



# केन्द्रीय भूमि जल बोर्ड

जल शक्ति मंत्रालय, जल संसाधन, नदी विकास और गंगा संरक्षण विभाग  
भारत सरकार

## Central Ground Water Board

Ministry of Jal Shakti,  
Department of Water Resources, River Development  
and Ganga Rejuvenation  
Government of India

Report on  
**AQUIFER MAPPING AND MANAGEMENT  
PLAN**

**Bidar Taluk, Bidar District, Karnataka**

दक्षिण पश्चिमी क्षेत्र, बेंगलुरु  
South Western Region, Bengaluru

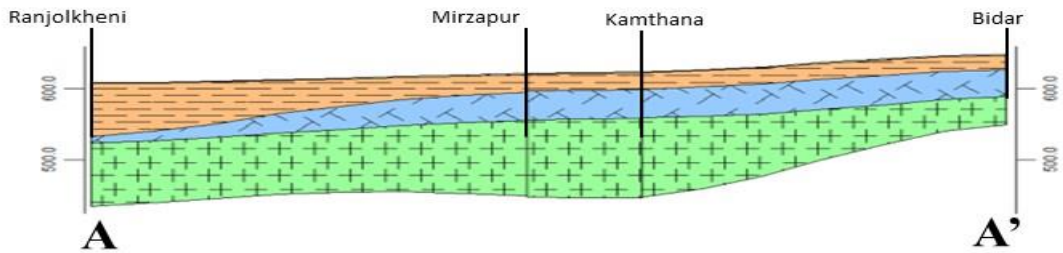
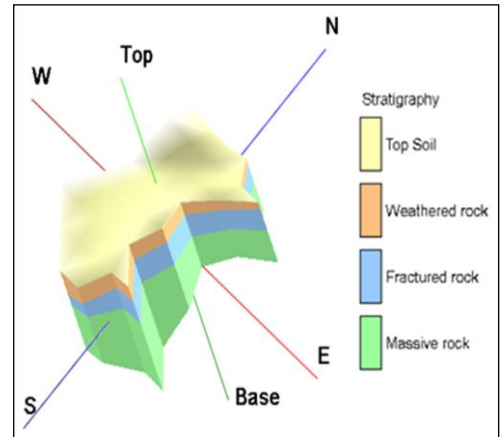
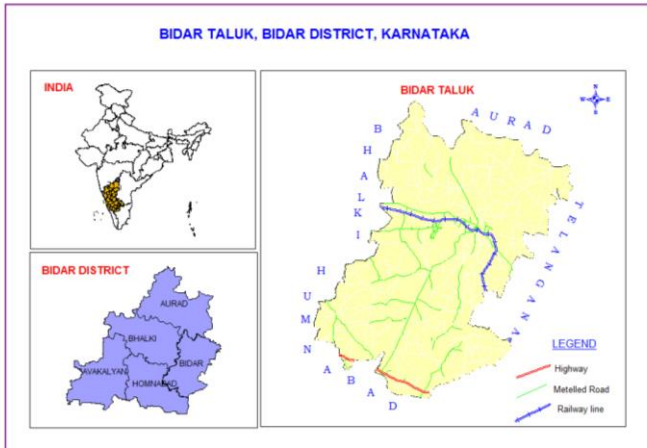
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# AQUIFER MAPS AND MANAGEMENT PLAN, BIDAR TALUK, BIDAR DISTRICT, KARNATAKA STATE

(AAP – 2021-2022)



By

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# AQUIFER MANAGEMENT PLAN OF BIDAR TALUK, BIDAR DISTRICT, KARNATAKA STATE

## 1. SALIENT INFORMATION

Name of the taluk: **BIDAR**

District: **BIDAR**; State: Karnataka

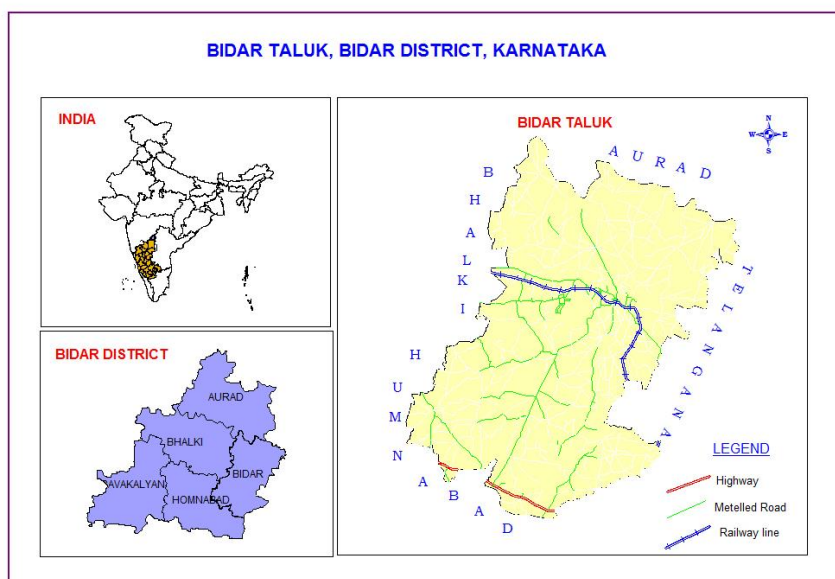
Area: 908 sq.km.

Population: 4,69,941

Annual Normal Rainfall: 947 mm

### 1.1 Study Area

Aquifer Mapping Studies have been carried out in Bidar taluk, Bidar district of Karnataka, covering an area of 908 sq.kms under National Aquifer Mapping (NAQUIM) during the AAP 2021-22. The Bidar taluk is located between North Latitudes 17°43'33.6" and 18°04'44.4" and East Longitudes between 77° 26' 2.4" to 77°59'16.8" and is falling in parts of Survey of India Toposheets 56G/5, 56G/6, 56G/9 56G/10 and 56 F/12. The study area is bounded, on the North by Aurad taluk, on the South by Humnabad taluk, on the East by Telangana State, on the West by Bhalki and Humnabad taluks. Location map of Bidar taluk of Bidar district is presented in **Fig-1**. Bidar is the taluk Headquarter. There are 134 villages and 35 gram panchayats in this taluk.



**Fig-1: Location map.**

### 1.2 Population

According to 2011 census, the population in Bidar taluk is 4,69,941. Out of which 2,41,095 are males while 2,28,846 are females. The average sex ratio of Bidar taluk is 949. The Bidar taluk has an overall population density of 507 persons per sq.km. The decadal variation in population from 2001-2011 is 15.88% in Bidar taluk. Details of Population of Bidar taluk is given in Table-1.

**Table-1: Details of Population of Bidar taluk, Bidar district**

Male	Female	SC	ST	TOTAL	No. of Villages	No. of GPs	Literacy %	Density
241095	228846	88752	56488	469941	134	35	74.51	507

### 1.3 Rainfall

Bidar taluk experiences semi arid climate with extreme summer and falls under Northern-Eastern Transitional Agro-Climatic Zone. The dust storms and severe heat waves are common in the taluk between April and May. The normal annual rainfall in Bidar taluk for the period 1981 to 2010 is 947 mm. Seasonal rainfall pattern indicates that, major amount of (718 mm) rainfall was recorded during South-West Monsoon seasons, which contributes about 82% of the annual normal rainfall, followed by North-East Monsoon season (139 mm) constituting 15% and remaining (90 mm) 3% in Pre-Monsoon season (Table-2).

Rainfall analysis for the period of thirty years block of 1981-2010, the mean monthly rainfall at Bidar taluk is ranging between 4 mm during February to 208 mm during August. The coefficient of variation percent for pre-monsoon, monsoon and post-monsoon season is 72, 31 & 73 percent respectively. Annual Co-efficient Variation at this taluk works out to be 21 percent (Table-2).

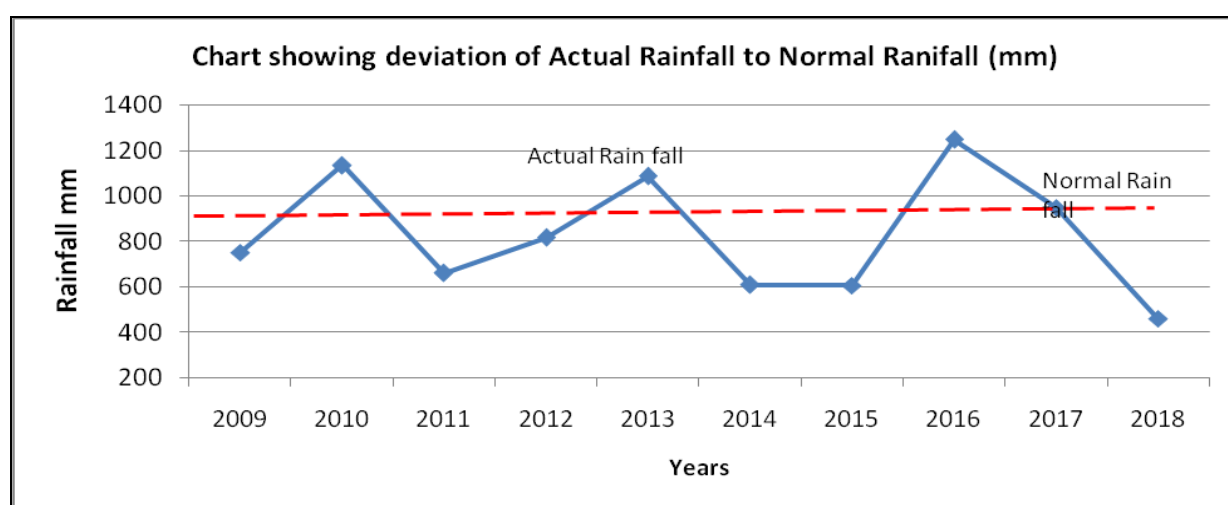
**Table-2: Statistical Analysis of Rainfall Data of Bidar taluk, Bidar district (1981 to 2010)**

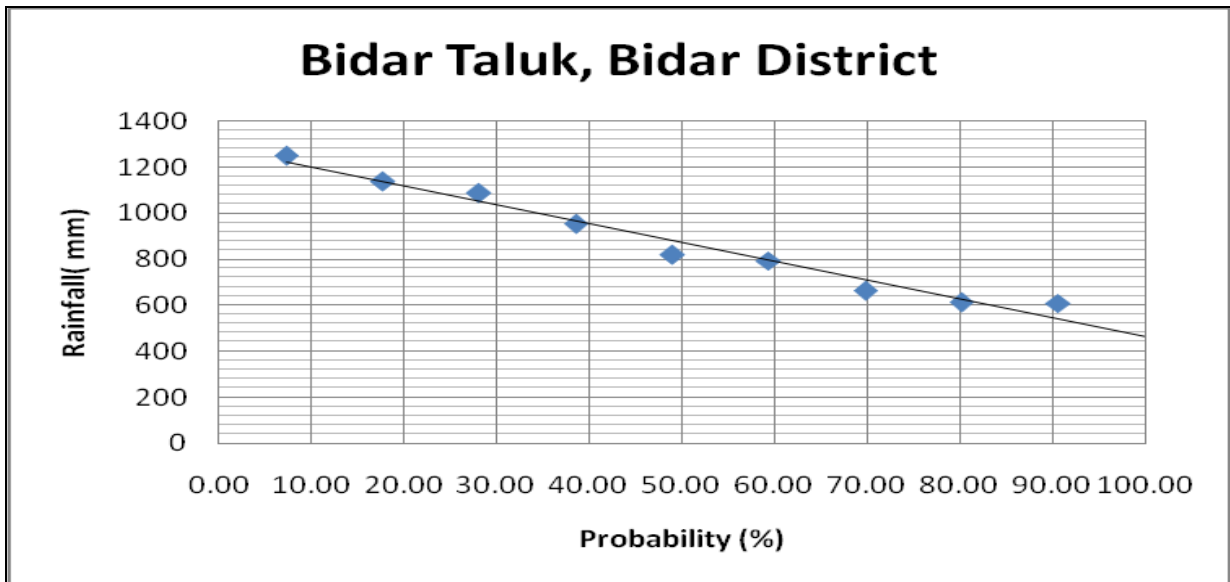
	JAN	FEB	MAR	APR	MAY	PRE	JUN	JUL	AUG	SEP	SW	OCT	NOV	DEC	NE	Annual
NRM	9	4	17	31	29	90	137	193	208	180	718	106	29	4	139	947
STDEV	16	11	24	33	53	65	75	124	102	105	222	86	54	8	102	202
CV%	187	264	144	106	186	72	54	64	49	58	31	82	183	173	73	21

The annual rainfall data from 2009 to 2018 of the Bidar taluk is collected from the District statistical office, Bidar and is given in Table.3. The rainfall trend for the period from 2009 to 2018 and probability occurrence of rainfall of the taluk are shown in Fig.2 & Fig-3 respectively.

**Table-3 Actual Annual Rainfall of Bidar taluk from 2009 to 2018**

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Rainfall (mm)	754	1136	661	817	1088	611	608	1248	951	463

**Fig-2. Rainfall trend in Bidar taluk of Bidar district**



**Fig-3. Probability occurrences of Rainfall in Bidar taluk of Bidar district**

The rainfall pattern in the Bidar taluk reveals the irregularity of rainfall behavior (Fig-2) and the rainfall varies from 463 mm to 1248 mm (Table-3). As mentioned above, the normal annual rainfall of Bidar taluk is 947mm. Bidar taluk received rainfall above normal during the years 2010, 2013 and 2016.

Probability analysis of rainfall for the years from 2009 to 2019 (Fig-3), indicating that the probability of occurrence of 70% of rainfall is about 700 mm in the taluk. The dependable rainfall of 700 mm can be used for construction of any ground water recharge structures in this taluk area.

#### 1.4 Agriculture & Irrigation

Agriculture is the main occupation in Bidar taluk nearly 80% of working population is engaged in agriculture. Two cropping seasons namely, Kharif (June to September) and Rabi (October to March). Sugar Cane (water intensive crop) is the main commercial crop of the taluk and nearly 8 % of the net area sown is covered. Other principal crops are Jowar, Tur, Horse gram, Black gram, Green gram, Bengal gram, wheat, horse gram etc (Table-4). Jowar is grown in 13 % and oil seeds in 33% of total crop area of the taluk.

**Table-4: Cropping pattern in Bidar taluk 2018-2019 (Ha)**

Year	Paddy	Jowar	Bajara	Wheat	Pulses	Fruits	Oil seeds	Sugarcane	Cotton
2018-2019	320	7942	101	1274	28760	293	19759	5337	20

It is observed that net sown area accounts 76% and area sown more than once is 30% of total geographical area in Bidar taluk (Table-5). Area not available for cultivation and Fallow land cover 5% & 6% of total geographical area respectively. About 76% of net area irrigated is from bore wells and dug wells (Table-6).

**Table-5: Details of land use in Bidar taluk 2018-2019 (Ha)**

Taluk	Total Geographical Area	Area under Forest	Area not available for cultivation	Other Un-cultivated land	Fallow land	Net sown area	Area sown more than once
Bidar	92203	4655	7295	3477	16352	60424	4046

Source: District at a glance 2018-19, Govt. of Karnataka

**Table-6: Irrigation details in Bidar taluk**

Source of Irrigation	Net area irrigated (Ha)
Canals	-
Tanks	20
Wells	1873
Bore wells	4064
Lift Irrigation	-
Other Sources	62
<b>Total</b>	<b>6001</b>

Source: District at a glance 2018-19, Govt. of Karnataka

### 1.5 Geomorphology, Physiography & Drainage

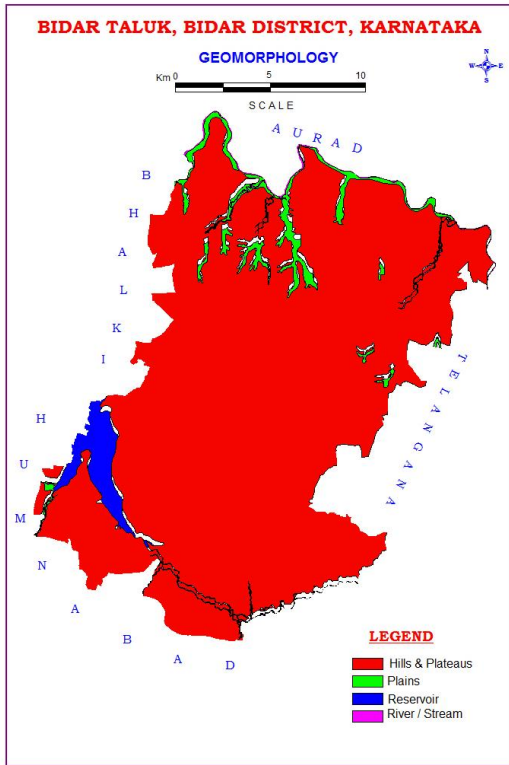
Physiographically, the taluk can be divided into two regions. They are northern low lands and southern high lands. The southern high lands are popularly known as Bidar plateau, which is made up of laterite. The ground altitudes are varying from 540 to 684 m above MSL. Bidar plateau has an elevation range from 640 to 684 m above MSL. The ground surface is flat, gently sloping forming broad valleys and flat-topped hills. Flat topped hills with step like sides exhibit the terraced landscape. (Fig.-4).

The taluk falls within Godavari river basin with five minor sub-basins. The important rivers are in southern part namely, Karanja and Madhura Halla and in Northern part Manjara, Honnikeri Halla and Khanapur. The river Manjara flows in the northern part of the taluk, eastwards along the meandering course and forms the natural boundary between Bidar and adjoining Aurad taluk. The river Karanja enters the taluk in south-eastern parts and flows in north-west direction and joins the river Manjara near Naudi Sanagam. Madhura Halla enters the taluk in south-western parts and flows in South-Eastern direction. Beside these, there are various minor non-perennial nalas. The drainage pattern in the taluk varies from sub-dendritic to dendritic (Fig.-5). This has its bearing on the regional slope which are three directions (i) Southern part of the taluk slope towards West, (ii) Central part towards East and (iii) Northern part towards North. The differential altitude is significant because, it is likely to cause irregular ground water flow patterns on the micro scale. Topography is dominantly controlled by geological structures.

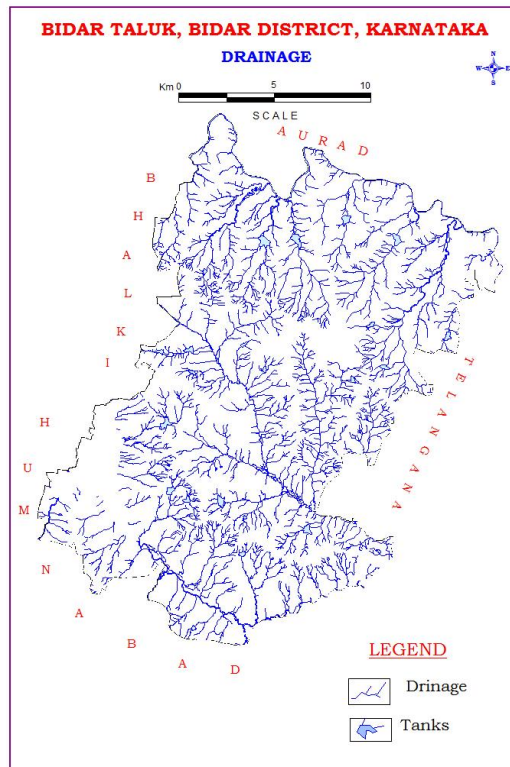
### 1.6 Soil

Three types of soils are noticed in the taluk namely, black soils, red soils and lateritic soils. Major parts of the taluk are made up of black soils derived from Deccan traps. These are deep black in colour and their texture varies from loam to clay. Lime concentration in this soil is high resulting in poor infiltration capacities. Their infiltration characteristics are poor to moderate. Red soils are pale to bright red in colour and clay to clayey loam in nature. This soil has moderate to good infiltration characteristics. A lateritic soil is confined to central portion of the taluk. This type of soils covers mainly in areas lying above 610 m contour and are pale to bright red in colour and clay to clayey loam in nature. This soil has moderate to good infiltration characteristics (Fig-6). The land use map of the taluk is shown in Fig.7. Major part of the taluk is covered by agriculture activity.

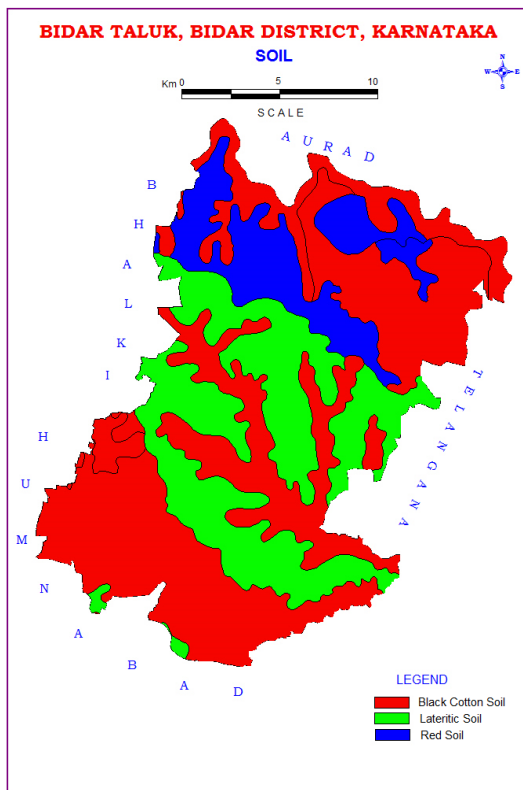




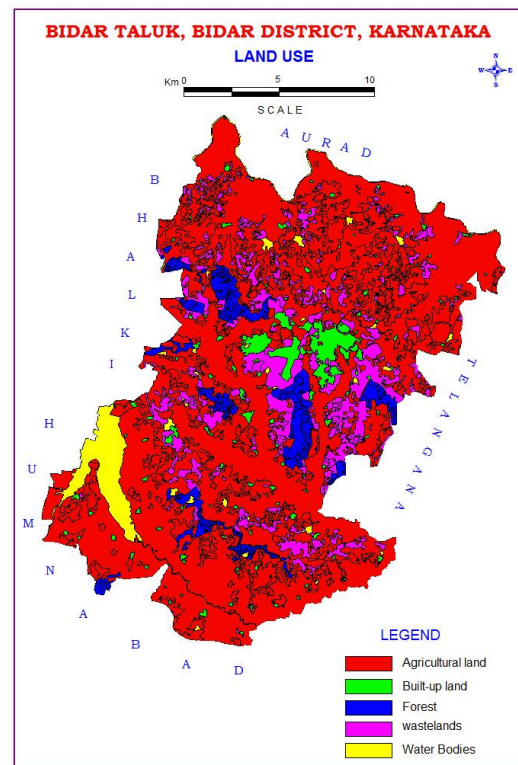
**Fig-4: Geomorphology Map**



**Fig-5: Drainage Map**



**Fig-6: Soil Map**



**Fig-7: Land use Map**

## 1.7 Ground water resource availability and extraction

Aquifer wise total ground water resources up to 200 m depth is given in **Table-7** below.



**Table-7: Total Ground Water Resources (2017) (Ham)**

Taluk	Annual replenishable GW resources	Fresh In-storage GW resources		Total availability of fresh GW resources
BIDAR	7052	Phreatic	Fractured (Down to 200m)	Dynamic + phreatic in-storage + fractured
		5795	2246	15093

### 1.8 Existing and future water demands (as per GEC-2017)

- Net ground water availability for future irrigation development: 5824 Ham
- Domestic (Industrial sector) demand for next 25 years: 34 Ham

### 1.9 Water level behavior

**(a) Depth to water level:** The depth to water level data is shown in **Table.8**

#### Aquifer-I

- Pre-monsoon: 5.29 – 20.80 mbgl (**Fig.-8**). In major part of the taluk, the range is 10-20 mbgl.
- Post-monsoon: 0.87 – 13.25 mbgl (**Fig.-9**). In major part of the taluk, the range is 5 -10 mbgl.

#### Aquifer-II

- Pre-monsoon: 8.95-28.00 mbgl
- Post-monsoon: 1.50-19.45 mbgl

**(b) Water level fluctuation**

#### Aquifer-I

- Seasonal Fluctuation: Rise ranges 1.35 – 10.70 m (**Fig.-10**).

#### Aquifer-II

- Seasonal Fluctuation: Rise ranges 5.55-9.50 m.

**(c) Long-Term Water level trend:** The data is shown in **Table.9**.

- Pre-monsoon: Falling ranges 0.00743-0.3270 m  
Rising ranges 0.0910-0.1810 m
- Post-monsoon: Falling ranges 0.1859-0.5550 m  
Rising ranges 0.0910-0.1608 m

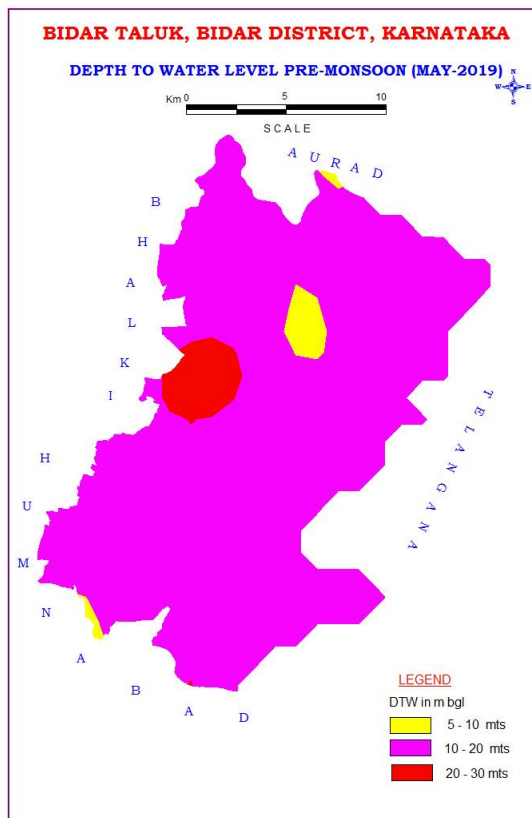
**Table-8: Depth to water level for pre-monsoon and post-monsoon**

Sr. No	Village	Source	Pre-monsoon Depth to water May-2019 (mbgl)	Post-monsoon Depth to water Nov-2019 (mbgl)	Water level Fluctuation
<b>Aquifer-I</b>					
1	Bagdal	Dug Well	15.23	13.5	1.73
2	Andur	Dug Well	20.80	10.1	10.7
3	Bagdel	Dug Well	15.30	13.25	2.05
4	Balehalli	Dug Well	12.55	11.2	1.35
5	Bidar	Dug Well	15.26	10.58	4.68
6	Chickpet	Dug Well	5.29	0.87	4.42
7	Janawada	Dug Well	12.70	9.8	2.9

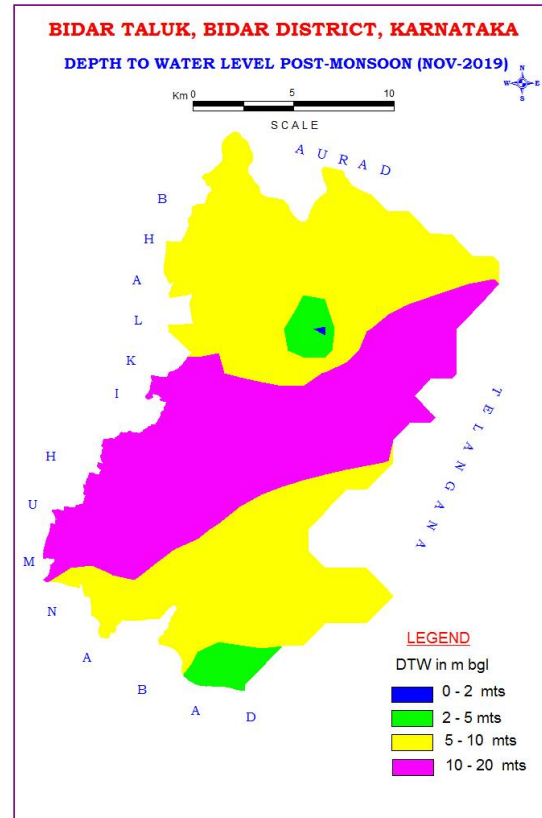
Sr. No	Village	Source	Pre-monsoon Depth to water May-2019 (mbgl)	Post-monsoon Depth to water Nov-2019 (mbgl)	Water level Fluctuation
8	Kamthana	Dug Well	17.78	13.05	4.73
9	Khanapur	Dug Well	17.86	15.7	2.16
<b>Aquifer-II</b>					
10	Kadawad	Bore well	8.95	1.50	7.45
11	Bagadal	Bore well	16.50	7.00	9.50
12	Janawada	Bore well	10.00	3.20	6.80
13	Bidar	Bore well	28.00	19.45	8.55
14	Andoor	Bore well	13.00	6.50	6.50
15	Chillargi	Bore well	14.50	8.95	5.55
16	Sirkantnalli	Bore well	20.45	12.10	8.35

**Table-9 Long Term Water Level Trends (Based on CGWB's National Hydrograph Stations).**

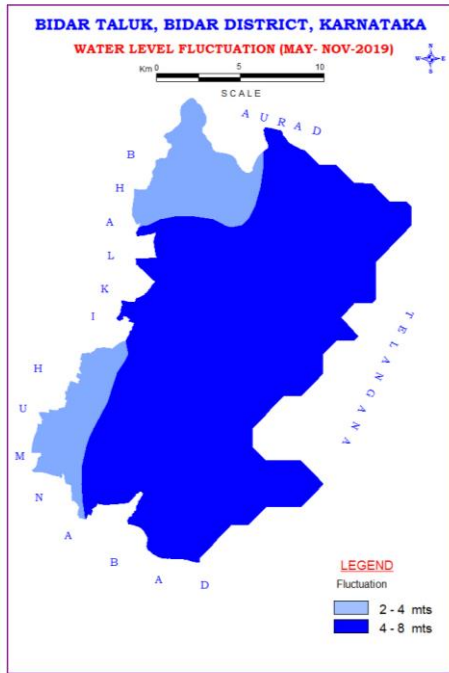
Sl. No.	Location	Period of observation	Water level trend m/year				Aquifer
			Pre monsoon		Post monsoon		
			Fall	Rise	Fall	Rise	
1	Bagdel	2010-2019	-	0.1810	0.5550		Basalt
2	Balehalli	2010-2019	0.3162		0.1888		Basalt
3	Bidar	2010-2019	-	0.0910	-	0.0910	Laterite
4	Chickpet	2010-2019	0.0743	-		0.1608	Basalt
5	JanawadaA	2010-2019	0.1504	-	0.1859		Basalt
6	Kamthana	2010-2019	0.3270	-	0.2020		Laterite
7	Khanapur	2010-2019	0.1300	-	0.1903		Laterite



**Fig-8: Pre-monsoon Depth to Water Level**



**Fig-9: Post-monsoon Depth to Water Level**



**Fig-10: Water Level Fluctuation (Aq-I)**

## **2 AQUIFER DISPOSITION**

### **2.1 Number of aquifers:**

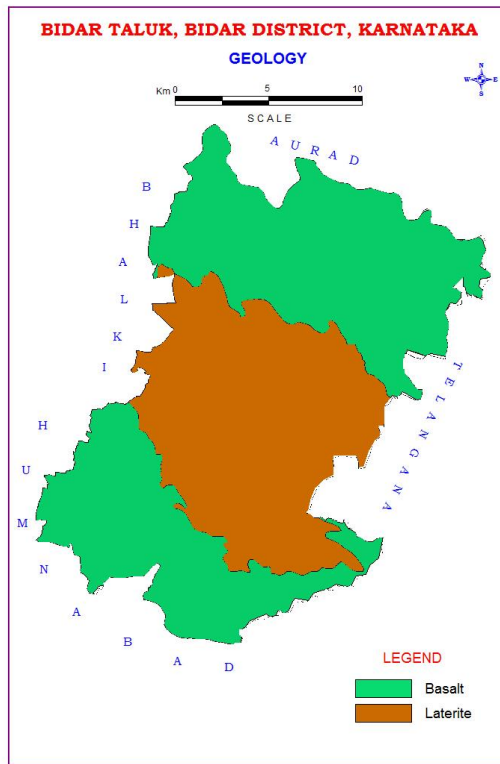
In Bidar taluk, there are two types aquifers Laterite and Basaltic flows;

**Aquifer-I (Phreatic aquifer) Laterite and Weathered Basalt**

**Aquifer-II (Fractured aquifer) Fractured Basalt and Vesicular Basalt**

Bidar taluk is mainly composed of **Basaltic flows** of Deccan Traps. In the Northern and Southern parts and in central parts a thick spread of laterite forms an elevated plateau, 600 m above MSL. Deccan Traps consist of successive lava flows, mainly basaltic in composition (Massive basalt and Vesicular basalt). Basalt and laterite are the main water bearing formations (**Fig-11**). Ground water occurs within the weathered and fractured basalt under water table condition and semi-confined condition. The size and inter connectivity of vesicles, the joint patterns and intertrapean beds control occurrence and movement of water in Basalts. The porous Laterite capping generally as shallow aquifer (dug wells) and yield good quantity of water for short duration.

In Bidar taluk bore wells were drilled from a minimum depth of 65.25 mbgl to a maximum of 308.40 mbgl. Depth of weathered zone ranges from 6.0 mbgl to 28 mbgl (**Table 10**). Ground water exploration reveals that aquifer-II fractured formation was encountered between the depth of 16 to 182 mbgl. Yield ranges from less than 1.00 to 9.90 lps. The basic characteristics of each aquifer are summarized in **Table-11**.



**Fig-11: Geology Map**

**Table-10: Details of Ground Water Exploration**

S. No	Location	Lat & Long	Depth m bgl	Casing (m)	Lithology	SWL (mbgl)	Q (lps)	DD (m)	T (m <sup>2</sup> /day)
1	Mirzapur-EW	18°50'45" 77° 25'15"	220.00	28.0	Basalt	19.40	3.00	-	-
2	Chickpet-EW	18°57'15" 77° 30'30"	308.40	6.00	Basalt	49.16	0.20	-	-
3	Ranjolkheni-EW	18°47'45" 77° 19'15"	181.30	12.0	Basalt	55.50	9.90	0.47	393.19
4	Ranjolkheni-OW	18°47'45" 77° 19'15"	118.00	14.0	Basalt	55.20	4.27	0.80	225.00
5	Janawada-EW	18°00'15" 77° 28'50"	172.25	-	Basalt	18.60	2.20	30.50	-
6	Kamathana -EW	17°51'20" 77° 26'55"	198.45	-	Basalt	16.450	0.88	25.105	-
7	Manehalli-EW	17°46'30" 77° 30'3"	200.45	-	Basalt	35.80	Negl	37.00	-
8	Manehalli-OW	17°46'30" 77° 30'03"	171.95	-	Basalt	34.030	1.38	22.920	-
9	Naubad -EW	17°56'30" 77° 28'00"	144.50	-	Basalt	51.06	5.50	-	-
10	Naubad -OW-1	17°56'30" 77° 28'00"	149.65	-	Basalt	8.250	0.14	-	-
11	Naubad -OW-2	17°56'30" 77° 28'00"	65.25	-	Basalt	8.000	Negl	-	-

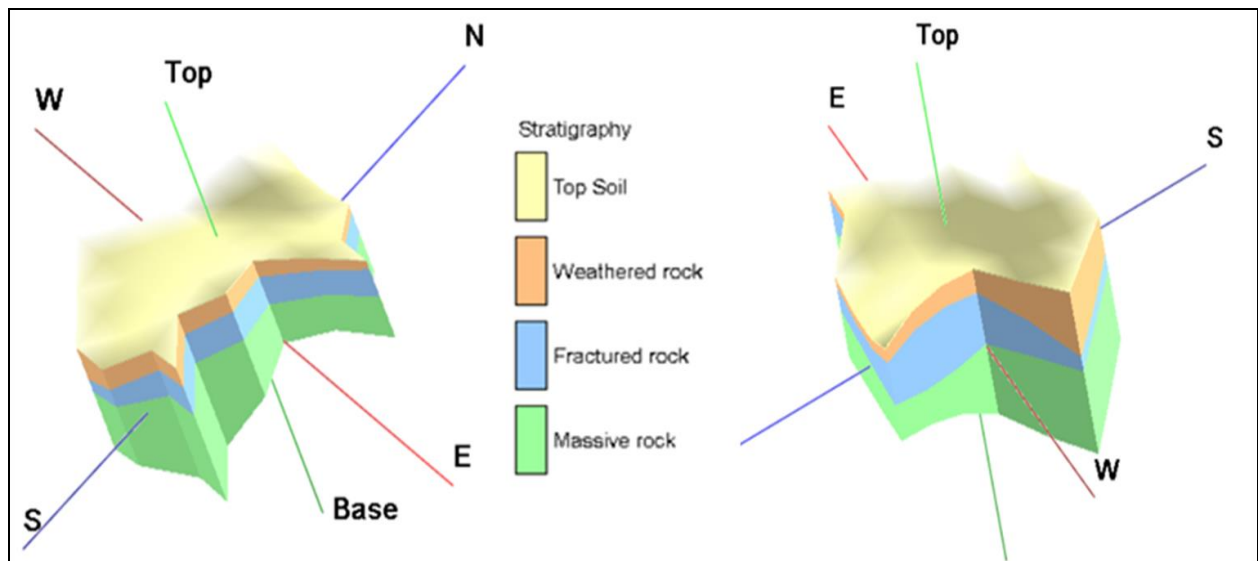
**Table-11: Basic characteristics of each aquifer**

Aquifers	Weathered Zone (Aq.-I)	Fractured Zone (Aq.-II)
Prominent Lithology	Laterite and Weathered Basalt	Fractured / Jointed Basalt
Thickness range (mbgl)	3-30	Fractures upto 182.00mbgl
Depth range of occurrence of fractures (mbgl)	-	16.00-182.00
Range of yield potential (lps)	<1-3	<1 – 9.90
Specific Yield	2%	0.2%
T (m <sup>2</sup> /day)	-	Maximum upto 393.19
Quality Suitability for Domestic & Irrigation	Suitable	Suitable

## 2.2 3-D aquifer disposition and Cross-Sections

### 2.2.1 Aquifer disposition – Rockworks output

Sub-surface aquifer disposition are prepared based upon the outcome of ground exploration programme. Mainly, Four zones are categorized namely Top soil, Weathered, Fractured and Massive zones. These zones are represented using rockworks to depict the subsurface sections and models and presented in **Fig.-12, Fig.-13 and Fig.14.**



**Fig-12: 3D Aquifer Disposition**

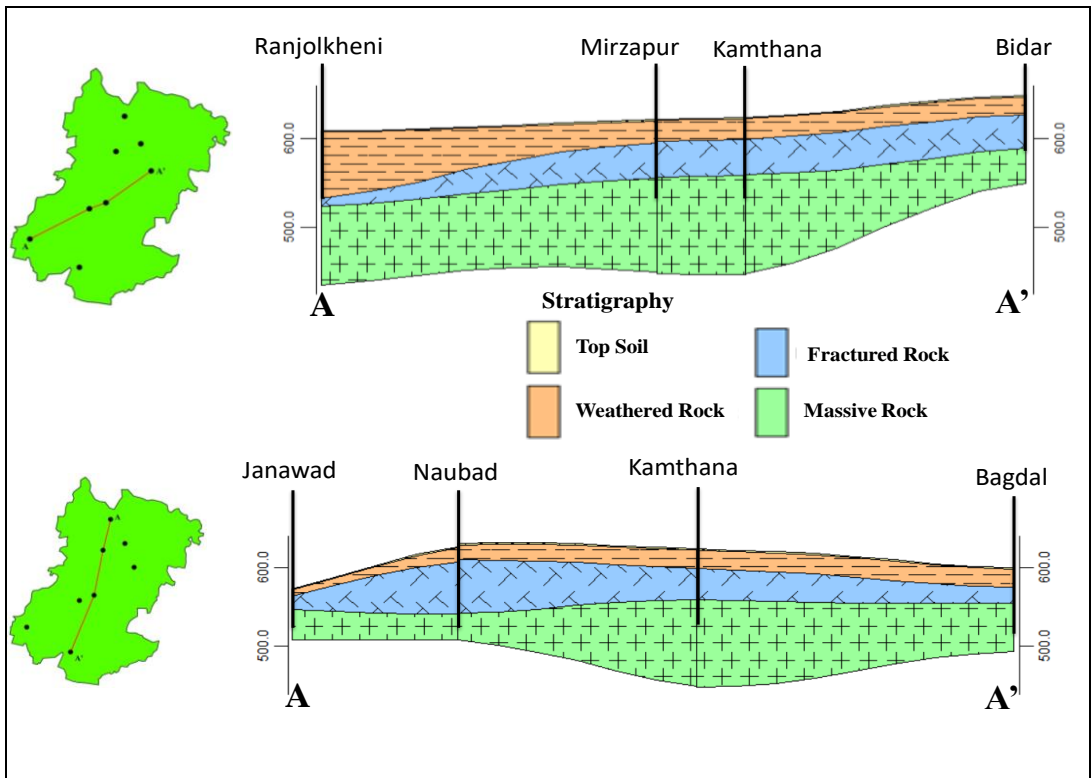


Fig-13: Cross sections in different directions

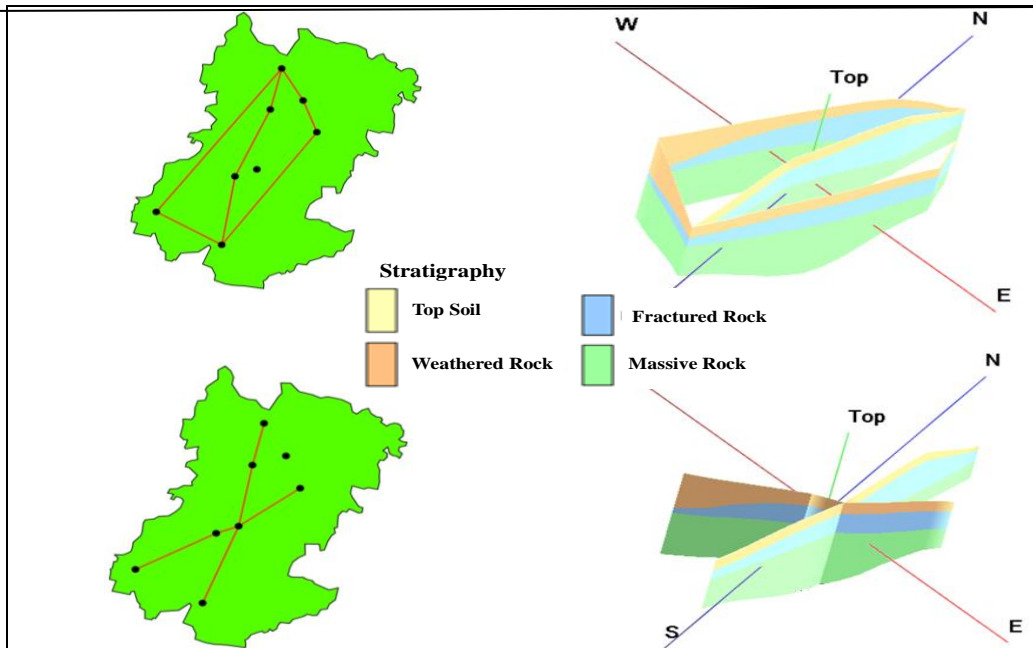


Fig-14: 3D Aquifer Fence Diagram

### 3 GROUND WATER RESOURCE, EXTRACTION, CONTAMINATION AND OTHER ISSUES

#### 3.1 Aquifer wise resource availability and extraction

Present Dynamic Ground Water Resource of Bidar Taluk (2020)

Annual extractable ground water resources (ham)	Existing gross ground water draft for irrigation (ham)	Existing gross ground water draft for domestic and industrial water supply (ham)	Existing gross ground water extraction for all uses (ham)	Allocation for domestic and industrial use for next 25 years (ham)	Net ground water availability for future irrigation development (ham)	Existing stage of ground water extraction (%)	Category
5037.94	1605.82	35.89	1641.71	38.68	3393.44	32.59	SAFE

#### Comparison of ground water availability and draft scenario in Bidar taluk

Taluk	GW availability (in ham)	GW draft (in ham)	Stage of GW development (%)	GW availability (in ham)	GW draft (in ham)	Stage of GW development (%)	GW availability (in ham)	GW draft (in ham)	Stage of GW development (%)
	2013			2017			2020		
BIDAR	6881	4162	60	7052	1225	17	5037.9	1642	32.59

It is seen that the stage of ground water extraction is improved in the taluk in comparison with 2013. However, with respect to 2017 estimations, there is an increase of 16% in the stage of ground water development i.e., 17 to 33% though the taluk is categorized as “Safe”.

### 3.2 Chemical quality of ground water and contamination

Interpretation from Chemical Analysis results in Bidar taluk is mentioned as under and the data is shown in Table.12.

- **ELECTRICAL CONDUCTIVITY:** In general, EC values range from 200 to 1685  $\mu$ /mhos/cm in the aquifer-I at 25°C (Fig-15) and range from 450 to 1100  $\mu$ /mhos/cm in the aquifer-II.
- **CHLORIDE:** Chloride concentration in ground water ranges between 33 and 288 mg/l in the aquifer-I (Fig-16) ) and ranges between 50.0 and 121.0 mg/l in the aquifer-II.
- **NITRATE:** Nitrate concentration in ground water ranges from 10 and 159 mg/l in the Aquifer –I (Fig-17) and ranges from 6.0 and 17.0 mg/l in the Aquifer –II.
- **FLUORIDE:** Fluoride concentration in ground water ranges between 0.390 and 1.006 mg/l in the aquifer-I (Fig-18) and ranges between 0.4 and 3.9 mg/l in the aquifer-II.

**Table-12: Quality of ground water in Bidar taluk of Bidar district**

S. No.	Location	pH	EC (mg/L)	Cl (mg/L)	NO3 (mg/L)	F (mg/L)
<b>Aquifer-I</b>						
1.	Andur	7.48	744	112	35	0.365
2.	Bagdhala	7.78	1242	188	44	0.503
3.	Balehalli (Halehalli)	7.81	1320	203	88	0.472
4.	Bidar	7.92	430	62	18	1.006
5.	Chickpet	8.10	531	63	10	0.390
6.	Hallikheda	7.76	1685	288	159	0.403
7.	Janawada	7.81	991	141	37	0.642
8.	Kamthana	7.88	200	33	11	0.748
9.	Khanapur	8.03	573	51	62	0.96



Aquifer-II						
10.	Mirzapur-EW	8.0	470	57.0	6.0	0.6
11.	Chickpet-EW	7.9	1100	121.0	17.0	3.6
12.	Ranjolkheni-EW	7.8	620	99	10	3.9
13.	Ranjolkheni-OW	7.8	450	50	14	0.4

In general, ground water quality in Bidar taluk is good for drinking purpose except at 2 places where nitrate is found to be greater than the permissible limit as per “Indian Standard Drinking Water Specification 2012”. Ground water samples have also been tested and found suitable for agriculture & irrigation purposes in major part of the taluk, where EC is less than 750  $\mu$ /mhos/cm.

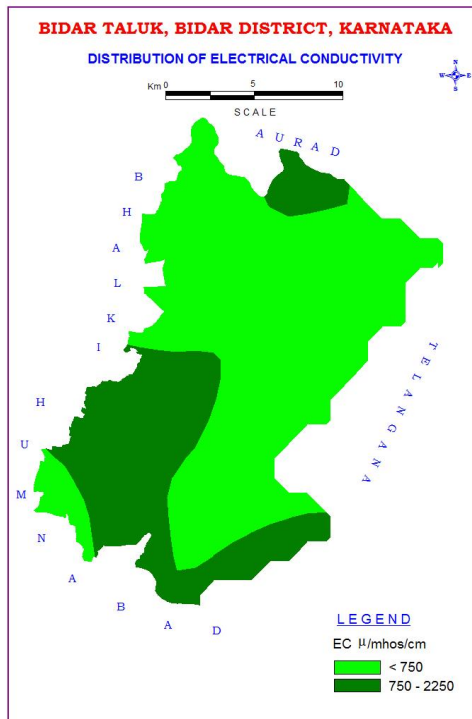


Fig-15 Distribution of Electrical Conductivity (Aq-I)

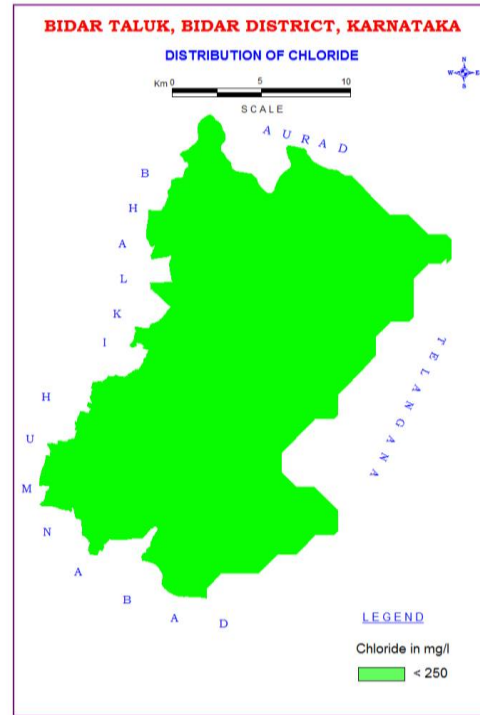


Fig-16 Distribution of Chloride (Aq-I)

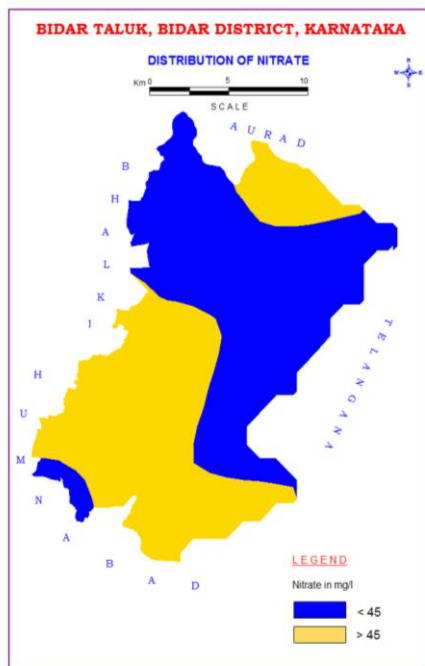


Fig-17 Distribution of Nitrate (Aq-I)

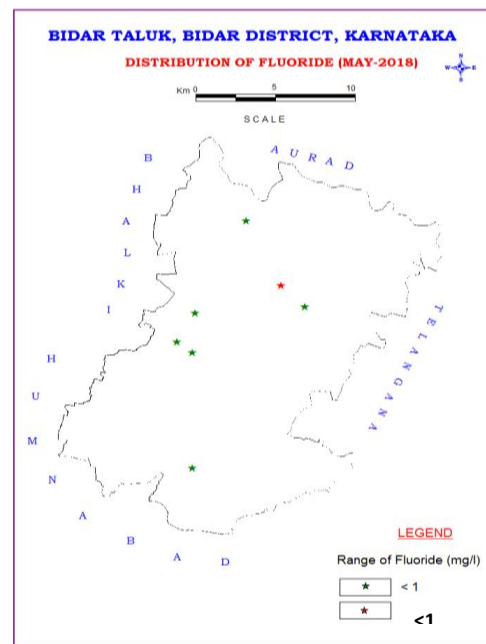


Fig-16 Distribution of Fluoride (Aq-I)

## 4 GROUND WATER MANAGEMENT PLAN

### 4.1 Resource Enhancement by Supply Side Interventions

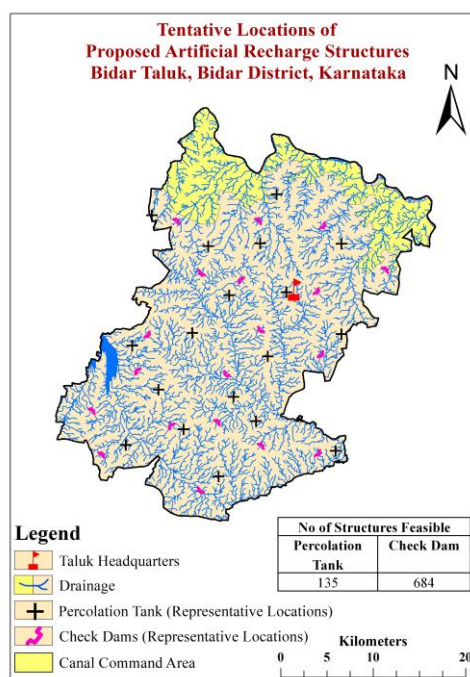
Recharge to dry phreatic aquifer zone (Aq-I) through construction of artificial recharge structures, viz; check dams, percolation tanks & Sub surface dyke (Table-13) is recommended. The choice of recharge structures should be site specific and such structures need to be constructed in areas already identified as feasible for artificial recharge. The area feasible for artificial recharge are given in Fig. 19.

The entire area of Bidar taluk is feasible for recharge i.e., 926 sq.km. and the surface surplus non-committed runoff availability is 149.54 MCM, which is considered for planning of AR structures. For this, a total of 4 sub-surface dykes, 135 percolation tank and 684 Check dams are proposed. The volume of water expected to be conserved/recharged @75% efficiency is 112.35 MCM through these AR structures. The approximate cost estimate for construction of these AR structures is Rs. 96.15 Cr. The additional area which can be brought under assured ground water irrigation will be about 13500 hectares. However, the figures given are tentative and pre-field studies / DPR are recommended prior to implementation of these recharge structures.

**Table-13: Quantity of non-committed surface runoff & expected recharge through AR structures**

Artificial Recharge Structures Proposed	Bidar taluk
Area feasible for artificial recharge (sq.km)	926
Non committed monsoon runoff available (MCM)	149.54
Total no. of existing artificial recharge structures	185
No. of Sub surface dykes	4
Tentative total cost of the project (Rs. in Cr)	96.15
Expected recharge (MCM)	112.35
Additional irrigation potential (Hectares)	13500

**Note: The numbers proposed are tentative and detailed feasibility studies are required in field to finalize the actual locations for the construction of AR structures.**



**Fig.19: Locations of Proposed Representative Artificial Recharge Structures**

## 4.2 Resource Savings by Demand Side Interventions

### 4.2.1 Water Use Efficiency by Micro Irrigation Practices

It is observed that dug wells and bore wells contribute 99% of the source for irrigation in Bidar taluk. The water efficient methodology may be applied for growing sugarcane which is grown in 5337 ha and is ground water dependent as compared to the other crops which are mainly grown during kharif. Initially, the micro irrigation techniques (drip) are proposed in 25% of sugarcane cultivated area of 5337 ha i.e., 1334 ha. Considering the crop water requirement of 2.00 m and savings of 25% i.e., 0.50 m by drip irrigation, it will contribute in saving ground water by 667 ham and thus will improve stage of development marginally. However, in long run the practice of Efficient irrigation techniques will add to the ground water resource in large extent. (Table-14).

**Table 14: Improvement in GW availability (2020) due to savings by adopting water use efficiency**

Annual Extractable GW Resource (Ham)	Total GW extraction for all uses	Stage of ground water extraction	Sugarcane Area proposed for WUE	Unit savings	Total Saving due to adopting WUE measures	Cumulative annual Extractable GW Resource	Expected improvement in stage of ground water extraction after the implementation of the project	Expected improvement in overall stage of ground water extraction
HAM	HAM	%	HA	M	HAM	HAM	%	%
5037.94	1641.72	32.59	1334	0.50	667	5705	3.80	32.59 to 28.78

### 4.2.2 Change in cropping pattern

Water intensive crop like sugarcane are grown in 9% of total cropped area. At present, the stage of ground water extraction is also on lower side @ 32.59% (2020), thus change in cropping pattern has not been suggested.

## 4.3 Ground Water Development Plan

In Bidar taluk, the present stage of ground water extraction (2020) is merely 32.59 %, say 33% with net ground water availability for future use of 3393.44 ham and total extraction of 1641.71 ham. The ground water draft for irrigation purpose is estimated to be 1605.82 ham and there is further scope for developing the resource for irrigation as a part of development with appropriate scientific backing. The implementation of the plan should be based on site specific detailed hydrogeological and scientific surveys for pinpointing the sites for construction additional abstraction structures.

As per tentative estimates, 345 dug wells and 829 bore wells are recommended to be constructed in feasible areas which is likely to create about 2125 hectares of additional irrigation potential.

**Table – 15: Feasibility of Additional GW abstraction structures based on GWRA 2020 availability**

Annual Extractable GW Resource (Ham)	5037.94
Net GW Availability for future use (Ham)	3393.44
Stage of GW Extraction (%)	32.59
GW Resources available to increase SOE to 60% (Ham)	3022.764
Total Extraction / Draft (Ham)	1641.72
Balance GWR available to enhance SOE 60% (Ham)	1381.04
DW unit draft (Ham)	1.00
BW unit draft (Ham)	1.25
No. of DW feasible considering 25% of balance GWR with unit draft of 1 ham	345
No. of BWs feasible considering 75% of balance GWR with unit	829

draft of 1.25 ham	
Additional irrigation potential created by DW's considering crop water requirement of 0.65 m (Ha)	531
Additional irrigation potential created by BW's considering crop water requirement of 0.65 m (Ha)	1594
Total irrigation potential created by DW's and BW's (Ha)	2125

*Note- Hydrogeological and scientific intervention is needed for pinpointing the sites for construction of dugwells and Borewells*

#### 4.4 Regulation and Control

Bidar taluk has been categorized as "**Safe**". However, the mandatory guidelines like rainwater harvesting and artificial recharge issued by Karnataka Ground Water Authority(KGWA) needs to be strictly implemented to avoid the taluk from safe category to semi critical or higher category in the future.

#### 4.5 Other interventions proposed

- **Periodical maintenance of artificial recharge structures** should also be incorporated in the Recharge Plan.
- Excess nitrate concentration is found in ground water samples requires remedial measures viz.
  - Dilution of nitrate rich ground water through artificial recharge & water conservation.
  - Roof top rain water harvesting.
  - Improving quality by proper drainage and limited usage of Nitrogenous fertilizers
- Excess fluoride concentration is found in ground water samples of deeper aquifer require remedial measures viz.
  - Alternate source
  - Removal technology

### 5 SUMMARY AND RECOMMENDATIONS

The main ground water issues are Low Ground Water Development, Limited Ground Water Potential / Limited Aquifer Thickness / Sustainability, Deeper Water Levels particularly in Aquifer-II in some parts, hilly and plateau areas which are all inter-related or inter dependent and Inferior Ground Water Quality due to fluoride contamination especially in deeper aquifer. The summary of ground water management plan of Bidar taluk is given in **Table-16**.

**Table 16: Summary of Management plan of Bidar taluk**

Present stage of Ground water Extraction and Category as per GEC-2020(%)	32.59, Safe
Annual Extractable Ground Water Resources (ham)	5037.94
Existing Gross Ground Water Extraction for all uses	1641.72
Total Ground water Resources (Dynamic & Static upto the depth of 200 mbgl) (ham)	13078
<b>Ground Water Resource Enhancement by Supply side Interventions</b>	
Area Feasible for Artificial Recharge (ha)	92600
Expected additional recharge from monsoon surplus runoff (ham)	11235
Additional irrigation potential (Hectares)	13500
Sugarcane Area proposed for WUE (ha)	1334
<b>Ground Water Resource Savings by Demand side Interventions</b>	
Expected Saving due to adopting WUE measures (ham)	667
Expected improvement in stage of ground water extraction after adopting WUE measures and implementation of the project (%)	32.59 to 28.78

Government to take initiatives to encourage at least 70% farmers to adopt water use efficiency irrigations practices like dip & sprinkler irrigation	-
<b>Ground Water Resource Development Plan</b>	
Balance GWR available to enhance SOE 60% (Ham)	1381.04
No. of DW feasible considering 25% of balance GWR with unit draft of 1 ham	345
No. of BWs feasible considering 75% of balance GWR with unit draft of 1.25 ham	829
Additional irrigation potential created by DW's considering crop water requirement of 0.65 m (Ha)	531
Additional irrigation potential created by BW's considering crop water requirement of 0.65 m (Ha)	1594
Total irrigation potential created by DW's and BW's (Ha)	2125
Excess Nitrate concentration	In limited places especially in shallow aquifer Dilution of nitrate rich ground water through artificial recharge & water conservation. Roof top rain water harvesting Improving quality by controlling usage of Nitrogenous fertilizers in agriculture field and maintaining the proper domestic drainage network system
Excess Fluoride concentration	In limited places especially in deeper aquifer Alternate source Removal technology

As per the resource estimation – 2020, Bidar taluk falls under Safe category with the stage of ground water extraction is 32.59 %. However, there is need to formulate management strategy to tackle the water scarcity related issues in the taluk in the coming days to avoid water crisis in the future. It is suggested to adopt a scientific and multi-pronged ground water management strategy covering supply side interventions, demand side interventions, ground water development interventions and ground water quality protection aspects as mentioned in the management plan suggested above

**Ground water resource enhancement by supply side interventions:** The surface surplus non-committed runoff availability is 149.54 MCM, which is considered for planning of AR structures. For this, a total of 4 sub-surface dykes, 135 percolation tank and 684 Check dams are proposed. The volume of water expected to be conserved/recharged @75% efficiency is 112.35 MCM through these AR structures. The approximate cost estimate for construction of these AR structures is Rs. 96.15 Cr. The additional area which can be brought under assured ground water irrigation will be about 13500 hectares. However, the figures given are tentative and pre-field studies / DPR are recommended prior to implementation of these recharge structures.

**Ground water resource enhancement by demand side interventions:** It is observed that dug wells and bore wells contribute 99% of the source for irrigation in Bidar taluk. The water efficient methodology may be applied for growing sugarcane which is grown in 5337 ha and is ground water dependent as compared to the other crops which are mainly grown during kharif. Initially, the micro irrigation techniques (drip) are proposed in 25% of sugarcane cultivated area of 5337 ha i.e., 1334 ha. Considering the crop water requirement of 2.00 m and savings of 25% i.e., 0.50 m by drip irrigation, it will contribute in saving ground water by 667 ham and thus will improve stage of development marginally.

**Change in cropping pattern:** Water intensive crop like sugarcane are grown in 9% of total cropped area. At present, the stage of ground water extraction is also on lower side @ 32.59% (2020), **thus change in cropping pattern has not been suggested.**

**Ground Water Resource Development Plan:** the present stage of ground water extraction (2020) is merely 32.59 %, say 33% with net ground water availability for future use of 3393.44 ham and total

extraction of 1641.71 ham. The ground water draft for irrigation purpose is estimated to be 1605.82 ham and there is further scope for developing the resource for irrigation as a part of development with appropriate scientific backing. The implementation of the plan should be based on site specific detailed hydrogeological and scientific surveys for pinpointing the sites for construction additional abstraction structures. As per tentative estimates, 345 dug wells and 829 bore wells are recommended to be constructed in feasible areas which is likely to create about 2125 hectares of additional irrigation potential.

**Nitrate Contamination:** Proper drainage of sewage and scientific disposal of sewage water by the concerned urban/rural agency needs to be adopted along with limited usage of Nitrogenous fertilizers by farmers to avoid nitrate contamination. All the ground water sources for drinking water supply may be checked for ground water quality parameters as per BIS norms.

**WUE in Domestic Sector:** WUE practices are the prime management option in domestic sector as well in view of having high density clusters of urban households and establishments. In premium apartments and infrastructure projects, use of three-way line for fresh water, bathroom water and toilet water will enable reuse of grey water for gardening, car washing and flushes etc. The water saver fixtures/aerators can be used for kitchen & bathroom pipes, bath showers and water free urinals.

**Regulation and Control:** Taluk is categorised as "Safe". However, the mandatory guidelines like rainwater harvesting and artificial recharge issued by Karnataka Ground Water Authority needs to be strictly implemented to avoid the taluk from deteriorating from safe category to semi critical category in the future.

**Water Linkages with other Activities:** Water sector has strong linkages with other developmental activities. Hence, the proposed management plans cannot be considered as static and needs to be reviewed and improved from time to time.

**Annexure-I: Tentative locations of proposed Check Dams**

S. No	Longitude	Latitude	Village	Grama Panchayat	Taluk
1	77.4460	17.6868	Bhangura	Markunda	Bidar
2	77.4308	17.6899	Marakundha	Markunda	Bidar
3	77.4211	17.6918	Marakundha	Markunda	Bidar
4	77.4383	17.6920	Bhangura	Markunda	Bidar
5	77.4142	17.6936	Marakundha	Markunda	Bidar
6	77.4342	17.6956	Marakundha	Markunda	Bidar
7	77.4502	17.6963	Sindhola	Sindol	Bidar
8	77.4011	17.6991	Marakundha	Markunda	Bidar
9	77.4440	17.6995	Bhangura	Markunda	Bidar
10	77.4256	17.7001	Marakundha	Markunda	Bidar
11	77.4294	17.7004	Marakundha	Markunda	Bidar
12	77.4134	17.7006	Marakundha	Markunda	Bidar
13	77.4195	17.7010	Marakundha	Markunda	Bidar
14	77.3971	17.7024	Marakundha	Markunda	Bidar
15	77.4359	17.7045	Marakundha	Markunda	Bidar
16	77.4534	17.7048	Sindhola	Sindol	Bidar
17	77.3976	17.7067	Marakundha	Markunda	Bidar
18	77.4479	17.7072	Sindhola	Sindol	Bidar
19	77.4671	17.7085	Rajagira	Sindol	Bidar
20	77.4193	17.7099	Marakundha	Markunda	Bidar
21	77.4279	17.7136	Patharapalli	Sindol	Bidar
22	77.3966	17.7154	Mugadhala	Markunda	Bidar
23	77.4019	17.7156	Mugadhala	Markunda	Bidar
24	77.4470	17.7163	Sindhola	Sindol	Bidar
25	77.4685	17.7174	Rajagira	Sindol	Bidar
26	77.3936	17.7187	Mugadhala	Markunda	Bidar
27	77.4922	17.7188	Hokarana.K	Hokrana (B)	Bidar
28	77.4029	17.7214	Mugadhala	Markunda	Bidar
29	77.3855	17.7217	Bapura	Markunda	Bidar
30	77.4810	17.7217	Rajagira	Sindol	Bidar
31	77.4991	17.7223	Hokarana.B	Hokrana (B)	Bidar
32	77.5047	17.7237	Hokarana.B	Hokrana (B)	Bidar
33	77.4403	17.7254	Patharapalli	Sindol	Bidar
34	77.4856	17.7258	Hokarana.K	Hokrana (B)	Bidar
35	77.5101	17.7260	Hokarana.B	Hokrana (B)	Bidar
36	77.4534	17.7269	Sindhola	Sindol	Bidar
37	77.3974	17.7276	Mugadhala	Markunda	Bidar
38	77.5179	17.7278	Dharmapura	Hokrana (B)	Bidar
39	77.4351	17.7287	Patharapalli	Sindol	Bidar
40	77.4683	17.7288	Rajagira	Sindol	Bidar
41	77.4300	17.7293	Bagadhala	Bagdal	Bidar
42	77.3913	17.7297	Mugadhala	Markunda	Bidar
43	77.4415	17.7299	Patharapalli	Sindol	Bidar
44	77.4909	17.7302	Hokarana.B	Hokrana (B)	Bidar



45	77.3873	17.7320	Bapura	Markunda	Bidar
46	77.4958	17.7321	Hokarana.B	Hokrana (B)	Bidar
47	77.3945	17.7323	Mugadhala	Markunda	Bidar
48	77.5199	17.7323	Dharmapura	Hokrana (B)	Bidar
49	77.4602	17.7335	Rajagira	Sindol	Bidar
50	77.5058	17.7335	Hokarana.B	Hokrana (B)	Bidar
51	77.3428	17.7355	Rekulagi	Rekulgi	Bidar
52	77.4499	17.7359	Sindhola	Sindol	Bidar
53	77.4894	17.7361	Hokarana.K	Hokrana (B)	Bidar
54	77.4746	17.7370	Rajagira	Sindol	Bidar
55	77.4294	17.7371	Shekapura	Sindol	Bidar
56	77.4084	17.7376	Bagadhala	Bagdal	Bidar
57	77.3886	17.7385	Bapura	Markunda	Bidar
58	77.3600	17.7392	Nidavancha	Rekulgi	Bidar
59	77.5022	17.7392	Hokarana.B	Hokrana (B)	Bidar
60	77.4250	17.7395	Bagadhala	Bagdal	Bidar
61	77.5466	17.7395	Barura	Baroor	Bidar
62	77.3362	17.7397	Rekulagi	Rekulgi	Bidar
63	77.5140	17.7397	Chinthalagera	Hokrana (B)	Bidar
64	77.5349	17.7404	Dharmapura	Hokrana (B)	Bidar
65	77.4606	17.7413	Thadapalli	Sindol	Bidar
66	77.4923	17.7422	Hokarana.B	Hokrana (B)	Bidar
67	77.4368	17.7432	Shekapura	Sindol	Bidar
68	77.5382	17.7436	Barura	Baroor	Bidar
69	77.4127	17.7445	Bagadhala	Bagdal	Bidar
70	77.4492	17.7445	Sindhola	Sindol	Bidar
71	77.5659	17.7447	Barura	Baroor	Bidar
72	77.3463	17.7451	Bimbalagi	Rekulgi	Bidar
73	77.4758	17.7453	Rajagira	Sindol	Bidar
74	77.4056	17.7456	Bagadhala	Bagdal	Bidar
75	77.3621	17.7457	Nidavancha	Rekulgi	Bidar
76	77.5517	17.7460	Barura	Baroor	Bidar
77	77.5304	17.7472	Chinthalagera	Hokrana (B)	Bidar
78	77.3755	17.7477	Nidavancha	Rekulgi	Bidar
79	77.3321	17.7480	Rekulagi	Rekulgi	Bidar
80	77.3571	17.7486	Bimbalagi	Rekulgi	Bidar
81	77.3665	17.7489	Nidavancha	Rekulgi	Bidar
82	77.5436	17.7489	Barura	Baroor	Bidar
83	77.4710	17.7490	Rajagira	Sindol	Bidar
84	77.4602	17.7496	Thadapalli	Sindol	Bidar
85	77.5170	17.7496	Chinthalagera	Hokrana (B)	Bidar
86	77.5260	17.7498	Chinthalagera	Hokrana (B)	Bidar
87	77.5116	17.7502	Mannalli	Manhalli	Bidar
88	77.4029	17.7511	Bagadhala	Bagdal	Bidar
89	77.4344	17.7513	Shekapura	Sindol	Bidar
90	77.3928	17.7521	Bagadhala	Bagdal	Bidar

91	77.4124	17.7523	Bagadhala	Bagdal	Bidar
92	77.3463	17.7526	Rekulagi	Rekulgi	Bidar
93	77.3279	17.7539	Rekulagi	Rekulgi	Bidar
94	77.4460	17.7540	Sindhola	Sindol	Bidar
95	77.4508	17.7546	Sindhola	Sindol	Bidar
96	77.4126	17.7551	Bagadhala	Bagdal	Bidar
97	77.3711	17.7554	Nidavancha	Rekulgi	Bidar
98	77.5591	17.7554	Barura	Baroor	Bidar
99	77.3865	17.7554	Bagadhala	Bagdal	Bidar
100	77.4874	17.7563	Mannalli	Manhalli	Bidar
101	77.4303	17.7563	Honnaddi	Chatnalli	Bidar
102	77.4603	17.7567	Thadapalli	Sindol	Bidar
103	77.4226	17.7569	Bagadhala	Bagdal	Bidar
104	77.5057	17.7571	Mannalli	Manhalli	Bidar
105	77.3369	17.7592	Rekulagi	Rekulgi	Bidar
106	77.4980	17.7592	Mannalli	Manhalli	Bidar
107	77.4804	17.7597	Mannalli	Manhalli	Bidar
108	77.3647	17.7598	Bimbalagi	Rekulgi	Bidar
109	77.3516	17.7600	Bimbalagi	Rekulgi	Bidar
110	77.5128	17.7600	Mannalli	Manhalli	Bidar
111	77.4901	17.7602	Mannalli	Manhalli	Bidar
112	77.3980	17.7604	Bagadhala	Bagdal	Bidar
113	77.4528	17.7605	Sindhola	Sindol	Bidar
114	77.4381	17.7607	Honnaddi	Chatnalli	Bidar
115	77.5438	17.7609	Barura	Baroor	Bidar
116	77.4081	17.7610	Bagadhala	Bagdal	Bidar
117	77.3843	17.7621	Bagadhala	Bagdal	Bidar
118	77.3259	17.7637	Rekulagi	Rekulgi	Bidar
119	77.4740	17.7637	Mannalli	Manhalli	Bidar
120	77.5300	17.7637	Barura	Baroor	Bidar
121	77.3561	17.7642	Bimbalagi	Rekulgi	Bidar
122	77.3056	17.7648	Sirikatanahalli	Ranjolkheni	Bidar
123	77.3823	17.7648	Bagadhala	Bagdal	Bidar
124	77.4129	17.7648	Bagadhala	Bagdal	Bidar
125	77.4804	17.7651	Mannalli	Manhalli	Bidar
126	77.3227	17.7654	Rekulagi	Rekulgi	Bidar
127	77.5027	17.7658	Mannalli	Manhalli	Bidar
128	77.5172	17.7659	Mannalli	Manhalli	Bidar
129	77.4953	17.7661	Mannalli	Manhalli	Bidar
130	77.3767	17.7661	Bhyranahalli	Aurad (S)	Bidar
131	77.4395	17.7667	Honnaddi	Chatnalli	Bidar
132	77.4180	17.7673	Bagadhala	Bagdal	Bidar
133	77.4237	17.7674	Bagadhala	Bagdal	Bidar
134	77.4336	17.7674	Honnaddi	Chatnalli	Bidar
135	77.5134	17.7674	Mannalli	Manhalli	Bidar
136	77.5096	17.7681	Mannalli	Manhalli	Bidar

137	77.2973	17.7684	Sirikatanahalli	Ranjolkheni	Bidar
138	77.5009	17.7690	Mannalli	Manhalli	Bidar
139	77.3121	17.7693	Sirikatanahalli	Ranjolkheni	Bidar
140	77.5429	17.7695	Barura	Baroor	Bidar
141	77.4850	17.7696	Mannalli	Manhalli	Bidar
142	77.3936	17.7701	Bagadhala	Bagdal	Bidar
143	77.4081	17.7704	Bagadhala	Bagdal	Bidar
144	77.4167	17.7705	Bagadhala	Bagdal	Bidar
145	77.3872	17.7715	Bagadhala	Bagdal	Bidar
146	77.4974	17.7728	Mannalli	Manhalli	Bidar
147	77.5357	17.7728	Barura	Baroor	Bidar
148	77.4243	17.7729	Bagadhala	Bagdal	Bidar
149	77.4694	17.7732	Satholi	Nagoor	Bidar
150	77.4571	17.7732	Chatanalli	Chatnalli	Bidar
151	77.3631	17.7734	Avaradha (Sirsi)	Aurad (S)	Bidar
152	77.3463	17.7735	Rekulagi	Rekulgi	Bidar
153	77.5178	17.7735	Mannalli	Manhalli	Bidar
154	77.3229	17.7743	Huchakanahalli	Ranjolkheni	Bidar
155	77.4728	17.7747	Yakathapura	Nagoor	Bidar
156	77.4525	17.7752	Chatanalli	Chatnalli	Bidar
157	77.5221	17.7752	Mannalli	Manhalli	Bidar
158	77.3799	17.7753	Bhyranahalli	Aurad (S)	Bidar
159	77.3366	17.7759	Rekulagi	Rekulgi	Bidar
160	77.5289	17.7761	Gousapura	Baroor	Bidar
161	77.4780	17.7765	Yakathapura	Nagoor	Bidar
162	77.3992	17.7765	Kasimapura .C	Sirsi (A)	Bidar
163	77.3423	17.7767	Rekulagi	Rekulgi	Bidar
164	77.4853	17.7782	Yakathapura	Nagoor	Bidar
165	77.3645	17.7784	Avaradha (Sirsi)	Aurad (S)	Bidar
166	77.4048	17.7785	Kasimapura .C	Sirsi (A)	Bidar
167	77.3719	17.7788	Avaradha (Sirsi)	Aurad (S)	Bidar
168	77.3910	17.7788	Kasimapura .C	Sirsi (A)	Bidar
169	77.4427	17.7793	Chatanalli	Chatnalli	Bidar
170	77.3007	17.7794	Ranjola Khedi (Kheni)	Ranjolkheni	Bidar
171	77.4556	17.7794	Chatanalli	Chatnalli	Bidar
172	77.4098	17.7795	Bagadhala	Bagdal	Bidar
173	77.3209	17.7811	Huchakanahalli	Ranjolkheni	Bidar
174	77.4605	17.7812	Satholi	Nagoor	Bidar
175	77.4899	17.7817	Yakathapura	Nagoor	Bidar
176	77.4632	17.7821	Satholi	Nagoor	Bidar
177	77.3597	17.7826	Avaradha (Sirsi)	Aurad (S)	Bidar
178	77.4532	17.7826	Chatanalli	Chatnalli	Bidar
179	77.4746	17.7827	Satholi	Nagoor	Bidar
180	77.4109	17.7829	Bagadhala	Bagdal	Bidar
181	77.4058	17.7832	Kasimapura .C	Sirsi (A)	Bidar
182	77.3001	17.7845	Ranjola Khedi (Kheni)	Ranjolkheni	Bidar

183	77.3809	17.7847	Avaradha (Sirsi)	Aurad (S)	Bidar
184	77.4510	17.7851	Chatanalli	Chatnalli	Bidar
185	77.3999	17.7853	Kasimapura .C	Sirsi (A)	Bidar
186	77.3405	17.7862	Huchakanahalli	Ranjolkheni	Bidar
187	77.4101	17.7863	Bagadhala	Bagdal	Bidar
188	77.5007	17.7872	Nagora	Nagoor	Bidar
189	77.4390	17.7873	Chatanalli	Chatnalli	Bidar
190	77.4213	17.7877	Bagadhala	Bagdal	Bidar
191	77.3451	17.7879	Avaradha (Sirsi)	Aurad (S)	Bidar
192	77.4765	17.7884	Satholi	Nagoor	Bidar
193	77.4877	17.7884	Yakathapura	Nagoor	Bidar
194	77.4299	17.7885	Bagadhala	Bagdal	Bidar
195	77.4800	17.7888	Satholi	Nagoor	Bidar
196	77.4672	17.7892	Satholi	Nagoor	Bidar
197	77.3683	17.7896	Avaradha (Sirsi)	Aurad (S)	Bidar
198	77.4942	17.7900	Yakathapura	Nagoor	Bidar
199	77.4508	17.7903	Chatanalli	Chatnalli	Bidar
200	77.3071	17.7909	Ranjola Khedi (Kheni)	Ranjolkheni	Bidar
201	77.3229	17.7909	Ranjola Khedi (Kheni)	Ranjolkheni	Bidar
202	77.4274	17.7915	Bagadhala	Bagdal	Bidar
203	77.4899	17.7925	Yakathapura	Nagoor	Bidar
204	77.3644	17.7926	Avaradha (Sirsi)	Aurad (S)	Bidar
205	77.4706	17.7931	Satholi	Nagoor	Bidar
206	77.3823	17.7934	Avaradha (Sirsi)	Aurad (S)	Bidar
207	77.4087	17.7937	Kasimapura .C	Sirsi (A)	Bidar
208	77.3972	17.7944	Avaradha (Sirsi)	Aurad (S)	Bidar
209	77.2979	17.7945	Ranjola Khedi (Kheni)	Ranjolkheni	Bidar
210	77.3083	17.7945	Ranjola Khedi (Kheni)	Ranjolkheni	Bidar
211	77.4277	17.7947	Chatanalli	Chatnalli	Bidar
212	77.3577	17.7949	Avaradha (Sirsi)	Aurad (S)	Bidar
213	77.4609	17.7954	Chatanalli	Chatnalli	Bidar
214	77.4775	17.7954	Satholi	Nagoor	Bidar
215	77.4510	17.7957	Chatanalli	Chatnalli	Bidar
216	77.4052	17.7968	Kasimapura .C	Sirsi (A)	Bidar
217	77.4403	17.7968	Chatanalli	Chatnalli	Bidar
218	77.3360	17.7971	Ranjola Khedi (Kheni)	Ranjolkheni	Bidar
219	77.4852	17.7975	Yakathapura	Nagoor	Bidar
220	77.4663	17.7981	Bhudhera	Chatnalli	Bidar
221	77.3630	17.7983	Avaradha (Sirsi)	Aurad (S)	Bidar
222	77.4109	17.7988	Kasimapura .C	Sirsi (A)	Bidar
223	77.4426	17.7988	Chatanalli	Chatnalli	Bidar
224	77.5027	17.7991	Nagora	Nagoor	Bidar
225	77.3093	17.7995	Ranjola Khedi (Kheni)	Ranjolkheni	Bidar
226	77.4746	17.7998	Bhudhera	Chatnalli	Bidar
227	77.3354	17.8004	Ranjola Khedi (Kheni)	Ranjolkheni	Bidar
228	77.4244	17.8010	Kadawadha	Kadwad	Bidar

229	77.3154	17.8016	Ranjola Khedi (Kheni)	Ranjolkheni	Bidar
230	77.3508	17.8024	Avaradha (Sirsi)	Aurad (S)	Bidar
231	77.4293	17.8024	Kadawadha	Kadwad	Bidar
232	77.3034	17.8025	Ranjola Khedi (Kheni)	Ranjolkheni	Bidar
233	77.3187	17.8028	Ranjola Khedi (Kheni)	Ranjolkheni	Bidar
234	77.4923	17.8029	Nagora	Nagoor	Bidar
235	77.3740	17.8030	Sirsi (Avaradha)	Sirsi (A)	Bidar
236	77.4008	17.8041	Avaradha (Sirsi)	Aurad (S)	Bidar
237	77.3931	17.8045	Avaradha (Sirsi)	Aurad (S)	Bidar
238	77.3206	17.8055	Ranjola Khedi (Kheni)	Ranjolkheni	Bidar
239	77.3491	17.8057	Avaradha (Sirsi)	Aurad (S)	Bidar
240	77.3334	17.8062	Ranjola Khedi (Kheni)	Ranjolkheni	Bidar
241	77.4861	17.8068	Nagora	Nagoor	Bidar
242	77.5033	17.8080	Nagora	Nagoor	Bidar
243	77.4537	17.8089	Baridhabadha	Chatnalli	Bidar
244	77.3799	17.8092	Sirsi (Avaradha)	Sirsi (A)	Bidar
245	77.5099	17.8095	Ghodepalli	Nagoor	Bidar
246	77.4468	17.8096	Baridhabadha	Chatnalli	Bidar
247	77.4356	17.8105	Kadawadha	Kadwad	Bidar
248	77.4401	17.8105	Kadawadha	Kadwad	Bidar
249	77.3525	17.8109	Sirsi (Avaradha)	Sirsi (A)	Bidar
250	77.4596	17.8118	Bhudhera	Chatnalli	Bidar
251	77.3963	17.8119	Sirsi (A)	Sirsi (A)	Bidar
252	77.4662	17.8122	Bhudhera	Chatnalli	Bidar
253	77.3080	17.8129	Ranjola Khedi (Kheni)	Ranjolkheni	Bidar
254	77.4219	17.8131	Kadawadha	Kadwad	Bidar
255	77.3827	17.8134	Sirsi (Avaradha)	Sirsi (A)	Bidar
256	77.4267	17.8137	Kadawadha	Kadwad	Bidar
257	77.4531	17.8139	Baridhabadha	Chatnalli	Bidar
258	77.4855	17.8140	Nagora	Nagoor	Bidar
259	77.4151	17.8145	Kadawadha	Kadwad	Bidar
260	77.4600	17.8151	Bhudhera	Chatnalli	Bidar
261	77.4790	17.8152	Thekanga Mirjapura	Nagoor	Bidar
262	77.5136	17.8155	Ghodepalli	Nagoor	Bidar
263	77.3238	17.8157	Ranjola Khedi (Kheni)	Ranjolkheni	Bidar
264	77.3193	17.8160	Ranjola Khedi (Kheni)	Ranjolkheni	Bidar
265	77.4113	17.8160	Kadawadha	Kadwad	Bidar
266	77.4196	17.8161	Kadawadha	Kadwad	Bidar
267	77.4510	17.8164	Baridhabadha	Chatnalli	Bidar
268	77.5227	17.8174	Ghodepalli	Nagoor	Bidar
269	77.4483	17.8179	Kadawadha	Kadwad	Bidar
270	77.5155	17.8187	Ghodepalli	Nagoor	Bidar
271	77.4112	17.8190	Kadawadha	Kadwad	Bidar
272	77.3858	17.8193	Sirsi (Avaradha)	Sirsi (A)	Bidar
273	77.4448	17.8194	Kadawadha	Kadwad	Bidar
274	77.4372	17.8202	Kadawadha	Kadwad	Bidar

275	77.4870	17.8212	Nagora	Nagoor	Bidar
276	77.4981	17.8214	Nagora	Nagoor	Bidar
277	77.3644	17.8221	Sirsi (Avaradha)	Sirsi (A)	Bidar
278	77.4318	17.8226	Kadawadha	Kadwad	Bidar
279	77.4118	17.8234	Kadawadha	Kadwad	Bidar
280	77.4770	17.8234	Thelanga Mirjapura	Nagoor	Bidar
281	77.3547	17.8240	Bavagi	Sangolgi	Bidar
282	77.3894	17.8241	Sirsi (Avaradha)	Sirsi (A)	Bidar
283	77.5519	17.8247	B.Gunalli	Chitta	Bidar
284	77.4540	17.8247	Pana Kasimpura	Kadwad	Bidar
285	77.3260	17.8248	Ranjola Khedi (Kheni)	Ranjolkheni	Bidar
286	77.3849	17.8252	Sirsi (Avaradha)	Sirsi (A)	Bidar
287	77.4041	17.8268	Mandhakanahalli	Mandaknalli	Bidar
288	77.4713	17.8279	Kuththabadha	Yadlapur	Bidar
289	77.4847	17.8285	Nagora	Nagoor	Bidar
290	77.3676	17.8285	Bavagi	Sangolgi	Bidar
291	77.4475	17.8288	Pana Kasimpura	Kadwad	Bidar
292	77.5206	17.8301	Chitta	Chitta	Bidar
293	77.5155	17.8304	Chitta	Chitta	Bidar
294	77.4065	17.8306	Mandhakanahalli	Mandaknalli	Bidar
295	77.4967	17.8307	Nagora	Nagoor	Bidar
296	77.3527	17.8307	Bavagi	Sangolgi	Bidar
297	77.4021	17.8309	Mandhakanahalli	Mandaknalli	Bidar
298	77.3796	17.8315	Bavagi	Sangolgi	Bidar
299	77.4449	17.8317	Pana Kasimpura	Kadwad	Bidar
300	77.3275	17.8319	Hajjaragi	Bidar	Bidar
301	77.5340	17.8324	B.Gunalli	Chitta	Bidar
302	77.5058	17.8325	Chitta	Chitta	Bidar
303	77.4388	17.8326	Pana Kasimpura	Kadwad	Bidar
304	77.3640	17.8327	Bavagi	Sangolgi	Bidar
305	77.3809	17.8336	Bavagi	Sangolgi	Bidar
306	77.3869	17.8337	Bavagi	Sangolgi	Bidar
307	77.5393	17.8337	B.Gunalli	Chitta	Bidar
308	77.4302	17.8345	Malika Mirjapura	Kadwad	Bidar
309	77.4844	17.8348	Kuththabadha	Yadlapur	Bidar
310	77.5183	17.8352	Chitta	Chitta	Bidar
311	77.5443	17.8364	B.Gunalli	Chitta	Bidar
312	77.4247	17.8369	Mandhakanahalli	Mandaknalli	Bidar
313	77.5073	17.8370	Chitta	Chitta	Bidar
314	77.5534	17.8372	B.Gunalli	Chitta	Bidar
315	77.4056	17.8383	Mandhakanahalli	Mandaknalli	Bidar
316	77.4588	17.8386	Malika Mirjapura	Kadwad	Bidar
317	77.5230	17.8388	Chitta	Chitta	Bidar
318	77.3755	17.8389	Bavagi	Sangolgi	Bidar
319	77.4492	17.8390	Kamatana	Kamthana	Bidar
320	77.4858	17.8392	Kuththabadha	Yadlapur	Bidar

321	77.3980	17.8401	Shamasheeranagara	Mandaknalli	Bidar
322	77.4312	17.8402	Malika Mirjapura	Kadwad	Bidar
323	77.4810	17.8405	Kuththabadha	Yadlapur	Bidar
324	77.4646	17.8412	Yadhalapura	Yadlapur	Bidar
325	77.4416	17.8424	Malika Mirjapura	Kadwad	Bidar
326	77.4731	17.8425	Yadhalapura	Yadlapur	Bidar
327	77.3743	17.8429	Bavagi	Sangolgi	Bidar
328	77.4173	17.8433	Mandhakanahalli	Mandaknalli	Bidar
329	77.4353	17.8436	Malika Mirjapura	Kadwad	Bidar
330	77.4020	17.8437	Mandhakanahalli	Mandaknalli	Bidar
331	77.4092	17.8437	Mandhakanahalli	Mandaknalli	Bidar
332	77.5345	17.8438	B.Gunalli	Chitta	Bidar
333	77.3964	17.8438	Shamasheeranagara	Mandaknalli	Bidar
334	77.3589	17.8439	Nelawada	Sangolgi	Bidar
335	77.5466	17.8444	B.Gunalli	Chitta	Bidar
336	77.3505	17.8450	Nelawada	Sangolgi	Bidar
337	77.5265	17.8451	Chitta	Chitta	Bidar
338	77.5580	17.8454	B.Gunalli	Chitta	Bidar
339	77.4388	17.8455	Malika Mirjapura	Kadwad	Bidar
340	77.5130	17.8460	Chitta	Chitta	Bidar
341	77.3663	17.8464	Bavagi	Sangolgi	Bidar
342	77.4659	17.8466	Yadhalapura	Yadlapur	Bidar
343	77.5050	17.8468	Chitta	Chitta	Bidar
344	77.5199	17.8477	Chitta	Chitta	Bidar
345	77.3952	17.8479	Shamasheeranagara	Mandaknalli	Bidar
346	77.4222	17.8479	Mandhakanahalli	Mandaknalli	Bidar
347	77.3982	17.8485	Shamasheeranagara	Mandaknalli	Bidar
348	77.5305	17.8487	B.Gunalli	Chitta	Bidar
349	77.3499	17.8489	Nelawada	Sangolgi	Bidar
350	77.5560	17.8494	Shahapura	Malkapur	Bidar
351	77.3854	17.8495	Shamasheeranagara	Mandaknalli	Bidar
352	77.4092	17.8500	Mandhakanahalli	Mandaknalli	Bidar
353	77.4274	17.8505	Malika Mirjapura	Kadwad	Bidar
354	77.4654	17.8508	Yadhalapura	Yadlapur	Bidar
355	77.4570	17.8509	Kamatana	Kamthana	Bidar
356	77.4374	17.8516	Kamatana	Kamthana	Bidar
357	77.4483	17.8519	Kamatana	Kamthana	Bidar
358	77.4808	17.8519	Yadhalapura	Yadlapur	Bidar
359	77.4321	17.8528	Kamatana	Kamthana	Bidar
360	77.4182	17.8529	Mandhakanahalli	Mandaknalli	Bidar
361	77.5467	17.8532	B.Gunalli	Chitta	Bidar
362	77.5041	17.8535	Chitta	Chitta	Bidar
363	77.5313	17.8539	B.Gunalli	Chitta	Bidar
364	77.3533	17.8546	Sangolagi	Sangolgi	Bidar
365	77.5227	17.8558	Chitta	Chitta	Bidar
366	77.4033	17.8563	Kanganakote	Mandaknalli	Bidar



367	77.4125	17.8568	Mandhakanahalli	Mandaknalli	Bidar
368	77.3965	17.8569	Kanganakote	Mandaknalli	Bidar
369	77.4766	17.8571	Yadhalapura	Yadlapur	Bidar
370	77.4357	17.8571	Kamatana	Kamthana	Bidar
371	77.5014	17.8572	Chitta	Chitta	Bidar
372	77.3852	17.8577	Shamasheeranagara	Mandaknalli	Bidar
373	77.4274	17.8580	Kamatana	Kamthana	Bidar
374	77.4167	17.8585	Kamatana	Kamthana	Bidar
375	77.3674	17.8592	Sangolagi	Sangolgi	Bidar
376	77.4818	17.8592	Ayasapura	Yadlapur	Bidar
377	77.4430	17.8598	Kamatana	Kamthana	Bidar
378	77.5626	17.8601	Shahapura	Malkapur	Bidar
379	77.4305	17.8607	Kamatana	Kamthana	Bidar
380	77.4851	17.8608	Ayasapura	Yadlapur	Bidar
381	77.5480	17.8609	Shahapura	Malkapur	Bidar
382	77.3648	17.8610	Sangolagi	Sangolgi	Bidar
383	77.4398	17.8614	Kamatana	Kamthana	Bidar
384	77.4676	17.8615	Ayasapura	Yadlapur	Bidar
385	77.5100	17.8617	Chitta	Chitta	Bidar
386	77.5227	17.8619	Chitta	Chitta	Bidar
387	77.5028	17.8625	Chitta	Chitta	Bidar
388	77.4066	17.8631	Kanganakote	Mandaknalli	Bidar
389	77.3383	17.8634	Sangolagi	Sangolgi	Bidar
390	77.3958	17.8635	Kanganakote	Mandaknalli	Bidar
391	77.3763	17.8640	Sangolagi	Sangolgi	Bidar
392	77.4352	17.8643	Kamatana	Kamthana	Bidar
393	77.3630	17.8643	Sangolagi	Sangolgi	Bidar
394	77.3435	17.8650	Sangolagi	Sangolgi	Bidar
395	77.4163	17.8660	Kamatana	Kamthana	Bidar
396	77.5544	17.8662	Shahapura	Malkapur	Bidar
397	77.4634	17.8663	Kamatana	Kamthana	Bidar
398	77.5023	17.8665	Chitta	Chitta	Bidar
399	77.5476	17.8667	Halladhakeri.K	Bidar	Bidar
400	77.4431	17.8674	Kamatana	Kamthana	Bidar
401	77.3478	17.8674	Sangolagi	Sangolgi	Bidar
402	77.4042	17.8675	Kanganakote	Mandaknalli	Bidar
403	77.5323	17.8680	Goranalli	Bidar	Bidar
404	77.4858	17.8688	Chitta	Chitta	Bidar
405	77.5345	17.8713	Goranalli	Bidar	Bidar
406	77.4020	17.8723	Kanganakote	Mandaknalli	Bidar
407	77.5486	17.8724	Halladhakeri.K	Bidar	Bidar
408	77.3965	17.8724	Kanganakote	Mandaknalli	Bidar
409	77.4666	17.8726	Kamatana	Kamthana	Bidar
410	77.5534	17.8728	Shahapura	Malkapur	Bidar
411	77.4620	17.8730	Kamatana	Kamthana	Bidar
412	77.4304	17.8740	Kamatana	Kamthana	Bidar

413	77.4269	17.8747	Kamatana	Kamthana	Bidar
414	77.3804	17.8747	Sangolagi	Sangolgi	Bidar
415	77.4002	17.8751	Kanganakote	Mandaknalli	Bidar
416	77.3843	17.8768	Sangolagi	Sangolgi	Bidar
417	77.5172	17.8769	Goranalli	Bidar	Bidar
418	77.5021	17.8769	Amalapura	Amlapur	Bidar
419	77.3887	17.8776	Sikindrapura	Andur	Bidar
420	77.4570	17.8781	Kamatana	Kamthana	Bidar
421	77.4690	17.8789	Jamasthanapura	Yadlapur	Bidar
422	77.5306	17.8790	Goranalli	Bidar	Bidar
423	77.4202	17.8794	Kamatana	Kamthana	Bidar
424	77.4381	17.8797	Kamatana	Kamthana	Bidar
425	77.5684	17.8797	Malakapura	Malkapur	Bidar
426	77.4823	17.8800	Jamasthanapura	Yadlapur	Bidar
427	77.4766	17.8803	Jamasthanapura	Yadlapur	Bidar
428	77.5911	17.8806	Sulthanapura.G	Malkapur	Bidar
429	77.5230	17.8810	Bagashahi	Bidar	Bidar
430	77.5666	17.8819	Malakapura	Malkapur	Bidar
431	77.4242	17.8821	Sikindrapura	Andur	Bidar
432	77.4117	17.8824	Sikindrapura	Andur	Bidar
433	77.4319	17.8833	Sikindrapura	Andur	Bidar
434	77.5339	17.8843	Halladhakeri.K	Bidar	Bidar
435	77.4674	17.8851	Jamasthanapura	Kolar (K)	Bidar
436	77.5541	17.8855	Malakapura	Malkapur	Bidar
437	77.4477	17.8855	Kamatana	Kamthana	Bidar
438	77.5068	17.8856	Mylura	Bidar	Bidar
439	77.5401	17.8857	Halladhakeri.K	Bidar	Bidar
440	77.4251	17.8863	Sikindrapura	Andur	Bidar
441	77.4561	17.8868	Belura	Kolar (K)	Bidar
442	77.5130	17.8872	Mylura	Bidar	Bidar
443	77.5237	17.8877	Kumbarawada	Bidar	Bidar
444	77.5335	17.8881	Halladhakeri.K	Bidar	Bidar
445	77.5690	17.8884	Malakapura	Malkapur	Bidar
446	77.4127	17.8885	Sikindrapura	Andur	Bidar
447	77.4970	17.8886	Mylura	Bidar	Bidar
448	77.4074	17.8890	Sikindrapura	Andur	Bidar
449	77.3931	17.8894	Khadaranagara	Andur	Bidar
450	77.4724	17.8894	Belura	Kolar (K)	Bidar
451	77.4307	17.8903	Sikindrapura	Andur	Bidar
452	77.4020	17.8910	Sikindrapura	Andur	Bidar
453	77.5586	17.8914	Malakapura	Malkapur	Bidar
454	77.5101	17.8915	Mylura	Bidar	Bidar
455	77.4222	17.8918	Sikindrapura	Andur	Bidar
456	77.5380	17.8923	Halladhakeri.K	Bidar	Bidar
457	77.5024	17.8936	Mylura	Bidar	Bidar
458	77.4955	17.8940	Chidri	Bidar	Bidar

459	77.3834	17.8942	Khadaranagara	Andur	Bidar
460	77.4750	17.8942	Chidri	Bidar	Bidar
461	77.4486	17.8950	Bakka Chavadi	Kolar (K)	Bidar
462	77.4589	17.8950	Belura	Kolar (K)	Bidar
463	77.4324	17.8957	Bakka Chavadi	Kolar (K)	Bidar
464	77.4777	17.8957	Chidri	Bidar	Bidar
465	77.5216	17.8966	Kumbarawada	Bidar	Bidar
466	77.4247	17.8968	Sikindrapura	Andur	Bidar
467	77.5373	17.8984	Halladhakeri.K	Bidar	Bidar
468	77.5736	17.8986	Astura	Astoor	Bidar
469	77.5534	17.8989	Halladhakeri.K	Bidar	Bidar
470	77.4784	17.8990	Chidri	Bidar	Bidar
471	77.4940	17.8993	Chidri	Bidar	Bidar
472	77.4698	17.9001	Chidri	Bidar	Bidar
473	77.5335	17.9001	Halladhakeri.K	Bidar	Bidar
474	77.5794	17.9002	Astura	Astoor	Bidar
475	77.4221	17.9002	Anadhura	Andur	Bidar
476	77.5467	17.9006	Halladhakeri.K	Bidar	Bidar
477	77.4317	17.9007	Bakka Chavadi	Kolar (K)	Bidar
478	77.3877	17.9017	Khadaranagara	Andur	Bidar
479	77.3925	17.9017	Khadaranagara	Andur	Bidar
480	77.3971	17.9018	Khadaranagara	Andur	Bidar
481	77.4663	17.9020	Chidri	Bidar	Bidar
482	77.4480	17.9024	Bakka Chavadi	Kolar (K)	Bidar
483	77.3813	17.9031	Khadaranagara	Andur	Bidar
484	77.4052	17.9034	Khadaranagara	Andur	Bidar
485	77.5197	17.9037	Jungle Koyi	Bidar	Bidar
486	77.4741	17.9038	Chidri	Bidar	Bidar
487	77.4530	17.9040	Nijamapura	Kolar (K)	Bidar
488	77.4115	17.9050	Anadhura	Andur	Bidar
489	77.4235	17.9051	Anadhura	Andur	Bidar
490	77.5611	17.9053	Mirjapura.T	Malkapur	Bidar
491	77.5814	17.9056	Astura	Astoor	Bidar
492	77.4158	17.9057	Anadhura	Andur	Bidar
493	77.5095	17.9061	Gullara Haveli	Bidar	Bidar
494	77.4723	17.9067	Chidri	Bidar	Bidar
495	77.5417	17.9067	Mahalathe Gyrabi	Malkapur	Bidar
496	77.6126	17.9071	Imamabadh	Astoor	Bidar
497	77.3708	17.9071	Khadaranagara	Andur	Bidar
498	77.5024	17.9074	Chidri	Bidar	Bidar
499	77.3958	17.9080	Khadaranagara	Andur	Bidar
500	77.4444	17.9080	Nijamapura	Kolar (K)	Bidar
501	77.5306	17.9080	Killaraka	Bidar	Bidar
502	77.3811	17.9088	Khadaranagara	Andur	Bidar
503	77.4350	17.9091	Nijamapura	Kolar (K)	Bidar
504	77.4688	17.9094	Chidri	Bidar	Bidar

505	77.5247	17.9100	Jungle Koyi	Bidar	Bidar
506	77.4951	17.9110	Chidri	Bidar	Bidar
507	77.5529	17.9113	Mirjapura.T	Malkapur	Bidar
508	77.5213	17.9114	Jungle Koyi	Bidar	Bidar
509	77.5897	17.9116	Imamabadh	Astoor	Bidar
510	77.4888	17.9117	Chidri	Bidar	Bidar
511	77.5150	17.9130	Gullara Haveli	Bidar	Bidar
512	77.4607	17.9135	Kolara .K	Kolar (K)	Bidar
513	77.6057	17.9142	Imamabadh	Astoor	Bidar
514	77.4541	17.9142	Kolara .K	Kolar (K)	Bidar
515	77.4376	17.9147	Kolara .K	Kolar (K)	Bidar
516	77.5491	17.9149	Mirjapura.T	Malkapur	Bidar
517	77.5722	17.9153	Astura	Astoor	Bidar
518	77.4781	17.9168	Chidri	Bidar	Bidar
519	77.4217	17.9169	Kolara .B	Kaplapur(A)	Bidar
520	77.6130	17.9169	Alamasapura	Malegaon	Bidar
521	77.4399	17.9179	Kolara .K	Kolar (K)	Bidar
522	77.3988	17.9182	Anadhura	Andur	Bidar
523	77.4073	17.9182	Anadhura	Andur	Bidar
524	77.5025	17.9188	Gullara Haveli	Bidar	Bidar
525	77.5386	17.9193	Thajalapura	Astoor	Bidar
526	77.4801	17.9195	Chidri	Bidar	Bidar
527	77.5646	17.9200	Astura	Astoor	Bidar
528	77.4359	17.9203	Kolara .B	Kaplapur(A)	Bidar
529	77.4454	17.9212	Kolara .K	Kolar (K)	Bidar
530	77.4050	17.9215	Anadhura	Andur	Bidar
531	77.4957	17.9215	Chidri	Bidar	Bidar
532	77.4494	17.9221	Kolara .K	Kolar (K)	Bidar
533	77.6169	17.9225	Alamasapura	Malegaon	Bidar
534	77.4147	17.9233	A.Kapalapura	Kaplapur(A)	Bidar
535	77.4521	17.9234	Kolara .K	Kolar (K)	Bidar
536	77.5951	17.9240	Rasoolabadh	Malegaon	Bidar
537	77.4007	17.9241	Anadhura	Andur	Bidar
538	77.4604	17.9242	Noubadha	Bidar	Bidar
539	77.4664	17.9244	Noubadha	Bidar	Bidar
540	77.5227	17.9245	Killaraka	Bidar	Bidar
541	77.4387	17.9246	Kolara .K	Kolar (K)	Bidar
542	77.4823	17.9247	Noubadha	Bidar	Bidar
543	77.5380	17.9248	Varidhoddi (Valadhoddi)	Astoor	Bidar
544	77.4265	17.9252	Athawala	Kaplapur(A)	Bidar
545	77.4077	17.9276	A.Kapalapura	Kaplapur(A)	Bidar
546	77.6091	17.9279	Alamasapura	Malegaon	Bidar
547	77.5812	17.9280	Ghumma	Astoor	Bidar
548	77.5663	17.9286	Ghumma	Astoor	Bidar
549	77.4421	17.9288	Kolara .K	Kolar (K)	Bidar
550	77.4529	17.9293	Kolara .K	Kolar (K)	Bidar

551	77.4761	17.9297	Noubadha	Bidar	Bidar
552	77.5135	17.9308	Chikkapete	Markhal	Bidar
553	77.4012	17.9310	A.Kapalapura	Kaplapur(A)	Bidar
554	77.4955	17.9310	Baga-Karanja	Aliyabad	Bidar
555	77.5089	17.9322	Chikkapete	Markhal	Bidar
556	77.4448	17.9338	Kolara .K	Kolar (K)	Bidar
557	77.4195	17.9342	Athawala	Kaplapur(A)	Bidar
558	77.5410	17.9342	Hamilapura	Gadgi	Bidar
559	77.4261	17.9346	Athawala	Kaplapur(A)	Bidar
560	77.5483	17.9355	Hamilapura	Gadgi	Bidar
561	77.4733	17.9355	Noubadha	Bidar	Bidar
562	77.4015	17.9360	A.Kapalapura	Kaplapur(A)	Bidar
563	77.5310	17.9360	Hamilapura	Gadgi	Bidar
564	77.5372	17.9360	Hamilapura	Gadgi	Bidar
565	77.4940	17.9378	Baga-Karanja	Aliyabad	Bidar
566	77.4425	17.9380	Kolara .K	Kolar (K)	Bidar
567	77.5626	17.9383	Solapura	Gadgi	Bidar
568	77.5729	17.9387	Ghumma	Astoor	Bidar
569	77.3998	17.9393	A.Kapalapura	Kaplapur(A)	Bidar
570	77.4530	17.9399	Chondi	Aliyabad	Bidar
571	77.4700	17.9400	Noubadha	Bidar	Bidar
572	77.4254	17.9406	Honnikeri	Kaplapur(A)	Bidar
573	77.5132	17.9409	Chikkapete	Markhal	Bidar
574	77.4885	17.9410	Baga-Karanja	Aliyabad	Bidar
575	77.4292	17.9419	Honnikeri	Kaplapur(A)	Bidar
576	77.4554	17.9422	Chondi	Aliyabad	Bidar
577	77.5472	17.9423	Hamilapura	Gadgi	Bidar
578	77.5295	17.9427	Hamilapura	Gadgi	Bidar
579	77.5002	17.9443	Aliyabadh	Aliyabad	Bidar
580	77.5342	17.9443	Gadhagi	Gadgi	Bidar
581	77.4852	17.9448	Aliyabadh	Aliyabad	Bidar
582	77.4229	17.9449	Honnikeri	Kaplapur(A)	Bidar
583	77.5039	17.9455	Chikkapete	Markhal	Bidar
584	77.5275	17.9456	Gadhagi	Gadgi	Bidar
585	77.4469	17.9460	Chondi	Aliyabad	Bidar
586	77.4949	17.9466	Aliyabadh	Aliyabad	Bidar
587	77.4291	17.9467	Honnikeri	Kaplapur(A)	Bidar
588	77.4170	17.9472	Honnikeri	Kaplapur(A)	Bidar
589	77.5747	17.9497	Nandhagaov	Malegaon	Bidar
590	77.4886	17.9504	Aliyabadh	Aliyabad	Bidar
591	77.5553	17.9506	Gadhagi	Gadgi	Bidar
592	77.4112	17.9514	Honnikeri	Kaplapur(A)	Bidar
593	77.5861	17.9517	Nandhagaov	Malegaon	Bidar
594	77.4268	17.9520	Honnikeri	Kaplapur(A)	Bidar
595	77.4018	17.9527	Honnikeri	Kaplapur(A)	Bidar
596	77.4574	17.9529	Chavali	Aliyabad	Bidar

597	77.5130	17.9561	Marakala	Markhal	Bidar
598	77.5366	17.9562	Gadhagi	Gadgi	Bidar
599	77.4472	17.9566	Chondi	Aliyabad	Bidar
600	77.5743	17.9567	Nandhagaov	Malegaon	Bidar
601	77.5841	17.9569	Nandhagaov	Malegaon	Bidar
602	77.4930	17.9571	Marakala	Markhal	Bidar
603	77.4254	17.9572	Honnikeri	Kaplapur(A)	Bidar
604	77.5320	17.9572	Gadhagi	Gadgi	Bidar
605	77.4738	17.9576	Chavali	Aliyabad	Bidar
606	77.4431	17.9586	Chondi	Aliyabad	Bidar
607	77.5033	17.9588	Marakala	Markhal	Bidar
608	77.5282	17.9594	Gadhagi	Gadgi	Bidar
609	77.4832	17.9600	Marakala	Markhal	Bidar
610	77.4027	17.9608	Honnikeri	Kaplapur(A)	Bidar
611	77.5906	17.9609	K.Mirjapura	Chillargi	Bidar
612	77.5641	17.9622	Khajapura	Chimkode	Bidar
613	77.4636	17.9646	Chavali	Aliyabad	Bidar
614	77.4152	17.9648	Honnikeri	Kaplapur(A)	Bidar
615	77.5098	17.9667	Marakala	Markhal	Bidar
616	77.5383	17.9667	Gadhagi	Gadgi	Bidar
617	77.5799	17.9671	K.Mirjapura	Chillargi	Bidar
618	77.5409	17.9681	Gadhagi	Gadgi	Bidar
619	77.4264	17.9694	Honnikeri	Kaplapur(A)	Bidar
620	77.5469	17.9697	Gadhagi	Gadgi	Bidar
621	77.4684	17.9702	Chavali	Aliyabad	Bidar
622	77.5623	17.9704	Gadhagi	Gadgi	Bidar
623	77.4085	17.9708	Honnikeri	Kaplapur(A)	Bidar
624	77.5236	17.9708	Bavapura (A)	Gadgi	Bidar
625	77.4425	17.9714	Aliyambara	Aliyember	Bidar
626	77.5781	17.9714	K.Mirjapura	Chillargi	Bidar
627	77.5035	17.9717	Marakala	Markhal	Bidar
628	77.5544	17.9727	Gadhagi	Gadgi	Bidar
629	77.5643	17.9752	Gadhagi	Gadgi	Bidar
630	77.4523	17.9760	Mamadhapura	Aliyember	Bidar
631	77.4065	17.9762	Honnikeri	Kaplapur(A)	Bidar
632	77.4858	17.9768	Marakala	Markhal	Bidar
633	77.5557	17.9772	Gadhagi	Gadgi	Bidar
634	77.3927	17.9785	Gumathapura	Aliyember	Bidar
635	77.5240	17.9788	Benakanahalli	Markhal	Bidar
636	77.5679	17.9788	Gadhagi	Gadgi	Bidar
637	77.5183	17.9802	Benakanahalli	Markhal	Bidar
638	77.5582	17.9805	Gadhagi	Gadgi	Bidar
639	77.3963	17.9822	Gumathapura	Aliyember	Bidar
640	77.5428	17.9822	Fathepura.C	Chimkode	Bidar
641	77.5002	17.9828	Marakala	Markhal	Bidar
642	77.5603	17.9828	Gadhagi	Gadgi	Bidar

643	77.5300	17.9829	Benakanahalli	Markhal	Bidar
644	77.5710	17.9829	Sulthanapura	Chimkode	Bidar
645	77.4547	17.9836	Mamadhapura	Aliyember	Bidar
646	77.4701	17.9866	Janawada	Janwada	Bidar
647	77.4768	17.9866	Janawada	Janwada	Bidar
648	77.5430	17.9874	Fathepura.C	Chimkode	Bidar
649	77.4979	17.9888	Marakala	Markhal	Bidar
650	77.3823	17.9899	Vilasapura	Aliyember	Bidar
651	77.5512	17.9907	Fathepura	Chimkode	Bidar
652	77.5247	17.9910	Benakanahalli	Markhal	Bidar
653	77.5473	17.9911	Kangati	Srimandal	Bidar
654	77.5136	17.9914	Dhaddhapura	Janwada	Bidar
655	77.4865	17.9925	Janawada	Janwada	Bidar
656	77.5311	17.9929	Kannalli	Chambol	Bidar
657	77.5681	17.9932	Chimakoda	Chimkode	Bidar
658	77.4590	17.9934	Mamadhapura	Aliyember	Bidar
659	77.4968	17.9939	Marakala	Markhal	Bidar
660	77.5281	17.9958	Kannalli	Chambol	Bidar
661	77.5489	17.9959	Kangati	Srimandal	Bidar
662	77.3840	17.9964	Vilasapura	Aliyember	Bidar
663	77.5555	17.9967	Kangati	Srimandal	Bidar
664	77.5118	17.9974	Dhaddhapura	Janwada	Bidar
665	77.5327	17.9987	Kannalli	Chambol	Bidar
666	77.5267	17.9993	Kannalli	Chambol	Bidar
667	77.4572	17.9996	Khan Jamalpura	Janwada	Bidar
668	77.4972	18.0005	Marakala	Markhal	Bidar
669	77.5356	18.0026	Kannalli	Chambol	Bidar
670	77.5135	18.0039	Chambhola	Chambol	Bidar
671	77.5587	18.0054	Kangati	Srimandal	Bidar
672	77.5089	18.0055	Dhaddhapura	Janwada	Bidar
673	77.5257	18.0059	Chambhola	Chambol	Bidar
674	77.4970	18.0076	Janawada	Janwada	Bidar
675	77.5440	18.0120	Navalaspura	Srimandal	Bidar
676	77.5275	18.0133	Chambhola	Chambol	Bidar
677	77.4939	18.0143	Janawada	Janwada	Bidar
678	77.5556	18.0144	Srimandala	Srimandal	Bidar
679	77.4958	18.0179	Imamapura	Chambol	Bidar
680	77.5082	18.0182	Chambhola	Chambol	Bidar
681	77.4943	18.0211	Imamapura	Chambol	Bidar
682	77.5126	18.0229	Chambhola	Chambol	Bidar
683	77.5235	18.0296	Chambhola	Chambol	Bidar
684	77.5143	18.0323	Chambhola	Chambol	Bidar

**Annexure-I: Tentative locations of proposed Percolation Tanks**

S. No	Longitude	Latitude	Village	Grama Panchayat	Taluk
1	77.4281	17.6906	Marakundha	Markunda	Bidar
2	77.4463	17.6923	Bhangura	Markunda	Bidar
3	77.4076	17.7017	Marakundha	Markunda	Bidar
4	77.4003	17.7108	Mugadhala	Markunda	Bidar
5	77.4527	17.7205	Sindhola	Sindol	Bidar
6	77.3919	17.7217	Mugadhala	Markunda	Bidar
7	77.4749	17.7238	Rajagira	Sindol	Bidar
8	77.4468	17.7268	Sindhola	Sindol	Bidar
9	77.3321	17.7351	Rekulagi	Rekulgi	Bidar
10	77.4410	17.7386	Shekapura	Sindol	Bidar
11	77.4825	17.7401	Hokarana.K	Hokrana (B)	Bidar
12	77.4313	17.7432	Shekapura	Sindol	Bidar
13	77.4159	17.7434	Bagadhala	Bagdal	Bidar
14	77.3698	17.7448	Nidavancha	Rekulgi	Bidar
15	77.5071	17.7452	Chinthalagera	Hokrana (B)	Bidar
16	77.3496	17.7458	Bimbalagi	Rekulgi	Bidar
17	77.4930	17.7469	Hokarana.B	Hokrana (B)	Bidar
18	77.3975	17.7476	Bagadhala	Bagdal	Bidar
19	77.4391	17.7492	Shekapura	Sindol	Bidar
20	77.5593	17.7514	Barura	Baroor	Bidar
21	77.4757	17.7522	Rajagira	Sindol	Bidar
22	77.5273	17.7539	Chinthalagera	Hokrana (B)	Bidar
23	77.5438	17.7541	Barura	Baroor	Bidar
24	77.3220	17.7568	Rekulagi	Rekulgi	Bidar
25	77.3565	17.7570	Bimbalagi	Rekulgi	Bidar
26	77.4725	17.7581	Mannalli	Manhalli	Bidar
27	77.4188	17.7599	Bagadhala	Bagdal	Bidar
28	77.5035	17.7604	Mannalli	Manhalli	Bidar
29	77.4631	17.7631	Thadapalli	Sindol	Bidar
30	77.4548	17.7667	Sindhola	Sindol	Bidar
31	77.5238	17.7675	Gousapura	Baroor	Bidar
32	77.3962	17.7676	Bagadhala	Bagdal	Bidar
33	77.4763	17.7704	Yakathapura	Nagoor	Bidar
34	77.4463	17.7716	Chatanalli	Chatnalli	Bidar
35	77.3817	17.7719	Bhyranahalli	Aurad (S)	Bidar
36	77.4130	17.7741	Bagadhala	Bagdal	Bidar
37	77.3170	17.7745	Sirikatanahalli	Ranjolkheni	Bidar
38	77.4332	17.7751	Honnaddi	Chatnalli	Bidar
39	77.3283	17.7758	Huchakanahalli	Ranjolkheni	Bidar
40	77.4269	17.7808	Bagadhala	Bagdal	Bidar
41	77.4822	17.7808	Yakathapura	Nagoor	Bidar
42	77.3100	17.7821	Ranjola Khedi (Kheni)	Ranjolkheni	Bidar
43	77.4139	17.7848	Bagadhala	Bagdal	Bidar
44	77.3701	17.7865	Avaradha (Sirsi)	Aurad (S)	Bidar



45	77.3147	17.7888	Ranjola Khedi (Kheni)	Ranjolkheni	Bidar
46	77.3252	17.7909	Ranjola Khedi (Kheni)	Ranjolkheni	Bidar
47	77.3713	17.7990	Avaradha (Sirsi)	Aurad (S)	Bidar
48	77.3250	17.8003	Ranjola Khedi (Kheni)	Ranjolkheni	Bidar
49	77.3591	17.8019	Avaradha (Sirsi)	Aurad (S)	Bidar
50	77.4166	17.8020	Kadawadha	Kadwad	Bidar
51	77.3810	17.8030	Sirsi (Avaradha)	Sirsi (A)	Bidar
52	77.4606	17.8044	Bhudhera	Chatnalli	Bidar
53	77.4418	17.8064	Kadawadha	Kadwad	Bidar
54	77.3882	17.8113	Sirsi (Avaradha)	Sirsi (A)	Bidar
55	77.4939	17.8122	Nagora	Nagoor	Bidar
56	77.4096	17.8124	Kadawadha	Kadwad	Bidar
57	77.4301	17.8148	Kadawadha	Kadwad	Bidar
58	77.3970	17.8195	Sirsi (Avaradha)	Sirsi (A)	Bidar
59	77.5248	17.8218	Ghodepalli	Nagoor	Bidar
60	77.4814	17.8241	Thelanga Mirjapura	Nagoor	Bidar
61	77.3644	17.8250	Sirsi (Avaradha)	Sirsi (A)	Bidar
62	77.4999	17.8291	Nagora	Nagoor	Bidar
63	77.3924	17.8294	Sirsi (Avaradha)	Sirsi (A)	Bidar
64	77.4519	17.8383	Kamatana	Kamthana	Bidar
65	77.5326	17.8391	B.Gunalli	Chitta	Bidar
66	77.3830	17.8403	Bavagi	Sangolgi	Bidar
67	77.4931	17.8437	Chitta	Chitta	Bidar
68	77.4244	17.8448	Mandhakanahalli	Mandaknalli	Bidar
69	77.4436	17.8507	Kamatana	Kamthana	Bidar
70	77.4004	17.8517	Kanganakote	Mandaknalli	Bidar
71	77.3629	17.8530	Sangolagi	Sangolgi	Bidar
72	77.5351	17.8537	B.Gunalli	Chitta	Bidar
73	77.4914	17.8559	Chitta	Chitta	Bidar
74	77.4510	17.8589	Kamatana	Kamthana	Bidar
75	77.3496	17.8633	Sangolagi	Sangolgi	Bidar
76	77.3734	17.8634	Sangolagi	Sangolgi	Bidar
77	77.5648	17.8654	Shahapura	Malkapur	Bidar
78	77.4215	17.8670	Kamatana	Kamthana	Bidar
79	77.4357	17.8686	Kamatana	Kamthana	Bidar
80	77.4912	17.8694	Chitta	Chitta	Bidar
81	77.5421	17.8722	Halladhakeri.K	Bidar	Bidar
82	77.4159	17.8766	Kamatana	Kamthana	Bidar
83	77.5614	17.8772	Malakapura	Malkapur	Bidar
84	77.4633	17.8781	Jamasthanapura	Yadlapur	Bidar
85	77.4025	17.8821	Sikindrapura	Andur	Bidar
86	77.3842	17.8830	Sangolagi	Sangolgi	Bidar
87	77.4873	17.8852	Jamasthanapura	Yadlapur	Bidar
88	77.5465	17.8864	Halladhakeri.K	Bidar	Bidar
89	77.3877	17.8917	Khadaranagara	Andur	Bidar
90	77.5467	17.8931	Halladhakeri.K	Bidar	Bidar

91	77.5159	17.8935	Mylura	Bidar	Bidar
92	77.4072	17.8985	Anadhura	Andur	Bidar
93	77.4830	17.9006	Chidri	Bidar	Bidar
94	77.4557	17.9033	Bakka Chavadi	Kolar (K)	Bidar
95	77.3681	17.9038	Khadaranagara	Andur	Bidar
96	77.5131	17.9057	Mylura	Bidar	Bidar
97	77.6172	17.9092	Imamabadh	Astoor	Bidar
98	77.4760	17.9105	Chidri	Bidar	Bidar
99	77.5430	17.9121	Mahalathe Gyrahi	Malkapur	Bidar
100	77.4467	17.9132	Kolara .K	Kolar (K)	Bidar
101	77.4673	17.9137	Kolara .K	Kolar (K)	Bidar
102	77.5265	17.9147	Killaraka	Bidar	Bidar
103	77.3971	17.9150	Anadhura	Andur	Bidar
104	77.5117	17.9159	Gullara Haveli	Bidar	Bidar
105	77.4870	17.9184	Chidri	Bidar	Bidar
106	77.5158	17.9241	Gullara Haveli	Bidar	Bidar
107	77.4946	17.9259	Aliyabadh	Aliyabad	Bidar
108	77.4328	17.9285	Kolara .B	Kaplapur(A)	Bidar
109	77.5285	17.9292	Shamarajapura	Gadgi	Bidar
110	77.4811	17.9357	Noubadha	Bidar	Bidar
111	77.5544	17.9359	Hamilapura	Gadgi	Bidar
112	77.5242	17.9384	Mamanakeri	Gadgi	Bidar
113	77.4145	17.9386	A.Kapalapura	Kaplapur(A)	Bidar
114	77.4442	17.9402	Chondi	Aliyabad	Bidar
115	77.4607	17.9435	Chondi	Aliyabad	Bidar
116	77.4708	17.9469	Noubadha	Bidar	Bidar
117	77.4073	17.9484	Honnikeri	Kaplapur(A)	Bidar
118	77.4360	17.9516	Honnikeri	Kaplapur(A)	Bidar
119	77.5653	17.9546	Gadhagi	Gadgi	Bidar
120	77.4864	17.9553	Marakala	Markhal	Bidar
121	77.5235	17.9558	Bavapura (A)	Gadgi	Bidar
122	77.4032	17.9662	Honnikeri	Kaplapur(A)	Bidar
123	77.4310	17.9672	Honnikeri	Kaplapur(A)	Bidar
124	77.5181	17.9678	Marakala	Markhal	Bidar
125	77.5281	17.9696	Gadhagi	Gadgi	Bidar
126	77.3972	17.9750	Gumathapura	Aliyember	Bidar
127	77.5147	17.9758	Marakala	Markhal	Bidar
128	77.4784	17.9797	Marakala	Markhal	Bidar
129	77.5492	17.9800	Fathepura	Chimkode	Bidar
130	77.3809	17.9810	Vilasapura	Aliyember	Bidar
131	77.5384	17.9822	Fathepura.C	Chimkode	Bidar
132	77.5062	17.9867	Marakala	Markhal	Bidar
133	77.5190	17.9987	Chambhola	Chambol	Bidar
134	77.5031	18.0017	Dhaddhapura	Janwada	Bidar
135	77.5418	18.0036	Kangati	Srimandal	Bidar