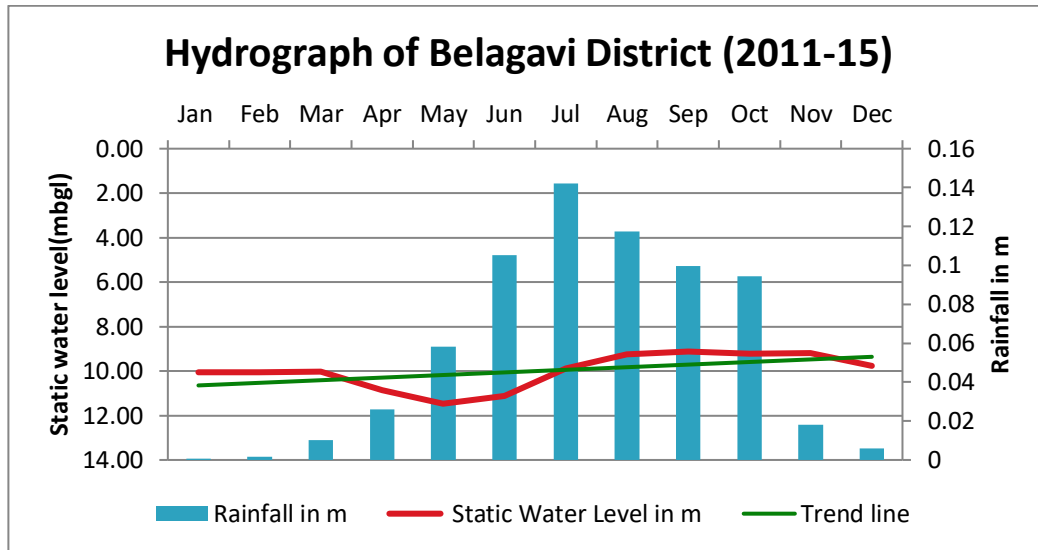
The hydrograph of Bagalkote District is generated and reveals that the rainfall predominantly occurs from the month of April to October. The groundwater levels are depleted from the month of December to July and gradually rise from the month of August to November. The trend of the ground water levels shows rise from the year 2011-2015. This may be due to the groundwater recharge either from the rainfall precipitation or due to the application of surface water to the agriculture fields in the command areas.

**Graph-2**



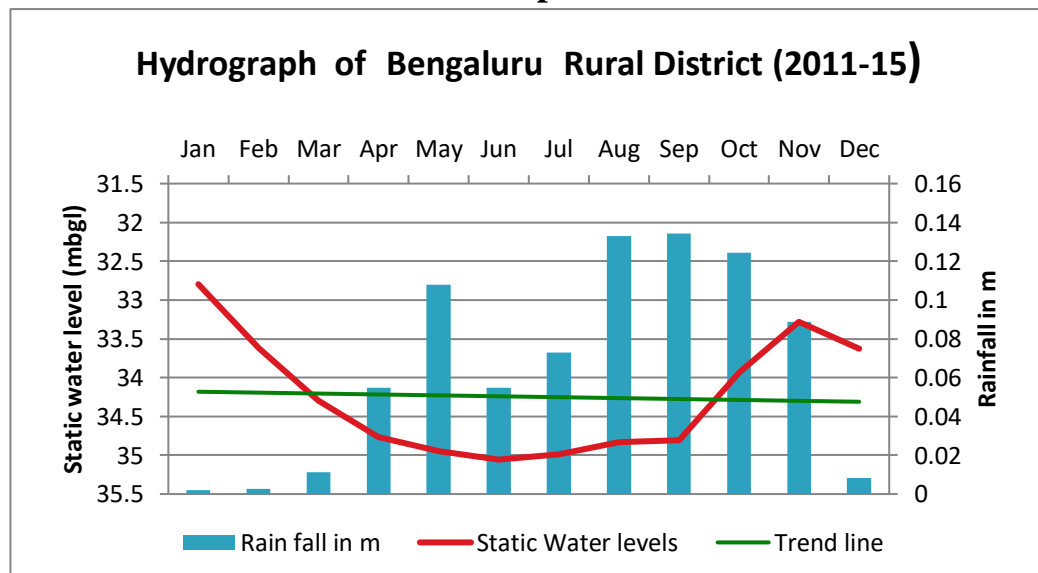
The hydrograph of Bellary District is generated and reveals that the rainfall predominantly occurs from the month of April to November. The groundwater levels are depleted from the month of January to April and the gradually rise from the month of May to December. The trend of the ground water levels show rise from the year 2011-2015. This may be due to the groundwater recharge either from the rainfall precipitation or due to the application of surface water to the agriculture fields in the command areas.

**Graph-3**



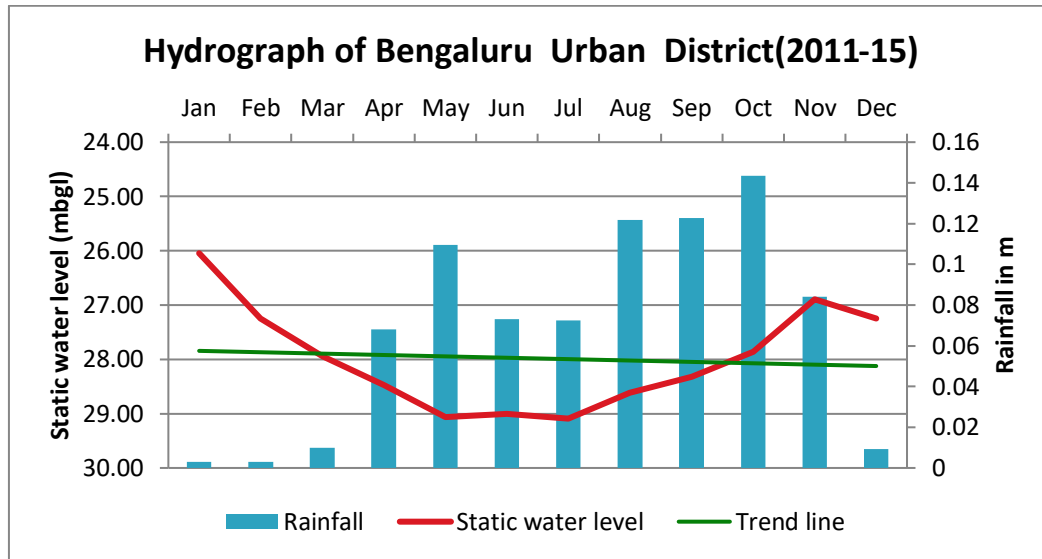
The hydrograph of Belgavi District is generated and reveals that the rainfall predominantly occurs from the month of May to October. The groundwater levels are depleted from the of month December to May and the gradually rise from the month of June to November. The trend of the ground water levels show rise from the year 2011-2015. This may be due to the groundwater recharge either from the rainfall precipitation or due to the application of surface water to the agriculture fields in the command areas.

**Graph-4**



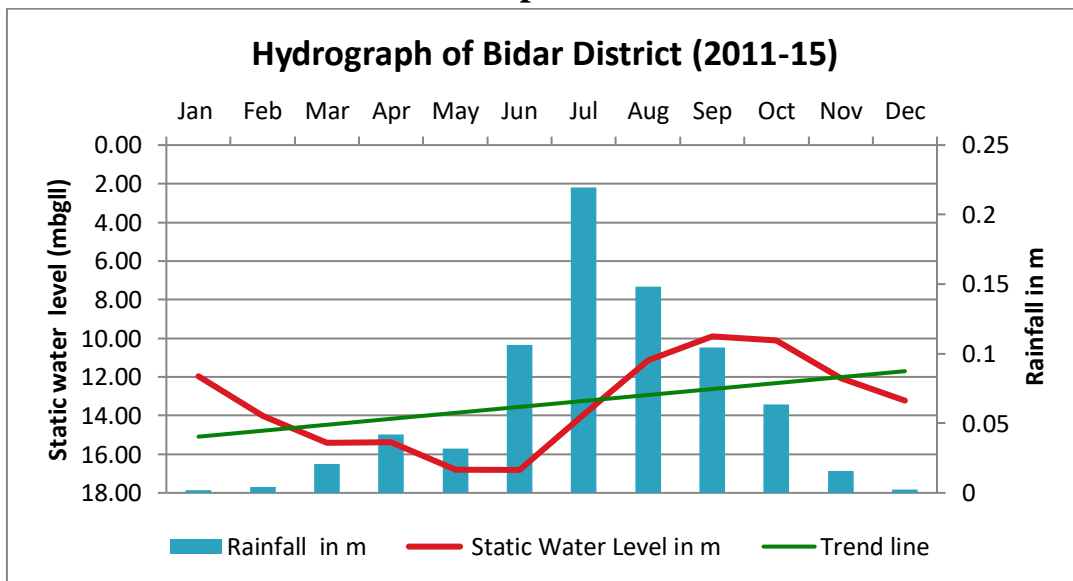
The hydrograph of Bangalore Rural District is generated and reveals that the rainfall predominantly occurs from the month of April to November. The groundwater levels are depleted from the month of December to June and the gradually rise from the month of July to November. The trend of the ground water levels show depletion from the year 2011-2015. This may be due to the over exploitation of ground water during rabi and summer seasons through deep bore wells.

**Graph-5**



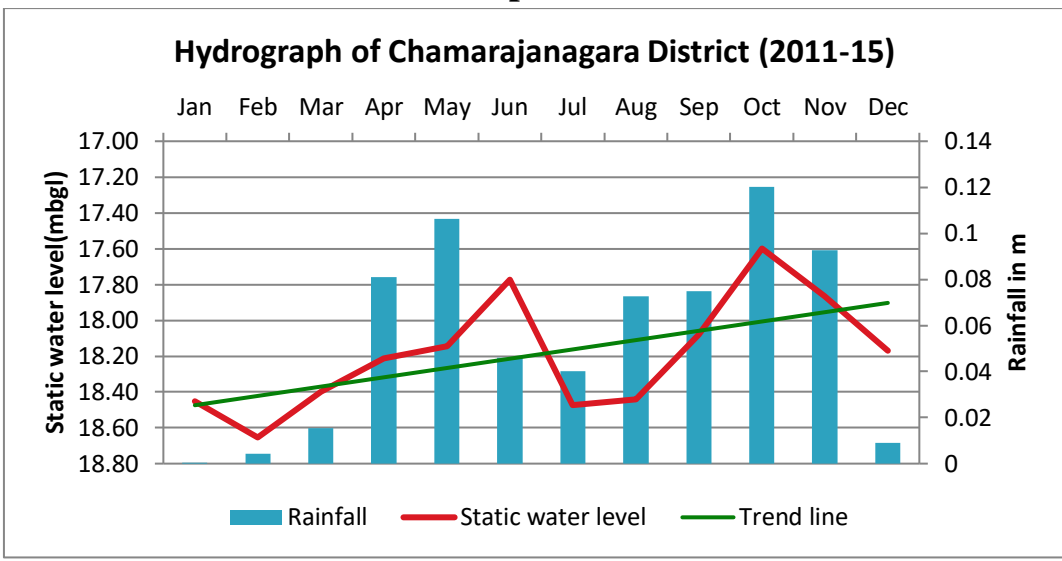
The hydrograph of Bengaluru Urban District is generated and reveals that the rainfall predominantly occurs from the month of April to November. The groundwater levels are depleted from the month of December to July and the gradually rise from the month of August to November. The trend of the ground water levels show depletion from the year 2011-2015. This may be due to the over exploitation of ground water through deep bore wells.

**Graph-6**



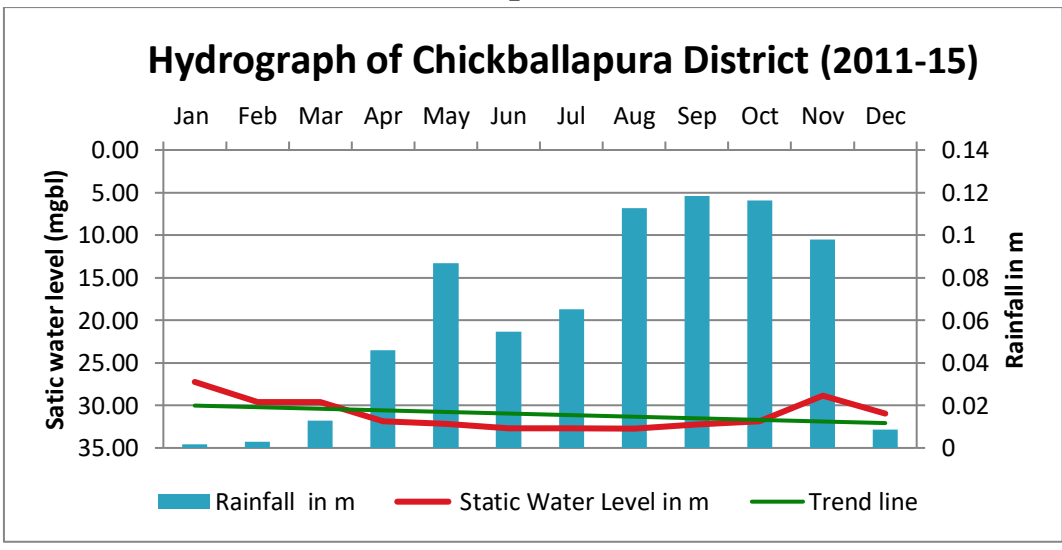
The hydrograph of Bidar District is generated and reveals that the rainfall predominantly occurs from the month of June to October. The groundwater levels are depleted from the month of November to June and the gradually rise from the month of July to October. The trend of the ground water levels shows rise from the year 2011-2015. This may be due to the groundwater recharge either from the rainfall precipitation or due to the application of surface water to the agriculture fields in the command areas.

**Graph-7**



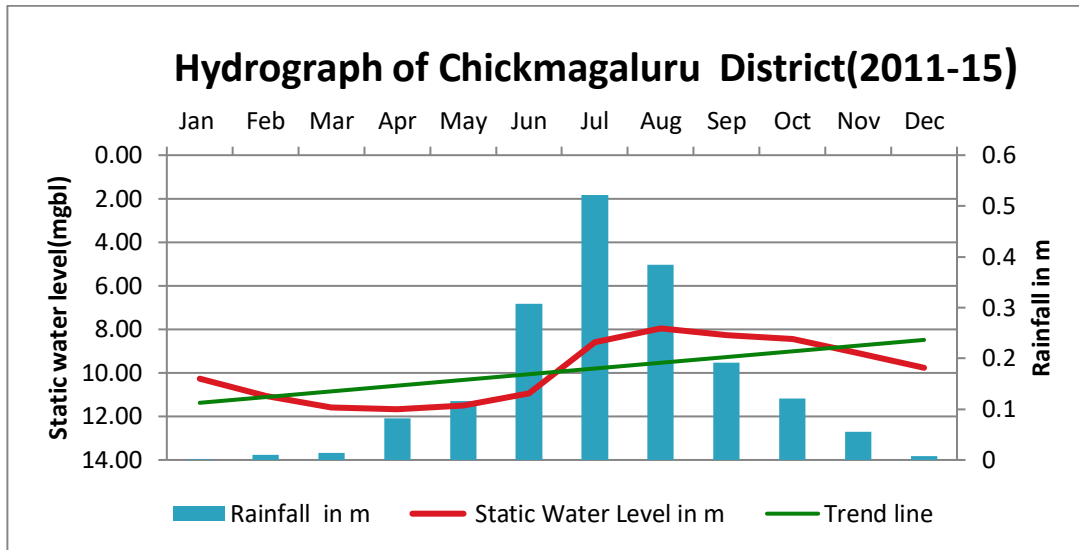
The hydrograph of Chamarajanagara District is generated and reveals that the rainfall predominantly occurs from the month of April to November. The groundwater levels are depleted from the month of November to February and July to August. The ground water levels gradually rise from the month of March to June and September to October. The trend of the ground water levels shows rise from the year 2011-2015. This may be due to the groundwater recharge either from the rainfall precipitation or due to the application of surface water to the agriculture fields in the command areas.

**Graph-8**



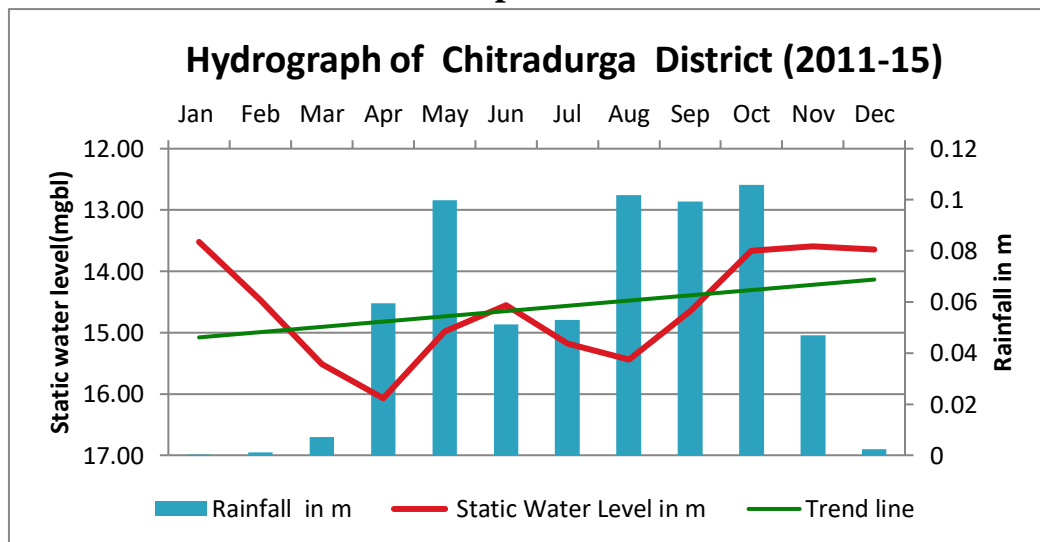
The hydrograph of Chickballapura District is generated and reveals that the rainfall predominantly occurs from the month of April to November. The groundwater levels are depleted from the month of December to August and the gradually rise from the month of September to November. The trend of the ground water levels show depletion from the year 2011-2015. This may be due to the over exploitation of ground water during rabi and summer seasons through deep bore wells.

**Graph-9**



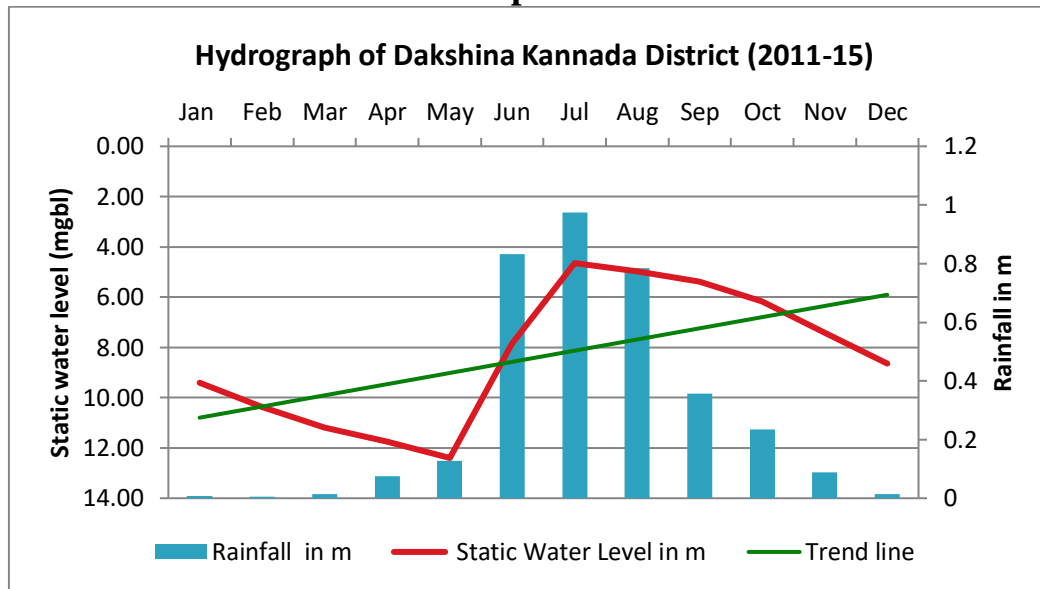
The hydrograph of Chikmangaluru District is generated and reveals that the rainfall predominantly occurs from the month of April to October. The groundwater levels are depleted from the month of October to April and the gradually rise from the month of May to September. The trend of the ground water levels shows rise from the year 2011-2015. This may be due to the groundwater recharge either from the rainfall precipitation or due to the application of surface water to the agriculture fields in the command areas.

**Graph-10**



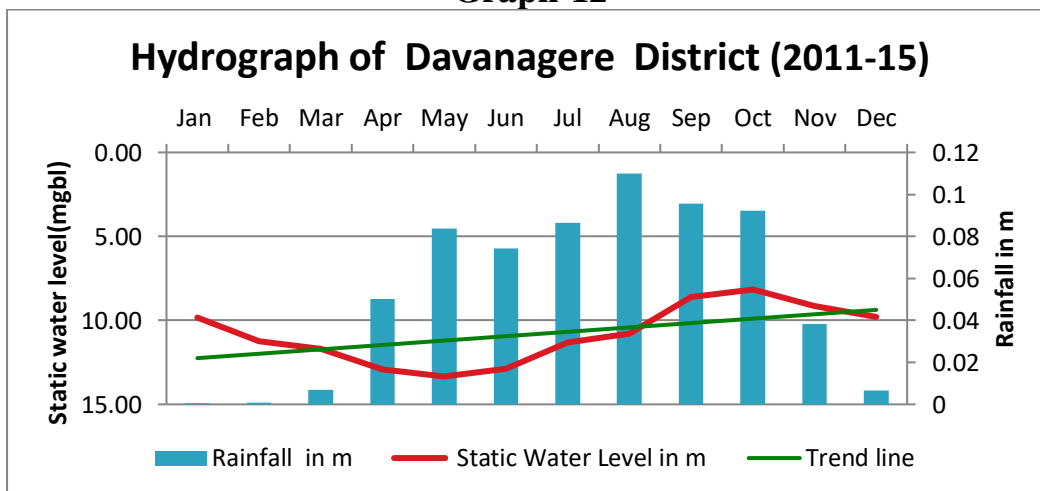
The hydrograph of Chitradurga District is generated and reveals that the rainfall predominantly occurs from the month of April to November. The groundwater levels are depleted from the month of January to April and July to August. The groundwater levels gradually rise from the month of May to June and September to December. The trend of the ground water levels shows rise from the year 2011-2015. This may be due to the groundwater recharge either from the rainfall precipitation or due to the application of surface water to the agriculture fields in the command areas.

**Graph-11**



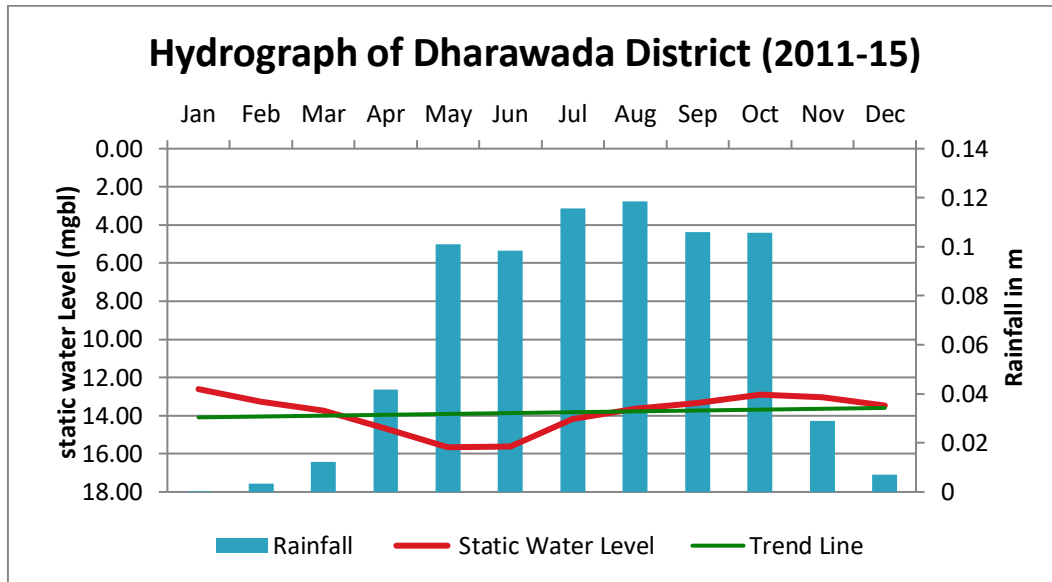
The hydrograph of Dakshina Kannada District is generated and reveals that the rainfall predominantly occurs from the month of May to October. The groundwater levels are depleted from the month August to May and the gradually rise from the month of June to July. The trend of the ground water levels show rise from the year 2011-2015. This may be due to the groundwater recharge either from the heavy rainfall precipitation. The groundwater exploitation is through the dug wells and shallow to moderate depth of bore wells during non- monsoon period.

**Graph-12**



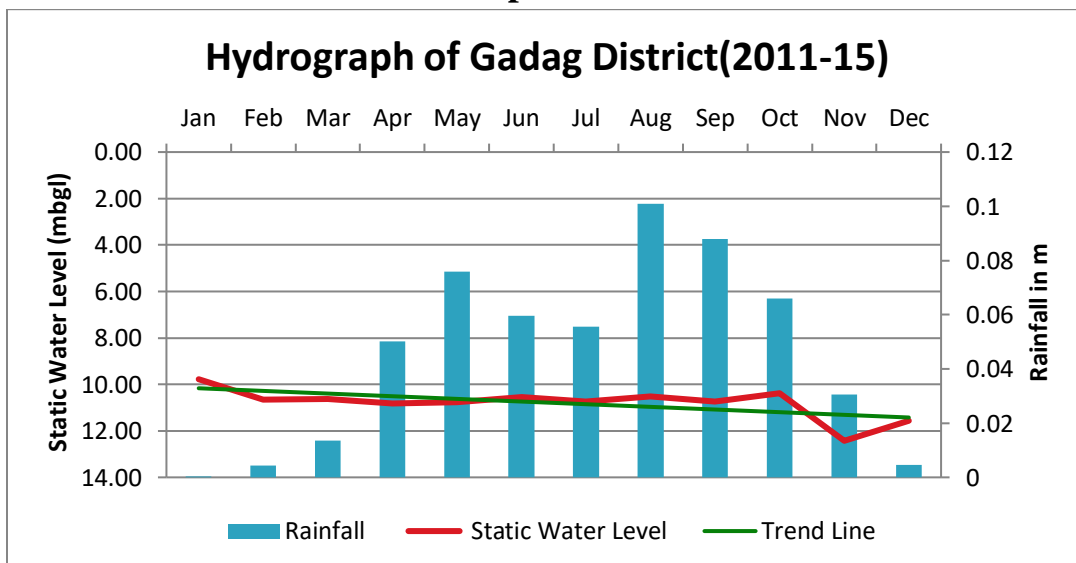
The hydrograph of Davanagere District is generated and reveals that the rainfall predominantly occurs from the month of April to November. The groundwater levels are depleted from the month November to May and the gradually rise from the month of June to October. The trend of the ground water levels show rise from the year 2011-2015. This may be due to the ground water recharge during monsoon season or due to the application of surface water to the agriculture fields in the command areas.

**Graph-13**



The hydrograph of Dharawada District is generated and reveals that the rainfall predominantly occurs from the month of May to October. The groundwater levels are depleted from the month November to May and the gradually rise from the month of June to October. The trend of the ground water levels show slightly rise from the year 2011-2015. This may be due to the ground water recharge during monsoon season.

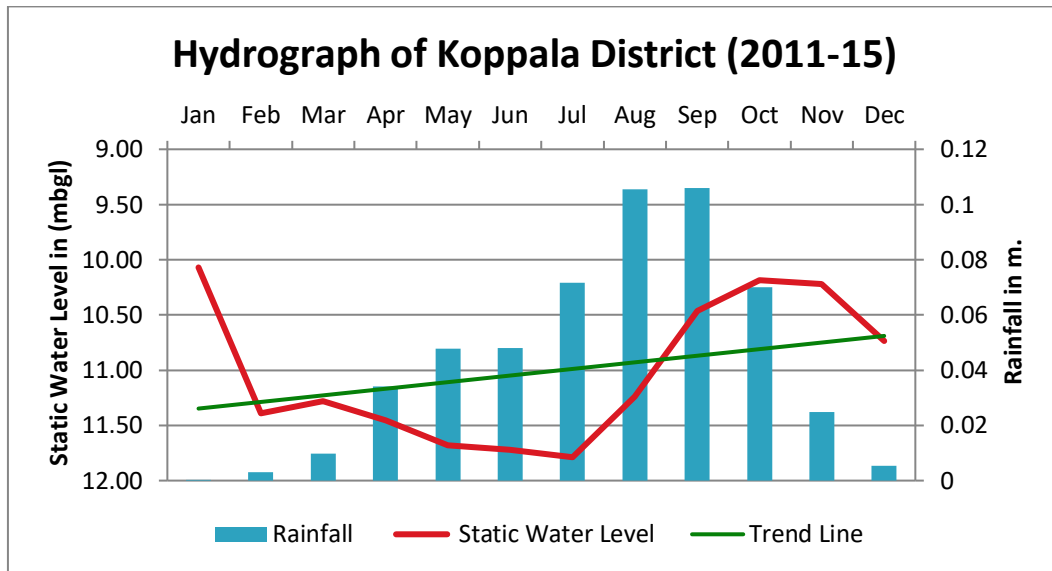
**Graph-14**





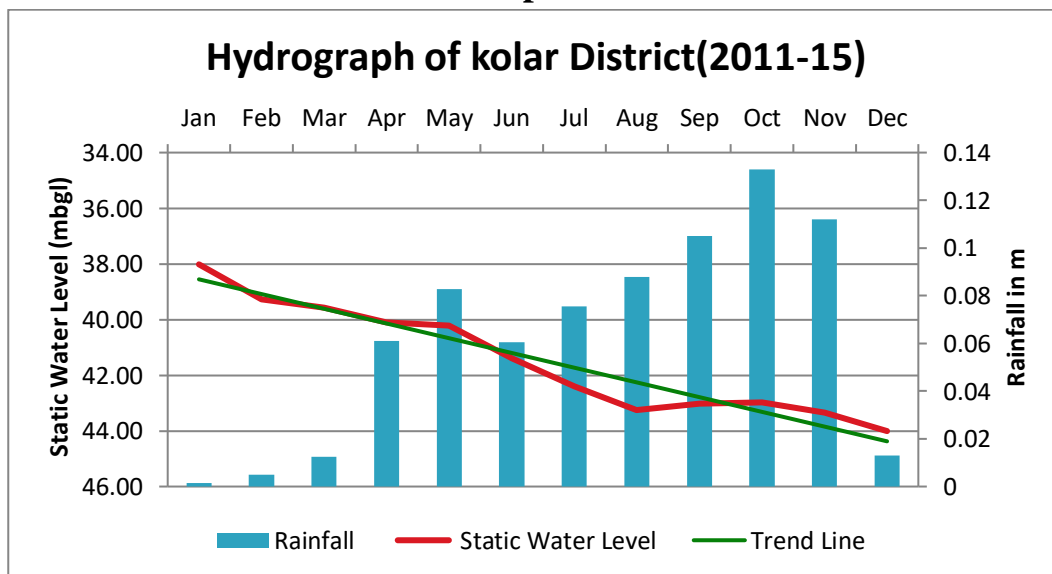
The hydrograph of Gadag District is generated and reveals that the rainfall predominantly occurs from the month of April to November. The groundwater levels are depleted from the month of November to April and the gradually rise from the month of May to October. The trend line of the ground water levels show depletion from the year 2011-2015. This may be due to the exploitation of ground water during rabi and summer seasons.

**Graph-15**



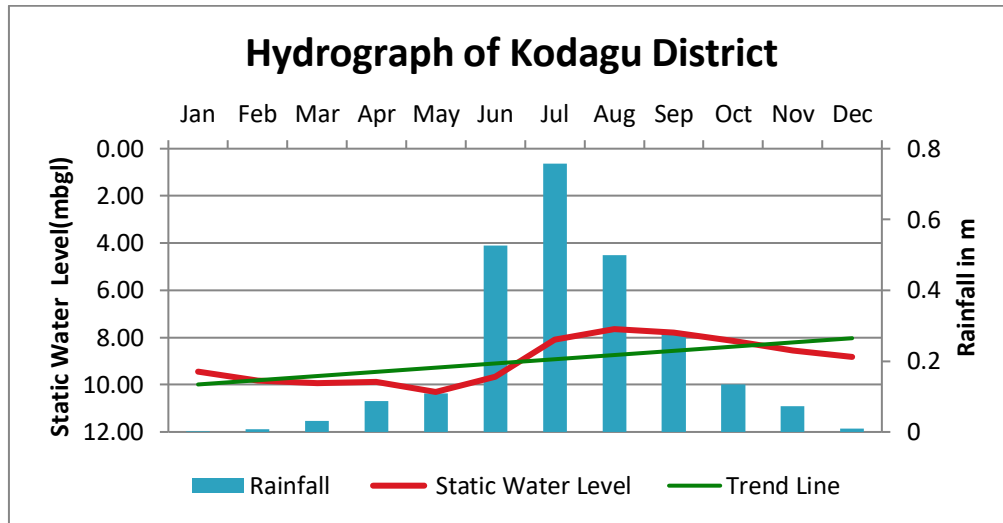
The hydrograph of Koppala District is generated and reveals that the rainfall predominantly occurs from the month of April to November. The groundwater levels are depleted from the month December to July and the gradually rise from the month of August to November. The trend of the ground water levels shows rise from the year 2011-2015. This may be due to the groundwater recharge either from the rainfall precipitation or due to the application of surface water to the agriculture fields in the command areas.

**Graph-16**



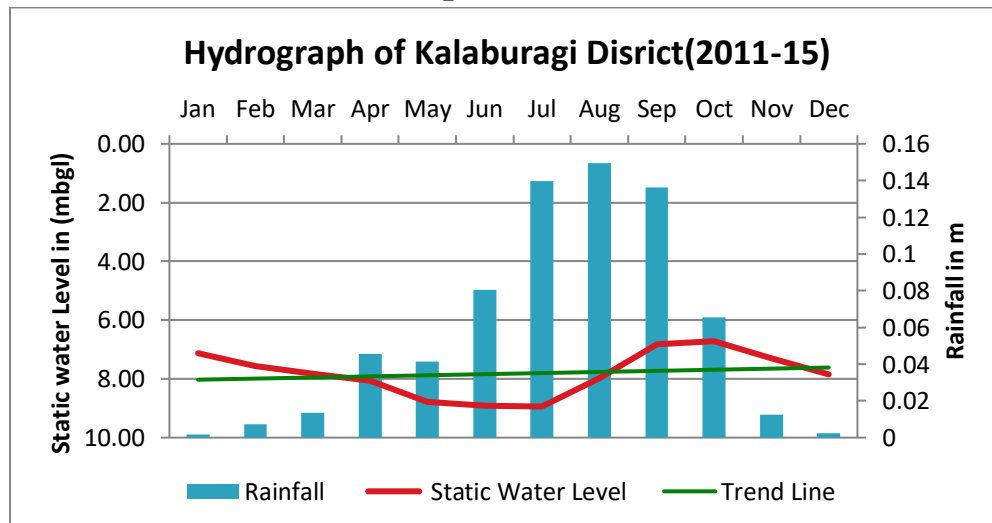
The hydrograph of Kolar District is generated and reveals that the rainfall predominantly occurs from the month of April to November. The groundwater levels are depleted from the month of November to August and the gradually rise from the month of September to October. The trend line of the ground water levels show depletion from the year 2011-2015. This may be due to the over exploitation of ground water during rabi and summer seasons through the deep bore wells.

**Graph-17**



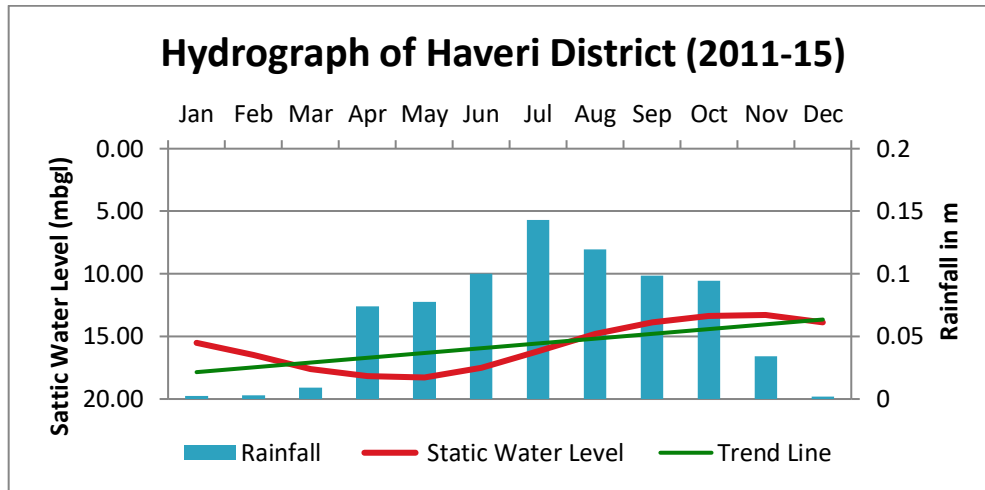
The hydrograph of Kodagu District is generated and reveals that the rainfall predominantly occurs from the month of April to November. The groundwater levels are depleted from the month October to May and the gradually rise from the month of June to September. The trend of the ground water levels show rise from the year 2011-2015. This may be due to the groundwater recharge either from the heavy rainfall precipitation. The groundwater exploitation is through the dug wells and shallow to moderate depth of bore wells during non- monsoon period.

**Graph-18**



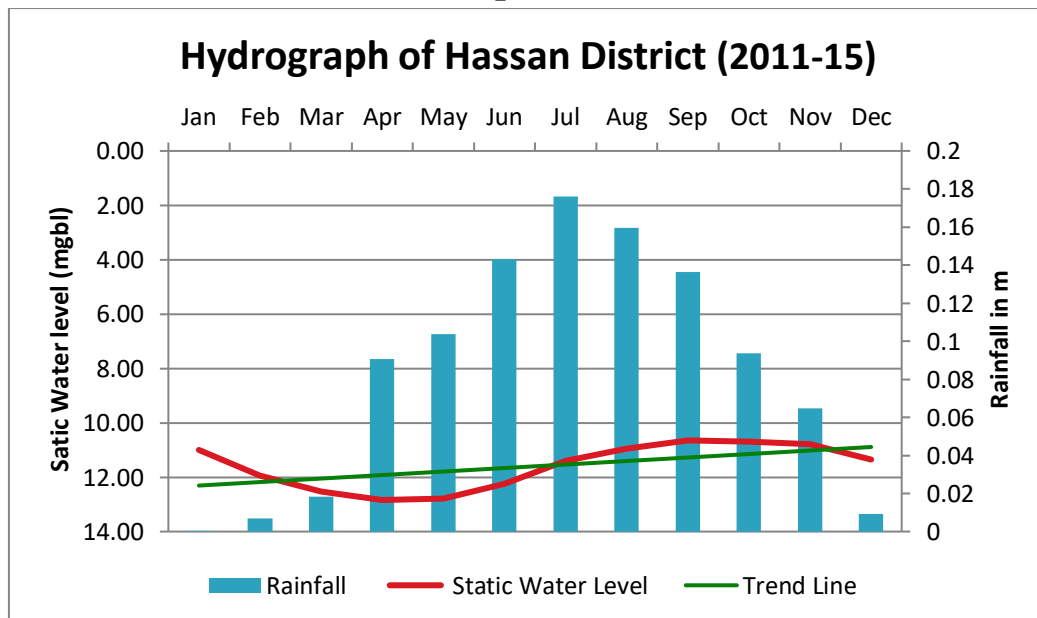
The hydrograph of Kalaburagi District is generated and reveals that the rainfall predominantly occurs from the month of April to October. The groundwater levels are depleted from the month November to July and the gradually rise from the month of August to October. The trend of the ground water levels show slightly rises from the year 2011-2015. This may be due to the groundwater recharge either from the rainfall precipitation or due to the application of surface water to the agriculture fields in the command areas.

**Graph-19**



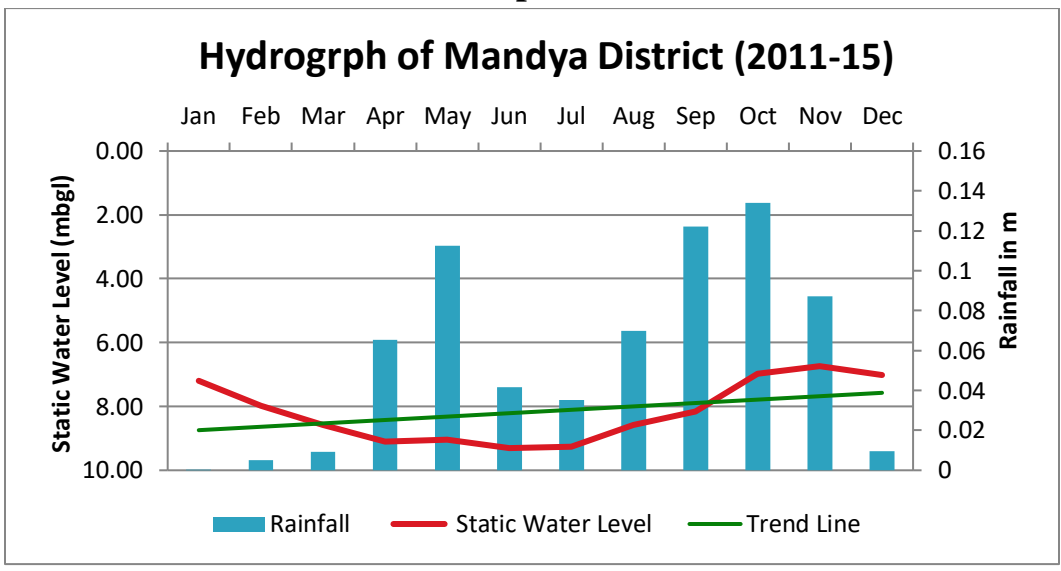
The hydrograph of Haveri District is generated and reveals that the rainfall predominantly occurs from the month of April to October. The groundwater levels are depleted from the month December to May and the gradually rise from the month of June to November are noticed. The trend line of the ground water levels shows rise from the year 2011-2015. This may be due to the groundwater recharge either from the rainfall precipitation or due to the application of surface water to the agriculture fields in the command areas.

**Graph-20**



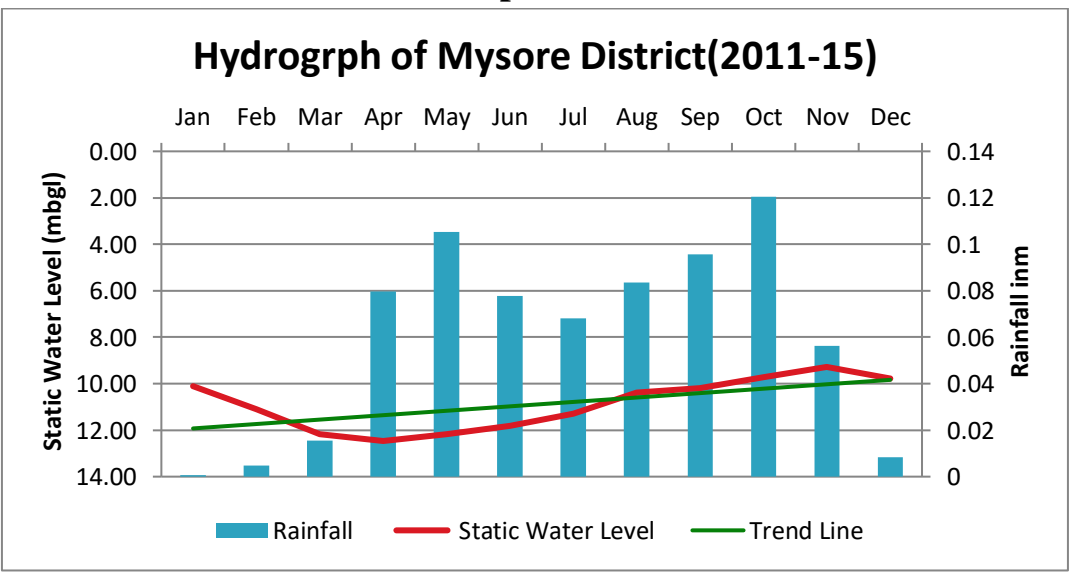
The hydrograph of Hassan District is generated and reveals that the rainfall predominantly occurs from the month of April to November. The groundwater levels are depleted from the month December to April and the gradually rise from the month of May to November are noticed. The trend line of the ground water levels shows rise from the year 2011-2015. This may be due to the groundwater recharge either from the rainfall precipitation or due to the application of surface water to the agriculture fields in the command areas.

**Graph-21**



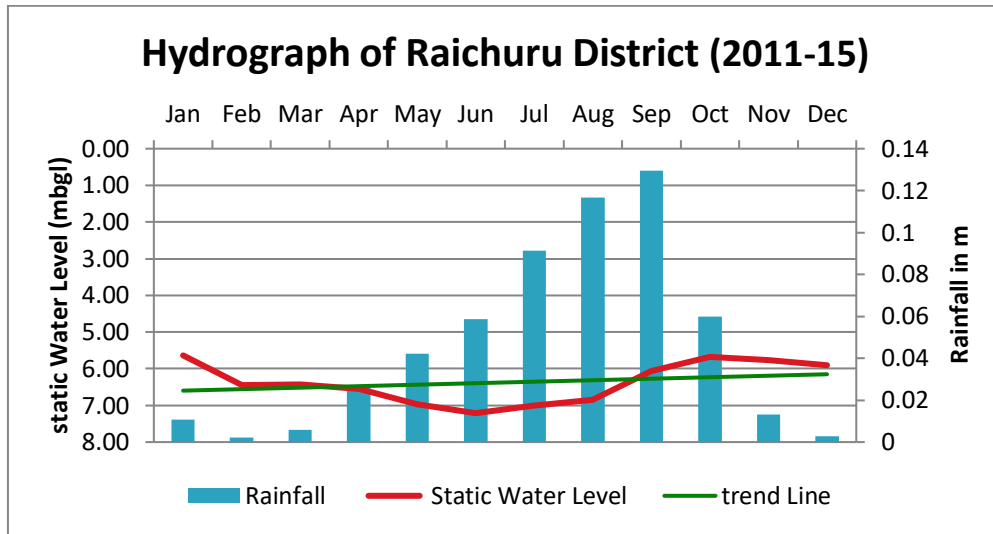
The hydrograph of Mandya District is generated and reveals that the rainfall predominantly occurs from the month of April to November. The groundwater levels are depleted from the month December to June and the gradually rise from the month of July to November are noticed. The trend line of the ground water levels shows rise from the year 2011-2015. This may be due to the groundwater recharge either from the rainfall precipitation or due to the application of surface water to the agriculture fields in the command areas.

**Graph-22**



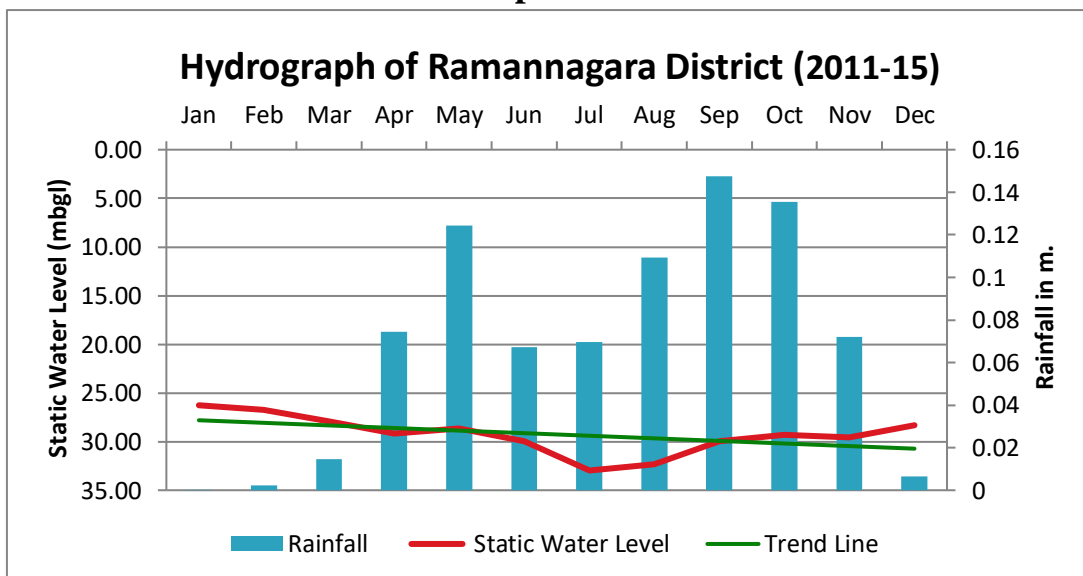
The hydrograph of Mysore District is generated and reveals that the rainfall predominantly occurs from the month of April to November. The groundwater levels are depleted from the month December to April and the gradually rise from the month of May to November. The trend of the ground water levels show rise from the year 2011-2015. This may be due to the groundwater recharge either from the rainfall precipitation or due to the application of surface water to the agriculture fields in the command areas.

**Graph-23**



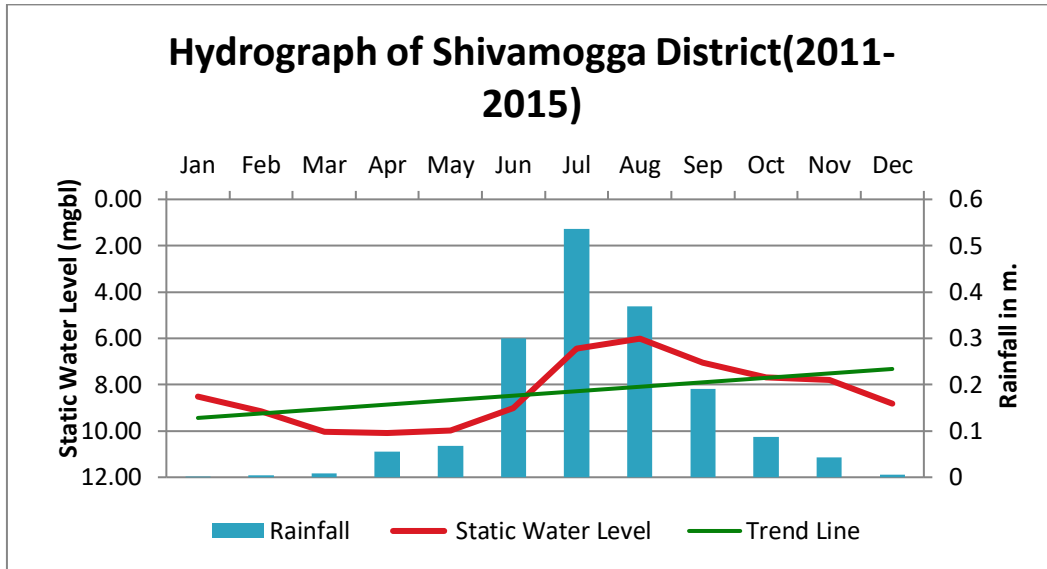
The hydrograph of Raichuru District is generated and reveals that the rainfall predominantly occurs from the month of April to October. The groundwater levels are depleted from the month December to June and the gradually rise from the month of July to November. The trend of the ground water levels show rise from the year 2011-2015. This may be due to the groundwater recharge either from the rainfall precipitation or due to the application of surface water to the agriculture fields in the command areas.

**Graph-24**



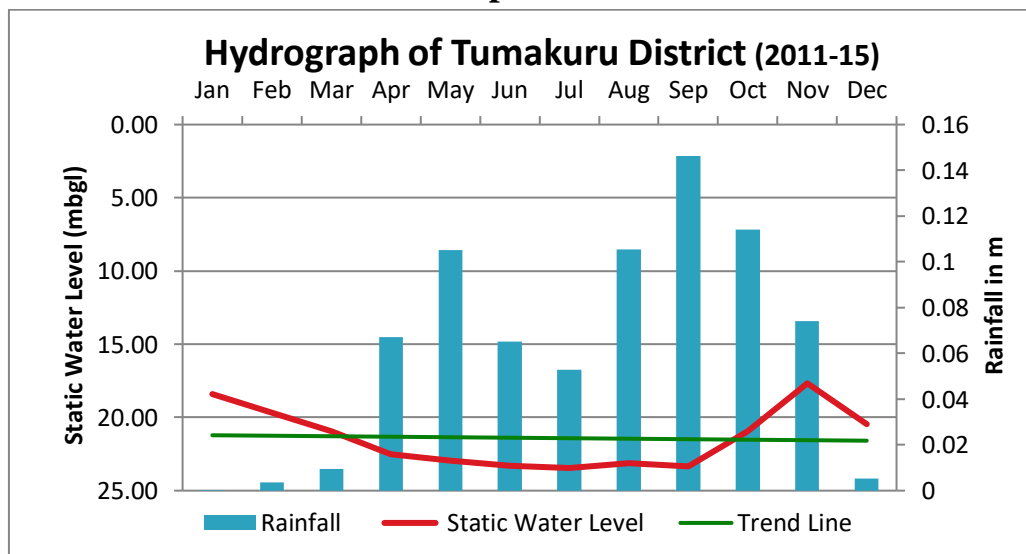
The hydrograph of Ramanagara District is generated and reveals that the rainfall predominantly occurs from the month of April to November. The groundwater levels are depleted from the month of January to July and the gradually rise from the month of August to December. The trend of the ground water levels show depletion from the year 2011-2015. This may be due to the over exploitation of ground water through the deep bore wells.

**Graph-25**



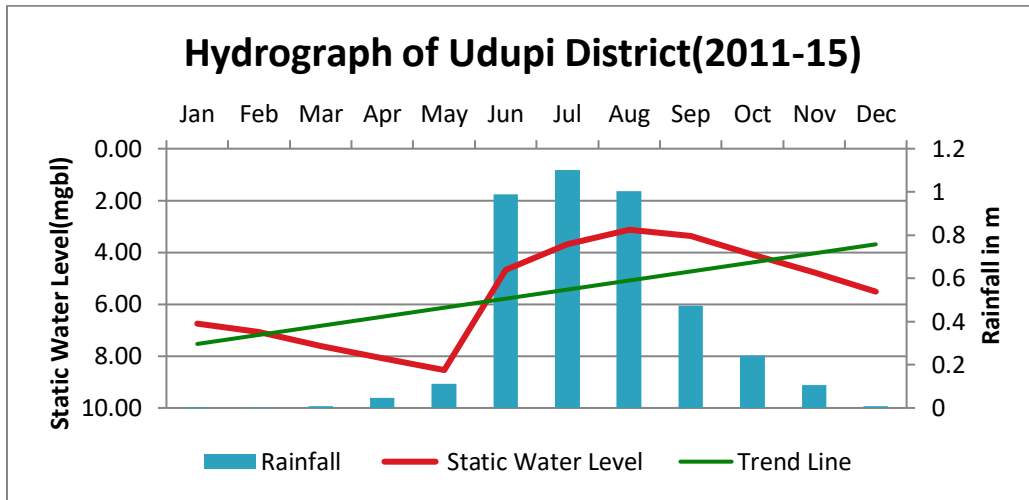
The hydrograph of Shivamogga District is generated and reveals that the rainfall predominantly occurs from the month of April to November. The groundwater levels are depleted from the month September to May and gradually rise from the month of June to August. The trend of the ground water levels shows rise from the year 2011-2015. This may be due to the groundwater recharge either from the rainfall precipitation or due to the application of surface water to the agriculture fields in the command areas.

**Graph-26**



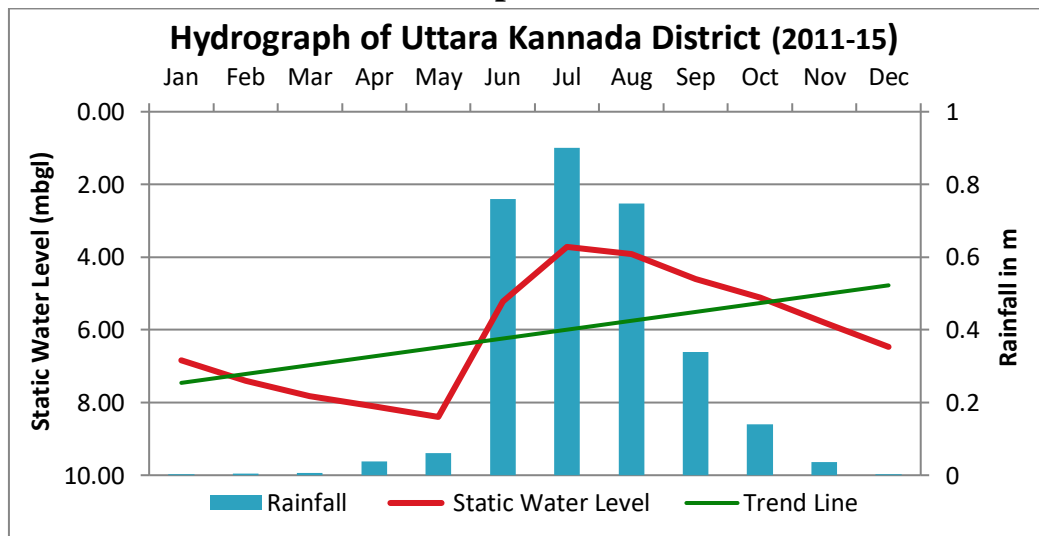
The hydrograph of Tumakuru District is generated and reveals that the rainfall predominantly occurs from the month of April to November. The groundwater levels are depleted from the month of December to September and the gradually rise from the month of October to November. The trends of the ground water levels show slight depletion from the year 2011-2015. This may be due to the over exploitation of ground water through the deep bore wells.

**Graph-27**



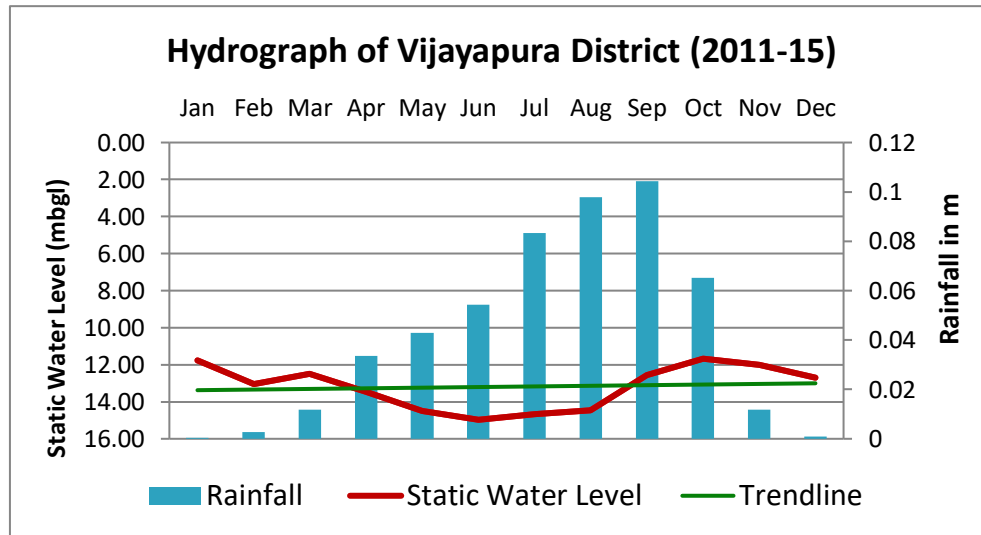
The hydrograph of Udupi District is generated and reveals that the rainfall predominantly occurs from the month of June to September. The groundwater levels are depleted from the month September to May and the gradually rise from the month of June to August. The trend of the ground water levels show rise from the year 2011-2015. This may be due to the groundwater recharge either from the heavy rainfall precipitation. The groundwater exploitation is through the dug wells and shallow to moderate depth of bore wells during non- monsoon period.

**Graph-28**



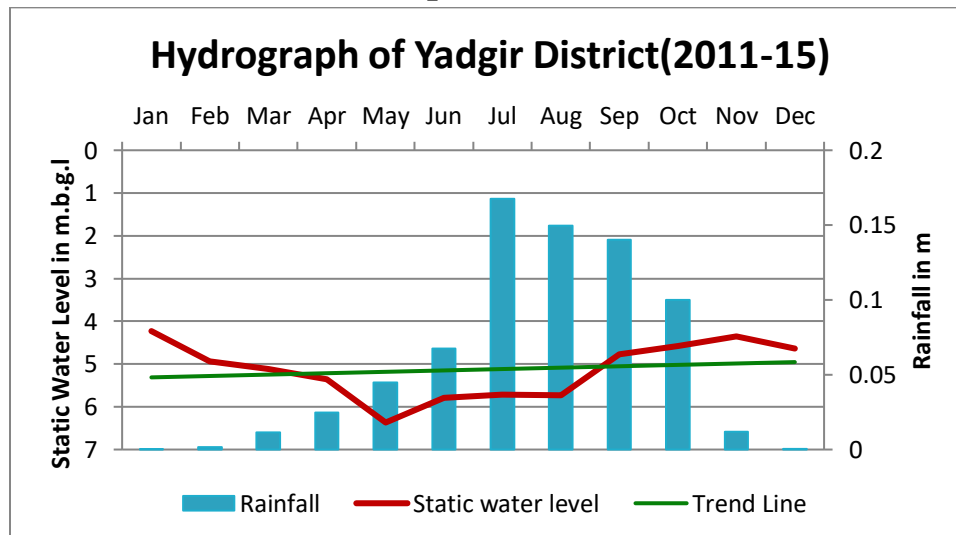
The hydrograph of Uttara Kannada (Karwar) District is generated and reveals that the rainfall predominantly occurs from the month of June to September. The groundwater levels are depleted from the month August to May and the gradually rise from the month of June to July. The trend of the ground water levels show rise from the year 2011-2015. This may be due to the groundwater recharge either from the heavy rainfall precipitation. The groundwater exploitation is through the dug wells and shallow to moderate depth of bore wells during non- monsoon period.

**Graph-29**



The hydrograph of Vijayapura District is generated and reveals that the rainfall predominantly occurs from the month of April to October. The groundwater levels are depleted from the month November to June and the gradually rise from the month of July to October. The trend of the ground water levels show rise from the year 2011-2015. This may be due to the groundwater recharge either from the rainfall precipitation or due to the application of surface water to the agriculture fields in the command areas.

**Graph-30**





The hydrograph of Yadagiri district is generated and reveals that the rainfall predominantly occurs from the month of June to October. The groundwater levels are depleted from the month December to May and the gradually rise from the month of June to November. The trend of the ground water levels show slight rise from the year 2011-2015. This may be due to the groundwater recharge either from the rainfall precipitation or due to the application of surface water to the agriculture fields in the command areas.

## **IX. DYNAMIC GROUND WATER RESOURCES AS ON MARCH-2017**

The Ground water resources of the state of Karnataka was assessed based on Groundwater Estimation Methodology (GEM) 1997 as on March 2017. The present assessment was done on a watershed basis using the database as on 2017. The resources so assessed were apportioned and presented on a taluk basis to facilitate planning of developmental activities. The methodology envisages that the groundwater assessments may be made once in three years, however later on it was decided to have the re-estimation once in two years. As part of that the groundwater resources was re-estimated for the state of Karnataka as on March 2017 using the Minor irrigation data on well census and the data collected by the district level officers of Ground Water Directorate, Government of Karnataka as the base data on an watershed basis. There are 234 watersheds, in the state. Further the assessed data was apportioned and presented on taluk as a administrative unit. There are 176 taluks in the 30 Districts of the State. The details of the Ground water Resource Estimations as on March 2013 & 2017 are given below.

**Table-4**

### **i. GROUND WATER RESOURCES OF KARNATAKA AS ON 2013 & 2017**

<b>Particulars</b>	<b>As on 2013</b>	<b>As on 2017</b>
Net Annual Groundwater Availability (HAM)	1483300	1479318
Existing Groundwaterdraft for Irrigation (HAM)	876343	938674
Existing Groundwaterdraft for domestic and Industrial water supply (HAM)	99215	94978
Existing Groundwaterdraft for all uses (HAM)	975558	1033652
Provision for domestic and industrial requirement supply for 2025	149124	113738
Net annual Groundwateravailability for future irrigation development (HAM)	608605	590260
Stage of Groundwaterdevelopment (%)	66	70

**Table-5****ii. CATEGORISATION OF ASSESSMENT UNIT AS ON MARCH 2013 & 2017**

<b>Taluk wise Category</b>	<b>Taluks as on 2013</b>	<b>Taluks as on 2017</b>
Over Exploited Taluks	43	45
Critical Taluks	14	8
Semi critical Taluks	21	26
Safe Taluks	98	97
<b>Total</b>	<b>176</b>	<b>176</b>

**Table-6****iii. OVER EXPLOITED TALUKS OF KARNATAKA AS PER GROUND WATER ASSESSMENT MARCH-2013 & 2017**

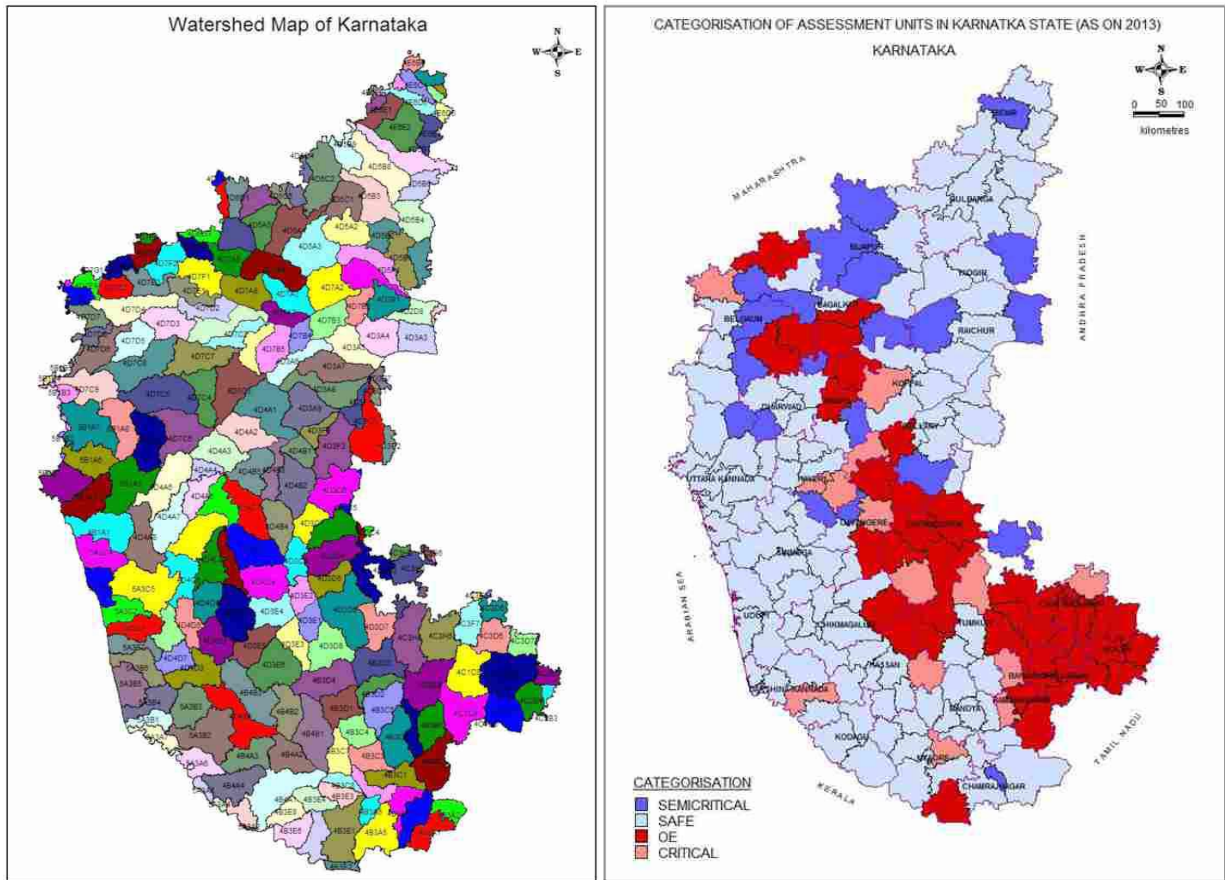
<b>Sl.No.</b>	<b>Districts</b>	<b>Over Exploited</b>	<b>% of GW Extraction As on 2013</b>	<b>% of GW Extraction As on 2017</b>
1	Bagalakote	Badami	160	151
		Bagalkote	158	145
2	Bangalore Rural	Devenhalli	130	110
		Dodaballapur	137	138
		Hoskote	138	136
		Nelamangala	126	110
3	Bangalore Urban	Anekal	134	149
		Bangalore East	134	155
		Bangalore North	131	134
		Bangalore South	188	140
4	Belgaum	Athani	116	109
		Ramdurg	139	125
		Saundatti	108	117
5	Bellary	H.B.Halli	103	110
6	Chamarajanagara	Gundlupet	140	127
7	Chikballapur	Bagepalli	95	110
		Chikballapur	146	146
		Chintamani	170	200
		Gauribidalur	176	213
		Gudibanda	161	199
		Sidlaghata	146	153
8	Chikmagalur	Kadur	104	115
9	Chitradurga	Chalkere	101	111
		Chitradurga	124	128
		Hirihuru	109	124

		Holalkere	137	161
		Hosadurga	98	118
10	Davangere	Channagiri	115	118
		Harpanahalli	114	115
		Jagalur	109	106
11	Gadag	Gadag	111	101
		Ron	118	121
12	Hassan	Arasikere	103	118
13	Kolar	Bangarpet	210	212
		Kolar	180	214
		Malur	189	198
		Mulbagal	210	207
		Srinivaspur	183	215
14	Ramanagar	Kanakapura	118	102
		Ranmanagara	143	105
15	Tumkur	Chikkanayakanahalli	153	114
		Koratagere	151	151
		Madhugiri	122	107
		Tipturu	125	125
		Tumkuru	119	115
<b>Total</b>		<b>45</b>	<b>43(OE)+2(C)</b>	<b>45</b>

The percentage of groundwater exploitation in the 43 over exploited taluks of the state is given in the above table. The map depicts the overall scenario of the state. The depleting resource and over exploitation as adversely affected the groundwater quality. Taking these inferences into account an attempt to understand the quality behavior of the groundwater is programmed.

**Map-8**

**Map-9**



## X. GROUND WATER QUALITY

In recent years, an increasing threat to Groundwater Pollution due to human activity has become of great importance. The adverse effects on groundwater quality are the result of man's activity at ground surface, unintentionally by agriculture, domestic and industrial effluents, unexpectedly by sub surface or surface disposal of sewage and industrial wastes. A Major problem in urbanised areas is the collection and disposal of domestic wastewater. Because a large volume of sewage is generated in small area, the waste cannot be adequately disposed off by conventional septic tanks and cesspools. Therefore, special disposal sites may be required to collect and dispose such wastes in densely populated areas.

The quality of ground water is the resultant of all the processes and reaction that have acted on the water from the moment it condensed in the atmosphere to the time it is discharged by a well. Therefore, the quality of ground water varies from place to place, with the depth of water table, and from season to season and is primarily governed by the extent and composition of dissolved solids present in it. The wide range of

contamination sources in one of the many factors contributing to the complexity of groundwater assessment. It is important to know the geochemistry of the chemical-soil-ground water interactions in order to assess the fate and impact of pollutant discharged on to the ground. Pollutants move through several different hydrologic zones as they migrate through the soil to the water table. The serious implication of this problem necessitates an integrated approach in explicit terms to undertake groundwater pollution monitoring and abatement programs.

The supply of ground water is not unlimited nor it is always available in good quality. In many cases, the abstraction of excessive quantities of ground water has resulted in the drying up of wells, salt-water intrusion and drying up of rivers that receives their flows in dry seasons from groundwater. Ground water quality is being increasingly threatened by agricultural, urban and industrial wastes, which leach or are injected into underlying aquifers. Once the pollution has entered the sub-surface environment, it may remain concealed for many years, becoming dispersed over wide areas and rendering ground water supplies unsuitable for human uses.

Ground water in several areas, where sewage is being discharged without proper treatment has been adversely affected by contaminants associated with sewage. Due to indiscriminate use of fertilizers, very high concentration of potassium and nitrate has been found in ground water at several places. Excessive constituents of nitrate in ground water which may originate from fertilizer or sewage or both, have been reported to the extent of several hundreds mg/L in various places. Groundwater pollution from some of industrial sources has reached alarming levels.

The problem of Ground water pollution in several part of the country has become so acute that unless urgent steps for detailed identification and abatement are taken, extensive groundwater resources may be damaged. Essentially all activities carried out on land have the potential to contaminate the ground water, whether associated with urban, industrial or agricultural activities. Large scale, concentrated source of pollution such as industrial discharges, landfills and sub-surface injection of chemicals and hazardous wastes are an obvious source of groundwater pollution. These concentrated sources can be easily detected and regulated but more difficult problem is associated with diffuse sources of pollution like leaching of agro-chemicals and animal wastes, sub-surface discharges from latrines and septic tanks and infiltration of polluted urban runoff. Diffuse sources can affect entire aquifers, which are difficult to control and treat. The only solution to diffuse source of pollution is to integrate land use with water management.

## **i. ABOUT PRESENT STUDY&METHODOLOGY:**

Ground water Chemical quality has become one of the important parameter due to spur in the Groundwater exploitation. Taking into total irrigation potential into account Ground water makes a major contribution. Special account of ground water quality is very essential and today much of the drinking water source rests on ground water.

The Ground water Directorate is monitoring 475 observation wells and 1257 observation bore wells in the state to monitor the ground water levels once in a month periodically by the Senior Geologist and Geologists working in the District Ground water offices established at the different district headquarters. They also collect the ground water samples from the drinking water bore wells located adjacent to the observation wells/Bore wells. It is designed to collect first as base sample during pre-monsoon season and analysed for fifteen parameters namely; Calcium (Ca), Magnesium (Mg), Sodium (Na), Potassium (K), Total Iron (Fe), Bicarbonate ( $\text{HCO}_3$ ), Carbonate ( $\text{CO}_3$ ), Chloride(Cl), Fluoride (F), Nitrate ( $\text{NO}_3$ ), Sulphate ( $\text{SO}_4$ ), Total Dissolved Solids (TDS), Specific Conductance (EC)  $\mu\text{mhos/cm}$ , Total Hardness (TH) and pH. The results are tabulated.

The parameters which are found above the permissible limit analysed in the pre-monsoon (Trend Samples) period chemical tests are conducted twice during post monsoon season in the month of November and February and results are tabulated.

The laboratory has adopted the Standard Methods for the examination of water and wastewater prepared and published by American Public Health Association, American Water Works Association and Water Environment Federation.

During the year 2018, totally 1498 ground water samples were collected and analysed by the Chemists in the chemical laboratories established by the Department of Mines and Geology at Bengaluru, Mysuru, Belagavi, Ballari, Dharwada, Chitradurga & Kalaburagi.

The important constituents namely, Fluoride, Nitrate, Total Iron and Total Hardness have been discussed as per the Drinking water specification-IS10500 : 2012 to know the suitability for drinking water and domestic purposes.

**Table-7**

<b>Sl. No.</b>	<b>Chemical parameters</b>	<b>Acceptable Limit mg/L</b>	<b>Permissible Limit mg/L</b>
1.	Nitrate	45	No Relaxation
2.	Fluoride	1.0	1.5
3.	Total Hardness	200	600

4.	Total Iron	0.30	No Relaxation
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These results are tabulated and are put to review with the site specific conditions i.e., over exploited, within the command area, in non-command area. The different chemical ingredients are further studied based on the excessive parameter and the potable cause for escalations with probable solutions and suggestions. The Districts Water Quality Data and Water Quality Maps of monitoring stations are shown in the Table No. 11 to 38.

## **ii. RESULTS & DISCUSSIONS**

Table-8 shows how ground water resources are getting contaminated. Out of 1498 samples analysed, 469 stations had Nitrate content, 157 stations had Total Iron further 133 monitoring stations had Fluoride content, 190 stations had Total Hardness beyond the Acceptable limit and Permissible limit of Indian Drinking Water Specifications respectively.

Results obtained from analysis of 1498 groundwater samples from the drinking water bore wells located adjacent to the observation wells/bore wells considered in this study. Characteristics of each parameter are discussed in the following paragraph. Location of monitoring stations across the state during the year 2018-19 are shown in Map-9.

### **Map – 9**

SAMPLES COLLECTED FROM MONITORING STATIONS DURING 2018-19

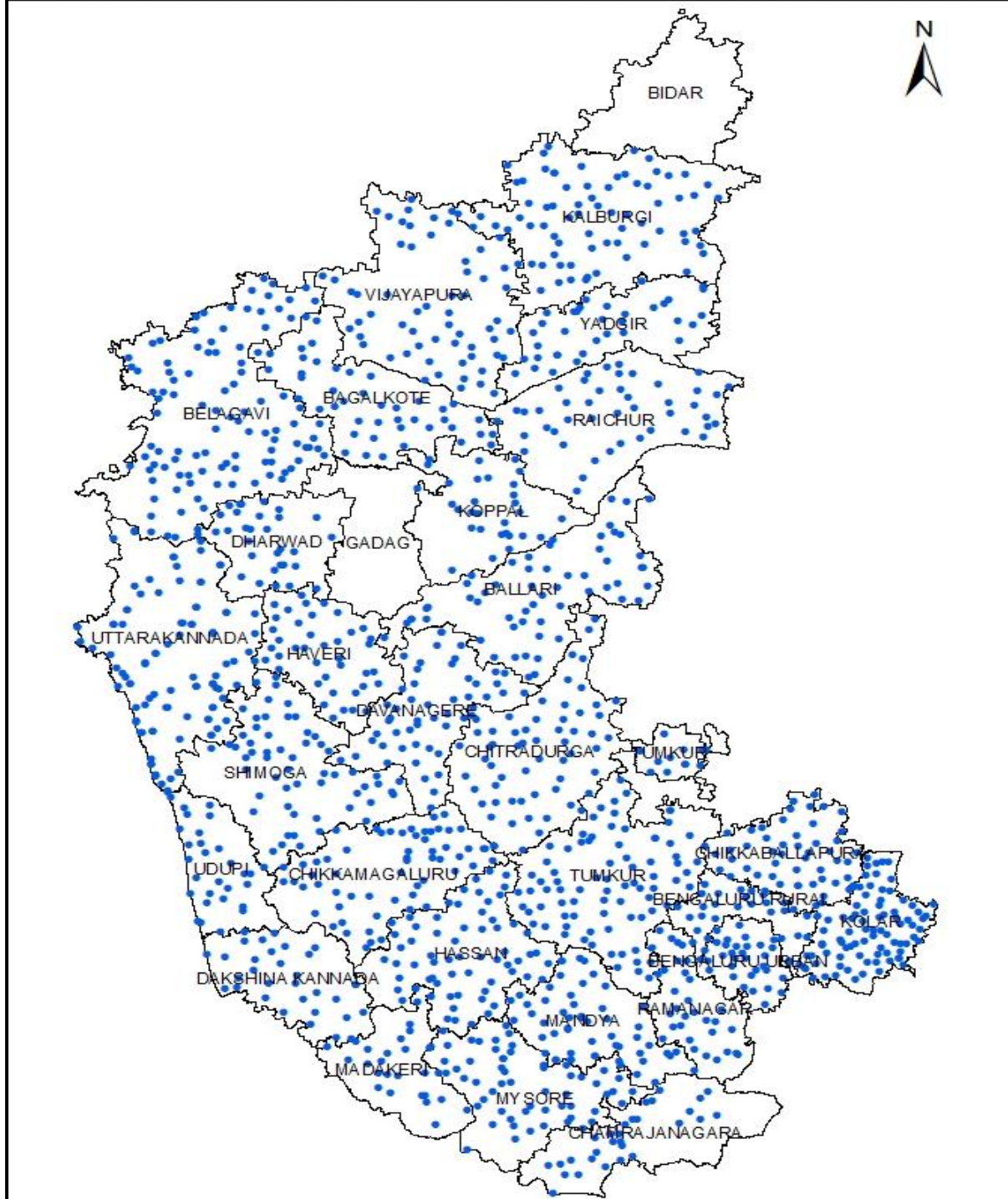


Table – 8



**STATEMENT SHOWING NUMBER OF WATER SAMPLES OF MONITORING STATIONS (DISTRICTWISE) HAVING CONCENTRATION OF PARAMETERS BEYOND THE PERMISSIBLE LIMITS OF INDIAN DRINKING WATER SPECIFICATIONS 10500: 2012 FOR THE YEAR 2018-19**

Sl.No.	District	Monitoring Stations	Fluoride (F) > 1.5 mg/L	Nitrate > 45 mg/L	Iron (Fe) > 0.30 mg/L	TH as CaCO <sub>3</sub> > 600 mg/L
1	Ballari	59	12	42	12	10
2	Bengaluru (U )	34	Nil	16	2	6
3	Bengaluru (R )	26	Nil	6	Nil	1
4	Belagavi	104	4	18	Nil	14
5	Bagalakote	47	9	1	Nil	7
6	Chitradurga	64	Nil	26	15	13
7	Chamarajanagara	30	1	13	6	10
8	Chikkaballapura	51	13	23	Nil	7
9	Chikkamagaluru	61	Nil	18	7	9
10	Dakshina Kannada	33	Nil	Nil	6	Nil
11	Davanagere	51	Nil	8	19	1
12	Dharawada	30	2	5	Nil	9
13	Haveri	41	Nil	2	Nil	8
14	Hassan	65	4	14	Nil	2
15	Kalaburagi	76	13	53	Nil	5
16	Kolar	89	3	26	4	8
17	Koppala	28	6	20	2	6
18	Kodagu	29	Nil	4	2	Nil
19	Mandya	53	5	24	11	9
20	Mysuru	59	Nil	32	6	18
21	Ramanagara	33	8	8	1	5
22	Raichur	45	14	35	24	7
23	Shivamogga	60	Nil	15	15	3
24	Tumakuru	94	14	16	6	12
25	Uttara Kannada	105	Nil	Nil	16	1
26	Udupi	28	Nil	Nil	3	Nil
27	Vijayapura	62	4	21	Nil	14
28	Yadagiri	41	21	23	Nil	5
<b>Total</b>		<b>1498</b>	<b>133</b>	<b>469</b>	<b>157</b>	<b>190</b>

**Table – 9**

**STATEMENT SHOWING NUMBER OF MONITORING STATIONS  
(DISTRICTWISE) AS BEYOND AND WITH IN THE PERMISSIBLE LIMITS OF  
INDIAN DRINKING WATER SPECIFICATIONS 10500: 2012**

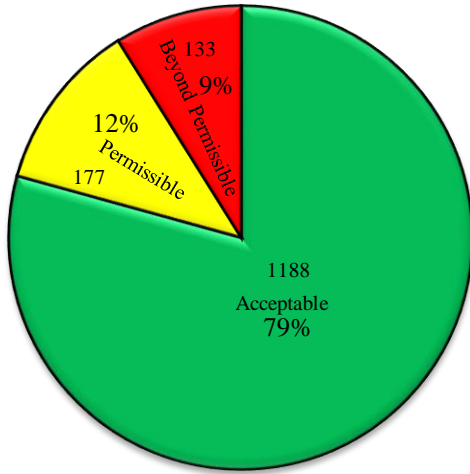
SL NO.	DISTRICT	MONITORING STATIONS	STATIONS BEYOND PERMISSIBLE LIMITS	STATIONS WITH IN PERMISSIBLE LIMITS
1	Ballari	59	50	09
2	Bengaluru (U )	34	24	10
3	Bengaluru (R )	26	06	20
4	Belagavi	104	21	83
5	Bagalakote	47	16	31
6	Chitradurga	64	40	24
7	Chamarajanagara	30	19	11
8	Chikkaballapura	51	33	18
9	Chikkamagaluru	61	25	36
10	Dakshina kannada	33	06	27
11	Davanagere	51	24	27
12	Dharawada	30	10	20
13	Haveri	41	08	33
14	Hassan	65	19	46
15	Kalaburagi	76	55	21
16	Kolar	89	34	55
17	Koppala	28	23	05
18	Kodagu	29	06	23
19	Mandya	53	31	22
20	Mysuru	59	39	20
21	Ramanagara	33	19	14
22	Raichur	45	41	04
23	Shivamogga	60	29	31
24	Tumakuru	94	31	63
25	Uttara Kannada	105	17	88
26	Udupi	28	03	25
27	Vijayapura	62	28	34
28	Yadagiri	41	34	07
<b>Total</b>		<b>1498</b>	<b>691</b>	<b>807</b>

Pie Diagram showing the number of Ground water samples within the

# Acceptable, Permissible & beyond the Permissible limits for F, NO<sub>3</sub>, Fe & TH

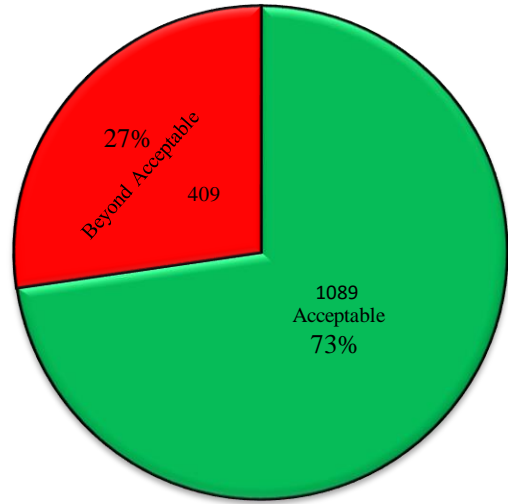
### Diagram-1

#### Fluoride



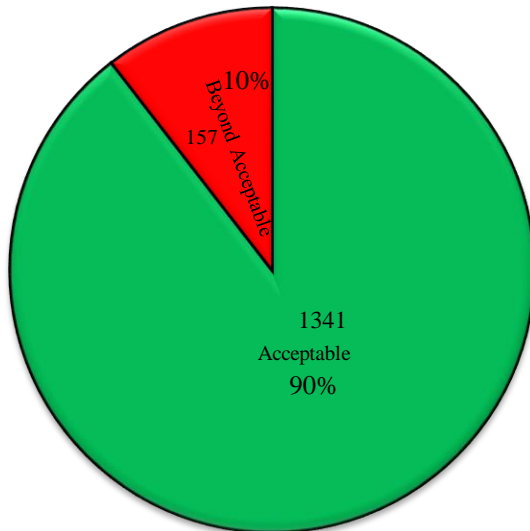
### Diagram-2

#### Nitrate



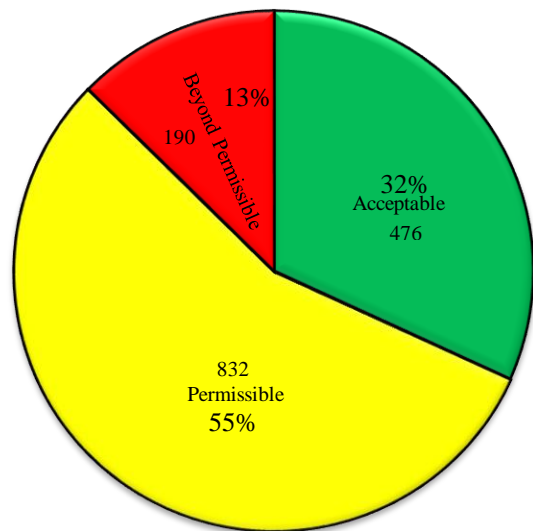
### Diagram-3

#### Iron



### Diagram-4

#### Total Hardness



**Table-10**

**Table showing the number of Ground water samples within the Acceptable, Permissible & beyond the Permissible limits for F, NO<sub>3</sub>, Fe & TH**

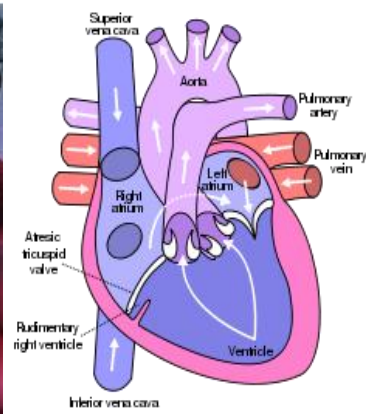
SL.No	No of Samples	F up to 1.00 mg/l	F >1.00-1.50 mg/l	F >1.5 mg/l	No <sub>3</sub> up to 45 mg/l	No <sub>3</sub> >45 mg/l	Fe up to 0.3 mg/l	Fe >0.3 mg/l	TH up to 200 mg/l	TH >200-600 mg/l	TH >600 mg/l
1	1498	1188	177	133	1089	409	1341	157	476	832	190
2	as %	79	12	9	73	27	90	10	32	55	13

### 1. Nitrate:

Nitrate is the most highly oxidized form of nitrogen compounds commonly present in natural waters. Significant sources of nitrate are chemical fertilizers, decayed vegetable, animal matter, domestic effluents, sewage sludge disposal to land, industrial discharge/leachate from refuse dumps and atmospheric washout. The Analysis of Nitrate is being carried out by using UV-Spectrophotometer. According to “Indian Standard Drinking Water Specification IS 10500:2012 the Acceptable limit of nitrate is 45 mg/L. As per the analysis results the highest nitrate content 788 mg/L found in Sagaramonitoring station of Shorapura Taluk, Yadagiri District.

Out of 1498 samples collected from the drinking water bore wells, the concentration of NO<sub>3</sub> is present in 1089 samples are within the Acceptable limit (73%), and the remaining 409 samples are beyond the Acceptable limit (27%). Nitrate constituent is present in the ground water due to anthropogenic activities and sewage & industrial effluents. The concentration of NO<sub>3</sub> is more during post-monsoon season as compared to the pre-monsoon season. This is mainly due to the application of manures/ fertilizers applied to the agricultural fields. It is also observed that the concentration of NO<sub>3</sub> is more during pre-monsoon season as compared to the post-monsoon season in the towns, cities, and industrial areas due to sewage and industrial effluents. Both surface and ground water if the concentration of NO<sub>3</sub> is beyond acceptable limits (>45 mg/l) may cause **Methaemoglobinaemia** in children. It is also called as **blue baby syndrome**.

Methaemoglobinemia in children

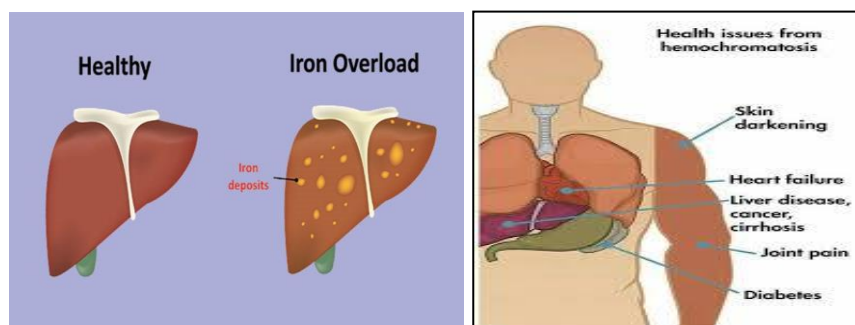


## 2. Iron:

Iron usually exists in natural water both in ferric and ferrous forms. The Analysis of Total Iron is being carried out through 1,10-Phenanthroline method by using Spectrophotometer. According to “Indian Standard Drinking Water Specification IS 10500:2012 the Acceptable limit of Total Iron is 0.3 mg/L. As per the analysis, result the highest total iron of 3.88 mg/L found in Kinnala monitoring station of Koppala Taluk, Koppala District.

The concentration of Fe is present in 1341 samples are within the Acceptable limit (90%), and the remaining 157 samples are beyond the Acceptable limit (10%). The concentration of iron in ground water may be due to the leaching of Fe bearing minerals present in the rock formations due to weathering and oxidation process. Laterite, Iron formations and associated ores in the mining areas where huge dumps of iron ore were placed in catchment areas may contain iron in both surface and ground water. During monsoon season the ground water levels rises to the shallow depth may contact with casing pipes, pump parts and pipe lines. Saline ground water may react with the casing pipes, pump parts and pipe lines and has tendency to acquire iron in turn which promotes iron bacteria. Iron in water causes staining of plumbing fixtures, staining of clothes during laundering, encrustation of well screens and plugging of pipes. Oxidation and leaching enriches the dissolved iron in groundwater. Iron bearing water promotes the growth of iron bacteria such as crenothrix, causes rusting and its consumption for long duration may leads to haemochromatosis.

### Haemochromatosis



## 3. Fluoride

Fluoride is present in natural waters in varied concentrations. According to “Indian Standard Drinking Water Specification IS 10500:2012 the acceptable limit of Fluoride 1.00 mg/L and permissible limit is 1.50 mg/L. The Analysis of Fluoride is being carried out through Ion Selective Electrode Method. As per the analysis results, the highest Fluoride of 5.29 mg/L found in Anchinala monitoring station, of Raichur Taluk, Raichur District.

The concentration of F is present in 1188 samples are within the Acceptable limit (79%), 177 number of samples are within the permissible limits (12%) and the remaining 133 samples are beyond the permissible limit (9%). The concentration of fluoride in ground water may be due to geogenic and Anthropogenic activities. The fluoride in ground water may be acquired from the leaching of fluoride minerals viz. Fluorite, Fluor-Apatite and Fluorspar which are commonly present in the Pegmatite veins intruded the Granites and Granitic gneissic rocks of Achaean age. It is also observed that the industrial effluents may also contain fluoride, which pollutes ground water aquifers. Exceeding the permissible limit (>1.5 mg/l) in ground water may be cause Fluorosis in human beings and exceeding 2 mg/l may cause Fluorosis in animals.

#### Dental Fluorosis



#### Skeletal Fluorosis



#### Fluorosis in Animals



#### 4. Total Hardness

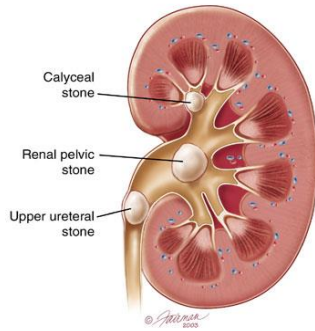
Hardness in water is due to natural accumulation of salts from contact with soil and geological formations or it may enter from direct pollution by industrial effluents. Calcium and Magnesium are the principal cations causing hardness. Both the calcium and magnesium ions and the corresponding bicarbonate sulphate, chloride and nitrate ions from these dissolved compounds will be found in the solution. Hardness can be temporary (carbonate) or permanent (non-carbonate). Temporary hardness is due to the presence of carbonates and bicarbonates of calcium and magnesium and can be removed by boiling the water. Permanent hardness is due to the presence of sulphates, chlorides and nitrates of calcium and magnesium. According to “Indian Standard Drinking Water Specification IS 10500:2012 the acceptable limit of total hardness 200 mg/L and permissible limit is 600 mg/L. The Analysis of Hardness is being carried out through EDTA-Titrimetric method: As per the analysis result the highest total hardness of 3480 mg/L found of Navalagunda station, Navalagunda taluk, Dharwad district.

The total hardness in ground water is present in 479 samples are within the Acceptable limit (32%), 832 number of samples are within the permissible limits (55%) and the remaining 190 samples are beyond the permissible limit (13%). The hardness in ground water is due to the geogenic and Anthropogenic activities. The ground water has contact with different Geological formations and allied soils. Sewage & industrial effluents may also contain more hardness. The hardness of water is mainly due to the concentration of calcium and carbonate. If the hardness is beyond permissible limit (>600 mg/l), there is possibility of encrustation of salts in the water supply pipes and ultimately damages the water supply system. Higher concentration of bicarbonate and Sulphate as the possible tendency of saturating more  $\text{CaCO}_3$ . It is also reported that the kidney stones and cardio vascular diseases are due to the higher concentration of hardness in ground water.

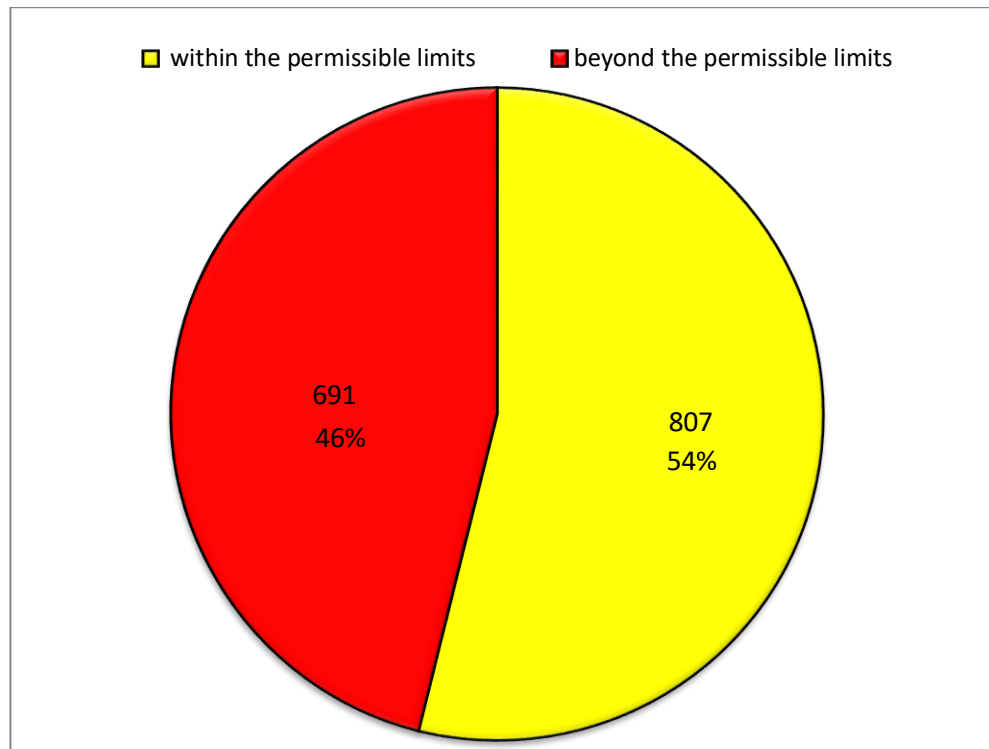
#### Encrustation of salts



## Kidney Stones



The diagram showing the ground water samples  
**Within the permissible limits and beyond the permissible limits**



The above bar diagram-5 shows that 807 samples are within the permissible limits (54%) which are potable and the remaining 691 samples are beyond the permissible limits (46%).



## XI. SUGGESTIONS AND RECOMMENDATIONS

Though the Ground water quality report as on 2018 is made on the basis of analysing the ground water samples collected from the drinking water bore wells located adjacent to the observation wells only, it is also suggested that the ground water samples are to be collected and analysed for each and every drinking water bore well.

The Government departments involved in providing public drinking water supply shall collect the ground water and surface water samples and subjected for chemical and biological analysis. Both ground water and surface water may be conjunctively used in order to dilute the concentration of chemical constituents, which leads to the potability. As per Indian drinking water specification IS10500 : 2012, the quality of water has to be classified and only potable water is to be supplied. The reverse osmosis plants are to be established for providing safe drinking water in quality affected areas.

### Reverse Osmosis plants established in Mysuru City



Roof top rainwater harvesting and ground water recharge methods are to be adopted for individual houses, apartments, commercial complexes, Govt buildings and schools. This is not only improves the ground water resource but also improves the ground water quality which leads to the potability of ground water.

As per the Dynamic Ground Water Resources of Karnataka as on March-2013, 43 Taluks were categorized as OVER EXPLOITED, 14 Taluks were categorized as CRITICAL, 21 Taluks were categorized as SEMI-CRITICAL and 98 Taluks were categorized as SAFE based on the percentage of ground water extraction. There is need of ground water recharge for the improvement of ground water resources and its quality in the 43 over exploited Taluks, 14 critical Taluks and 21 semi-critical Taluks on priority. The rain fed area in the safe taluks is also to be considered for ground water recharge where the ground water levels are 8mts below ground level. Different types of Rain water harvesting and ground water recharge structures are given below.

**Recharge shafts constructed by Ground water Directorate in Ramanagar District.**



**Roof top Rainwater Harvesting & Ground Water Recharge structures in ATI, Mysuru.**



**Roof top Rainwater Harvesting & Ground Water Recharge structures in Rural areas.**



**Ground Water Recharge structures in Stream course-Multi Arch Check Dams.**



## *Rainwater Harvesting & Ground Water Recharge structures in Agriculture Fields.*



Farm pond



Contour trenches



Nala bunds

### **Tips to protect and Conserve Groundwater.**

- 1. Go Native:** Use native plants in your landscape. They look great, and do not need much water or fertilizer. Also, choose grass varieties for your lawn that are adapted for your region's climate, reducing the need for extensive watering or chemical applications.
- 2. Reduce Chemical Use:** Use fewer chemicals around your home and yard and make sure to dispose of them properly - do not dump them on the ground.
- 3. Manage Waste:** Properly dispose of potentially toxic substances like unused chemicals, pharmaceuticals, paint, motor oil, and other substances. Many communities hold household hazardous waste collections or sites - contact your local health department to find one near to you.
- 4. Do not Let It Run:** Shut off the water when you brush your teeth or shaving, and do not let it run while waiting for it to get cold. Keep a pitcher of cold water in the fridge instead.
- 5. Fix the Drip:** Check all the faucets, fixtures, toilets, and taps in your home for leaks and fix them right away, or install water-conserving models.
- 6. Wash Smarter:** Limit yourself to just a five minute shower, and challenge your family members to do the same! Also, make sure to only run full loads in the dish and clothes washer.

7. **Water Wisely:** Water the lawn and plants during the coolest parts of the day and only when they truly need it. Make sure you, your family, and your neighbours obey any watering restrictions during dry periods.
8. **Reduce, Reuse, and Recycle:** Reduce the amount of "stuff" you use and reuse what you can. Recycle paper, plastic, cardboard, glass, aluminium and other materials.
9. **Natural Alternatives:** Use all natural/nontoxic household cleaners whenever possible. Materials such as lemon juice, baking soda, and vinegar make great cleaning products, are inexpensive, and environmentally friendly.

## **XII. GROUND WATER AWARENESS PROGRAMMES**

The Ground water Directorate is conducting ground water awareness programmes for school & college students, Govt Servants, Public and Farmers at District and Taluk levels. The ground water awareness programmes were inaugurated by the DC, CEO and the local elected representatives. Drawing & essay competitions were conducted and prizes and certificates were distributed to the students. Hand books and pamphlets containing ground water information were distributed to the participants. Subject Experts from different departments were invited and lecture courses were conducted. Ground water quality, Conservation, Rainwater harvesting and Ground water recharge, Karnataka Ground water Acts 1999, 2011 and Regulations 2012 were explained by the subject Experts with Power Point Presentation.

Ground Water Awareness Programme at GKVK, Bengaluru Dt during the year-2018-19



Ground Water Awareness Workshop at ZP Meeting Hall, Ramanagara Dt during the year-2018-19



Ground Water Awareness Workshop at ANS SIRD, Mysuru Dt during the year-2018-19



Ground Water Awareness Camps in Mysuru Dt during the year-2018-19



## Ground Water Awareness Camps in Bengaluru Dt during the year-2018-19



### XIII. CONCLUSION

Quality of any kind of water is most important for human & animal's consumption, agriculture purpose and industrial needs. The ground water samples collected from the 1498 observation wells/bore wells were analysed and discussed in the report to know the suitability for human consumptions as per Indian Drinking Water Specification IS10500 : 2012. Out of 1498 samples, 807 samples are within the acceptable and permissible limits are potable (54%) and 691 samples are beyond permissible limits (46%). The quality also depends upon the genesis of various chemical constituents from different Geological formations, soils, manures and fertilizers, sewage and industrial effluents. During the recent years there is a demand for ground water due to various developments in both agriculture and industrial sectors leads to the over exploitation of ground water may had adverse effect on the quality. Conjunctive use of both surface and ground water is recommended for drinking water supply in urban and rural areas. It is also suggested to install Reverse Osmosis plants in the quality-affected areas where ground water is the only source for drinking water supply. Rainwater harvesting and ground water recharge methods are to be adopted in Urban and Rural areas for the improvement of

ground water source and quality. Other ground water recharge structures are recommended to construct in the stream courses, tanks and agriculture fields for the management of aquifers.

# XIV.DistrictWater Quality Data and Quality Maps

**Table -11**  
**WATER QUALITY DATA OF BALLARI DISTRICT2018-19**

Sl. No	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well Code	Well ID
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L				
1	2	3	4	5	6	7	8	9	10	11	12
1	Ballari	Bellary	Aladahalli	0.18	0.12	217	400	15 7 50	76 52 43	30120	BL1
2	Ballari		Bellary	0.24	2.16	45	220	15 09 0	76 56 0	30103	BL2
3	Ballari		Burrnayakanahalli	0.08	0.96	143	280	15 03 30	76 57 30	30104	BL3
4	Ballari		Jolada Rashi	0.09	1.92	40	2084	15 08 19	77 05 45	30122	BL4
5	Ballari		Kammarchedu	0.05	1.02	31	420	15 03 20	77 02 40	30108	BL5
6	Ballari		Karachedu	0.15	0.43	35.5	640	15 18 50	77 03 20	30121	BL6
7	Ballari		Karekallu	1.14	4.05	90.50	160	30109	15 11 55	77 07 0	BL7
8	Ballari		Korlagundi	0.32	4.81	164.5	88	15 16 45	76 53 00	30111	BL8
9	Ballari		Kudutini	0.19	0.28	354	380	15 12 00	76 45 30	30110	BL9
10	Ballari		Kurugodu	0.76	1.27	37	152	15 21 00	76 50 30	30112	BL10
11	Ballari		Mooka	0.14	0.52	51.5	528	15 14 50	77 03 40	30115	BL11
12	Ballari		Somasamudra	0.17	1.07	345	1052	15 14 30	76 64 15	30119	BL12
13	Ballari	Hadagali	Hadagali	0.06	0.79	151	284	15 00 34	75 56 00	30204	HA1
14	Ballari		Girivapura	0.05	0.47	18	368	14 56 47	75 51 32	30203	HA2
15	Ballari		Hadagali	0.22	0.72	96.5	308	15.0167	75.9417	30204	HA3
16	Ballari		Hagaranuru	0.12	1.26	48.5	364	14.9450	75.8564	30211	HA4
17	Ballari		Hirehadagali	0.1	0.25	37	256	14.9250	75.8319	30206	HA5
18	Ballari		Holalu	0.2	0.76	34.5	720	14.8411	75.7133	30207	HA6
19	Ballari		Nagati Basapura	0.16	3.2	87	180	14.9458	75.9361	30210	HA7
20	Ballari	H.B.Halli	Anekllu	0	1.51	14	140	15 02 30	76 12 05	30502	HB1
21	Ballari		Byasigederi	0.1	2.05	48	144	15.0667	76.1611	30508	HB2
22	Ballari		H.B.Halli	0.09	0.14	7.9	340	15.0417	76.2014		HB3
23	Ballari		Pimhara Heggalu	0.14	0.91	81	208	15.1014	76.2444	30504	HB4
24	Ballari		Tambrahalli	0.07	0.4	300	656	15.1500	76.1444	30505	HB5
25	Ballari		Varadapura	0.15	1	20	116	15.1443	76.2999	30506	HB6
26	Ballari	Hospete	Dharmasagara	0.16	1.1	113	280	15.2333	76.5625	30404	HO1
27	Ballari		Hosapete	0.19	0.99	188	456	15.2750	76.3819	30405	HO2
28	Ballari		Kamalapura	0.21	0.24	14.5	184	15 18 30	76 28 25	30406	HO3
29	Ballari		Kampli	0.15	0.13	52	704	15 24 25	76 36 00	30412	HO4
30	Ballari		Ramasagara	0.2	0.35	51.5	256	15 22 35	76 34 40	30410	HO5
31	Ballari		Vadrahalli	0.43	0.61	34	284	15.2389	76.4667	30411	HO6
32	Ballari	Kudligi	Banavikallu	0.27	1.12	93.5	248	14 55 40	76 26 25	30601	KU1
33	Ballari		Gudekote	0.18	0.34	140	304	14 49 45	76 37 35	30622	KU2
34	Ballari		Gundumadgu	0.22	1.24	146	372	14.7175	76.5181	30618	KU3
35	Ballari		Hosahalli	0.39	0.27	176	428	14.6119	76.4731	30619	KU4
36	Ballari		Kotturu	0.7	0.84	50.5	460	14.8222	76.2181	30610	KU5
37	Ballari		Kudligi	0.23	0.57	92.5	268	14 54 10	76 23 35	30609	KU6
38	Ballari		Lokikere	0.18	1.23	40	132	14.6250	76.5025	30620	KU7
39	Ballari		M.B.Aiyyaanahalli	0.2	1.07	124	220	14.7292	76.4569	30613	KU8
40	Ballari		Nagara Hunase	0.72	2.04	66	400	14 50 55	76 31 25	30621	KU9
41	Ballari		Shanthanahalli	0.22	0.5	24	224	14.7208	76.3958	30617	KU10
42	Ballari		Shivapura	0.23	1.08	24.5	228	14.9556	76.3653	30616	KU11
43	Ballari		Ujjini	0.32	1.05	114	1204	14 43 20	76 17 20	30615	KU12



1	2	3	4	5	6	7	8	9	10	11	12
44	Ballari	Sandur	Bandri	0.15	0.4	59	316	14 59 25	76 27 15	30713	SA1
45	Ballari		Choranura	0.18	1.48	82	220	14 55 40	76 32 10	30714	SA2
46	Ballari		Navalahatti	0.24	0.11	32.5	340	15 01 30	76 37 55	30707	SA3
47	Ballari		Sandur	0.19	0.09	14	460	15.0875	76.5444	30708	SA4
48	Ballari		Somalapura	0.12	0.65	57.5	344	15 02 00	76 29 30	30709	SA5
49	Ballari		Susheelanagara	0.28	0.2	75	556	15.1361	76.4833	30703	SA6
50	Ballari		Taranagara	0.12	0.25	83	328	15.1284	76.6214	30710	SA7
51	Ballari		Toranagallu	0.17	2.03	131	480	15.1972	76.6792	30715	SA8
52	Ballari		Tumata Tanda	0.1	0.72	51.5	340	15 06 10	76 47 10	30712	SA9
53	Ballari	Siraguppa	Hacholli	0.16	1	305	716	15 38 20	77 54 30	30803	SG1
54	Ballari		Ittigahal	0.15	0.76	561	1320	15 38 10	77 06 5	30810	SG2
55	Ballari		Karuru	0.34	3.29	52	92	15 26 05	76 57 05	30805	SG3
56	Ballari		Raravi	0.33	0.75	354	1020	15 37 40	76 58 50	30806	SG4
57	Ballari		Siddarampura	0.23	0.27	88	268	15 25 45	76 51 10	30812	SG5
58	Ballari		Siruguppa	0.38	1.88	89	360	15 53 55	76 53 35	30808	SG6
59	Ballari		Tekkalakote	0.41	4.97	46	440	15 26 48	76 55 15	30809	SG7

	Alternate Source
	Not Potable

## **BALLARI DISTRICT**

During the year, 2018-19 water samples have been collected from 59 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-11. In respect of Total Iron, 12 stations (20%) viz., 3 samples from Bellari taluk, 1 station from Hospete taluk, 4 stations from Kudligi taluk and 4 stations from Siruguppa taluk contained Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary from nil to 1.14 mg/L. Karekallu station of Bellari taluk had maximum Total Iron content ( 1.14 mg/L).

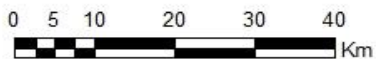
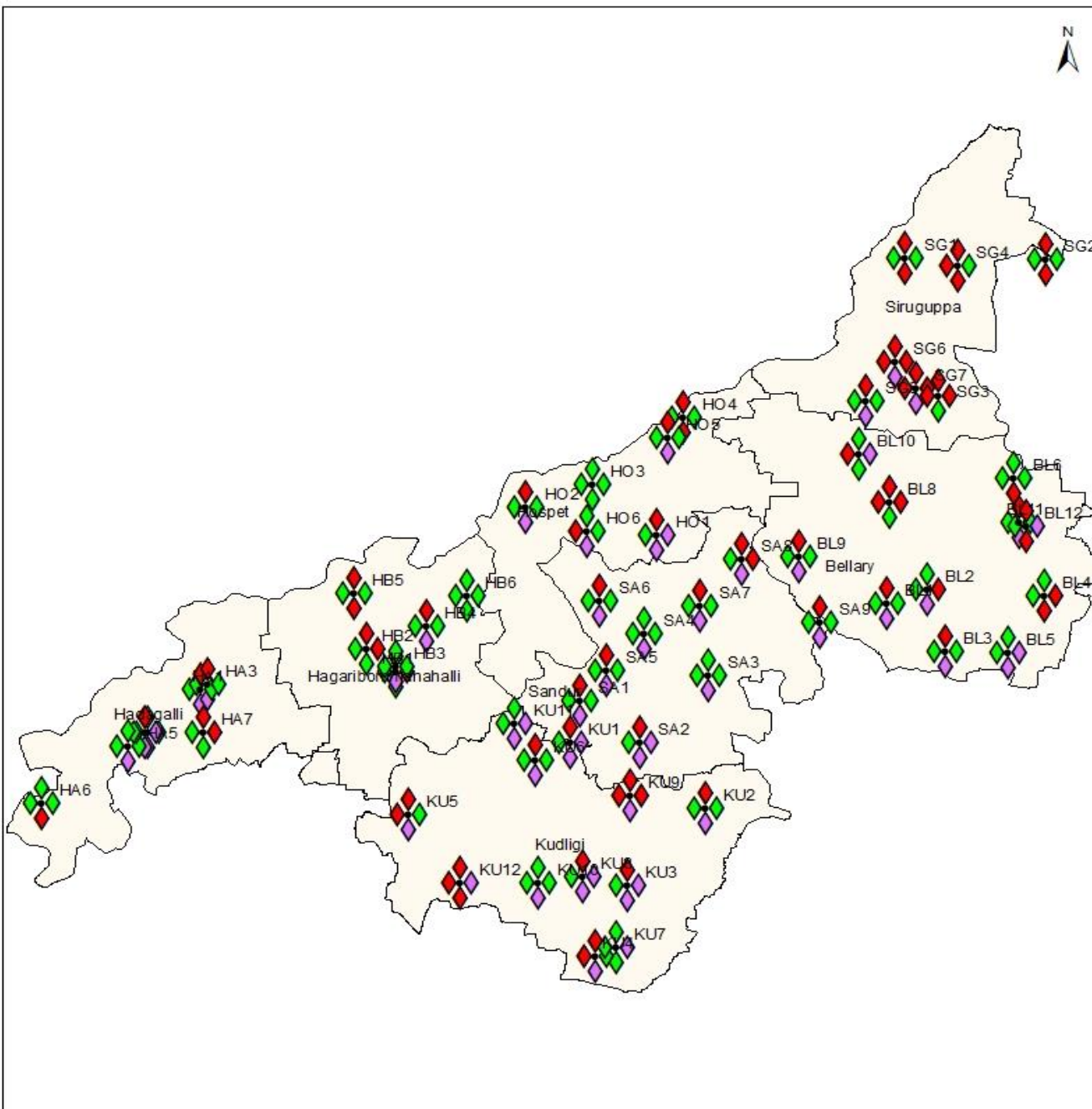
In respect of Fluoride, 12 stations (20%) viz., 4 stations from Bellari taluk, 1 station from Hadagali taluk, 2 stations from H.B.Halli taluk, 1 station from Kudligi taluk and 4 stations from Siruguppa taluk contained Fluoride content beyond the Permissible limit of Indian Drinking Water Specification. Fluoride concn. vary from 0.09 to 4.97 mg/L. Tekkalakote station of Siruguppa taluk had maximum Fluoride content (4.97 mg/L).

In respect of Nitrate, 42 stations (71%) viz., 7 stations from Bellari taluk, 4 stations from Hadagali taluk, 4 stations from H.B.Halli taluk, 4 stations from Hospete taluk, 9 stations from Kudligi

taluk, 7 stations from Sandur taluk and 7 stations from Siruguppa taluk contained Nitrate content beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary from 14 to 561 mg/L. Ittighal station of Siruguppa taluk had maximum Nitrate content (561 mg/L).

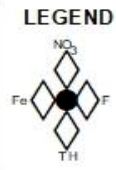
In respect of Total Hardness, 10 stations (17%) viz., 2 stations from Bellari taluk, 2 stations from Hadagali taluk, 1 station from H.B.Halli taluk, 1 station from Hospete taluk, 1 station from Kudligi taluk and 3 stations from Siruguppa taluk contained Total Hardness beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn.vary from 92 to 2084 mg/L. Jolada Rashi station of Bellari taluk had maximum Total Hardness content (2084 mg/L).

# WATER QUALITY DATA OF BALLARI DISTRICT



- POTABLE
- ALTERNATE
- NON-POTABLE

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600



**Table –12**  
**WATER QUALITY DATA OF BENGALURU URBAN DISTRICT 2018-19**

Sl. No.	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well Code	Well ID
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L				
1	2	3	4	5	6	7	8	9	10	11	12
1	Bengaluru (U)	Anekal	Anekal	0.02	0.26	50	608	12.7078	77.6958	10101	A1
2	Bengaluru (U)		Attibele	0.05	0.68	37	336	12.7750	77.7764	10103	A2
3	Bengaluru (U)		Jigani	0.03	0.16	88	504	12.7833	77.6333	10104	A3
4	Bengaluru (U)		Sarjapura	0.06	0.12	44	216	12.8583	77.7894	10107	A4
5	Bengaluru (U)		Bannerghatta	0.02	0.20	100	424	12.8083	77.5833	10105	A5
6	Bengaluru (U)		Chandapura	0.21	0.27	03	838	12.8014	77.7083	10108	A6
7	Bengaluru (U)		Kalkere	0.05	0.31	128	636	13 03 2.32	77.4028.8	11204	A7
8	Bengaluru (U)	Bangalore East	Doddakannahalli	0.02	0.31	40	364	12.9042	77.7028		BE1
9	Bengaluru (U)		Devarabeesanahalli	0.04	0.44	42	172	12.9311	77.6856		BE2
10	Bengaluru (U)		Mahadevapura	0.02	0.43	54	576	12.9903	77.6961		BE3
11	Bengaluru (U)		K.Narayapura	0.13	0.13	07	180	13 5 54	77 3831	11205	BE4
12	Bengaluru (U)		Avalahalli	0.07	0.24	47	820	13.0356	77.7372	10304	BE5
13	Bengaluru (U)		Manduru	0.03	0.23	57	392	13.0811	77.7394	10308	BE6
14	Bengaluru (U)	Bangalore South	Begur	0.05	0.26	58	388	12.8769	77.6253	10301	BS1
15	Bengaluru (U)		Marenahalli	0.49	0.36	01	336	12.9722	77.3611	10314	BS2
16	Bengaluru (U)		Thavarekere	0.03	0.47	15	364	12.9596	77.4020	10311	BS3
17	Bengaluru (U)		Kethohalli	0.04	0.44	92	364	12.9069	77.4053	10313	BS4
18	Bengaluru (U)		Talaghattapura	0.02	0.32	66	416	12.8667	77.5333	10307	BS5
19	Bengaluru (U)		HSR Layout	0.03	0.37	4	360	12.9081	77.6475		BS6
20	Bengaluru (U)		Pattanagere (R.R.Nagar)	0.05	0.26	6	356	12.55 44.95 44	77.312.40 24	10316	BS7
21	Bengaluru (U)	Bangalore North	Adakimaranahalli	0.08	0.34	35	464	13.0653	77.4453	10215	BN1
22	Bengaluru (U)		Byadarahalli	0.10	0.44	33	828	12.9918	77.4784	10204	BN2
23	Bengaluru (U)		High Court	0.03	0.26	28	332	12.9781	77.5931		BN3
24	Bengaluru (U)		Rajanukunte	0.05	0.12	53	500	13.1665	77.5611	10210	BN4
25	Bengaluru (U)		Chikkabanavara	0.04	0.27	21	716	13.0831	77.5014	10206	BN5
26	Bengaluru (U)		Sondekoppa	0.08	0.30	58	504	13.0219	77.3850	10213	BN6
27	Bengaluru (U)		Thimmenahalli	0.03	0.38	28	340	12.9764	77.5361	10201	BN7
28	Bengaluru (U)		Thotagere	0.08	0.39	5	308	13.1361	77.4444	10214	BN8
29	Bengaluru (U)		Yelahanka	0.05	0.16	118	320	13.0997	77.5922		BN9
30	Bengaluru (U)		Bagalagunte	0.39	0.22	56	364	13.0531	77.4956		BN10
31	Bengaluru (U)		Jalahalli	0.05	0.13	105	308	13.0424	77.5492		BN11
32	Bengaluru (U)		Laggere	0.09	0.46	27	312	13.0094	77.5253		BN12
33	Bengaluru (U)		Hebbal Kempapura	0.05	0.10	73	152	13.0488	77.6040		BN13
34	Bengaluru (U)		Sadashivnagar	0.09	0.16	16	116	13.0067	77.5811		BN14

	Alternate Source
	Not Potable

## **BENGALURU URBAN DISTRICT**

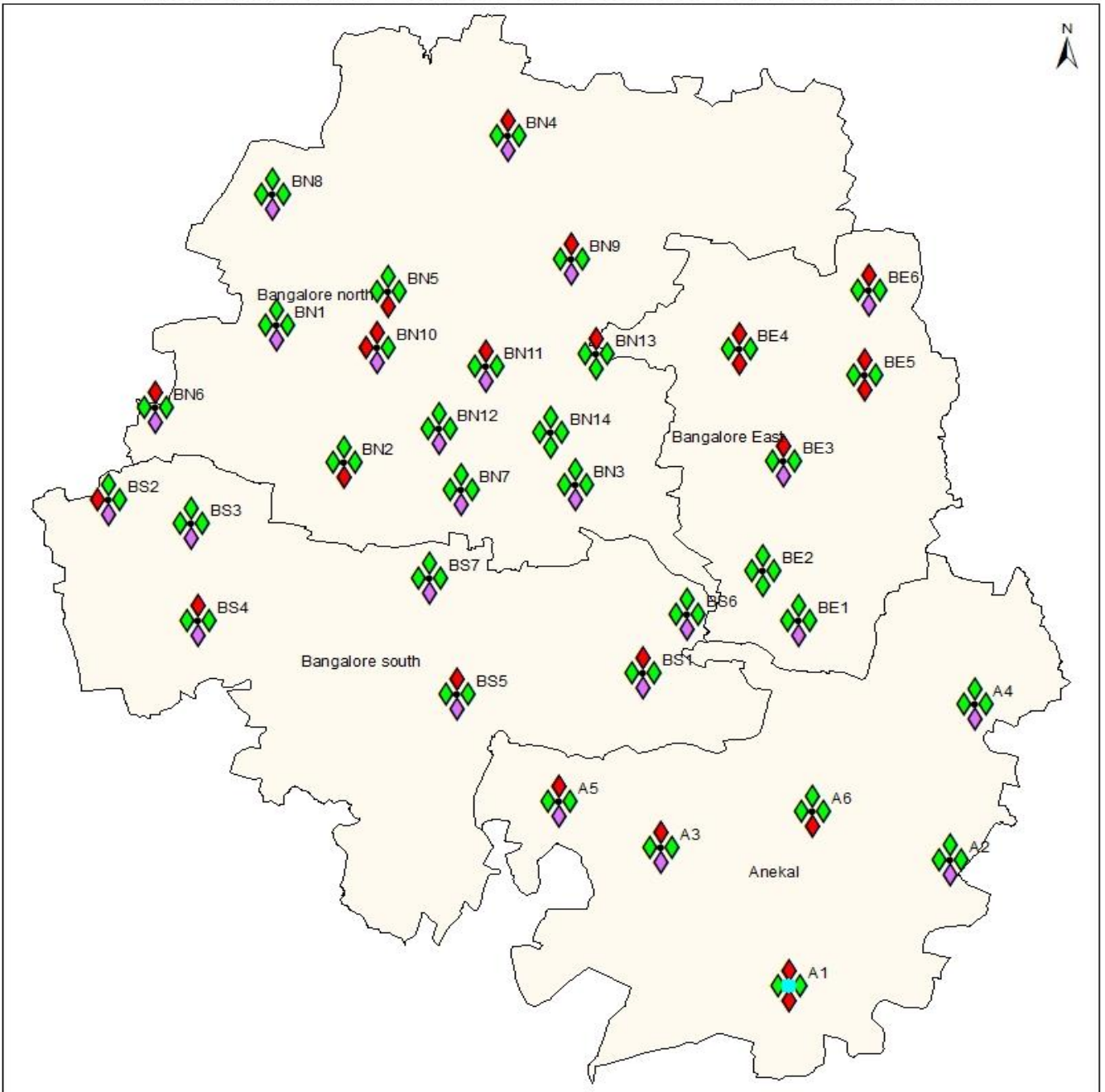
Water samples have been collected from 34 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-12. In respect of Total Iron, 2 stations (06%) viz., 1 station from Bengaluru South Taluk and 1 station from Bengaluru North contained Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary from 0.02 to 0.49 mg/L. Marenahalli station of Bengaluru South Taluk had maximum Total Iron content (0.49 mg/L).

In respect of Fluoride, no stations contained Fluoride content beyond the Permissible limit of Indian Drinking Water Specification. Fluoride concn. vary between 0.02 to 0.68 mg/L.

In respect of Nitrate, 16 stations (47%) viz., 4 stations from Anekal Taluk, 3 stations from Bengaluru East taluk, 3 stations from Bengaluru South taluk and 6 stations from Bengaluru North taluk contained Nitrate content beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary from 01 to 128 mg/L. Kalkere station of Anekal taluk had maximum Nitrate content (128 mg/L).

In respect of Total Hardness, 6 stations (17%) viz., 3 stations from Anekal taluk, 1 station from Bengaluru East taluk and 2 stations from Bengaluru North taluk contained Total Hardness beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn. vary from 116 to 838 mg/L. Chandapura station of Anekal taluk had maximum Total Hardness content (838 mg/L).

# WATER QUALITY DATA OF BENGALURU URBAN DISTRICTS



POTABLE

ALTERNATE

NON-POTABLE

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600

LEGEND

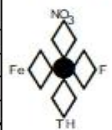


Table - 13

## WATER QUALITY DATA OF BENGALURU RURAL DISTRICT 2018-19

Sl No	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well Code	Well ID
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L				
1	2	3	4	5	6	7	8	9	10	11	12
1	Bengaluru (R)	Devanahalli	Jyothipura	0.08	0.96	10	176	13.2925	77.6286	10505	DE1
2	Bengaluru (R)		Kodagurki	0.10	0.76	39	120	13.2992	77.7011	10501	DE2
3	Bengaluru (R)		Devanahalli	0.09	0.28	153	592	13.2458	77.7283	10503	DE3
4	Bengaluru (R)		Dinnuru	0.07	0.71	06	144	13.2528	77.8014	10507	DE4
5	Bengaluru (R)		Mudiganahalli	0.05	0.43	18	88	13.3394	77.6884	10509	DE5
6	Bengaluru (R)		Vijayapura	0.27	0.17	0.18	132	13.2950	77.7972	10502	DE6
7	Bengaluru (R)	Doddaballapur	Bhaktharahalli	0.11	0.38	46	536	13.3556	77.3708	10602	DB1
8	Bengaluru (R)		Doddaballapur	0.06	0.26	31	592	13.2761	77.5542	10616	DB2
9	Bengaluru (R)		Kattihosahalli	0.05	0.26	71	432	13.2794	77.3797	10608	DB3
10	Bengaluru (R)		Vanigarahalli	0.04	0.20	03	200	13.3486	77.4542	10615	DB4
11	Bengaluru (R)		Kanasawadi	0.04	0.20	02	192	13.2068	77.4397	10607	DB5
12	Bengaluru (R)		Melekote	0.07	0.60	35	492	13.3633	77.6256	10610	DB6
13	Bengaluru (R)		Naranahalli	0.12	0.26	03	164	13.2906	77.4408	10620	DB7
14	Bengaluru (R)		Rajaghatta	0.05	0.74	03	200	13.3261	77.5950	10612	DB8
15	Bengaluru (R)		Tubugere	0.04	0.20	97	320	13.3708	77.5708	10614	DB9
16	Bengaluru (R)	Hosakote	Anugondanahalli	0.05	0.30	36	212	12.9564	77.8164	10703	HO1
17	Bengaluru (R)		Channapura	0.06	0.60	1	168	13.1067	77.8678	10707	HO2
18	Bengaluru (R)		Hindiganalu	0.08	0.57	45	448	13.2208	77.9164	10713	HO3
19	Bengaluru (R)		Upparahalli	0.05	0.46	20	264	13.0900	77.7814	10721	HO4
20	Bengaluru (R)		Hosakote	0.04	0.36	204	840	12.9557	77.8203	10722	HO5
21	Bengaluru (R)	Nelamangala	Thyamagondlu	0.02	0.55	111	512	13.2167	77.3025	11011	NE1
22	Bengaluru (R)		Narasipura	0.03	0.90	36	280	13.2725	77.2450	11007	NE2
23	Bengaluru (R)		Thonachinakuppe	0.04	0.30	16	252	13.1400	77.3483	11001	NE3
24	Bengaluru (R)		Nelamangala	0.02	0.36	14	400	13.0947	77.4025	11008	NE4
25	Bengaluru (R)		Sasalu	0.07	0.46	39	340	13.4083	77.3875		NE5
26	Bengaluru (R)		Mahadevapura	0.05	0.54	30	312	13.0658	77.3200		NE6

	Alternate Source
	Not Potable

**BENGALURU RURALDISTRICT**

Water samples have been collected from 26 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-13. In respect of Total Iron, no stations

contained Total Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary from 0.02 to 0.27 mg/L.

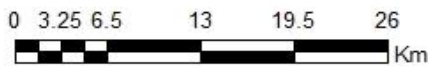
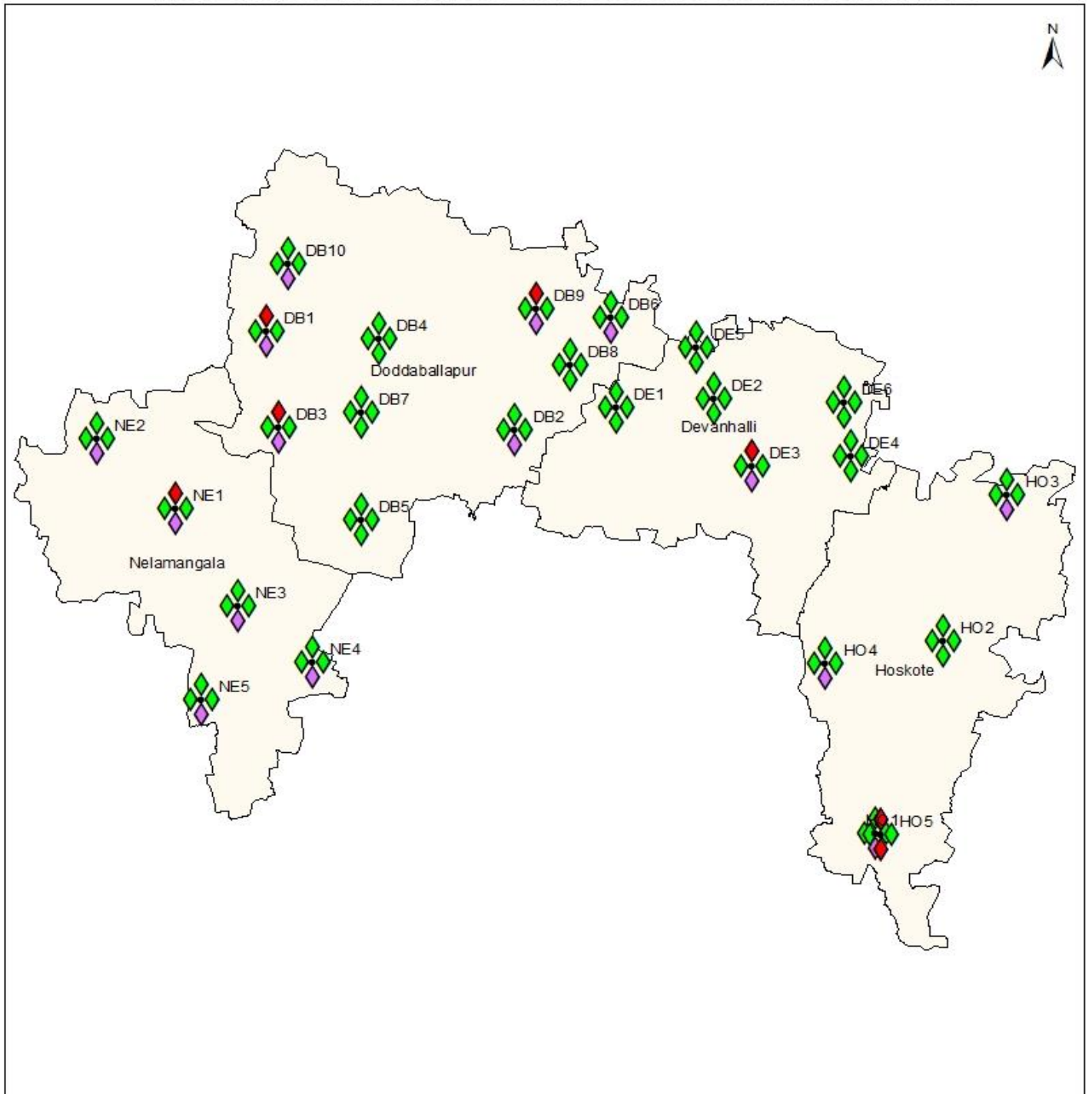
In respect of Fluoride, no stations contained Fluoride content beyond the Permissible limit of Indian Drinking Water Specification. Fluoride vary from 0.17 to 0.96 mg/L.

In respect of Nitrate, 6 stations (23%) viz., 1 station from Devanahalli taluk, 3 stations from Doddaballapura taluk, 1 station from Hosakote taluk and 1 station from Nelamangala taluk content Nitrate concent beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary from 0.18 to 204 mg/L. Hoskote station of Hoskote taluk had maximum Nitrate content (204 mg/L).

In respect of Total Hardness, 1 station (4 %) viz., Hoskote of Hoskote taluk contained Total Hardness beyond the Permissible limit (840 mg/L) of Indian Drinking Water Specification. Total Hardness concn. vary from 88 to 840 mg/L.



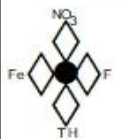
# WATER QUALITY DATA OF BENGALURU RURAL DISTRICTS



- POTABLE
- ALTERNATE
- NON-POTABLE

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600

### LEGEND



**Table –14**  
**WATER QUALITY DATA OF BELAGAVI DISTRICT 2018-19**

SI No	District	Taluk	Village	Concentration in mg/L					Longitude	Well Code	Well ID
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L	Latitude			
1	2	3	4	5	6	7	8	9	10	11	12
1	Belagavi	Athani	Budachi	0.1	0.44	56	564	16.7372	75.1492	20105	AT1
2	Belagavi		Radderhatti	0.2	0.69	64	632	16.6367	75.0797	20106	AT2
3	Belagavi		Kagawad	0.2	0.82	26	332	16.6950	74.7186	20107	AT3
4	Belagavi		Telsang	0.1	0.66	112	884	16.7914	75.3400	20108	AT4
5	Belagavi		Adahalli	0.2	0.28	26	320	16.7920	75.2108	20111	AT5
6	Belagavi		Malabad	0.2	0.42	34	460	16.8839	75.1186	20114	AT6
7	Belagavi		Kakkamari	0.2	0.56	66	636	16.8656	75.2978	20112	AT7
8	Belagavi		Kokatanur	0.2	0.62	74	784	16.6889	75.2183	020113A	AT8
9	Belagavi		Jambagi	0.1	0.44	32	468	16.8442	75.0075	020116A	AT9
10	Belagavi		Gundewadi	0.2	0.38	40	520	16.8170	75.0942	020109B	AT10
11	Belagavi		Athani	0.1	0.48	72	560	16.7233	75.0575	20101	AT11
12	Belagavi		Murgundi	0.1	0.66	94	792	16.7403	74.9861	20102	AT12
13	Belagavi		Navalihal	0.2	0.72	220	1400	16.7456	74.9011	20103	AT13
14	Belagavi		Shedbal	0.1	0.41	30	388	16.7175	74.7534	20104	AT14
15	Belagavi		Shiraguppi	nil	0.52	22	288	16.6183	74.7106	20110	AT15
16	Belagavi		Ananthpur	0.1	0.68	38	520	16.9178	75.0753	20115	AT16
17	Belagavi	Bailhongala	Bailhongal	0.1	0.44	18	240	15.8214	74.8572	20202	BA1
18	Belagavi		Sampagaon	0.1	0.78	20	192	15.7950	74.7556	020203A	BA2
19	Belagavi		Sutagatti	0.2	0.38	10	216	15.8903	74.7233	20208	BA3
20	Belagavi		Chikkabagewadi	0.1	0.74	20	316	15.7722	74.6834	20214	BA4
21	Belagavi		Belavadi	0.2	0.54	40	448	15.7189	74.9161	20201	BA5
22	Belagavi		Sangolli	0.1	0.48	58	560	15.7183	74.8342	020204B	BA6
23	Belagavi		M.K.Hubli	0.2	0.52	20	316	15.7253	74.6945	020207A	BA7
24	Belagavi		Ambadagatti	0.1	0.82	12	172	15.6383	74.7359	20206	BA8
25	Belagavi		Nesargi	0.1	0.92	82	704	15.9079	74.7740	20209	BA9
26	Belagavi		Kittur	0.2	0.84	28	368	15.5809	74.7676	20205	BA10
27	Belagavi		Bailur	0.1	0.64	34	468	15 33 .04N	74 43 11.07E	20212	BA11
28	Belagavi	Belagavi	Peeranawadi	0.2	0.18	16	148	15.8036	74.4822	20301	BE1
29	Belagavi		Yamunapur	0.2	0.24	22	224	15.9106	74.5242	20302	BE2
30	Belagavi		Khanagaon	0.1	0.22	16	156	15.9124	74.6265	20303	BE3
31	Belagavi		Hindwadi	0.1	0.24	8	112	15.8342	74.5059	20304	BE4
32	Belagavi		Sulaga	0.1	0.16	8	88	15.8770	74.4531	20305	BE5
33	Belagavi		Yalabail	0.1	0.14	8	80	15.8256	74.3733	20307	BE6
34	Belagavi		Sambra	0.1	0.18	24	300	15.8678	74.6097	20311	BE7
35	Belagavi		Desur	0.2	0.46	12	140	15.7422	74.4986	20314	BE8
36	Belagavi		Halaga	0.1	0.34	17	168	15.8220	74.5586	20313	BE9
37	Belagavi		Hirebagewadi	0.2	0.62	32	428	15.7761	74.6372	20308	BE10
38	Belagavi	Kadoli	0.1	0.54	22	216	15.9381	74.4878	20309	BE11	
39	Belagavi	Chikkodi	Kharoshi	0.1	0.71	30	312	16.3664	74.5789	20401	CH1
40	Belagavi		Gavani	0.1	1.04	18	196	16.3725	74.4072	20403	CH2
41	Belagavi		Nagaramunavalli	0.2	0.34	96	740	16.3642	74.6817	020404A	CH3
42	Belagavi		Sadalaga	0.1	0.38	20	208	16.5517	74.5297	020408A	CH4
43	Belagavi		Chikkodi	0.1	0.46	22	264	16.4236	74.5714	20410	CH5
44	Belagavi		Bidakihal	0.1	0.58	40	516	16.5395	74.4845	20411	CH6
45	Belagavi		Yamagarani	0.2	0.34	30	360	16.4481	74.3586	020405A	CH7
46	Belagavi		Nippani	0.1	0.46	20	260	16.3972	74.3786	20406	CH8
47	Belagavi		Chinchani	0.1	0.26	28	344	16.1819	74.7504	20402	CH9

1	2	3	4	5	6	7	8	9	10	11	12
48	Belagavi	Gokak	Kallehole	0.2	0.46	26	396	16.2653	74.8681	20507	GK1
49	Belagavi		Naganur	0.1	0.54	22	216	16.3061	74.9142	20508	GK2
50	Belagavi		Betageri	0.2	1.04	32	380	16.1456	74.9786	020506A	GK3
51	Belagavi		Gokak	0.2	0.96	40	484	16.1505	74.8275	020509A	GK4
52	Belagavi		Yadwad	0.1	2.56	120	912	16.2389	75.1783	020511B	GK5
53	Belagavi		Koujalagi	0.2	0.72	24	292	16.2039	75.0581	020502B	GK6
54	Belagavi		K.Hosuru	0.2	0.48	22	260	16.0458	74.8259	020503A	GK7
55	Belagavi		Chikkanandi	0.1	0.74	28	420	16.0887	74.9444	20811	GK8
56	Belagavi		Gurlapur	0.1	0.48	36	432	16.3706	74.9539	20510	GK9
57	Belagavi		Benchinmaradi	0.2	1.44	36	428	16 06 54.01N	74 125.02E		GK10
58	Belagavi	Hukkeri	Hukkeri	0.2	0.96	26	320	16.2364	74.6028	20601	HK1
59	Belagavi		Yadgud	0.2	0.66	38	456	16.3214	74.6047	20606	HK2
60	Belagavi		Nerli	0.1	0.24	8	56	16.2536	74.5475	20602	HK3
61	Belagavi		Hattaragi	0.1	0.42	38	472	16.1292	74.5156	020604A	HK4
62	Belagavi		Hebbal	0.1	0.32	20	204	16.2161	74.5195	20603	HK5
63	Belagavi		Sankeshwar	0.1	0.28	20	224	16.2539	74.4881	20607	HK6
64	Belagavi	Khanapura	Kumbarda	0.1	0.18	20	180	15.4222	74.5739	20703	KN1
65	Belagavi		Gunji	0.1	0.24	6	64	15.5361	74.4914	20710	KN2
66	Belagavi		Parishwad	0.2	0.22	22	212	15.6904	74.6210	20707	KN3
67	Belagavi		Beedi	0.1	0.28	6	60	15.5625	74.6481	20711	KN4
68	Belagavi		Linganamath	0.1	0.38	32	440	15.4567	74.7325	20701	KN5
69	Belagavi		Khanapur	0.2	0.22	12	144	15.6358	74.5056	20705	KN6
70	Belagavi		Nagarali	0.2	0.21	24	240	15.4147	74.6139	20702	KN7
71	Belagavi		Londa	0.2	0.16	11	100	15.4456	74.4900	20704	KN8
72	Belagavi	Raibhag	Yadravi	0.2	0.45	82	656	16.5183	74.7283	20903	RB1
73	Belagavi		Raibag	0.1	0.38	34	440	16.4878	74.7806	020905A	RB2
74	Belagavi		Harugeri	0.1	0.26	32	380	16.5150	74.9500	20909	RB3
75	Belagavi		Bammanahal	0.2	0.4	22	268	16.4844	74.8195	020910A	RB4
76	Belagavi		Kudachi	0.1	0.42	30	348	16.6214	74.8564	020904A	RB5
77	Belagavi		Biradi	0.2	0.62	190	1512	16.5486	74.8011	020906A	RB6
78	Belagavi		Mugalkod	0.1	0.28	18	220	16.4292	74.9589	20911	RB7
79	Belagavi	Ramdurga	Hallolli	0.1	0.64	30	420	15.9633	75.2494	20802	RM1
80	Belagavi		Salahalli	0.1	0.46	30	432	16.0720	75.2325	020804A	RM2
81	Belagavi		Huligoppa	0.1	0.22	10	92	15.9322	75.3608	20806	RM3
82	Belagavi		Ramdurg	0.2	0.42	26	364	15.9417	75.3011	20812	RM4
83	Belagavi		Chinchakandi	0.1	0.48	22	320	15.9345	75.3169	20811	RM5
84	Belagavi		Mudenur	0.1	0.68	32	444	15.9897	75.3420	020803A	RM6
85	Belagavi		K.Chandargi	0.2	0.56	64	544	16.0400	75.1422	20801	RM7
86	Belagavi		Chinchanur	0.1	0.72	26	320	15.9236	75.1192	020809A	RM8
87	Belagavi		Sureban	0.2	0.42	98	828	15.8936	75.3939	020810B	RM9
88	Belagavi		Batakurki	0.1	0.62	22	256	16.0772	75.3692	020807A	RM10
89	Belagavi		Katakol	0.2	0.54	36	496	15.9836	75.1361	20805	RM11
90	Belagavi		Hoskote	0.1	1.02	34	472	16.1659	75.2656	20813	RM12

1	2	3	4	5	6	7	8	9	10	11	12
91	Belagavi	Savadathi	Inamhongal	0.2	3.28	20	320	15.6270	75.0775	21001	SA1
92	Belagavi		Savadatti	0.2	0.74	22	360	15.7731	75.1128	021006A	SA2
93	Belagavi		Karikatti(Asundi)	0.3	1.08	74	700	15.7287	75.0291	21011	SA3
94	Belagavi		Munavalli	0.1	0.46	18	176	15.8522	75.1178	21014	SA4
95	Belagavi		Gondi	0.2	0.62	22	336	15.8514	75.0864	21019	SA5
96	Belagavi		Yaraganavi	0.2	1.82	22	320	16.0267	75.0009	21008	SA6
97	Belagavi		Korakoppa	0.2	1.08	28	412	16.0222	75.0859	21007	SA7
98	Belagavi		Sirasangi	0.1	0.48	40	512	15.8653	75.2592	21004	SA8
99	Belagavi		Hulikatti	0.1	0.34	18	188	15.8175	75.2228	21016	SA9
100	Belagavi		Harlapur	0.2	0.68	22	272	15.7550	75.1778	21017	SA10
101	Belagavi		Hosuru	0.1	1.58	28	403	15.8164	74.9256	21015	SA11
102	Belagavi		Murgod	0.3	0.34	22	320	15.8870	74.9278	21002	SA12
103	Belagavi		Hooli	0.2	0.64	24	340	15.7931	75.1931	21003	SA13
104	Belagavi		Murakumbi	0.2	0.48	86	660	15.8447	74.8817	21005	SA14

	Alternate Source
	Not Potable

## **BELAGAVI DISTRICT**

Water samples have been collected from 104 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-14. In respect of Total Iron, no stations contained Total Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary from 0.02 to 0.27 mg/L.

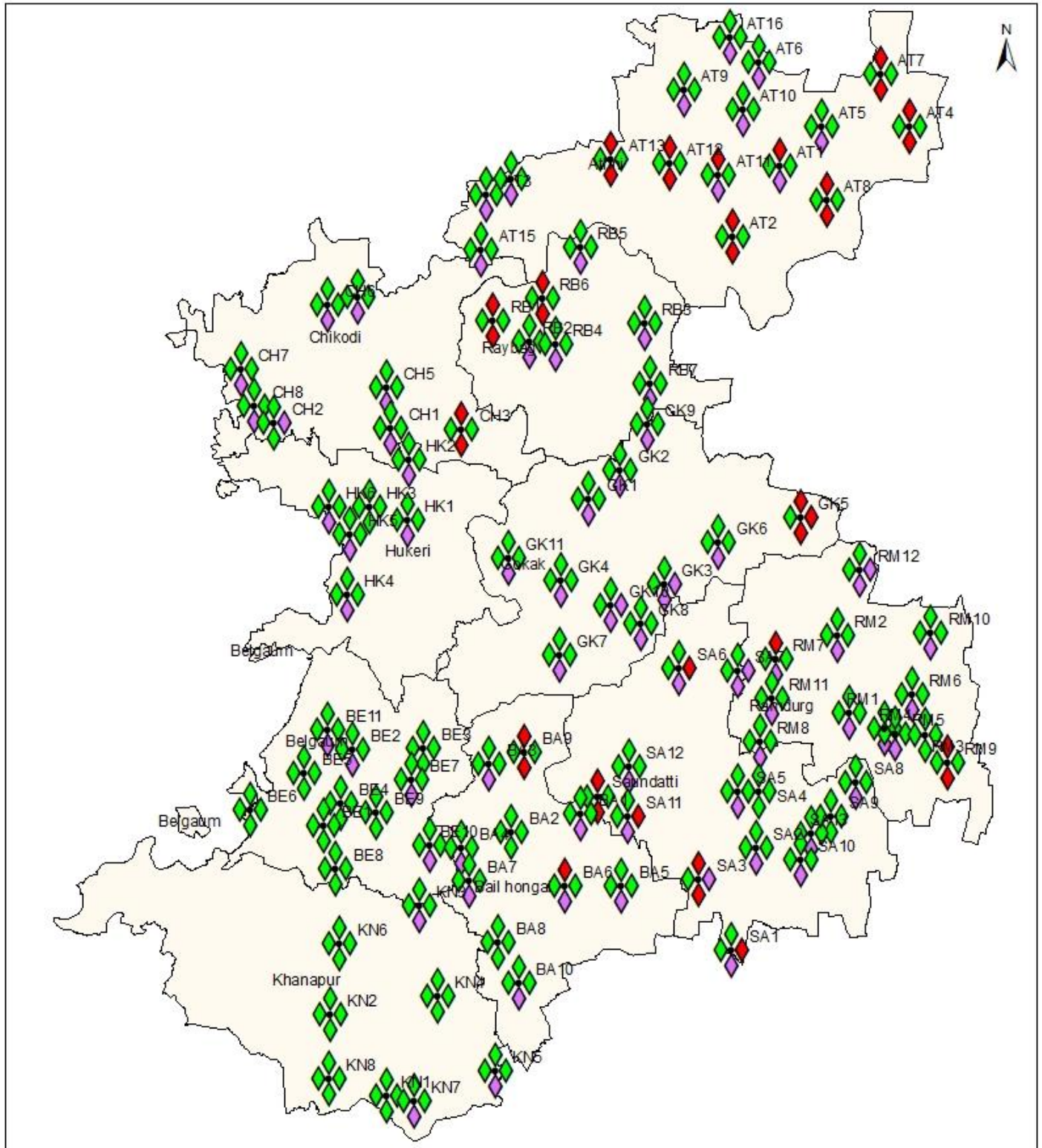
In respect of Fluoride, 4 stations (5%) viz., 1 station from Gokak taluk and 3 stations from Savadatti taluk contained Fluoride content beyond the Permissible limit of Indian Drinking Water Specification. Fluoride concn. vary from 0.14 to 3.28 mg/L. Inamhongal station of Savadatti taluk had maximum Fluoride content (3.28 mg/L).

In respect of Nitrate, 18 stations (17 %) viz., 8 stations from Athani taluk, 2 stations from Bailhongala taluk, 1 station from Chikkodi taluk, 1 station from Gokak taluk, 2 stations from Raibhag taluk, 2 stations from Ramdurga taluk and 2 stations from Savadatti taluk contained Nitrate content

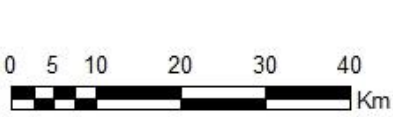
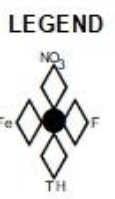
beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary from 6 to 220 mg/L. Navalihal station of Athani taluk had maximum Nitrate content (220 mg/L).

In respect of Total Hardness, 14 stations (13%) viz., 6 stations from Athani taluk, 1 station from Bailhongala taluk, 1 station from Chikkodi taluk, 1 station from Gokak taluk, 2 stations from Raibhag taluk and 1 station from Ramdurga and 2 stations from Savadatti taluk contained Total Hardness beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn. vary from 56 to 1512 mg/L. Biradi station of Raibhag taluk had maximum Total Hardness content (1512 mg/L).

# WATER QUALITY DATA OF BELAGAVI DISTRICT



NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600



- **POTABLE**
- **ALTERNATE**
- **NON-POTABLE**

**Table –15**

**WATER QUALITY DATA OF BAGALKOTE DISTRICT 2018-19**

Sl No	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well Code	Well ID
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L				
1	2	3	4	5	6	7	8	9	10	11	12
1	Bagalakote	Badami	Banashankari	0.02	0.3	5	200	15° 5320.13 N	75° 4214.28 E	50115	BD1
2	Bagalakote		Kerooru	0.01	0.2	5	264	16° 0104.34 N	75° 3258.03 E	50104	BD2
3	Bagalakote		Pattadakallu	0.02	0.4	13	624	15° 5656.60 N	75° 4848.38 E	50107	BD3
4	Bagalakote		Muttalagiri	0.02	2.4	12	384	15° 5335.72 N	75° 3653.47 E	50109	BD4
5	Bagalakote		Hiremuchalagudda	0.03	2	10	392	15° 5923.43 N	75° 3929.60 E	50110	BD5
6	Bagalakote		Kulgeri cross	0.02	0.2	5	252	15° 5432.79 N	75° 3017.77 E	50103	BD6
7	Bagalakote		Hoolageri	0.02	0.3	14	196	16° 0523.05 N	75° 3438.82 E	50109	BD7
8	Bagalakote		Badami	0.03	2.5	18	376	15°5455.00 N	75° 4034.20 E	50116	BD8
9	Bagalakote		Guledagudda	0.02	0.7	6	336	16° 0306.95 N	75° 4747.87 E	50112	BD9
10	Bagalakote		Kendhur	0.01	0.4	5	316				BD10
11	Bagalakote	Bagalako te	Mannikatti	0.01	0.9	22	664	16° 1006.16 N	75° 4623.69 E	50207	BG1
12	Bagalakote		Shirroru	0.01	0.3	13	264	16° 0551.73 N	75° 4647.63 E	50202	BG2
13	Bagalakote		Bagalakote	0.02	0.5	9	340	16° 1113.08 N	75° 4140.65 E	50208	BG3
14	Bagalakote		Bevooru	0.02	0.5	26	412	16° 1227.73 N	75° 5344.29 E	50201	BG4
15	Bagalakote		Khajjidona	0.03	0.8	10	380	16° 1034.00 N	75° 2701.50 E	50204	BG5
16	Bagalakote		Kaladagi	0.02	0.8	18	508	16° 1212.94 N	75° 2952.07 E	50209	BG6
17	Bagalakote	Beelagi	Teggi	0.01	0.4	20	608	16° 2233.62 N	75° 3147.75 E	50502	BE1
18	Bagalakote		Boodihaala	0.01	0.5	8	244	16° 1518.86 N	75° 3609.85 E	50506	BE2
19	Bagalakote		Yadahalli	0.02	1.10	7	244	16° 2341.84 N	75° 2715.50 E	50504	BE3
20	Bagalakote		Beelagi	0.02	0.2	22	380	16° 2060.10 N	75° 3778.70E	50501	BE4
21	Bagalakote		Chikkalagudi	0.01	0.6	30	720	16° 1551.17 N	75° 2617.07 E	50507	BE5
22	Bagalakote	Huna gunda	Ameenagad	0.02	1.40	22	512	16° 0319.29 N	76° 5642.78 E	50602	HG1
23	Bagalakote		Belagalla	0.01	0.4	6	320	16° 0941.98 N	76° 0112.80 E	50610	HG2
24	Bagalakote		Chittaragi	0.01	1.8	50	568	16° 0600.75 N	76° 0140.38 E	50604	HG3
25	Bagalakote		Ilkal	0.02	0.1	4	152	15° 5806.53 N	76° 0645.51 E	50605	HG4
26	Bagalakote		Kandagalla	0.02	0.1	4	152	15° 5728.43 N	76° 1615.67 E	50617	HG5
27	Bagalakote		Karadi	0.03	3.2	5	132	16° 0553.30 N	76° 1222.23 E	50606	HG6
28	Bagalakote		Nandavadagi	0.02	0.4	5	288	16° 0057.52 N	76° 1658.37 E	50611	HG7
29	Bagalakote		Hunagunda	0.01	2.4	35	412	16° 0305.84 N	76° 0349.39 E	50601	HG8
30	Bagalakote		Kodihal	0.02	3.5	30	400	16° 0530.71 N	76° 1824.07 E	50612	HG9
31	Bagalakote		Adavihala	0.02	0.2	5	152	16° 1147.49 N	76° 0416.08 E	50609	HG10

1	2	3	4	5	6	7	8	9	10	11	12
32	Bagalakote	Hunagunda	Hire Adapura	0.02	0.2	5	152	16° 0110.83 N	76° 1253.97 E	13843	HG11
33	Bagalakote		Kamatagi	0.02	0.3	6	284	16° 0610.60 N	75° 5159.54 E	50603	HG12
34	Bagalakote		Muradi	0.01	0.5	17	680	15° 5210.56 N	75° 5703.41 E	50615	HG13
35	Bagalakote	Jamakhandi	Savalagi	0.03	0.1	9	396	16° 4015.96 N	75° 2059.96 E	50803	JK1
36	Bagalakote		Siddapura	0.02	0.3	20	396	16° 2720.48 N	75° 1706.97 E	50806	JK2
37	Bagalakote		Teradala	0.02	0.2	5	552	16° 2923.12 N	75° 0242.31 E	50812	JK3
38	Bagalakote		Banahatti (Rabakavi)	0.02	0.4	23	760	16° 2836.00 N	75° 0621.41 E	50802	JK4
39	Bagalakote		Kannuru	0.01	0.4	17	604	16° 2600.81 N	75° 2117.90 E	50805	JK5
40	Bagalakote		Kumbarahalla	0.02	1.30	4	172	16° 3222.40 N	75° 1953.40 E	50807	JK6
41	Bagalakote		Tungala	0.03	1.6	10	376	16° 4132.50 N	75° 1738.10 E	50809	JK7
42	Bagalakote		Jamakhandi	0.01	0.1	10	484	16° 3035.16 N	75° 1637.77 E	50801	JK8
43	Bagalakote	Mudhol	Halaki	0.01	1.20	22	380	16° 1308.70 N	75° 1520.96 E	51005	MD1
44	Bagalakote		Mahalingapura	0.02	0.6	15	344	16° 2329.89 N	75° 0611.59 E	51009	MD2
45	Bagalakote		Malapur	0.02	0.6	18	384	16° 2202.75 N	75° 1637.04 E	51006	MD3
46	Bagalakote		Lokapur	0.01	0.5	13	324	16° 0947.32 N	75° 2200.28 E	51004	MD4
47	Bagalakote		Mudhol	0.02	1.6	23	468	16° 2027.47 N	75° 1637.51 E	51010	MD5

	Alternate Source
	Not Potable

## **BAGALAKOTE DISTRICT**

Water samples have been collected from 47 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-15. In respect of Total Iron, no stations contained Total Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary from 0.01 to 0.03 mg/L.

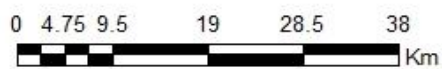
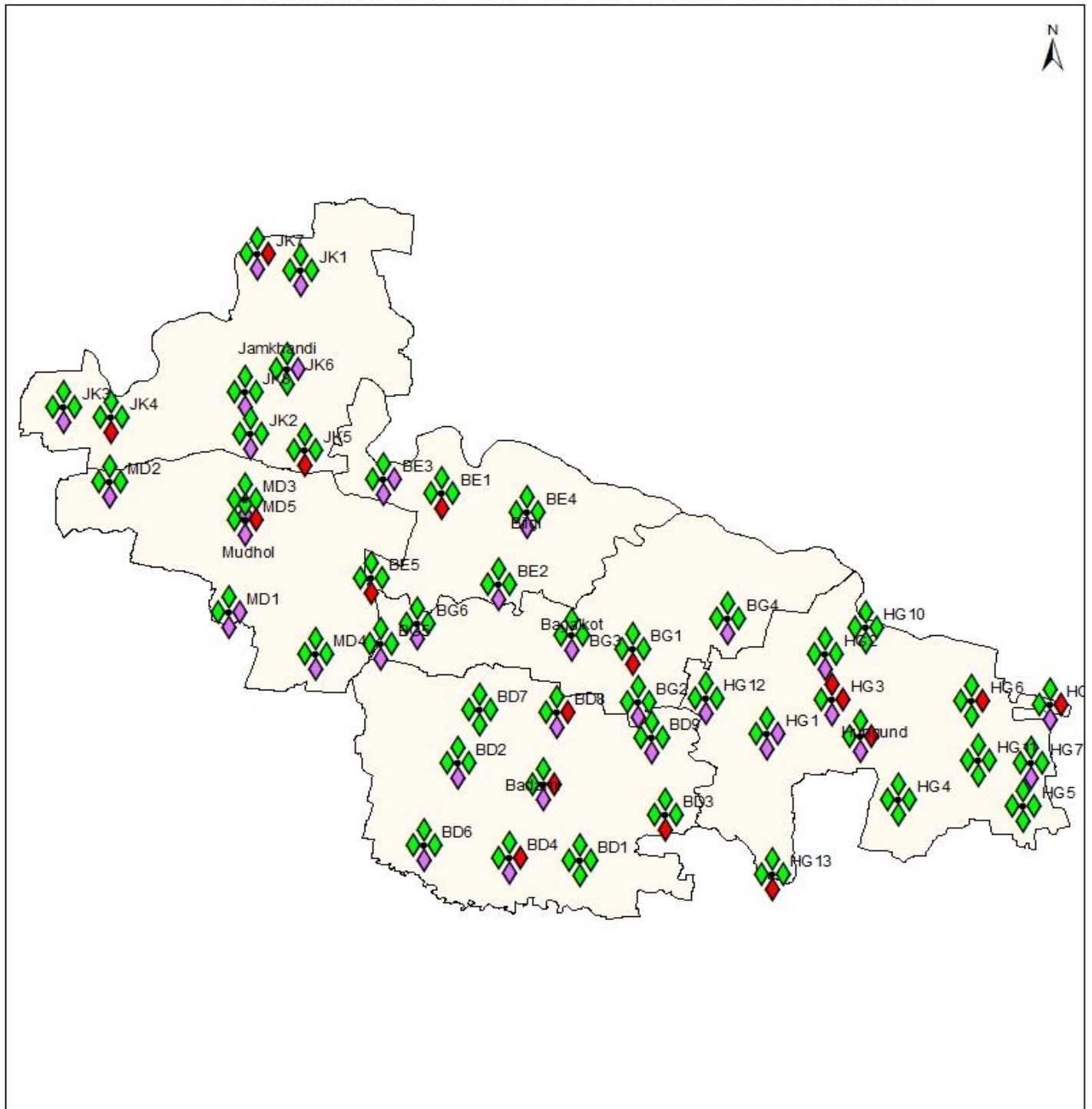
In respect of Fluoride, 9 stations (19%) viz., 3 stations from Badami taluk, 4 stations from Hunagunda taluk, 1 station from Jamakhandi taluk and 1 station from Mudhol taluk contained Fluoride content beyond the Permissible limit of Indian Drinking Water Specification. Fluoride concn. vary from 0.12 to 3.5 mg/L. Kodihal station of Hunagunda taluk had maximum Fluoride content (3.50 mg/L).

In respect of Nitrate, 1 station (2 %) viz., Chittargi station of Hunagunda taluk contained Nitrate content beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary from 4 to 50 mg/L.

In respect of Total Hardness, 7 stations (15 %) viz., 1 station from Badami taluk, 1 station from Bagalakote taluk, 2 stations from Bilagi taluk, 1 station from Hunagunda taluk and 2 stations from Jamakhandi taluk contained Total Hardness beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn. vary from 172 to 760 mg/L. Banahatti (Rabakavi) station of Jamakhandi taluk had maximum Total Hardness content (760 mg/L).



# WATER QUALITY DATA OF BAGALAKOTE DISTRICT



- POTABLE
- ALTERNATE
- NON-POTABLE

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600



**Table - 16**  
**WATER QUALITY DATA OF CHITRADURGA DISTRICT 2018-19**

Sl No	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well Code	Well ID
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L				
1	2	3	4	5	6	7	8	9	10	11	12
1	Chitradurga	Chalkere	Kammathamarikunte	0.03	1	60	592	14 14 9.50N	76 39 39.50E	70106	CH1
2	Chitradurga		Mylanahalli	-	1.2	20	480	14 2645.50N	76 49 26.00E	70122	CH2
3	Chitradurga		Parashurampur	0.03	0.03	29	1232	14 1517.00N	76 53 0.10E	70102	CH3
4	Chitradurga		Budnahatti	0.03	0.08	25	448	14 22 3.70N	76 39 15.30E	70110	CH4
5	Chitradurga		Dodderi	0.02	0.08	30	220	14 1751.00N	76 42 28.73E	70114	CH5
6	Chitradurga		Kaparahalli	1.00	1	70	416	14 0959.20N	76 41 36.90E	70126	CH6
7	Chitradurga		Nagagondanahalli	1.30	1	60	224	14 2313.79N	76 50 23.30E	70120	CH7
8	Chitradurga		Purlehalli	0.80	1	18	480	14 1644.90N	76 4749.40E	70119	CH8
9	Chitradurga		Nayakanahatti	0.03	0.05	38	268	142823.93N	763231.80E	70131	CH9
10	Chitradurga		Chalkere	1.00	0.8	75	312	141819.48N	763748.45E	70127	CH10
11	Chitradurga		T.N.Kote	1.20	0.8	56	944	14 1144.33N	76 4928.02E	70108	CH11
12	Chitradurga		Hosahalli	1.20	1.1	23	440	14 2654.90N	76 39 37.70E	70116	CH12
13	Chitradurga		Obalpura	0.03	0.8	56	872	14288.57N	765537.24E	70129	CH13
14	Chitradurga		Doddaularthi	0.02	1	49	240	142357.88N	764423.23E	70128	CH14
15	Chitradurga	Chitradurga	Chikkagondanahalli	0.03	0.03	38	480	14 22 37.9N	76 22 17.7E	070219 B	CD1
16	Chitradurga		Balenahalli	0.80	1	48	292	14 01 9.32N	76 38 11.66	070516B	CD2
17	Chitradurga		Bahaddudrgahatta	0.07	0.03	73	680	14 26 8.30N	76 1043.60E	70210	CD3
18	Chitradurga		Hireguntanuru	1.00	0.08	45	472	14 13 1.10N	76 17 4.70E	0702032B	CD4
19	Chitradurga		Chitradurga	0.09	0.02	53	440	141237.55N	762455.70E	70223	CD5
20	Chitradurga		G.R.Halli	0.05	0.03	38	420	141716.81N	762358.97E	70225	CD6
21	Chitradurga		Sirigere	0.03	0.05	28	1640	14177.90N	761222.26E	70224	CD7
22	Chitradurga		Belaghatta,BW	0.03	0.01	46	600	14 18 9.10N	76 27 15.80E	70214	CD8
23	Chitradurga		Bommakkanahalli	1.20	0.07	53	200	14 22 3.50N	76 30 37.80E	70216	CD9
24	Chitradurga		Madakaripura	1.20	0.05	72	640	14 1332.80N	76 26 22.10E	70205	CD10
25	Chitradurga		Kallahalli,BW,	0.03	1	16	240	14 1444.20N	76 30 37.50E	70206	CD11
26	Chitradurga		Vijapura,Bw	0.08	0.03	21	448	14 1734.30N	76 16 51.80E	70212	CD12
27	Chitradurga		Bharamasagar	1.20	0.05	45	680	14 2159.30N	76 11 39.60E	70202	CD13
28	Chitradurga	Hiriyuru	Yalkuranahalli	0.08	0.03	52	448	14 0355.28N	76 27 11.52E	70522	HY1
29	Chitradurga		Hiriyuru	0.31	0.03	36	288	1357 33.40N	76 36 47.18E	70510	HY2
30	Chitradurga		Bharamagiri	0.75	0.03	45	112	13 5544.71N	762954.63E	70503	HY3
31	Chitradurga		Maradihalli	0.07	0.8	18	240	14 082.49N	76 31 35.32E	70518	HY4
32	Chitradurga		Bagganadu	0.30	0.02	62	240	1352 4.22N	7641 31.98E	70508	HY5
33	Chitradurga		Yalladakere	0.10	0.3	65	292	13 4716.00N	76 33 55.99E	70520	HY6
34	Chitradurga		Gollahalli	1.20	0.03	18	276	14 0726.40N	76 39 12.63E	70501	HY7
35	Chitradurga		Hariyabbe	1.30	0.08	35	268	14 0327.10N	764845.40E	70519	HY8
36	Chitradurga		Javagondanahalli	0.03	0.03	38	992	13505.81N	764449.48E	70527	HY9
37	Chitradurga		Ikkannuru	0.05	1	18	40	135556.12N	764652.17E	70526	HY10
38	Chitradurga	Holalkere	Arehallhatti	0.05	0.03	52	240	14 0212.57N	76 08 17.80E	70615	HL1
39	Chitradurga		Chitrhalli	0.03	0.05	36	360	14 0548.92N	7616 27.58E	70614	HL2
40	Chitradurga		H.D.pura	0.30	0.03	30	808	14 0153.07N	7619 40.23E	70601	HL3
41	Chitradurga		Amruthapura	0.07	0.07	65	240	14 0816.00N	76 14 41.70E	70610	HL4
42	Chitradurga		Sasalu	0.05	1	18	292	1412 37.08N	76 06 27.40E		HL5
43	Chitradurga		Belaguru	0.05	0.08	12	320	13 3746.61N	76 17 20.66E	70720	HL6
44	Chitradurga		Chikkajajuru	0.03	1.3	18	172	14 737.37N	76 823.96E	70620	HL7
45	Chitradurga		Talya	0.08	0.05	38	440	14 129.92N	76167.73E	70622	HL8
46	Chitradurga		Ramgiri	0.03	0.07	18	520	135723.20N	76 714.90E	70621	HL9
47	Chitradurga	Holalkere	0.02	0.03	52	912	14 232.83N	761026.52E	70619	HL10	

1	2	3	4	5	6	7	8	9	10	11	12
48	Chitradurga	Hosadurga	Guddada Nerelekere	0.05	1	18	292	1347 19.60N	7628 7.67E	70711	HD1
49	Chitradurga		Belaguru	-	0.03	52	440	1337 46.61N	76 17 20.66E		HD2
50	Chitradurga		Seeranakuntee	-	0.03	52	440	1353 27.31N	76 25 37.80E	70714	HD3
51	Chitradurga		Madadakere	0.07	0.8	38	400	1353 14.05N	76 23 8.36E	70723	HD4
52	Chitradurga		Devigere	0.03	0.08	60	720	135217.77N	761334.65E	70725	HD5
53	Chitradurga		Chikkabyladkere	-	1.2	43	392	1342 16.67N	7631 29.29E	70719	HD6
54	Chitradurga		Narasipura	0.07	1.2	48	212	135259.55N	761757.60E	70712	HD7
55	Chitradurga		kumminaghatta	0.03	1	12	988	135854.58N	761745.26E	70607	HD8
56	Chitradurga		Hosadurga		0.03	52	440	134758.32N	761632.63E	70726	HD9
57	Chitradurga		Heggere	0.05	1.2	16	292	1336 20.23N	76 26 15.01E	70709	HD10
58	Chitradurga		Ajjikamasagar	0.07	1.3	14	3200	1345 41.34N	76 23 13.71E	70721	HD11
59	Chitradurga	Molakal muru	Rampura	0.07	0.8	12	300	14536.70N	764659.57E		MK1
60	Chitradurga		B.G.Kere	0.06	0.03	18	440	1435 39.80N	76 40 16.90E	70901	MK2
61	Chitradurga		Molakalmuru	0.07	1	52	220	14436.44N	764524.98E	70904N	MK3
62	Chitradurga		Gowrasamudra	0.02	0.02	52	372	14330.36N	764430.77E	70130	MK4
63	Chitradurga		Hanagal	0.08	0.03	17	380	14449.51N	76421.64E	70911	MK5
64	Chitradurga		Tammenahalli	0.03	0.8	12	300	145641.02N	76496.80E	70912	MK6

	Alternate Source
	Not Potable

## HITRADURGA DISTRICT

Water samples have been collected from 64 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-16. In respect of Total Iron, 15 stations (23%) viz., 6 stations from Challakere taluk, 5 stations from Chitradurga taluk and 4 stations from Hiriyr taluk contained Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary from Nil to 1.30 mg/L. Nagagondanahalli station of Challkere taluk and Hariyabbe station of Hiriyr taluk had maximum Iron content (1.30 mg/L).

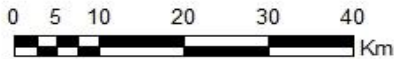
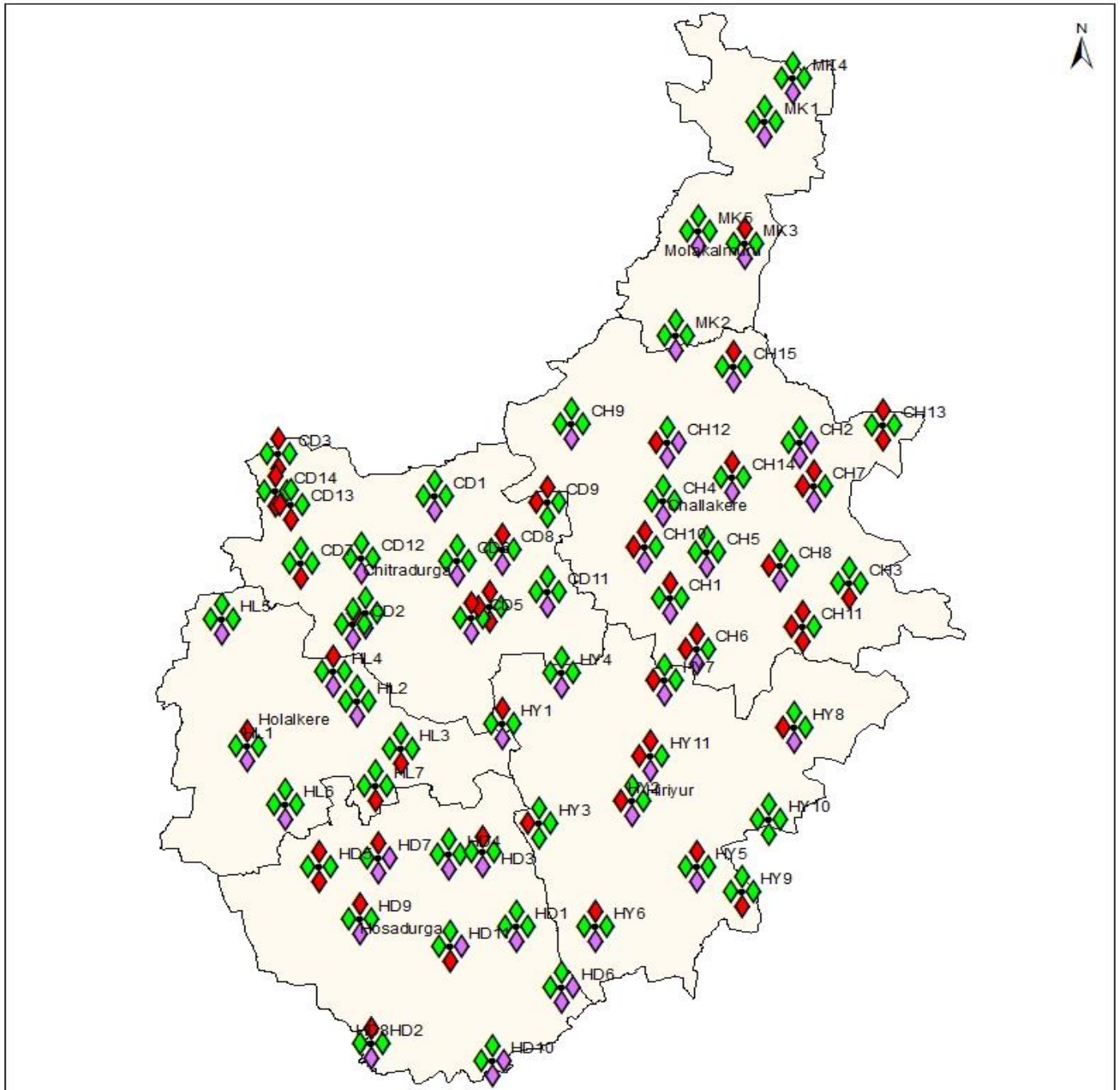
In respect of Fluoride, no stations contained Fluoride content beyond the Permissible limit of Indian Drinking Water Specification. Iron concn. vary from 0.02 to 1.30 mg/L.

In respect of Nitrate, 26 stations (39%) viz., 7 stations from Challakere taluk, 6 stations from Chitradurga taluk, 3 stations from Hiriyr taluk, 3 stations from Holalkere taluk, 5 stations from Hosadurga taluk and 2 stations from Molakalmuru taluk contained Nitrate content beyond the

Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary from 12 to 75 mg/L. Challakere station of Challakere taluk had maximum Nitrate content (75 mg/L).

In respect of Total Hardness, 13 stations (20 %) viz., 3 stations from Challakere taluk, 4 stations from Chitradurga taluk, 2 stations from Holalkere taluk, 1 stations from Hiriyuru taluk and 3 stations from Hosadurga taluk contained Total Hardness beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn.vary from 40 to 3200 mg/L. Ajjikamasagar station of Hosadurga taluk had maximum Total Hardness content (3200 mg/L).

# WATER QUALITY DATA OF CHITRADURGA DISTRICT



- POTABLE ●
- ALTERNATE ●
- NON-POTABLE ●

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600



Table - 17

## WATER QUALITY DATA OF CHAMRAJANAGARA DISTRICT 2018-19

Sl No	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well Code	Well ID
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L				
1	2	3	4	5	6	7	8	9	10	11	12
1	Chamarajnagar	Chamaraja nagar	Yadapura	0.06	0.65	22	376	11.90275	76.90463	150103	CH1
2	Chamarajnagar		Masagara	0.03	0.61	40	512	11.07 46 31	76.52 48 03	150104	CH2
3	Chamarajnagar		Attigulipur	0.02	0.27	16	340	13.88 23 08	76.29 39 33	150115	CH3
4	Chamarajnagar		Bisilavadi	0.03	0.72	62	412	14.88 51 94	76.78 32 14	150116HP	CH4
5	Chamarajnagar		Yanagalli	0.03	0.3	7	248	14.59 43 89	76.67 13 61	150107	CH5
6	Chamarajnagar		Devalapura	1.01	0.56	44	268	14.71 84 56	76.75 69 39	150109HP	CH6
7	Chamarajnagar		Chamarajanagar	0.32	0.47	109	536	11.91825	76.94008	150114	CH7
8	Chamarajnagar		Haradanahalli	0.05	0.44	39	388	11.89300	76.95281	150130	CH8
9	Chamarajnagar		Harave	0.35	0	175	708	11.93833	76.80750	150126HP	CH9
10	Chamarajnagar		Yadiyuru	0.05	2.72	1	324	12.00966	76.96466	150108	CH10
11	Chamarajnagar		Bedalapura	0.2	0.7	87	472	11 96 247	76 88 158	150127	CH11
12	Chamarajnagar		Beguru	0.2	0.21	36	256	150204	11.93406		CH12
13	Chamarajnagar	Kollegal	Uttamballi	0.18	0.19	45	372	150501	12.14169	150501	KG1
14	Chamarajnagar		Kollegal	0.05	0.36	40	472	150502	12.15358	150502	KG2
15	Chamarajnagar		Lokkanahalli	0.02	0.47	35	744	150510	12.02414	150510	KG3
16	Chamarajnagar		Hunooru	0.03	0.62	35	348	150504	12.08839	150504	KG4
17	Chamarajnagar		Ajjipura	0.02	1.2	85	532	150505	12.04431	150505	KG5
18	Chamarajnagar		Bandalli	0.05	0.38	451	1108	150512	12.16556	150503	KG6
19	Chamarajnagar		Shangam	0.03	0.55	164	836	150509 (HP)	12.20344	150508	KG7
20	Chamarajnagar		Kowdalli	0.04	0.6	680	1684	150511 HP)	12.06789	150511 HP	KG8
21	Chamarajnagar		Danagere	0.02	0.34	152	1056	150506	12.21172	150506	KG9
22	Chamarajnagar	Yalandur	Yalandur	0.5	0.36	6	644	151101	12.05019	151102	YL1
23	Chamarajnagar		Duggatti	0.6	0.65	59	460	151102	12.04692	151101	YL2
24	Chamarajnagar	Gundlupete	Terakanambi	0.21	0.31	3	260	150203	11.81556	150203	GU1
25	Chamarajnagar		Bommalapura	0.05	0.57	72	368	150212(HP)	11.72536	150212HP	GU2
26	Chamarajnagar		Gundlupete	0.02	0.45	24	612	11.80583	76.68742	150201	GU3
27	Chamarajnagar		Sidddyyanapura	0.27	0.52	45	448	150213	11.78783	150213	GU4
28	Chamarajnagar		Kaggalahundi	0.22	0.35	85	768	150214	11.72342	150214	GU5
29	Chamarajnagar		Beemanabeedu	0.04	0.41	276	868	11.77797	76.56931	150201HP	GU6
30	Chamarajnagar		Kekkanahalla	0.67	1.13	2	376	11 61 958	76 59042	150209	GU7

	Alternate Source
	Not Potable

**CHAMARAJANAGARA DISTRICT**

Water samples have been collected from 30 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-17. In respect of Total Iron, 6 stations (20%) viz.,

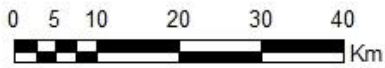
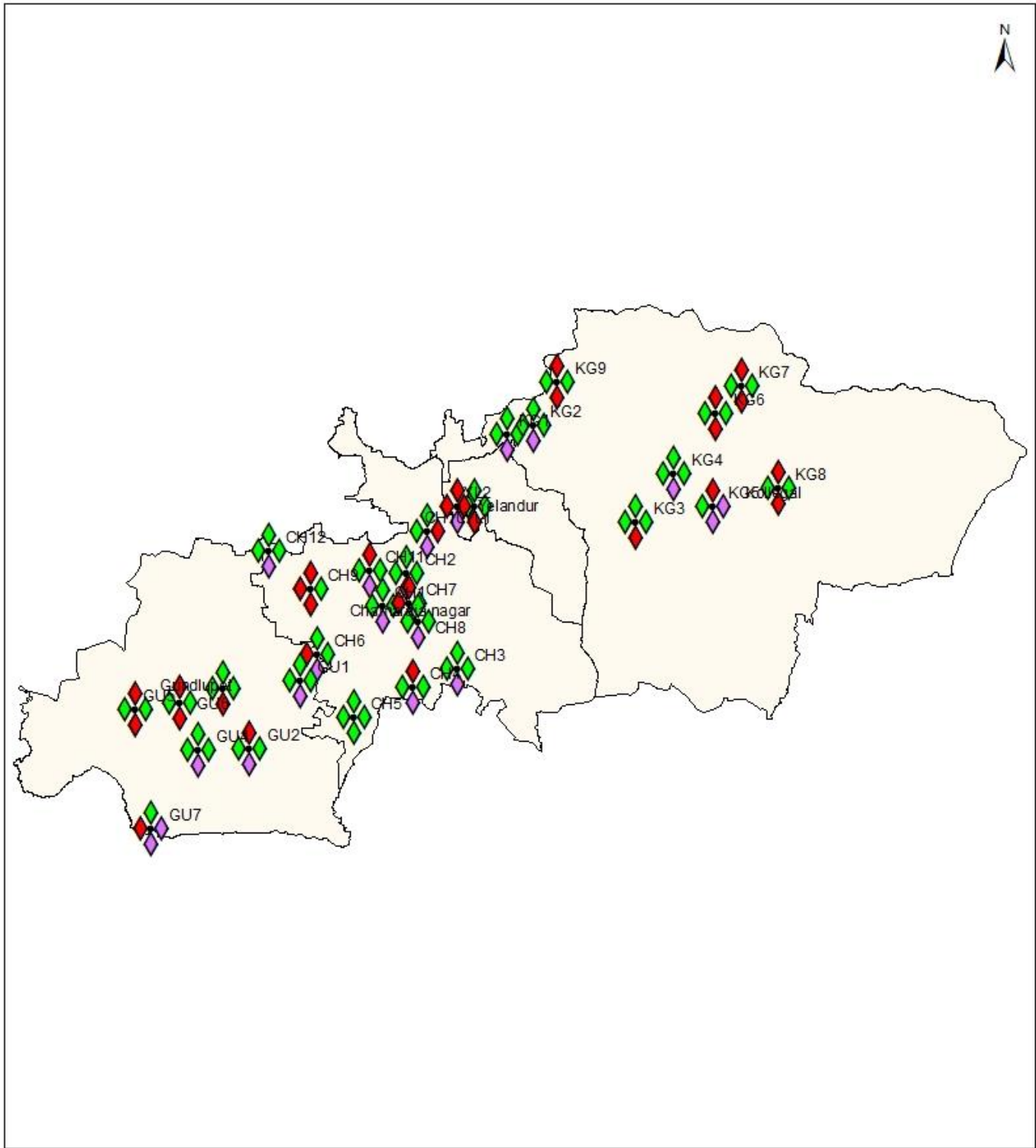
3 stations from Chamarajanagara taluk, 2 stations from Yalanduru taluk and 1 station from Gundlupete taluk contained Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary from 0.02 to 1.01 mg/L. Devalapura station of Chamarajanagara taluk had maximum Iron content (1.01 mg/L).

In respect of Fluoride, 1 station (3%) viz., Yalanduru stations from Chamarajanagara taluk contained Fluoride content beyond the Permissible limit of Indian Drinking Water Specification. Fluoride concn. vary from Nil to 2.72 mg/L.

In respect of Nitrate, 13 stations (43%) viz., 4 stations from Chamarajanagara taluk, 5 stations from Kollegala taluk, 1 station from Yalanduru taluk and 3 stations from Gundlupete taluk contained Nitrate content beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary from 1 to 680 mg/L. Kowdalli station of Kollegala taluk had maximum Nitrate content (680 mg/L).

In respect of Total Hardness, 10 stations (33%) viz., 1 station from Chamarajanagara taluk, 5 stations from Kollegala taluk, 1 station from Yalanduru taluk and 3 stations from Gundlupete taluk contained Total Hardness beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn. vary from 248 to 1684 mg/L. Kowdalli station of Kollegala taluk had maximum Total Hardness content (1684 mg/L).

# WATER QUALITY DATA OF CHAMRAJANAGARA DISTRICT



- POTABLE ●
- ALTERNATE ●
- NON-POTABLE ●

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600

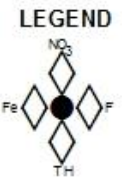




Table - 18

## WATER QUALITY DATA OF CHIKKABALLAPURA DISTRICT 2018-19

Sl No	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well Code	Well ID
				Fe mg/L	F mg/L	NO3 mg/L	TH (as CaCO <sub>3</sub> ) mg/L				
1	2	3	4	5	6	7	8	9	10	11	12
1	Chikkaballapura	Bagepalli	Achaganapalli	0.06	3.2	6	284	13.6364	77.9661	130104(HP)	BG1
2	Chikkaballapura		Chelur	0.04	1.57	130	864	13.7061	78.1011	130102	BG2
3	Chikkaballapura		Chakavelu	0.02	1.35	158	720	13.8247	78.0992	130108(HP)	BG3
4	Chikkaballapura		Billur	0.03	2.26	122	536	13.8569	78.0064	130109	BG4
5	Chikkaballapura		Pathapalya	0.24	2.44	7	304	13.7550	77.9472	130106	BG5
6	Chikkaballapura		Gorthapalli	0.04	2.32	56	268	13.9239	77.9578	130111	BG6
7	Chikkaballapura		Thattagaripalli	0.07	0.47	12	284	13.8531	77.9317	130110(HP)	BG7
8	Chikkaballapura		Gulur	0.06	2.68	29	268	13.8400	77.8364	130114	BG8
9	Chikkaballapura		Marganakunte	0.08	2.58	41	272	13.8856	77.8456	130112(HP)	BG9
10	Chikkaballapura		Bagepalli	0.1	1.62	137	612	13.7825	77.7967	130101	BG10
11	Chikkaballapura		Mittemari	0.05	1.08	46	492	13.6831	77.8661	130105	BG11
12	Chikkaballapura	Chikkaballapur	Bandammanahalli	0.06	1.87	26	260	13.4585	77.6599	130302	CB1
13	Chikkaballapura		Chikkaballapura	0.13	0.22	10	680	13.4494	77.7356	130301	CB2
14	Chikkaballapura		Veeranahalli	0.13	0.48	112	304	13.3636	77.6953	130308	CB3
15	Chikkaballapura		Gundlamandikal	0.04	0.8	10	308	13.5978	77.7392	130306	CB4
16	Chikkaballapura		Arur	0.05	0.86	15	644	13.5761	77.7839	130305	CB5
17	Chikkaballapura		Beerganahalli	0.04	0.96	78	300	13.5289	77.7522	130307	CB6
18	Chikkaballapura		Ajjawara	0.08	0.52	36	296	13.4072	77.7760	130304	CB7
19	Chikkaballapura	Chinthamani	Hirepalya	0.02	0.8	86	540	13.2822	77.9606	130404	CH1
20	Chikkaballapura		Konganahalli	0.04	1.12	78	656	13.3306	78.0006	130407	CH2
21	Chikkaballapura		Lakshmiddevikote	0.04	0.54	8	196	13.4347	77.9972	130410(HP)	CH3
22	Chikkaballapura		Chinthamani	0.02	0.95	11	180	13.4075	78.0667	130402(HP)	CH4
23	Chikkaballapura		Kodadavadi	0.03	0.93	14	336	13.3675	78.1347	130408	CH5
24	Chikkaballapura		Murgamalla	0.09	0.58	94	292	13.4364	78.1289	130412(HP)	CH6
25	Chikkaballapura		Irrigampalli	0.03	1.38	85	416	13.5339	78.1314	130405	CH7
26	Chikkaballapura		Kencharlahalli	0.05	1.4	19	268	13.5397	78.0700	130409(HP)	CH8
27	Chikkaballapura		Munganahalli	0.04	1.72	25	340	13.5864	78.1781	130411	CH9
28	Chikkaballapura		Chikalnerpur	0.02	2.11	13	304	13.6542	78.0750	130403(HP)	CH10
29	Chikkaballapura		Burudugunte	0.06	1.47	73	492	13.5914	78.0358	130401(HP)	CH11
30	Chikkaballapura	Gowribidanur	Manchenahalli	0.15	0.68	67	556	13.4961	77.6056	130510	GB1
31	Chikkaballapura		Thippaganahalli	0.08	1.01	15	214	13.4480	77.5153	130503	GB2
32	Chikkaballapura		Allipura	0.21	0.38	4	480	13.4875	77.4600	130514(HP)	GB3
33	Chikkaballapura		Alkapura	0.04	1.02	8	536	13.5525	77.5289	130507	GB4
34	Chikkaballapura		Gowribidanur	0.06	0.47	59	564	13.6078	77.5194	130501	GB5
35	Chikkaballapura		Hosur	0.07	0.36	88	288	13.5842	77.4386	130502	GB6
36	Chikkaballapura		Kurudi	0.05	0.55	76	596	13.6250	77.3875	130501	GB7
37	Chikkaballapura		Kudamlakunte	0.03	0.8	39	524	13.7029	77.5021	130504(HP)	GB8
38	Chikkaballapura		D.N.Palya	0.04	1.43	26	412	13.6283	77.6056	130506	GB9
39	Chikkaballapura		Vatadahosalli	0.03	1.1	12	380	13.7167	77.6250	130512	GB10
40	Chikkaballapura	Gudibande	Yellodu	0.02	1.83	94	464	13.7364	77.6867	130603	GU1
41	Chikkaballapura		Gudibande	0.04	0.67	82	336	13.6711	77.7036	130601	GU2
42	Chikkaballapura		Varlakonda	0.06	0.86	95	420	13.6333	77.7911	130606(HP)	GU3

1	2	3	4	5	6	7	8	9	10	11	12
43	Chikkaballapura	Siddlaghatta	Sadali	0.03	1.19	49	524	13.6233	77.8703	131003	SG1
44	Chikkaballapura		Jangamakote	0.04	0.28	127	660	13.2600	77.8486	131011	SG2
45	Chikkaballapura		Hunsenahalli	0.03	1.22	2	264	13.4003	77.9497	131009	SG3
46	Chikkaballapura		Ganjikunte	0.01	1.55	29	432	13.4892	77.9847	131004(HP)	SG4
47	Chikkaballapura		Sidlaghatta	0.02	0.97	12	348	13.3922	77.8656	131012	SG5
48	Chikkaballapura		Ajjakadirenahalli	0.02	0.61	8	352	13.4847	77.8639	131001(HP)	SG6
49	Chikkaballapura		Dibbarahalli	0.03	1.1	8	520	13.5564	77.9064	131002	SG7
50	Chikkaballapura		Gandlachinthe	0.02	1.02	5	236	13.5900	77.9283	131005	SG8
51	Chikkaballapura		Sidlaghatta town	0.08	0.18	59	280	13.3922	77.8656	131012	SG9

	Alternate Source
	Not Potable

## CHIKKABALLAPURA DISTRICT

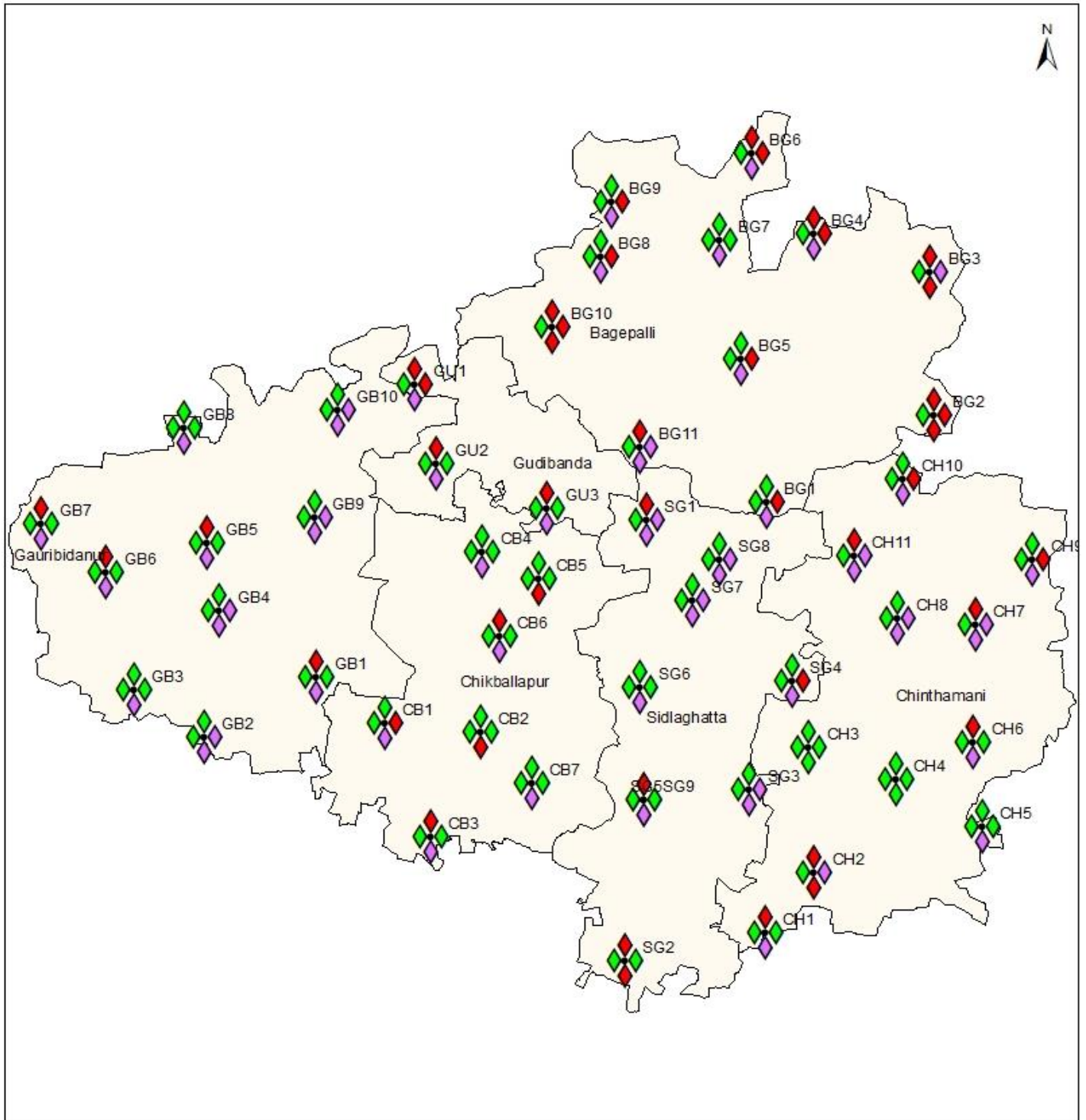
Water samples have been collected from 51 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-18. In respect of Total Iron, no stations contained Total Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary from 0.01 to 0.08 mg/L.

In respect of Fluoride, 13 stations (25%) viz., 8 stations from Bagepalli taluk, 1 station from Chikkaballapura taluk, 2 stations from Chintamani taluk, 1 station from Gudibande taluk and 1 station from Sidlaghatta taluk contained Fluoride content beyond the Permissible limit of Indian Drinking Water Specification. Fluoride concn. vary from 0.18 to 3.20 mg/L. Achaganapalli station of Bagepalli taluk had maximum Fluoride content (3.20 mg/L).

In respect of Nitrate, 23 stations (45%) viz., 6 stations from Bagepalli taluk, 3 stations from Chikkaballapura taluk, 5 stations from Chintamani taluk, 4 stations from Gowribidanuru taluk, 3 stations from Gudibande taluk and 2 stations from Sidlaghatta taluk contained Nitrate content beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary from 2 to 158 mg/L. Chakavelu station of Bagepalli taluk had maximum Nitrate content (158 mg/L).

In respect of Total Hardness, 7 stations (14%) viz., 3 stations from Bagepalli taluk, 2 stations from Chikkaballapura taluk, 1 station from Chintamani taluk and 1 station from Sidlaghatta taluk contained Total Hardness beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn.vary from 180 to 864 mg/L. Chellur station of Bagepalli taluk had maximum Total Hardness content (864 mg/L).

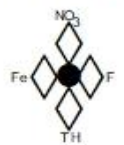
# WATER QUALITY DATA OF CHIKKABALLAPURA DISTRICT



**POTABLE** ●  
**ALTERNATE** ●  
**NON-POTABLE** ●

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600

**LEGEND**



**Table - 19**  
**WATER QUALITY DATA OF CHIKKAMAGALUR DISTRICT 2018-19**

Sl. No	District	Taluk	Village	Concentration in mg/L				Lat	Long	Well Code	Well ID
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L				
1	2	3	4	5	6	7	8	9	10	11	12
1	Chikkamagaluru	Chikka magaluru	Kabbinasethuve	0.05	0.2	1.00	40	13.2208	75.6806	60113	CM1
2	Chikkamagaluru		Uddeboranahalli	0.05	0.2	1.00	484	13.3986	75.8906	060107HP	CM2
3	Chikkamagaluru		Hospet	1.8	0.31	1.00	308	13.2841	75.4816	060111HP	CM3
4	Chikkamagaluru		Chikkamagaur	0.05	0.31	68.00	220	13.3167	75.7703	60112	CM4
5	Chikkamagaluru		Kalasapura	0.06	0.44	63.00	420	13.2792	75.9375	060102HP	CM5
6	Chikkamagaluru		Magadi	0.08	0.51	99.00	324	13.2594	75.8531	060104HP	CM6
7	Chikkamagaluru		Avathi	0.03	0.26	1.00	236	13.3408	75.6414	60109	CM7
8	Chikkamagaluru		Sangamesh warapete	0.11	0.06	17.00	56	13.2026	75.3244	60108	CM8
9	Chikkamagaluru		Lokyo	0.12	0.4	191.00	712	13.2045	75.5216	60114	CM9
10	Chikkamagaluru	Kadur	Sakarayatpna	0.02	0.06	7.00	336	13.4306	75.9194	060203HP	KD1
11	Chikkamagaluru		Mathigatta	0.1	0.44	147.00	772	13.4875	76.0847	60211	KD2
12	Chikkamagaluru		Yellambalse	0.08	0.18	25.00	880	13.5694	76.1083	60212	KD3
13	Chikkamagaluru		Singatagere	0.09	0.26	147.00	472	13.5125	76.1792	060204HP	KD4
14	Chikkamagaluru		Hachihalli	0.07	0.18	28.00	496	13.6128	76.2406	060216HP	KD5
15	Chikkamagaluru		Yagati	0.05	0.19	47.00	816	13.6131	76.1542	60218	KD6
16	Chikkamagaluru		Dasarahalli	0.29	0.57	23.00	360	13.6208	76.0422	060217HP	KD7
17	Chikkamagaluru		Antharaghatta	0.05	1.14	59.00	228	13.7306	76.1167	060213HP	KD8
18	Chikkamagaluru		Birur	0.03	0.3	90.00	592	13.5997	75.9669	060202New	KD9
19	Chikkamagaluru		Kadur town	0.21	0.04	1.00	44	13.5528	76.0075	60201	KD10
20	Chikkamagaluru		Saraswathipura	0.03	0.11	178.00	372	13.3336	75.5759	060208HP	KD11
21	Chikkamagaluru		Annegere	0.08	0.16	35.00	636	13.3237	76.1656	60222	KD12
22	Chikkamagaluru		J. Hochihalli	0.09	0.47	5.00	346	13.3651	76.1420	60219	KD13
23	Chikkamagaluru	Koppa	Kudregundi	0.03	0.12	7.00	144	13.3304	75.2510	60303	KP1
24	Chikkamagaluru		Koppa town	0.08	0.11	1.00	108	13.3203	75.2159	60308	KP2
25	Chikkamagaluru		Hariharapura	0.05	0.08	2.00	56	13.5222	75.2958	060304HP	KP3
26	Chikkamagaluru		Kalkere	0.59	1.28	10.00	180	13.4556	75.3464	60307	KP4
27	Chikkamagaluru		Jayapura	0.09	0.05	8.00	100	13.2409	75.2224	60306	KP5
28	Chikkamagaluru	Mudigere	Mudigere Town	0.33	0.1	2.00	44	13.1333	75.6417	060401HP	MG1
29	Chikkamagaluru		Gonibeedu	0.22	0.09	3.00	84	13.0875	75.7056	060403HP	MG2
30	Chikkamagaluru		Devarunda	0.2	0.08	2.00	56	13.0417	75.6250	60408	MG3
31	Chikkamagaluru		Kottigehara	0.03	0.11	46.00	148	13.1208	75.5250	060402HP	MG4
32	Chikkamagaluru		Niduvale	0.04	0.07	6.00	52	13.1806	75.5014	60406	MG5
33	Chikkamagaluru		Sunkasale	0.02	0.08	1.00	68	13.1581	75.4514	60405	MG6
34	Chikkamagaluru		Kalasa	0.08	0.06	2.00	52	13.2361	75.3611	60404	MG7
35	Chikkamagaluru		Aldur	0.08	0.16	53.00	196	13.1435	75.398		MG8
36	Chikkamagaluru		Anthuru	0.02	0.11	8.00	108	13.0665	75.652529	60410	MG9
37	Chikkamagaluru	N.R.Pura	Magundi	0.28	0.07	7.00	80	13.2750	75.4833	60504	NR1
38	Chikkamagaluru		Kadlemakki	0.06	0.41	1.00	136	13.3583	75.4667	060502HP	NR2
39	Chikkamagaluru		Chikka Agrahara	0.07	0.13	4.00	84	13.4651	75.4687	060505HP	NR3
40	Chikkamagaluru		Muthinakoppa	1.05	0.1	3.00	52	13.7194	75.4667	60503	NR4
41	Chikkamagaluru		N.R.Pura Town	0.05	0.2	24.00	144	13.6083	75.5194	60501	NR5

1	2	3	4	5	6	7	8	9	10	11	12
42	Chikkamagaluru	Sringeri	Begar	0.06	0.08	3.00	48	13.5056	75.1944	060602HP	SR1
43	Chikkamagaluru		Kigga	0.18	0.1	5.00	156	13.4194	75.1931	060603HP	SR2
44	Chikkamagaluru		Sringeri town	1.34	0.08	1.00	48	13.4194	75.2528	60601	SR3
45	Chikkamagaluru		Kunthuru	0.03	0.08	8.00	140	13 23 14	75 17 52	60606	SR4
46	Chikkamagaluru	Tarikere	Vdera	0.07	0.29	6.00	236	13 33 30	75 49 59		TK1
47	Chikkamagaluru		Lingadahalli	0.08	0.11	2.00	48	13 35 45	75 50 30	060702HP	TK2
48	Chikkamagaluru		Doranalu	0.05	0	49.00	388	13 50 39	75 50 01	60719	TK3
49	Chikkamagaluru		Sompura	0.08	0.3	1.00	260	13 43 30	75 40 40	60722	TK4
50	Chikkamagaluru		Ganjigere	0.1	0.67	4.00	220	13 42 25	75 42 21	060710HP	TK5
51	Chikkamagaluru		Duglapura	0.09	0.14	2.00	68	12 42 55	75 44 54	60720	TK6
52	Chikkamagaluru		Tarikere town	0.14	0.43	16.00	220	13 42 34	75 48 41	060701HP	TK7
53	Chikkamagaluru		Samatala	1.24	0.4	46.00	856	13 43 32	75 51 21	60720	TK8
54	Chikkamagaluru		Shivapura	0.29	0.62	3.00	648	13 40 13	75 55 37	60721	TK9
55	Chikkamagaluru		Sokke	0.69	0.52	48.00	632	13 42 54	75 57 49	060707HP	TK10
56	Chikkamagaluru		Makanahalli	0.06	0.54	5.00	496	13 42 51	75 55 43	60718	TK11
57	Chikkamagaluru		Chikkanavangala	0.05	0.36	3.00	248	13 47 57	75 58 46	60709	TK12
58	Chikkamagaluru		Shivani	0.07	0.96	165.00	504	13 48 57	76 01 46	060703HP	TK13
59	Chikkamagaluru		Bettadahalli	0.05	0.41	5.00	292	13 41 37	75 52 54	060708HP	TK14
60	Chikkamagaluru		Sollapura	0.09	0.49	95.00	736	13 43 15	76 3 32	60726	TK15
61	Chikkamagaluru		Ajjampura	0.07	0.57	68.00	456	13 43 41	76 0 14	60727	TK16

	Alternate Source
	Not Potable

## **CHIKKAMAGALURU DISTRICT**

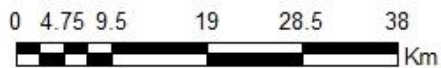
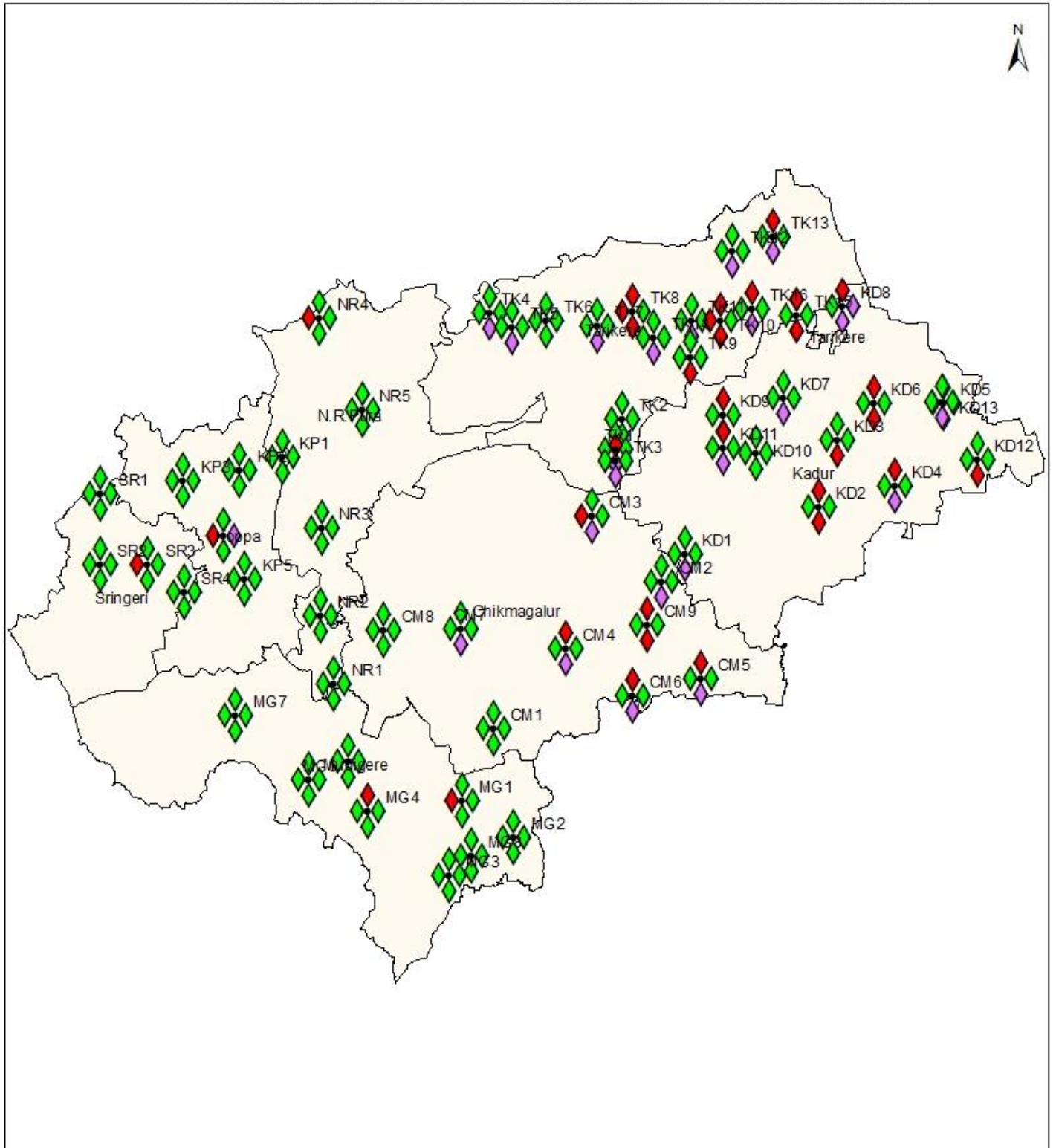
Water samples have been collected from 61 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-19. In respect of Total Iron, 7 stations (11%) viz., 1 station from Chikkamagaluru taluk, 1 station from Koppa taluk, 1 station from Mudigere taluk, 1 station from N.R.Pura taluk, 1 station from Sringeri taluk and 2 station from Tarikere taluk contained Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary from 0.03 to 1.80 mg/L. Hospet station of Chikkamagaluru taluk had maximum Iron content (1.80 mg/L).

In respect of Fluoride, no stations contained Fluoride content beyond the Acceptable limit of Indian Drinking Water Specification. Fluoride concn. vary from Nil to 1.28 mg/L.

In respect of Nitrate, 18 stations (29%) viz., 4 stations from Chikkamagaluru taluk, 6 stations from Kadur taluk, 2 stations from Mudigere taluk and 6 stations from Tarikere taluk contained Nitrate content beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary from 1.00 to 191 mg/L. Lokya station of Chikkamagaluru taluk had maximum Nitrate content (191 mg/L).

In respect of Total Hardness, 9 stations (15%) viz., 1 station from Chikkamagaluru taluk, 4 stations from Kadur taluk and 4 stations from Tarikere taluk contained Total Hardness beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn.vary from 40 to 880 mg/L. Yellambalse station of Kadur taluk had maximum Total Hardness content (880 mg/L).

# WATER QUALITY DATA OF CHIKKAMAGALUR DISTRICT



**POTABLE**

**ALTERNATE**

**NON-POTABLE**

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600

**LEGEND**

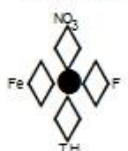




Table - 20

## WATER QUALITY DATA OF DAKSHINA KANNADA DISTRICT 2018-19

Sl No	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well code	Well ID
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L				
1	2	3	4	5	6	7	8	9	10	11	12
1	D.Kannada	Bantwal	Mudipu	0.13	0.11	1	108	12.8069	74.9544	80105	BN1
2	D.Kannada		Mani	2.00	0.13	0	355	12.8336	75.1200	80103	BN2
3	D.Kannada		Bantwal	0.13	0.06	1	76	12.9053	75.0415	80101	BN3
4	D.Kannada		Rayi	0.09	0.08	1	52	12.9653	75.0489	80107	BN4
5	D.Kannada		Pudu	0.02	0.04	29	48	12.8618	74.9674	0	BN5
6	D.Kannada		Ukkudu	1.00	0.08	0	80	12.7436	75.1078	80109	BN6
7	D.Kannada	Belthangadi	Uruvalu	0.02	0.09	17	72	12.8780	75.2700	80208	BT1
8	D.Kannada		Ujire	0.16	0.12	18	88	12.9969	75.3269	80206	BT2
9	D.Kannada		Mundaje	0.02	0.05	1	32	13.0371	75.3642	80202	BT3
10	D.Kannada		Venur	0.1	0.23	1	116	13.0150	75.1317	80210	BT4
11	D.Kannada		Naravi	0.05	0.04	1	32	13.1192	75.1531	80203	BT5
12	D.Kannada		Badaga	0.07	0.11	0	40	13 02 43	75 12 24	80201	BT6
13	D.Kannada	Kukkala	0.06	0.06	11	52	12 56 56	75 11 09	80205	BT7	
14	D.Kannada	Mangalore	Kotekar	1.60	0.17	1	92	12.8014	74.8924	80305	MG1
15	D.Kannada		Shirthedy	2.91	0.02	1	44	13.0842	75.0839	80310	MG2
16	D.Kannada		Beluvi	0.06	0.03	1	52	13.1267	74.9942	80302	MG3
17	D.Kannada		Moodabidre	0.03	0.04	7	28	13.0747	74.9917	80307	MG4
18	D.Kannada		Gehjimatta	0.05	0.03	33	44	12.9825	74.8892	80301	MG5
19	D.Kannada		Bajape	0.04	0.05	37	56	12.9964	74.8011	80312	MG6
20	D.Kannada		Surathkal	0.02	0.08	32	80	13.0869	74.7917	80309	MG7
21	D.Kannada		Mulki	0.02	0.05	8	44	13.0869	74.7917	80309	MG8
22	D.Kannada	Puttur	Bettampadi	0.04	0.06	1	140	12.6639	75.1996	0	PU1
23	D.Kannada		Sarve	1.58	0.07	2	68	12.7422	75.2978	80410	PU2
24	D.Kannada		Uppinangadi	0.03	0.07	1	28	12.8350	75.2592	80412	PU3
25	D.Kannada		Kuntur	0.16	0.05	8	76	12.7750	75.3717	80404	PU4
26	D.Kannada	Sullya	Kadaba	0.25	0.04	6	60	12.7400	75.4703	80402	SU1
27	D.Kannada		Gundya	0.13	0.06	1	24	12.8269	75.5728	80401	SU2
27	D.Kannada		Gundya	0.13	0.06	1	24	12.8269	75.5728	80401	SU3
28	D.Kannada		Subramanya	0.07	0.05	1	60	12.6636	75.6136	80510	SU4
29	D.Kannada		Jalsur	0.48	0.05	1	24	12.5983	75.3383	80507	SU5
30	D.Kannada		Aranjhadu	0.27	0.06	2	28	12.5208	75.4750	80501	SU6
31	D.Kannada		Sampige	0.07	0.04	2	92	12.5114	75.5489	80509	SU7
32	D.Kannada		Guttigaruru	0.13	0.12	1	132	12.6311	75.5289	80505	SU8
33	D.Kannada		Bellare	0.20	0.14	1	92	12.6647	75.3644	80503	SU9

	Alternate Source
	Not Potable

## **DAKSHINA KANNADA DISTRICT**

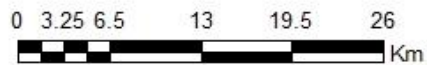
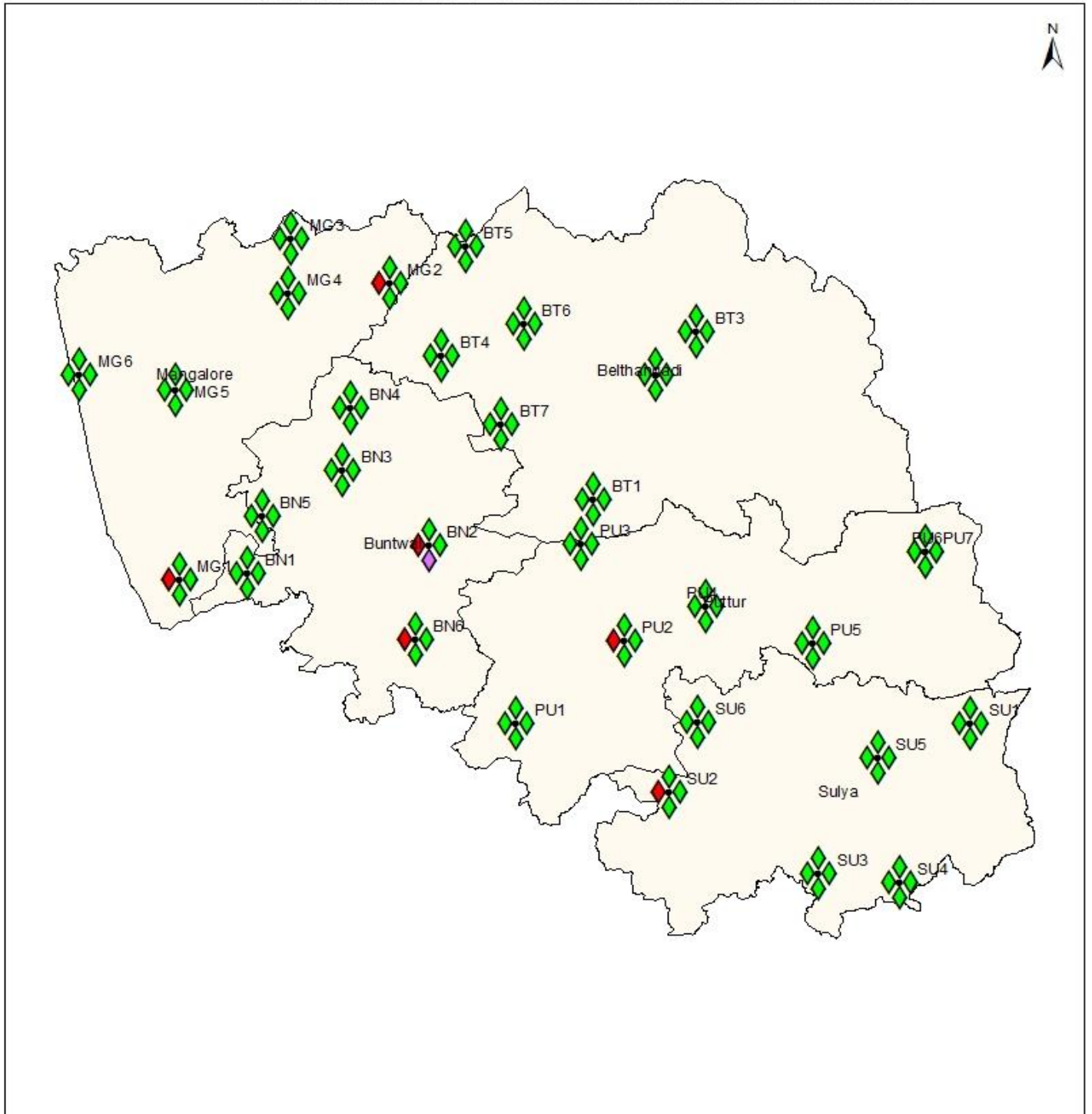
Water samples have been collected from 33 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-20. In respect of Total Iron, 6 stations (18%) viz., 2 stations from Bhanwal taluk, 2 stations from Mangalore taluk, 1 station from Puttur taluk and 1 station from Sullya taluk contained Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary from 0.02 to 2.91 mg/L. Shirthedy station of Mangalore taluk had maximum Iron content (2.91 mg/L).

In respect of Fluoride, no stations contained Fluoride content beyond the Acceptable limit of Indian Drinking Water Specification. Fluoride concn. vary from 0.03 to 0.23 mg/L.

In respect of Nitrate, no stations contained Nitrate content beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary from Nil to 37 mg/L.

In respect of Total Hardness, no stations contained Total Hardness content beyond the Acceptable limit of Indian Drinking Water Specification. Total Hardness concn. vary from 24 to 355 mg/L.

# WATER QUALITY DATA OF DAKSHINA KANNADA



**POTABLE**

**ALTERNATE**

**NON-POTABLE**

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600

**LEGEND**

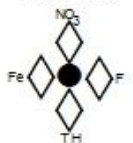


Table - 21

## WATER QUALITY DATA OF DAVANAGERE DISTRICT 2018-19

Sl. No	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well Code	Well ID
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L				
1	2	3	4	5	6	7	8	9	10	11	12
1	Davanagere	Davanagere	Kukkavada	0.05	0.7	32	236	14.3306	75.8861	70303	DG1
2	Davanagere		Anaji	0.03	0.8	38	68	14.4808	76.0800	70315	DG2
3	Davanagere		Hunasekatte	0.01	0.1	16	376	14.3708	76.1292	70306	DG3
4	Davanagere		Adagodu	0.01	-	18	252	14.3914	76.0461	70312	DG4
5	Davanagere		Avaragere	0.03	0	45	316	14.4456	75.9464	70302	DG5
6	Davanagere		Hadahadi	0.03	0.5	72	160	14 21 34	75 53 28	070314	DG6
7	Davanagere		Kodaganuru	-	0.2	32	200	14 19 45	76 02 15	070311	DG7
8	Davanagere		Kurki	0.31	0.1	18	252	142225	755820	070309	DG8
9	Davanagere		Doddabathi	0.21	0.7	35	268	14 28 56	75 51 29	070310	DG9
10	Davanagere	Jagaluru	Pallagatte	0.21	0.8	16	160	14.5708	76.1972	70808	JG1
11	Davanagere		Uchangipura	0.05	1.00	12	88	14.6028	76.1597	70809	JG2
12	Davanagere		Bilchodu	0.02	0.3	18	1188	14.4936	76.1561	70803	JG3
13	Davanagere		Lakkampura	0.03	0.7	38	292	143832	761745	70804	JG4
14	Davanagere		Kysenahalli	0.03	0.1	12	70	143808	762030	070812	JG5
15	Davanagere		Kecchanahalli	0.03	0.8	45	312	143413	761826	070810	JG6
16	Davanagere		HMG Hatti	0.03	0.8	12	160	143115	762645	070811	JG7
17	Davanagere		Jagluru	0.03	0.6	18	184	143110	762025	070802	JG8
18	Davanagere		Medhuginakere	0.01	0.4	28	12	142930	761515	070814	JG9
19	Davanagere	Channagiri	Santhebennuru	0.31	0.3	48	280	14.1681	76.0025	170202HP	CG1
20	Davanagere		Hebbalagere	0.03	0.3	45	124	14.0433	76.0022	170206	CG2
21	Davanagere		Channagiri	0.81	0.3	32	84	14.0203	75.9300	170201	CG3
22	Davanagere		Tavarekere	0.85	0.7	37	212	13 51 14	75 57 45	170203	CG4
23	Davanagere		Hirekogaluru	0.31	0.7	72	320	14 11 47	75 57 16	170210	CG5
24	Davanagere		Basavapattana	0.75	0.4	30	240	14 11 54	75 48 40	170213	CG6
25	Davanagere		Doddaghatta	0.03	0.7	30	100	14 13 00	75 53 00	170209	CG7
26	Davanagere		Kariganuru	0.05	0.7	35	84	14 18 23	75 51 07	170208	CG8
27	Davanagere	Harppana halli	Kaanahalli	0.03	0.8	12	208	14.8708	76.0172	30306	HP1
28	Davanagere		Cherestehalli	0.71	0.4	14	132	14.6944	75.9053	30304	HP2
29	Davanagere		kunchuru	0.75	0.8	12	380	14.7300	75.8214	030314HP	HP3
30	Davanagere		Bennehalli	0.31	0.7	42	220	14.7925	76.1154	30302	HP4
31	Davanagere		Arasikere	0.05	0.1	78	88	14.6869	76.0714	030301D	HP5
32	Davanagere		Harapanahalli	0.05	0.6	28	140	14.7931	75.9889	30305	HP6
33	Davanagere		Telagi	0.5	0.4	16	36	14.6553	75.8919	30310	HP7
34	Davanagere		Kanivehalli	0.75	0.4	25	204	14 52 20	76 01 00	030306	HP8
35	Davanagere		Kadabagere	0.21	0.8	63	268	14 42 50	76 05 20	030307	HP9

1	2	3	4	5	6	7	8	9	10	11	12
36	Davanagere	Harihara	Kamalapura	0.03	0.7	35	160	14.4440	75.7334	70406	HH1
37	Davanagere		Malebennuru	0.51	0	7	504	14.3561	75.7411	70407	HH2
38	Davanagere		Ekkegundi	0.25	0.7	48	88	14.4269	75.7783	70404	HH3
39	Davanagere		Kondaggi	0.71	0.1	18	292	14 34 12	75 52 20	070403	HH4
40	Davanagere		Kumbaluru	0.03	0.7	6	144	142222	754505	070405	HH5
41	Davanagere		Gutturu	0.25	0.2	29	160	143215	754845	070401	HH6
42	Davanagere	Honnali	Hosalingapura	0.71	0.2	21	220	14.1083	75.7328	170305	HN1
43	Davanagere		Arakere	0.75	0.2	47	252	14.2778	75.6764	170311	HN2
44	Davanagere		Chinnikatte	0.5	0.7	16	80	14.1222	75.4889	170313	HN3
45	Davanagere		Nyamathi	0.3	0.3	12	140	14.1495	75.5650	170301N	HN4
46	Davanagere		Devanayakanahalli	0.8	0	35	132	141420	753905	170310	HN5
47	Davanagere		Benakanahalli	0.21	0.3	18	180	14 12 45	75 42 40	170309A	HN6
48	Davanagere		Arashinaghatta	0.05	0.3	42	132	140642	755255	170215	HN7
49	Davanagere		Joladal	0.71	0	53	116	13.9614	75.8550		HN8
50	Davanagere		Maravanji	0.35	0	35	240	13 56 47	75 58 28	170210 A	HN9
51	Davanagere		Kundur	0.07	0	35	272	141710	754658	170304	HN10

	Alternate Source
	Not Potable

## **DAVANAGERE DISTRICT**

Water samples have been collected from 51 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-21. In respect of Total Iron, 19 stations (37%) viz., 1 station from Davanagere taluk, 5 stations from Channagiri taluk, 5 stations from Harappanahalli taluk, 2 stations from Harihara taluk and 6 stations from Honnali taluk contained Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary from 0.01 to 0.85 mg/L. Tavarekere station of Channagiri taluk had maximum Iron content (0.85 mg/L).

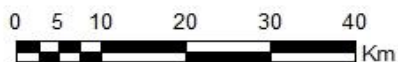
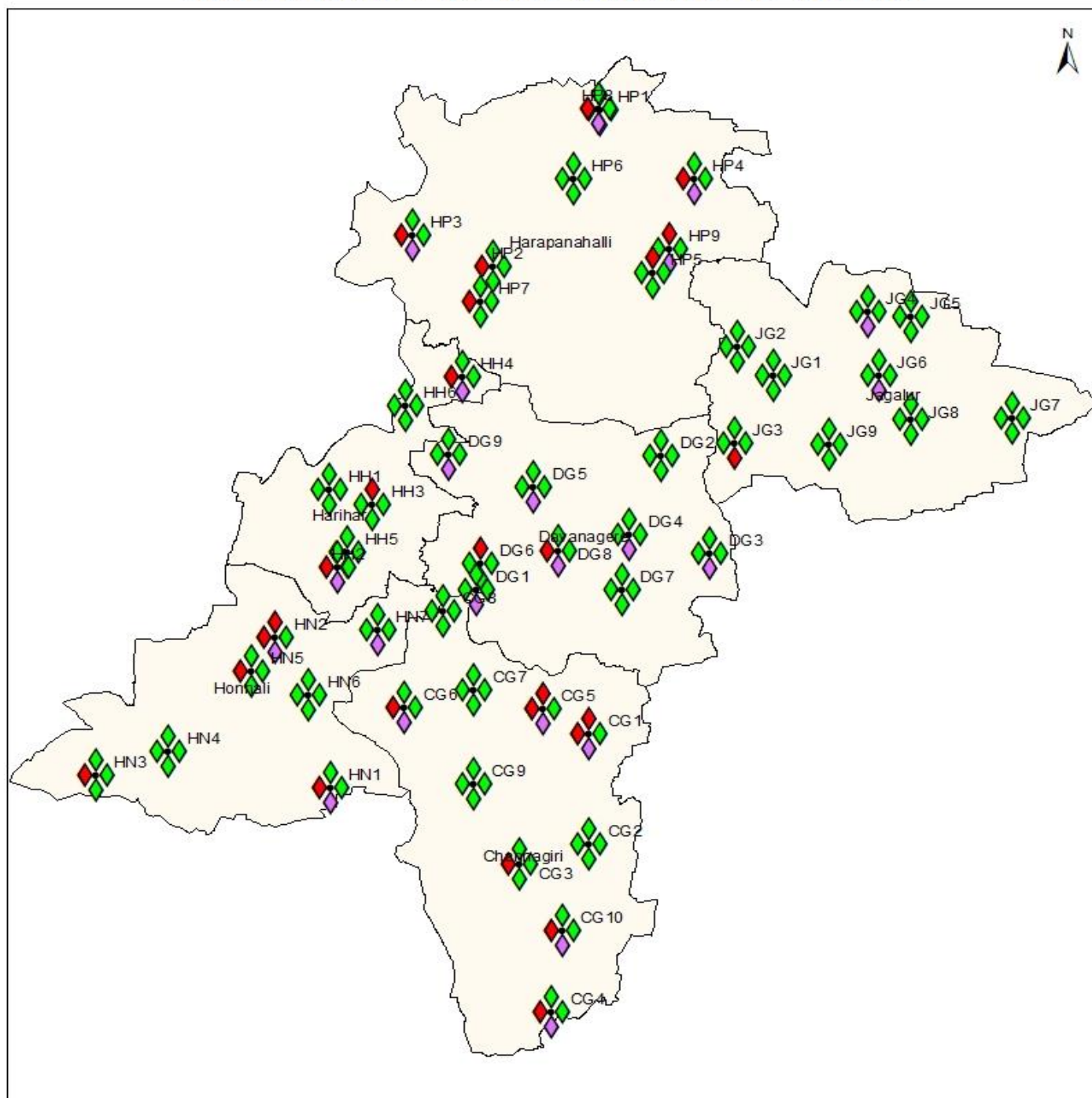
In respect of Fluoride, no stations contained Fluoride content beyond the Acceptable limit of Indian Drinking Water Specification. Fluoride concn. vary from Nil to 1.00 mg/L.

In respect of Nitrate, 8 stations (15%) viz., 1 station from Davanagere taluk, 2 stations from Channagiri taluk, 2 stations from Harappanahalli taluk, 1 station from Harihara taluk and 2 stations

from Honnali taluk contained Nitrate content beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary from 6 to 78 mg/L. Arasikere station of Harappanahalli taluk had maximum Nitrate content (78 mg/L).

In respect of Total Hardness, 1 station (2%) viz., Bilchode station from Jagaluru taluk contained Total Hardness beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn. vary from 12 to 1188 mg/L. Bilchode station from Jagaluru taluk had maximum Total Hardness content (1188 mg/L).

# WATER QUALITY DATA OF DAVANAGERE DISTRICT



- POTABLE
- ALTERNATE
- NON-POTABLE

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600



Table - 22

## WATER QUALITY DATA OF DHARWAD DISTRICT 2018-19

SI No	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well Code	Well type
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L				
1	2	3	4	5	6	7	8	9	10	11	12
1	Dharwad	Dharwad	Amminbhavi	0.01	0.8	18	268	15.5383	75.0550	090218HP	DW1
2	Dharwad		Kotbagi	0.02	0.1	7	376	15.6100	74.9600	90207	DW2
3	Dharwad		Somapur	0.02	0.3	13	1480	15.4653	75.0938	90201	DW3
4	Dharwad		Vanahalli	0.03	1.52	58	696	15.5289	75.1588	90217	DW4
5	Dharwad		Aravatagi	0.01	0.4	5	192	15.4487	74.8270	090212HP	DW5
6	Dharwad		Mandihal	0.01	0.2	6	224	15.4565	74.8888	090219HP	DW6
7	Dharwad		Guledkoppa	0.02	0.1	5	196	15.5478	74.8525	090209HP	DW7
8	Dharwad		Alnavar	0.01	0.2	7	228	15.4260	74.7374	090220HP	DW8
9	Dharwad		Garag	0.01	0.1	8	264	15.5618	74.9415	090221HP	DW9
10	Dharwad		Byahati	0.02	2.5	8	288	15.4734	74.9903	090710HP	DW10
11	Dharwad		Yarikoppa	0.03	0.2	8	344	15.3936	75.0048	090215HP	DW11
12	Dharwad		Tadakoda	0.02	0.2	8	240	15.6006	74.9033	090208HP	DW12
13	Dharwad		Dharwad	0.01	0.1	8	196	15.4587	75.0112	090222pz	DW13
14	Dharwad		Morab	0.01	0.1	3	80	150 34' 37.	750 09' 47.		DW14
15	Dharwad		Shelavadi	0.02	0.6	14	1120	150 15' 22'	750 10' 06'		DW15
16	Dharwad	Kundagol	Jigalur	0.02	0.2	6	196	15.1317	75.1481	090908HP	KG1
17	Dharwad		Hirebudihal	0.02	0.3	9	232	15.1363	75.2190	090902HP	KG2
18	Dharwad		Gudigeri	0.01	0.4	17	232	15.1235	75.3621	090901HP	KG3
19	Dharwad		Sanunshi	0.02	0.2	7	652	150 3639.0	740 578.0		KG4
20	Dharwad		Kundagol	0.01	0.2	10	720	15.2500	75.2500	90903	KG5
21	Dharwad	Navala gunda	Navalagunda	0.02	0.3	60	3480	15.5335	75.3550	091204HP	NG1
22	Dharwad		Annigeri	0.02	0.4	100	924	150 25 07	750 26 00		NG2
23	Dharwad	Hubli	Sherwad	0.01	0.2	22	208	15.2603	75.1867	90705	HB1
24	Dharwad		Beednal	0.03	0.2	50	616	15.3280	75.1528	090712HP	HB2
25	Dharwad		Manturu	0.01	0.4	106	1000	15.3351	75.2397	090703HP	HB3
26	Dharwad		Chebbi	0.03	0.3	4	128	15.2233	75.1411	090702HP	HB4
27	Dharwad		Hubli	0.01	0.2	10	324	15.3457	75.1676	090711HP	HB5
28	Dharwad	Kala Ghatagi	T.Honnalli	0.03	0.2	6	192	15.1456	75.0606	090803HP	KG1
29	Dharwad		Dummawada	0.02	0.2	10	404	15.3065	75.0214	090804HP	KG2
30	Dharwad		Kalaghatagi	0.04	0.5	5	172	15.1835	74.9676	90801	KG3

	Alternate Source
	Not Potable



## **DHRAWADA DISTRICT**

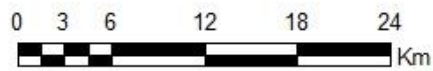
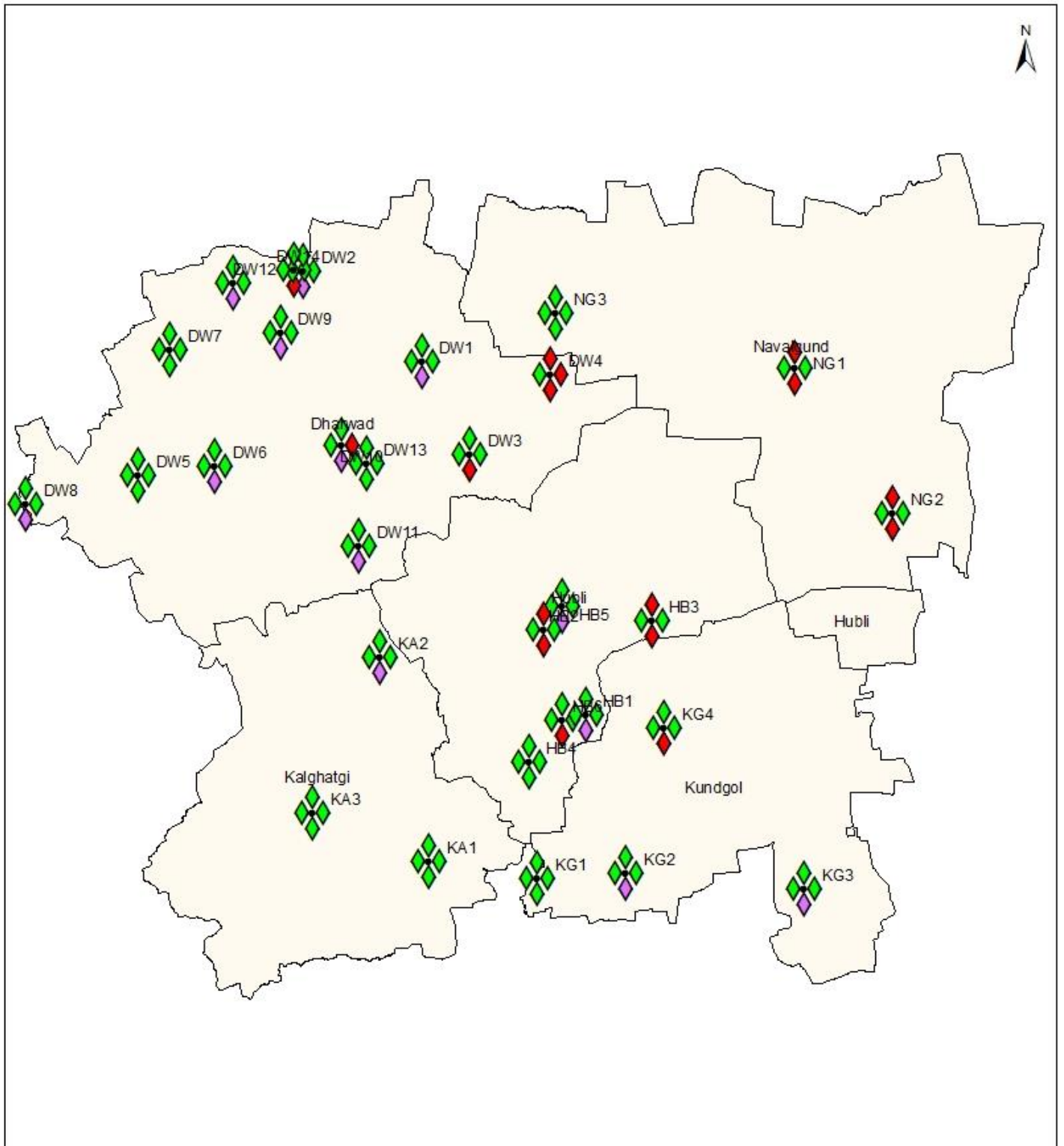
Water samples have been collected from 30 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-22. In respect of Total Iron, no stations contained Total Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary from 0.01 to 0.04 mg/L.

In respect of Fluoride, 2 stations (6%) viz., 2 stations from Dharwad taluk content beyond the Permissible limit of Indian Drinking Water Specification. Fluoride concn. vary from 0.12 to 2.50 mg/L. Byahatti station of Dharwad taluk had maximum Fluoride content (2.50 mg/L).

In respect of Nitrate, 5 stations (16%) viz., 1 station from Dharwad taluk, 2 stations from Navalagunda taluk and 2 stations from Hubli taluk contained Nitrate content beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary from 4 to 106 mg/L. Manturu station of Hubli taluk had maximum Nitrate content (106 mg/L).

In respect of Total Hardness, 9 stations (30%) viz., 3 stations from Dharwad taluk, 2 stations from Kundagola taluk, 2 stations from Navalagunda and 2 stations from Hubli taluk contained Total Hardness beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn. vary from 80 to 3480 mg/L. Navalagunda station of Navalagunda taluk had maximum Total Hardness content (3480 mg/L).

# WATER QUALITY DATA OF DHARWAD DISTRICT



- ◆ **POTABLE**
- ◆ **ALTERNATE**
- ◆ **NON-POTABLE**

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600



Table -23

## WATER QUALITY DATA OF HAVERI DISTRICT 2018-19

Sl No	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well Code	Well ID
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L				
1	2	3	4	5	6	7	8	9	10	11	12
1	Haveri	Byadagi	Tadasa	0.02	0.1	7	192	14.6083	75.4083	90102	BG1
2	Haveri		Kaginele	0.02	0.2	8	196	14.6917	75.3583	900103 HP	BG2
3	Haveri		Motebennur	0.03	0.1	17	652	14.7167	75.4833	90104 HP	BG3
4	Haveri		Byadagi	0.02	0.2	18	504	14 40 30	75 29 15	90101HP	BG4
5	Haveri	Hanagal	Makarvalli	0.01	0.1	3	160	14.6540	75.1690	90407	HN1
6	Haveri		Bommanahalli	0.03	0.2	7	240	14.8833	75.1333	90401	HN2
7	Haveri		Sammalagi	0.02	0.1	2	124	14.6972	75.0383	90409	HN3
8	Haveri		Hanagal	0.03	0.2	3	168	14.7707	75.1226	90411 HP	HN4
9	Haveri		Hanumankoppa	0.04	0.1	4	396	14.7052	75.0970	090410 HP	HN5
10	Haveri		Akki-alur	0.04	0.1	30	572	14.7304	75.1662	90405	HN6
11	Haveri		Maharajpet	0.02	0.4	5	176	14.8221	75.1613	90402	HN7
12	Haveri		Aadur	0.04	0.1	5	268	14.7751	75.2494	90403 HP	HN8
13	Haveri		Konankere	0.02	0.2	3	128	14 57 12	75 08 40		HN9
14	Haveri		Agadi	0.04	0.1	15	608	14.8167	75.4750	90504	HV1
15	Haveri	Haveri	Kanavalli	0.03	0.1	8	348	14.8529	75.3317	90508HP	HV2
16	Haveri		Haleritti	0.02	0.5	9	420	14.8658	75.5397	90501	HV3
17	Haveri		Guttal	0.02	0.6	8	368	14.8333	75.6417	90503HP	HV4
18	Haveri		Sanguru	0.03	0.3	8	308	14.7773	75.3009	090509 HP	HV5
19	Haveri		Honnatti	0.01	0.1	14	820	14 4 47	75 38 20		HV6
20	Haveri		Negalur	0.01	0.4	7	384	14 53 35	75 36 18	90507HP	HV7
21	Haveri		Haveri	0.02	0.2	10	364	14 47 30	75 2351	90502	HV8
22	Haveri		Hirekerur	Koda	0.04	0.2	10	352	14.5181	75.4469	90606
23	Haveri	Kaduru		0.03	0.6	6	312	14.4139	75.5500	90605 HP	HK2
24	Haveri	Hirekerur		0.04	0.1	3	108	14.4500	75.4003	90602	HK3
25	Haveri	Masuru		0.03	0.3	12	292	14.3667	75.4500	90603 HP	HK4
26	Haveri	Rattihalli		0.02	0.4	8	608	14 25 13	75 30 27	90604	HK5
27	Haveri	Hamsabhavi		0.03	0.2	4	196	14 34 15	75 22 11	9066601	HK6
28	Haveri	Rane bennur	Tamminkatti	0.04	0.9	10	380	14.4130	75.6188	91308	RB1
29	Haveri		Haregoppa	0.03	1.2	7	284	14.5161	75.5697	91307	RB2
30	Haveri		Halageri	0.03	0.2	15	704	14.5583	75.6083	91304	RB3
31	Haveri		Ranebennur	0.02	0.4	8	396	14.6333	75.6250	91301	RB4
32	Haveri		Kamadodu	0.02	1	9	264	14 34 26	75 40 55	91302HP	RB5
33	Haveri		Asundi	0.03	0.4	4	116	14 38 14	75 39 32	901306HP	RB6
34	Haveri	Savanur	Kadakol	0.03	0.1	8	448	14.9833	75.4667	91503	SV1
35	Haveri		Karadagi	0.02	0.2	10	648	15.0328	75.3048	91504	SV2
36	Haveri		Yalavagi	0.02	0.2	80	1032	15.0333	75.4000	91502	SV3
37	Haveri		Savanur	0.04	0.3	28	512	14.9657	75.3377	91501	SV4
38	Haveri	Shiggav	Hulaguru	0.03	0.2	50	848	15.0833	75.2833	91607	SG1
39	Haveri		Dundasi	0.03	0.1	20	364	15.0293	75.1434	91603	SG2
40	Haveri		Bankapur	0.05	0.2	22	488	14.9226	75.2639	91605	SG3
41	Haveri		Shiggav	0.04	0.1	2	88	14.9967	75.2107	91608	SG4

	Alternate Source
	Not Potable

## **HAVERI DISTRICT**

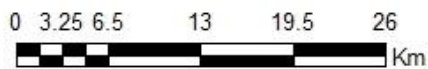
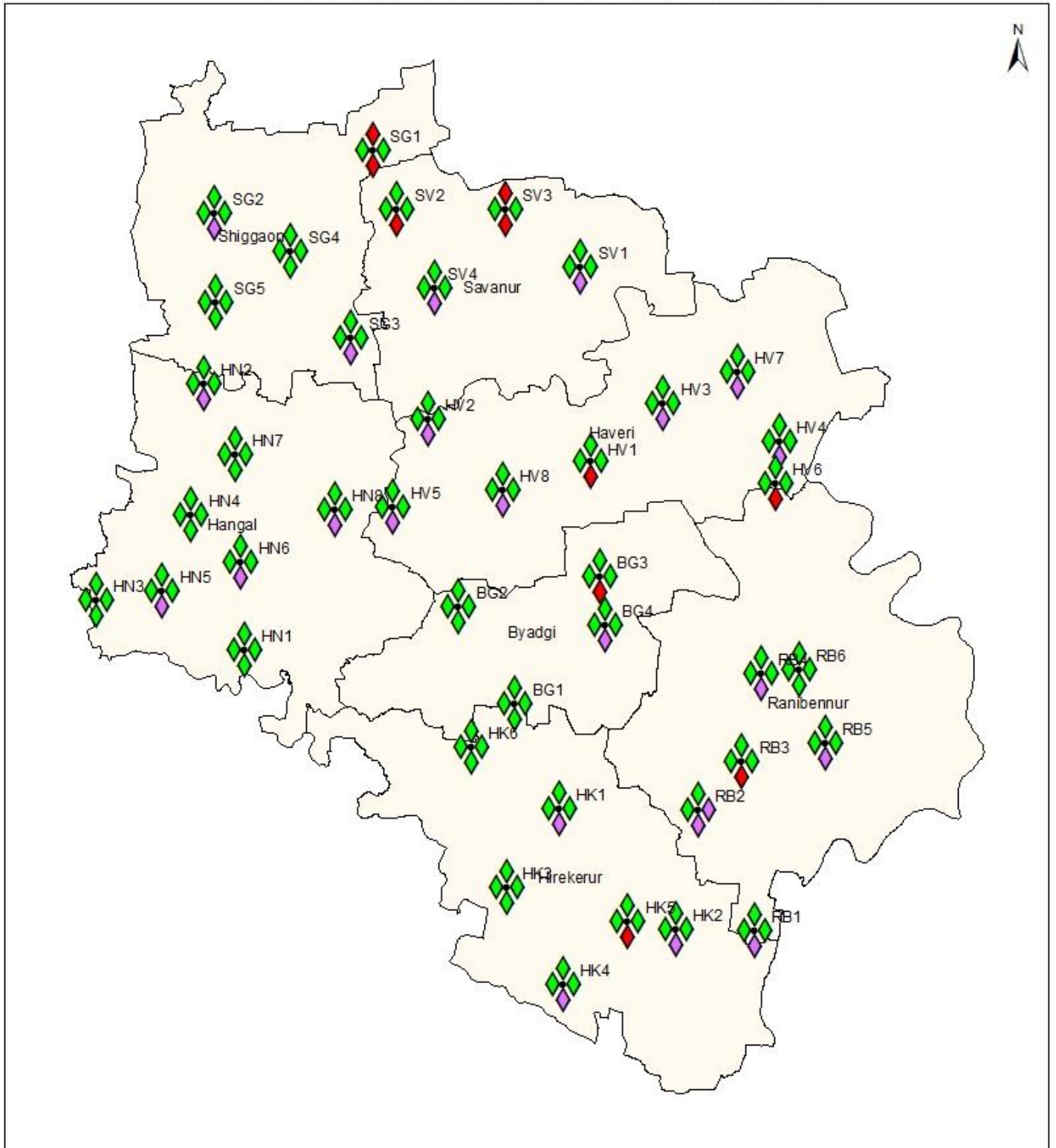
Water samples have been collected from 41 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-23. In respect of Total Iron, no stations contained Total Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary from 0.01 to 0.05 mg/L.

In respect of Fluoride, no stations contained Fluoride content beyond the Acceptable limit of Indian Drinking Water Specification. Fluoride concn. vary from 0.1 to 1.20 mg/L.

In respect of Nitrate, 2 stations (5%) viz., 1 station from Savanuru taluk and 1 station from Shiggav taluk contained Nitrate content beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary from 2 to 80 mg/L. Yalavagi station of Savanuru taluk had maximum Nitrate content (80 mg/L).

In respect of Total Hardness, 8 stations (19%) viz., 1 station from Byadagi taluk, 2 stations from Haveri taluk, 1 station from Hirekeruru taluk, 1 station from Ranebennur taluk, 2 stations from Savanuru taluk and 1 station from Shiggav taluk contained Total Hardness beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn. vary from 88 to 1032 mg/L. Yelavagi station of Savanuru taluk had maximum Total Hardness content (1032 mg/L).

# WATER QUALITY DATA OF HAVERI DISTRICT



- ◆ POTABLE
- ◆ ALTERNATE
- ◆ NON-POTABLE

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
●	●	●	●
<45	<0.30	<1.0	<200
●	●	●	●
-	-	1.0-1.5	200-600
●	●	●	●
>45	>0.30	>1.5	>600



Table - 24

## WATER QUALITY DATA OF HASSAN DISTRICT 2018-19

Sl No	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well Code	Well ID
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L				
1	2	3	4	5	6	7	8	9	10	11	12
1	Hassan	Alur	Biba	0.11	0.24	15	276	12.9547	75.9789	110104	AL1
2	Hassan		Intipura	0.05	0.18	16	200	12.9967	75.9647	110105	AL2
3	Hassan		Kuldur	0.06	0.19	5	216	12.8639	75.9689	110101	AL3
4	Hassan		K.Hoskote	0.03	0.2	3	168	12.8594	75.85527	110102	AL4
5	Hassan		Alur	0.03	0.13	17	236	13.33222	75.99111	110107	AL5
6	Hassan	Arakal gudu	Arakalagudu	0.04	0.47	43	336	12.7606	76.0608	110201	AG1
7	Hassan		Devarahalli	0.03	1.53	1	208	12.7678	76.1058	110211HP	AG2
8	Hassan		Daddamagge	0.05	0.4	9	220	12.6892	76.0833	110209	AG3
9	Hassan		Honnenahalli	0.05	0.94	15	192	12.5967	76.1731	110203	AG4
10	Hassan		Konanuru	0.06	0.09	1	68	12.6289	76.0517	110213HP	AG5
11	Hassan		Mallipatna	0.06	0.17	9	100	12.7553	75.9622	110214HP	AG6
12	Hassan		Ramanathapura	0.04	0.12	2	80	12.6189	76.0844	110210HP	AG7
13	Hassan	Arasikere	Bhageshpura	0.05	0.33	28	136	13.1494	76.2306	110318	AK1
14	Hassan		Gandsi	0.02	0.18	94	596	13.1581	76.3056	110322HP	AK2
15	Hassan		Chindenahalli	0.06	0.33	3	264	13.1777	76.3902	110320HP	AK3
16	Hassan		Mududi	0.24	0.3	28	116	13.2042	76.2814	110325HP	AK4
17	Hassan		Harenahalli	0.08	0.42	92	484	13.2472	76.2264	110323HP	AK5
18	Hassan		Arasikere	0.04	0.34	86	556	13.3117	76.2575	110310	AK6
19	Hassan		Ramenahalli	0.08	0.25	7	172	13.3889	76.3431	110316	AK7
20	Hassan		B.M.Kurki	0.06	0.28	11	232	13.4600	76.3528	110321HP	AK8
21	Hassan		Kallumadarahalli	0.1	0.29	6	256	13.4811	76.2628	110324HP	AK9
22	Hassan		Shanagere	0.29	0.46	29	468	13.4375	76.1936	110326HP	AK10
23	Hassan		Bendekere	0.08	2.38	5	216	13.3608	76.2142	110319HP	AK11
24	Hassan		Arakere	0.07	0.2	6	240	13.3750	76.1311	110317HP	AK12
25	Hassan		Banduru	0.03	0.2	49	172	13.2917	76.1028	110312	AK13
26	Hassan		Javagal	0.06	0.35	76	464	13.3014	76.0569	110307	AK14
27	Hassan		S.R.Roppalu	0.06	0.25	7	172	13.3447	76.3250	110308	AK15
28	Hassan	Beluru	Hagare	0.09	0.46	3	240	13.1278	75.9922	110407	BL1
29	Hassan		Rayapura	0.08	0.52	3	248	13.1636	75.8858	110415HP	BL2
30	Hassan		Harehalli	0.08	0.09	56	84	13.0428	75.8072	110411HPA	BL3
31	Hassan		Bikkodu	0.13	0.13	32	196	13.0756	75.8636	110402A	BL4
32	Hassan		Gondehalli	0.04	0.26	20	236	13.1836	75.7581	110408 A	BL5
33	Hassan		Nagenahalli	0.09	0.08	8	60	13.1200	75.7756	110414HP	BL6
34	Hassan		Shettigere	0.07	0.23	85	268	13.2139	75.8556	110416HP	BL7
35	Hassan		Halebeedu	0.07	0.33	67	444	13.2164	75.9931	110413HP	BL8
36	Hassan		Belur	0.12	0.21	29	196	13.16722	75.865	110417	BL9

1	2	3	4	5	6	7	8	9	10	11	12
37	Hassan	Channara yapatna	Hirisave	0.03	0.28	133	884	12.9508	76.5747	110504	CP1
38	Hassan		Devaraghalli	0.02	0.6	2	232	12.8683	76.4586	110515HP	CP2
39	Hassan		Nuggehalli	0.02	0.43	6	260	13.0047	76.4753	110514HP	CP3
40	Hassan		Muddenahalli	0.07	0.69	3	224	13.0183	76.3411	110502	CP4
41	Hassan		Kumbinahalli	0.05	0.32	10	280	12.8564	76.5433	110513HP	CP5
42	Hassan		Kalkeri	0.04	0.1	6	284	12.9606	76.4172	110510A	CP6
43	Hassan		J.H.Halli	0.03	0.34	61	636	12.9750	76.3064	110512HP	CP7
44	Hassan		Barguru	0.04	0.14	2	156	12.9411	76.3608	110507B	CP8
45	Hassan		Channarayap atna	0.04	0.16	2	144	12.9047	76.3869	110503	CP9
46	Hassan		Akkanahalli	0.07	0.54	13	192	13.0114	76.5083	110511	CP10
47	Hassan		Karehalli	0.04	0.46	6	288	13.127222	76.46277	110509	CP11
48	Hassan	Hassan	Shantigrama	0.03	0.21	72	440	12.9847	76.2181	110618HP	HS1
49	Hassan		Salagame	0.02	0.2	48	188	13.0814	76.0892	110610A	HS2
50	Hassan		Nitturu	0.05	0.26	29	192	13.1528	76.1336	110614	HS3
51	Hassan		Kattaya	0.04	0.16	38	296	12.8894	76.0744	110617HP	HS4
52	Hassan		Kandalli	0.13	0.2	4	388	12.9722	76.0586	110616HP	HS5
53	Hassan		M.Hosahalli	0.09	0.33	44	356	12.8944	76.1611	110611	HS6
54	Hassan		Channapatna	0.14	2.28	0.94	212	12.9844	76.1094	110603A	HS7
55	Hassan	Holenarasi pura	Y.G.Halli	0.09	0.35	33	392	12.7397	76.2256	110712HP	HN1
56	Hassan		H.N.pura	0.05	0.12	1	64	12.7872	76.2411	110706	HN2
57	Hassan		Hallimysore	0.06	0.22	75	424	12.6578	76.2592	110711HP	HN3
58	Hassan		D.Kadanuru	0.03	0.33	69	348	12.7039	76.2921	110710HP	HN4
59	Hassan		Beechanahalli	0.08	0.44	6	300	12.8450	76.2733	110707	HN5
60	Hassan	Sakalesh pura	Ballupete	0.03	0.1	23	72	12.9428	75.8794	110809	SK1
61	Hassan		Sakaleshpura	0.07	0.07	3	156	12.9464	75.7844	110801	SK2
62	Hassan		Hucchangi	0.04	1.6	2	132	12.7353	75.8131	110814HP	SK3
63	Hassan		S.Santhe	0.17	0.06	20	88	12.8602	75.8020	110813HP	SK4
64	Hassan		Hetturu	0.05	0.07	30	80	12.7972	75.7881	110802	SK5
65	Hassan		Agalahatti	0.06	0.05	3	40	12.9703	75.7236	110810HP	SK6

	Alternate Source
	Not Potable

## HASSAN DISTRICT

Water samples have been collected from 65 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-24. In respect of Total Iron, no stations contained Total Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary from 0.02 to 0.39 mg/L.

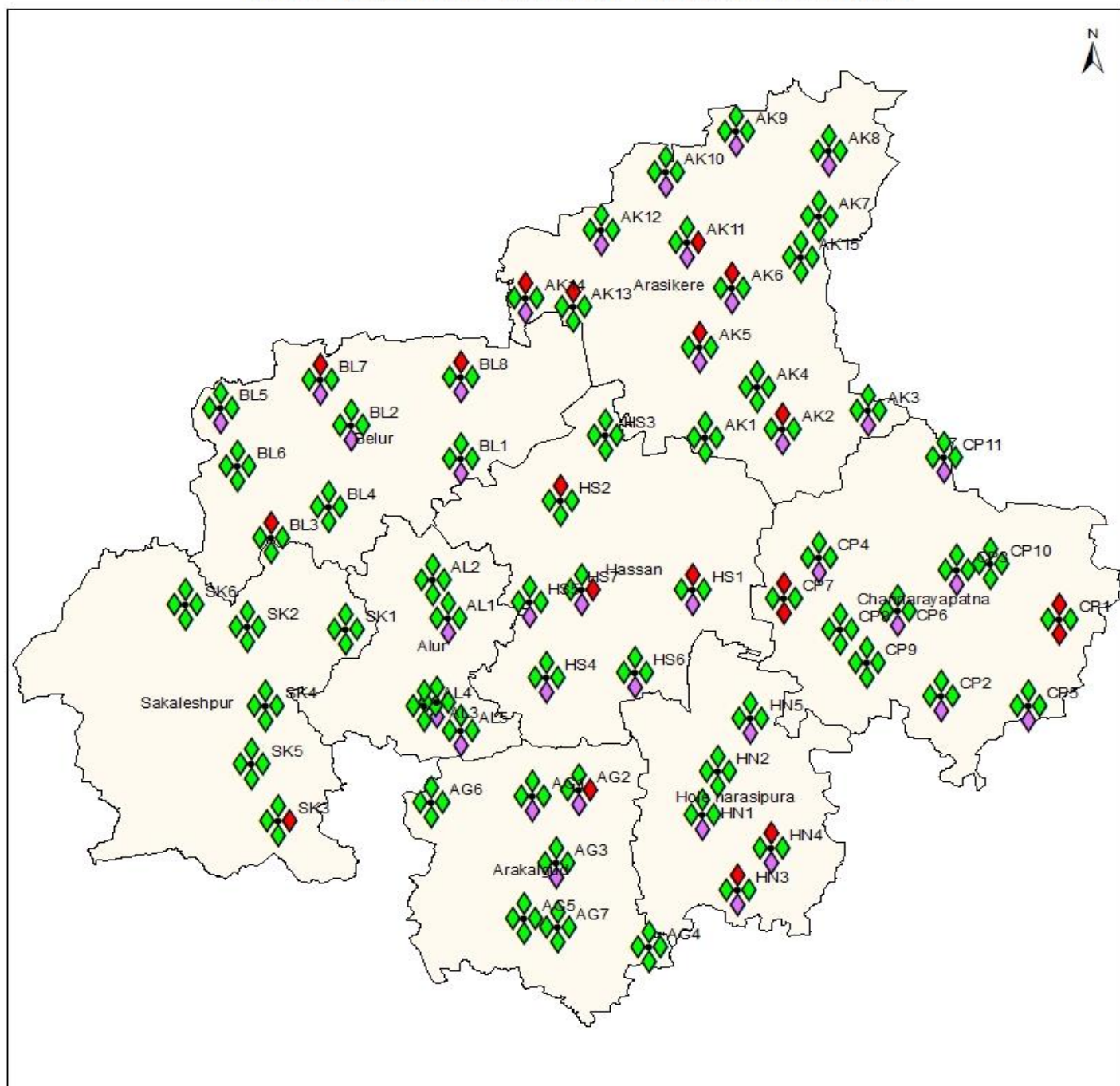
In respect of Fluoride, 4 stations (6%) viz., 1 station from Arakalagudu taluk, 1 station from Arasikere taluk, 1 station from Hassan taluk and 1 station from Sakaleshpura taluk contained Fluoride content beyond the Permissible limit of Indian Drinking Water Specification. Fluoride concn.vary from 0.05 to 2.38 mg/L. Bendekere station of Arasikere taluk had maximum Fluoride content (2.38 mg/L).

In respect of Nitrate, 14 stations (21%) viz., 5 stations from Arasikere taluk, 3 stations from Belur taluk, 2 stations from Channarayapatna taluk, 2 stations from Hassan taluk and 2 stations from Holenarasipura taluk contained Nitrate content beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary from 1 to 133 mg/L. Hirisave station of Channarayapatna taluk had maximum Nitrate content (133 mg/L).

In respect of Total Hardness, 2 stations (3%) viz., 2 stations from Channarayapatna taluk contained Total Hardness beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn.vary from 40 to 884 mg/L. Hirisave station of Channarayapatna taluk had maximum Total Hardness content (884 mg/L).



# WATER QUALITY DATA OF HASSAN DISTRICT



- **POTABLE**
- **ALTERNATE**
- **NON-POTABLE**

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600



Table - 25

## WATER QUALITY DATA OF KALABURAGI DISTRICT 2018-19

Sl No	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well Code	Well Type	
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L					
1	2	3	4	5	6	7	8	9	10	11	12	
1	Kalburgi	Chincholi	Chincholi	0.1	1.20	111	592	17 27 45	77 25 15	100305	CH1	
2	Kalburgi		Sulepeth	0.1	1.60	53	240	17 24 10	77 20 45	100303	CH2	
3	Kalburgi		Ratkal	0.1	0.30	49	476	17 27 10	76 05 55	100301	CH3	
4	Kalburgi		Korvi	0.1	0.10	49	368	17 23 00	76 16 20	100302	CH4	
5	Kalburgi		Chimmanchod	0.05	0.10	115	256	17 31 20	77 17 55	100307	CH5	
6	Kalburgi		Ranapur	0.1	0.90	80	312	17° 30' 42"	77° 12' 42"			CH6
7	Kalburgi		Kallur	0.1	1.20	75	188	17 22 55	77 28 35	100306	CH7	
8	Kalburgi		Pangarga	0.1	0.90	58	168	17 32 12	77 09 12	100309	CH8	
10	Kalburgi	Sedam	Duganoor	0.1	0.10	155	400	16 57 28	77 18 18	100710	SE1	
11	Kalburgi		Kurkunta	0.1	0.70	35	180	17 11 30	77 21 30	100705	SE2	
12	Kalburgi		Sedam	0.05	0.50	40	280	17 10 45	77 17 15	100703	SE3	
13	Kalburgi		Batgera k	0.1	0.10	35	236	17 08 05	77 18 10	100704	SE4	
16	Kalburgi		Mudhol	0.1	1.70	35	272	17 03 45	77 23 35	100707	SE5	
17	Kalburgi		Malkhed	0.1	1.40	27	384	17 11 35	77 09 40	100701	SE6	
18	Kalburgi		Adki	0.05	0.40	58	600	16 06 40	77 22 45	100702	SE7	
19	Kalburgi	Jewargi	Kallur	0.1	1.60	13	213	16 56 50	76 49 50	100607	JE1	
20	Kalburgi		Jewargi	0.1	1.50	62	480	12 00 42	76 46 36	100601	JE2	
21	Kalburgi		Mandewal	0.1	0.70	13	288	16 59 50	76 32 30	100606	JE3	
22	Kalburgi		Ijeri	0.1	0.20	124	336	16 54 36	76 41 50	100612	JE4	
23	Kalburgi		Nelogi	0.1	0.50	58	452	17 03 30	76 36 36	100605	JE5	
24	Kalburgi		Sonna	0.1	0.50	40	360	16 59 45	76 38 30	100604	JE6	
25	Kalburgi		Mavanoor	0.1	0.70	62	392	16 59 36	76 41 25	100603	JE7	
26	Kalburgi		Chigaralli	0.1	1.70	31	360	16 55 30	76 46 42	100608	JE8	
27	Kalburgi		Alur	0.1	0.30	71	184	16 53 40	76 37 57	100613	JE9	
28	Kalburgi		Nedalgi	0.1	0.70	35	440	17 00 24	76 29 06	100615	JE10	
29	Kalburgi		Yedrami	0.1	0.10	162	324	16 51 12	76 32 12	100614	JE11	
30	Kalburgi	Afzalpur	Koganoor	0.1	0.80	57	172	17 20 06	76 34 06	100106	AF1	
31	Kalburgi		Afzalpur	0.1	0.30	146	904	17 12 15	76 21 46	100109	AF2	
32	Kalburgi		Gobbur	0.1	1.10	146	480	17 16 18	76 41 24	100101	AF3	
33	Kalburgi		Chowdapur	0.1	0.90	89	312	17 13 48	76 33 12	100103	AF4	
34	Kalburgi		Huvinalli	0.1	0.60	111	520	17 10 06	76 36 36	100104	AF5	
35	Kalburgi		Atanoor	0.1	1.60	124	760	17 13 30	76 28 54	100108	AF6	
36	Kalburgi		Chincholi	0.1	1.30	128	380	17 16 20	76 25 24	100110	AF7	
37	Kalburgi		Karajigi	0.1	1.80	124	280	17 17 00	76 13 00	100115	AF8	
38	Kalburgi		Kulali	0.05	0.10	101	316	17 21 20	76 28 30	100111	AF9	
39	Kalburgi		Staganapur	0.05	0.10	155	308	17 20 30	76 35 48	100107	AF10	
40	Kalburgi		Mannur	0.1	0.50	18	960	17 17 55	76 06 00	100116	AF11	
41	Kalburgi		Udachan	0.1	0.90	89	260	17 12 55	76 10 30	100118	AF12	
42	Kalburgi		Bankalgi	0.1	1.00	53	268	17 13 48	76 18 00	100114	AF13	

1	2	3	4	5	6	7	8	9	10	11	12
43	Kalburgi	Chittapur	Gundagurti	0.1	1.50	40	272	17 14 25	77 04 10	100407	CP1
44	Kalburgi		Shahabad	0.1	1.10	57	384	17 07 42	76 56 30	100402	CP2
45	Kalburgi		Aldihal	0.1	0.70	53	224	17 12 50	76 57 42	100401	CP3
46	Kalburgi		Tonasanahalli	0.1	1.00	434	380	17 07 36	76 53 00	100403	CP4
47	Kalburgi		Wadi	0.1	1.40	35	280	17 02 40	76 59 24	100414	CP5
48	Kalburgi		Chittapur	0.1	1.40	49	512	17 07 10	77 05 15	100406	CP6
49	Kalburgi		Watwatti	0.1	0.10	35	212	17 28 00	77 02 42	100414	CP7
50	Kalburgi		Kalgi	0.1	0.70	53	272	17 21 24	77 09 12	100503	CP8
51	Kalburgi	Gulbarga	Gulbarga	0.1	0.80	9	600	17 20 15	76 50 24	100503	GB1
52	Kalburgi		Aurad	0.1	2.00	27	228	17 26 45	76 53 45	100502	GB2
53	Kalburgi		Dongargaon	0.1	0.50	13	72	17 39 35	77 01 55	100508	GB3
54	Kalburgi		Kamalapur	0.1	0.60	133	252	16 45 08	76 59 02	100506	GB4
55	Kalburgi		Mahagaon	0.1	5.20	142	160	17 30 27	76 56 24	100504	GB5
56	Kalburgi		Sonth	0.05	1.30	4	76	17 36 45	77 06 45	100509	GB6
57	Kalburgi		Tajsultanpur	0.1	1.80	49	312	17 23 00	76 48 18	100510	GB7
58	Kalburgi		Ashtaga	0.1	0.80	35	248	17 27 06	76 47 00	100511	GB8
59	Kalburgi		Hadgil Haruti	0.1	0.40	111	300	17 17 33	76 43 50	100515	GB9
60	Kalburgi		Savalgi B	0.1	0.40	9	156	17 21 00	76 44 00	100520	GB10
61	Kalburgi		Ferozabad	0.1	2.20	168	184	17 05 36	76 48 12	100505	GB11
62	Kalburgi		Farhatabad	0.1	1.90	102	284	17 10 45	76 47 35	100514	GB12
63	Kalburgi		Jogur	0.1	0.40	93	308	17 07 24	76 38 00	100517	GB13
64	Kalburgi		Kalanoor	0.1	0.60	62	228	17 18 10	76 54 48	100523	GB14
65	Kalburgi		Kalanoor	0.1	0.50	71	372	17 17 24	76 59 18	100522	GB15
66	Kalburgi		Sannur	0.1	1.80	111	296	17 29 15	76 26 18	100214	GB16
67	Kalburgi	Aland	Allapur	0.1	0.10	111	344	17 34 08	76 45 11	100202	AL1
68	Kalburgi		Bodhan	0.1	0.70	97	184	17 26 45	76 40 12	100201	AL2
69	Kalburgi		Kadaganchi	0.1	0.10	27	376	17 31 48	76 36 18	100205	AL3
70	Kalburgi		Narona	0.1	0.10	53	248	17 31 48	76 36 18		AL4
71	Kalburgi		Kudalhangarga	0.1	0.50	212	632	17 33 20	76 33 44	100206	AL5
72	Kalburgi		Aland	0.1	0.10	35	416	17 41 12	76 34 18		AL6
73	Kalburgi		Khazuri	0.1	0.40	106	792	17 34 55	76 21 42	100213	AL7
74	Kalburgi		Hiroli	0.1	0.10	80	464	17 38 36	76 33 00	100207	AL8
75	Kalburgi		Salegaon	0.1	0.10	84	464	17 28 40	76 24 18		AL9
76	Kalburgi		Dargasiroor	0.1	1.20	230	536				AL10

	Alternate Source
	Not Potable

## **KALABURAGI DISTRICT**

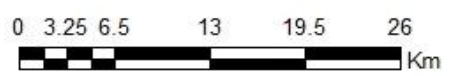
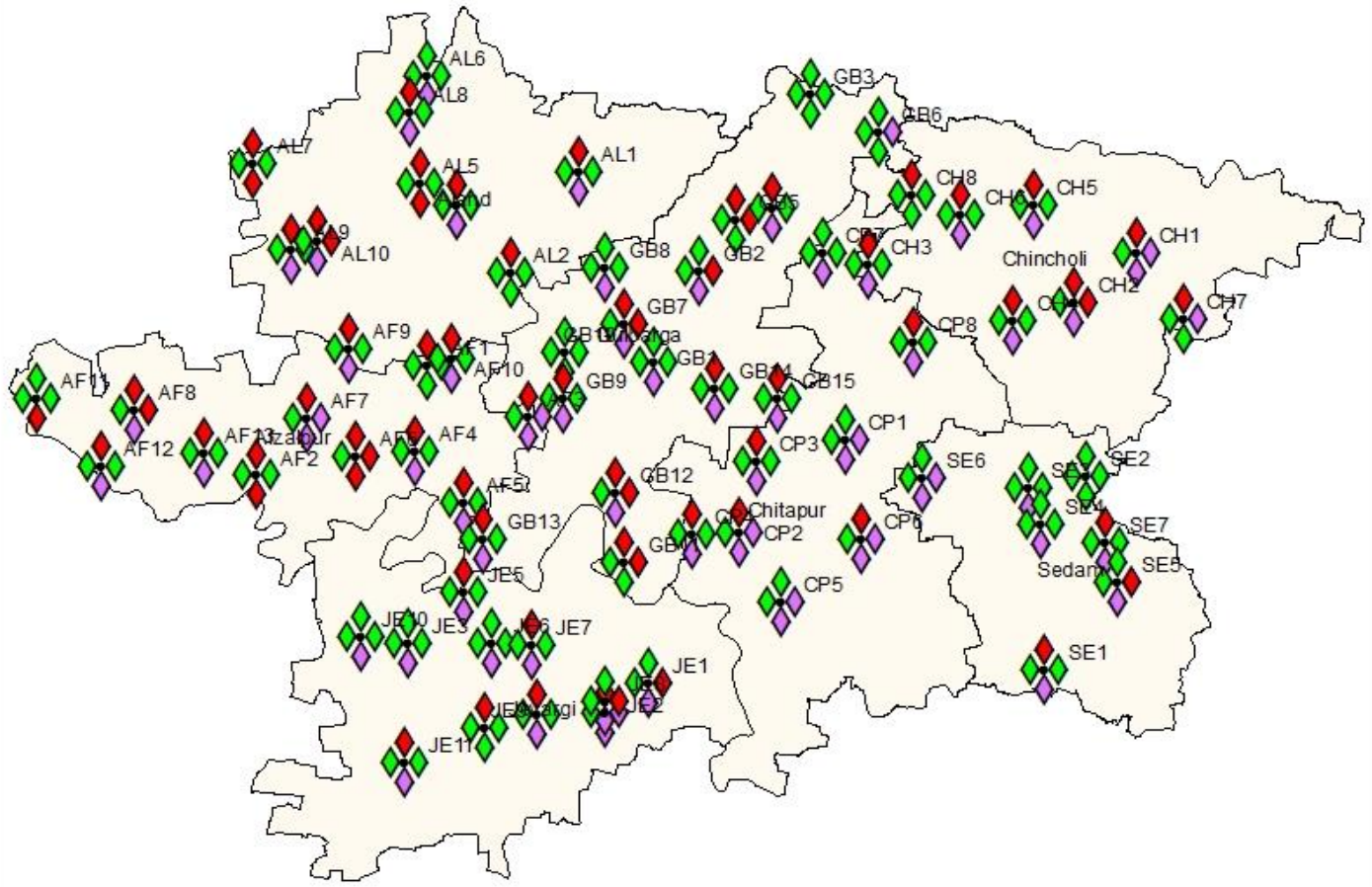
Water samples have been collected from 76 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-25. In respect of Total Iron, no stations contained Total Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary from Iron concn. vary from 0.05 to 0.1 mg/L.

In respect of Fluoride, 13 stations (17%) viz., 1 station from Chincholi taluk, 2 stations from Sedam taluk, 2 stations from Jewargi taluk, 2 stations from Afzalpura taluk and 6 stations from Gulbarga taluk contained Fluoride content beyond the Permissible limit of Indian Drinking Water Specification. Fluoride concn.vary from 0.1 to 5.20 mg/L. Mahagaon station of Gulbarga taluk had maximum Fluoride content (5.20 mg/L).

In respect of Nitrate, 53 stations (70%) viz., 8 stations from Chincholi taluk, 4 stations from Sedam taluk, 6 stations from Jewargi taluk, 12 stations from Afzalpura taluk, 5 stations from Chittapura taluk, 10 stations from Gulbarga taluk and 8 stations from Alanda taluk contained Nitrate content beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary from 9 to 434 mg/L. Tonasanahalli station of Chittarpura taluk had maximum Nitrate content (434mg/L).

In respect of Total Hardness, 5 stations (6%) viz., 3 stations from Afzalpura taluk and 2 stations from Alanda taluk contained Total Hardness beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn.vary from 72 to 960 mg/L. Mannur station of Afzalpura taluk had maximum Total Hardness content (960 mg/L).

# WATER QUALITY DATA OF KALBURGI DISTRICT



- ◆ POTABLE
- ◆ ALTERNATE
- ◆ NON-POTABLE

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600



Table - 26

## WATER QUALITY DATA OF KOLAR DISTRICT 2018-19

SI No	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well Code	Well type
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L				
1	2	3	4	5	6	7	8	9	10	11	12
1	Kolar	Bangarpet	Bodikote	0.2	1.01	8	256	12.9070	78.1247	130204HP	BG1
2	Kolar		Kamasandra	0.12	0.57	96	340	12.8789	78.2017	130210HP	BG2
3	Kolar		Robertsonpet	0.08	0.1	138	756	12.9524	78.2759	130218	BG3
4	Kolar		Gattimadamangala	0.07	0.26	1.00	168	12.8922	78.2903	130221	BG4
5	Kolar		Balamandi	0.07	1.12	25	252	12.8517	78.1644	130220	BG5
6	Kolar		Sulikunte	0.06	0.28	26	312	13.0328	78.1142	130217	BG6
7	Kolar		Gullahalli	0.08	0.75	63	428	13.0410	78.1405	130219	BG7
8	Kolar		Thappanahalli	0.09	0.59	7	252	12.9750	78.3917	130214BW	BG8
9	Kolar		Bangarpet	0.1	0.55	191	664	12.9872	78.1833	130203BW	BG9
10	Kolar		Gollahalli	0.05	3.47	4	144	13.0356	78.2942	130208HP	BG10
11	Kolar		Bethamangala	0.08	0.33	95	420	13.0047	78.3311	130205D	BG11
12	Kolar		Sundarpalya	0.04	1	55	460	13.0133	78.3978	130216	BG12
13	Kolar		Karadger	0.04	0.71	12	380	12.9359	78.4097	130212BW	BG13
14	Kolar		Ramasagar	0.05	0.59	10	348	12.9750	78.3917	130213Hp	BG14
15	Kolar		Gattikamadenahalli	0.07	0.26	1	168	12.9928	78.2775	130206HP	BG15
16	Kolar		Doddavalagamadi	0.1	0.42	29	268	12.9472	78.2256	130222	BG16
17	Kolar		Kysamhalli	0.03	0.5	39	396	12.9547	78.3461	130215	BG17
18	Kolar	Kolar	Muduvatti	0.14	1.41	16	232	13.0640	78.0913	130713	KL1
19	Kolar		Ammanallur	0.08	1.14	25	336	13.2924	77.9922	130720	KL2
20	Kolar		Toradevanahalli	0.13	0.76	64	408	13.2000	78.1467	130717	KL3
21	Kolar		Sugutur	0.05	1.25	4	120	13.2089	78.1033	130709	KL4
22	Kolar		Narapura	0.09	0.29	21	292	13.1378	78.0042	130708	KL5
23	Kolar		Vemgal	0.07	1.13	26	324	13.1979	78.0232	130711	KL6
24	Kolar		Madivala	0.16	1.37	16	228	13.2154	77.9673	130707	KL7
25	Kolar		Annihalli	0.09	0.43	15	332	13.1894	78.2015	130716	KL8
26	Kolar		Harati	0.06	0.34	14	276	13.0722	78.2094	130704	KL9
27	Kolar		Muduvadi	0.07	1.13	4	128	13.2286	78.1661	130706	KL10
28	Kolar		Kolar	0.68	0.52	51	1324	13.1272	78.1353	130705	KL11
29	Kolar		Holur	0.15	1.33	6	180	13.2396	78.2157	130719	KL12
30	Kolar		Shapur	0.10	0.96	12	448	13.0994	78.2556	130714	KL13
31	Kolar		Ajjappanapalli	0.37	0.51	12	116	13.1397	78.2183	130701	KL14
32	Kolar		Hultur	0.09	1.4	30	764	13.1317	78.2544	130715	KL15
33	Kolar		Vakkaleri	0.1	0.66	141	352	13 04 48	78 05 19	130712	KL16
34	Kolar		Tambihalli	0.06	0.96	3	928	12.9341	77.8775	130710	KL17
35	Kolar		Madanahalli	0.08	1.35	8	148	12.9947	77.8796	130718	KL18
36	Kolar		Aniganahalli	0.05	0.72	1	180	13.0318	78.0948	130201	KL19
37	Kolar	Malur	Shivarpatna	0.06	0.6	33	292	13.0583	77.9917	130807HP	ML1
38	Kolar		Thornahalli	0.06	0.68	82	468	13.0978	77.9131	130815	ML2
39	Kolar		Lakkur	0.07	0.9	12	248	12.9249	77.8942	130803	ML3
40	Kolar		Chikkalluntur	0.08	2.1	1	256	13.0028	78.0125	130809	ML4
41	Kolar		Nosagene	0.15	0.2	40	448	12.9878	77.9158	130814	ML5
42	Kolar		Hungenehalli	0.04	0.9	4	144	13.0486	77.9911	130811	ML6
43	Kolar		Malur	0.09	0.31	14	244	12.9875	77.9375	130805	ML7
44	Kolar		Jagamangala	0.05	0.46	3	116	12.9107	77.9040	130812	ML8
45	Kolar		Kudiyannur	0.12	0.79	1	272	12.9438	77.9581	130802	ML9

1	2	3	4	5	6	7	8	9	10	11	12
46	Kolar	Malur	D.N.Doddi	0.08	0.76	181	444	12.8567	77.9411	130810	ML10
47	Kolar		Masti	0.2	0.44	198	652	12.8681	78.0028	130804HP	ML11
48	Kolar		Dinnahalli	0.07	0.51	132	300	12.8706	78.0606	130801HP	ML12
49	Kolar		Nootave	0.09	2.7	8	156	12 55 48	78 05 19	130813	ML13
50	Kolar		Takal	0.12	0.91	81	388	12 58 41	78 04 54	130808	ML14
51	Kolar	Mulbagal	Gokunte	0.05	0.55	3	156	13.3061	78.4153	130903BW	MB1
52	Kolar		Anagondanahalli	0.27	1.11	3	136	13.0672	78.3639	130901HP	MB2
53	Kolar		Mallanayanahalli	0.05	0.26	150	568	13.0947	78.4692	130910	MB3
54	Kolar		Duggasandra	0.03	1.32	12	244	13.2358	78.3669	130921	MB4
55	Kolar		Ultanur	0.07	1.21	9	208	13.2111	78.2872	130922	MB5
56	Kolar		Kappalamadagu	0.04	0.73	9	264	13.1917	78.4417	130915	MB6
57	Kolar		Mulbagal	0.02	0.91	9	168	13.1667	78.4014	130916HP	MB7
58	Kolar		Gudipalli	0.02	1.18	11	244	13.2764	78.4611	130902BW	MB8
59	Kolar		Mushtoor	0.03	0.64	31	356	13.2125	78.5344	130917	MB9
60	Kolar		Jaylur	0.03	0.51	63	300	13.0569	78.4272	130914HP	MB11
61	Kolar		T.M.Halli	0.06	0.87	5	128	13.0664	78.4928	130920	MB12
62	Kolar		Devarayasamudra	0.02	0.5	10	132	13.1364	78.3006	130918	MB13
63	Kolar		Mothanapalli	0.59	0.19	137	588	13.0558	78.4006	130919	MB14
64	Kolar		Kurudumale	0.06	0.53	2	172	13.2067	78.3789	130906HP	MB15
65	Kolar		Avani	0.04	0.54	6	276	13.1072	78.3297	130924	MB16
66	Kolar		Alangur	0.03	0.58	5	176	13.1636	78.4647	130909	MB17
67	Kolar		Hebbani	0.12	0.7	7	332	13.2808	78.5686	130904D	MB18
68	Kolar		Mailapura	0.02	0.51	46	428	13.1361	78.5033	130911BW	MB19
69	Kolar		Mudiyanur	0.08	0.52	3	196	13.2267	78.3156	130908HP	MB20
70	Kolar		Nangli	0.05	1.02	44	604	13.1989	78.5167	130912	MB21
71	Kolar		Byrakur	0.04	1.04	9	216	13 14 15	78 29 36	130923	MB22
72	Kolar		Srinivas pura	Srinivaspura	0.04	0.27	54	308	13.3428	78.2219	131112
73	Kolar	Yeldur		0.09	0.92	21	260	13.2806	78.2917	131117	SN2
74	Kolar	Adgal		0.05	0.74	62	448	13.5208	78.2800	131123	SN3
75	Kolar	Bairganapalli		0.12	0.4	20	292	13.5506	78.2264	131124	SN4
76	Kolar	Kondamari		0.04	0.75	52	328	13.4578	78.2181	131105	SN5
77	Kolar	Yaramavarapalli		0.09	0.94	2	92	13.5328	78.3078	131125	SN6
78	Kolar	Hosahalli		0.09	0.48	2	372	13.3117	78.2989	131107	SN7
79	Kolar	Thoopalli		0.12	1.12	35	300	13.3903	78.1556	131114	SN8
80	Kolar	Veerathimanahalli		0.04	0.63	12	168	13.3689	78.3056	131115hp	SN9
81	Kolar	Ronur		0.05	0.31	50	316	13.3939	78.2481	131121	SN10
82	Kolar	Dalasanur		0.06	0.2	285	1140	13.2756	78.1708	131118	SN11
83	Kolar	Pulgurkote		0.1	0.45	29	364	13.4292	78.3574	131110	SN12
84	Kolar	Arikunte		0.56	0.97	24	250	13.3897	78.1914	131120	SN13
85	Kolar	Somayajalapalli		0.06	0.38	71	400	13.3615	78.3484	131109	SN14
86	Kolar	Gownpalli		0.06	0.98	60	456	13.5119	78.2297	131106	SN15
87	Kolar	Rayalpadu		0.09	0.5	78	436	13.5325	78.3394	131111	SN16
88	Kolar	J.Thimmasandra		0.07	0.58	18	200	13.3836	78.1575	131119	SN17
89	Kolar	Nelavanki		0.08	0.59	16	200	13 27 45	78 16 43	131122	SN18

	Alternate Source
	Not Potable

## **KOLARA DISTRICT**

Water samples have been collected from 89 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-26. In respect of Total Iron, 4 stations (4%) viz., 2 stations from Kolar taluk, 1 station from Mulabagaluru taluk and 1 station from Srinivasapura taluk contained Total Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary from 0.02 to 0.68 mg/L. Kolar station of Kolar taluk had maximum Total Iron content (0.68 mg/L).

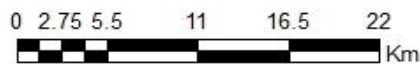
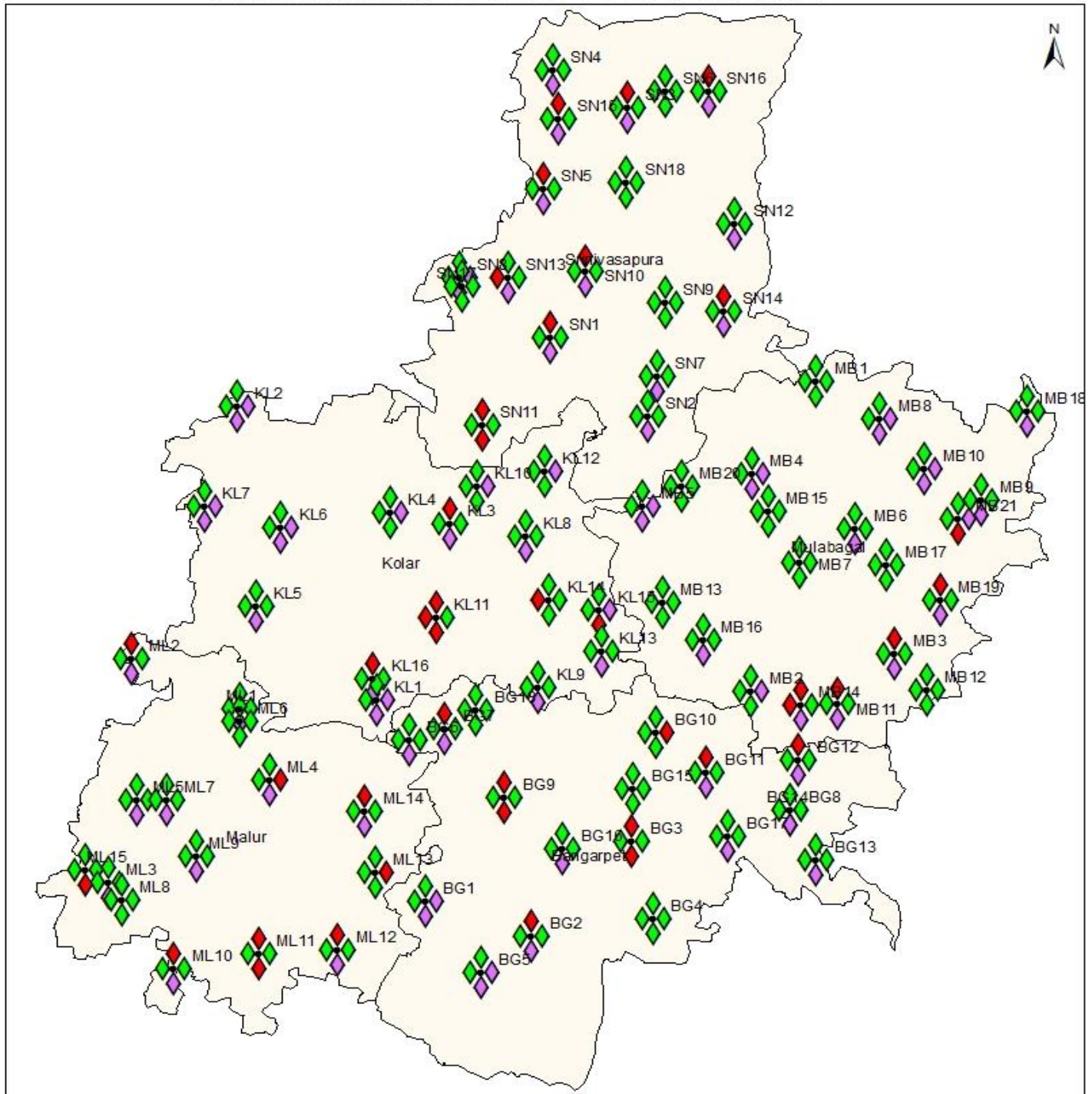
In respect of Fluoride, 3 stations (3%) viz., 6 stations from Bangarpet taluk, 3 stations from Kolar taluk, 5 stations from Maluru taluk, 5 stations from Mulabagaluru taluk and 1 station from Srinivasapura taluk contained Fluoride content beyond the Permissible limit of Indian Drinking Water Specification. Fluoride concn. vary from 0.10 to 3.47 mg/L. Gollahalli station of Bangarpet taluk had maximum Fluoride content (3.47 mg/L).

In respect of Nitrate, 26 stations (29%) viz., 26 stations (29%) viz., 6 stations from Bangarpet taluk, 3 stations from Kolar taluk, 5 stations from Maluru taluk, 4 stations from Mulabagaluru taluk and 8 stations from Srinivasapura taluk contained Nitrate content beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary from 1 to 285 mg/L. Dalasanuru station of Srinivasapura taluk had maximum Nitrate content (285 mg/L).

In respect of Total Hardness, 8 stations (9%) viz., 2 stations from Bangarpet taluk, 3 stations from Kolar taluk, 1 station from Maluru taluk, 1 station from Mulabagaluru taluk and 1 station from Srinivasapura taluk contained Total Hardness beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn. vary from 92 to 1324 mg/L. Kolar station of Kolar taluk had maximum Total Hardness content (1324 mg/L).



# WATER QUALITY DATA OF KOLAR DISTRICT



- POTABLE
- ALTERNATE
- NON-POTABLE

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600



Table - 27

## WATER QUALITY DATA OF KOPPAL DISTRICT 2018-19

SI No	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well Code	Well type
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L				
1	2	3	4	5	6	7	8	9	10	11	12
1	Koppala	Koppala	Irakalgada	0.18	0.51	149	640	1527'53.17728	7613'4.7118	160301	KP1
2	Koppala		Kinnala	3.88	0.75	2.5	216	1526'29.476	768'15.55937	160303	KP2
3	Koppala		Hosahalli	0.21	0.78	6	200	1531'56.577	7631'41.033	160304	KP3
4	Koppala		Hiresindhogi	0.16	1.8	172.5	584	1517'49.9749	765'35.270	160306	KP4
5	Koppala		Koppala	0.2	2.05	51	208	1521'11.88594	769'4.02737	160307	KP5
6	Koppala		Jabbalagadda	0.25	1.26	58	316	1525'41.95348	7622'2.47123	160302	KP6
7	Koppala		Kataraki	0.17	0.91	5	156	1513'40.	766'45.	160310D	KP7
8	Koppala	Kustagi	Kushtagi	0.24	1.96	8	124	1545'14.94198	764'22.80354	160401	KG1
9	Koppala		Dontihal	0.19	1.11	56.5	500	1551'41.69689	7612'32.24203	160403	KG2
10	Koppala		Hanumasagara	0.26	1.05	97.5	504	1552'18.6924	762'45.11256	160404	KG3
11	Koppala		J.Gudaduru	0.17	1.99	68.5	240	1550'20.	7556'15.	160405	KG4
12	Koppala		Gumgera	0.22	0.47	627	1340	1545'39.73385	7615'12.83407	160402	KG5
13	Koppala		Menadal	0.23	0.98	477	580	1543'22.57277	7623'35.15298	160407	KG6
14	Koppala	Ganga vathi	Kanakagiri	0.25	0.25	13	80	1534'3.6052	7625'17.10509	160201D	GG1
15	Koppala		Gangavathi	0.34	0.71	47.5	336	1525'27.19031	7631'48.80633	160202	GG2
16	Koppala		Rampura	0.2	0.82	94	464	1530'30.	7620'50.	160204	GG3
17	Koppala		Hulihaidar	0.22	1.07	79	272	1539'41.80161	7623'26.77872	160205	GG4
18	Koppala		Siddapura	0.24	1	96	708	1531'41.3781	7638'33.4760	160206	GG5
19	Koppala		Chikkbenakal	0.21	0.79	30	264	1525'52.14286	7626'9.7089	160207	GG6
20	Koppala		Kanakapura	0.16	0.74	93	328	1537'12.83426	7623'58.12194	160203	GG7
21	Koppala	Yela burga	Kuknuru	0.17	0.46	143	1108	1529'57.2872	7659'21.7955	160901D	YB1
22	Koppala		Yalburgi	0.12	0.77	15	180	1536'37.12658	760'41.61352	160902	YB2
23	Koppala		Bandi	0.1	1.48	54	240	1544'5.06155	763'9.24466	160903HP	YB3
24	Koppala		Bevura	0.13	2.08	11.5	220	1533'55.93414	7610'17.52048	160904	YB4
25	Koppala		Sanganala	0.28	3	113	924	1533'24.9710	7659'41.13708	160906	YB5
26	Koppala		Sankanuru	0.19	1.37	86.5	356	1542'15.	7553'00.	160905	YB6
27	Koppala		Bannikoppa	0.17	0.7	144	896	1523'4.2187	7656'23.2461	160908	YB7
28	Koppala		Honnahunase	0.1	0.78	129.5	448	1528'33.53326	7610'6.4884	160909	YB8

	Alternate Source
	Not Potable

## **KOPPAL DISTRICT**

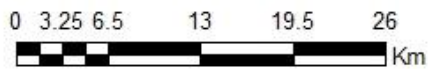
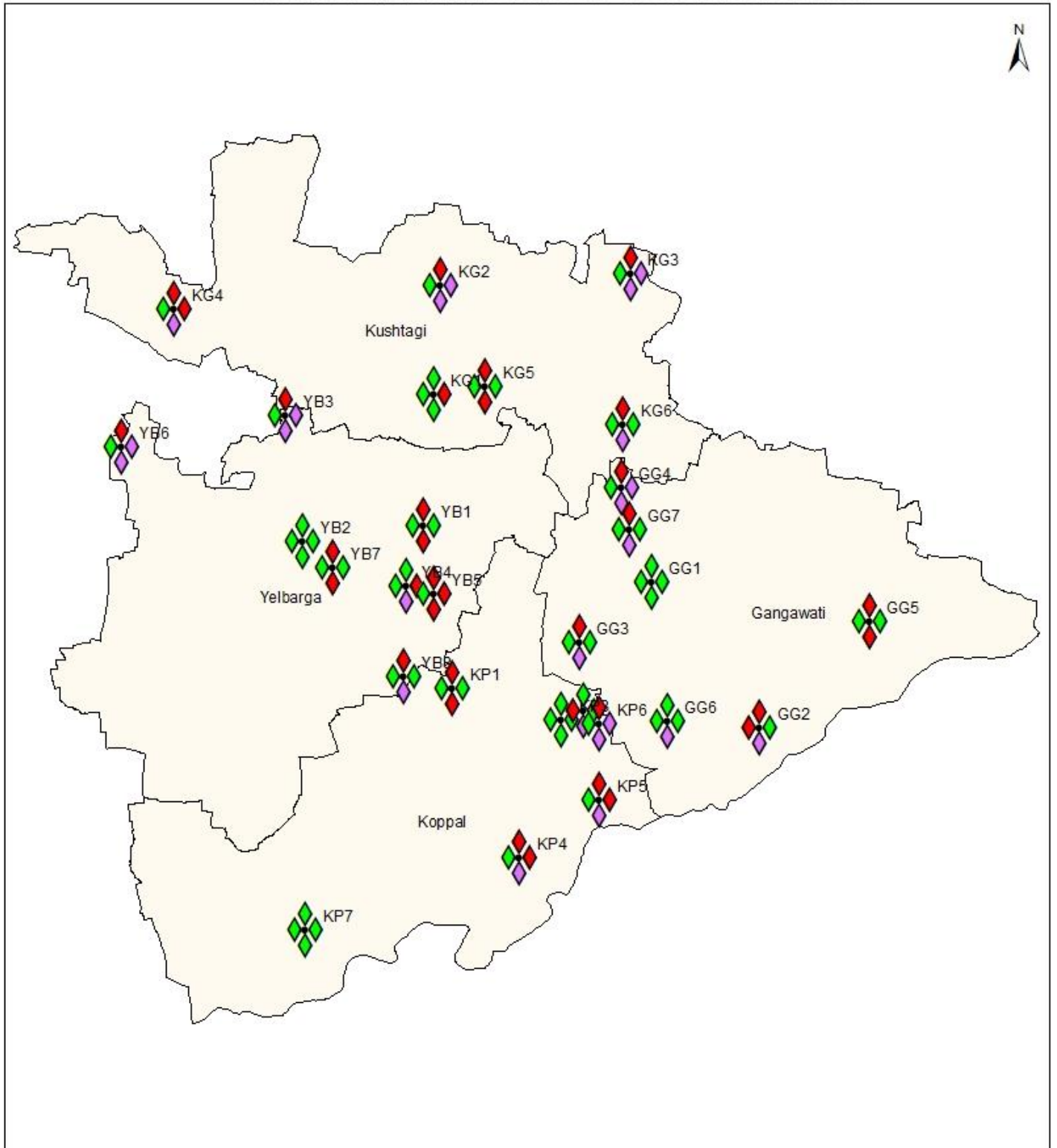
Water samples have been collected from 28 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-27. In respect of Total Iron, 2 stations (7%) viz., 1 station from Koppala taluk and 1 station from Gangavathi taluk contained Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary from 0.10 to 3.88 mg/L. Kinnala station of Koppala taluk had maximum Total Iron content (3.88 mg/L).

In respect of Fluoride, 6 stations (21%) viz., 2 stations from Koppala taluk, 2 stations from Kushtagi taluk and 2 stations from Yelaburga taluk contained Fluoride content beyond the Permissible limit of Indian Drinking Water Specification. Fluoride concn. vary from 0.46 to 3.00 mg/L. Sanganala station of Yelaburga taluk had maximum Fluoride content (3.00 mg/L).

In respect of Nitrate, 20 stations (71%) viz., 4 stations from Koppala taluk, 5 stations from Kushtagi taluk, 5 stations from Gangavathi taluk and 6 stations from Yelaburga taluk contained Nitrate content beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary from 6 to 627 mg/L. Gumgera station of Kushtagi taluk had maximum Nitrate content (627 mg/L).

In respect of Total Hardness, 6 stations (21%) viz., 1 station from Koppala taluk, 1 station from Kushtagi taluk, 1 station from Gangavathi taluk and 3 stations from Yelaburga taluk contained Total Hardness beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn. vary from 80 to 1340 mg/L. Gumgera station of Kushtagi taluk had maximum Total Hardness content (1340 mg/L).

# WATER QUALITY DATA OF KOPPAL DISTRICT



POTABLE

ALTERNATE

NON-POTABLE

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600

LEGEND

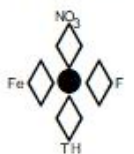


Table - 28

## WATER QUALITY DATA OF KODAGU DISTRICT 2018-19

SI No	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well Code	Well type
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L				
1	2	3	4	5	6	7	8	9	10	11	12
1	Kodagu	Madikeri	Appangala	0.13	0.1	2	32	12.3822	75.70778	12014	MK1
2	Kodagu		Kunjila	0.04	0.11	59	120	12.2628	12.4247	120112HP	MK2
3	Kodagu		Devarakolli	0.04	0.1	12	88	12.4517	75.63806	120102	MK3
4	Kodagu		Sampaje	0.34	0.08	2	84	12.4956	75.57056	120111BW	MK4
5	Kodagu		Cherambanne	0.05	0.09	20	84	12.3656	75.63306	120113HP	MK5
6	Kodagu		Bagamandala	0.2	0.09	2	28	1,23,853	75.53139	120106	MK6
7	Kodagu		Cheyandane	0.07	0.07	36	40	12.2281	75.69028	120109	MK7
8	Kodagu		Madikeri	0.19	0.18	0.1	108	12.4247	75.74083	120101	MK8
9	Kodagu		Napoklu	0.16	0.14	4	96	12 18 41	75 41 28	120117hp	MK9
10	Kodagu		Murnad	0.04	0.1	12	88	12 18 9.71	75 44 3.84	120116 hp	MK10
11	Kodagu	Somavarpete	Somavarpet	0.05	0.2	59	148	12.5972	75.85	120204	SV1
12	Kodagu		Kodlpete	0.04	0.2	38	160	12.8003	75.88444	120206	SV2
13	Kodagu		Beluru	0.06	0.09	51	132	12.5583	75.85167	120212BW	SV3
14	Kodagu		Hebbali	0.07	0.4	5	272	12.4639	75.96111	120208	SV4
15	Kodagu		Suntikoppa	0.08	0.16	8	240	12.4528	75.83333	120210HP	SV5
16	Kodagu		Kushalnagar	0.99	0.28	4	136	12 27 28	75 57 33	120209hp	SV6
17	Kodagu		Sanivarsante	0.05	0.09	6	80	12 43 24	75 53 45	120211hp	SV7
18	Kodagu		Madapura	0.03	0.13	4	180	12 30 7347	75 4831.48	120214	SV8
19	Kodagu	Virajpet	Ammathi	0.08	0.19	1	228	12. 2975	75.87389	HP2-05	VJ1
20	Kodagu		Virajpet	0.06	0.63	34	504	12.1967	75.75167	HP2-05	VJ2
21	Kodagu		Gonikoppa	0.04	0.22	9	256	12.1861	75.91972	120303	VJ3
22	Kodagu		Ponnampete	0.06	0.09	65	332	12.1475	75.94139	120320BW	VJ4
23	Kodagu		Srimangala	0.05	0.13	4	104	12.01833	75.98861	120305	VJ5
24	Kodagu		Kutta	0.09	0.13	26	220	11. 91889	76. 04917	120317HP	VJ6
25	Kodagu		Nagarahole	0.18	0.56	18	388	11.69	76.1492	120319BW	VJ7
26	Kodagu		Maldare	0.07	0.15	10	284	12 19 00	75 56 05	120314hp	VJ8
27	Kodagu		Balele	0.08	0	18	112	12 09 23	76 01 07	120318bw	VJ9
28	Kodagu		Kondangeri	0.04	0.12	9	112	12 17 55	75 47 43	120316bw	VJ10
29	Kodagu		Siddapura	0.04	0.16	13	320	12.18417	75.93083	120321BW	VJ11

	Alternate Source
	Not Potable

## **KODAGU DISTRICT**

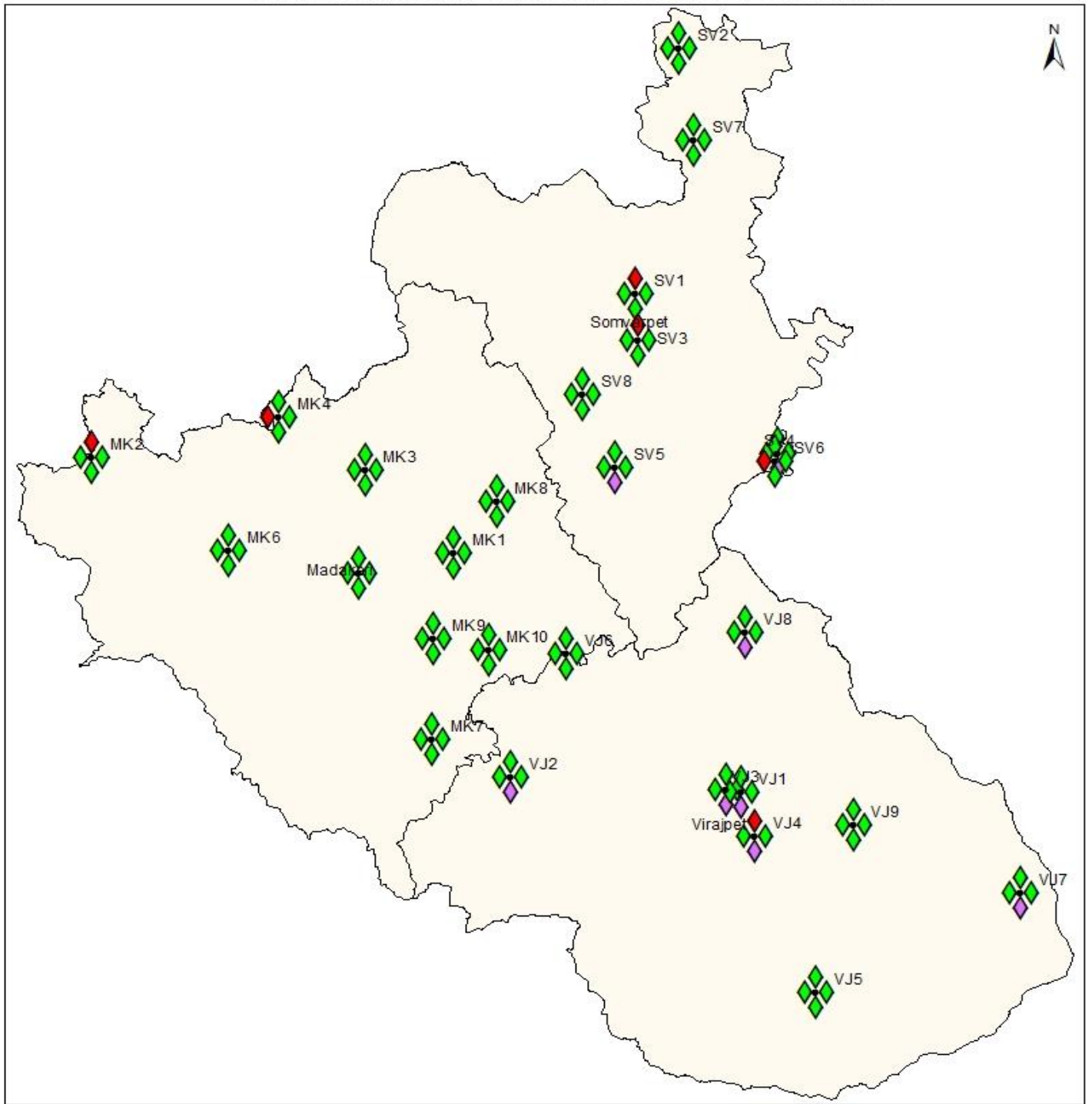
Water samples have been collected from 29 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-28. In respect of Total Iron, 2 stations (7%) viz., 1 station from Madikeri taluk and 1 station from Somvarpet taluk contained Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary from 0.03 to 0.99 mg/L. Kushalnagara station of Somvarpet taluk had maximum Total Iron content (0.99 mg/L).

In respect of Fluoride, no stations contained Fluoride content beyond the Acceptable limit of Indian Drinking Water Specification. Fluoride concn. vary from Nil to 0.63 mg/L.

In respect of Nitrate, 4 stations (14%) viz., 1 station from Madikeri taluk, 2 stations from Somvarpet taluk and 1 station from Virajpet taluk contained Nitrate content beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary from 0.10 to 65 mg/L. Ponnampete station of Virajpet taluk had maximum Nitrate content (65 mg/L).

In respect of Total Hardness, no stations contained Total Hardness content beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn. vary from 28 to 388 mg/L.

# WATER QUALITY DATA OF KODAGU DISTRICT



**POTABLE** ●  
**ALTERNATE** ●  
**NON-POTABLE** ●

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600

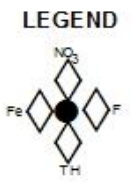


Table - 29

## WATER QUALITY DATA OF MANDYA DISTRICT 2018-19

Sl No	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well Code	Well Type
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L				
1	2	3	4	5	6	7	8	9	10	11	12
1	Mandya	K.R.Pete	S.B. Halli	0.08	0.98	25	408	76.5823	12.8090	140118	KR1
2	Mandya		K.R.Pete	0.04	0.69	83	672	76.4886	12.6572	140112	KR2
3	Mandya		Akkihabbal	0.04	0.43	52	478	76.3918	12.6220	140101	KR3
4	Mandya		Mandagere	0.06	0.39	1	256	76.3775	12.7308	140117	KR4
5	Mandya		Kikkeri	0.06	0.62	90	728	76.4258	12.7636	140126	KR5
6	Mandya		Hirekalale	2.64	0.37	36	388	76.4585	12.7151	140122	KR6
7	Mandya		Hadanoru	0.04	0.95	24	396	76.5490	12.6071	140111	KR7
8	Mandya		Kottigehalli	0.08	0.95	1	324	76.5576	12.7374	140116	KR8
9	Mandya		Bukinakere	2.25	0.83	60	348	76.3330	12.4417	140113	KR9
10	Mandya	Maddur	Kesturu	0.02	0.58	35	572	77.0603	12.6941	140209	MD1
11	Mandya		Maddur	0.08	0.37	18	320	77.0381	12.5825	140212	MD2
12	Mandya		H.Doddi	0.06	0.51	17	452	77.0322	12.5214	140203	MD3
13	Mandya		T.B.Halli	0.06	0.43	21	492	77.0911	12.4731	140213	MD4
14	Mandya		Budanuru	0.15	0.43	103	580	76.4438	12.3818	140421	MD5
15	Mandya	Malavalli	Nelamakanahalli	0.14	0.57	36	248	77.0428	12.4256	140315	MV1
16	Mandya		Haadli	0.36	0.69	12	300	77.1879	12.4265	140312	MV2
17	Mandya		T.K.Halli	0.08	0.63	7	380	77.2007	12.4085	140316	MV3
18	Mandya		Konnapura	0.06	0.64	68	576	77.2333	12.4370	140308	MV4
19	Mandya		Belakavadi	0.51	0.61	94	588	77.1230	12.2578	140309	MV5
20	Mandya		Bhuvalli	0.08	0.4	7	220	77.0260	12.3059	140310	MV6
21	Mandya		Malavalli	0.12	0.56	68	776	77.0596	12.3830	140318	MV7
22	Mandya		Kirugavalu	2.28	1.06	121	272	76.9461	12.3572	140314	MV8
23	Mandya	Mandya	Javanahalli	0.04	0.77	6	328	76.7441	12.6395	140415	MD1
24	Mandya		Pura	0.21	0.32	22	220	76.9366	12.4694	140416	MD2
25	Mandya		Biledgalu	0.18	0.47	89	644	76.8718	12.6247	140419	MD3
26	Mandya		Baby	0.08	1.16	9	332	76.8513	12.6842	140407	MD4
27	Mandya		Toobinakere	0.09	0.8	3	344	76.7973	12.4952	140420	MD5
28	Mandya		Mandya	0.05	0.67	22	400	76.8983	12.5257	140422	MD6
29	Mandya		Bevakallu	0.45	0.47	125	652	76.7734	12.6113	140426	MD7
30	Mandya		Lingamannahalli	0.12	0.67	1	448	76.4013	12.3410	140519	MD8
31	Mandya	Naga mangala	Honnekere	0.04	1.4	4	500	76.7037	12.7112	140513	NG1
32	Mandya		Nagamangala	0.09	0.78	46	620	76.7519	12.8342	140525	NG2
33	Mandya		Bindiganavile	0.06	1.63	6	448	76.6300	12.8820	140521	NG3
34	Mandya		Kadaballi	0.07	0.47	135	440	76.6417	12.9635	140523	NG4
35	Mandya		Belluru	0.42	1.43	84	479	76.7348	12.9822	140501	NG5
36	Mandya		Nelligere	0.51	1.63	1	284	76.7606	12.9599	140518	NG6
37	Mandya		Milarapatna	0.12	1.1	23	356	76.8046	12.8834	140522	NG7
38	Mandya		Devalapura	0.06	0.46	228	796	76.8672	12.8165	140511	NG8
39	Mandya		Kanthapura	0.43	1.26	65	352	76.6854	12.7646	140506	NG9
40	Mandya		Kowdley	0.34	1.47	5	420	76.3822	12.5745	140217	NG10
41	Mandya		Koppa	0.04	0.6	14	392	77.0531	12.2821	140205	NG11
42	Mandya	Besagarahalli	0.11	0.78	192	760	76.0202	12.3107	140202	NG12	
43	Mandya	Pandava pura	Chinakurali	0.08	0.69	75	680	76.5987	12.5400	140611	PD1
44	Mandya		M.Pura	0.06	1.68	62	352	76.6693	12.5721	140622	PD2
45	Mandya		Amruthi	0.07	1.99	36	468	76.6799	12.6358	140619	PD3



1	2	3	4	5	6	7	8	9	10	11	12
46	Mandya	Pandava pura	Melukote	0.08	0.77	62	236	76.6482	12.6634	140617	PD4
47	Mandya		Pandavapura	0.05	0.97	7	320	7636 37	122327	140610	PD5
48	Mandya		Sayyapanahalli	0.04	0.88	44	544	764854	122454	140618	PD6
49	Mandya		Yelekere	0.08	0.94	123	588	764110	122316	140613	PD7
50	Mandya	Sriranga patna	Belagola	0.30	1.75	75	304	76.6094	12.3923	140703	SR1
51	Mandya		Naguvinahalli	0.78	0.64	105	484	76.6861	12.3884	140709	SR2
52	Mandya		Srirangapatna	0.20	0.44	48	300	76.6894	12.4244	140708	SR3
53	Mandya		Harakere	0.26	1.08	5	320	76.8138	12.4108	140702	SR4

	Alternate Source
	Not Potable

## **MANDYA DISTRICT**

Water samples have been collected from 53 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-29. In respect of Total Iron, 11 stations (21%) viz., 2 stations from K.R.Pete taluk, 3 stations from Malavalli taluk, 1 station from Mandya taluk, 4 stations from Nagmangala taluk and 1 station from Srirangapatna taluk contained Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary from 0.02 to 2.64 mg/L. Hirekalale station of K.R.Pete taluk had maximum Total Iron content (2.64 mg/L).

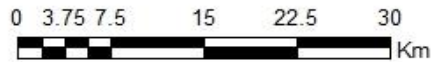
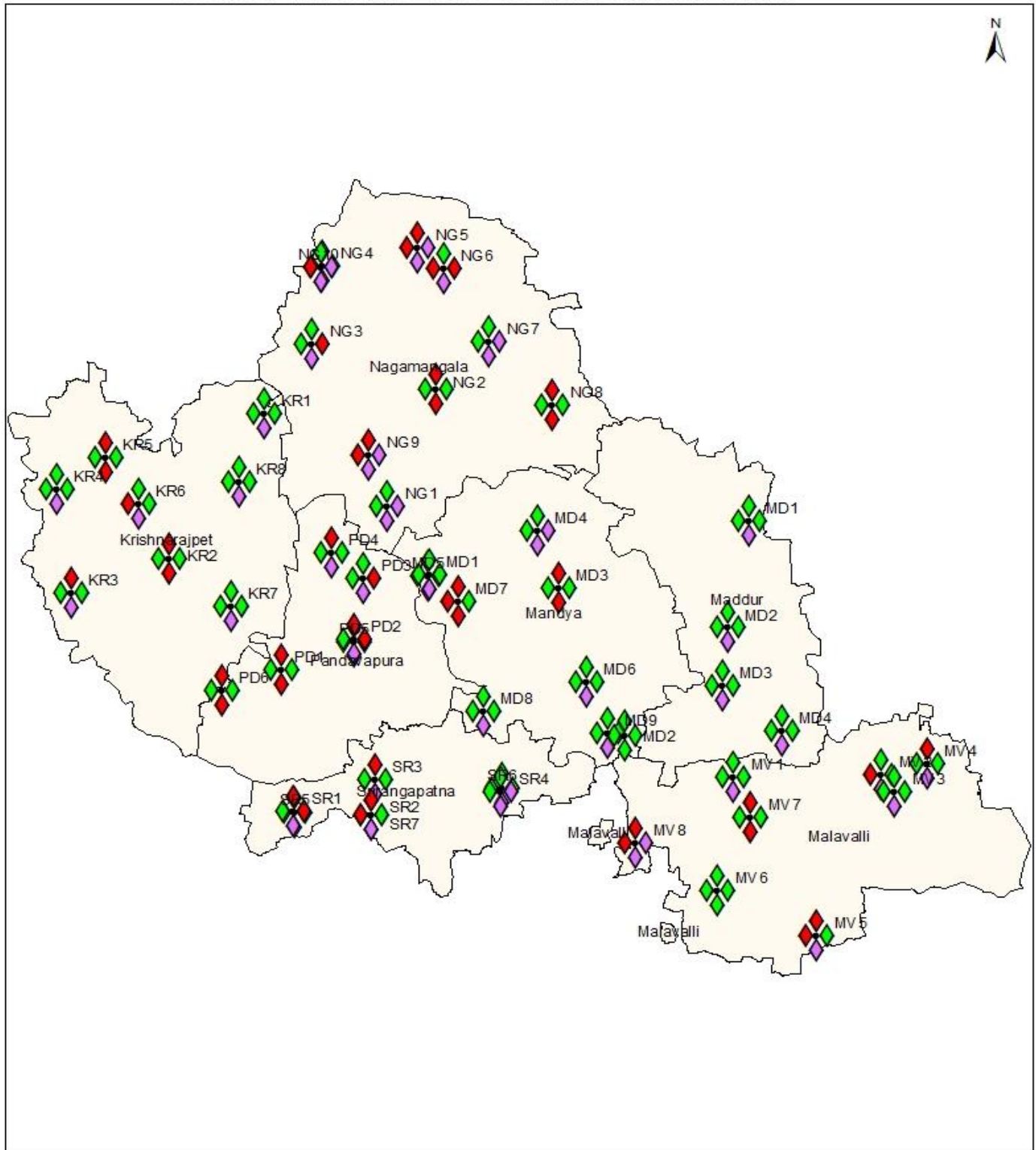
In respect of Fluoride, 5 stations (9%) viz., 2 stations from Nagmangala taluk, 2 stations from Pandavapura taluk, and 1 station from Srirangapatna taluk contained Fluoride content beyond the Permissible limit of Indian Drinking Water Specification. Fluoride concn. vary from 0.37 to 1.99 mg/L. Amruthi station of Pandavapura taluk had maximum Fluoride content (1.99 mg/L).

In respect of Nitrate, 24 stations (45%) viz., 4 stations from K.R.Pete taluk, 1 station from Maddur taluk, 4 stations from Malavalli taluk, 2 stations from Mandya taluk, 6 stations from Nagmangala taluk, 4 stations from Pandavapura taluk and 3 stations from Srirangapatna taluk contained Nitrate content beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate

concn. vary from 1 to 228 mg/L. Devalapura station of Nagmangala taluk had maximum Nitrate content (228 mg/L).

In respect of Total Hardness, 9 stations (16 %) viz., 2 stations from K.R.Pete taluk, 1 stations from Malavalli taluk, 2 station from Mandya taluk, 3 station from Nagmangala taluk and 1 station from Pandavapura taluk contained Total Hardness beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn.vary from 256 to 796 mg/L. Devalapura station of Nagmangala taluk had maximum Total Hardness content (796 mg/L).

# WATER QUALITY DATA OF MANDYA DISTRICT



- POTABLE
- ALTERNATE
- NON-POTABLE

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600



**Table - 30**  
**WATER QUALITY DATA OF MYSORE DISTRICT 2018-19**

SI No	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well Code	Well ID
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L				
1	2	3	4	5	6	7	8	9	10	11	12
1	Mysore	Hunsur	Gowdagere	0.06	0.83	36	596	12 23 56.8	76 20 21.2	150403	HU1
2	Mysore		Kattomalawadi	0.07	0.73	58	476	12 67 88.8	77 01 51.7	150411	HU2
3	Mysore		C.Colony	0.06	0.47	39	372	12 25 51.2	76 32 83.3	150405	HU3
4	Mysore		Hunsur	0.14	0.19	16	392	12 23 56.8	76 20 21.2	150403	HU4
5	Mysore		K.G.Halli	0.08	0.32	78	576	12 15 24.8	76 11 58.3	150410	HU5
6	Mysore		Somanahalli	0.12	0.27	72	516	12 19 14.7	76 20 28.8	150412	HU6
7	Mysore		Chilakunda	0.16	0.31	204	524	12 15 17.4	76 19 43.4	150908	HU7
8	Mysore	H.D Kote	H.D.Kote	0.74	0.34	44	444	12 05 16.9	76 19 53.5	150301	HD1
9	Mysore		Devalapura	0.04	0.41	20	392	12 02 35.4	76 22 25.0	150314	HD2
10	Mysore		Antarasante	0.04	0.37	6	1504	12 00 59.9	76 16 55.1	150307	HD3
11	Mysore		Gangadahosahalli	0.17	0.44	133	736	12 23 22.2	76 43 91.6	150309	HD4
12	Mysore		Hampapura	0.02	0.9	174	804	12 07 19.5	76 28 38.7	150310	HD5
13	Mysore		Mulluru	0.03	0.31	176	496	11 58 43.7	76 28 37.7	150311	HD6
14	Mysore		Chikkriyur	0.2	0.83	159	868	12 08 46.3	76 22 33.4	150320	HD7
15	Mysore		Sarguru	0.03	0	61	600	12 00 28.9	76 23 24.5	150313	HD8
16	Mysore		D.B.Kuppe	0.07	0.66	12	188	11 52 11.0	76 08 48.2	150315	HD9
17	Mysore		Bhemanahalli	0.02	0.46	20	440	12 11 08.5	76 10 42.9	150302	HD10
18	Mysore	K.R. Nagara	Chunchanakatte	0.07	0.56	61	592	12 30 12.6	76 17 39.7	150602	KR1
19	Mysore		Thandre	0.94	0.21	22	308	12 36 11.1	76 10 12.6	150609	KR2
20	Mysore		Malali	0.05	0.37	47	328	12 27 01.7	76 17 58.1	150610	KR3
21	Mysore		K.R.Nagara	0.08	0.35	34	244	12 26 09.0	76 22 45.5	150601	KR4
22	Mysore		Haradanahalli	1.3	0.36	3	196	12.5814	12 34 52.9	761229.6	KR5
23	Mysore		Bomanahalli	0.28	0.41	28	292	12 32 42.9	76 22 11.7	150611	KR6
24	Mysore		Bherya	0.08	0.33	113	668	12 35 10.5	76 21 01.5	150608	KR7
25	Mysore	Mysore	Kadakola	0.39	0.3	150	680	12 11 36.2	76 39 55.2	150712	MY1
26	Mysore		Keelanapura	0.03	0.48	53	512	12 15 10.8	76 49 07.2	150715	MY2
27	Mysore		Jayapura	0.04	0.35	135	860	12 12 19.8	76 33 19.4	150702	MY3
28	Mysore		Alanahalli	0.05	0.54	11	272	12 17 57.8	76 41 05.3	150708	MY4
29	Mysore		Elwala	0.05	0.78	19	624	12 21 22.6	76 32 39.0	150711	MY5
30	Mysore		Siddalingapura	0.06	0.2	60	376	12 39 40.9	76 39 40.9	150719	MY6
31	Mysore		Hebbal	0.03	0.33	34	360	12 20 50.5	76 32 44.5	150720	MY7
32	Mysore		Bhogadi	0.04	0.33	24	356	12 30 52.7	76 59 63.8	150721	MY8
33	Mysore		Devalapura	0.06	0.19	248	848	11.22 48 80	76.70 04 21	150722	MY9
34	Mysore		Srirampura	0.04	0.4	79	628	12 71 36.2	76 62 69.2	150723	MY10

1	2	3	4	5	6	7	8	9	10	11	12
35	Mysore	Nanjangud	Hura	0.05	0.18	243	644	12 00 13.5	76.32 38.3	150815	NG1
36	Mysore		Sinduvalli pura	0.03	0.4	17	352	12 01 51.9	76 40 27.3	150804	NG2
37	Mysore		Hanumanapura	0.12	0.58	95	584	12 03 17.8	7648.3	0	NG3
38	Mysore		Hullahalli	0.09	0.29	167	680	12 05 55.2	76 33 20.3	150809	NG4
39	Mysore		Kowlande	0.03	0.431	107	720	11 55 41.9	76 84 02.2	150811	NG5
40	Mysore		Tagaduru	0.07	0.33	112	664	12 05 36.3	76 48 40.5	150810	NG6
41	Mysore		Beguru	0.04	0.26	115	604	12 07 11.6	76 38 35.9	0	NG7
42	Mysore		Kothanahalli	0.02	0.42	63	716	12 01 55.7	76 47 59.1	150814	NG8
43	Mysore		Kalale	0.05	0.23	181	336	12 07 22.7	76 66 16.4	150813	NG9
44	Mysore		Biligere	0.03	0.49	34	208	12 15 27.7	76 80 13.8	150802	NG10
45	Mysore		Nanjungudu	0.06	0.57	44	336	12 07 23.4	76 41 01.3	150801	NG11
46	Mysore	Periyapatna	Piriyapatna	0.09	0.21	43	692	12 20 10.7	76 05 50.7	150901	PP1
47	Mysore		Kundahalli	0.45	0.45	129	484	12 22 54	76 02 13.1	150910	PP2
48	Mysore		Kitturu	0.04	0.31	57	496	12 29 45	76 12 34.8	150911	PP3
49	Mysore		Kanagal	0.25	0.36	9	484	12 33 37.8	76 01 37.2	150912	PP4
50	Mysore		Sulugodu	0.08	1.23	22	280	12 18 42.5	76 02 27.1	0	PP5
51	Mysore		Dodda Nerale	0.06	0.51	2	328	12 28 35.4	76 02 48.3	0	PP6
52	Mysore		Panchavalli	0.12	0.20	182	400	12 17 8.9	76 08 9.6		PP7
53	Mysore	T.Narasipura	Muguru	0.08	0.68	73	480	12 08 01.6	76 56 54	151003	TN1
54	Mysore		Bannuru	0.03	0.54	69	400	12 19 48.4	76 51 37.4	151004	TN2
55	Mysore		Turuganuru	0.45	0.66	101	520	12 23 04	76 56 0	151008	TN3
56	Mysore		Budahalli	0.05	0.67	42	252	12 17 06.7	76 56 15	151010	TN4
57	Mysore		T.Narasipura	0.05	0.97	28	616	12 12 32.2	76 54 09.5	151001	TN5
58	Mysore		Hemmige	0.12	0.44	26	308	12 12 18	77 00 19.7	151009	TN6
59	Mysore		Bannahalihundi	0.06	0.60	35	432	12 11 19.7	76 52 21.6	0	TN7

	Alternate Source
	Not Potable

## **MYSORE DISTRICT**

Water samples have been collected from 59 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-30. In respect of Total Iron, 6 stations (10%) viz., 1 station from H.D.Kote taluk, 2 stations from K.R.Nagara taluk, 1 station from Mysore taluk, 1 station from Pirayapatna taluk and 1 station from T.Narasipura taluk contained Iron content beyond the

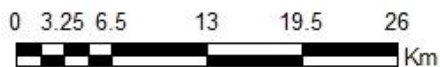
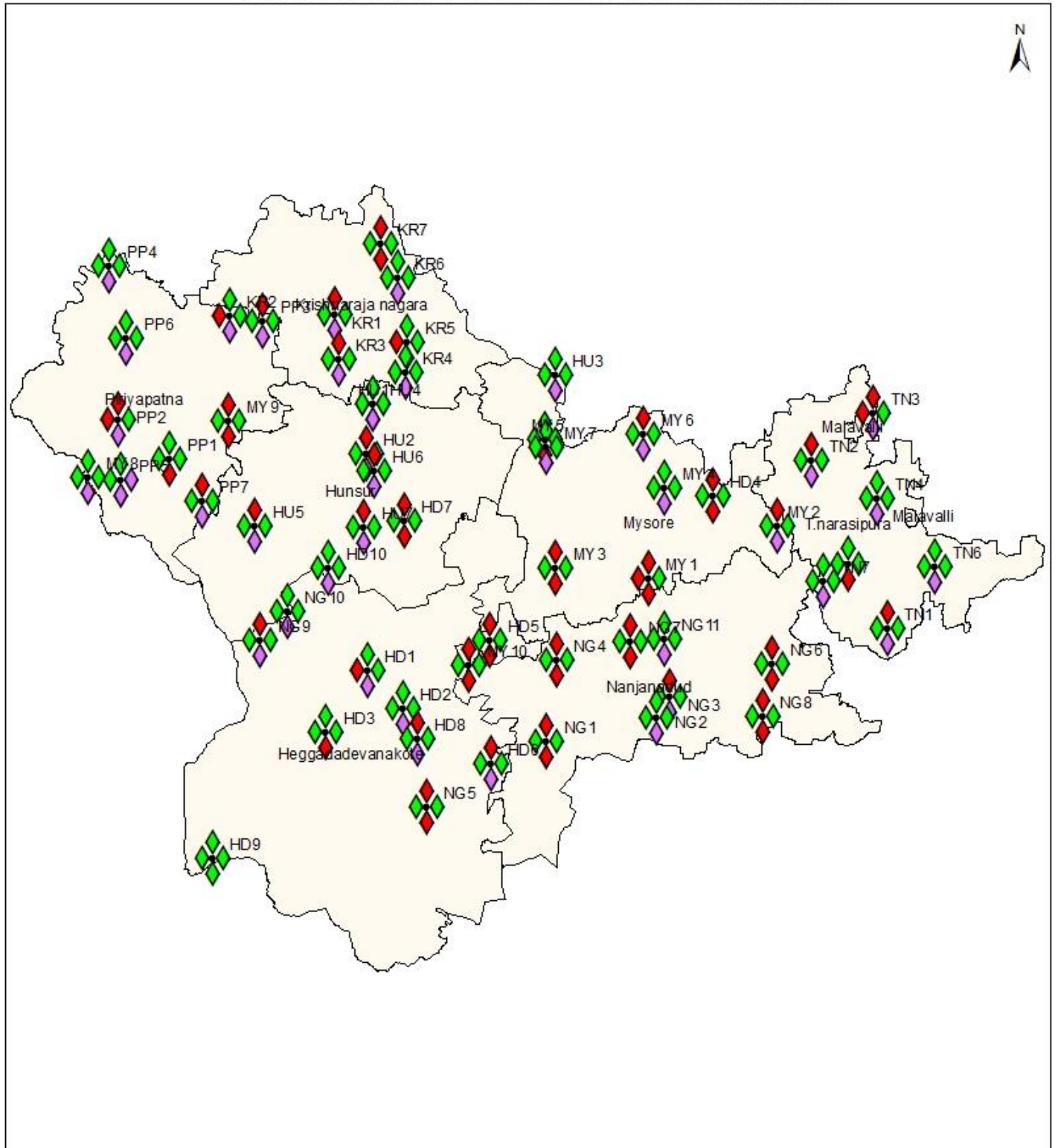
Acceptable limit of Indian Drinking Water Specification. Total Iron concn.vary from 0.03 to 1.30 mg/L. Haradanahalli station of K.R.Nagara taluk had maximum Total Iron content (1.30 mg/L).

In respect of Fluoride, no stations contained Fluoride content beyond the Acceptable limit of Indian Drinking Water Specification. Iron concn. vary from 0.19 to 0.97 mg/L.

In respect of Nitrate, 32 stations (54%) viz., 4 stations from Hunsur taluk, 5 stations from H.D.Kote taluk, 3 stations from K.R.Nagara taluk, 6 stations from Mysore taluk, 8 stations from Nanjangud taluk, 2 stations from Pirayapatna taluk and 4 station from T.Narasipura taluk contained Nitrate content beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary from 2 to 248 mg/L. Devalapura station of Mysore taluk had maximum Nitrate content (248 mg/L).

In respect of Total Hardness, 18 stations (30%) viz., 4 stations from H.D.Kote taluk, 1 station from K.R.Nagara taluk, 5 stations from Mysore taluk, 6 stations from Nanjangud taluk, 1 station from Pirayapatna taluk and 1 station from T.Narasipura taluk contained Total Hardness beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn.vary from 188 to 1504 mg/L. Antarasante station of H.D.Kote taluk had maximum Total Hardness content (1504 mg/L).

# WATER QUALITY DATA OF MYSORE DISTRICT



POTABLE

ALTERNATE

NON-POTABLE

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600

LEGEND



Table - 31

**WATER QUALITY DATA OF RAMANAGARA DISTRICT 2018-19**

Sl No	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well ID
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L			
1	2	3	4	5	6	7	8	9	10	12
1	Ramanagara	Kanakapura	Harohalli	0.06	0.39	251	628	77 28 12	12 40 50	KP1
2	Ramanagara		Doddamarawadi	0.05	0.47	26	476	77 31 28	12 33 35	KP2
3	Ramanagara		Toppaganahalli	0.03	1.3	34	560	77 26 08	12 36 35	KP3
4	Ramanagara		Kanakapura	0.02	0.31	2	180	77 25 09	12 32 45	KP4
5	Ramanagara		Jakkegowdanadoddi	0.03	0.78	57	424	77 19 40	12 19 40	KP5
6	Ramanagara		Hosadurga	0.08	1.42	24	580	77 33 12	12 24 52	KP6
7	Ramanagara		Doddayaramgere	0.03	0.8	14	512	77 32 35	12 25 40	KP7
8	Ramanagara		Kodihalli	0.09	0.86	68	816	77 29 42	12 26 06	KP8
9	Ramanagara		Mullahalli	0.08	1.01	76	596	77 26 45	12 23 29	KP9
10	Ramanagara		Doddaalahalli	0.06	0.87	150	868	77 23 08	12 24 50	KP10
11	Ramanagara		Sathanur	0.07	0.32	3	232	77 19 37	12 26 45	KP11
12	Ramanagara		Kabbalu	0.05	0.57	27	608	77 18 16	12 30 0	KP12
13	Ramanagara		Thimmasandra	0.03	2.04	8	440	77 23 10	12 36 50	KP13
14	Ramanagara	Channapatna	K.H. Gudi	0.03	0.55	5	396	77 14 10	12 41 18	CP1
15	Ramanagara		Channapatna	0.02	0.38	3	180	77 12 10	12 39 10	CP2
16	Ramanagara		Mathigere	0.02	1.81	7	368	77 16 40	12 38 15	CP3
17	Ramanagara		B.V. Halli	0.03	0.5	27	652	77 15 30	12 35 10	CP4
18	Ramanagara		Virupakshipura	0.02	2.24	8	476	77 13 15	12 34 45	CP5
19	Ramanagara		Nunnuru	0.04	1.79	8	468	77 09 57	12 30 36	CP6
20	Ramanagara	Ramanaagara	Kailancha	0.03	2.00	24	568	77 19 30	12 39 58	RN1
21	Ramanagara		Kanchidoddi	0.05	1.48	74	600	77 13 20	12 47 21	RN2
22	Ramanagara		Doddasulikere	0.04	0.68	185	544	77 18 02	12 51 07	RN3
23	Ramanagara		Ramanagara	0.07	1.57	43	548	77 17 34	12 43 59	RN4
24	Ramanagara	Magadi	V.G. Doddi	0.03	1.67	22	232	77 16 40	12 53 40	MG1
25	Ramanagara		Thagachiguppe	0.04	1.59	38	316	77 17 24	12 57 37	MG2
26	Ramanagara		Magadi	0.02	1.13	10	312	77 14 43	12 57 36	MG3
27	Ramanagara		Gudemaranahalli	2.82	1.11	3	344	77 15 50	13 03 05	MG4
28	Ramanagara		Soluru	0.09	1.45	4	220	77 14 35	13 04 10	MG5
29	Ramanagara		Arasanakunte	0.03	1.1	9	272	77 12 52	13 05 31	MG6
30	Ramanagara		Rasthepalya	0.05	0.91	41	400	77 06 36	13 02 19	MG7
31	Ramanagara		Agalakote	0.07	0.93	86	452	77 10 10	12 54 25	MG8
32	Ramanagara		Hulikallu	0.06	0.73	23	396	7 08 55	13 08 15	MG9
33	Ramanagara	Hulikatte	0.05	0.45	1	248	77 08 40	12 53 20	MG10	

	Alternate Source
	Not Potable



## **RAMANAGARA DISTRICT**

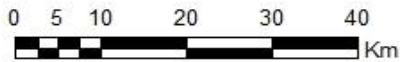
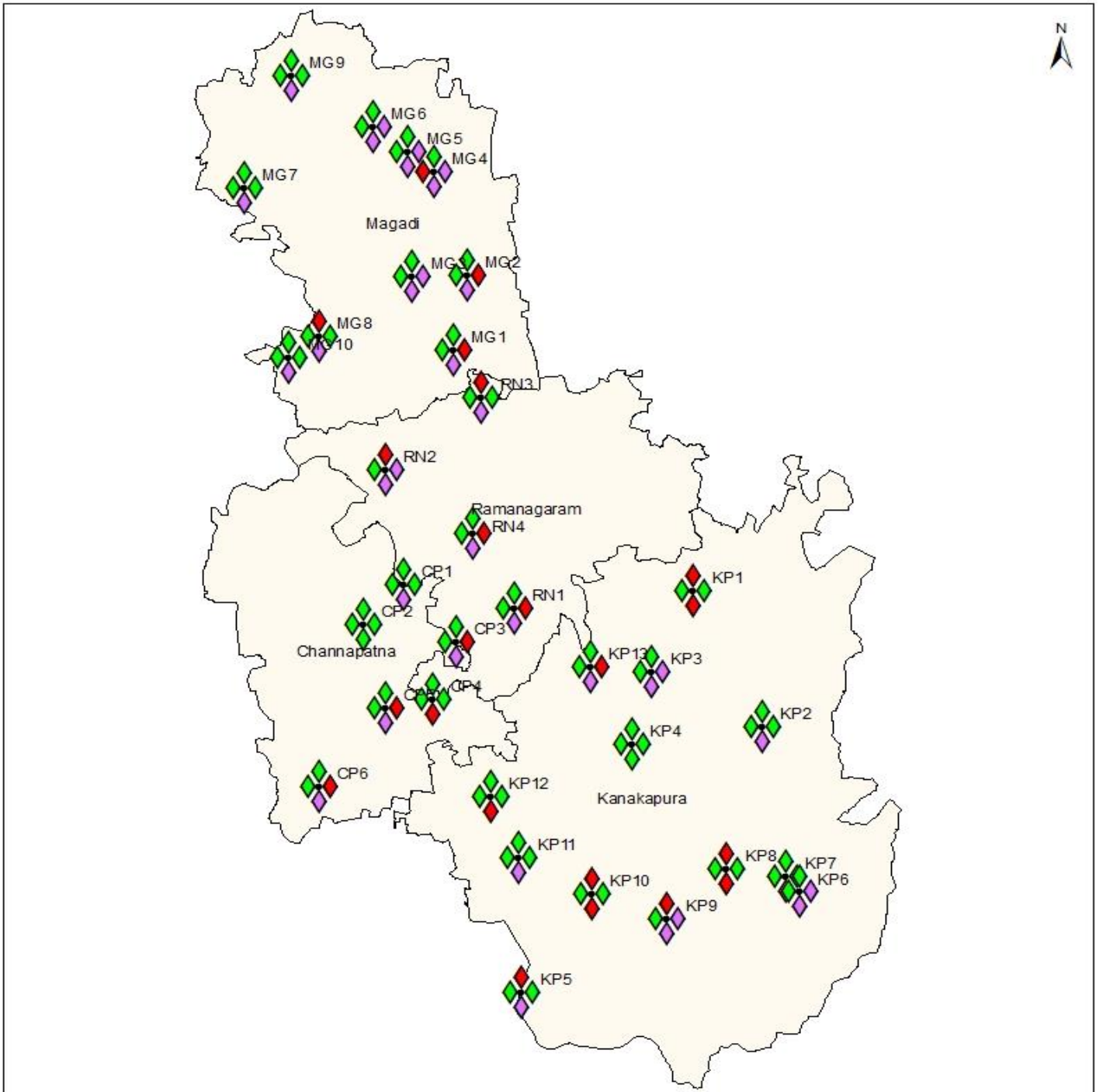
Water samples have been collected from 33 monitoring stations. Chemical analysis result including monitoring stations details are given in Table-31. In respect of Total Iron, 1 station (3%) viz., 1 station from Magadi taluk contained Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn.vary from 0.02 to 2.82 mg/L. Gudemaranahalli station of Magadi taluk had maximum TotalIron content (2.82 mg/L).

In respect of Fluoride, 8 stations (24%) viz., 1 station from Kanakapura taluk, 3 stations from Channapatna taluk, 2 stations from Ramangara taluk and 2 station from Magadi taluk contained Fluoride content beyond the Permissible limit of Indian Drinking Water Specification. Fluoride concn.vary from 0.31 to 2.24 mg/L. Virupakshapura station of Channapatna taluk had maximum Fluoride content (2.24 mg/L).

In respect of Nitrate, 8 stations (24%) viz., 5 stations from Kanakapura taluk, 2 stations from Ramangara taluk, and 1 station from Magadi taluk contained Nitrate content beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary from 1 to 251 mg/L. Harohalli station of Kanakapura taluk had maximum Nitrate content (251 mg/L).

In respect of Total Hardness, 5 stations (1%) viz., 4 stations from Kanakapura taluk and 1 stations from Channapatna taluk contained Total Hardness beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn.vary from 180 to 868 mg/L. Doddalahalli station of Kanakapura taluk had maximum Total Hardness content (868 mg/L).

# WATER QUALITY DATA OF RAMANAGARA DISTRICT



- **POTABLE**
- **ALTERNATE**
- **NON-POTABLE**

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600



Table - 32

## WATER QUALITY DATA OF RAICHUR DISTRICT 2018-19

Sl No	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well Code	Well ID
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L				
1	2	3	4	5	6	7	8	9	10	11	12
1	Raichur	Devadurga	Masarakallu	0.4	0.41	19	160	16.3650	77.0206	160101HP	DD1
2	Raichur		Gabbur	0.26	0.1	105	240	16.3036	77.1550	160102	DD2
3	Raichur		Jalahalli	0.41	3.21	63.5	300	16.3656	76.7828	160103HP	DD3
4	Raichur		Arkera	0.5	1.5	132	372	16.2764	76.9522	160104HP	DD4
5	Raichur		Rekalamaradi	0.43	1.49	188	420	16.2292	76.9944	160105HP	DD5
6	Raichur		Galag	0.38	0.82	282	440	16.2661	76.8425	160106	DD6
7	Raichur		Karigudda	0.3	2	53	136	16.4094	76.8872	160107HP	DD7
8	Raichur		Bommanahalli	0.26	0.67	18.5	232	16.3275	76.7633	160109	DD8
9	Raichur		Kothigudda	0.48	0.58	13	280	16.3708	76.9506	160112HP	DD9
10	Raichur		Devadurga	0.31	1.26	122	452	16.4211	76.9461	160110HP	DD10
11	Raichur	Lingasuguru	Maski	0.49	0.7	277	880	15.9578	76.6561	160502	LS1
12	Raichur		Lingasugur	0.28	2.49	86	232	16.1536	76.5231	160501	LS2
13	Raichur		Mudgal	0.51	0.43	1.4	240	16.0103	76.4475	160503	LS3
14	Raichur		Hatti	0.24	2.09	45.5	528	16.2042	76.6708	160504	LS4
15	Raichur		Gurgunta	0.27	0.39	37	260	16.2833	76.6333	160508	LS5
16	Raichur		Ankushadoddi	0.88	1.12	174	500	16.0336	76.6094	160506	LS6
17	Raichur		Nagalapura	0.25	1.48	70.5	360	15.9148	76.4453	160507HP	LS7
18	Raichur		Anehosuru	0.13	0.87	55.5	288	16.1578	76.4064	160510	LS8
19	Raichur		Neeralakera	0.3	0.77	31.5	256	16.1483	76.4469	160511	LS9
20	Raichur		Santekallur	0.2	1.6	111	628	16.0541	76.56472	160505	LS10
21	Raichur	Manvi	Hirekotnakal	0.32	0.25	111	480	15.9622	76.9525	160601	MN1
22	Raichur		Mallata	0.21	2	34.5	184	16.1389	76.9361	160602	MN2
23	Raichur		Neera Manvi	0.4	0.18	129	772	16.0406	77.1089	160604	MN3
24	Raichur		Pothanala	0.3	1.85	480	1940	15.9175	76.8944	160607	MN4
25	Raichur		Manvi	0.38	0.26	324	1080	15.9917	77.0564	160610	MN5
26	Raichur		Kallur	0.26	2.2	35.5	172	16.1347	77.2117	160611	MN6
27	Raichur		Kavital	0.25	0.62	375	1084	16.1083	76.8000	160613HP	MN7
28	Raichur		Sirawara	0.28	0.37	15	220	16.1722	77.0250	160614HP	MN8
29	Raichur		Chincharagi	0.33	0.85	77.5	340	16.2000	76.7892	160605	MN9
30	Raichur		Pamanakallur	0.27	1.06	57	260	16.10472	76.6761	160609HP	MN10
31	Raichur	Raichur	Devasuguru	0.43	0.21	177	584	16.3711	77.3667	160701	RA1
32	Raichur		Chandrabanda	0.44	0.77	68	280	16.2431	77.4583	160702	RA2
33	Raichur		Kalamala	0.26	2.01	101	376	16.1986	77.2106	160703	RA3
34	Raichur		Tuntapura	0.36	0.77	47	216	16.1111	77.4042	160704	RA4
35	Raichur		Yaramaras	0.22	1.32	81	148	16.2669	77.3581	160705	RA5
36	Raichur		Raichur	0.3	0.74	123	212	16.1872	77.3456	160706	RA6
37	Raichur		Yaragera	0.37	0.48	49.5	220	16.0642	77.4131	160707	RA7

1	2	3	4	5	6	7	8	9	10	11	12
38	Raichur		Hanchinala	0.42	5.29	109	160	16.0025	77.3847	160708	RA8
39	Raichur		Matamari	0.45	1.91	104	208	16.0275	77.2964	160712	RA9
40	Raichur		Yapaladinni	0.68	0.11	296	692	16.2925	77.5236	160716	RA10
41	Raichur		Junbaladinni	0.28	1.58	61	172	16.0781	77.4558	160715	RA11
42	Raichur	Sindh nuru	Sindhnanur	0.52	0.37	299	240	15.7669	76.7578	160809	SN1
43	Raichur		Mulluru	0.17	4.05	43.5	168	15.8067	76.4242	160805	SN2
44	Raichur		Gorebala	0.33	0.3	97.5	260	15.6883	76.7211	160807	SN3
45	Raichur		Javalagera	0.58	3.04	70	88	15.8667	76.8181	160808	SN4

	Alternate Source
	Not Potable

## **RAICHUR DISTRICT**

Water samples have been collected from 45 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-32. In respect of Total Iron, 24 stations (53%) viz., 7 stations from Devadurga taluk, 3 stations from Lingasuguru taluk, 4 stations from Manvi taluk, 7 stations from Raichur taluk and 3 stations from Sindhnanur taluk contained Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary from 0.13 to 0.88 mg/L. Ankushadoddi station of Lingasuguru taluk had maximum Total Iron content (0.88 mg/L).

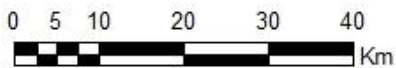
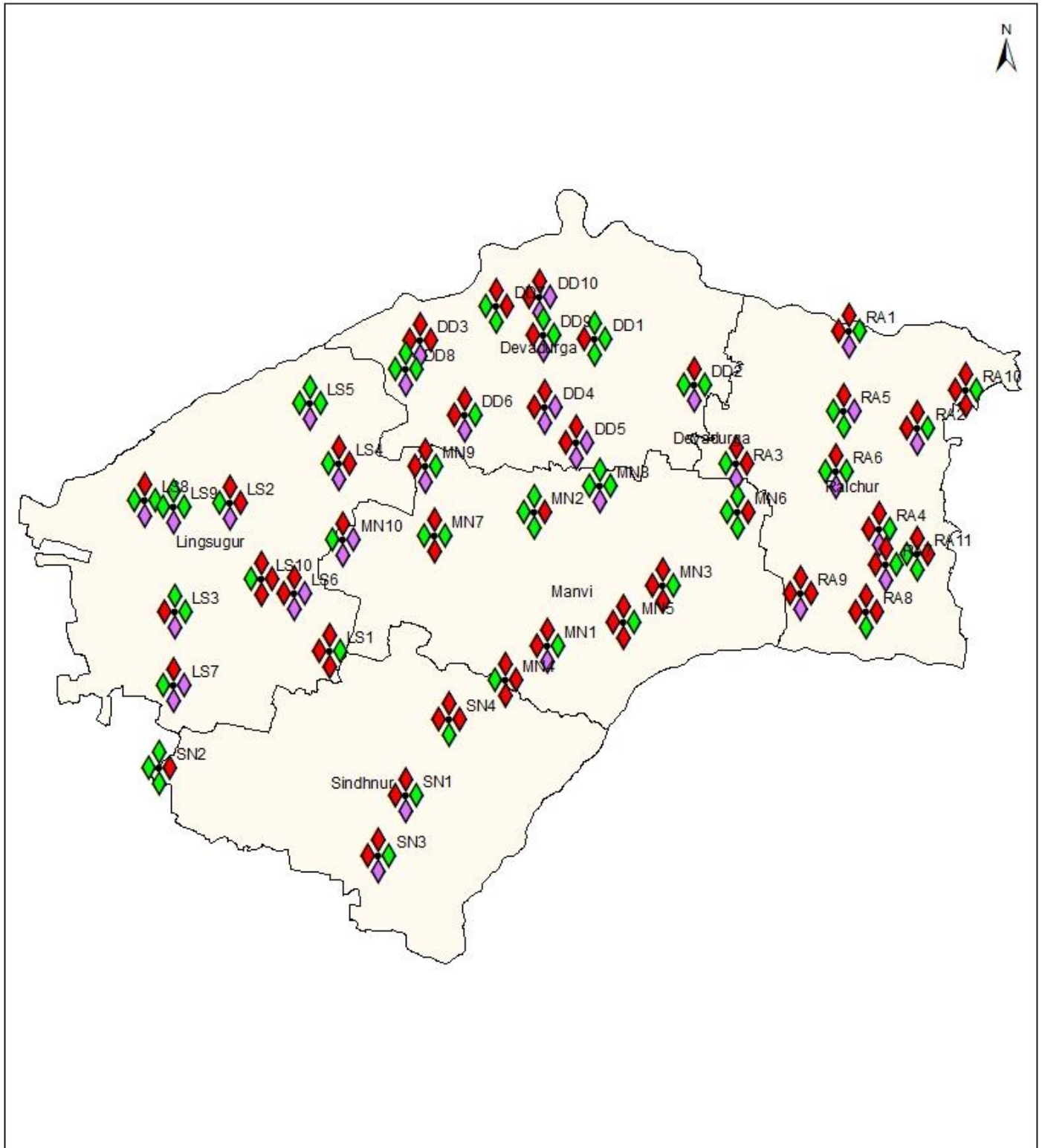
In respect of Fluoride, 14 stations (31%) viz., 2 stations from Devadurga taluk, 3 stations from Lingasuguru taluk, 3 stations from Manvi taluk, 4 stations from Raichur taluk and 2 stations from Sindhnanur taluk contained Fluoride content beyond the Permissible limit of Indian Drinking Water Specification. Fluoride concn. vary from 0.10 to 5.29 mg/L. Hanchinala station of Raichur taluk had maximum Fluoride content (5.29 mg/L).

In respect of Nitrate, 35 stations (78%) viz., 7 stations from Devadurga taluk, 7 stations from Lingasuguru taluk, 7 stations from Manvi taluk, 11 stations from Raichur taluk and 3 stations from Sindhnanur taluk contained Nitrate content beyond the Acceptable limit of Indian Drinking Water

Specification. Nitrate concn. vary from 1.4 to 480 mg/L. Potanala station of Manvi taluk had maximum Nitrate content (480 mg/L).

In respect of Total Hardness, 7 stations (15%) viz., 2 stations from Lingasuguru taluk, 4 stations from Manvi taluk, and 1 station from Raichur taluk contained Total Hardness beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn.vary from 88 to 1940 mg/L. Pothanal station of Manvi taluk had maximum Total Hardness content (1940 mg/L).

# WATER QUALITY DATA OF RAICHUR DISTRICT



● **POTABLE**  
● **ALTERNATE**  
● **NON-POTABLE**

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600

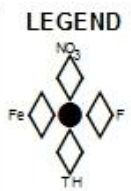


Table - 33

## WATER QUALITY DATA OF SHIMOGA DISTRICT 2018-19

SI No	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well Code	Well ID
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L				
1	2	3	4	5	6	7	8	9	10	11	12
1	Shimoga	Bhadra vathi	Arabilachi	0.3	0.8	16	492	13.9274	75.7666	170102	BH1
2	Shimoga		Agaradahalli	0.35	0.75	32	144	14.0068	75.7960	170106	BH2
3	Shimoga		junction	0.21	0.71	16	504	13.7772	75.6258	170108HP	BH3
4	Shimoga	Hosa nagar	kotethariga	0.25	0.02	16	244	13.9639	75.2095	170410	HN1
5	Shimoga		Huncha	0.1	0.03	78	256	13.8577	75.2129	170406HP	HN2
6	Shimoga		Hosanagar	0.03	0.08	64	284	13.9172	75.0675	170401	HN3
7	Shimoga		Nagara	0.07	0.05	18	252	13.8249	75.0334	170402	HN4
8	Shimoga		Rippnpet	0.03	0.03	32	92	13.9889	75.2597	170404	HN5
9	Shimoga	Sagara	Anandapuram	0.07	0.07	16	132	14.0704	75.2149	170503	SG1
10	Shimoga		Avinahalli	0.08	0.06	16	448	14.0672	74.9935	170504	SG2
11	Shimoga		alahalli	0.07	0.01	72	288	14.1996	74.9393	170508HP	SG3
12	Shimoga		bommathi	0.03	0.08	43	180	14.1722	75.1028	170519HP	SG4
13	Shimoga		Gowthampura	0.35	0.03	28	460	14.1421	75.2365	170511	SG5
14	Shimoga		Hirenalluru	0.75	0.05	12	432	14.2714	74.9789	170516	SG6
15	Shimoga		kargal	0.07	0.8	12	180	14.1900	74.8139	170502	SG7
16	Shimoga		Keladi	0.8	0.03	18	180	14.2222	75.0167	170507	SG8
17	Shimoga		Sagara	0.07	0.7	18	324	14.1661	75.0250	170501	SG9
18	Shimoga		Sharadapura	0.07	0.03	32	372	14.1389	74.9944	170517	SG10
19	Shimoga		Thygarthi	0.12	0.12	16	108	14.1889	75.1750	170519	SG11
20	Shimoga		Thalaguppa	0.08	0.82	16	408	14.2146	74.9064	170510	SG12
21	Shimoga		Hosabale	0.71	0.01	10	252	14.3167	75.0472	170811	SG13
22	Shimoga		Ullur	0.15	0.03	12	220	14.1375	75.1069	170506	SG14
23	Shimoga		Alageri	0.02	0.07	53	252	14.0222	75.1547	170411	SG15
24	Shimoga		Ulavi	1.12	0.07	10	404	14.2722	75.1092	170802	SG16
25	Shimoga	Shikari pura	Harogoppa	0.02	0.05	12	244	14.1820	75.4258	170603	SP1
26	Shimoga		kutralli	0.5	0.12	38	512	14.2867	75.3137	170604	SP2
27	Shimoga		Tharalaghatta	0.07	0.03	5	92	14.2208	75.3889	170605A	SP3
28	Shimoga		Shikaripura	1.14	0.08	10	120	14.2639	75.3586	170601	SP4
29	Shimoga		Shiralakoppa	0.03	0.03	45	388	14.3792	75.2522	170602HP	SP5
30	Shimoga		Saluru	0.07	0.08	32	248	14.2236	75.3069	170612	SP6
31	Shimoga		Hunasehalli	0.03	0.03	32	412	14.5405	75.18722	170808	SP7
32	Shimoga	Shimoga	Chinmane	0.03	0.07	62	84	13.9986	75.3861	170711	SM1
33	Shimoga		Gajanuru	0.03	0.07	64	640	13.8500	75.5411	170704	SM2
34	Shimoga		Holaluru	0.81	0.71	13	304	14.0342	75.6792	170705	SM3
35	Shimoga		Haranahalli	0.02	0.03	18	124	14.0448	75.4595	170710	SM4
36	Shimoga		Kumsi	0.03	0.05	48	172	14.0522	75.4000	170703	SM5
37	Shimoga		Kunchenahalli	0.03	0.07	60	252	14.0569	75.5494	170712	SM6

1	2	3	4	5	6	7	8	9	10	11	12
38	Shimoga	Shimoga	Melinattana davadi	0.75	0.73	21	252	13.9722	75.6192	170702	SM7
39	Shimoga		machenahalli	0.02	0.72	30	372	13.8847	75.6492	170709	SM8
40	Shimoga		shimoga	0.03	0.75	76	268	13.9334	75.5770	170701	SM9
41	Shimoga		Arabilachi	0.03	0.07	18	464	13.9406	75.75361		SM10
42	Shimoga		Thudur	0.07	0.03	12	172	13.71361	75.3791	170911HP	SM11
43	Shimoga		Heggodu	0.02	0.07	16	172	13.6338	75.1847	170904HP	SM12
44	Shimoga	Soraba	Anavatti	0.07	0.05	16	320	14.5639	75.1522	170804	SR1
45	Shimoga		Joladagudde	1.16	0.03	60	140	14.4189	74.9764	170803	SR2
46	Shimoga		jade	0.75	0.07	12	732	14.5717	75.0500	170812	SR3
47	Shimoga		Kappagadde	0.03	0.03	46	240	14.4764	75.1139	170807HP	SR4
48	Shimoga		Soraba	0.8	0.08	64	160	14.3794	75.0975	170801	SR5
49	Shimoga		Shipapura	0.08	0.08	32	160	14.3802	75.2111	170809	SR6
50	Shimoga		Elasti	1.18	0.03	32	120	14.3722	75.05	170805	SR7
51	Shimoga		Agasavalli	0.08	0.8	28	592	14.6072	75.1522	170806A	SR8
52	Shimoga		Thogarsi	0.03	0.03	28	368	14.4508	75.2102	170609	SR9
53	Shimoga	Thirtha halli	Agumbe	1.19	0.3	12	244	13.5056	75.0944	170902	TH1
54	Shimoga		Devangi	0.02	0.03	52	284	13.6306	75.2833	170908	TH2
55	Shimoga		Konanduru	0.1	0.08	63	332	13.8103	75.2492	170903	TH3
56	Shimoga		Kannangi	0.08	0.08	33	400	13.7917	75.3653	170906	TH4
57	Shimoga		Naluru	0.03	0.06	38	252	13.5944	75.1361	170905	TH5
58	Shimoga		Shivarajpura	0.05	0.05	10	504	13.6847	75.2194	170907	TH6
59	Shimoga		Thirthahalli	0.25	0.25	70	644	13.6889	75.2500	170901A	TH7
60	Shimoga		Holehonnuru	0.71	0.75	12	252	13.9853	75.6878		TH8

	Alternate Source
	Not Potable

## SHIVAMOGGA DISTRICT

Water samples have been collected from 60 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-33. In respect of Total Iron, 16 stations (26%) viz., 1 station from Bhadravati taluk, 5 stations from Sagara taluk, 2 stations from Shikaripura taluk, 2 stations from Shivamogga taluk, 4 stations from Soraba taluk and 2 stations from Thirthahalli taluk contained Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron



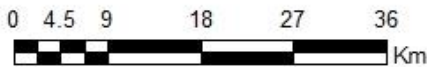
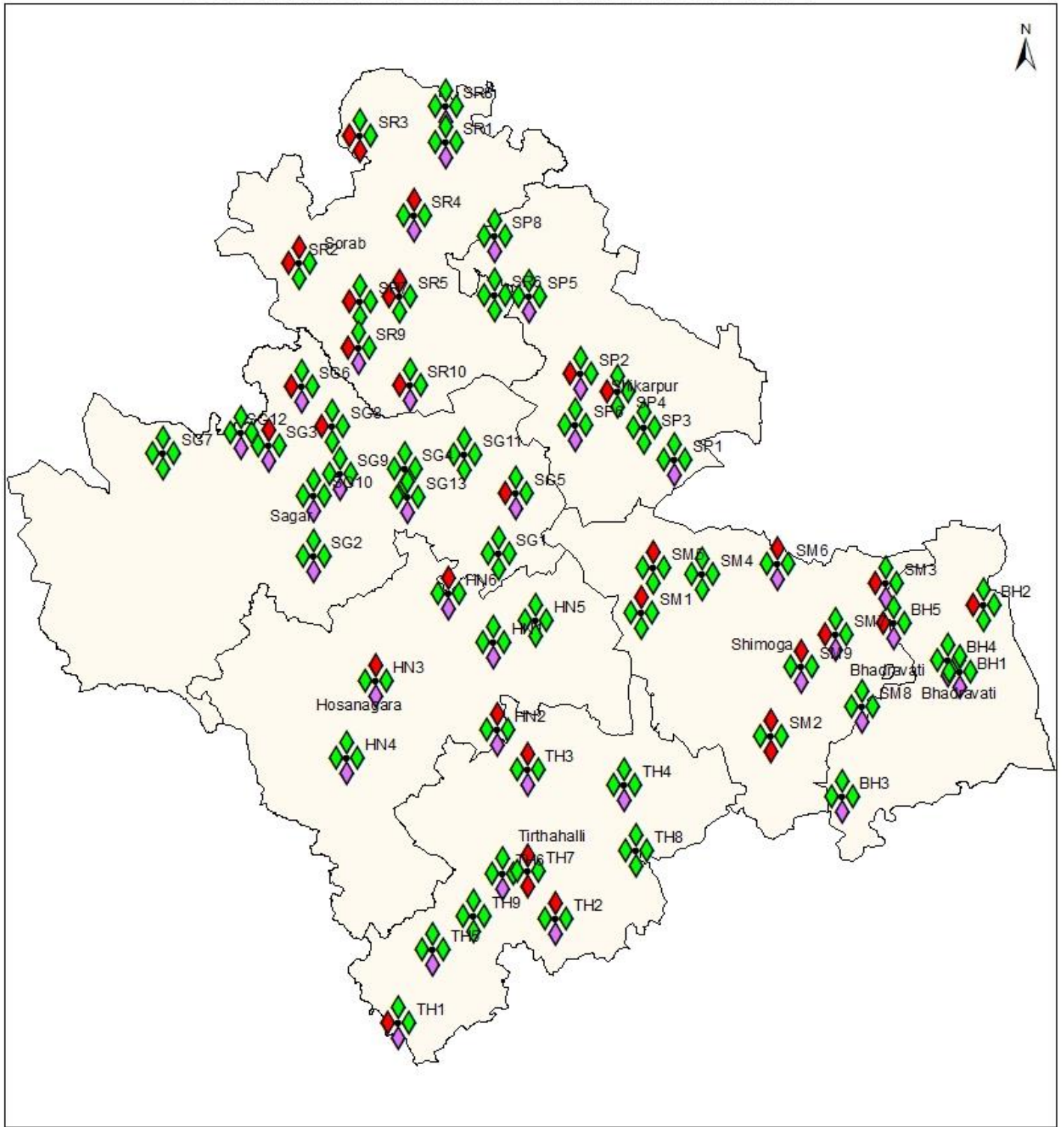
concn.vary from 0.02 to 1.19 mg/L. Agumbe station of Thirthahalli taluk had maximum Iron content (1.19 mg/L).

In respect of Fluoride, no stations contained Fluoride content beyond the Permissible limit of Indian Drinking Water Specification. Fluoride concn.vary between 0.01 to 0.80 mg/L.

In respect of Nitrate, 15 stations (25%) viz., 2 stations from Hosanagara taluk, 2 stations from Sagara taluk, 5 stations from Shivamogga taluk, 3 stations from Soraba taluk and 3 stations from taluk contained Nitrate content beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary from 5 to 78 mg/L. Huncha station of Hosanagara taluk had maximum Nitrate content (78 mg/L).

In respect of Total Hardness, 3 stations (5%) viz., 1 station from Shivamogga taluk, 1 station from Soraba taluk and 1 station from Thirthahalli taluk contained Total Hardness beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn.vary from 84 to 732 mg/L. Jade station of Soraba taluk had maximum Total Hardness content (732 mg/L).

# WATER QUALITY DATA OF SHIMOGA DISTRICT



**POTABLE** ●  
**ALTERNATE** ●  
**NON-POTABLE** ●

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600



Table - 34

## WATER QUALITY DATA OF TUMKUR DISTRICT 2018-19

Sl No	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well Code	Well ID
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L				
1	2	3	4	5	6	7	8	9	10	11	12
1	Tumkur	C.N. Halli	Kuppur	0.07	0.6	1	572	13.4214	76.5316	751	CN1
2	Tumkur		Shettikere	0.05	0.54	1	468	13.3790	76.5625	789	CN2
3	Tumkur		Tarabenahalli	0.15	0.36	1	444	13.3736	76.6343	845	CN3
4	Tumkur		Salakatte	0.14	0.58	2	536	13.4745	76.6051	768	CN4
5	Tumkur		C.N.Halli	0	0.58	1	368	13.4261	76.6188	817	CN5
6	Tumkur		Chikkabidare	0.65	0.54	20	544	13.5413	76.5654	718	CN6
7	Tumkur		Yagachihalli	0.12	0.43	4	464	13.6268	76.5822	862	CN7
8	Tumkur		Bellara	0.13	0.34	182	1176	13.6174	76.6742	679	CN8
9	Tumkur		K.Mathighatta	0.06	0.58	3	296	13.46108	76.48333	111	CN9
10	Tumkur	Gubbi	Gubbi	0.14	0.07	3	72	13.3097	76.9500	823	GB1
11	Tumkur		Kondli Cross	0.08	0.16	2	332	13.3804	76.7389	841	GB2
12	Tumkur		C.S.Pura	0.04	0	9	412	13.1490	76.8838	771	GB3
13	Tumkur		Ankasandra	0.08	1.12	1	244	13.5310	76.8918	771	GB4
14	Tumkur		MM Kaval	0.17	0.22	8	336	13.4005	76.9719	823	GB5
15	Tumkur		Kadaba	0.16	0.19	6	184	13.2426	76.8614	770	GB6
16	Tumkur		Nitturu	0.04	0.17	18	352	13.3190	76.8621	797	GB7
17	Tumkur		Unaganala	0.88	0.58	481	1136	13 26 58	76 49 10	217	GB8
18	Tumkur		Udde Hosakere	0.16	0.27	9	452	13.3716	76.8759	817	GB9
19	Tumkur		Sanganahalli	0.1	1.31	2	244	13.4408	76.8771	844	GB10
20	Tumkur		Sapanahalli	0.06	0.37	3	148	13.337	76.80616	209	GB11
21	Tumkur	Koratagere	Jonigarahalli	0.03	1.08	1	148	13.5381	77.1018	862	KG1
22	Tumkur		I.K.Colony	0.07	1.76	9	300	13.4311	77.2382	826	KG2
23	Tumkur		Thimmasandra	0.04	0.66	5	400	13.3937	77.3041	833	KG3
24	Tumkur		Chattenahalli	0.04	0.35	1	564	13.5338	77.3498	736	KG4
25	Tumkur		Tumbadi	0.08	2.23	2	368	13.5668	77.2383	757	KG5
26	Tumkur		Theetha	0.06	1.09	58	412	13.2830	77.1732	310	KG6
27	Tumkur		Koratagere	0.01	1.57	62	468	13.5276	77.2415	774	KG7
28	Tumkur	Kunigal	Amruthur	0.08	0.38	10	496	12.9223	76.9330	722	KN1
29	Tumkur		Chowdanakuppe	0.04	0.21	74	520	12.8610	77.0925	803	KN2
30	Tumkur		Manovalli	3.15	0.35	1	388	13.0051	76.8978	756	KN3
31	Tumkur		Haalappanagudda	0.07	0.25	5	212	13.0043	76.9574	776	KN4
32	Tumkur		Kemppanahalli	0.05	0.29	3	496	12.9562	77.0993	819	KN5
33	Tumkur		Vajarpalya	0.05	0.18	16	408	12.9529	77.0279	821	KN6
34	Tumkur		Daddamavathur	0.03	0.25	4	312	12.9004	77.0412	762	KN7
35	Tumkur		Kunigal	0.04	0.26	31	568	13.0229	77.0201	776	KN8

1	2	3	4	5	6	7	8	9	10	11	12
36	Tumkur	Madhu giri	Dabbeghatta	0.04	1.33	31	344	13.6746	77.1277	760	MG1
37	Tumkur		Puravara	0.04	1.13	3	444	13.6899	77.3043	690	MG2
38	Tumkur		Midigeshi	0.06	2.47	18	348	13.8320	77.2043	735	MG3
39	Tumkur		Hosakere	0.06	1.22	157	628	13.7642	77.1976	738	MG4
40	Tumkur		Dodda Yalkur	0.07	2.12	48	292	13.83201	77.2043	512	MG5
41	Tumkur		Madhugiri	0.04	1.01	26	316	13.6455	77.2028	776	MG6
42	Tumkur	Pava gada	Pavagada	0.07	1.94	103	904	14.1020	77.2865	635	PG1
43	Tumkur		Kodamadagu	0.08	1.57	98	328	14.0948	77.3605	600	PG2
44	Tumkur		Nagalmadike	0.07	2.76	89	552	14.1858	77.3696	567	PG3
45	Tumkur		Bugaduru	0.15	1.19	73	512	14.1874	77.3978	574	PG4
46	Tumkur		Kenchaganahalli	0.06	1.78	42	188	14.1883	77.2790	599	PG5
47	Tumkur		Y.N.Hosakote	0.04	1.34	39	764	14.2800	77.1756	629	PG6
48	Tumkur		Arekyathanahalli	0.02	2.89	26	352	14.1381	77.2069	666	PG7
49	Tumkur		Lingadahalli	0.05	1.66	4	272	14.1806	77.0467	647	PG8
50	Tumkur		Devalakere	0.06	1.63	14	400	14.1196	77.1440	704	PG9
51	Tumkur		Karekyathanahalli	0.08	1.3	1	192	14.0590	77.1074	681	PG10
52	Tumkur		Kilaradahalli	0.05	1.95	1	328	14.0583	77.1941	672	PG11
53	Tumkur	Sira	Sira	0.02	1.16	20	416	13.7434	76.8988	673	SR1
54	Tumkur		Bukkapatna	0.09	0.88	8	520	13.6497	76.7465	679	SR2
55	Tumkur		Mogadu	0.16	1.26	2	404	13.7253	76.9675	680	SR3
56	Tumkur		Melkunte	0.28	1.24	1	168	13.8211	76.9141	664	SR4
57	Tumkur		Baragur	0.06	1.17	1	112	13.9371	76.9815	643	SR5
58	Tumkur		Gandihalli	0.05	1.24	18	268	14.0083	76.9443	617	SR6
59	Tumkur		Pattanayakana halli	0.03	0.6	73	704	13.8884	76.9186	659	SR7
60	Tumkur		Honnenahalli	0.02	1.07	5	140	13.8516	76.8423	642	SR8
61	Tumkur		Tavarekere	0.05	1	6	568	13.7966	76.8034	620	SR9
62	Tumkur		Yaradakatte	0.04	0.61	1	284	13.6996	76.7482	699	SR10
63	Tumkur		Kilaradahalli	0.02	1	16	820	13.6592	76.7829	672	SR11
64	Tumkur		Huildore	0.05	0.45	2	324	13.6822	76.8002	674	SR12
65	Tumkur		Kallambella	0.03	0.91	4	448	13.6402	76.9372	707	SR13
66	Tumkur		Seebe Agrahara	0.02	0.84	10	212	13.5629	76.9751	738	SR14
67	Tumkur	Tiptur	Kibbanahalli	0.03	0.30	36	416	13.3003	76.6381	845	TP1
68	Tumkur		Bommenahalli	0.15	0.58	3	292	13.2805	76.5357	868	TP2
69	Tumkur		Nonavinakere	0.06	0.62	1	156	13.1648	76.5579	824	TP3
70	Tumkur		Matthighatta	0.07	0.44	13	564	13.1770	76.4904	836	TP4
71	Tumkur		Tiptur	0.78	0.34	48	736	13.2480	76.4730	865	TP5
72	Tumkur		Maadihalli	0.06	0.75	1	368	13.2742	76.4367	872	TP6
73	Tumkur		Halkurki	0.05	0.79	30	644	13.3712	76.4789	793	TP7
74	Tumkur		Hulihalli	0.07	0.82	1	444	13.3612	76.4150	823	TP8
75	Tumkur		Yagachikate	0.08	0.39	28	268	13.3106	76.7078	862	TP9

1	2	3	4	5	6	7	8	9	10	11	12
76	Tumkur	Turuvekere	Turuvekere	0.2	0.42	85	824	76 40 05	13 09 40	005	TU1
77	Tumkur		Mayasandra	0.06	0.44	2	524	13.0836	76.7599	775	TU2
78	Tumkur		Bytharahosahalli	3.36	1.05	1	220	13.0570	76.7944	773	TU3
79	Tumkur		Machenahalli	0.08	0.21	1	408	13.2219	76.7042	786	TU4
80	Tumkur		Gonitumkur	2.91	0.35	24	792	13.1176	76.6541	815	TU5
81	Tumkur		Haridasanahalli	0.04	0.17	4	580	13.2276	76.6550	842	TU6
82	Tumkur		Vadavanaghatta	0.08	0.49	1	172	13 07 59	76 47 10	011	TU7
83	Tumkur		Dhabbeghatta	0.09	0.21	2	304	13 40 23	77 07 37	003	TU8
84	Tumkur		Tumkur	Bellavi	0.12	0.28	22	464	13.4112	77.0185	810
85	Tumkur	Bugudanhalli		0.18	0.2	6	72	13.3802	77.0500	809	TM2
86	Tumkur	Chikkathallikere		0.02	0.73	8	360	13.4507	77.1173	845	TM3
87	Tumkur	Nerahalu		0.02	0.3	1	360	13.5081	77.0075	778	TM4
88	Tumkur	Tumkur		0.05	0.28	40	444	13.3291	77.0972	820	TM5
89	Tumkur	Holakallu		0.04	0.22	13	280	13.2538	77.1141	849	TM6
90	Tumkur	Nagahalli		0.02	0.79	13	452	13.2166	77.0565	814	TM7
91	Tumkur	Hirehalli		0.08	0.58	34	168	13.2817	77.1867	862	TM8
92	Tumkur	Sirivara		0.06	0.24	1	260	13.2193	76.9976	809	TM9
93	Tumkur	Yellapura		0.09	0.3	72	348	13022158	77007100	913	TM10
94	Tumkur	Pavagada		0.07	1.94	103	904	140610	771717	601	TM11

	Alternate Source
	Not Potable

## UMUKURU DISTRICT

Water samples have been collected from 94 monitoring stations. Chemical analysis results including monitoring stations data are given in Table-34. In respect of Total Iron, 6 stations (6%) viz., 1 station from C.N.Halli taluk, 1 station from Gubbi taluk, 1 station from Kunigal taluk, 1 station from Tiptur taluk and 2 stations from Turuvekere taluk contained Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary from Nil to 3.36 mg/L. Bytharahosahalli station of Turuvekere taluk had maximum Total Iron content (.3.36 mg/L).

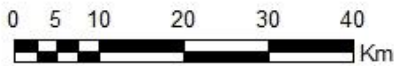
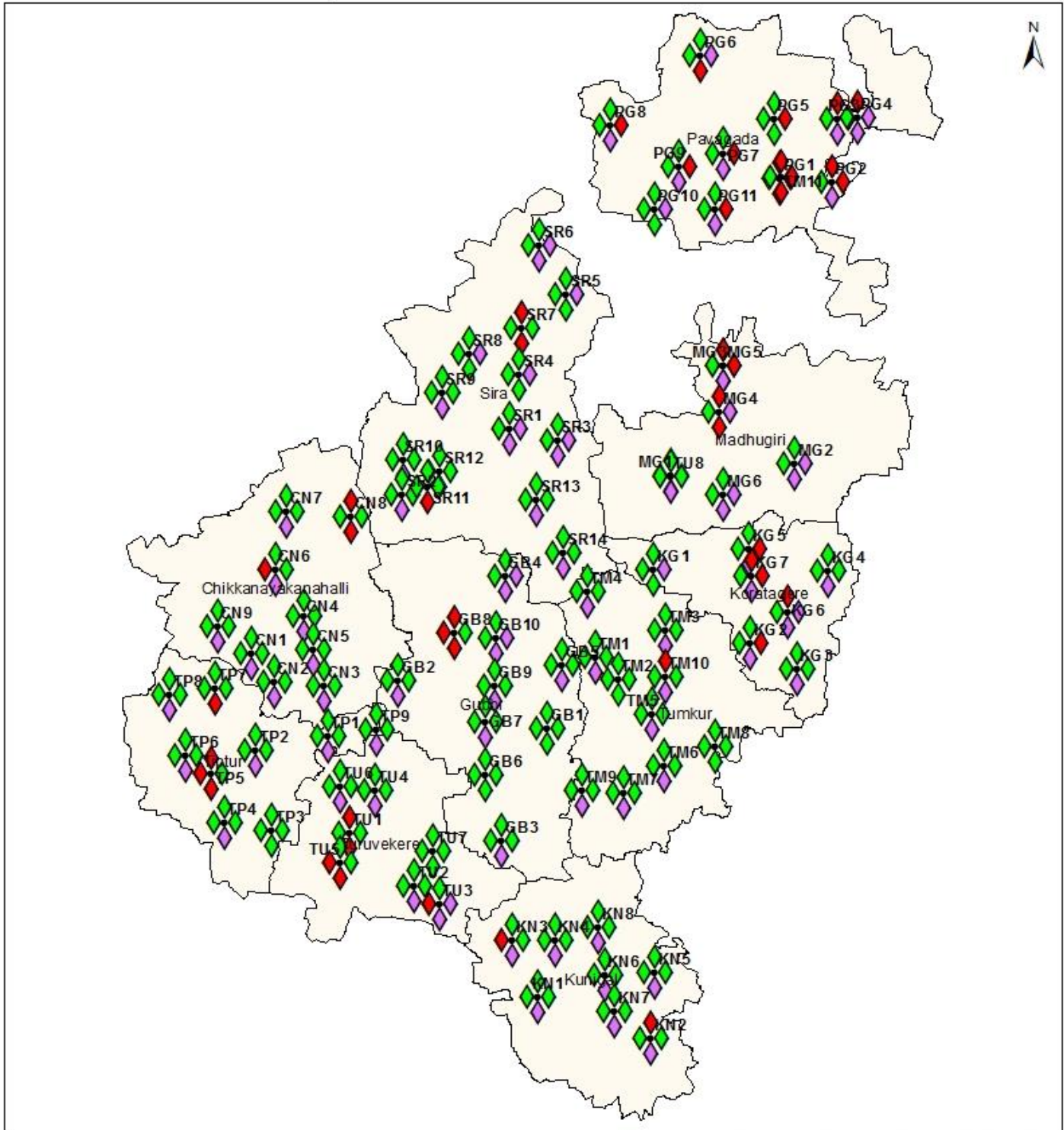
In respect of Fluoride, 14 stations (15%) viz., 3 stations from Koratgere taluk, 2 stations from Madhugiri taluk 8 stations from Pavagada taluk and 1 station from Tumakuru taluk contained Fluoride content beyond the Permissible limit of Indian Drinking Water Specification. Fluoride concn. vary from

Nil to 2.89 mg/L. Arekyathanahalli station of Pavagada taluk had maximum Fluoride content (2.89 mg/L).

In respect of Nitrate, 16 stations (17%) viz., 1 station from C.N.Halli taluk, 1 station from Gubbi taluk, 2 stations from Koratagere taluk, 1 station from Kunigal taluk, 2 stations from Madhugiri taluk, 4 stations from Pavagada taluk, 1 stations from Sira taluk, 1 station from Tiptur taluk, 1 station from Turuvekere taluk and 2 stations from Tumkur taluk contained Nitrate content beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary from 1 to 481 mg/L. Unaganala station of Gubbi taluk had maximum Nitrate content (481 mg/L).

In respect of Total Hardness, 12 stations (12%) viz., 1 station from C.N.Halli taluk, 1 station from Gubbi taluk, 1 station from Madhugiri taluk, 2 stations from Pavagada taluk, 2 stations from Sira taluk, 2 stations from Tipturu taluk, 2 stations from Turuvekere taluk and 1 station from Tumakuru taluk contained Total Hardness beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn. vary from 72 to 1176 mg/L. Bellara station of C.N.Halli taluk had maximum Total Hardness content (1176 mg/L).

# WATER QUALITY DATA OF TUMKUR DISTRICT



- POTABLE
- ALTERNATE
- NON-POTABLE

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600



Table - 35

## WATER QUALITY DATA OF UTTARA KANNADA DISTRICT 2018-19

Sl. No	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well Code	Well ID
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L				
1	2	3	4	5	6	7	8	9	10	11	12
1	Karwara	Ankola	Ramanaguli	0.03	0.10	1.00	32	14.7951	74.5852	190104	AN1
2	Karwara		Aversa	0.05	0.20	1.00	36	14°43'37.5	74°17'02.10"	190101	AN2
3	Karwara		Aversa	0.50	0.20	5.00	72	14.6528	74.3164	190102	AN3
4	Karwara		Ankola	0.25	0.10	2.00	92	14°39'10.6	74°19'0.20	190102	AN4
5	Karwara		Shiruru	0.40	0.10	2.00	20	143607.4	742151.5	190103	AN5
6	Karwara		Shiruru	0.03	0.20	4.00	152	143723.3	742058.10	190110	AN6
7	Karwara		Sunkanala	0.20	0.10	3.00	128	14°44'12.9	74°31'10.5	190105	AN7
8	Karwara		Sunkanala	0.02	0.10	2.00	64	144412.3	743110.2	190106	AN8
9	Karwara		Mastikatta	0.03	0.20	3.00	76	14.68 05	74.4618	190107	AN9
10	Karwara		Mastikatta	1.80	0.10	2.00	52	14.6865	74.4632	190108	AN10
11	Karwara	Bhatkal	Morukere	0.02	0.10	1.00	8	14°00'49.8	74°36'07.7	190202	BK1
12	Karwara		Murdeshwar	0.02	0.10	1.00	12	14°05'53.2	74°30'16.10	190206	BK2
13	Karwara		Murdeshwar	0.02	0.10	1.00	12	140554	743016.20	190204	BK3
14	Karwara		Shirali	0.02	0.10	1.00	16	140140.7	743146	190203	BK4
15	Karwara		Shirali	0.06	0.20	5.00	36	140157.8	743133.4	190208	BK5
16	Karwara		Bhatkal	0.04	0.10	3.00	56	13°59'1.9	74°33'30.2	190201	BK6
17	Karwara		Bhelke	0.02	0.10	1.00	12	135622	743530	190205	BK7
18	Karwara		Bhelke	0.03	0.10	2.00	56	135639	743533	190207	BK8
19	Karwara	Haliyal	Haliyal	0.04	0.30	12.00	416	15°20'04.4	74°45'13	190306	HY1
20	Karwara		Madnalli	0.05	0.20	9.00	364	52341.15	744457.10	190307	HY2
21	Karwara		Madnalli	0.08	0.20	6.00	312	152343.33	744450.15	190312	HY3
22	Karwara		Bharchi	0.40	0.20	5.00	272	151809.3	743632.6	190310	HY4
23	Karwara		Bharchi	0.02	0.30	12.00	400	151809.3	743629.4	190311	HY5
24	Karwara		Kulagi	0.01	0.10	6.00	420	15°09'53.8	74°38'20.1	190305	HY6
25	Karwara		Belavatagi	0.03	0.20	5.00	396	151513.8	745125.4	190302	HY7
26	Karwara		Belavatagi	0.20	0.10	1.00	24	151503.6	745112.2	190309	HY8
27	Karwara		Dandeli	0.1	0.20	4.00	120	15°14'36.8	74°37'30.7	190304	HY9
28	Karwara		Bhagavati	0.02	0.10	4.00	192	150921.5	744520.8	190303	HY10
29	Karwara		Bhagavati	0.02	0.50	5.00	252	150911.6	744520.9	190308	HY11
30	Karwara	Honnavar	Sulebailu	0.1	0.20	4.00	120	14°07'28.2	74°30'13.8"	190402	HV1
31	Karwara		Haladipura	0.10	0.10	2.00	44	142101.4	742520.3	190406	HV2
32	Karwara		Haladipura	0.03	0.10	1.00	32	142041.4	742528	190409	HV3
33	Karwara		Honnavar	0.06	0.10	2.00	40	141653.3	742704.2	190403	HV4
34	Karwara		Honnavar	0.08	0.10	1.00	36	141640.6	742637.4	190405	HV5
35	Karwara		Gerusoppa	0.02	0.20	1.00	20	14°14'26.6	74°39'11.4	190404	HV6
36	Karwara		Hadinabala	0.4	0.10	1.00	12	141715.70	743035.71	190407	HV7



1	2	3	4	5	6	7	8	9	10	11	12
37	Karwara	Honnavar	Hadinabala	0.5	0.10	2.00	36	141716.3	743035.1	190408	HV8
38	Karwara	Joida	Kalasa	0.04	0.10	2.00	32	15.0800	74.4353	191006	JD1
39	Karwara		Kumbarwad	0.02	0.10	1.00	28	15.1267	74.4042	191002	JD2
40	Karwara		Anasi	0.80	0.10	1.00	40	145936.1	742211	191003	JD3
41	Karwara		Anasi	0.03	0.10	1.00	60	145936.9	742209.2	191004	JD4
42	Karwara		Tinaighat	0.02	0.10	2.00	44	152647.7	742411.5	191009	JD5
43	Karwara		Tinaighat	0.02	0.10	2.00	44	152645.41	42411.15	191011	JD6
44	Karwara		Anamodu	2.00	0.10	1.00	20	15.4461	74.4031	191008	JD7
45	Karwara		Joida	0.03	0.10	4.00	192	15.1694	74.4847	191007	JD8
46	Karwara		Joida	0.03	0.10	3.00	112				JD9
47	Karwara		Karwar	Karwar	0.05	0.10	4.00	192	14.8086	741272	190501
48	Karwara	Majali		0.02	0.10	2.00	220	145318.8	740634.3	190504	KR2
49	Karwara	Majali		0.02	0.10	2.00	172	145318.5	740634.5	190508	KR3
50	Karwara	Kadawad		0.03	0.10	3.00	76	148364	741739	190503	KR4
51	Karwara	Gotegali		0.03	0.10	1.00	20	145411.7	741807.5	190505	KR5
52	Karwara	Gotegali		0.02	0.20	5.00	68	145414.6	74180.5	190509	KR6
53	Karwara	Kadra		0.03	0.20	2.00	28	14.9081	74.3481	190506	KR7
54	Karwara	Chendiya		0.04	0.10	7.00	864	14.7689	74.1858	190502	KR8
55	Karwara	Amadalli		0.04	1.30	3.00	92				KR9
56	Karwara	Kumata		Gokarna	0.02	0.10	3.00	164	14°32'53.1	74°19'17.2	190602
57	Karwara		Hareeta	0.2	0.10	1.00	12	143020.5	743059.4	190601	KM2
58	Karwara		Hareeta	0.02	0.10	1.00	12	142859.1	742933.7	190609	KM3
59	Karwara		Hiregutti	0.04	0.10	2.00	28	143348.4	742314.5	190606	KM4
60	Karwara		Hiregutti	1.00	0.20	5.00	244	143347.4	742315.9	190610	KM5
61	Karwara		Kumata	0.25	0.10	2.00	56	14.4268	74.4175	190603	KM6
62	Karwara		Moruru	0.05	0.20	1.00	28	14.4428	74.4711	190607	KM7
63	Karwara		Santeguli	0.20	0.20	1.00	24	142538.2	743446.3	190604	KM8
64	Karwara		Santeguli	0.10	0.40	4.00	128	142534.7	743455	190608	KM9
65	Karwara		Chandavar	0.06	0.10	4.00	96				KM10
66	Karwara	Mundagod	Mainahalli	0.02	0.10	2.00	96	145841.45	745312.31	190704	MG1
67	Karwara		Mainahalli	0.07	0.20	4.00	264	145837.89	745316.35	190709	MG2
68	Karwara		Malagi	0.20	0.10	2.00	76	144450.9	750022.	190701	MG3
69	Karwara		Malagi	0.02	0.10	2.00	60	14.4452	750023	190707	MG4
70	Karwara		Katuru	0.80	0.20	4.00	352	14°51'35.3	75°02'10.4	190702	MG5
71	Karwara		Mundagod	0.03	0.10	6.00	328	14°58'11.2	75.0369	190705	MG6
72	Karwara	Siddapur	Beerlamakke	0.02	0.10	1.00	16	14°22'29.1	74°41'19	190805	SD1
73	Karwara		Nanikatta	0.05	0.10	1.00	20	142854.8	745225.7	190803	SD2
74	Karwara		Nanikatta	0.04	0.10	2.00	28	142853.2	745224.9	190813	SD3
75	Karwara		Bilagi	0.03	0.10	2.00	40	142137.2	744743.4	190804	SD4
76	Karwara		Bilagi	0.12	0.10	3.00	48	142137.7	744742.6	190810	SD5
77	Karwara		Siddapur	0.07	0.10	1.00	20	14210.1	745326	190802	SD6
78	Karwara		Kumbarkuli	0.02	0.10	1.00	16	141830.60	745054.20	190808	SD7
79	Karwara		Kulibeedu	2.00	0.10	4.00	156	141604.4	744839.6	190806	SD8
80	Karwara		Kulibeedu	1.00	0.10	2.00	100	141604	744841.9	190811	SD9

1	2	3	4	5	6	7	8	9	10	11	12
81	Karwara	Siddapur	Hursikatta	0.08	0.10	2.00	68	142553.5	744907.2	190809	SD10
82	Karwara		Hursikatta	0.06	0.10	2.00	84	1 42553.42	74496.32	190812	SD11
83	Karwara	Sirsi	Ragihosalli	0.03	0.10	3.00	60	143127.63	743550.19	190905	SR1
84	Karwara		Ilasuru	0.2	0.10	1.00	24	144052	745313.6	190915	SR2
85	Karwara		Amminalli	0.07	0.10	1.00	40	143254.27	744414.88	190913	SR3
86	Karwara		Amminalli	0.02	0.10	1.00	28	143254.27	744414.88		SR4
87	Karwara		Sirsi	0.03	0.10	28.00	116	143652.7	745005.7	190901	SR5
88	Karwara		Musigadde	0.09	0.10	1.00	24	143349.1	744904.1	190904	SR6
89	Karwara		Musigadde	1.80	0.10	2.00	48	143347.7	744904.2	190914	SR7
90	Karwara		Bisalkoppa	0.02	0.20	4.00	56	144157.3	745555.8	190903	SR8
91	Karwara		Hegadekatta	0.15	0.10	1.00	20	143624.35	74431.50	190911	SR9
92	Karwara		Navanagere	0.1	0.10	2.00	44	143343.81	745648.73	190908	SR10
93	Karwara		Banavasi	0.02	0.20	3.00	68	143227.92	75 051.71	190909	SR11
94	Karwara	Yallapur	Arabail	0.03	0.10	2.00	48	45039.62	743841.00	191100	YA1
95	Karwara		Arabail	0.02	0.10	1.00	44	145045	743841.4	191103	YA2
96	Karwara		Kiruvatti	1.00	0.10	5.00	424	15 325.98	745057.02	191111	YA3
97	Karwara		Kiruvatti	1.20	0.10	9.00	392	15 325.17	745057.50	191110	YA4
98	Karwara		Idagundi	0.02	0.10	3.00	68	145459.4	743922.6	191102	YA5
99	Karwara		Idagundi	0.01	0.10	1.00	28	14555.07	743923.80	191109	YA6
100	Karwara		Talageri	1.00	0.10	1.00	36	150033.6	744402.9	191106	YA7
101	Karwara		Talageri	0.20	0.10	25.00	148	150032.6	744403	191108	YA8
102	Karwara		Nandolli	0.01	0.10	3.00	116	145439	744230	191105	YA9
103	Karwara		Nandolli	0.02	0.10	2.00	84	145435.4	744226.3	191107	YA10
104	Karwara		Manchikere	0.04	0.10	2.00	68	145138.44	74490.69	191101	YA11
105	Karwara		Manchikere	0.02	0.10	3.00	160	145135.85	74491.48	191104	YA12

	Alternate Source
	Not Potable

## **UTTARA KANNADA DISTRICT**

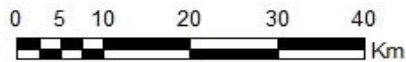
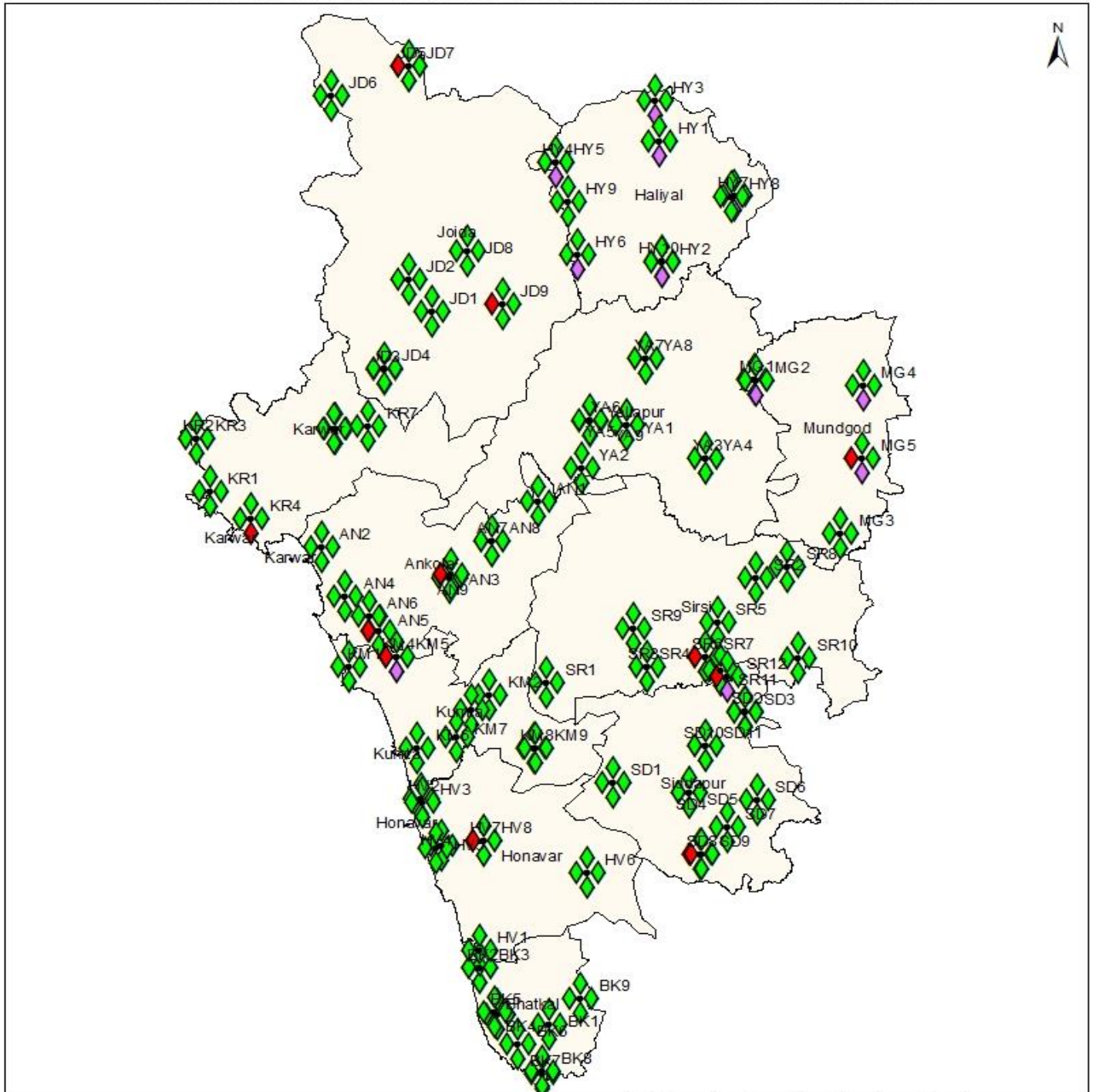
Water samples have been collected from 105 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-35. In respect of Total Iron, 16 stations (15%) viz., 3 stations from Ankola taluk, 1 station from Haliyala taluk, 2 stations from Honnavara taluk, 2 stations from Joida taluk, 1 station from Kumta taluk, 1 station from Mundagod taluk, 2 stations from Siddapura taluk, 1 station from Sirsi taluk and 3 stations from Yellapura taluk contained Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary from 0.01 to 2.00 mg/L. Anamodu of Joida and Kulibeedu station of Siddapura taluk had maximum Total Iron content (2.00 mg/L).

In respect of Fluoride, no stations contained Fluoride content beyond the Permissible limit of Indian Drinking Water Specification. Fluoride concn. vary between 0.10 to 1.30 mg/L.

In respect of Nitrate, no stations contained Nitrate content beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary between 1.00 to 28 mg/L.

In respect of Total Hardness, 1 stations (1%) viz., Chendiya stations from Karwara taluk contained Total Hardness beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn. vary from 12 to 864 mg/L. Chendiya stations from Karwara taluk had maximum Total Hardness content (864 mg/L).

# WATER QUALITY DATA OF UTTARA KANNADA DISTRICT



**POTABLE** ●  
**ALTERNATE** ●  
**NON-POTABLE** ●

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600



**Table - 36**

**WATER QUALITY DATA OF UDUPI DISTRICT 2018-19**

Sl No	District	Taluk	Village	Concentration in mg/L				Longitude	Latitude	Well Code	Well ID	
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L					
1	2	3	4	5	6	7	8	9	10	11	12	
1	Udupi	Karkala	Hebri	0.41	0.06	1	32	74.9947	13.4619	702	KK1	
2	Udupi		Varanga	0.06	0.06	12	48	75.0108	13.4008	710	KK2	
3	Udupi		Hirgana	0.07	0.07	1	32	74.9837	13.2743	704	KK3	
4	Udupi		Kukkundur	0.06	0.14	4	76	74.9839	13.2508	707	KK4	
5	Udupi		Mundkur	0.04	0.1	1	60	74.8653	13.1258	709	KK5	
6	Udupi		Kelajaddu	0.05	0.05	2	28	750136	132800			KK6
7	Udupi		Guddeyangadi	0.35	0.28	1	88	745256	131911			KK7
8	Udupi		Devalkunda	0.09	0.078	1	44	744549	131051			KK8
9	Udupi	Kundapur	Maravanthe	0.08	0.09	1	48	74.6531	13.7247	810	KD1	
10	Udupi		Shankarnarayana	0.06	0.06	5	40	74.8611	13.6078	812	KD2	
11	Udupi		Shiroor	0.05	0.14	7	48	74.6078	13.9089	813	KD3	
12	Udupi		Kathodu	0.09	0.08	1	48	74.6897	13.8081	804	KD4	
13	Udupi		Belve	0.25	0.06	1	36	74.9225	13.5278	801	KD5	
14	Udupi		Kandluru	0.03	0.09	15	56	74.7658	13.6375	805	KD6	
15	Udupi		Vandre	0.16	0.08	10	64	74.7583	13.7016	818	KD7	
16	Udupi		Jadkal	0.09	0.15	1	92	74.8081	13.8033	803	KD8	
17	Udupi		Kundapur	0.12	0.07	16	72	74.6976	13.6342	808	KD9	
18	Udupi		Teggarse	0.13	0.1	1	56	74.6772	13.8486	815	KD10	
19	Udupi		Thekatte	0.06	0.08	9	68	74.7021	13.5492	817	KD11	
20	Udupi		Kollur	0.1	0.08	32	92	74 48 47	13 51 53	818b	KD12	
21	Udupi	Hunsemakki	0.04	0.07	3	28	74 47 05	13 35 21	811H	KD13		
22	Udupi	Udupi	Kodavoor	0.03	0.08	1	48	74.7072	13.3497	905	UD1	
23	Udupi		Perdur	0.26	0.11	2	40	74.9042	13.3833	910	UD2	
24	Udupi		Parkala	0.04	0	6	36	74.8148	13.3532	908	UD3	
25	Udupi		Haluvalli	0.12	0.41	1	92	74.8594	13.4169	903	UD4	
26	Udupi		Bramhavar	0.74	0.09	8	44	74.7447	13.4433	901	UD5	
27	Udupi		Manipura	0.14	0.1	1	64	74.7936	13.2942	906	UD6	
28	Udupi		Uchila	0.06	0.1	5	36	74 45 15	13 11 20	913	UD7	

	Alternate Source
	Not Potable

## **UDUPI DISTRICT**

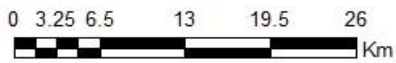
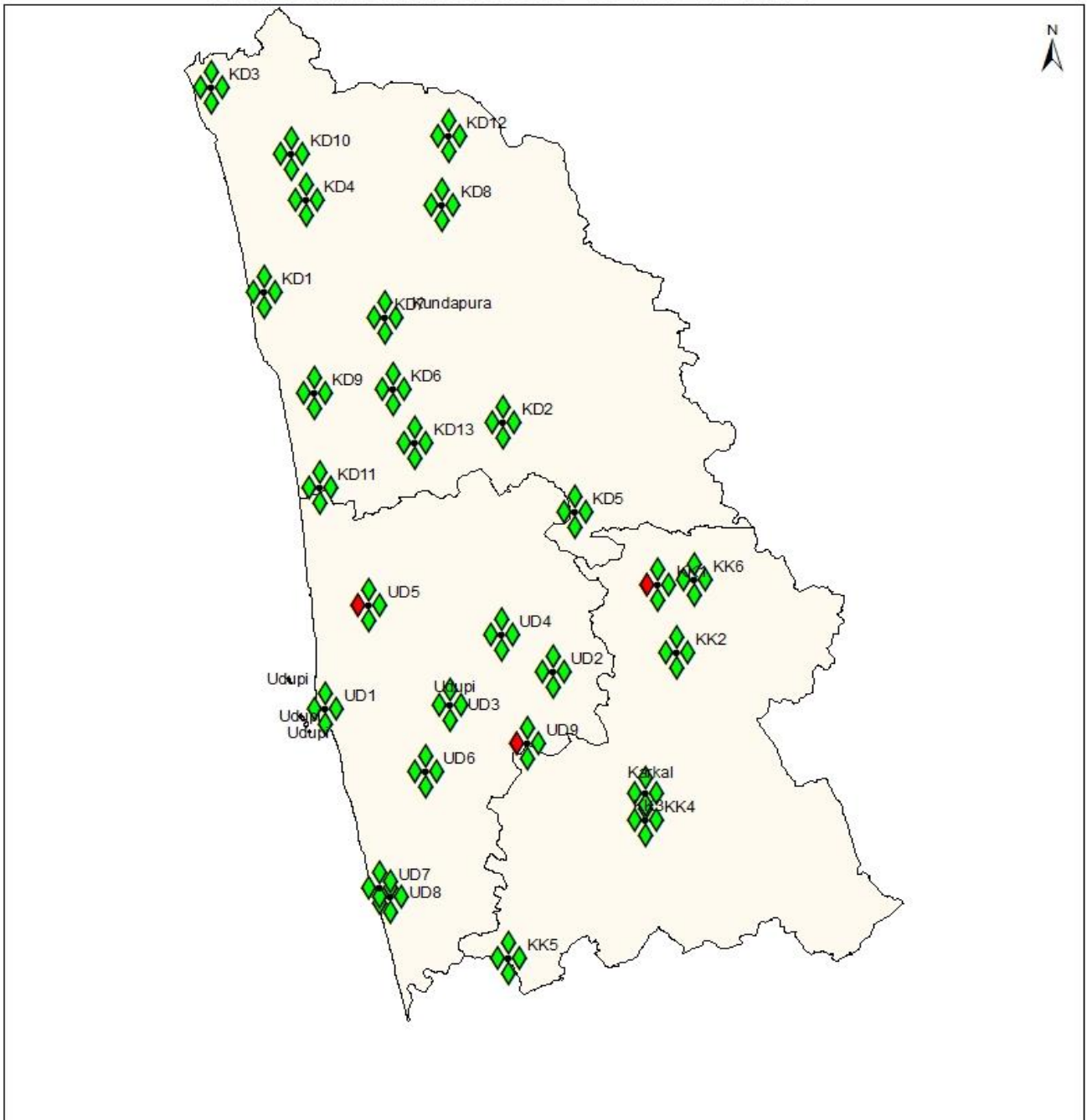
Water samples have been collected from 28 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-38. In respect of Total Iron, 3 stations (11%) viz., 2 stations from Karkala taluk and 1 station from Udupi taluk contained Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary from 0.03 to 0.74 mg/L. Brahmavara station of Udupi taluk had maximum Total Iron content (0.74 mg/L).

In respect of Fluoride, no stations contained Fluoride content beyond the Permissible limit of Indian Drinking Water Specification. Fluoride concn. vary between Nil to 0.41 mg/L.

In respect of Nitrate, no stations contained Fluoride content beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary between 1 to 32 mg/L.

In respect of Total Hardness, no stations contained Total Hardness content beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn. vary between 28 to 92 mg/L.

# WATER QUALITY DATA OF UDUPI DISTRICT



- POTABLE
- ALTERNATE
- NON-POTABLE

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600



Table - 37

## WATER QUALITY DATA OF VIJAYAPURA DISTRICT 2018-19

Sl No	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well Code	Well ID
				Fe mg/L	F mg/L	NO3 mg/L	TH (as CaCO <sub>3</sub> ) mg/L				
1	2	3	4	5	6	7	8	9	10	11	12
1	Vijayapura	B.Bage wadi	B.Bagewadi	0.02	0.4	12	164	75.9778	16.5686	50301	BG1
2	Vijayapura		Dindawar	0.03	0.5	46	356	76.0489	16.6539	50310	BG2
3	Vijayapura		Hebbal	0.03	0.6	22	332	75.9486	16.4397	50315	BG3
4	Vijayapura		H.Hipparagi	0.04	0.2	55	312	76.0789	16.5489	50309	BG4
5	Vijayapura		Managuli	0.01	0.4	62	492	75.8046	16.6486	50307	BG5
6	Vijayapura		Mattihal	0.02	0.1	5	192	75.7440	16.4568	50304	BG6
7	Vijayapura		Satihah	0.03	0.2	10	328	76.0507	16.7222	50312	BG7
8	Vijayapura		Telagi	0.04	0.2	56	636	75.8264	16.4819	50308	BG8
9	Vijayapura		Ukkali	0.05	0.6	68	520	75.8861	16.7250	50302	BG9
10	Vijayapura		Yaranal	0.03	0.2	63	652	75.8611	16.6153	50306	BG10
11	Vijayapura		Yambatnal	0.04	0.4	25	468	75.9320	16.7562	50317	BG11
12	Vijayapura		K.Salavadagi	0.02	0.5	14	204	76.1028	16.5958	50313	BG12
13	Vijayapura		Muttagi	0.03	1.4	30	604	75.8931	16.5306	13925	BG13
14	Vijayapura	Indi	Garakhed	0.03	0.6	22	464	76.0614	17.3131	50713	IN1
15	Vijayapura		Anjutagi	0.04	0.8	15	216	75.8456	17.2264	50711	IN2
16	Vijayapura		Baradol	0.01	0.3	50	384	75.7281	17.2778	50727	IN3
17	Vijayapura		Chadachan	0.03	0.3	20	384	75.6708	17.3094	50708	IN4
18	Vijayapura		Dhoolakhed	0.04	0.2	28	984	75.8506	17.3768	50723	IN5
19	Vijayapura		Hirebevanur	0.03	0.3	150	1552	76.0531	17.2414	50717	IN6
20	Vijayapura		Horti	0.02	0.1	58	568	75.7978	17.1181	50710	IN7
21	Vijayapura		Lachyan	0.03	0.4	12	420	75.9689	17.2742	50714	IN8
22	Vijayapura		Nimbal	0.04	0.1	65	604	75.8544	17.1061	50701	IN9
23	Vijayapura		Yalagi	0.02	0.1	8	400	75.8333	17.3189	50712	IN10
24	Vijayapura		Jhalaki	0.01	2.5	7	196	75.8011	17.2503	50706	IN11
25	Vijayapura		Indi	0.02	2	28	200	75.9562	17.1700	50704	IN12
26	Vijayapura	Mudde bihal	Dhavalagi	0.03	0.7	18	160	76.1200	16.4314	50902	MD1
27	Vijayapura		Hulluru	0.02	2.3	10	284	75.9972	16.3611	50916	MD2
28	Vijayapura		Hiremural	0.01	0.2	5	172	76.2158	16.3105	50906	MD3
29	Vijayapura		Jambaladinni	0.01	0.7	18	196	76.2292	16.3861	50915	MD4
30	Vijayapura		Konnuru	0.02	0.9	50	96	76.1681	16.5222	50912	MD5
31	Vijayapura		Muddebihal	0.02	1.7	10	224	76.1286	16.3364	50901	MD6
32	Vijayapura		Yalaguru	0.03	0.1	8	180	75.9247	16.3289	50911	MD7
33	Vijayapura		Nalatawad	0.03	0.6	7	292	76.2889	16.2525	50910	MD8
34	Vijayapura		Tumbagi	0.04	0.1	80	1068	76.2906	16.5706	50908	MD9



1	2	3	4	5	6	7	8	9	0	11	12
35	Vijayapura	Mudde bihal	Madikeshwar	0.01	0.5	22	340	76.1708	16.4722	50909	MD10
36	Vijayapura		Talikote	0.02	0.8	18	640	76.3067	16.4775	50913	MD11
37	Vijayapura		Nebageri	0.02	0.9	10	300	76.1131	16.2817	50907	MD12
38	Vijayapura		Maileshwar	0.03	1.4	8	320	76.3378	16.4647	50914	MD13
39	Vijayapura	Sindhagi	Alamel	0.02	0.1	50	800	76.2203	17.0897	51128	SG1
40	Vijayapura		Aski	0.02	0.4	50	812	76.3747	16.6125	51120	SG2
41	Vijayapura		Devanagaon	0.03	1.3	10	188	76.3171	17.1541	51125	SG3
42	Vijayapura		Moratagi	0.03	0.2	80	832	76.4167	17.0056	51124	SG4
43	Vijayapura		Ambalanuru	0.04	0.7	50	752	76.2629	16.6260	51119	SG5
44	Vijayapura		D.Hipparagi	0.03	0.1	26	584	76.0700	16.8189	51102	SG6
45	Vijayapura		Gabasavalagi	0.02	0.5	38	444	76.3453	16.9797	51117	SG7
46	Vijayapura		Kalakeri	0.01	0.4	20	408	76.3083	16.6736	51121	SG8
47	Vijayapura		Balaganuru	0.02	0.7	8	208	76.1397	17.0172	51123	SG9
48	Vijayapura		Yankanchi	0.02	0.4	4	592	76.3522	16.8661	51113	SG10
49	Vijayapura		Chandakavate	0.04	0.6	5	304	76.1480	16.9577	51105	SG11
50	Vijayapura		Bommanajogi	0.03	0.6	4	196	76.1287	16.8233	51109	SG12
51	Vijayapura		Sindhagi	0.04	0.3	60	332	76.2367	16.9169	51101	SG13
52	Vijayapura		Vijaya pura	Babaleshwar	0.04	0.1	2	52	75.5722	16.6667	50413
53	Vijayapura	Bijjaragi		0.04	0.2	8	364	75.4439	16.9106	50424	VJ2
54	Vijayapura	Kanamadi		0.02	0.6	50	816	75.3803	16.9328	50426	VJ3
55	Vijayapura	Vijayapur		0.03	0.1	50	380	75.7247	16.8289	50403	VJ4
56	Vijayapura	Sarawad		0.02	0.5	15	448	75.6403	16.7128	50414	VJ5
57	Vijayapura	Tikota		0.03	0.5	10	400	75.5303	16.8392	50435	VJ6
58	Vijayapura	Mamadapur		0.04	0.3	5	168	75.6000	16.5333	13839	VJ7
59	Vijayapura	Ratnapur		0.02	0.4	60	392	75.5694	16.8306	14014	VJ8
60	Vijayapura	Shegunashi		0.03	0.3	30	456	75.5833	16.5833	14027	VJ9
61	Vijayapura	Yakkundi		0.02	0.6	55	1360	75.5250	16.6244	50415	VJ10
62	Vijayapura	Mulavada		0.03	0.2	4	164	16 61 64	75 73 0556		VJ11

	Alternate Source
	Not Potable

## **VIJAYAPURA DISTRICT**

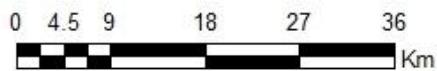
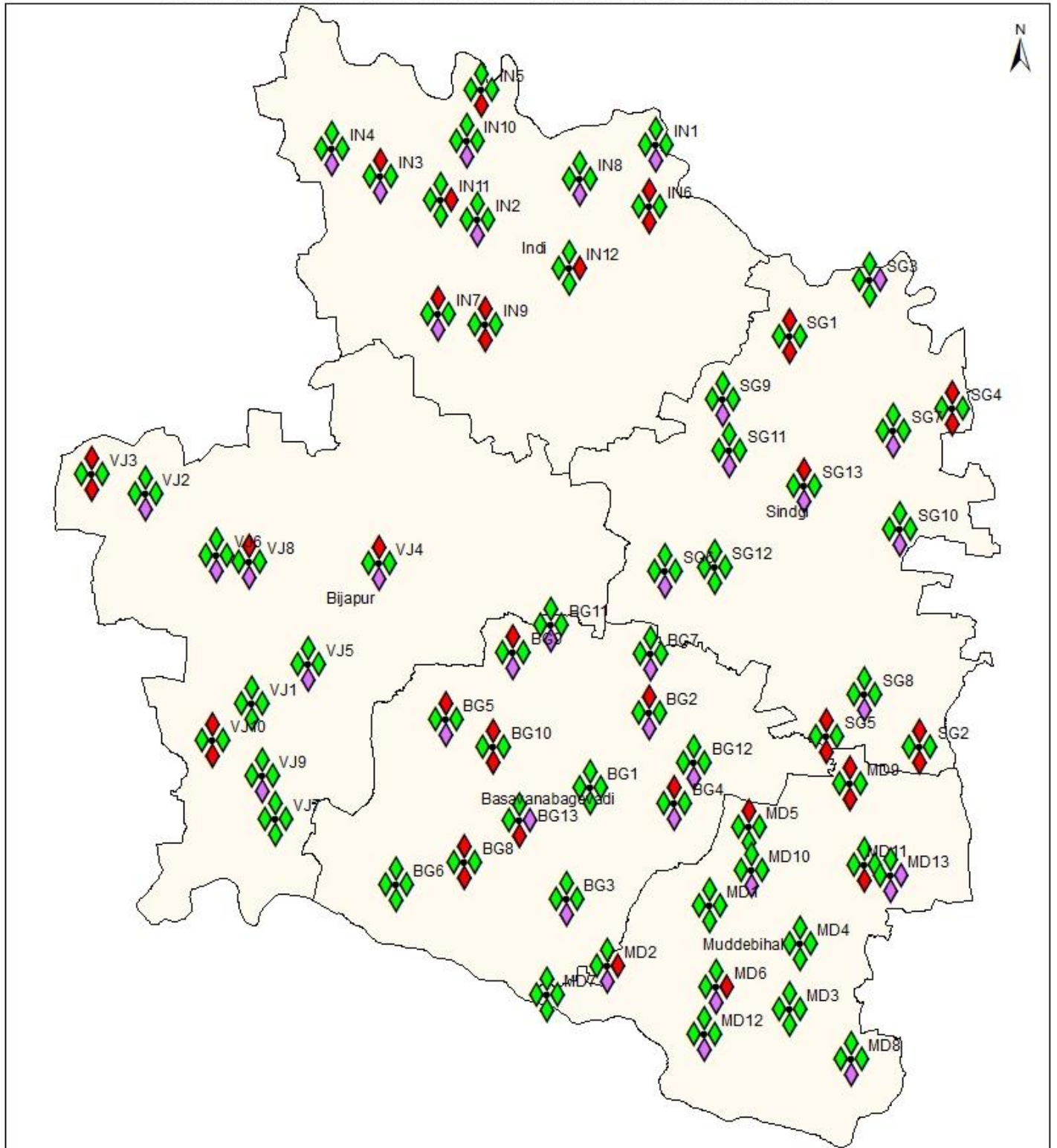
Water samples have been collected from 62 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-37. In respect of Total Iron, no stations contained Total Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary between 0.01 to 0.04 mg/L.

In respect of Fluoride, 4 stations (6%) viz., 2 stations from Indi taluk and 2 stations from Muddebhahala taluk contained Fluoride content beyond the Permissible limit of Indian Drinking Water Specification. Fluoride concn. vary from 0.1 to 2.5 mg/L. Jhalki station of Indi taluk had maximum Fluoride content (2.5 mg/L).

In respect of Nitrate, 21 stations (34%) viz., 6 stations from Basavanabagevadi taluk, 4 stations from Indi taluk, 2 stations from Muddebihal taluk, 5 stations from Sindhagi taluk and 4 stations from Vijayapura taluk contained Nitrate content beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary from 2 to 150 mg/L. Hirebevanuru station of Indi taluk had maximum Nitrate content (150 mg/L).

In respect of Total Hardness, 14 stations (23%) viz., 3 stations from Basavanabagevadi taluk, 3 stations from Indi taluk, 2 stations from Muddebihal taluk, 4 stations from Sindhagi taluk and 2 stations from Vijayapura taluk contained Total Hardness beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn. vary from 52 to 1552 mg/L. Hirebevanuru station of Indi taluk had maximum Total Hardness content (1552 mg/L).

# WATER QUALITY DATA OF VIJAYAPURA DISTRICT



**POTABLE**

**ALTERNATE**

**NON-POTABLE**

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600

**LEGEND**

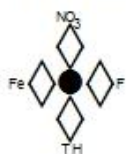


Table - 38

## WATER QUALITY DATA OF YADIGIRI DISTRICT 2018-19

Sl No	District	Taluk	Village	Concentration in mg/L				Latitude	Longitude	Well Code	Well Type
				Fe mg/L	F mg/L	NO <sub>3</sub> mg/L	TH (as CaCO <sub>3</sub> ) mg/L				
1	2	3	4	5	6	7	8	9	10	11	12
1	Yadgiri	Shahapur	Madriki	0.1	0.80	40	216	164800	764630	100802	SH1
2	Yadgiri		Gogi	0.1	0.70	40	140	164500	764434	100803	SH2
3	Yadgiri		Rabanalli	0.05	1.90	27	196	164330	764230	100804	SH3
4	Yadgiri		Madnal	0.05	0.05	142	712	164540	765300	100806	SH4
5	Yadgiri		Khanapur	0.1	2.00	71	336	164245	765900	100809	SH5
6	Yadgiri		Halgera	0.1	1.90	22	356				SH6
7	Yadgiri		Konkal	0.05	0.30	27	480	100815	163210	770230	SH7
8	Yadgiri		Gundagurthi	0.05	1.30	49	280	163630	765830	100805	SH8
9	Yadgiri		B.Gudi	0.05	1.80	27	520	164335	164335	100810	SH9
10	Yadgiri		Shahapur	0.1	0.10	128	376				SH10
11	Yadgiri		Hattigudur	0.05	1.60	80	296	163600	765300	100819	SH11
12	Yadgiri	Surpur	Hundekallu	0.1	1.80	66	388	164000	765745	100816	SP1
13	Yadgiri		Bijaspur	0.05	0.30	53	208	163330	764930	100901	SP2
14	Yadgiri		Devargonal	0.1	1.30	49	180	162830	763730	100908	SP3
15	Yadgiri		Malagatti	0.05	1.90	49	180	163700	763930	100904	SP4
16	Yadgiri		Kembhavi	0.05	0.80	403	528	163930	763230	100905	SP5
17	Yadgiri		Arkera	0.05	0.60	22	244	163200	763100	100909	SP6
18	Yadgiri		Madnoor	0.1	0.70	18	264	163630	762930	100907	SP7
19	Yadgiri		Hunasagi	0.1	0.20	111	704	162745	763115	100910	SP8
20	Yadgiri		Malanoor	0.05	1.70	31	240	162700	762700	100911	SP9
21	Yadgiri		Devapur	0.1	1.70	80	472	162630	764330	100913	SP10
22	Yadgiri		Tinhtini	0.05	0.10	478	792				SP11
23	Yadgiri		Kakkera	0.1	1.80	66	416	162230	763600	100916	SP12
24	Yadgiri		Hadanoor	0.1	1.40	611	420	164330	763400	100906	SP13
25	Yadgiri		Balshettihal	0.05	1.60	13	328	162400	763000	100917	SP14
26	Yadgiri		Kodekallu	0.05	0.80	71	512	162200	762400	100919	SP15
27	Yadgiri		Narayanpur	0.05	2.80	13	624				SP16
28	Yadgiri		Kavadimatti	0.05	2.40	27	280	162900	764530	100921	SP17
29	Yadgiri		Sagar	0.1	1.20	788	616				SP18
30	Yadgiri	Devatkal	0.05	0.60	44	600	162830	763730	100908	SP19	
31	Yadgiri	Yadgir	Yeragol	0.1	1.90	22	296	165416	770354	101020	YD1
32	Yadgiri		Allipura	0.05	1.90	89	376	165416	770354	101020	YD2
33	Yadgiri		Balichakra	0.1	0.10	111	512	164030	771533	101019	YD3

1	2	3	4	5	6	7	8	9	10	11	12
34	Yadgiri	Yadgir	Gurmitkal	0.05	1.40	31	180	165130	772325	101013	YD4
35	Yadgiri		Nandepalli	0.05	2.00	53	172	164200	772300	101014	YD5
36	Yadgiri		G. Cross	0.1	1.60	62	384	165210	772325	101015	YD6
37	Yadgiri		Saidapur	0.05	1.60	49	132	163330	771600	101008	YD7
38	Yadgiri		T.Madwar	0.05	0.70	53	280	163900	772015	101010	YD8
39	Yadgiri		Yadgir	0.05	1.70	13	520	164506	770744	101016	YD9
40	Yadgiri		Mundargi	0.1	2.50	18	168	164623	771059	101017	YD10
41	Yadgiri		Ashanal	0.05	2.70	9	176	164738	771246	101018	YD11

	Alternate Source
	Not Potable

### **YADAGIRI DISTRICT**

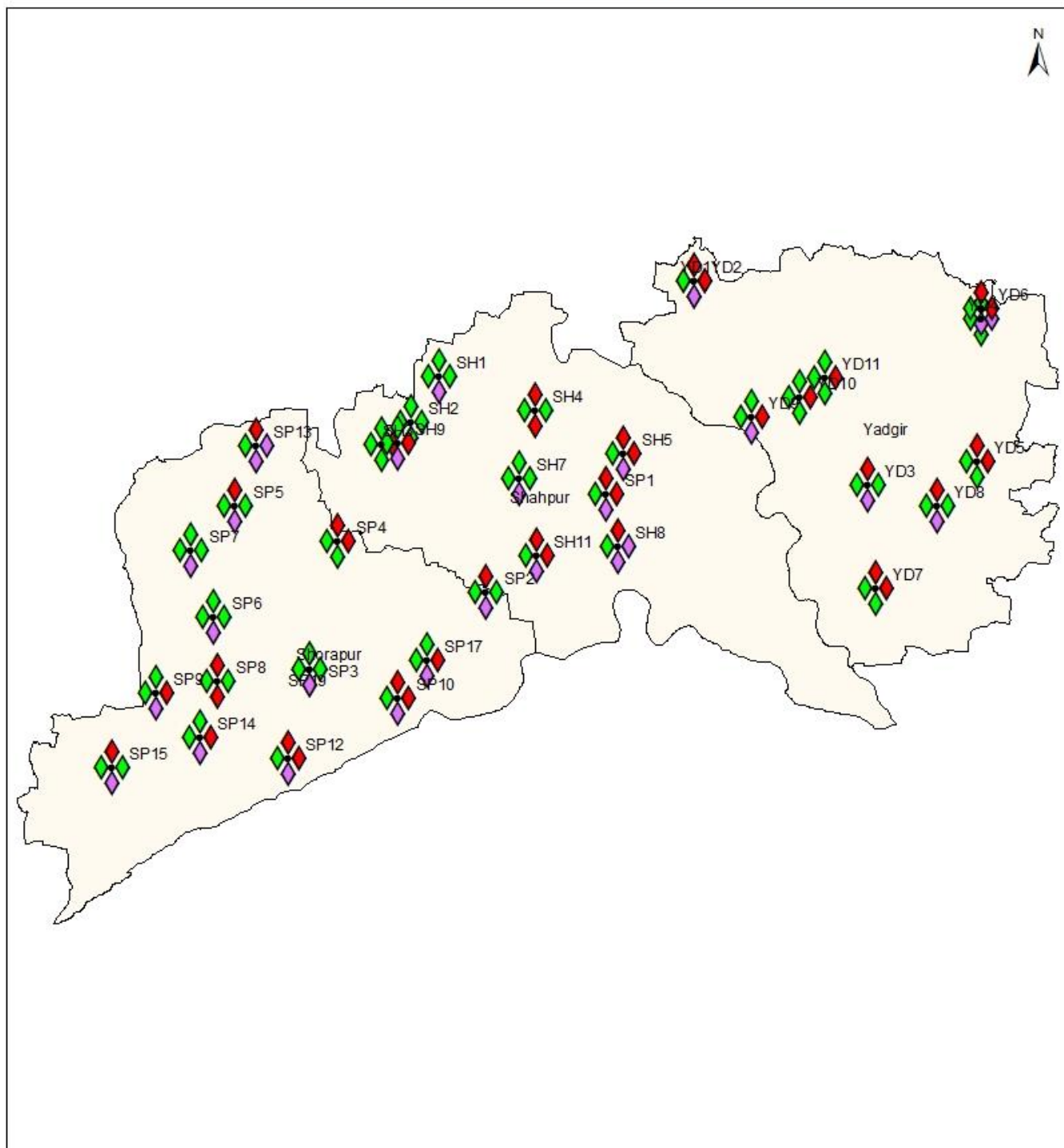
Water samples have been collected from 41 monitoring stations. Chemical analysis result including monitoring stations data are given in Table-38. In respect of Total Iron, no stations contained Total Iron content beyond the Acceptable limit of Indian Drinking Water Specification. Total Iron concn. vary between 0.05 to 0.1 mg/L

In respect of Fluoride, 21 stations (34%) viz., 5 stations from Shahapur taluk, 8 stations from Shorapur taluk and 8 stations from Yadagiri taluk contained Fluoride content beyond the Permissible limit of Indian Drinking Water Specification. Fluoride concn. vary from 0.05 to 2.80 mg/L. Narayanapura station of Shorapura taluk had maximum Fluoride content (2.80 mg/L).

In respect of Nitrate, 23 stations (37%) viz., 5 stations from Shahapur taluk, 12 stations from Shorapur taluk and 6 stations from Yadgiri taluk contained Nitrate content beyond the Acceptable limit of Indian Drinking Water Specification. Nitrate concn. vary from 9 to 788 mg/L. Sagara station of Shorapur taluk had maximum Nitrate content (788 mg/L).

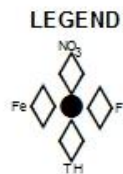
In respect of Total Hardness, 5 stations (8%) viz., 1 station from Shahapur taluk and 4 stations from Shorapur taluk contained Total Hardness beyond the Permissible limit of Indian Drinking Water Specification. Total Hardness concn. vary from 132 to 792 mg/L. Tinthini station of Shorapur taluk had maximum Total Hardness content (792 mg/L).

# WATER QUALITY DATA OF YADGIRI DISTRICT



- POTABLE
- ALTERNATE
- NON-POTABLE

NO <sub>3</sub> mg/L	Fe mg/L	F mg/L	TH mg/L
<45	<0.30	<1.0	<200
-	-	1.0-1.5	200-600
>45	>0.30	>1.5	>600



Diseases due to higher concentrations of Nitrate, Fluoride & Hardness in Water



Rain water harvesting and Groundwater recharge structures



Rain water harvesting in Rural areas



Ground Water Awareness Programme at GKVK, Bengaluru Dt during the year-2018-19

