



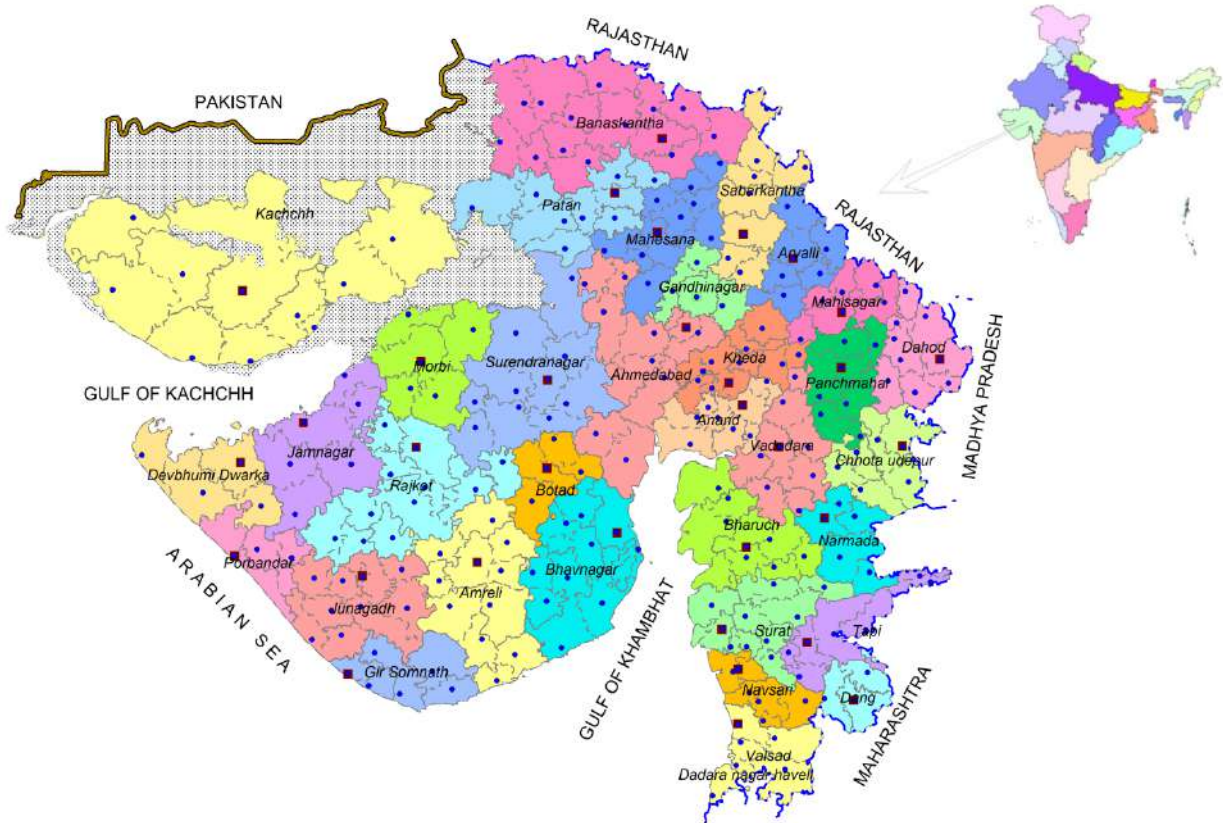
# CENTRAL GROUND WATER BOARD

MINISTRY OF JAL SHAKTI

DEPARTMENT OF WATER RESOURCES, RIVER DEVELOPMENT AND  
GANGA REJUVENTATION

GROUNDWATER YEAR BOOK 2019-20

GUJARAT STATE



REGIONAL OFFICE DATA CENTRE  
CENTRAL GROUND WATER BOARD  
WEST CENTRAL REGION  
AHMEDABAD

March - 2021



**CENTRAL GROUND WATER BOARD**  
**MINISTRY OF JAL SHAKTI**  
**DEPARTMENT OF WATER RESOURCES, RIVER DEVELOPMENT AND**  
**GANGA REJUVENATION**  
**GOVERNMENT OF INDIA**

**GROUNDWATER YEAR BOOK 2019-20**  
**GUJARAT STATE**

Compiled by

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**REGIONAL OFFICE DATA CENTRE**  
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**WEST CENTRAL REGION**  
**AHMEDABAD**

March 2021

## FOREWORD

*Central Ground Water Board, West Central Region, has been issuing Ground Water Year Book annually for Gujarat state by compiling the hydrogeological, hydrochemical and groundwater level data collected from the Groundwater Monitoring Wells established by the Board in Gujarat State. Monitoring of groundwater level and chemical quality furnish valuable information on the ground water regime characteristics of the different hydrogeological units moreover, analysis of these valuable data collected from existing observation wells during May, August, November and January in each ground water year (June to May) indicate the pattern of ground water movement, changes in recharge-discharge relationship, behavior of water level and qualitative & quantitative changes of ground water regime in time and space. It also helps in identifying and delineating areas prone to decline of water table and piezometric surface due to large scale withdrawal of ground water for industrial, agricultural and urban water supply requirement. Further water logging prone areas can also be identified with historical water level data analysis. This year book contains the data and analysis of ground water regime monitoring for the year 2019-20.*

*The behavior of groundwater levels as analyzed from the existing Groundwater Monitoring Wells data and the chemical quality of groundwater is discussed in details in this report along with the thematic maps depicting the ground water scenario for different periods of measurements. The depth to water level, water level fluctuations, water table and water quality maps have been prepared and presented in this report along with detailed discussion on each map.*

*The scientific officers of the Regional office have systematically collected field data from the Groundwater Monitoring Network Wells four times during the viz., May, August, November and January and the analysis of same has been presented in this report along with changes in different seasons and long term changes in water level. The water samples were collected during May 2018 were analysed in the Regional Chemical Laboratory of West Central Region Ahmedabad to bring out chemical characteristic of groundwater. As a special drive to monitor presence of arsenic in ground water, the concentration of arsenic has been measured and produced in the report.*

*I hope the report would be extermly useful to various agencies engaged in groundwater development and management for fruitful planning in time and space.*

(Sourabh Gupta)  
Regional Director (I/C)

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# GROUNDWATER YEAR BOOK (2019-20)

## GUJARAT STATE

### EXECUTIVE SUMMARY

- ◆ Central Ground Water Board has set up a network of 1064 Groundwater Monitoring Wells including 290 piezometers. Initially the monitoring commenced with the establishment of 82 observation wells spread uniformly over the entire state, in the year 1969 and since then number of stations were added regularly so as to get proper hydrological information of different hydrogeological and geomorphological units.
- ◆ The density of groundwater monitoring wells is 157 Sq km/well in Gujarat.
- ◆ The average decadal rainfall varies from about 2095 mm in The Dangs to about 509 mm in Kachchh.
- ◆ Gujarat is one of the frequent drought prone states of India. Several consecutive droughts have been experienced during last 20 years, 1986-88 was the longest and the most severe drought period experienced in the past.
- ◆ The average rainfall for 2019 is 1266 mm, against the decadal average of 927 mm.
- ◆ Groundwater levels are being monitored four times in a year, and representative water samples for quality (inorganic constituents) are collected during pre-monsoon (May) period.
- ◆ 69% of the wells have depth to water levels in the range of 5 to 20 mbgl (meter below ground level) during pre-monsoon 2019. The water levels were deeper in Amreli, Banaskantha, Gandhinagar, Mahesana, Patan and Sabarkantha districts.
- ◆ Deeper water levels were observed mainly in the over exploited and Critical talukas are in some parts of North Gujarat and Saurashtra area.
- ◆ The shallow water levels of less than 5 mbgl were observed along the coast, Rann of Kachchh and in parts of The Dangs, Surat and Bharuch districts.
- ◆ The long term ground water scenario in comparison to pre monsoon 2019 indicates that 60% well shows fall where as in post monsoon it observed in 46% of wells.
- ◆ Deep confined aquifers exist in north Gujarat and they are grouped into, first confined aquifer ranging in depth from 78 to 162 mbgl and second confined aquifer ranging in depth from 154 to 274 mbgl.

- ◆ In parts of Mahesana and Gandhinagar districts, depth to piezometric surface during pre monsoon is more than 40m bmsl in the first confined aquifer and it is more than 120 mbmsl in second confined aquifer noticed in and around Mahesana and Patan districts.
- ◆ In general ground water quality is good in hard rock areas occupying eastern hilly part of the state, central part of Kachchh and Saurashtra plateau. In soft rock and unconsolidated formations ground water quality is variable.
- ◆ The quality of ground water deteriorates in discharge area. Quality of ground water is inferior along the coast, the Rann and in the low-lying saline tract between Saurashtra and main land Gujarat.
- ◆ The deterioration in ground water quality in the coastal areas is mainly due to over drawals causing seawater ingress which needs to be arrested.
- ◆ In Mahi Right Bank Canal and Ukai – Kakrapar canal command areas, water logging has surfaced and needs to be addressed suitably by adopting appropriate conjunctive use strategies.
- ◆ Alarming declines in groundwater levels of Central Gujarat plains and in select areas of Saurashtra and Kachchh warrant immediate attention for taking-up of recharge schemes to arrest further declines and augment the groundwater resources. The artificial recharge of groundwater especially in North Gujarat, Kachchh and in major part of Saurashtra is a necessity.
- ◆ Pointed attention of the administrators and policy makers is drawn towards adoption of artificial recharge, public awareness and other appropriate measures for ensuring adequate groundwater availability and sustainability.



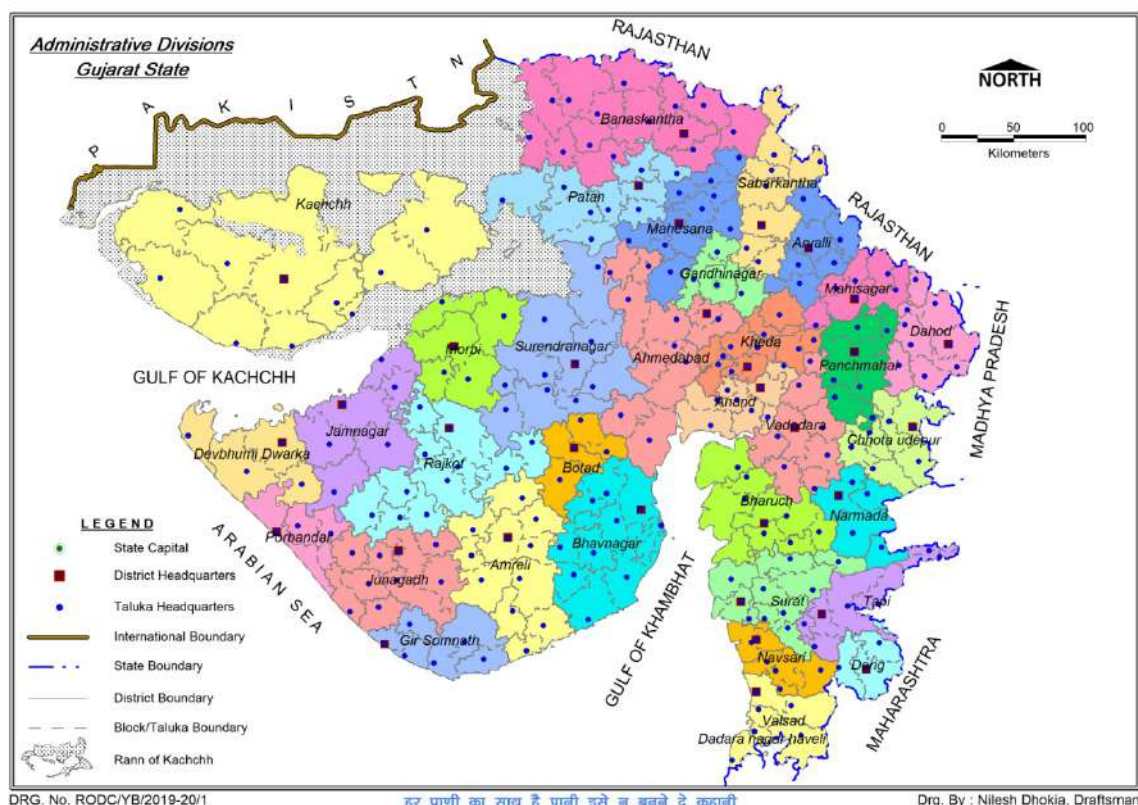
## 1.0 INTRODUCTION

The West Central Region of Central Ground Water Board has jurisdiction over the State of Gujarat (1,96,024 km.) and Union Territory (UT) of Daman & Diu (112 Sq. Km.) covering an area of 1,96,136 sq km. The Gujarat State is situated between North latitudes 20° 06' 00" to 24° 42' 00" and East longitudes 68° 10' 00" to 74° 28' 00" (**Fig. 1**). Gujarat has nearly 1600 km long coastline, which is the longest as compared to any other state in the country. It is extending from Lakhpat in north to Daman in south. The State has common boundaries with the states of Rajasthan, Madhya Pradesh and Maharashtra and shares international border with Pakistan in northwest. UT of Daman & Diu has an area of 106 sq. km. Diu is an Island just south of Saurashtra coast and Daman is situated west of Vapi in the south.

There are 18,225 villages and 348 towns in Gujarat including 16 towns with more than 1,00,000 population. The total population is 60,383,628 of which 31,482,282 are males and 28,901,349 are females (2011 census). Out of the total population, the population of the Scheduled Caste is 4,074,447 and that of the Scheduled tribe is 8,917,174. The total population of U.T. of Daman & Diu is 243,247 of which 150,301 are males and 92,976 are females (2011 Census).

Map showing administrative divisions of Gujarat State

Fig 01



The tribal areas are located all along the interstate boundary, extending from Banaskantha district in the north to The Dangs district in the south. The tribal belt has a total geographical area of 29,560 Sq. Km. and is shown in **Fig. 1**.

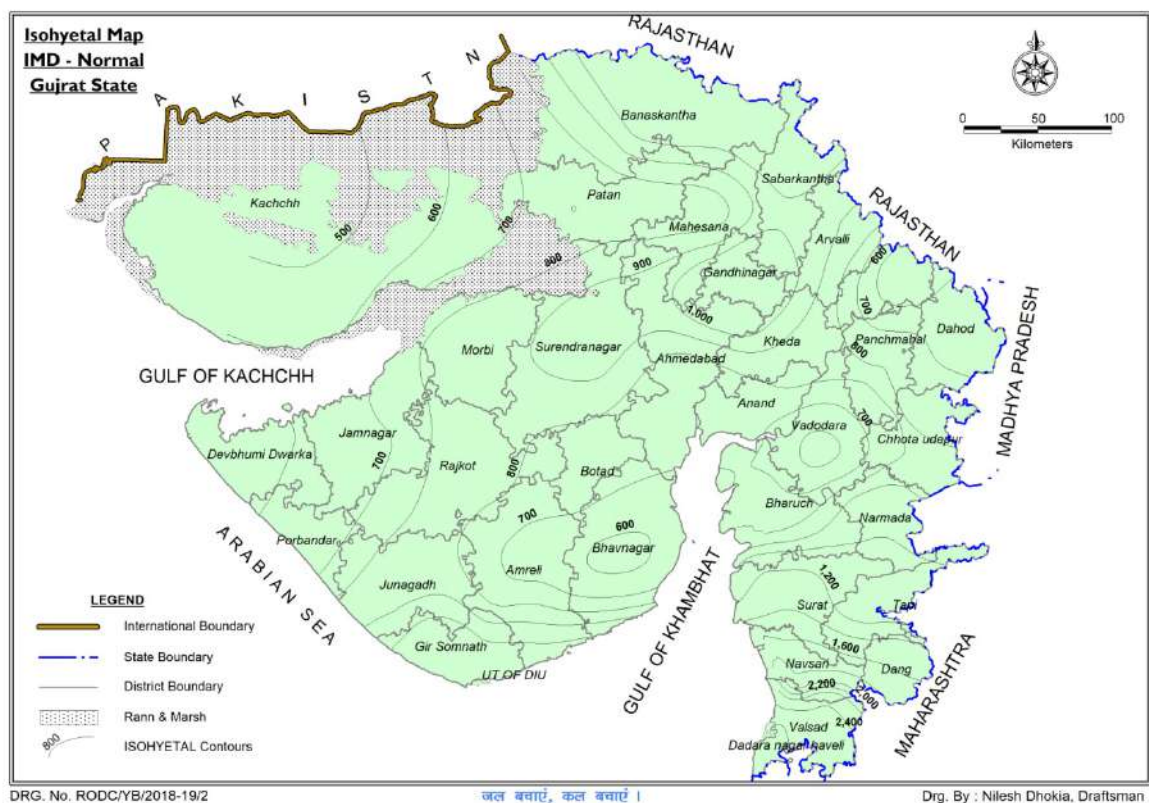
The diverse physiographic, climatic, topographic and geologic conditions have given rise to diversified ground water situations in different parts of the state.

Occurrence and movement of groundwater is controlled by rock formations of varied composition and structure and range in age from Archean to Recent. Similarly, the landform varies from the hilly tract to the uplands of Kachchh and Saurashtra, the alluvial plains extend from Banaskantha in the north to Valsad in the south, the low lying coastal tract surrounding the Kachchh and Saurashtra uplands and the marshy to saline tracts of the Rann of Kachchh and little Rann of Kachchh. The topography and rainfall virtually control the runoff and ground water recharge.

Droughts are frequent in north Gujarat, Saurashtra and Kachchh regions due to poor and erratic rainfall. The climate varies from humid in the south through sub-humid in the central part to semi-arid and arid in the northern and western parts. The state receives rainfall mainly during southwest monsoon period. The normal rainfall shows an erratic rainfall pattern during 2018 which shows high rainfall 2277 mm in extreme south (Valsad) to 489 mm in Kachchh district. The distribution of normal rainfall in the state is depicted in **Fig. 2**.

Map showing distribution of IMD normal rainfall

Fig 02



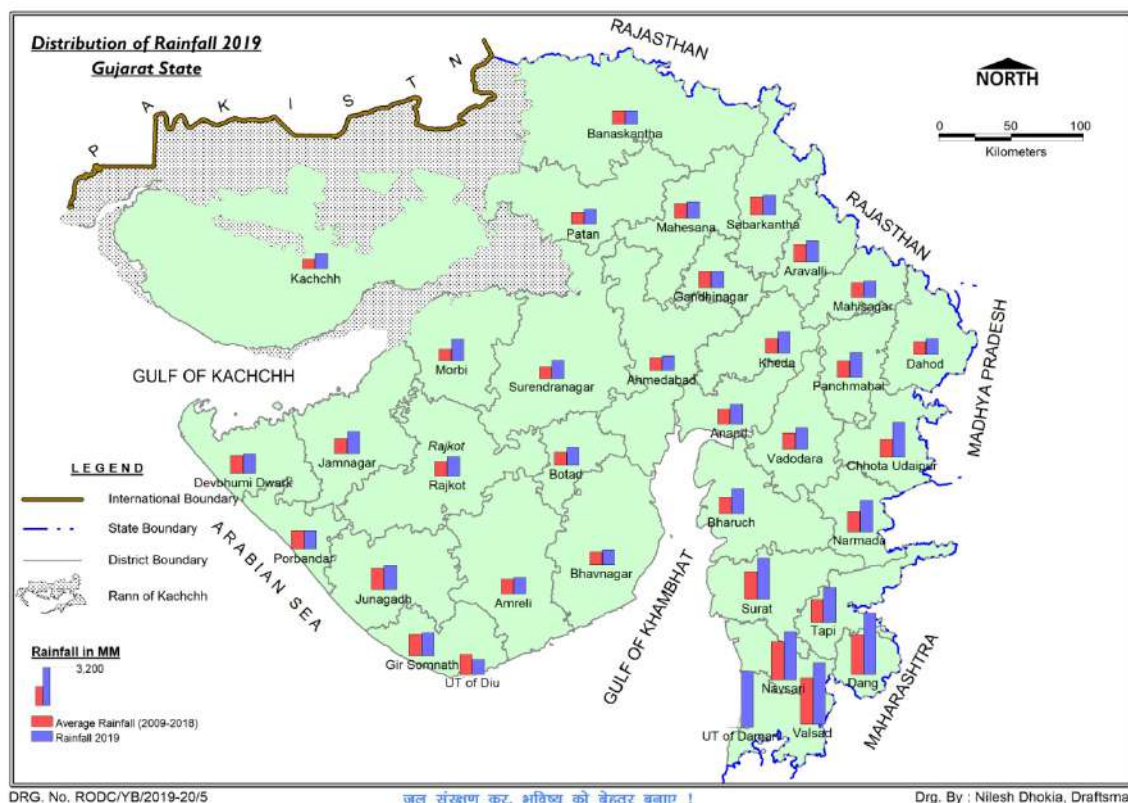
During 2019 Gujarat received 28% less rainfall than the average rainfall (Annexure I). About 82% of the area received less rainfall than annual average (2009-2018). Ahmedabad, Banaskantha, Bhavnagar, Botad, Dwarka, Gandhinagar, Jamnagar, Kachchh, Mahesana, Patan, Morbi, Porbandar, Rajkot, Sabarkantha, Surendranagar received rainfall below normal 30%. While districts such as Anand, Gir Somnath, Navsari, The Dangs has received more than 17% annual rainfall as compared to decadal average annual rainfall (2009-2018). Annual rainfall during 2018, Average decadal annual rainfall (2008-2017) and its departure from average

decadal annual rainfall in the Gujarat state is presented in **Table 1** and map representing distribution of rainfall district wise in bars is presented as **Fig. 3**.

**Table - 1**

**District wise Average Annual Rainfall in the Gujarat state**

Sl.No	District	Rainfall 2019, mm	Average Rainfall, mm (2009 to 2018)	Departure % (Year 2019)
1	Ahmedabad	772.80	689.99	-56.13
2	Amreli	907.10	787.73	-26.34
3	Anand	1063.50	798.21	16.12
4	Aravalli	1095.00	943.16	-16.78
5	Banaskantha	701.21	667.50	-69.69
6	Bharuch	1295.11	850.92	-0.42
7	Bhavnagar	797.60	690.95	-31.67
8	Botad	980.75	664.46	-40.84
9	Chhota Udaipur	1779.50	975.80	-9.31
10	Dahod	872.56	691.97	-7.02
11	Dwarka	1043.25	921.35	-71.27
12	Gandhinagar	873.75	867.69	-61.46
13	Gir Somnath	1180.00	1165.96	20.94
14	Jamnagar	1157.67	807.05	-53.09
15	Junagadh	1338.22	1111.46	-17.11
16	Kachchh	767.18	508.90	-73.23
17	Kheda	1085.20	770.74	-9.77
18	Mahesana	829.00	757.67	-56.21
19	Mahisagar	844.83	735.52	-4.73
20	Morbi	1122.40	612.75	-63.86
21	Narmada	1681.00	1077.25	-29.74
22	Navsari	2496.17	1961.51	17.34
23	Panchmahal	1256.86	906.66	-3.30
24	Patan	754.56	617.99	-69.21
25	Porbandar	970.67	962.97	-51.33
26	Rajkot	1007.82	817.60	-50.06
27	Sabarkantha	1049.33	919.25	-40.45
28	Surat	2187.70	1499.85	-4.91
29	Surendranagar	982.00	586.62	-58.35
30	Tapi	1798.14	1215.95	3.87
31	The Dang	3182.33	2095.09	17.16
32	Vadodara	1141.13	1043.31	-27.63
33	Valsad	3173.00	851.95	1.09
	<b>State</b>	<b>1278.40</b>	<b>926.54</b>	<b>-28.10</b>



Central Ground Water Board, as a part of its national programme, has established a network of observation wells in the state of Gujarat for periodic monitoring of groundwater levels and to study its quality variation in time and space. 1251 groundwater monitoring wells including 386 piezometers (Pz) are presently being monitored in the state of Gujarat. The distributions of monitoring wells in different districts are given in **Table 2**.

Two distinct hydro-geological units are identified in Gujarat viz., hard rocks and soft rocks. The distributions of monitoring wells in different hydro-geological units are given in **Table 3**.

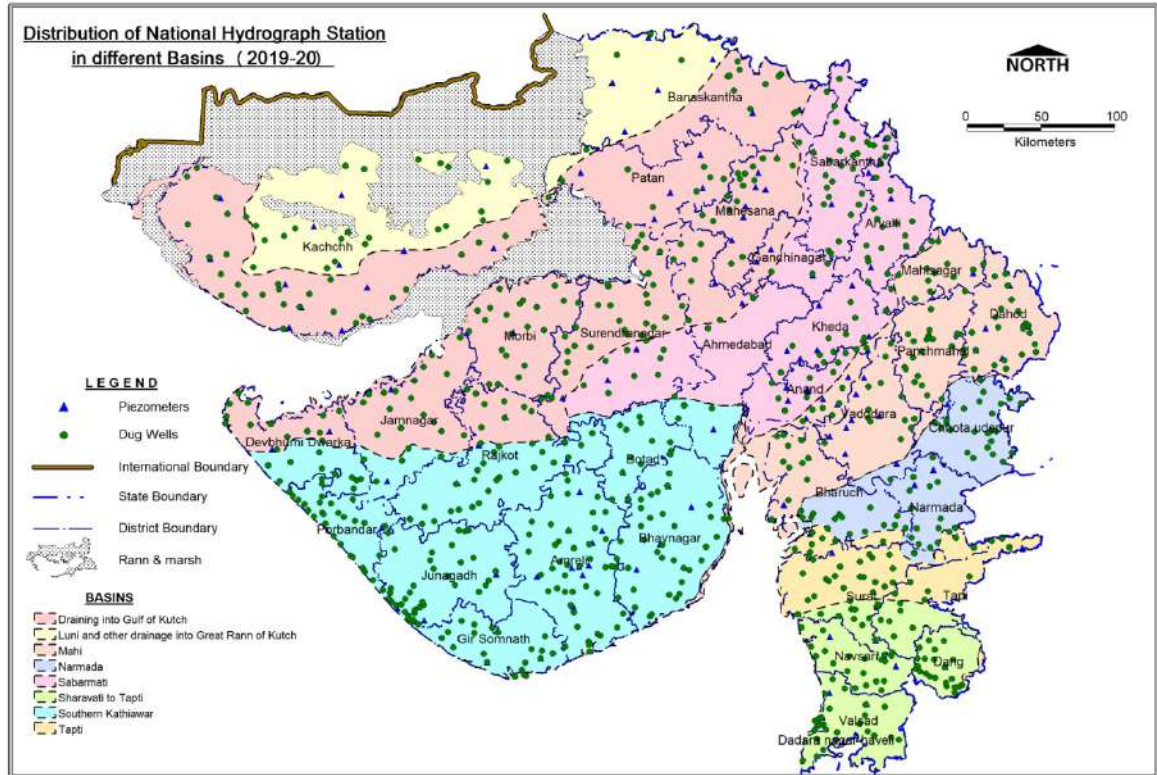
Large rivers like Narmada, Mahi, Tapi, and Sabarmati flow through the state and form their own basins. Other minor rivers have been grouped together to form river basins. In all, eight river basins have been identified by the All India Soil Survey & Land Use Department as listed below:

1. Sabarmati river basin.
2. Mahi river basin.
3. Narmada river basin.
4. Tapi river basin.
5. Luni and other drainage in the Great Rann of Kachchh
6. Draining in to Gulf of Kachchh
7. Southern Kathiawar
8. Sharavati to Tapi

The sub basins of these major river basins and the distribution of ground water monitoring wells in these different river basins are given in Annexure I. Map showing Hydrograph stations monitored during the year and their distribution in different basin and the district is presented as **Fig. 4**.

**Distribution of GWMS in the districts and major river basins**

**Fig 04**



DRG. No. RODC/YB/2019-20/3

जब हर कोई पानी बचाएगा, तभी इस समस्या का हल निकल पाएगा !

DrG. By : Nilesh Dhokia, Draftsman

**Table-02 DISTRICT WISE DISTRIBUTION OF OF GROUND WATER MONITORING WELLS MONITORED DURING 2019-20**

Sl. No.	District	As on rest of the field season 2019-20			NHS Well As on March 2020			Monitored During MAY- 2019			Monitored During AUGUST- 2019			Monitored During November - 2019			Monitored During January - 2020		
		Pz	DW	Total	Pz	DW	Total	Pz	DW	Total	Pz	DW	Total	Pz	DW	Total	Pz	DW	Total
1	Ahmedabad	28	17	45	20	15	35	20	14	34	20	13	33	20	16	36	20	15	35
2	Amreli	14	48	62	13	40	53	12	43	55	12	41	53	11	36	47	13	40	53
3	Anand	14	15	29	14	14	28	13	11	24	13	12	25	14	13	27	14	14	28
4	Banaskantha	30	15	45	27	14	41	24	13	37	25	13	38	25	12	37	27	14	41
5	Bharuch	6	34	40	6	31	37	6	25	31	6	25	31	5	32	37	6	31	37
6	Bhavnagar	9	43	52	8	41	49	6	35	41	7	35	42	6	38	44	8	41	49
7	Dohad	6	25	31	6	23	29	6	21	27	6	20	26	6	25	31	6	23	29
8	Gandhinagar	24	2	26	22	1	23	21	1	22	21	1	22	21	1	22	22	1	23
9	Jamnagar	5	47	52	4	41	45	4	41	45	4	42	46	4	41	45	4	41	45
10	Junagadh	11	57	68	10	40	50	9	48	57	9	45	54	8	41	49	10	40	50
11	Kachchh	14	52	66	13	33	46	14	44	58	13	46	59	13	32	45	13	33	46
12	Kheda	13	15	28	13	12	25	10	10	20	10	10	20	12	11	23	13	12	25
13	Mahesana	32	16	48	30	13	43	29	15	44	28	15	43	29	14	43	30	13	43
14	Narmada	6	18	24	5	15	20	6	10	16	6	10	16	5	16	21	5	15	20
15	Navsari	2	20	22	1	19	20	1	15	16	2	15	17	1	20	21	1	19	20
16	Panchmahals	7	32	39	6	29	35	6	25	31	6	25	31	6	30	36	6	29	35
17	Patan	16	10	26	16	7	23	15	6	21	16	6	22	16	6	22	16	7	23
18	Porbandar	3	29	32	3	27	30	3	27	30	3	27	30	3	26	29	3	27	30
19	Rajkot	6	54	60	6	30	36	6	40	46	6	40	46	6	29	35	6	30	36
20	Sabarkantha	12	46	58	11	33	44	10	38	48	10	38	48	10	35	45	11	33	44
21	Surat	4	51	55	4	49	53	4	50	54	4	49	53	4	51	55	4	49	53
22	Surendranagar	4	47	51	4	32	36	4	32	36	4	32	36	4	33	37	4	32	36
23	The Dangs	1	24	25	1	22	23	1	20	21	1	19	20	1	23	24	1	22	23
24	Vadodara	21	38	59	19	30	49	18	28	46	19	28	47	18	31	49	19	30	49
25	Valsad	2	19	21	2	19	21	2	18	20	2	17	19	2	19	21	2	19	21
<b>State Total</b>		<b>290</b>	<b>774</b>	<b>1064</b>	<b>264</b>	<b>630</b>	<b>894</b>	<b>250</b>	<b>630</b>	<b>880</b>	<b>253</b>	<b>624</b>	<b>877</b>	<b>250</b>	<b>631</b>	<b>881</b>	<b>264</b>	<b>630</b>	<b>894</b>

## 2.0 HYDROGEOLOGY

The high relief areas in the eastern and north-eastern parts of the state occupied by the Deccan Traps and the Archeans respectively have steep topographic gradients resulting in high run-off, and therefore, provide little scope for groundwater recharge. The groundwater potential in this terrain is limited. The large alluvial tract extending from Banaskantha district in the north to Surat and Valsad districts in the south constitutes the largest and most potential groundwater reservoir in the state. The aquifers are extensive, thick, hydraulically connected and are moderate to high yielding. To the west of this alluvial tract, especially around the discharge areas, characteristic artesian free flow conditions are observed. Almost the entire Saurashtra and Kachchh regions are occupied by a variety of hard and fissured formations which include basalt and consolidated sedimentary formations with semi-consolidated sediments along the low-lying coastal areas. The compact and fissured nature of rocks gives rise to discontinuous aquifers with moderate yield potential. The friable semi-consolidated sandstone forms an aquifer with moderate yield potential. The coastal and deltaic areas in the state form a narrow linear strip and are underlain by Tertiary sediments and Alluvium. Though highly potential aquifers occur in these areas, salinity is a constraint for groundwater development. Groundwater withdrawal requires to be strictly regulated so that it does not exceed the annual recharge and also that it does not disturb the hydro-chemical balance leading to seawater ingress. The quality of groundwater in both hard rock and alluvial terrain is, by and large suitable except, in the coastal areas, estuarine tract and the Rann where the degree of mineralisation in ground water is rather high and salinity is common. Salinity in groundwater is also noticed in the arid and semi-arid tract. The different conditions of groundwater occurrence in the state have led to divergent groundwater situations in the areas occupied by different geological formations (**Fig. 5**). The formation-wise hydrogeological characteristics in the state of Gujarat has been broadly summarised in the **Table 4**.

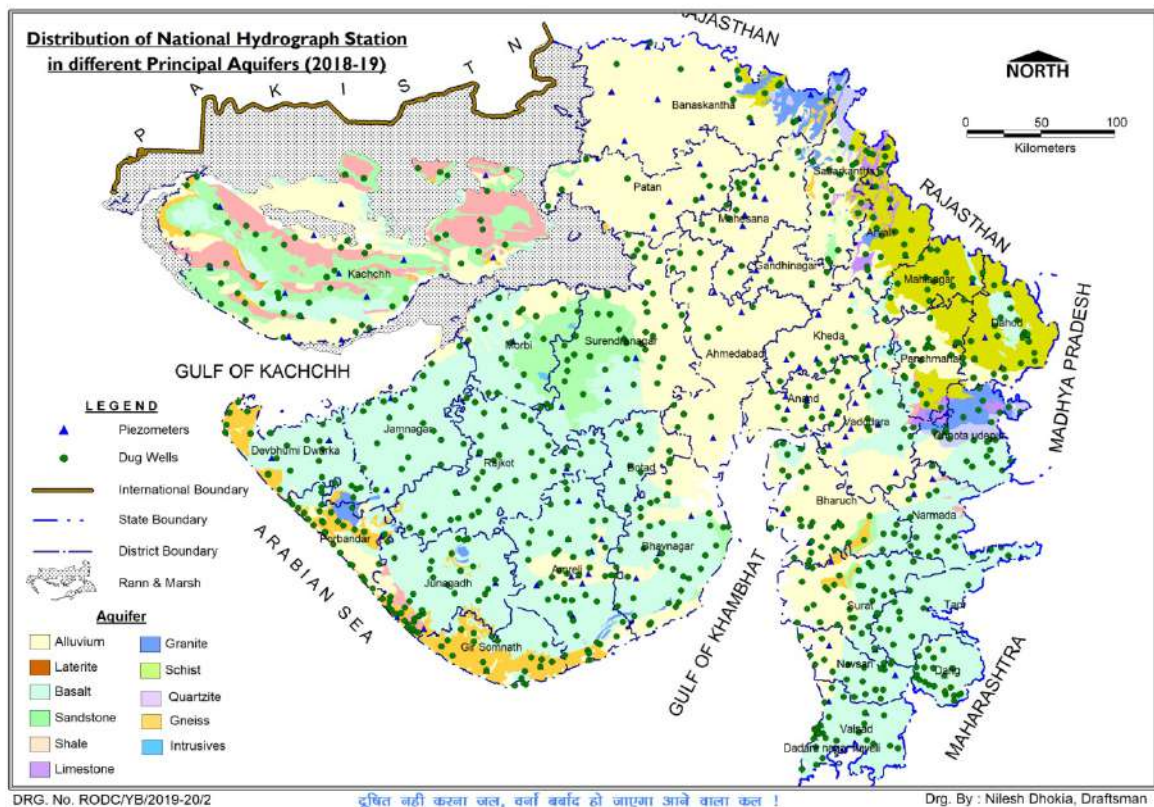
Table 4. Distribution of hydrogeological formations in Gujarat and their Potential

Age	Rock Formation	Distribution	Hydrogeological Characteristics
Porous Formation			
Quaternary to upper Tertiary	Impure limestones, limestones, sandstones, conglomerates, pebble beds, silt stones, sands, pebbles, gravels etc.	Ahmedabad, Amreli, Banaskantha, Bhavnagar, Bharuch, Kachchh, Kheda, Jamnagar, Junagadh, Rajkot, Mahesana, Surendranagar and Valsad Districts	Unconfined shallow aquifer, leaky confined/ confined and deeper aquifer.  Large to moderate yield prospects: 10 to 40 lps, Storativity: $1.6 \times 10^{-4}$ to $7.3 \times 10^{-4}$ , Hydraulic Conductivity: 5 to 20m/day, Transmissivity: 50 to 2000m <sup>2</sup> /day
Mesozoic	Sandstones,	Kachchh, Surendranagar,	Discontinuous aquifers with

	Shales, Limestones and Grits	Sabarkantha and Vadodara districts	limited thickness of 50 to 300 meters. Limited yield prospects <15 lps, Hydraulic Conductivity: 2 to 10m/day, Transmissivity: 50 to 1000m <sup>2</sup> /day
Fissured formation			
Mesozoic to Palaeozoic	Basalt with intertrappean clays	Uplands of saurashtra, Kachchh Region, scattered patches in Panchmahals, Sabarkantha and Vadodara districts, Continuous belt in eastern part of Bharuch, Surat and Valsad districts	Ground water occurrence restricted to weathered and fractured zones, limited to 200m, moderate yield prospects: 5 to 15 lps
Archaean and Pre-Cambrian	Granites, Gneiss, Marbles, Schists, Phyllites and Slates	Banaskantha, Sabarkantha, Panchmahals, vadodara and Kheda districts.	Ground water occurrence restricted to weathered and fractured zones having secondary porosity, limited yield prospects of 2 to 5 lps.

**Map showing major hydrogeological units and distribution of Ground Water Monitoring Network Stations.**

**Fig 05**





## 2.1 Achaean and Proterozoic Formation

Rocks of Archaean and Proterozoic age occupy the north-eastern and eastern parts of the state and cover extensive areas in parts of Vadodara, Kheda, Panchmahals, Sabarkantha, Mahesana and Banaskantha districts. These rocks, which include gneiss, schist, phyllite, quartzite and metamorphosed igneous intrusives do not form good aquifers due to their poor porosity and permeability. Dug wells, dug-cum-bore wells and bore wells are feasible only in favourable sites where sufficient weathered mantle and/or fractures and joints occur. The wells tapping these aquifers have maximum depth of 30 to 40 mbgl beyond which groundwater occurrence is not common. The yield of wells in these rocks varies from a few cubic meters to 100 cubic meters per day at minimal drawdown.

## 2.2 Mesozoic Formation

Jurassic and Cretaceous formations include Pachchham, Chari, Katrol and Bhuj Series in Kachchh, Dhrangadhra and Wadhwan sandstones in northeastern part of Saurashtra, Bagh beds along the Narmada River and Himmatnagar sandstones in Sabarkantha district. Pachchham and Chari Series are predominantly calcareous while Wadhwan sandstones and Bagh beds include some limestone. The rest are arenaceous and consist of inter-bedded sandstone and shale sequences. The most important and productive aquifer among these formations occurs in the Bhuj Series consisting of predominantly friable, soft, medium to coarse grained sandstone occurring at depths of few meters to as much as 300 meters. Tube wells constructed up to 200 mbgl in this formation yield 70 to 170 m<sup>3</sup>/hour for drawdown of about 10 m. The salinity distribution in groundwater in Upper Bhuj aquifers is generally uniform with low concentration of dissolved solids in the upland and non-irrigated areas. Salinity gradually increases towards area of intensive irrigation and discharge area.

The Dhrangadhra sandstones comprise of about 400 m thick, fine to coarse grained sandstones inter-bedded occasionally with carbonaceous shale. Tubewells tapping about 100 m of aquifer thickness in this formation within a depth of 212 mbgl yield limited to moderate discharge of the order 14 to 80 m<sup>3</sup>/hour. Basic sills of 30 to 50 m thickness are found intruded in the Lower Dhrangadhra formation in the northern part of Surendranagar and Rajkot districts at Gala, Sathapur and Chuli villages. Normally, the sills mark the lower limit of fresh groundwater occurrence. In the northern part of Rajkot district and eastern part of Jamnagar districts, these sandstones have been encountered at depths of 200 – 250 mbgl below Traps, in semi- confined conditions.

The Himmatnagar sandstones are exposed in a narrow belt between Eklara and Ranasan villages in Sabarkantha district. They also occur below the traps near Dhansura (23°24': 75°15') at depths of 60 to 100 mbgl. Patches of these sandstones occur under the alluvial cover near Sanseli (22°42'; 75°25'), Madhwas (23°24'; 73°27') and Gugalpur (22°15': 73°28') and on the northern bank of Goma River. Although these sandstones are generally fine grained, hard and compact, coarse friable sandstones are observed at places near Kapadvanj. These sandstones,

when saturated to moderate depths, form potential aquifers. Tubewells tapping these aquifers yield up to 50 m<sup>3</sup>/hour.

### **2.3 Deccan Trap**

These are essentially basaltic lava flows with a general horizontal to near horizontal disposition over a very wide area. From groundwater potential point of view, these rocks constitute moderately promising aquifers. The jointed and fractured basalts hold and transmit water in moderate quantities. The thickness of traps ranges from 100 to 150 m in Kachchh to more than 1000 m in Cambay basin.

The yields in dug wells tapping the basalts vary from insignificant quantities to 30m<sup>3</sup>/day. Higher yields have been observed at hydrogeologically favourable locations. The yield of the dug wells can be enhanced considerably by lateral and/or vertical borings. The discharge of tube wells is reported to decline at places due to presence of unsaturated porous zones at depth. The quality of groundwater in traps is generally potable.

### **2.4 Tertiary Formation**

These rocks are exposed between Narmada and Tapi rivers in parts of Bharuch and Surat districts. They also occur in the coastal tracts of Saurashtra and Kachchh.

Gaj beds belonging to Miocene occur all along the Saurashtra coast. These consist of limestone, clay and grit mostly gypsiferous with thin sand layers. Drilling at Okha (22°28': 69°16') and Veraval (20°54': 70°25') has shown that locally, the Gaj beds extend beyond 300 m depth and the deeper zones yield meagre quantities of saline groundwater.

The quality of groundwater in Gaj beds along Saurashtra coast is slightly inferior on account of intercalated clay bands and inherent salinity of Gaj beds, which were deposited under marine conditions. However, the quality of ground water in the upper Gaj limestone is better. The chloride content in groundwater ranges from 100 to 200 mg/l between Veraval, Sil (21° 11': 70° 03') and around Porbandar.

Dwarka beds, comprising of gypsiferous and calcareous red colour clays and sandy limestone are about 150 m thick. Groundwater in the Dwarka beds is of poor quality with chloride content ranging from 500 to 700 mg/l. Yield of dug wells are of the order of 37 m<sup>3</sup>/day and tube wells yield about 22 m<sup>3</sup>/day for a drawdown of about 4 m. In the Kachchh region, the sandstones of Manchhar series form good aquifers. Tubewells, ranging in depth from 116 to 169 mbgl, yield between 68 to 136 m<sup>3</sup>/hour and the chloride content ranges between 96 and 612 mg/l. However, the Tertiary rocks, in general, do not form promising aquifers for groundwater development because of the inferior quality of groundwater. In southern Gujarat (Narmada-Tapti area), the tertiary rocks comprises of sandstone, shale and limestone intercalated with gravel which locally exceed 100 m in thickness. Ground water in these rocks is mostly brackish to saline and yields are in shallow tube wells.

## 2.5 Quaternary Formation

The Quaternary formations include milliolite limestone, alluvium and aeolian deposits. The milliolite limestone is of limited thickness and its occurrence is confined to the coastal tract of Saurashtra. The alluvial and aeolian deposits extend as one continuous plain, from north to south and also as valley-fills in the hard rock terrain.

Highly cavernous milliolite limestone is locally a very productive aquifer. Dug wells tapping these limestones are capable of yielding up to 200 m<sup>3</sup>/day. These are the repositories of potable groundwater in an otherwise saline coastal belt of Saurashtra. Quaternary sediments occupy an area of about 86,680 sq km. Their thickness in the Cambay Basin is estimated to be of the order of 500 m. However, towards north in the districts of Mahesana Banaskantha and Sabarkantha, the thickness reduces to less than 50 m near the hilly tract. In general, the thickness of the alluvium in north Gujarat ranges from 40 to 500 m. In the southern Gujarat plains, the alluvium mostly overlies the basalts and the tertiary sediments. Its thickness ranges from a few meters near the rock outcrops to over 75 m in the lower reaches. The Quaternary sediments vary in character and composition. In the Cambay basin, these are predominantly composed of clay, silt and sand with "kankar". The proportion of gravels, pebbles and boulders, etc., increases towards the hilly tracts. Such areas, forming the piedmont terrain, extend for 10 to 20 km from the hills into the plains.

A number of abandoned river channels and valley fills occur in the rocky areas. These are of great significance for the development of ground water in an otherwise less promising terrain.

Groundwater in the alluvium occurs under unconfined conditions at shallow depths. In deeper horizons, it occurs under semi-confined to confined and artesian conditions. Detailed study in Mahesana, Banaskantha, Rajkot, Surendranagar, Kheda, Sabarkantha, Kachchh and Ahmedabad districts has revealed that multiple aquifers exist in major part of the alluvial plains of Gujarat up to a depth of 500 m.

These aquifers have their areas of recharge in the piedmont terrain and the hilly areas towards the east and northeast. Most of the aquifers coalesce into one phreatic aquifer in the recharge area but are identified as separate aquifers occurring under artesian conditions in the central part of the basin and in the discharge areas towards west and southwest. In parts of Mahesana and Banaskantha districts, the quaternary sediments is up to 600 m thick, comprising of 10 to 125 m thick younger alluvial deposits (Pleistocene to Recent) and 100 to 475 m thick older alluvial deposits (Pliocene to Pleistocene). The entire alluvial sequence has been divided into five major aquifers viz., A (up to 125m) or phreatic aquifer and B, C, D and E (between 125 and 600 m depth) or confined aquifers.

Due to over-exploitation, the water levels in the phreatic aquifer have declined alarmingly rendering them almost dry. Presently, first and second confined aquifers are the most exploited. The decline of water level in these aquifers is more than 40

m since 1961 at most of the area. The yield of tube wells tapping users confined aquifer vary from 20 to 40 lps.

### **3.0 GROUND WATER SCENARIO**

Systematic and regular monitoring of groundwater levels brings out the changes taking place in the groundwater regime. The maps so generated are of immense help for regional groundwater flow modelling which serves as a groundwater management tool to provide the necessary advance information to the user agencies to prepare contingency plans in case of unfavourable groundwater recharge situation. The data also has immense utility in deciding the legal issues arising out of conflicting interests of groundwater users.

The monitoring of ground water levels has been carried out at groundwater monitoring wells four times in a year simultaneously throughout the State during the following periods.

- a) May - 20<sup>th</sup> to 30<sup>th</sup> (water level of pre-monsoon period).
- b) August - 20<sup>th</sup> to 30<sup>th</sup> (peak monsoon water level).
- c) November - 1<sup>st</sup> to 10<sup>th</sup> (water levels of post-monsoon period).
- d) January - 1<sup>st</sup> to 10<sup>th</sup> (the recession stage of water level).

Water level data of the ground water monitoring wells collected during the year 2019 – 2020 has been utilized to prepare various maps showing depth to water level and fluctuation of water level. Depth to water level maps are useful in dealing with problems of water logging and artificial recharge, where the relative position of water level with reference to the ground surface is of critical importance. Water level fluctuation maps (rise or fall) are indispensable for estimation of change in storage in the aquifer.

For the purpose of presentation, Gujarat state has been divided into three regions, namely, (a) the Kachchh region comprising Kachchh district, (b) the Saurashtra region comprising Amreli, Bhavnagar, Junagadh, Jamnagar, Porbander Rajkot and Surendranagar districts, and (c) the mainland Gujarat. The mainland Gujarat has been further subdivided into two regions, namely, North Gujarat comprising, Ahmedabad, Anand, Dahod, Banaskantha, Gandhinagar, Kheda, Mahesana, Panchmahals, Patan and Sabarkantha districts, and South Gujarat comprising Bharuch, Narmda, Navsari, Surat, The Dangs Vadodara and Valsad districts. The Union Territory of Daman & Diu has been described separately. The water level data of these open wells and piezometers are presented in the Annexure IIA and IIB.

The data is analysed for each set of measurement, and report prepared which include following maps to understand the groundwater regime in the state.

1. Depth to water level
2. Seasonal fluctuation - water level fluctuation in comparison to pre-monsoon.

3. Annul fluctuation - water level fluctuation in comparison to same month in the previous year.
4. Decadal fluctuation - water level fluctuation in the month of measurement with reference to the decadal average for the same month.

### 3.1 Depth to Water Level (Unconfined Aquifer)

A graphical analysis was done to understand the water level behaviours of the ground water monitoring wells in the different categories of the water levels during every monitoring period and the same is depicted in **Fig. 6 (a, b, c, d)**.

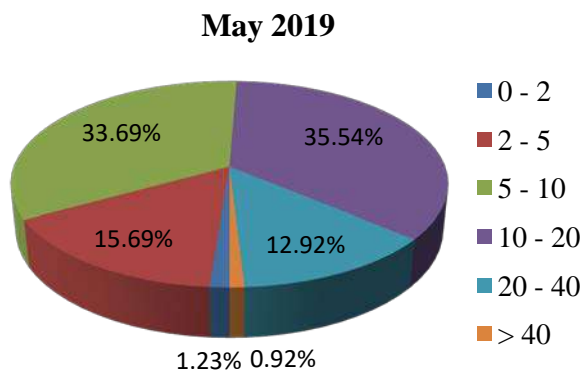


Fig 6 a

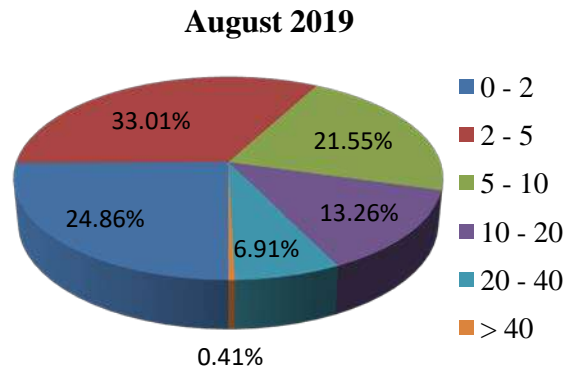


Fig 6 b

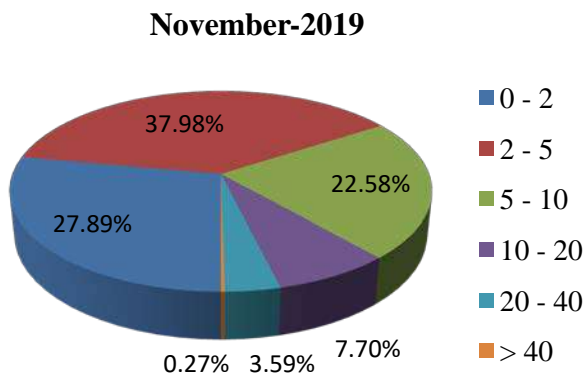


Fig 6 c

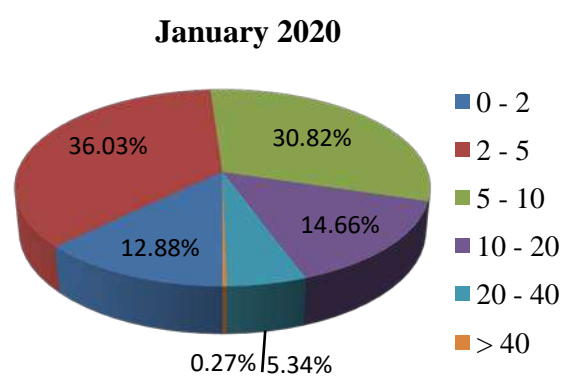


Fig 6 d

### 3.1.1 Depth to Water Level May 2019

During May 2019, in the pursuance of Fig. 7 reveals that 69% of the total wells of the state fall in the water level range of 5 to 20 m bgl. Water levels of 20 to 40 m bgl are observed in 13% wells of the Gujarat state. Deeper water level of more than 40 m bgl is observed in parts of Amreli, Banaskantha and Sabarkantha districts (Table 5). The shallowest water levels recorded are 0.30 m bgl Pipli village of Surendranagar district. The deepest water level recorded is 59.91 m bgl at Deesa in Banaskantha district for unconfined aquifer.

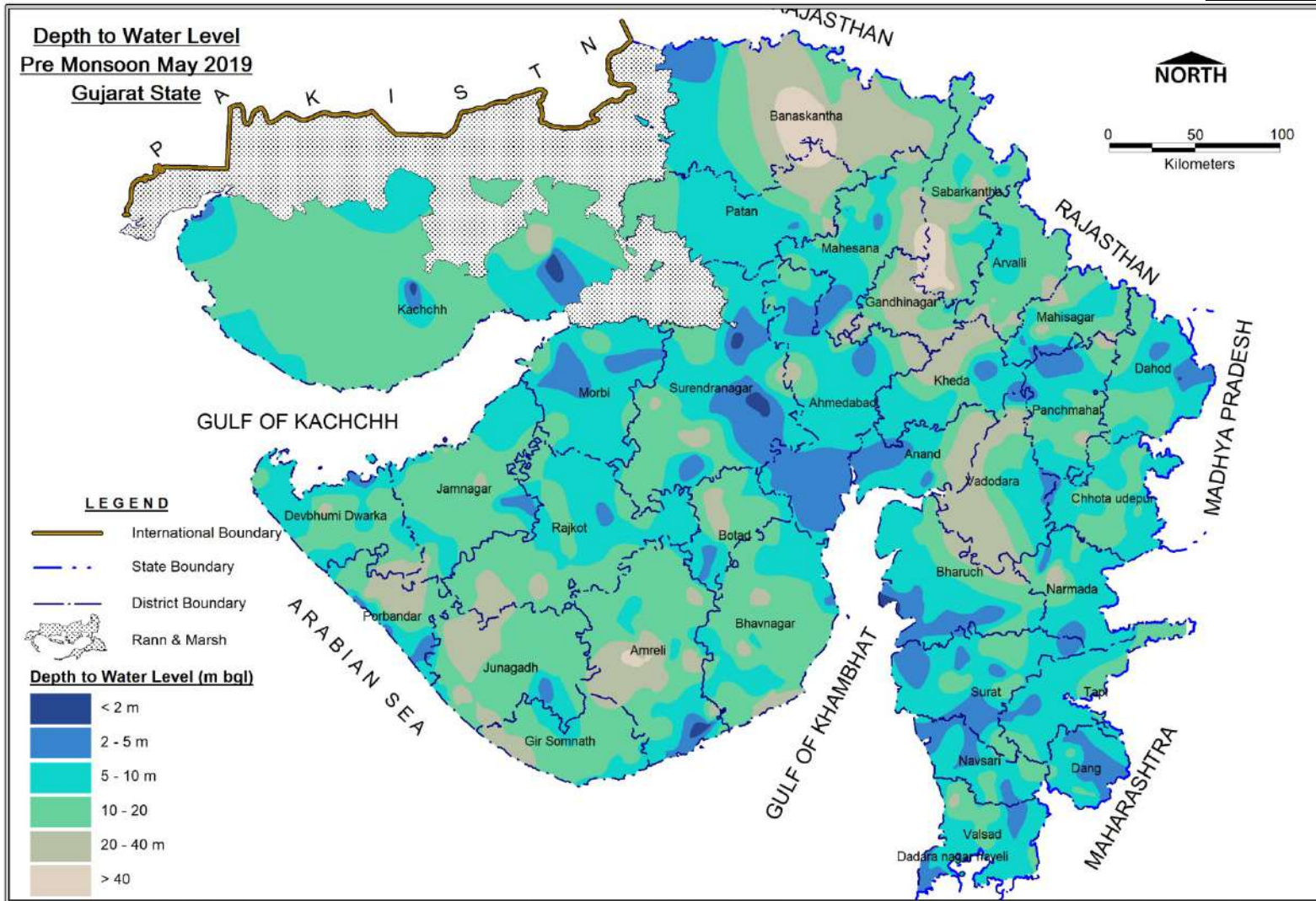
In North Gujarat, about 63% of the monitoring stations fall in the water level range of 5 - 20 m bgl. Shallow water levels (lesser than 5 mbgl) are observed in 19% of the stations in Ahmedabad, Anand, Patan, Panchmahal, districts. Deeper water levels ranges 20 to 40 mbgl are experienced in major parts of Banaskantha, Mahesana districts and adjoining area of Ahmedabad, Kheda, Anand, Panchmahals and Sabarkantha districts. The deepest water level recorded is 59.91m bgl at Deesa in Banaskantha district where as shallowest water level of 0.45m bgl has been recorded at Kalesar in Kheda district.

In South Gujarat, more than 68% of the stations has recorded water level between 5 - 20 mbgl where as 25% range less than 5m bgl. Deeper water levels of more than 20 m bgl are mainly observed in parts of Vadodara, Valsad and Narmada districts. The deepest water level of 37.90m bgl is recorded at Sankheda in Vadodara district whereas the shallowest water level of 0.95m bgl has been recorded at Luhara in Bharuch district.

In Saurashtra region, about 70% of the monitoring stations show water levels 5 - 20 mbgl. Water levels of 20 to 40 m are found as isolated patches scattered all over the region. The shallowest water level, 0.55m bgl, has been recorded at Victor village in Amreli district and the deepest water level of 50.65m bgl recorded at Morjhar in Amreli district.

In Kachchh region 90% of the monitoring stations, the water level is between 5 - 20 mbgl. Western part of the area shows water level rages 2 to 5 m bgl. The water levels more than 20m occur as isolated patches scattered in the central and eastern part of the Kachchh district. The deepest water level of 27.18m bgl is recorded at Rapar and the shallowest water level of 0.54m bgl has been recorded at Haboi.

**Fig- 7**



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भूजल - राष्ट्र की जीवन रेखा ।

DrG. By : Nilesh Dhokia, Draftsman

Table 5

## Well wise categorisation of depth to water level May 2019

Sr. No.	District Name	No of well analysed	DTWL, mbgl		No. of wells in difrent depth range					
			Min	Max	0 to 2	2 to 5	5 to 10	10 to 20	20 to 40	> 40
1	Ahmedabad	21	2.25	27.55	0 0.0%	8 38.1%	5 23.8%	6 28.6%	2 9.5%	0 0.0%
2	Anand	9	2.1	28.6	0 0.0%	3 33.3%	4 44.4%	1 11.1%	1 11.1%	0 0.0%
3	Banaskantha	20	2.62	59.91	0 0.0%	1 5.0%	3 15.0%	7 35.0%	8 40.0%	1 5.0%
4	Dohad	20	1.8	15.46	1 5.0%	2 10.0%	8 40.0%	9 45.0%	0 0.0%	0 0.0%
5	Gandhinagar	5	14.33	36.44	0 0.0%	0 0.0%	0 0.0%	3 60.0%	2 40.0%	0 0.0%
6	Kheda	13	0.45	36.82	1 7.7%	2 15.4%	6 46.2%	2 15.4%	2 15.4%	0 0.0%
7	Mahesana	23	2.5	37.3	0 0.0%	7 30.4%	6 26.1%	8 34.8%	2 8.7%	0 0.0%
8	Panchmahals	21	2.34	32.03	0 0.0%	2 9.5%	8 38.1%	7 33.3%	4 19.0%	0 0.0%
9	Patan	5	4.64	21.62	0 0.0%	1 20.0%	1 20.0%	1 20.0%	2 40.0%	0 0.0%
10	Sabarkantha	32	5.35	55.2	0 0.0%	0 0.0%	8 25.0%	14 43.8%	7 21.9%	3 9.4%
	<b>North Gujarat</b>	<b>169</b>	<b>0.45</b>	<b>59.91</b>	<b>2 1.2%</b>	<b>26 15.4%</b>	<b>49 29.0%</b>	<b>58 34.3%</b>	<b>30 17.8%</b>	<b>4 2.4%</b>
11	Bharuch	28	0.95	11.15	1 3.6%	9 32.1%	15 53.6%	3 10.7%	0 0.0%	0 0.0%
12	Narmada	14	2.26	32.01	0 0.0%	2 14.3%	8 57.1%	2 14.3%	2 14.3%	0 0.0%
13	Navsari	16	3.4	13.4	0 0.0%	6 37.5%	6 37.5%	4 25.0%	0 0.0%	0 0.0%
14	Surat	30	2.54	18.7	0 0.0%	10 33.3%	9 30.0%	11 36.7%	0 0.0%	0 0.0%
15	The dangs	21	2.7	13.55	0 0.0%	6 28.6%	11 52.4%	4 19.0%	0 0.0%	0 0.0%
16	Vadodara	33	3.05	37.9	0 0.0%	3 9.1%	16 48.5%	9 27.3%	5 15.2%	0 0.0%
17	Valsad	16	3.3	23.2	0 0.0%	3 18.8%	8 50.0%	4 25.0%	1 6.3%	0 0.0%
	<b>South Gujarat</b>	<b>158</b>	<b>0.95</b>	<b>37.90</b>	<b>1 0.6%</b>	<b>39 24.7%</b>	<b>73 46.2%</b>	<b>37 23.4%</b>	<b>8 5.1%</b>	<b>0 0.0%</b>
18	Amreli	42	0.55	50.65	1 2.4%	3 7.1%	10 23.8%	15 35.7%	11 26.2%	2 4.8%
19	Bhavnagar	32	3.65	30.78	0 0.0%	4 12.5%	9 28.1%	13 40.6%	6 18.8%	0 0.0%
20	Jamnagar	47	3.56	22.12	0 0.0%	4 8.5%	16 34.0%	22 46.8%	5 10.6%	0 0.0%
21	Junagadh	57	3.4	33.76	0 0.0%	2 3.5%	14 24.6%	32 56.1%	9 15.8%	0 0.0%
22	Porbandar	29	2.93	34.2	0 0.0%	5 17.2%	7 24.1%	10 34.5%	7 24.1%	0 0.0%
23	Rajkot	50	3.25	29.5	0 0.0%	5 10.0%	25 50.0%	15 30.0%	5 10.0%	0 0.0%
24	Surendranagar	34	0.3	29.15	2 5.9%	13 38.2%	10 29.4%	7 20.6%	2 5.9%	0 0.0%
	<b>Saurashtra</b>	<b>291</b>	<b>0.30</b>	<b>50.65</b>	<b>3 1.0%</b>	<b>36 12.4%</b>	<b>91 31.3%</b>	<b>114 39.2%</b>	<b>45 15.5%</b>	<b>2 0.7%</b>
25	Kachchh	32	0.88	27.18	2 6.3%	1 3.1%	6 18.8%	22 68.8%	1 3.1%	0 0.0%
	<b>Total</b>	<b>650</b>	<b>0.30</b>	<b>59.91</b>	<b>8 1.2%</b>	<b>102 15.7%</b>	<b>219 33.7%</b>	<b>231 35.5%</b>	<b>84 12.9%</b>	<b>6 0.9%</b>



### 3.1.2 Depth to Water Level August 2019

During August 2019, the depth to water level of unconfined aquifer range from 0.05 to 47.82m bgl (Fig 8). Details of depth to water level in different range, from 0-2 m, 2 to 5 m, 5 to 10 m, 10 to 20m, 20 to 40 m and more than 40 mbgl are presented in table – 6. The perusal of the depth to water level reveals that 58% of the monitoring stations fall in the ranges of 0 to 5 mbgl whereas 5 to 20 mbgl water level are observed in 35% of the stations in Gujarat state. Water levels of 20 to 40 mbgl are observed in Ahmedabad, Amreli, Gandhinagar, Banaskantha, Sabarkantha, Kachchh, Bhavnagar, Narmada, Porbandar and Vadodara districts in isolated patches. Deeper water levels more than 40m bgl are observed in most part of Amreli and Sabarkantha districts Gujarat as isolated patch. The shallowest water level 0.05 has been recorded at Dahod, in Dahod district. The deepest water level recorded is 47.82 m bgl at Derol in Sabarkantha district.

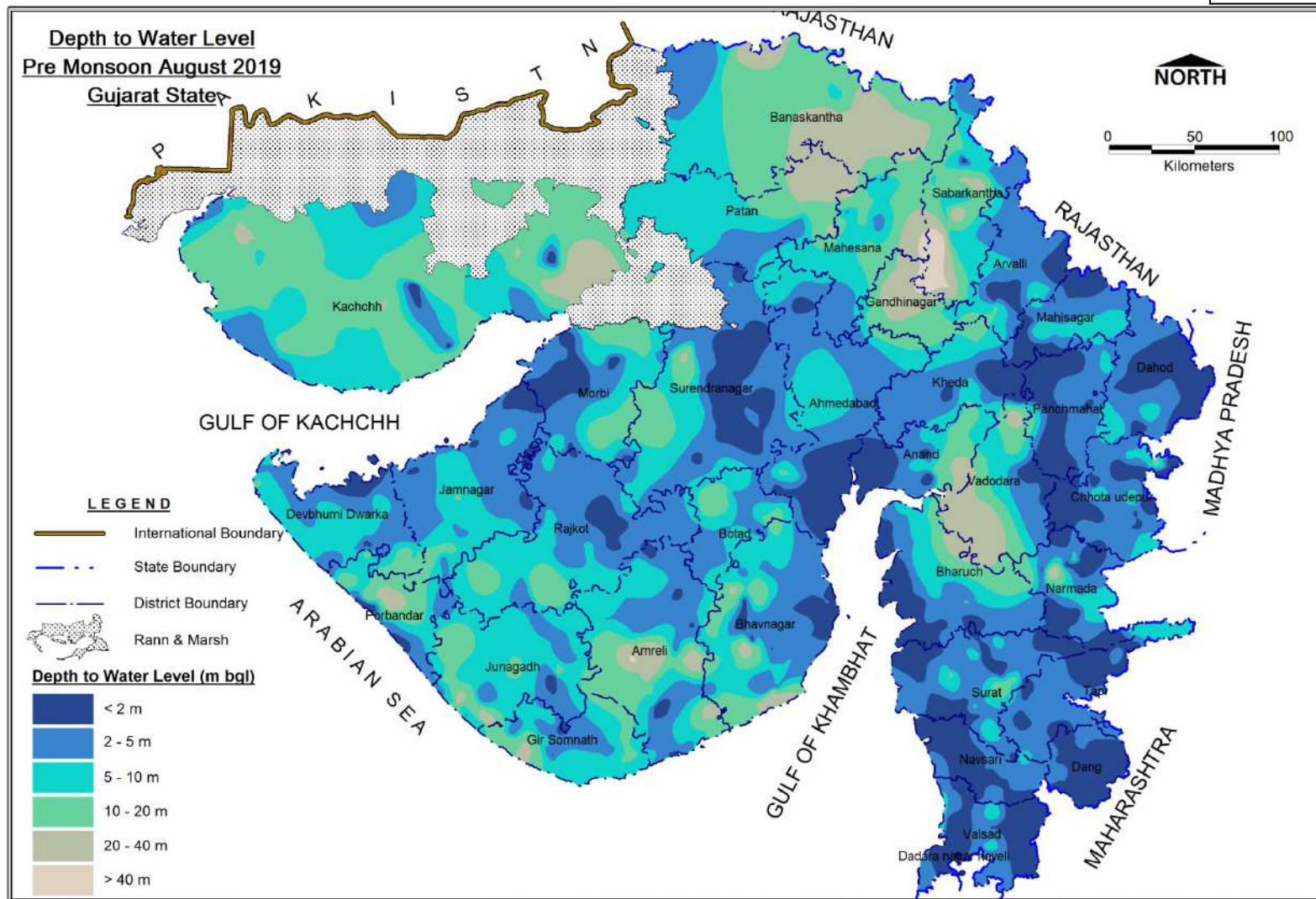
In North Gujarat, about 89% of the monitoring stations fall within the water level of 20 mbgl. Shallow water levels (lesser than 5 m bgl) are observed in the eastern part of north Gujarat region falling in Panchmahals, Dohad and Sabarkantha districts. Deeper water levels range from 20 to 40 mbgl in major part of Banaskantha and Gandhinagar districts. The deepest water level of 47.82m bgl is recorded at Derol in Sabarkantha district whereas the shallowest water level 0.05m bgl has been recorded at Dahod in Dahod district.

In South Gujarat, 98% of the monitoring stations have recorded water level below 20m bgl of which 79% alone has the water level in the range of 0 – 5m bgl. Deeper water levels of 20 to 40 m bgl are mainly observed as isolated patch in parts of Vadodara & Narmada district. The deepest water level of 34.49m bgl is recorded at Handod in Vadodara district whereas the shallowest water level of 0.1m bgl at Malegaon in The Dangs district.

In Saurashtra region, about 93% of the monitoring stations shows water levels in less than 20m bgl and water levels of 20 to 40 m are found as isolated patch in Amreli, Bhavnagar, Junagadh and Porbandar districts. The shallowest water level, 0.14m bgl has been recorded at Pipli of Surendranagar district and the deepest water level of 41.35m bgl recorded at Morjhar in Amreli district.

In Kachchh region, in about 87% of the monitoring stations, the water level ranges less than 20m bgl. In central and east part of the area, isolated patches of water level ranges between 20 to 40 mbgl are found. The deepest water level of 33m bgl is recorded at Gagodar and the shallowest water level of 0.21m bgl has been recorded at Haboi.

**Fig- 8**



DRG. No. RODC/YB/2019-20/7

एक टपकन कई बूंदों को बर्बाद कर सकती है !

DrG. By : Nilesh Dhokia, Draftsman

Table - 6

## Well wise categorisation of depth to water level August 2019

Sr. No.	District Name	No of well analysed	DTWL, mbgl		No. of wells in difrent depth range					
			Min	Max	0 to 2	2 to 5	5 to 10	10 to 20	20 to 40	> 40
1	Ahmedabad	18	0.53	20.4	4 22.2%	8 44.4%	5 27.8%	0 0.0%	1 5.6%	0 0.0%
2	Anand	11	0.1	24.35	3 27.3%	2 18.2%	2 18.2%	3 27.3%	1 9.1%	0 0.0%
3	Banaskantha	18	2.24	33.92	0 0.0%	1 5.6%	4 22.2%	6 33.3%	7 38.9%	0 0.0%
4	Dohad	21	0.04	7.99	10 47.6%	8 38.1%	3 14.3%	0 0.0%	0 0.0%	0 0.0%
5	Gandhinagar	5	11.7	35.77	0 0.0%	0 0.0%	0 0.0%	3 60.0%	2 40.0%	0 0.0%
6	Kheda	14	0.08	13.62	6 42.9%	4 28.6%	3 21.4%	1 7.1%	0 0.0%	0 0.0%
7	Mahesana	22	2.21	17.32	0 0.0%	7 31.8%	6 27.3%	9 40.9%	0 0.0%	0 0.0%
8	Panchmahals	25	0.05	8.86	11 44.0%	9 36.0%	5 20.0%	0 0.0%	0 0.0%	0 0.0%
9	Patan	9	2.43	32.01	0 0.0%	2 22.2%	2 22.2%	2 22.2%	3 33.3%	0 0.0%
10	Sabarkantha	38	0.09	47.82	3 7.9%	12 31.6%	13 34.2%	4 10.5%	4 10.5%	2 5.3%
	<b>North Gujarat</b>	<b>181</b>	<b>0.04</b>	<b>47.82</b>	<b>37 20.4%</b>	<b>53 29.3%</b>	<b>43 23.8%</b>	<b>28 15.5%</b>	<b>18 9.9%</b>	<b>2 1.1%</b>
11	Bharuch	32	0.2	8.65	9 28.1%	16 50.0%	7 21.9%	0 0.0%	0 0.0%	0 0.0%
12	Narmada	20	0.05	30.54	9 45.0%	5 25.0%	4 20.0%	1 5.0%	1 5.0%	0 0.0%
13	Navsari	19	0.55	9.56	10 52.6%	8 42.1%	1 5.3%	0 0.0%	0 0.0%	0 0.0%
14	Surat	52	0.1	12.35	13 25.0%	26 50.0%	10 19.2%	3 5.8%	0 0.0%	0 0.0%
15	The dangs	24	0.1	4.3	18 75.0%	6 25.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
16	Vadodara	38	0.1	34.49	15 39.5%	10 26.3%	7 18.4%	2 5.3%	4 10.5%	0 0.0%
17	Valsad	20	0.2	11	10 50.0%	7 35.0%	2 10.0%	1 5.0%	0 0.0%	0 0.0%
	<b>South Gujarat</b>	<b>205</b>	<b>0.05</b>	<b>34.49</b>	<b>84 41.0%</b>	<b>78 38.0%</b>	<b>31 15.1%</b>	<b>7 3.4%</b>	<b>5 2.4%</b>	<b>0 0.0%</b>
18	Amreli	46	0.08	41.35	6 13.0%	14 30.4%	10 21.7%	7 15.2%	8 17.4%	1 2.2%
19	Bhavnagar	43	0.06	28.33	7 16.3%	17 39.5%	8 18.6%	6 14.0%	5 11.6%	0 0.0%
20	Jamnagar	49	0.17	20.28	8 16.3%	20 40.8%	15 30.6%	5 10.2%	1 2.0%	0 0.0%
21	Junagadh	54	0.76	28.63	6 11.1%	12 22.2%	21 38.9%	11 20.4%	4 7.4%	0 0.0%
22	Porbandar	27	0.68	29.02	4 14.8%	10 37.0%	4 14.8%	6 22.2%	3 11.1%	0 0.0%
23	Rajkot	38	0.28	19.39	10 26.3%	15 39.5%	10 26.3%	3 7.9%	0 0.0%	0 0.0%
24	Surendranagar	38	0.14	21.92	15 39.5%	15 39.5%	5 13.2%	2 5.3%	1 2.6%	0 0.0%
	<b>Saurashtra</b>	<b>295</b>	<b>0.06</b>	<b>41.35</b>	<b>56 19.0%</b>	<b>103 34.9%</b>	<b>73 24.7%</b>	<b>40 13.6%</b>	<b>22 7.5%</b>	<b>1 0.3%</b>
25	Kachchh	43	0.21	33	3 7.0%	5 11.6%	9 20.9%	21 48.8%	5 11.6%	0 0.0%
	<b>Total</b>	<b>724</b>	<b>0.04</b>	<b>47.82</b>	<b>180 24.9%</b>	<b>239 33.0%</b>	<b>156 21.5%</b>	<b>96 13.3%</b>	<b>50 6.9%</b>	<b>3 0.4%</b>

### 3.1.3 Depth to Water Level November 2019

The depth to water level of unconfined aquifer ranges from near ground level to 50.62m bgl (Derol in Sabarkantha district) during November 2019 (Fig 9 and table no 7). The perusal of the water level reveals that 96% of the total well analysed has water level less than 20m bgl, in Gujarat state. Water levels of 20 to 40m bgl are observed in Banaskantha, Mahesana and Patan districts. Only one observation well in each Sabarkantha, Amreli and Gandhinagar districts districts in isolated patches. The shallowest water level recorded is 0.08m bgl at Palsana in Surat district.

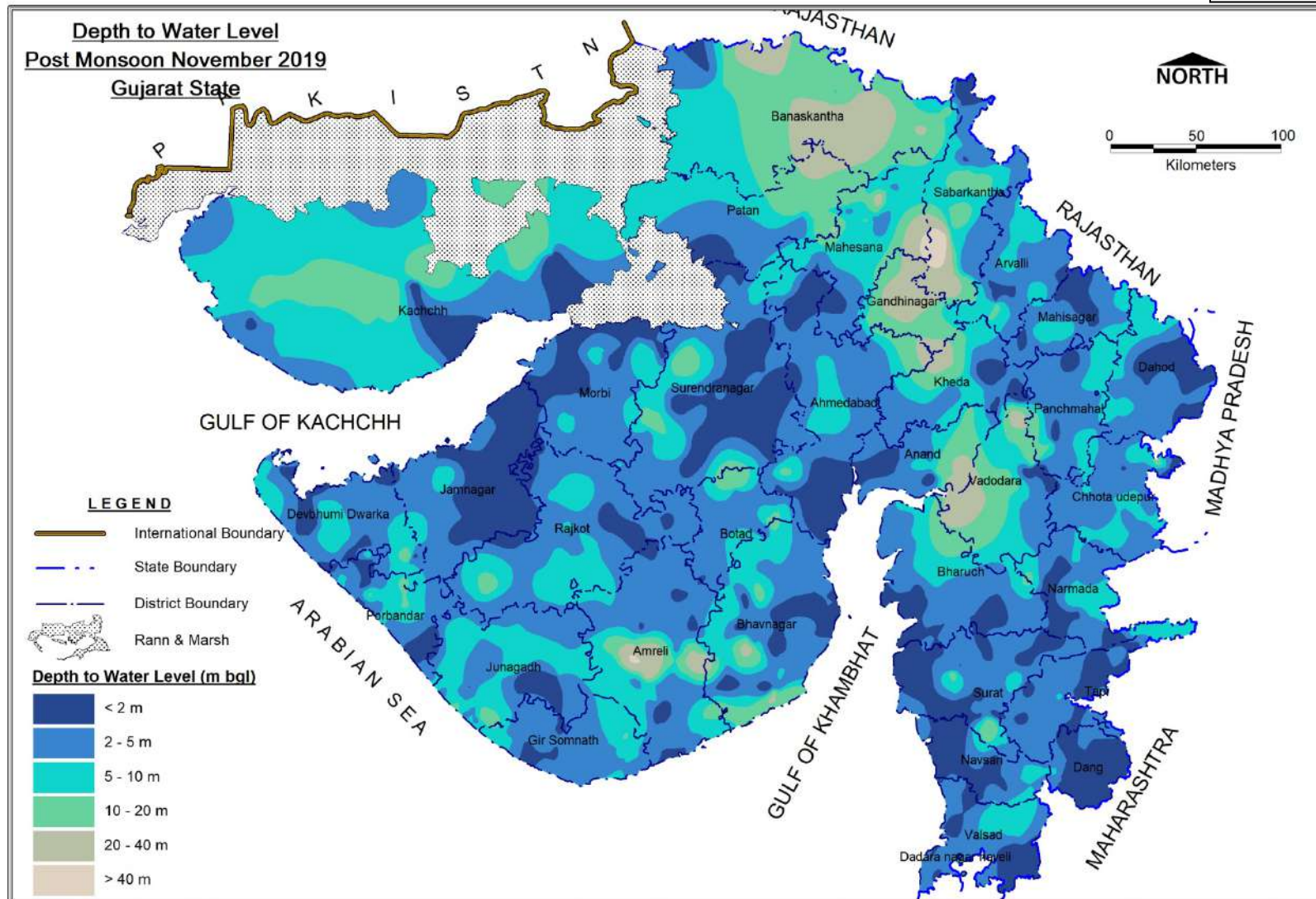
In North Gujarat, about 93% of the total well analysed falls with in the water level range of 20 mbgl. Shallow water levels (lesser than 5 mbgl) are observed in the area near the Gulf of Cambay and the area along the little Rann of Kachchh and in eastern part of north Gujarat region such as in Panchmahals, Dohad and Sabarkantha district. Deeper water levels ranges 20 to 40 mbgl are experienced in major part Anand, Banaskantha, Gandhinagar, Sabarkantha, Keda and Mahesana districts. The deepest water level of 50.62m bgl at Derol in Sabarkantha district whereas shallowest water level of 0.10m bgl has been recorded at Endla in Ahmedabad district.

In South Gujarat, more than 98.6% of the total well has recorded water level within 20 mbgl and out of which 82% alone has the water level in the range of 5m bgl. Deeper water levels of 20 – 40 mbgl are mainly observed in isolated patch in parts of Vadodara district. The deepest water level of 24.85m bgl is recorded at Chhaliyar in Vadodara district whereas the shallowest water level of 0.08 mbgl has been recorded at Palsana in Surat district.

In Saurashtra region, about 97% of the total well shows water levels less than 20 mbgl and water levels of 20 to 40 mbgl are sporadically disbursed as isolated patches in Amreli and Bhavnagar district. The shallowest water level recorded is 0.10m bgl at Pipli and Sudamda in Surendranagar district and the deepest water level of 42.75m bgl recorded at Morajhar in Amreli district.

In Kachchh region, in about 100% of the total well analysed, the water level ranges within 20 mbgl in major part of the district. Central and east part of the area shows water level ranges 10 to 20 mbgl, which cover about 23% of total well in Kachchh region and occur as isolated patches. The deepest water level of 19.53m bgl is recorded at Bhuj and the shallowest water level of 0.26m bgl has been recorded at Haboi.

**Fig- 9**



DRG. No. RODC/YB/2019-20/8

बेहतर भविष्य के लिए जल का पुनर्भरण करें ।

DrG. By : Nilesh Dhokia, Draftsman

Table - 7

## Well wise categorisation of depth to water level November 2019

Sr. No.	District Name	No of well analysed	DTWL, mbgl		No. of wells in difrent depth range					
			Min	Max	0 to 2	2 to 5	5 to 10	10 to 20	20 to 40	> 40
1	Ahmedabad	21	0.1	20.4	8 38.1%	7 33.3%	4 19.0%	1 4.8%	1 4.8%	0 0.0%
2	Anand	11	0.88	28.56	3 27.3%	3 27.3%	1 9.1%	2 18.2%	2 18.2%	0 0.0%
3	Banaskantha	17	1.82	33.99	1 5.9%	0 0.0%	4 23.5%	7 41.2%	5 29.4%	0 0.0%
4	Dohad	23	0.62	8.75	7 30.4%	9 39.1%	7 30.4%	0 0.0%	0 0.0%	0 0.0%
5	Gandhinagar	5	9.52	33.43	0 0.0%	0 0.0%	1 20.0%	2 40.0%	2 40.0%	0 0.0%
6	Kheda	16	0.24	24.65	5 31.3%	8 50.0%	2 12.5%	0 0.0%	1 6.3%	0 0.0%
7	Mahesana	23	1.39	26.33	3 13.0%	6 26.1%	8 34.8%	5 21.7%	1 4.3%	0 0.0%
8	Panchmahals	26	1.18	10.19	7 26.9%	10 38.5%	8 30.8%	1 3.8%	0 0.0%	0 0.0%
9	Patan	6	2.18	20.45	0 0.0%	2 33.3%	1 16.7%	2 33.3%	1 16.7%	0 0.0%
10	Sabarkantha	39	1.15	50.62	5 12.8%	11 28.2%	15 38.5%	5 12.8%	2 5.1%	1 2.6%
	<b>North Gujarat</b>	<b>187</b>	<b>0.10</b>	<b>50.62</b>	<b>39 20.9%</b>	<b>56 29.9%</b>	<b>51 27.3%</b>	<b>25 13.4%</b>	<b>15 8.0%</b>	<b>1 0.5%</b>
11	Bharuch	34	0.1	7.52	8 23.5%	21 61.8%	5 14.7%	0 0.0%	0 0.0%	0 0.0%
12	Narmada	19	0.14	11.18	7 36.8%	7 36.8%	4 21.1%	1 5.3%	0 0.0%	0 0.0%
13	Navsari	19	0.11	6.15	11 57.9%	7 36.8%	1 5.3%	0 0.0%	0 0.0%	0 0.0%
14	Surat	54	0.08	15.76	18 33.3%	28 51.9%	5 9.3%	3 5.6%	0 0.0%	0 0.0%
15	The dangs	24	0.15	6.18	17 70.8%	6 25.0%	1 4.2%	0 0.0%	0 0.0%	0 0.0%
16	Vadodara	38	0.57	24.85	7 18.4%	16 42.1%	8 21.1%	4 10.5%	3 7.9%	0 0.0%
17	Valsad	19	0.13	7.56	6 31.6%	11 57.9%	2 10.5%	0 0.0%	0 0.0%	0 0.0%
	<b>South Gujarat</b>	<b>207</b>	<b>0.08</b>	<b>24.85</b>	<b>74 35.7%</b>	<b>96 46.4%</b>	<b>26 12.6%</b>	<b>8 3.9%</b>	<b>3 1.4%</b>	<b>0 0.0%</b>
18	Amreli	47	0.18	42.75	9 19.1%	19 40.4%	8 17.0%	4 8.5%	6 12.8%	1 2.1%
19	Bhavnagar	42	0.62	25.19	10 23.8%	17 40.5%	9 21.4%	3 7.1%	3 7.1%	0 0.0%
20	Jamnagar	46	0.14	17.25	23 50.0%	13 28.3%	9 19.6%	1 2.2%	0 0.0%	0 0.0%
21	Junagadh	63	0.66	15.82	9 14.3%	23 36.5%	27 42.9%	4 6.3%	0 0.0%	0 0.0%
22	Porbandar	29	0.52	11.05	9 31.0%	10 34.5%	7 24.1%	3 10.3%	0 0.0%	0 0.0%
23	Rajkot	55	0.45	16.16	11 20.0%	31 56.4%	12 21.8%	1 1.8%	0 0.0%	0 0.0%
24	Surendranagar	47	0.1	16.45	22 46.8%	16 34.0%	7 14.9%	2 4.3%	0 0.0%	0 0.0%
	<b>Saurashtra</b>	<b>329</b>	<b>0.10</b>	<b>42.75</b>	<b>93 28.3%</b>	<b>129 39.2%</b>	<b>79 24.0%</b>	<b>18 5.5%</b>	<b>9 2.7%</b>	<b>1 0.3%</b>
25	Kachchh	30	0.26	19.53	4 13.3%	5 16.7%	14 46.7%	7 23.3%	0 0.0%	0 0.0%
	<b>Total</b>	<b>753</b>	<b>0.08</b>	<b>50.62</b>	<b>210 27.9%</b>	<b>286 38.0%</b>	<b>170 22.6%</b>	<b>58 7.7%</b>	<b>27 3.6%</b>	<b>2 0.3%</b>

### 3.1.4 Depth to Water Level January 2020

A perusal of Fig 10 and Table 8 reveals that the depth to water level of unconfined aquifer ranges from 0.05m bgl at Mahegam in Bharuch district to 52.83m bgl at Lodra in Gandhinagar district during January 2020. Details of depth to water level in different range, i.e. from 0-2 m, 2 to 5 m, 5 to 10 m, 10 to 20m, 20 to 40 m and more than 40 mbgl is presented in table – 8. The perusal of the Depth to Water map reveals that about 49% of the total well analysed falls in the water level range of 0 to 5m bgl where as water level of 5 to 20 mbgl is observed in 45% of Gujarat state. Water levels of 20 to 40 mbgl are observed in Ahmedabad, Anand, Banaskantha, Kheda, Gandhinagar, Sabarkantha, Narmada, Vadodara and in Saurashtra and Kachchh region as isolated patches. The deepest water level more than 40 mbgl is recorded in Gandhinagar and Sabarkantha districts.

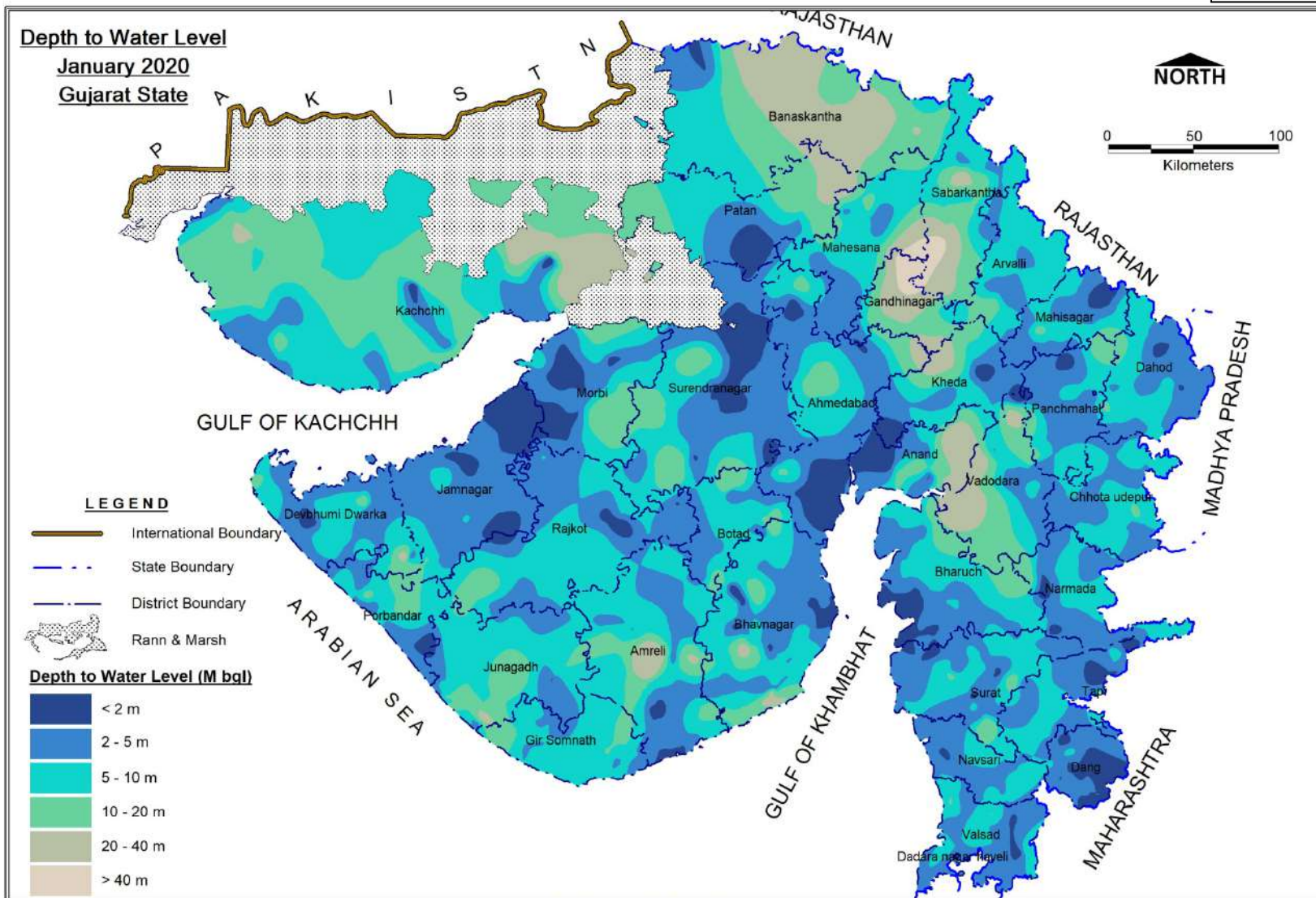
In North Gujarat, about 89% of the total well analysed falls with in the water level range of 20 mbgl and out of which alone 65% represent the water level range of 0 – 10m bgl. Shallow water levels (lesser than 5 mbgl) are observed in the area near the Gulf of Cambay and the area along the little Rann of Kachchh and in eastern part of north Gujarat region such as in Panchmahals, Dohad and Sabarkantha district. Deeper water levels ranges 20 to 40 mbgl are experienced in major part of Banaskantha district, the adjoining area of Kheda, Gandhinagar, Sabarkantha Vadodara and Anand. The deepest water level of 52.83m bgl at Lodra in Gandhinagar district whereas shallowest water level of 0.35m bgl has been recorded at Sankheshwar in Patan district.

In South Gujarat, about 93% of the total wells has recorded water level less than 10 mbgl and out of which 62% alone has the water level in the range of 0-5m bgl. Deeper water levels of 20 to 40m bgl mainly observed in isolated patch in major parts of Vadodara district. The deepest water level of 27.05m bgl is recorded at Sankheda in Vadodara district whereas the shallowest water level of 0.05m bgl bgl has been recorded at Mahegam in Bharuch district.

In Saurashtra region, about 97% of the total well shows water levels less than 20m bgl and water levels of 20 to 40 mbgl are sporadically disbursed in isolated patches scattered in all areas of Saurashtra region. The shallowest water level, 0.08m bgl, has been recorded at Jafrabad of Amreli district. The deepest water level of 39.35m bgl recorded at Dharangani in Amreli district.

In Kachchh region, more than 95% of the total well analysed, the water level ranges in less than 20 mbgl in major part of the district. In central part of Kachchh, the water level ranges 20 to 40 m bgl in isolated patches. The deepest water level of 33.0m bgl is recorded at Gagodar and the shallowest water level of 0.35m bgl at Lilpur.

**Fig- 10**



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Table - 8

## Well wise categorisation of depth to water level January 2020

Sr. No.	District Name	No of well analysed	DTWL, mbgl		No. of wells in difrent depth range					
			Min	Max	0 to 2	2 to 5	5 to 10	10 to 20	20 to 40	> 40
1	Ahmedabad	20	1.05	20.4	5 25.0%	6 30.0%	4 20.0%	4 20.0%	1 5.0%	0 0.0%
2	Anand	12	1.18	29.29	2 16.7%	3 25.0%	1 8.3%	3 25.0%	3 25.0%	0 0.0%
3	Banaskantha	19	1.94	36	1 5.3%	0 0.0%	4 21.1%	7 36.8%	7 36.8%	0 0.0%
4	Dohad	23	0.94	11.36	2 8.7%	10 43.5%	10 43.5%	1 4.3%	0 0.0%	0 0.0%
5	Gandhinagar	6	13.62	52.48	0 0.0%	0 0.0%	0 0.0%	3 50.0%	2 33.3%	1 16.7%
6	Kheda	19	0.4	27.52	3 15.8%	7 36.8%	7 36.8%	1 5.3%	1 5.3%	0 0.0%
7	Mahesana	20	2.05	12.32	0 0.0%	7 35.0%	10 50.0%	3 15.0%	0 0.0%	0 0.0%
8	Panchmahals	21	0.55	15.94	2 9.5%	9 42.9%	8 38.1%	2 9.5%	0 0.0%	0 0.0%
9	Patan	7	0.35	32.01	1 14.3%	1 14.3%	0 0.0%	4 57.1%	1 14.3%	0 0.0%
10	Sabarkantha	33	2.14	42.83	0 0.0%	8 24.2%	14 42.4%	8 24.2%	2 6.1%	1 3.0%
	<b>North Gujarat</b>	<b>180</b>	<b>0.35</b>	<b>52.48</b>	<b>16 8.9%</b>	<b>51 28.3%</b>	<b>58 32.2%</b>	<b>36 20.0%</b>	<b>17 9.4%</b>	<b>2 1.1%</b>
11	Bharuch	33	0.05	7.73	5 15.2%	19 57.6%	9 27.3%	0 0.0%	0 0.0%	0 0.0%
12	Narmada	18	0.38	14.27	3 16.7%	9 50.0%	5 27.8%	1 5.6%	0 0.0%	0 0.0%
13	Navsari	19	1.6	8.25	1 5.3%	13 68.4%	5 26.3%	0 0.0%	0 0.0%	0 0.0%
14	Surat	49	0.25	17.05	8 16.3%	15 30.6%	22 44.9%	4 8.2%	0 0.0%	0 0.0%
15	The dangs	23	0.5	5.8	10 43.5%	11 47.8%	2 8.7%	0 0.0%	0 0.0%	0 0.0%
16	Vadodara	36	1.12	27.05	2 5.6%	17 47.2%	10 27.8%	3 8.3%	4 11.1%	0 0.0%
17	Valsad	19	1.4	13.6	2 10.5%	8 42.1%	7 36.8%	2 10.5%	0 0.0%	0 0.0%
	<b>South Gujarat</b>	<b>197</b>	<b>0.05</b>	<b>27.05</b>	<b>31 15.7%</b>	<b>92 46.7%</b>	<b>60 30.5%</b>	<b>10 5.1%</b>	<b>4 2.0%</b>	<b>0 0.0%</b>
18	Amreli	48	0.08	39.35	3 6.3%	19 39.6%	13 27.1%	5 10.4%	8 16.7%	0 0.0%
19	Bhavnagar	47	0.28	25.15	7 14.9%	13 27.7%	17 36.2%	6 12.8%	4 8.5%	0 0.0%
20	Jamnagar	48	0.58	26.46	9 18.8%	25 52.1%	9 18.8%	4 8.3%	1 2.1%	0 0.0%
21	Junagadh	59	1.95	23.65	1 1.7%	16 27.1%	25 42.4%	16 27.1%	1 1.7%	0 0.0%
22	Porbandar	27	0.97	13.19	1 3.7%	12 44.4%	10 37.0%	4 14.8%	0 0.0%	0 0.0%
23	Rajkot	42	0.86	17.4	10 23.8%	11 26.2%	18 42.9%	3 7.1%	0 0.0%	0 0.0%
24	Surendranagar	40	0.08	19	14 35.0%	14 35.0%	7 17.5%	5 12.5%	0 0.0%	0 0.0%
	<b>Saurashtra</b>	<b>311</b>	<b>0.08</b>	<b>39.35</b>	<b>45 14.5%</b>	<b>110 35.4%</b>	<b>99 31.8%</b>	<b>43 13.8%</b>	<b>14 4.5%</b>	<b>0 0.0%</b>
25	Kachchh	42	0.35	33	2 4.8%	10 23.8%	8 19.0%	18 42.9%	4 9.5%	0 0.0%
	<b>Total</b>	<b>730</b>	<b>0.05</b>	<b>52.48</b>	<b>94 12.9%</b>	<b>263 36.0%</b>	<b>225 30.8%</b>	<b>107 14.7%</b>	<b>39 5.3%</b>	<b>2 0.3%</b>

### 3.2 Seasonal Water Level Fluctuation

To study the effect of monsoon on the groundwater regime and subsequent utilisation of groundwater for various needs like agriculture, irrigation, Domestic etc., changes in depth to water levels with respect to May data are studied. The change in groundwater in the region over different periods is presented in Fig. 11(a, b, c) and a summary of each observation is discussed below.

Figure 11 a

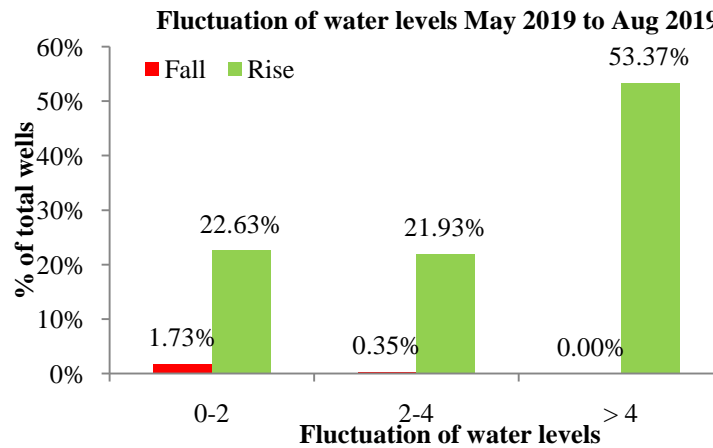


Figure 11 b

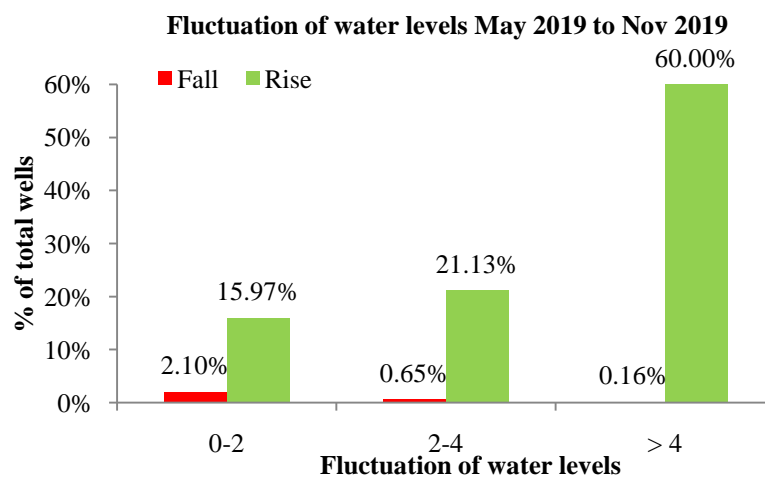
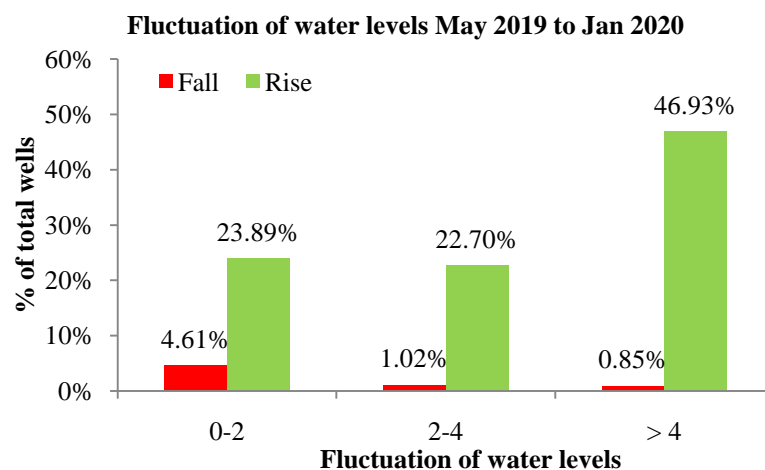


Figure 11 c



### **3.2.1 May 2019 to August 2019**

A perusal of Fig 12 (Fig to be changed) and Table 9 reveals that more than 98% of the total wells in Gujarat state show a rise in water level. Rise in water level are observed in the range of 0 to 2m in 21% of wells, 2 to 4m in 23% of well and morethan 4m in 53% of wells monitored in the state of Gujarat. Fall in water level is mainly observed in parts of Saurashtra region, Kachchh region and in north Gujarat in small isolated patches scattered in the area. Fall is mainly in the range of 0 to 2 m and recorded in 2% of wells in the state. The maximum rise of 30.29m is recorded in Panchmahals district whereas the maximum decline of 2.27m is recorded in Vadodara district.

About 97% of the total wells observed rise of water level in the North Gujarat and most of which (48% wells) is in the range more than 4m of fluctuation of water level. Fall of 0–2 m range is observed in 2% of wells in Ahmedabad, Banaskantha and Mahesana districts in isolated patches.

In South Gujarat region, 99% of total wells shows rise in water level and in the range more than 4m in 57% of wells in the region. Rise of water level in 0 to 2 and 2 to 4m experience in about 41% of wells in the region. Fall in water level is observed maximum in the range of 2 – 4 m in 0.7% of wells in the South Gujarat area.

About 98% of total well in the Saurashtra region has experienced rise of water level and in the range of 0 – 2 m experienced in about 17% of wells. Rise of water level more than 4 m is predominantly found in 57% of of wells in Saurashtra area. Fall of 0 to 2m is observed in 2% of wells.

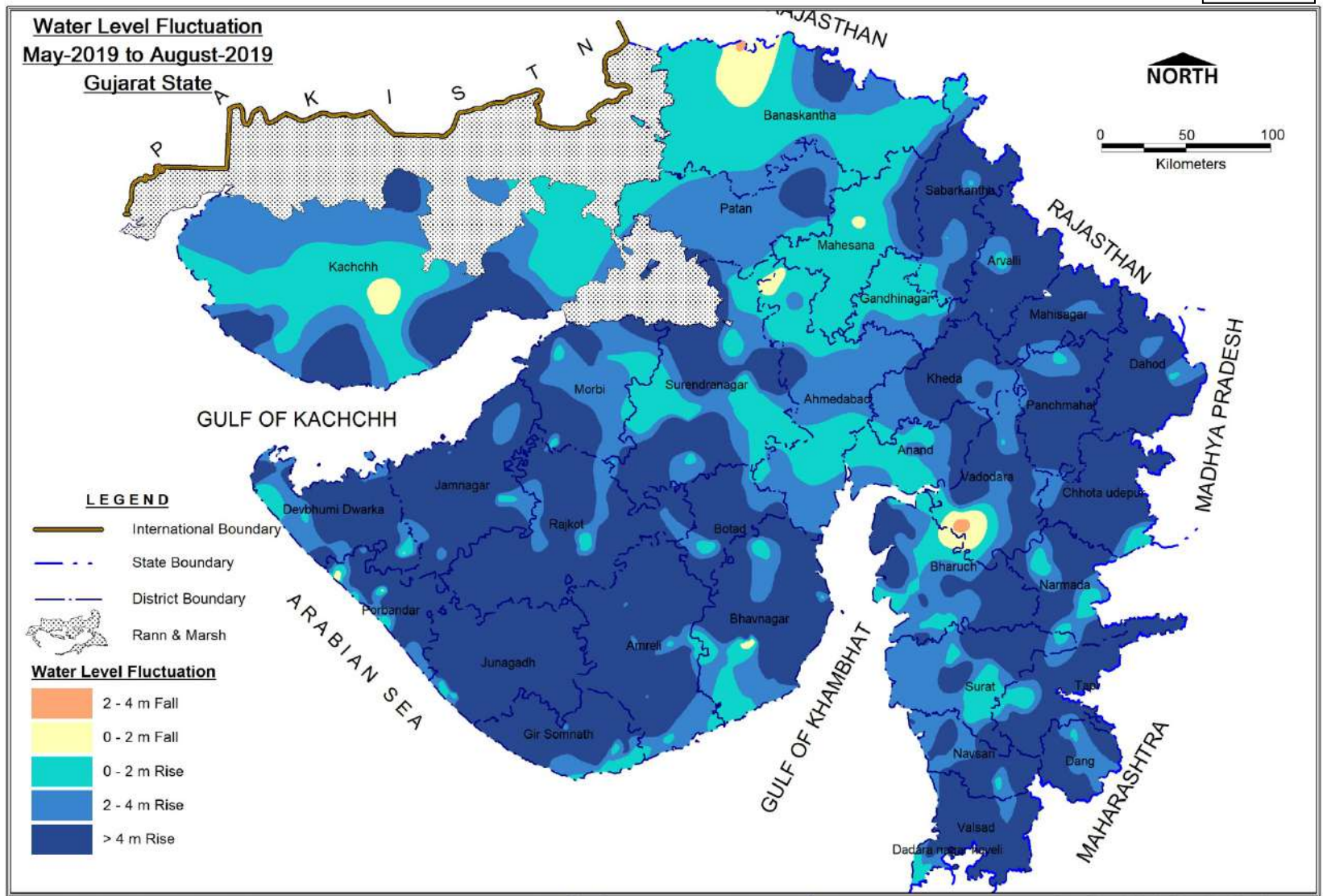
In Kachchh region, 92% of the total wells shows rise in water level. Fall of 0-2m is observed in 7.4% of the wells.

### **3.2.2 May 2019 to November 2019**

The seasonal water level fluctuation shows rise in 97% of the total wells monitored in the Gujarat state area during the Pre and Post Monsoon of 2019. Fall in water level is observed mainly in Kachchh, Saurashtra and central part of Gujarat as isolated patches due to low rainfall and local phenomena. In the state, the maximum rise of 30.21m is recorded in Panchmahals district whereas the maximum decline of 4.95m is observed at Gandhinagar district. (Fig 13 and Table 10).

In North Gujarat region, 92% of the total well analysed shows rise in water level. Maximum rise observed 30.21 m at Bavaliya in Panchmahals district. Out of the total well analysed, maximum rise (48%) is observed in the category of more than 4m. Few isolated patches of fall observed in Banaskantha and Gandhinagar districts.

Fig- 12

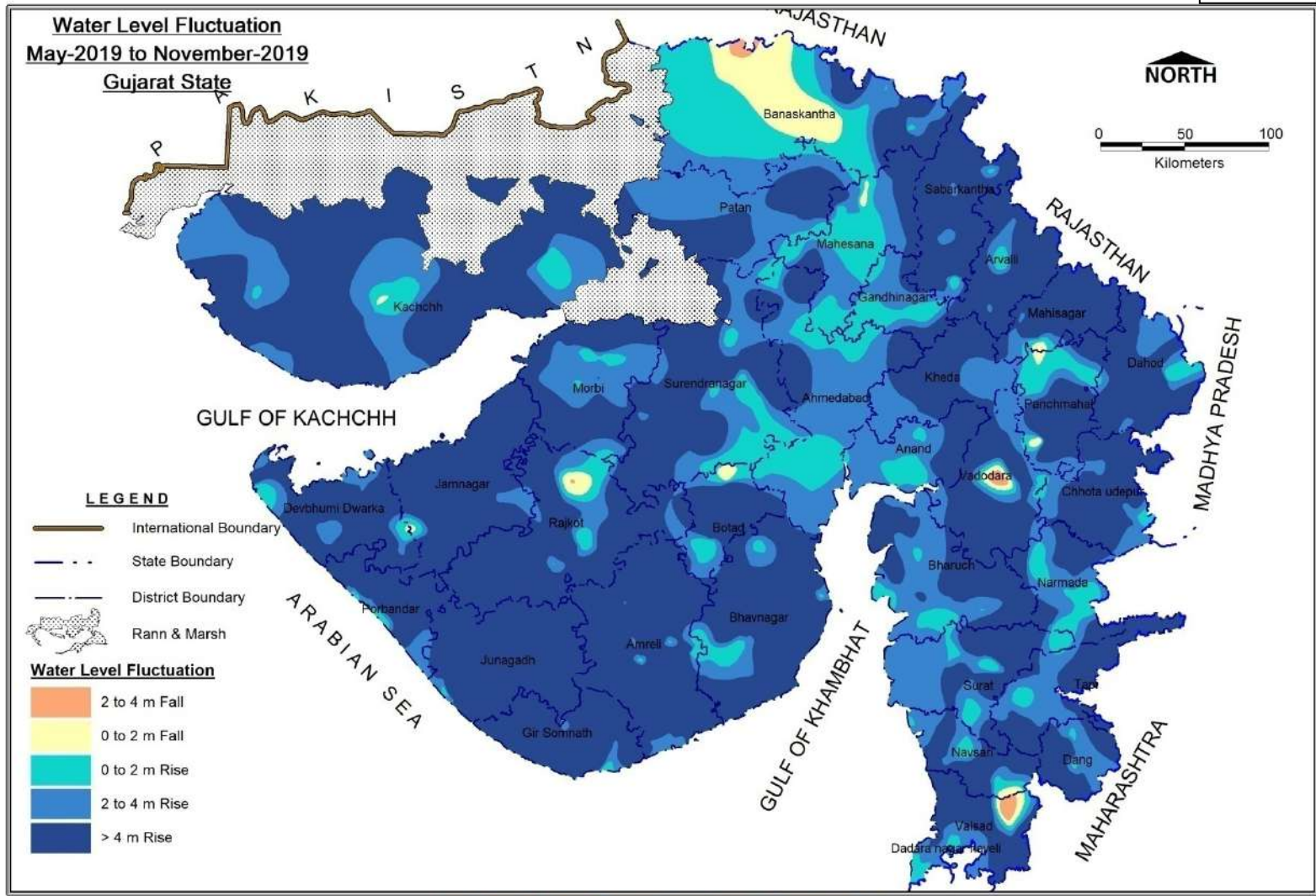


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**Fig- 13**



DRG. No. RODC/YB/2019-20/19

सूखी धरा करें एक ही प्रकार, जल बचाओ जीवन बचाओ !

Drg. By : Nilesh Dhokia, Draftsman

Table - 9

Categorisation of changes in water level between May to August 2019														
Sr. No.	District Name	No of well analysed	Fluctuation range, m		Fluctuation range, m		No. of wells in difrent depth range						Total No. of wells	
			Rise		Fall		Rise			Fall			Rise	Fall
			Min	Max	Min	Max	0 to 2	2 to 4	> 4	0 to 2	2 to 4	> 4		
1	Ahmedabad	16	0.42	23.24	0.34	0.34	5 31.3%	7 43.8%	3 18.8%	1 6.3%	0 0.0%	0 0.0%	15	1
2	Anand	8	1.04	4.72	0	0	5 62.5%	1 12.5%	2 25.0%	0 0.0%	0 0.0%	0 0.0%	8	0
3	Banaskantha	16	0.11	8.99	0.19	2.08	11 68.8%	2 12.5%	1 6.3%	1 6.3%	1 6.3%	0 0.0%	14	2
4	Dohad	18	1.76	10.84	0	0	1 5.6%	1 5.6%	16 88.9%	0 0.0%	0 0.0%	0 0.0%	18	0
5	Gandhinagar	4	0.67	3.91	0	0	2 50.0%	2 50.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	4	0
6	Kheda	11	2.47	13.34	0	0	0 0.0%	6 54.5%	5 45.5%	0 0.0%	0 0.0%	0 0.0%	11	0
7	Mahesana	21	0.08	5.4	0.24	0.24	19 90.5%	0 0.0%	1 4.8%	1 4.8%	0 0.0%	0 0.0%	20	1
8	Panchmahals	20	1.72	30.29	0	0	2 10.0%	2 10.0%	16 80.0%	0 0.0%	0 0.0%	0 0.0%	20	0
9	Patan	5	0.42	6.29	0	0	1 20.0%	2 40.0%	2 40.0%	0 0.0%	0 0.0%	0 0.0%	5	0
10	Sabarkantha	32	0.26	21.27	0	0	5 15.6%	1 3.1%	26 81.3%	0 0.0%	0 0.0%	0 0.0%	32	0
	<b>North Gujarat</b>	<b>151</b>	<b>0.08</b>	<b>30.29</b>	<b>0.00</b>	<b>2.08</b>	<b>51 33.8%</b>	<b>24 15.9%</b>	<b>72 47.7%</b>	<b>3 2.0%</b>	<b>1 0.7%</b>	<b>0 0.0%</b>	147	4
11	Bharuch	27	0.21	8.23	0	0	7 25.9%	11 40.7%	9 33.3%	0 0.0%	0 0.0%	0 0.0%	27	0
12	Narmada	14	0.22	9.24	0	0	4 28.6%	0 0.0%	10 71.4%	0 0.0%	0 0.0%	0 0.0%	14	0
13	Navsari	16	1.5	11.2	0	0	1 6.3%	4 25.0%	11 68.8%	0 0.0%	0 0.0%	0 0.0%	16	0
14	Surat	29	0.3	13.1	0	0	7 24.1%	8 27.6%	14 48.3%	0 0.0%	0 0.0%	0 0.0%	29	0
15	The dangs	20	1.6	11.4	0	0	2 10.0%	5 25.0%	13 65.0%	0 0.0%	0 0.0%	0 0.0%	20	0
16	Vadodara	29	0.41	9.82	2.27	2.27	3 10.3%	5 17.2%	20 69.0%	0 0.0%	1 3.4%	0 0.0%	28	1
17	Valsad	16	0.8	18.7	0	0	2 12.5%	4 25.0%	10 62.5%	0 0.0%	0 0.0%	0 0.0%	16	0
	<b>South Gujarat</b>	<b>151</b>	<b>0.21</b>	<b>18.70</b>	<b>0.00</b>	<b>2.27</b>	<b>26 17.2%</b>	<b>37 24.5%</b>	<b>87 57.6%</b>	<b>0 0.0%</b>	<b>1 0.7%</b>	<b>0 0.0%</b>	150	1
18	Amreli	36	0.42	20.92	0	0	6 16.7%	8 22.2%	22 61.1%	0 0.0%	0 0.0%	0 0.0%	36	0
19	Bhavnagar	29	0.56	22.2	0.01	1.11	5 17.2%	9 31.0%	13 44.8%	2 6.9%	0 0.0%	0 0.0%	27	2
20	Jamnagar	44	0.73	16.43	0.17	0.17	5 11.4%	11 25.0%	27 61.4%	1 2.3%	0 0.0%	0 0.0%	43	1
21	Junagadh	50	0.05	20.83	0	0	8 16.0%	8 16.0%	34 68.0%	0 0.0%	0 0.0%	0 0.0%	50	0
22	Porbandar	28	1.05	21.97	0.4	1.48	3 10.7%	9 32.1%	14 50.0%	2 7.1%	0 0.0%	0 0.0%	26	2
23	Rajkot	34	0.49	19.91	0	0	3 8.8%	8 23.5%	23 67.6%	0 0.0%	0 0.0%	0 0.0%	34	0
24	Surendranagar	29	0.03	25.23	0	0	12 41.4%	8 27.6%	9 31.0%	0 0.0%	0 0.0%	0 0.0%	29	0
	<b>Saurashtra</b>	<b>250</b>	<b>0.03</b>	<b>25.23</b>	<b>0.00</b>	<b>1.48</b>	<b>42 16.8%</b>	<b>61 24.4%</b>	<b>142 56.8%</b>	<b>5 2.0%</b>	<b>0 0.0%</b>	<b>0 0.0%</b>	245	5
25	Kachchh	27	0.01	12	0.12	1.88	12 44.4%	5 18.5%	8 29.6%	2 7.4%	0 0.0%	0 0.0%	25	2
	<b>Total</b>	<b>579</b>	<b>0.01</b>	<b>30.29</b>	<b>0.00</b>	<b>2.27</b>	<b>131 22.6%</b>	<b>127 21.9%</b>	<b>309 53.4%</b>	<b>10 1.7%</b>	<b>2 0.3%</b>	<b>0 0.0%</b>	567	12

Table - 10

Categorisation of changes in water level between May to November 2019														
Sr. No.	District Name	No of well analysed	Fluctuation range, m		Fluctuation range, m		No. of wells in difrent depth range						Total No. of wells	
			Rise		Fall		Rise			Fall			Rise	Fall
			Min	Max	Min	Max	0 to 2	2 to 4	> 4	0 to 2	2 to 4	> 4		
1	Ahmedabad	19	1.18	26.55	0.57	0.57	5	8	5	1	0	0	18	1
							26.3%	42.1%	26.3%	5.3%	0.0%	0.0%		
2	Anand	8	1.22	5.42	0	0	4	2	2	0	0	0	8	0
							50.0%	25.0%	25.0%	0.0%	0.0%	0.0%		
3	Banaskantha	17	0.48	11.61	0.21	2.28	3	3	6	4	1	0	12	5
							17.6%	17.6%	35.3%	23.5%	5.9%	0.0%		
4	Dohad	20	0.31	10.33	0	0	2	4	14	0	0	0	20	0
							10.0%	20.0%	70.0%	0.0%	0.0%	0.0%		
5	Gandhinagar	4	1.21	6.09	4.95	4.95	1	1	1	0	0	1	3	1
							25.0%	25.0%	25.0%	0.0%	0.0%	25.0%		
6	Kheda	13	2.74	17.01	0.75	0.75	0	7	5	1	0	0	12	1
							0.0%	53.8%	38.5%	7.7%	0.0%	0.0%		
7	Mahesana	21	0.07	5.69	0.23	0.7	12	5	2	2	0	0	19	2
							57.1%	23.8%	9.5%	9.5%	0.0%	0.0%		
8	Panchmahals	21	0.23	30.21	0.53	1.84	3	2	14	2	0	0	19	2
							14.3%	9.5%	66.7%	9.5%	0.0%	0.0%		
9	Patan	5	1.17	8.4	0	0	1	1	3	0	0	0	5	0
							20.0%	20.0%	60.0%	0.0%	0.0%	0.0%		
10	Sabarkantha	32	0.34	20.57	0	0	4	4	24	0	0	0	32	0
							12.5%	12.5%	75.0%	0.0%	0.0%	0.0%		
	<b>North Gujarat</b>	<b>160</b>	<b>0.07</b>	<b>30.21</b>	<b>0.00</b>	<b>4.95</b>	<b>35</b>	<b>37</b>	<b>76</b>	<b>10</b>	<b>1</b>	<b>1</b>	148	12
							<b>21.9%</b>	<b>23.1%</b>	<b>47.5%</b>	<b>6.3%</b>	<b>0.6%</b>	<b>0.6%</b>		
11	Bharuch	27	0.35	5.62	0	0	7	11	9	0	0	0	27	0
							25.9%	40.7%	33.3%	0.0%	0.0%	0.0%		
12	Narmada	13	0.04	9.89	0	0	4	1	8	0	0	0	13	0
							30.8%	7.7%	61.5%	0.0%	0.0%	0.0%		
13	Navsari	16	1.15	10.93	0	0	3	3	10	0	0	0	16	0
							18.8%	18.8%	62.5%	0.0%	0.0%	0.0%		
14	Surat	31	0.15	14.55	0	0	6	11	14	0	0	0	31	0
							19.4%	35.5%	45.2%	0.0%	0.0%	0.0%		
15	The dangs	21	0.65	11.25	0	0	2	4	15	0	0	0	21	0
							9.5%	19.0%	71.4%	0.0%	0.0%	0.0%		
16	Vadodara	29	0.25	12.57	3.5	3.5	3	7	18	0	1	0	28	1
							10.3%	24.1%	62.1%	0.0%	3.4%	0.0%		
17	Valsad	15	1.3	18.25	3.47	3.47	3	2	9	0	1	0	14	1
							20.0%	13.3%	60.0%	0.0%	6.7%	0.0%		
	<b>South Gujarat</b>	<b>152</b>	<b>0.04</b>	<b>18.25</b>	<b>0.00</b>	<b>3.50</b>	<b>28</b>	<b>39</b>	<b>83</b>	<b>0</b>	<b>2</b>	<b>0</b>	150	2
							<b>18.4%</b>	<b>25.7%</b>	<b>54.6%</b>	<b>0.0%</b>	<b>1.3%</b>	<b>0.0%</b>		
18	Amreli	39	0.88	22.31	0	0	7	5	27	0	0	0	39	0
							17.9%	12.8%	69.2%	0.0%	0.0%	0.0%		
19	Bhavnagar	29	0.59	23.55	0	0	4	5	20	0	0	0	29	0
							13.8%	17.2%	69.0%	0.0%	0.0%	0.0%		
20	Jamnagar	43	0.11	20.08	0.48	0.48	2	5	35	1	0	0	42	1
							4.7%	11.6%	81.4%	2.3%	0.0%	0.0%		
21	Junagadh	55	0.1	27.78	0.21	0.21	5	6	43	1	0	0	54	1
							9.1%	10.9%	78.2%	1.8%	0.0%	0.0%		
22	Porbandar	29	0.26	26.29	0	0	4	4	21	0	0	0	29	0
							13.8%	13.8%	72.4%	0.0%	0.0%	0.0%		
23	Rajkot	49	0.2	27.2	2.1	2.1	4	7	37	0	1	0	48	1
							8.2%	14.3%	75.5%	0.0%	2.0%	0.0%		
24	Surendranagar	34	0.1	28.2	0	0	7	14	13	0	0	0	34	0
							20.6%	41.2%	38.2%	0.0%	0.0%	0.0%		
	<b>Saurashtra</b>	<b>278</b>	<b>0.10</b>	<b>28.20</b>	<b>0.00</b>	<b>2.10</b>	<b>33</b>	<b>46</b>	<b>196</b>	<b>2</b>	<b>1</b>	<b>0</b>	275	3
							<b>11.9%</b>	<b>16.5%</b>	<b>70.5%</b>	<b>0.7%</b>	<b>0.4%</b>	<b>0.0%</b>		
25	Kachchh	29	0.6	17.49	0.24	0.24	3	9	16	1	0	0	28	1
							10.3%	31.0%	55.2%	3.4%	0.0%	0.0%		
	<b>Total</b>	<b>619</b>	<b>0.04</b>	<b>30.21</b>	<b>0.00</b>	<b>4.95</b>	<b>99</b>	<b>131</b>	<b>371</b>	<b>13</b>	<b>4</b>	<b>1</b>	601	18
							<b>16.0%</b>	<b>21.2%</b>	<b>59.9%</b>	<b>2.1%</b>	<b>0.6%</b>	<b>0.2%</b>		

In South Gujarat, in total 98% of the well in the area have recorded rise and maximum in range of morethan 4m. The maximum rise observed 18.25m at Valsad in Valsad district. The fall is only in 1.3% of total well and maximum categorised in the range of 2–4 m.

Over all 98% of total well analysed show rise in water level in the entire Saurashtra. Fall is mainly in the range of 0 – 2 m and is found in isolated patches and cover 1% of the total area of region. The maximum rise observed 27.78m at Govindpura in Junagadh district.

In Kachchh 96% of the total well analysed recorded rise in water level. The fall is mostly in the range of 0 – 2 m recorded in about 3.4% of the total well. Rise is observed in all parts of the region and mostly in the range of more than 4m.

### **3.2.3 May 2019 to January 2020**

A perusal of Fig 14 and Table 11 reveals that about 94% of the total well in the Gujarat state area have recorded rise in water level between May 2019 and January 2020. Fall in water level is observed mainly in Banaskantha, Jamnagar, Anand, and Ahmedabad districts of Gujarat distributed sporadically all over Gujarat state. In the state, the maximum rise of 25.35m is at Bhada Jodiya in Rajkot district whereas the maximum decline of 9.45m is observed at Wankaner in Rajkot district.

In North Gujarat region, water level rises mainly observed in 91% of the total well analysed and maximum rises (41%) are > 4m. Fall of water level observed in all districts of the north Gujarat state distributed in central and west central and east central part.

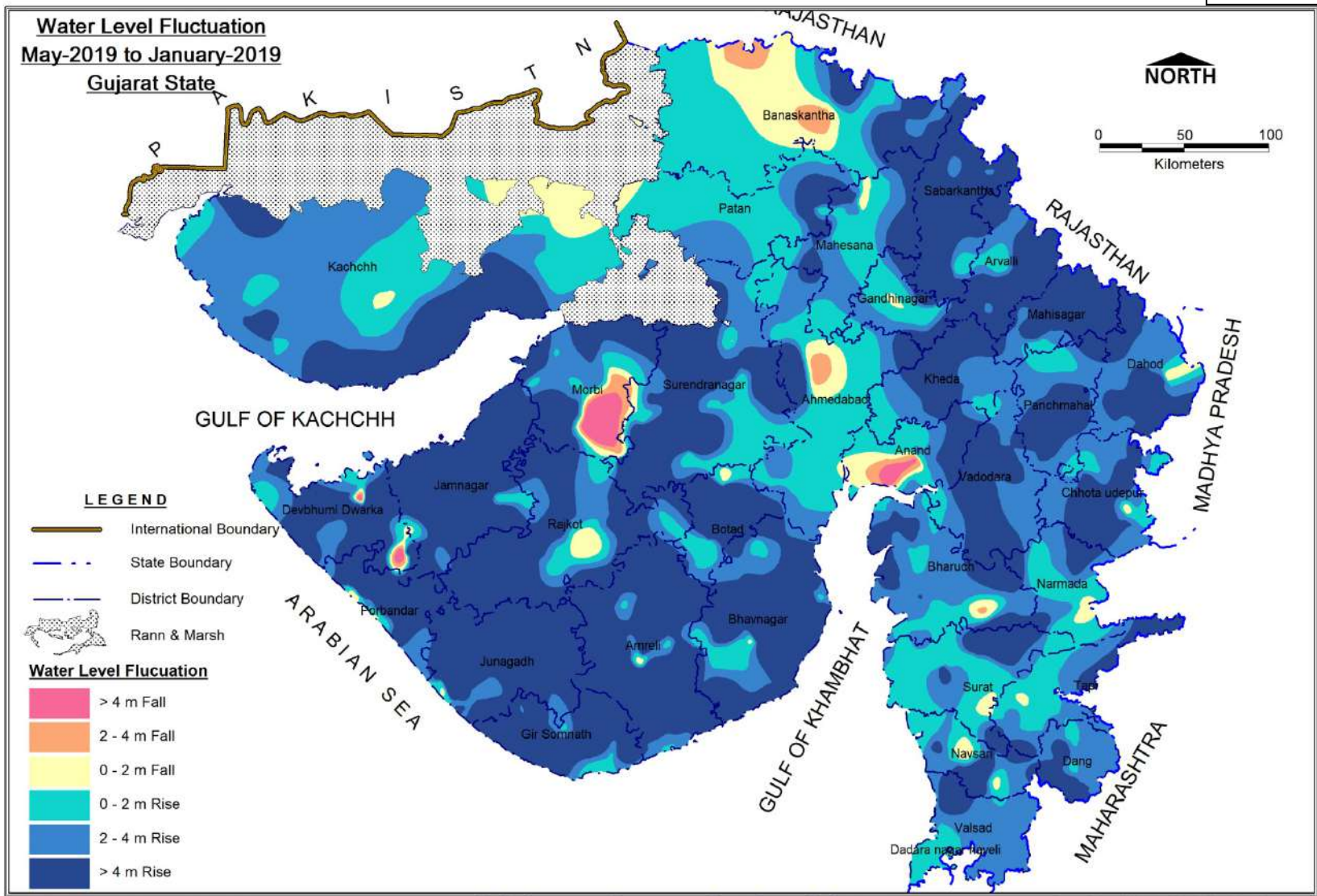
The 95% of the total well in the area of south Gujarat have recorded rise and maximum (34%) in the range of 2 to 4 m of rise in the region. The fall is only 5% of total well and maximum (4%) in the range of 0 – 2 m.

Over all 94% of total well analysed are shown rise in water level in the entire Saurashtra region. About 17% of areas have shown rise of water level between 2 to 4m and 61% shows more than 4m and are found in all the districts of Saurashtra region. Fall of water level is observed in all over the region with fall less than 2m is observed in 4% of the well in the region.

In Kachchh, 90% of the total well analysed recorded rise in water level. The fall is mostly in the range of 0 – 2 m and is observed in 10% of the total well. The total fall of water level has been observed in 10% of the total well in the region.



**Fig- 14**



DRG. No. RODC/YB/2019-20/18

पानी से है हम सबकी पहचान, इसे कभी न करे बेकार !

Drg. By : Nilesh Dhokia, Draftsman

Table - 11

## Categorisation of changes in water level between May to November 2019

Sr. No.	District Name	No of well analysed	Fluctuation range, m		Fluctuation range, m		No. of wells in difrent depth range						tal No. of we	
			Rise		Fall		Rise			Fall			Rise	Fall
			Min	Max	Min	Max	0 to 2	2 to 4	> 4	0 to 2	2 to 4	> 4		
1	Ahmedabad	16	0.96	25.1	0.25	3.43	9	2	3	1	1	0	14	2
							56.3%	12.5%	18.8%	6.3%	6.3%	0.0%		
2	Anand	9	0.32	5.88	4.23	6.18	3	3	1	0	0	2	7	2
							33.3%	33.3%	11.1%	0.0%	0.0%	22.2%		
3	Banaskantha	17	0.29	10.84	0.65	3.05	5	3	5	2	2	0	13	4
							29.4%	17.6%	29.4%	11.8%	11.8%	0.0%		
4	Dohad	20	1.85	7.29	1.07	1.07	2	5	12	1	0	0	19	1
							10.0%	25.0%	60.0%	5.0%	0.0%	0.0%		
5	Gandhinagar	4	0.71	3.65	0.18	0.18	2	1	0	1	0	0	3	1
							50.0%	25.0%	0.0%	25.0%	0.0%	0.0%		
6	Kheda	13	1.97	15.61	1.4	1.4	1	6	5	1	0	0	12	1
							7.7%	46.2%	38.5%	7.7%	0.0%	0.0%		
7	Mahesana	20	0.32	5.31	0.63	1.11	12	3	3	2	0	0	18	2
							60.0%	15.0%	15.0%	10.0%	0.0%	0.0%		
8	Panchmahals	18	0.55	12.22	0	0	3	4	11	0	0	0	18	0
							16.7%	22.2%	61.1%	0.0%	0.0%	0.0%		
9	Patan	4	0.64	6.94	0	0	2	0	2	0	0	0	4	0
							50.0%	0.0%	50.0%	0.0%	0.0%	0.0%		
10	Sabarkantha	28	0.66	19.99	0	0	3	5	20	0	0	0	28	0
							10.7%	17.9%	71.4%	0.0%	0.0%	0.0%		
	<b>North Gujarat</b>	<b>149</b>	<b>0.29</b>	<b>25.10</b>	<b>0.00</b>	<b>6.18</b>	<b>42</b>	<b>32</b>	<b>62</b>	<b>8</b>	<b>3</b>	<b>2</b>	136	13
							<b>28.2%</b>	<b>21.5%</b>	<b>41.6%</b>	<b>5.4%</b>	<b>2.0%</b>	<b>1.3%</b>		
11	Bharuch	25	0.51	5.72	2.32	2.32	9	10	5	0	1	0	24	1
							36.0%	40.0%	20.0%	0.0%	4.0%	0.0%		
12	Narmada	11	0.16	6.8	0.35	0.35	3	3	4	1	0	0	10	1
							27.3%	27.3%	36.4%	9.1%	0.0%	0.0%		
13	Navsari	16	1	9.6	0.5	1.1	3	5	6	2	0	0	14	2
							18.8%	31.3%	37.5%	12.5%	0.0%	0.0%		
14	Surat	30	0.1	11	0.2	0.9	15	6	7	2	0	0	28	2
							50.0%	20.0%	23.3%	6.7%	0.0%	0.0%		
15	The dangs	20	0.9	9.7	0	0	3	7	10	0	0	0	20	0
							15.0%	35.0%	50.0%	0.0%	0.0%	0.0%		
16	Vadodara	28	0.4	11.71	1.31	1.31	4	13	10	1	0	0	27	1
							14.3%	46.4%	35.7%	3.6%	0.0%	0.0%		
17	Valsad	16	0.2	12.4	0	0	8	6	2	0	0	0	16	0
							50.0%	37.5%	12.5%	0.0%	0.0%	0.0%		
	<b>South Gujarat</b>	<b>146</b>	<b>0.10</b>	<b>12.40</b>	<b>0.00</b>	<b>2.32</b>	<b>45</b>	<b>50</b>	<b>44</b>	<b>6</b>	<b>1</b>	<b>0</b>	139	7
							<b>30.8%</b>	<b>34.2%</b>	<b>30.1%</b>	<b>4.1%</b>	<b>0.7%</b>	<b>0.0%</b>		
18	Amreli	36	0.56	20.77	0.9	0.9	7	4	24	1	0	0	35	1
							19.4%	11.1%	66.7%	2.8%	0.0%	0.0%		
19	Bhavnagar	31	0.1	21.35	0.44	0.44	5	7	18	1	0	0	30	1
							16.1%	22.6%	58.1%	3.2%	0.0%	0.0%		
20	Jamnagar	45	0.18	18.85	0.39	6.35	6	4	32	1	0	2	42	3
							13.3%	8.9%	71.1%	2.2%	0.0%	4.4%		
21	Junagadh	54	0.13	19.83	0.22	1	9	10	33	2	0	0	52	2
							16.7%	18.5%	61.1%	3.7%	0.0%	0.0%		
22	Porbandar	28	0.63	24.99	0.23	1.5	3	5	18	2	0	0	26	2
							10.7%	17.9%	64.3%	7.1%	0.0%	0.0%		
23	Rajkot	37	1.1	25.35	1.5	9.45	4	6	23	2	1	1	33	4
							10.8%	16.2%	62.2%	5.4%	2.7%	2.7%		
24	Surendranagar	30	0.4	24.72	0.1	3.34	8	8	12	1	1	0	28	2
							26.7%	26.7%	40.0%	3.3%	3.3%	0.0%		
	<b>Saurashtra</b>	<b>261</b>	<b>0.10</b>	<b>25.35</b>	<b>0.10</b>	<b>9.45</b>	<b>42</b>	<b>44</b>	<b>160</b>	<b>10</b>	<b>2</b>	<b>3</b>	246	15
							<b>16.1%</b>	<b>16.9%</b>	<b>61.3%</b>	<b>3.8%</b>	<b>0.8%</b>	<b>1.1%</b>		
25	Kachchh	30	0.04	10.38	0.21	1.09	11	7	9	3	0	0	27	3
							36.7%	23.3%	30.0%	10.0%	0.0%	0.0%		
	<b>Total</b>	<b>586</b>	<b>0.04</b>	<b>25.35</b>	<b>0.00</b>	<b>9.45</b>	<b>140</b>	<b>133</b>	<b>275</b>	<b>27</b>	<b>6</b>	<b>5</b>	548	38
							<b>23.9%</b>	<b>22.7%</b>	<b>46.9%</b>	<b>4.6%</b>	<b>1.0%</b>	<b>0.9%</b>		

### 3.3 Annual Water Level Fluctuation

Annual Fluctuation in the water levels of the ground water monitoring wells during different monitoring periods were analysed graphically and depicted in Fig. 15 (a,b,c & d).

Fig: 15 a

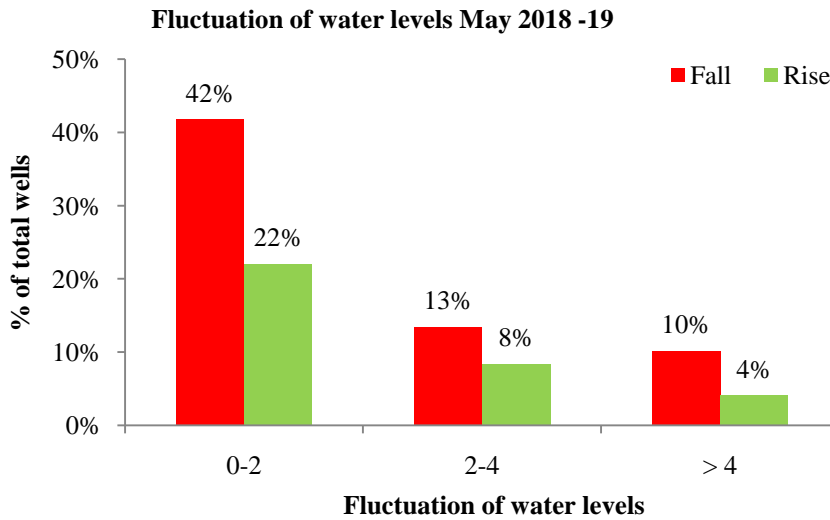


Fig: 15b

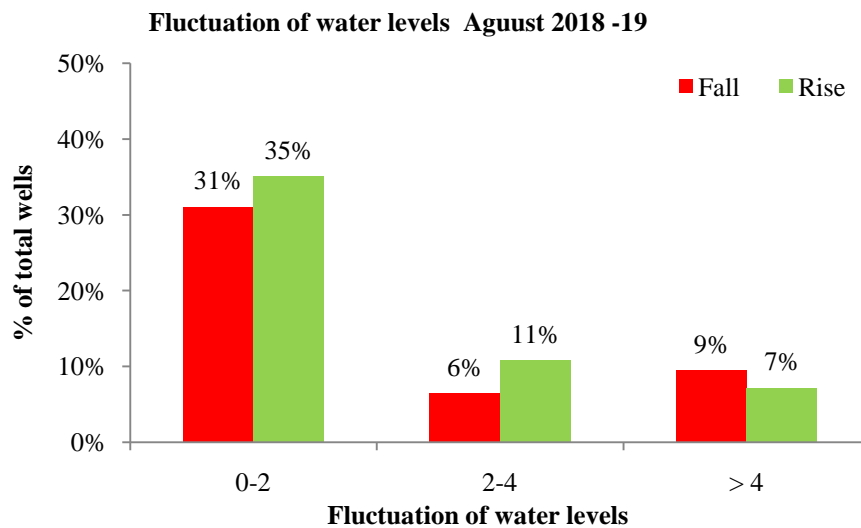


Fig: 15c

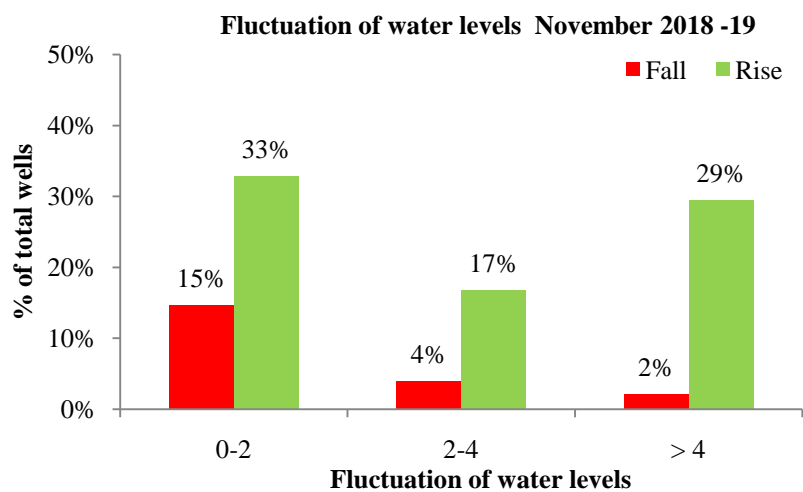
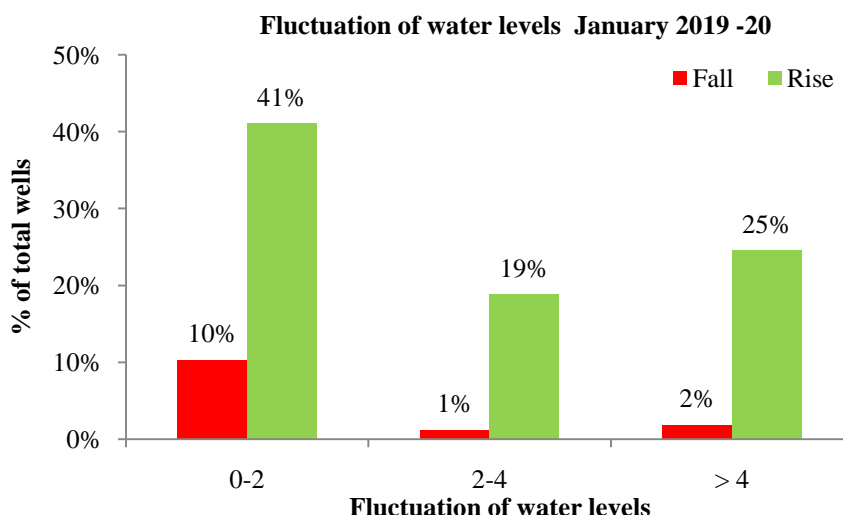


Fig: 15d



### 3.3.1 May 2018 to May 2019

A perusal of Fig 16 and Table 12 reveals that 34% of the total monitoring stations of state show a rise in water level. Rise of 0-2 m is observed in about 22% of total well of the state. More than 4m rise in 4% of total well. Fall in water level is observed mainly in Kachchh, Saurashtra, Central and south part of Gujarat. Fall is mainly in the range of 0-2 m and covers about 42% of total well of the state. The maximum rise of 12.70m is recorded in Anand district, whereas the maximum decline of 23.75m is recorded in Ahmedabad district.

About 71% of the total wells observed fall of water level in the North Gujarat and most of which (64% of wells) is in the range of 0 to 2m. Fall of more than 4 m is mostly seen in the central part of region in Mahesana, Patan and Sabarkantha districts. Rise of water level mostly observed in 28% of total well in North Gujarat, in Ahmedabad, Anand and Banaskantha districts.

South Gujarat region shows fall in water level in the range of 0 to 2 m and covers an area by 49% of well in the region. Rise in water level is observed in the range of 0 to 2 m in 26% of well. Rise and fall of more than 4 m has observed at few locations.

About 38% of total well in Saurashtra region has experienced rise where as 62% shows fall. In 0 to 2m range, 22% of well shows rise where as 35% shows fall. Fall of more than 4m is predominantly found in Amreli, Jamnagar, Junagarh, Rajkot, Surendranagar and Bhavnagar and covers an area about 11% of the well in Saurashtra region.

In Kachchh region, 24% of total well is experienced rise in water level where as 76% shows fall. Fall mostly ranges in 0 to 2m in an area of 45%. All over the Kachchh region shows fall with only wells in few patches of rise in the ranges of 0 to 2 m.

Fig- 16

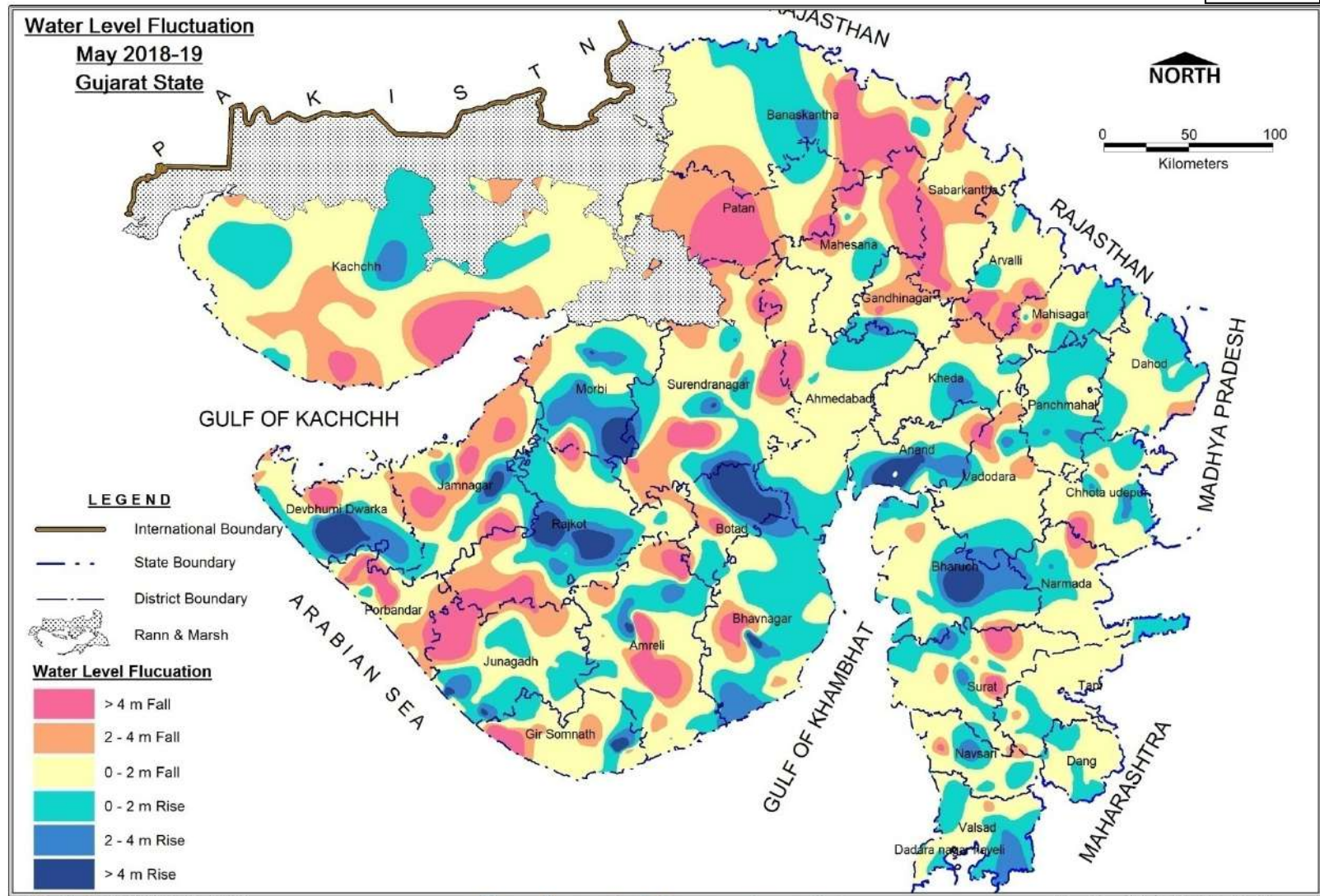


Table - 12

Categorisation of changes in water level between May 2018 to May 2019														
Sr. No.	District Name	No of well analysed	Fluctuation range, m		Fluctuation range, m		No. of wells in difrent depth range						Total No. of wells	
			Rise		Fall		Rise			Fall			Rise	Fall
			Min	Max	Min	Max	0 to 2	2 to 4	> 4	0 to 2	2 to 4	> 4		
1	Ahmedabad	13	1.04	7.7	-	23.75	1	0	2	8	0	2	3	10
							7.7%	0.0%	15.4%	61.5%	0.0%	15.4%		
2	Anand	8	2.15	12.7	0.23	1.57	0	2	2	4	0	0	4	4
							0.0%	25.0%	25.0%	50.0%	0.0%	0.0%		
3	Banaskantha	19	0.49	5.5	0.04	11.98	3	1	2	5	3	5	6	13
							15.8%	5.3%	10.5%	26.3%	15.8%	26.3%		
4	Dohad	18	0.03	1.84	0.1	2.77	8	0	0	9	1	0	8	10
							44.4%	0.0%	0.0%	50.0%	5.6%	0.0%		
5	Gandhinagar	4	3.96	3.96	0.41	5.99	0	1	0	1	1	1	1	3
							0.0%	25.0%	0.0%	25.0%	25.0%	25.0%		
6	Kheda	11	0.05	2.95	0.34	2.71	3	2	0	5	1	0	5	6
							27.3%	18.2%	0.0%	45.5%	9.1%	0.0%		
7	Mahesana	21	0.23	1.22	0.19	9.74	3	0	0	11	3	4	3	18
							14.3%	0.0%	0.0%	52.4%	14.3%	19.0%		
8	Panchmahals	17	0.03	2.48	0.02	4.86	5	3	0	8	0	1	8	9
							29.4%	17.6%	0.0%	47.1%	0.0%	5.9%		
9	Patan	4	-	-	1.07	12.22	0	0	0	1	1	2	0	4
							0.0%	0.0%	0.0%	25.0%	25.0%	50.0%		
10	Sabarkantha	29	0.05	1.4	0.16	11.1	3	0	0	12	8	6	3	26
							10.3%	0.0%	0.0%	41.4%	27.6%	20.7%		
	<b>North Gujarat</b>	<b>144</b>	<b>0.03</b>	<b>12.70</b>	<b>0.02</b>	<b>23.75</b>	<b>26</b>	<b>9</b>	<b>6</b>	<b>64</b>	<b>18</b>	<b>21</b>	<b>41</b>	<b>103</b>
							<b>18.1%</b>	<b>6.3%</b>	<b>4.2%</b>	<b>44.4%</b>	<b>12.5%</b>	<b>14.6%</b>		
11	Bharuch	22	0.25	5.89	0.16	3.22	8	1	1	10	2	0	10	12
							36.4%	4.5%	4.5%	45.5%	9.1%	0.0%		
12	Narmada	14	0.29	2.43	0.06	7.74	2	2	0	7	2	1	4	10
							14.3%	14.3%	0.0%	50.0%	14.3%	7.1%		
13	Navsari	16	0.4	2.94	-	4.55	2	1	0	11	1	1	3	13
							12.5%	6.3%	0.0%	68.8%	6.3%	6.3%		
14	Surat	27	0.1	4.15	0.13	6.84	10	1	1	9	4	2	12	15
							37.0%	3.7%	3.7%	33.3%	14.8%	7.4%		
15	The dangs	22	0.1	2.95	0.02	2	8	2	0	11	1	0	10	12
							36.4%	9.1%	0.0%	50.0%	4.5%	0.0%		
16	Vadodara	28	0.48	3.09	-	5.73	2	5	0	16	3	2	7	21
							7.1%	17.9%	0.0%	57.1%	10.7%	7.1%		
17	Valsad	17	0.17	3.6	0.14	4.25	6	2	0	8	0	1	8	9
							35.3%	11.8%	0.0%	47.1%	0.0%	5.9%		
	<b>South Gujarat</b>	<b>146</b>	<b>0.10</b>	<b>5.89</b>	<b>0.02</b>	<b>7.74</b>	<b>38</b>	<b>14</b>	<b>2</b>	<b>72</b>	<b>13</b>	<b>7</b>	<b>54</b>	<b>92</b>
							<b>26.0%</b>	<b>9.6%</b>	<b>1.4%</b>	<b>49.3%</b>	<b>8.9%</b>	<b>4.8%</b>		
18	Amreli	37	0.07	4.76	0.08	14.25	7	3	1	15	6	5	11	26
							18.9%	8.1%	2.7%	40.5%	16.2%	13.5%		
19	Bhavnagar	24	0.06	6.95	0.51	7.78	8	3	3	4	4	2	14	10
							33.3%	12.5%	12.5%	16.7%	16.7%	8.3%		
20	Jamnagar	40	0.22	11.78	-	7.02	7	3	3	14	8	5	13	27
							17.5%	7.5%	7.5%	35.0%	20.0%	12.5%		
21	Junagadh	44	0.07	7.4	0.05	10.22	14	3	3	17	4	3	20	24
							31.8%	6.8%	6.8%	38.6%	9.1%	6.8%		
22	Porbandar	27	0.35	2.94	-	8.09	3	1	0	11	7	5	4	23
							11.1%	3.7%	0.0%	40.7%	25.9%	18.5%		
23	Rajkot	38	0.07	8.7	-	7	8	6	4	11	4	5	18	20
							21.1%	15.8%	10.5%	28.9%	10.5%	13.2%		
24	Surendranagar	29	0.13	4.27	0.08	11.4	6	4	1	12	4	2	11	18
							20.7%	13.8%	3.4%	41.4%	13.8%	6.9%		
	<b>Saurashtra</b>	<b>239</b>	<b>0.06</b>	<b>11.78</b>	<b>0.05</b>	<b>14.25</b>	<b>53</b>	<b>23</b>	<b>15</b>	<b>84</b>	<b>37</b>	<b>27</b>	<b>91</b>	<b>148</b>
							<b>22.2%</b>	<b>9.6%</b>	<b>6.3%</b>	<b>35.1%</b>	<b>15.5%</b>	<b>11.3%</b>		
25	Kachchh	29	0.02	3.48	-	10.4	6	1	0	13	7	2	7	22
							20.7%	3.4%	0.0%	44.8%	24.1%	6.9%		
	<b>Total</b>	<b>558</b>	<b>0.02</b>	<b>12.70</b>	<b>0.02</b>	<b>23.75</b>	<b>123</b>	<b>47</b>	<b>23</b>	<b>233</b>	<b>75</b>	<b>57</b>	<b>193</b>	<b>365</b>
							<b>22.0%</b>	<b>8.4%</b>	<b>4.1%</b>	<b>41.8%</b>	<b>13.4%</b>	<b>10.2%</b>		

### 3.3.2 August 2018 to August 2019

A perusal of Fig 17 and Table 13 reveals that 53% of total monitoring well in the Gujarat state shows a rise in water level. Rise in water level with in range of 0 – 2 m is observed in about 35% of well. Fall in the range of 0 – 2 m experienced by 31% of well of the state. Fall of more than 2m and 4m is found in North and Central Gujarat & Saurashtra region. The maximum rise of 12.52m is recorded in Amreli district whereas the maximum decline of 21.18m is recorded in Junagadh district.

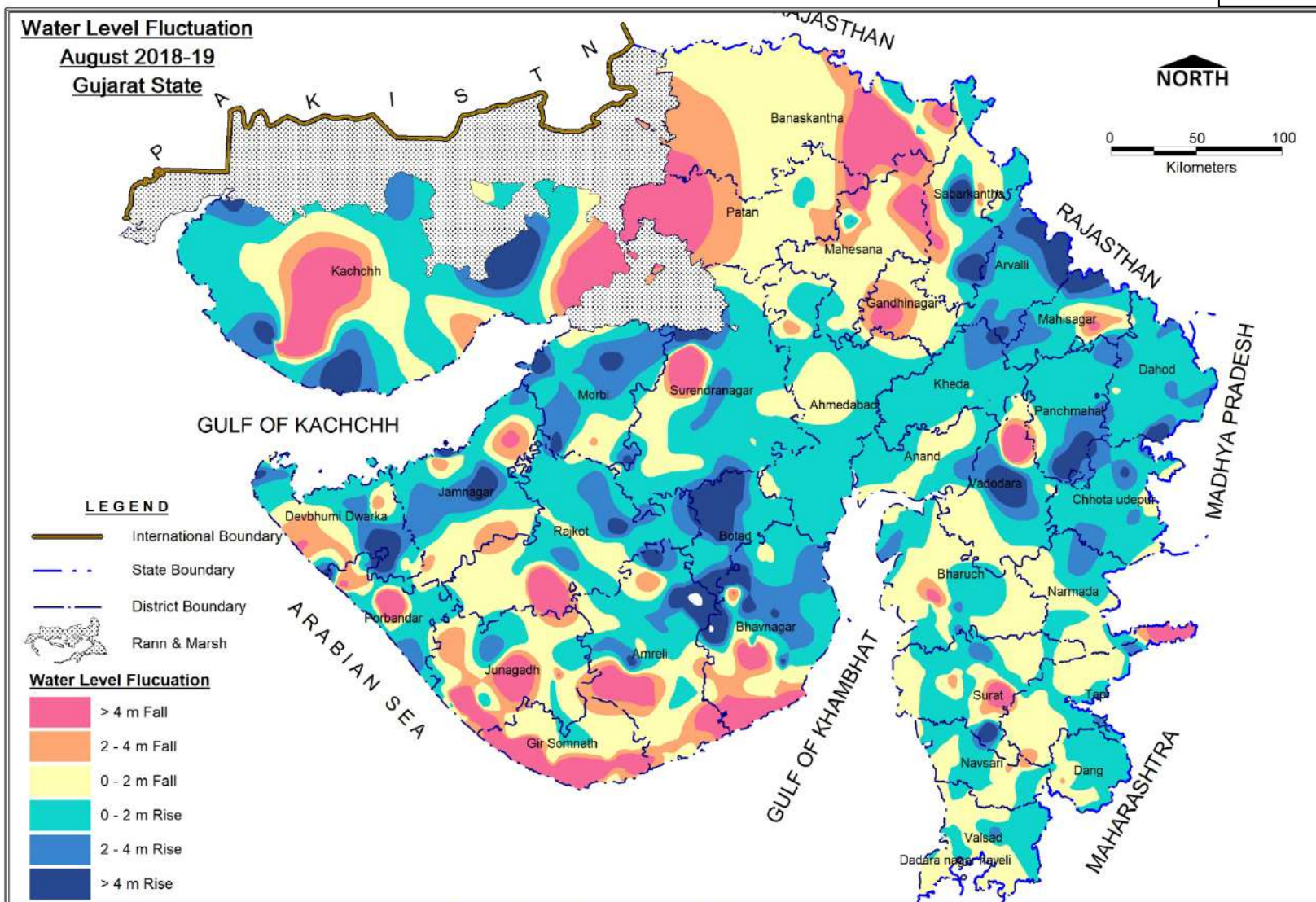
About 58% of the total well shows rise of water level in the North Gujarat and most of which (39% of well) is in the range of 0 to 2m of fluctuation of water level. Rise of more than 4m is mostly seen in 11% of well in the region mostly in adjoining area of Panchamahals and Sabarkantha districts. Fall of 0 to 4 m range is observed in 43% of well of the region. Fall of water level observed in the adjoining area of Banaskantha, Mahesana dahod and Sabarkantha districts.

In South Gujarat region, 46% of the total well shows rise in water level and out of which, 36% are in the range of 0 to 2m in the region. Similarly, 55% of total well shows fall in water level and a maximum of 48% of well are in the range of 0 to 2 m.

About 45% of the total well in the Saurashtra region experienced fall of water level and out of which, 23% of well are in the range of 0 -2 m. Rise of water level experienced in 55% of wells where 32% range less than 2m of the total number of wells analysed.

In Kachchh region, 41% of the total well in the area is experienced by a fall in water level where as 59% shows rise. Water level in range of less than 2m, about 34% of well shows rise while 24% shows fall. Fall in water level observed in west central part of the Kachchh.

**Fig- 17**



DRG. No. RODC/YB/2019-20/13

आओ हाथ से हाथ मिलाएं, हम सभी मिलकर जल को बचाएं !

Drg. By : Nilesh Dhokia, Draftsman



Table - 13

## Categorisation of changes in water level between August 2018 to August 2019

Sr. No.	District Name	No of well analysed	Fluctuation range, m		Fluctuation range, m		No. of wells in difrent depth range						Total No. of wells	
			Rise		Fall		Rise			Fall			Rise	Fall
			Min	Max	Min	Max	0 to 2	2 to 4	> 4	0 to 2	2 to 4	> 4		
1	Ahmedabad	15	0.17	6.65	0.04	3.34	8	0	2	4	1	0	10	5
							53.3%	0.0%	13.3%	26.7%	6.7%	0.0%		
2	Anand	9	0.22	3.31	0.05	1.17	3	1	0	5	0	0	4	5
							33.3%	11.1%	0.0%	55.6%	0.0%	0.0%		
3	Banaskantha	14	0.53	5.57	0.29	12.4	1	0	1	5	2	5	2	12
							7.1%	0.0%	7.1%	35.7%	14.3%	35.7%		
4	Dohad	22	0.26	6.63	0.17	0.17	16	4	1	1	0	0	21	1
							72.7%	18.2%	4.5%	4.5%	0.0%	0.0%		
5	Gandhinagar	3	-	-	0.73	8.83	0	0	0	2	0	1	0	3
							0.0%	0.0%	0.0%	66.7%	0.0%	33.3%		
6	Kheda	12	0.25	3.33	0.14	0.39	6	4	0	2	0	0	10	2
							50.0%	33.3%	0.0%	16.7%	0.0%	0.0%		
7	Mahesana	19	0.26	2.16	0.1	9.42	2	1	0	10	4	2	3	16
							10.5%	5.3%	0.0%	52.6%	21.1%	10.5%		
8	Panchmahals	23	0.3	7.86	0.23	5.5	12	4	3	1	1	2	19	4
							52.2%	17.4%	13.0%	4.3%	4.3%	8.7%		
9	Patan	6	0.12	0.12	0.31	6.02	1	0	0	1	3	1	1	5
							16.7%	0.0%	0.0%	16.7%	50.0%	16.7%		
10	Sabarkantha	30	0.11	10.71	0.18	4.32	11	3	4	9	2	1	18	12
							36.7%	10.0%	13.3%	30.0%	6.7%	3.3%		
	<b>North Gujarat</b>	<b>153</b>	<b>0.11</b>	<b>10.71</b>	<b>0.04</b>	<b>12.40</b>	<b>60</b>	<b>17</b>	<b>11</b>	<b>40</b>	<b>13</b>	<b>12</b>	<b>88</b>	<b>65</b>
							<b>39.2%</b>	<b>11.1%</b>	<b>7.2%</b>	<b>26.1%</b>	<b>8.5%</b>	<b>7.8%</b>		
11	Bharuch	26	0.04	3	0.28	5.16	8	3	0	14	0	1	11	15
							30.8%	11.5%	0.0%	53.8%	0.0%	3.8%		
12	Narmada	14	0.05	3.5	0.06	1.83	6	2	0	6	0	0	8	6
							42.9%	14.3%	0.0%	42.9%	0.0%	0.0%		
13	Navsari	16	0.02	0.86	0.03	6.26	6	0	0	8	1	1	6	10
							37.5%	0.0%	0.0%	50.0%	6.3%	6.3%		
14	Surat	48	0.02	8.69	0.02	8.01	13	3	1	26	3	2	17	31
							27.1%	6.3%	2.1%	54.2%	6.3%	4.2%		
15	The dangs	22	0.01	0.89	0.02	2.54	12	0	0	9	1	0	12	10
							54.5%	0.0%	0.0%	40.9%	4.5%	0.0%		
16	Vadodara	24	0.15	8.71	0.2	9.45	11	4	2	6	0	1	17	7
							45.8%	16.7%	8.3%	25.0%	0.0%	4.2%		
17	Valsad	17	0.09	3.16	0.12	1.42	4	1	0	12	0	0	5	12
							23.5%	5.9%	0.0%	70.6%	0.0%	0.0%		
	<b>South Gujarat</b>	<b>167</b>	<b>0.01</b>	<b>8.71</b>	<b>0.02</b>	<b>9.45</b>	<b>60</b>	<b>13</b>	<b>3</b>	<b>81</b>	<b>5</b>	<b>5</b>	<b>76</b>	<b>91</b>
							<b>35.9%</b>	<b>7.8%</b>	<b>1.8%</b>	<b>48.5%</b>	<b>3.0%</b>	<b>3.0%</b>		
18	Amreli	39	0.07	12.52	0.04	11.92	11	2	4	11	5	6	17	22
							28.2%	5.1%	10.3%	28.2%	12.8%	15.4%		
19	Bhavnagar	40	0.02	11.87	0.07	10.52	12	4	9	8	2	5	25	15
							30.0%	10.0%	22.5%	20.0%	5.0%	12.5%		
20	Jamnagar	38	0.37	7.26	-	4.67	10	7	4	9	6	2	21	17
							26.3%	18.4%	10.5%	23.7%	15.8%	5.3%		
21	Junagadh	49	0.02	3.33	0.07	21.18	11	3	0	13	5	17	14	35
							22.4%	6.1%	0.0%	26.5%	10.2%	34.7%		
22	Porbandar	26	0.07	10.43	1.93	14.26	13	5	2	1	1	4	20	6
							50.0%	19.2%	7.7%	3.8%	3.8%	15.4%		
23	Rajkot	32	0.03	5.71	0.02	13.52	11	6	4	9	1	1	21	11
							34.4%	18.8%	12.5%	28.1%	3.1%	3.1%		
24	Surendranagar	29	0.04	5.06	0.01	16.52	13	5	2	8	0	1	20	9
							44.8%	17.2%	6.9%	27.6%	0.0%	3.4%		
	<b>Saurashtra</b>	<b>253</b>	<b>0.02</b>	<b>12.52</b>	<b>0.01</b>	<b>21.18</b>	<b>81</b>	<b>32</b>	<b>25</b>	<b>59</b>	<b>20</b>	<b>36</b>	<b>138</b>	<b>115</b>
							<b>32.0%</b>	<b>12.6%</b>	<b>9.9%</b>	<b>23.3%</b>	<b>7.9%</b>	<b>14.2%</b>		
25	Kachchh	29	0.03	8.62	0.1	9.06	10	3	4	7	1	4	17	12
							34.5%	10.3%	13.8%	24.1%	3.4%	13.8%		
	<b>Total</b>	<b>602</b>	<b>0.01</b>	<b>12.52</b>	<b>0.01</b>	<b>21.18</b>	<b>211</b>	<b>65</b>	<b>43</b>	<b>187</b>	<b>39</b>	<b>57</b>	<b>319</b>	<b>283</b>
							<b>35.0%</b>	<b>10.8%</b>	<b>7.1%</b>	<b>31.1%</b>	<b>6.5%</b>	<b>9.5%</b>		

### 3.3.3. November 2018 to November 2019

A perusal of Fig 18 and Table 14 reveals that 79% of total monitoring wells show a rise and 21% shows fall in water level of the Gujarat state. Fall in water level within the range of 0 to 2m is observed in about 15%, 2 – 4 m in 4% and more than 4 m in 2% of the total well in the state. Rise in the water level is in the range of less than 2m and is about 33% of the total well. The maximum decline of 11.18m is recorded in Mahesana district where as the maximum rise of 25.42m is recorded in Amreli district.

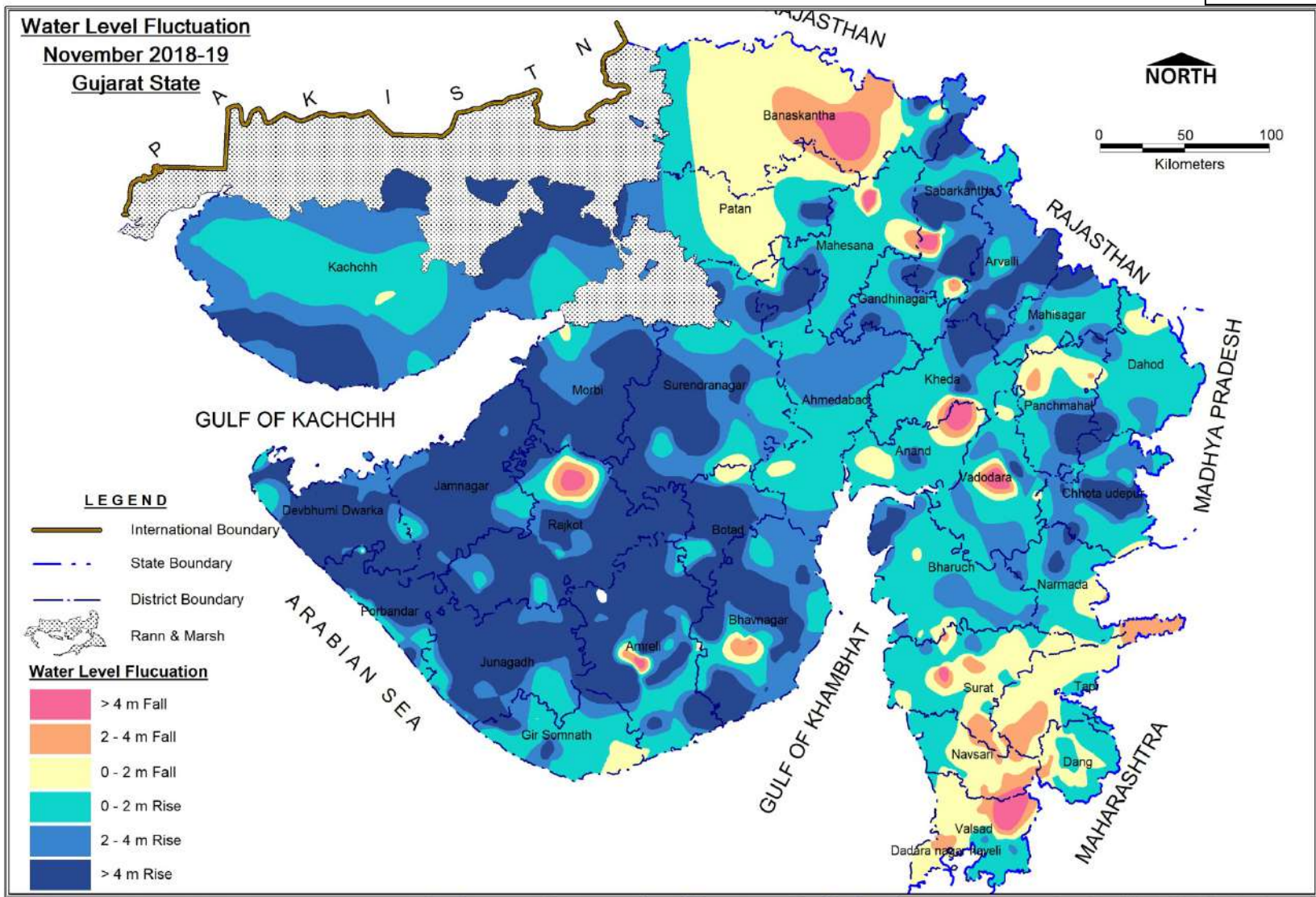
About 78% of the total well shows rise of water level in the North Gujarat and most of which (60%) shows fluctuation in the range of 0 to 4m of water level. Fall of more than 4m is mostly seen in Sabarkantha, Banaskantha and Patan in the north region. Fall of 0 – 4 m range is observed in 17% of the total well found mainly in the north central part of the north Gujarat region.

In South Gujarat region, 59% of total well analyzed shows rise in water level and in the range of 0 – 2m represents 38% of well in the region. Rise of water level in 0 to 2m mainly observed in central part of south region mainly in Surat, Valsad, Navsari and Dangs district. Fall in water level is observed maximum in the range of 0 – 2 m in 30% of the total well analyzed.

About 8% of total well in Saurashtra region has experienced fall in water level and fall in the range of more than 4m represents about 7% of the total well analysed found in north part of Saurashtra region in Amreli, Bhavnagar and Rajkot districts. Rise in water level found in 92% of total well in almost all part of the Saurashtra I region.

In Kachchh region, 4% of the total well analysed shows fall in water level and it is in the range of 0 – 2m. Rise of morethan 4m is observed in 11% of total well in the east and west part of Kachchh district. The rise observed in 96% of total well in Kuchchh region.

**Fig- 18**



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Table - 14

## Categorisation of changes in water level between November 2018 to November 2019

Sr. No.	District Name	No of well analysed	Fluctuation range, m		Fluctuation range, m		No. of wells in difrent depth range						Total No. of wells	
			Rise		Fall		Rise			Fall			Rise	Fall
			Min	Max	Min	Max	0 to 2	2 to 4	> 4	0 to 2	2 to 4	> 4		
1	Ahmedabad	17	0.31	9.81	0.42	4.12	7	2	5	2	0	1	14	3
							41.2%	11.8%	29.4%	11.8%	0.0%	5.9%		
2	Anand	8	0.53	4.9	0.72	6.56	5	0	1	1	0	1	6	2
							62.5%	0.0%	12.5%	12.5%	0.0%	12.5%		
3	Banaskantha	15	0.13	5.05	0.12	5.94	3	0	1	7	2	2	4	11
							20.0%	0.0%	6.7%	46.7%	13.3%	13.3%		
4	Dohad	22	0.07	8.2	0.23	0.38	15	3	1	3	0	0	19	3
							68.2%	13.6%	4.5%	13.6%	0.0%	0.0%		
5	Gandhinagar	3	0.88	4.18	-	-	2	0	1	0	0	0	3	0
							66.7%	0.0%	33.3%	0.0%	0.0%	0.0%		
6	Kheda	13	0.05	10.8	-	-	7	3	3	0	0	0	13	0
							53.8%	23.1%	23.1%	0.0%	0.0%	0.0%		
7	Mahesana	18	0.1	4.7	0.01	11.18	12	1	1	3	0	1	14	4
							66.7%	5.6%	5.6%	16.7%	0.0%	5.6%		
8	Panchmahals	22	0.6	7.26	0.04	2.45	9	4	4	3	2	0	17	5
							40.9%	18.2%	18.2%	13.6%	9.1%	0.0%		
9	Patan	6	0.04	8.11	1.03	1.03	3	0	2	1	0	0	5	1
							50.0%	0.0%	33.3%	16.7%	0.0%	0.0%		
10	Sabarkantha	32	0.4	14.99	0.05	6.47	8	9	10	3	0	2	27	5
							25.0%	28.1%	31.3%	9.4%	0.0%	6.3%		
	<b>North Gujarat</b>	<b>156</b>	<b>0.04</b>	<b>14.99</b>	<b>0.01</b>	<b>11.18</b>	<b>71</b>	<b>22</b>	<b>29</b>	<b>23</b>	<b>4</b>	<b>7</b>	122	34
							<b>45.5%</b>	<b>14.1%</b>	<b>18.6%</b>	<b>14.7%</b>	<b>2.6%</b>	<b>4.5%</b>		
11	Bharuch	30	0.1	7.93	0.09	0.82	16	9	2	3	0	0	27	3
							53.3%	30.0%	6.7%	10.0%	0.0%	0.0%		
12	Narmada	19	0.13	5.89	1.73	2.24	8	5	3	1	2	0	16	3
							42.1%	26.3%	15.8%	5.3%	10.5%	0.0%		
13	Navsari	18	0.07	1.08	0.41	3.09	8	0	0	6	4	0	8	10
							44.4%	0.0%	0.0%	33.3%	22.2%	0.0%		
14	Surat	46	0.11	3.44	0.08	6.95	13	3	0	21	8	1	16	30
							28.3%	6.5%	0.0%	45.7%	17.4%	2.2%		
15	The dangs	23	0.08	4.1	0.03	2.93	9	0	1	11	2	0	10	13
							39.1%	0.0%	4.3%	47.8%	8.7%	0.0%		
16	Vadodara	32	0.12	9.28	0.27	6.39	14	8	6	3	0	1	28	4
							43.8%	25.0%	18.8%	9.4%	0.0%	3.1%		
17	Valsad	18	0.68	2.32	0.18	7.18	2	2	0	10	3	1	4	14
							11.1%	11.1%	0.0%	55.6%	16.7%	5.6%		
	<b>South Gujarat</b>	<b>186</b>	<b>0.07</b>	<b>9.28</b>	<b>0.03</b>	<b>7.18</b>	<b>70</b>	<b>27</b>	<b>12</b>	<b>55</b>	<b>19</b>	<b>3</b>	109	77
							<b>37.6%</b>	<b>14.5%</b>	<b>6.5%</b>	<b>29.6%</b>	<b>10.2%</b>	<b>1.6%</b>		
18	Amreli	46	0.11	25.42	0.01	5.71	16	5	18	5	1	1	39	7
							34.8%	10.9%	39.1%	10.9%	2.2%	2.2%		
19	Bhavnagar	37	0.12	21.73	-	4.17	10	10	14	1	1	1	34	3
							27.0%	27.0%	37.8%	2.7%	2.7%	2.7%		
20	Jamnagar	41	0.42	17.6	0.07	0.2	4	8	27	2	0	0	39	2
							9.8%	19.5%	65.9%	4.9%	0.0%	0.0%		
21	Junagadh	53	0.02	17.5	0.02	1.48	18	12	18	5	0	0	48	5
							34.0%	22.6%	34.0%	9.4%	0.0%	0.0%		
22	Porbandar	28	0.19	23.39	0.99	0.99	7	2	18	1	0	0	27	1
							25.0%	7.1%	64.3%	3.6%	0.0%	0.0%		
23	Rajkot	39	0.55	21.92	0.15	8.48	3	7	25	2	0	2	35	4
							7.7%	17.9%	64.1%	5.1%	0.0%	5.1%		
24	Surendranagar	34	0.11	13.62	3.55	3.55	7	7	19	0	1	0	33	1
							20.6%	20.6%	55.9%	0.0%	2.9%	0.0%		
	<b>Saurashtra</b>	<b>278</b>	<b>0.02</b>	<b>25.42</b>	<b>0.01</b>	<b>8.48</b>	<b>65</b>	<b>51</b>	<b>139</b>	<b>16</b>	<b>3</b>	<b>4</b>	255	23
							<b>23.4%</b>	<b>18.3%</b>	<b>50.0%</b>	<b>5.8%</b>	<b>1.1%</b>	<b>1.4%</b>		
25	Kachchh	28	0.04	13.78	0.06	0.06	7	9	11	1	0	0	27	1
							25.0%	32.1%	39.3%	3.6%	0.0%	0.0%		
	<b>Total</b>	<b>648</b>	<b>0.02</b>	<b>25.42</b>	<b>0.01</b>	<b>11.18</b>	<b>213</b>	<b>109</b>	<b>191</b>	<b>95</b>	<b>26</b>	<b>14</b>	513	135
							<b>32.9%</b>	<b>16.8%</b>	<b>29.5%</b>	<b>14.7%</b>	<b>4.0%</b>	<b>2.2%</b>		

### 3.3.4 January 2019 to January 2020

A perusal of Fig 19 and Table 15 reveals that out of total monitoring wells, 13% shows a fall where as 86% shows rise in water level of the Gujarat state. Fall in water level mainly within range of 0 – 2m is observed in about 10% of the total well in the state. Fall in water level is mainly observed in Kachchh, sourashtra, northern and southern part of Gujarat state. Rise mainly observed in the range of 0 – 2 m covers about 42% of the total well in state. The maximum rise of 30.31m is recorded in Bhavnagar district whereas the maximum decline of 11.12m is recorded in Anand district.

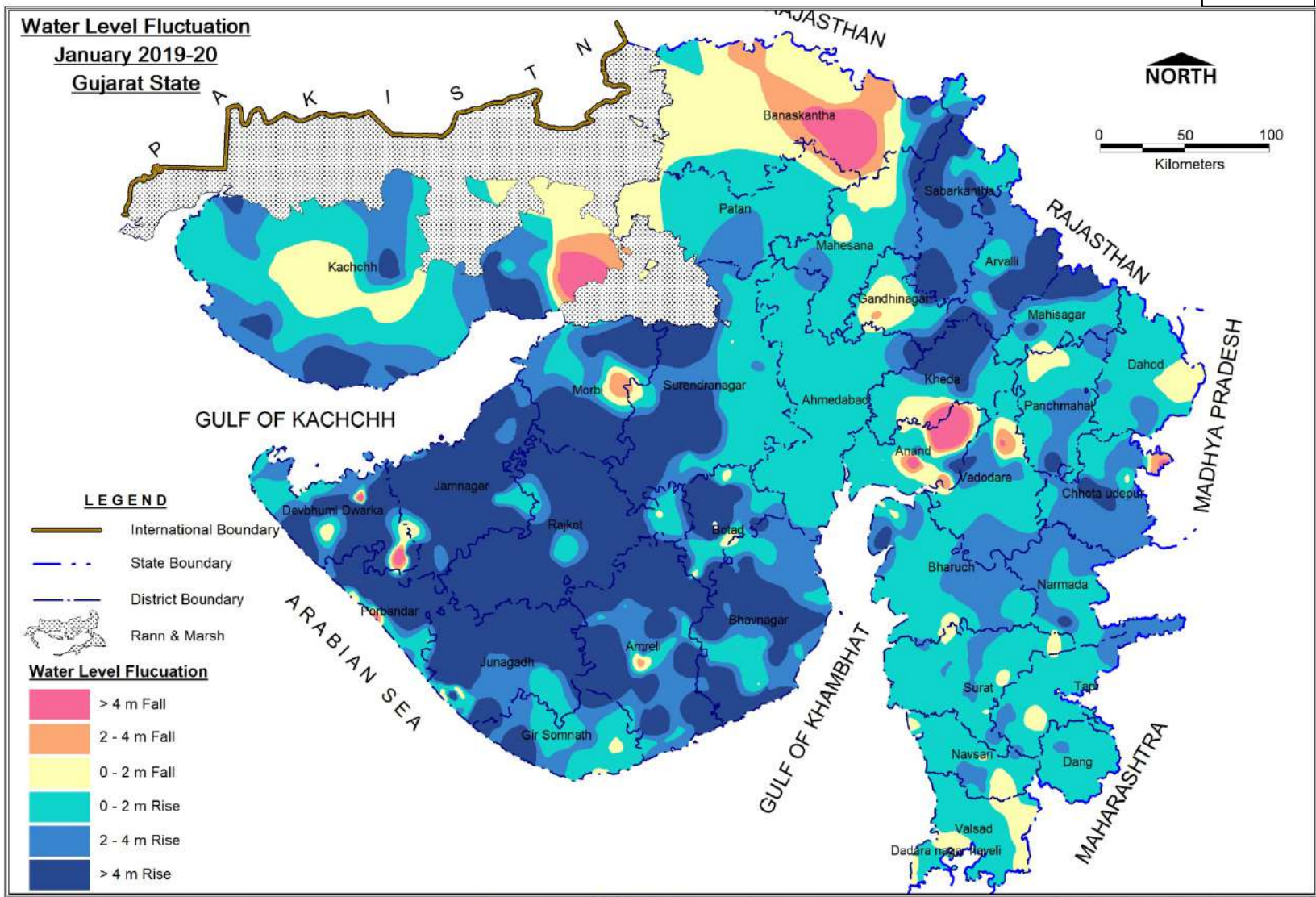
About 22% of the total well shows fall of water level in the North Gujarat and most of which (14%) shows fall in the range of 0 to 2m. Fall of more than 4 m is mostly seen in the parts of Banaskantha, Gandhinagar and Anand districts in 04% of total well analysed in the region. Rise of 0 – 2 m range is observed in 51% of the total well observed in the area of Panchmahal, Dahod, Sabarkantha districts in eastern part of north Gujarat region.

In South Gujarat region, 13% of total well analysed shows fall in water level and 12% represents in the range of 0 – 2 m of total well in the region. Fall of water level observed in the range of 2 to 4m and more than 4m in isolated patches distributed sporadically in south Gujarat region. Rise in water level observed in the range of 0 – 2m in 59% of the total 87% of total well analysed lying mainly in east of Vadodara, Bhruch and Narmada districts in the South Gujarat region.

About 8% of the Saurashtra region has experienced fall in water level and in the range of 0 – 2m observed in 6% of the total well analysed. Fall of water level in 1% of well observed more than 4m is predominantly found in Jamnagar and Porbandar district all over the region. Rise in water level also found in 92% of total well distributed all over the Saurashtra region. About 46% area of the region observed rise of more than 4m.

In Kachchh region, rise in water level experienced in 73% of total well equally distributed in the region for monitoring. Fall of water level mainly ranges in 0 – 2 m is observed in 24% of total well western part of the district. About 26% area shows fall in the region.

**Fig- 19**



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Table - 15

## Categorisation of changes in water level between January 2019 to January 2020

Sr. No.	District Name	No of well analysed	Fluctuation range, m		Fluctuation range, m		No. of wells in difrent depth range						Total No. of wells	
			Rise		Fall		Rise			Fall			Rise	Fall
			Min	Max	Min	Max	0 to 2	2 to 4	> 4	0 to 2	2 to 4	> 4		
1	Ahmedabad	16	0.5	8.49	0.14	0.14	13	1	1	1	0	0	15	1
							81.3%	6.3%	6.3%	6.3%	0.0%	0.0%		
2	Anand	12	0.2	4.76	-	11.12	4	1	1	3	1	2	6	6
							33.3%	8.3%	8.3%	25.0%	8.3%	16.7%		
3	Banaskantha	15	0.05	6.86	0.26	8.74	6	0	1	2	4	2	7	8
							40.0%	0.0%	6.7%	13.3%	26.7%	13.3%		
4	Dohad	23	0.05	3.34	0.38	1.88	13	5	0	5	0	0	18	5
							56.5%	21.7%	0.0%	21.7%	0.0%	0.0%		
5	Gandhinagar	4	0.5	0.9	1.48	5.11	2	0	0	1	0	1	2	2
							50.0%	0.0%	0.0%	25.0%	0.0%	25.0%		
6	Kheda	13	0.35	11.65	0.09	0.65	7	0	4	2	0	0	11	2
							53.8%	0.0%	30.8%	15.4%	0.0%	0.0%		
7	Mahesana	18	0.35	4.05	0.28	5.16	11	0	1	4	1	1	12	6
							61.1%	0.0%	5.6%	22.2%	5.6%	5.6%		
8	Panchmahals	20	0.04	9.27	0.04	0.55	10	4	3	3	0	0	17	3
							50.0%	20.0%	15.0%	15.0%	0.0%	0.0%		
9	Patan	5	0.14	2.7	-	-	4	1	0	0	0	0	5	0
							80.0%	20.0%	0.0%	0.0%	0.0%	0.0%		
10	Sabarkantha	27	0.14	15.18	0.03	0.03	8	9	9	1	0	0	26	1
							29.6%	33.3%	33.3%	3.7%	0.0%	0.0%		
	<b>North Gujarat</b>	<b>153</b>	<b>0.04</b>	<b>15.18</b>	<b>0.03</b>	<b>11.12</b>	<b>78</b>	<b>21</b>	<b>20</b>	<b>22</b>	<b>6</b>	<b>6</b>	119	34
							<b>51.0%</b>	<b>13.7%</b>	<b>13.1%</b>	<b>14.4%</b>	<b>3.9%</b>	<b>3.9%</b>		
11	Bharuch	31	0.23	4.5	0.12	0.87	21	6	1	3	0	0	28	3
							67.7%	19.4%	3.2%	9.7%	0.0%	0.0%		
12	Narmada	14	0.72	5.07	1.92	1.92	5	7	1	1	0	0	13	1
							35.7%	50.0%	7.1%	7.1%	0.0%	0.0%		
13	Navsari	17	0.2	3.2	0.2	1.2	10	4	0	3	0	0	14	3
							58.8%	23.5%	0.0%	17.6%	0.0%	0.0%		
14	Surat	40	0.1	3	-	1.1	21	14	0	5	0	0	35	5
							52.5%	35.0%	0.0%	12.5%	0.0%	0.0%		
15	The dangs	23	0.2	3.3	-	-	21	2	0	0	0	0	23	0
							91.3%	8.7%	0.0%	0.0%	0.0%	0.0%		
16	Vadodara	28	0.19	7.91	-	4.23	10	11	2	3	0	2	23	5
							35.7%	39.3%	7.1%	10.7%	0.0%	7.1%		
17	Valsad	16	0.4	1.4	-	1.1	11	0	0	5	0	0	11	5
							68.8%	0.0%	0.0%	31.3%	0.0%	0.0%		
	<b>South Gujarat</b>	<b>169</b>	<b>0.10</b>	<b>7.91</b>	<b>0.12</b>	<b>4.23</b>	<b>99</b>	<b>44</b>	<b>4</b>	<b>20</b>	<b>0</b>	<b>2</b>	147	22
							<b>58.6%</b>	<b>26.0%</b>	<b>2.4%</b>	<b>11.8%</b>	<b>0.0%</b>	<b>1.2%</b>		
18	Amreli	45	0.13	18.6	2.7	2.7	16	7	21	0	1	0	44	1
							35.6%	15.6%	46.7%	0.0%	2.2%	0.0%		
19	Bhavnagar	42	0.14	30.31	0.01	0.89	8	10	20	4	0	0	38	4
							19.0%	23.8%	47.6%	9.5%	0.0%	0.0%		
20	Jamnagar	43	0.2	16.94	0.02	6.81	6	7	24	4	0	2	37	6
							14.0%	16.3%	55.8%	9.3%	0.0%	4.7%		
21	Junagadh	53	0.06	19.71	0.59	1.67	22	12	15	4	0	0	49	4
							41.5%	22.6%	28.3%	7.5%	0.0%	0.0%		
22	Porbandar	27	0.38	23	0.03	4.71	5	5	14	2	0	1	24	3
							18.5%	18.5%	51.9%	7.4%	0.0%	3.7%		
23	Rajkot	32	0.2	21.43	0.18	0.18	7	2	22	1	0	0	31	1
							21.9%	6.3%	68.8%	3.1%	0.0%	0.0%		
24	Surendranagar	36	0.05	17.62	-	3.32	16	6	11	2	1	0	33	3
							44.4%	16.7%	30.6%	5.6%	2.8%	0.0%		
	<b>Saurashtra</b>	<b>278</b>	<b>0.05</b>	<b>30.31</b>	<b>0.01</b>	<b>6.81</b>	<b>80</b>	<b>49</b>	<b>127</b>	<b>17</b>	<b>2</b>	<b>3</b>	256	22
							<b>28.8%</b>	<b>17.6%</b>	<b>45.7%</b>	<b>6.1%</b>	<b>0.7%</b>	<b>1.1%</b>		
25	Kachchh	34	0.1	5.72	-	5.96	9	8	8	8	0	1	25	9
							26.5%	23.5%	23.5%	23.5%	0.0%	2.9%		
	<b>Total</b>	<b>634</b>	<b>0.04</b>	<b>30.31</b>	<b>0.01</b>	<b>11.12</b>	<b>266</b>	<b>122</b>	<b>159</b>	<b>67</b>	<b>8</b>	<b>12</b>	547	87
							<b>42.0%</b>	<b>19.2%</b>	<b>25.1%</b>	<b>10.6%</b>	<b>1.3%</b>	<b>1.9%</b>		

### **3.4 Long Term Ground Water Scenario**

Long-term behaviour of water levels was studied by analysing the data for decadal average water levels and fluctuation of present year water level with respect to decadal average water levels. Maps showing variation in water level scenario over the decadal average for premonsoon and postmonsoon from 2010-19, and comparison of May, August, November 2019 against decadal average of 2009-18 and January 2020 against decadal average of 2010-19 have been prepared to evaluate the long term changes in the groundwater regime.

#### **3.4.1 Decadal Average Depth to Water Level**

Maps showing depth to water level scenario over the decade 2010-19 have been prepared to evaluate the long term changes in the groundwater regime. Average depth to water level data is given in Annexure IV and distribution of the same is discussed below.

##### **3.4.1.1 Pre-monsoon Water Levels (2010-19)**

Decadal average water level map for the period May 2010 to May 2019 (Fig. 20) reveals that the decadal average water level in Gujarat is generally 0.83 to 59.07m bgl. Isolated pockets of Shallow water levels of less than 2 m are observed in one or two places in the state. Depth to water level more than 40 m also observed as isolated patches in Banaskantha and adjoining areas of Gandhinagar district of north Gujarat region. The maximum depth of water level observed 59.07m bgl at Deesa while minimum water level is 0.83m bgl at Lilpur in Kachchh.

The Decadal average water levels in North Gujarat generally range from less than 2 to more than 40m bgl. Water level more than 40m are observed in isolated pockets in Banaskantha, Mahesana, Sabarkantha and Gandhinagar districts.

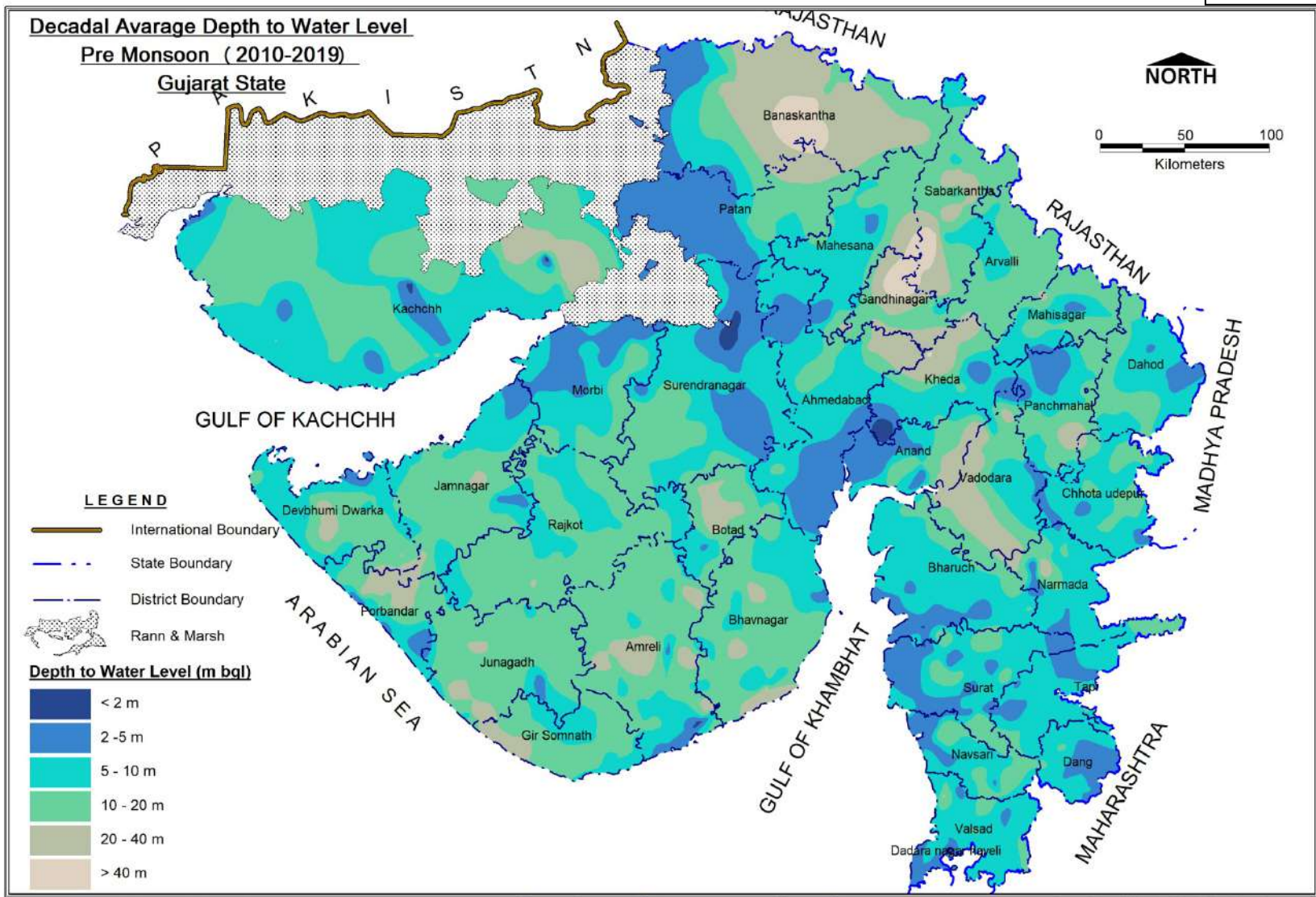
In South Gujarat, average water level is less than 2m bgl to 40.95m bgl. Deep water levels of 20 to 40m are observed in central part of Vadodara district which extending towards Narmada and Bharuch district and an isolated patch in Narmada district. Water level of less than 5 mbgl is found along the coast and in parts of Bharuch, The Dangs, Valsad and Surat districts.

In Saurashtra the average water level is vary from less than 2m to 49.50m with isolated pockets of 20 – 40m are found as in Amreli, Bhavnagar, Junagadh, Jamnagar and Porbandar districts of Saurashtra region except Surendranagar district.

In Kachchh district, range of the average water level is found from less than 2m to 32.30m. Deeper water levels of 20 – 40m are observed in east part of Kachchh while all other area varies with in 5 to 20m bgl.



**Fig- 20**



DRG. No. RODC/YB/2019-20/10

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### 3.4.1.2 Post-monsoon Water Levels (20010-19)

Decadal average water level map for the period November 2010 to November 2019 (Fig. 21) and Annexure IV reveals that in major part of Gujarat state, the decadal average water level is mostly in the range of less than 2 m to more than 40m bgl. Deep water levels of more than 20m are observed mainly in Banaskantha, Mahsana and Sabarkantha districts of North Gujarat, Amreli district in Saurashtra, Vadodara district in South and Kachchh districts. Shallow water levels less than 2 m are observed in south Gujarat, along the little Rann and the parts connecting to the Gulf of Cambay and in scattered pockets in Saurashtra, Kachchh and North Gujarat. The deepest water observed 57.99m bgl at Deesa and shallowest is 0.18 at Pipli in Surendranagar district.

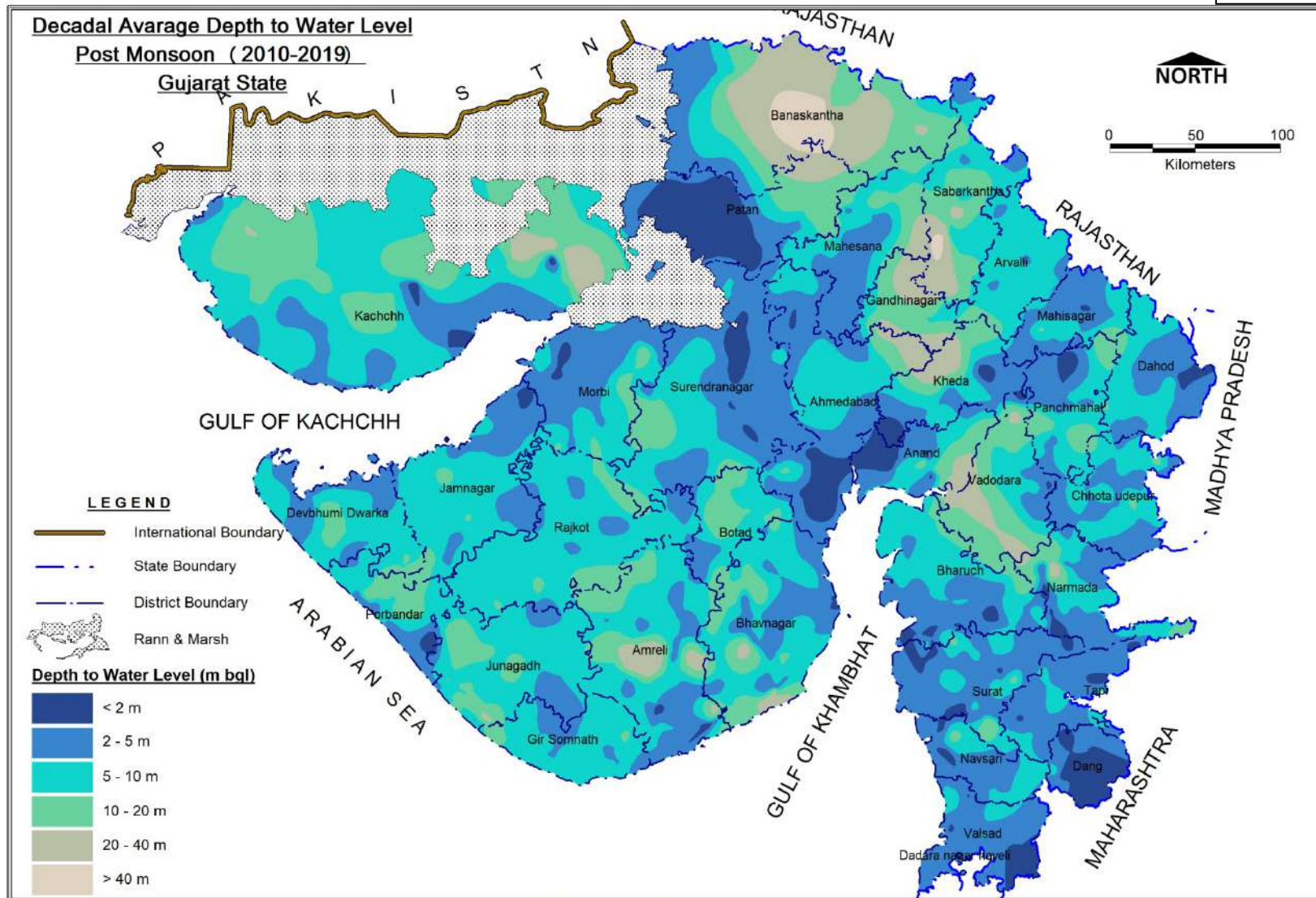
In North Gujarat, the water levels during post monsoon period are generally less than 20 mbgl. Deeper water levels of more than 20 mbgl are predominant in the district of Ahmedabad, Mahesana, Kheda, Banaskantha, Gandhinagar and Sabarkantha. Area along the little Rann and a portion connecting Gulf of Cambay and the little Rann has recorded water levels of less than 2 mbgl. Shallow water levels of less than 5m bgl are observed in major parts of Panchmahals, some parts of Dohad, Kheda and Anand districts.

In South Gujarat, water levels are generally shallower in contrast to North Gujarat areas. The water levels are generally less than 10 mbgl. Deep water levels of more than 10 mbgl are observed in central part of Navsari district. Deeper Water level more than 20m bgl are observed mostly in Vadodara and Narmada districts. Shallow water levels of less than 5 m are recorded along the coast, The Dangs and Surat district. Water level less than 2m are also recorded in Surat and The Dangs district.

In Saurashtra Region, water levels are in the range of 2m to 20 mbgl in general. Water levels of more than 20 m are observed in small isolated pockets in Amreli and Bhavnagar districts. Shallow water levels of less than 2m are recorded in isolated pockets along the coastal parts and the parts connecting Gulf of Cambay with little Rann of the Saurashtra Region.

In Kachchh district, the average water level is generally vary from 2 to 20m except few pockets of more than 20m in the eastern part and central parts. In western parts, along cost line, water levels less than 10m bgl is observed.

**Fig- 21**



DRG. No. RODC/YB/2019-20/11

जल संरक्षण है मेरा सपना, ताकि खुशहाल बने भारत अपना।

Drg. By : Nilesh Dhokia, Draftsman

### 3.4.1 Decadal Variations

Long-term behaviour of water levels was studied by analysing fluctuation of present year water level with respect to decadal average water levels. Variation in water level scenario over the decade 2009-18 for May, August, November and 2010-19 for January have been prepared to evaluate the long term changes in the groundwater regime.

**Fig. 22 (a, b, c & d)** illustrates a comparison of the changes of the water levels during different seasons with their respective decadal averages.

Fig : 22 a

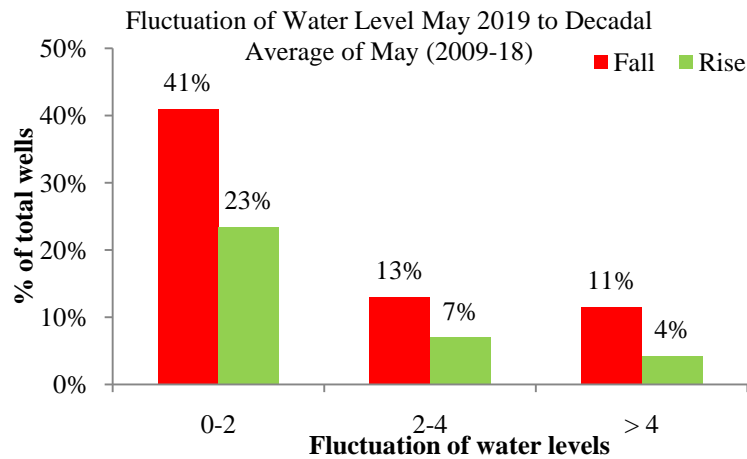


Fig : 22 b

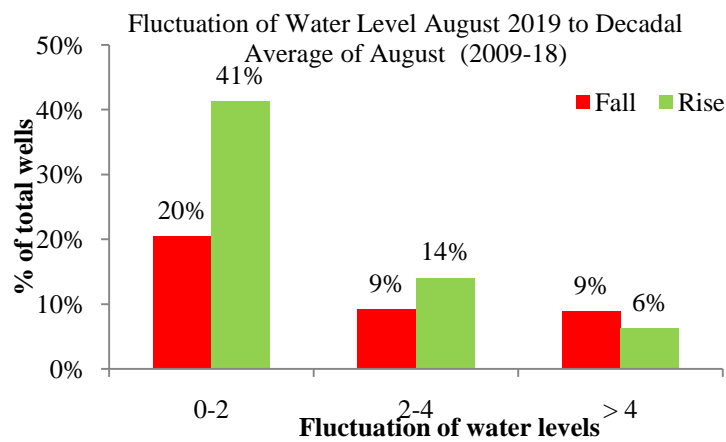


Fig : 22 c

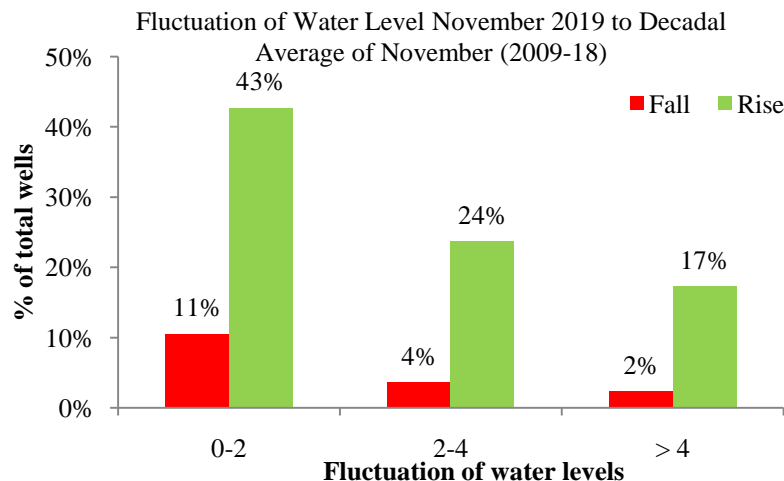
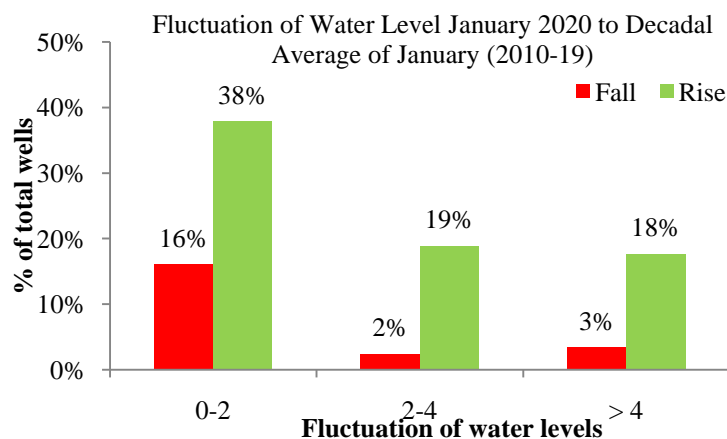


Fig : 22 d



### 3.4.2.1 Decadal average of May (2009-2018) to May 2019

A comparison of the water level of the May 2019 with the average water level of the May for last one decade (2009 - 2018) reveals that there is a fall of 65% of the wells monitored. Rise and fall is mostly in the range of 0 to 2m. Fall of more than 4m is observed in most of the districts of Saurashtra region, in Kachchh, Banaskantha, Sabarkantha, Mahesana, Anand, Panchmahal districts in north Gujarat. The maximum rise of 12.36m is recorded at Kalyanpur Jamnagar district whereas the maximum fall of 22.27m is recorded at Kumarkhan in Ahmedabad district.

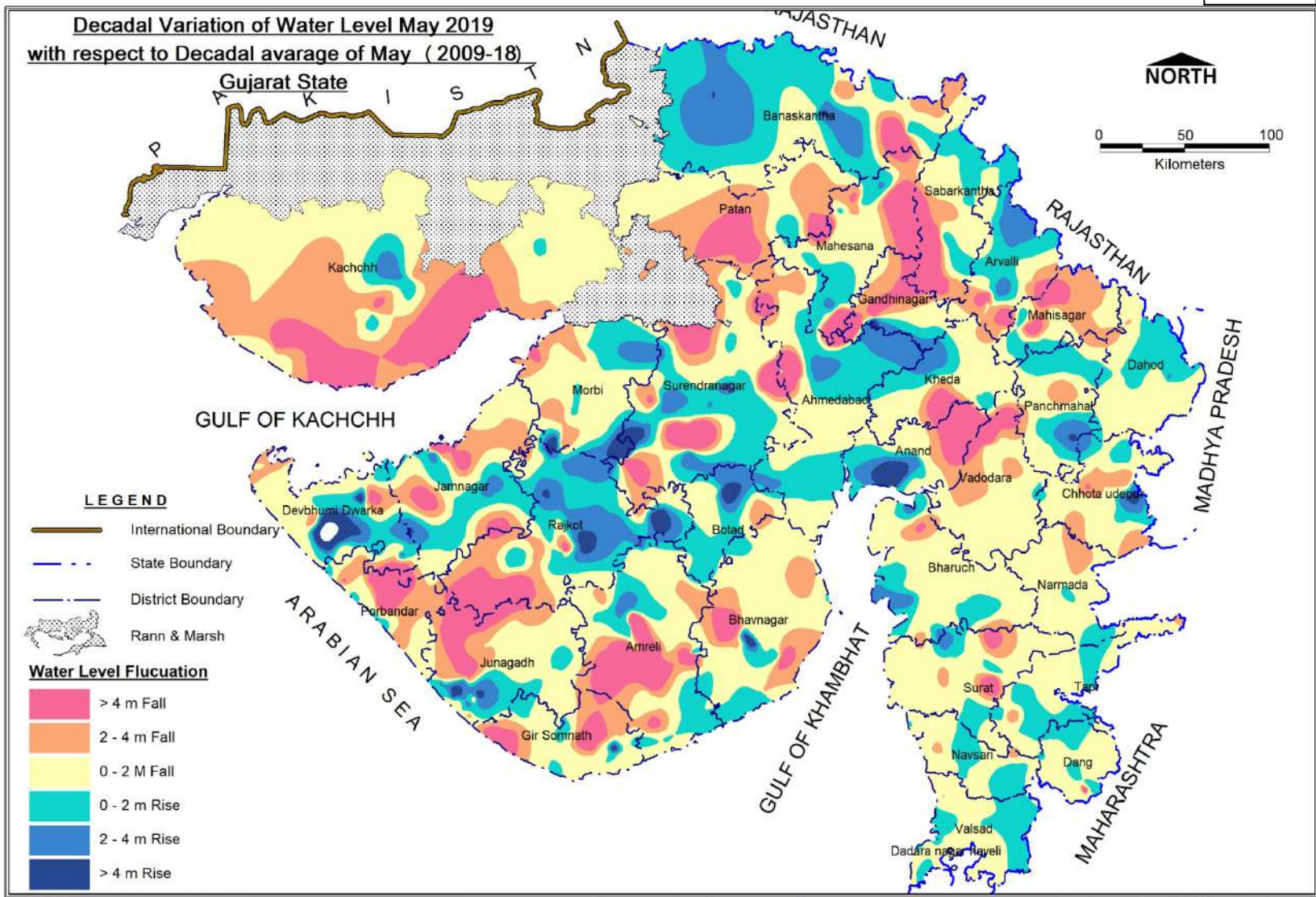
In North Gujarat 37% of wells show rise and mostly are in range of 0 to 2 m (23% of wells) in entire North Gujarat. The fall of water level is mostly less than 2 m and in about 39% of the total wells analyzed.

In south Gujarat, the major part has experienced fall (71% of wells analyzed). The fall is mainly (57% of wells) in the range of 0 -2 m. About 25% of wells recorded rise of decadal fluctuation of water level in the range of 0 to 2 m.

In Saurashtra region about 62% of wells observed fall in water level and out of which 34% wells shows fall in the range of 0 to 2m. Fall more than 4 m observed in 15% of the well analysed. Rise of water level are less than 2 m in 25% in whole region.

In Kachchh, 87% of the wells have recorded fall in water level of the district. Fall is mostly (39% of wells) in the range of 0 – 2m, where as rise of 0 – 2m is recorded in 10% of wells.

**Fig- 23**



DRG. No. RODC/YB/2019-20/22

हर बच्चा, बुढ़ा और जवान, पानी बचाकर बने महान !

Drg. By : Nileshe Dhokia, Draftsman

Table - 16

Well wise categorisation of changes in water level during May 2019 with respect to decadal average of May (2009 to 2018)

Sr. No.	District Name	No of well analysed	Fluctuation range, m		Fluctuation range, m		No. of wells in difrent depth range						Total No. of wells	
			Rise		Fall		Rise			Fall			Rise	Fall
			Min	Max	Min	Max	0 to 2	2 to 4	> 4	0 to 2	2 to 4	> 4		
1	Ahmedabad	20	0.04	6.21	0.14	22.27	4	4	1	6	3	2	9	11
							20.0%	20.0%	5.0%	30.0%	15.0%	10.0%		
2	Anand	9	0.31	8.43	0.64	3.96	1	1	1	5	1	0	3	6
							11.1%	11.1%	11.1%	55.6%	11.1%	0.0%		
3	Banaskantha	20	0.33	5.2	0.15	8.36	4	3	3	4	3	3	10	10
							20.0%	15.0%	15.0%	20.0%	15.0%	15.0%		
4	Dohad	20	0.09	2.19	0.04	2.04	4	2	0	13	1	0	6	14
							20.0%	10.0%	0.0%	65.0%	5.0%	0.0%		
5	Gandhinagar	4	4.63	4.63	0.96	6.6	0	0	1	1	1	1	1	3
							0.0%	0.0%	25.0%	25.0%	25.0%	25.0%		
6	Kheda	13	0.48	4.26	0.02	4.76	3	1	1	7	0	1	5	8
							23.1%	7.7%	7.7%	53.8%	0.0%	7.7%		
7	Mahesana	23	0.06	2.71	0.05	18.62	8	2	0	9	1	3	10	13
							34.8%	8.7%	0.0%	39.1%	4.3%	13.0%		
8	Panchmahals	21	0.2	4.12	0.1	8.37	6	0	1	9	3	2	7	14
							28.6%	0.0%	4.8%	42.9%	14.3%	9.5%		
9	Patan	5	1.37	1.37	2.95	8.86	1	0	0	0	2	2	1	4
							20.0%	0.0%	0.0%	0.0%	40.0%	40.0%		
10	Sabarkantha	32	0.36	3.51	0.24	9.77	7	3	0	11	6	5	10	22
							21.9%	9.4%	0.0%	34.4%	18.8%	15.6%		
	<b>North Gujarat</b>	<b>167</b>	<b>0.04</b>	<b>8.43</b>	<b>0.02</b>	<b>22.27</b>	<b>38</b>	<b>16</b>	<b>8</b>	<b>65</b>	<b>21</b>	<b>19</b>	62	105
							<b>22.8%</b>	<b>9.6%</b>	<b>4.8%</b>	<b>38.9%</b>	<b>12.6%</b>	<b>11.4%</b>		
11	Bharuch	28	0.01	2.97	0.26	4.42	5	3	0	17	2	1	8	20
							17.9%	10.7%	0.0%	60.7%	7.1%	3.6%		
12	Narmada	14	0.17	0.28	0.1	3.12	2	0	0	10	2	0	2	12
							14.3%	0.0%	0.0%	71.4%	14.3%	0.0%		
13	Navsari	16	0.01	1.22	0.13	2.63	5	0	0	9	2	0	5	11
							31.3%	0.0%	0.0%	56.3%	12.5%	0.0%		
14	Surat	30	0.02	3.97	0.03	6.81	8	1	0	17	2	2	9	21
							26.7%	3.3%	0.0%	56.7%	6.7%	6.7%		
15	The dangs	21	0.04	1.73	0.01	6.63	7	0	0	13	0	1	7	14
							33.3%	0.0%	0.0%	61.9%	0.0%	4.8%		
16	Vadodara	33	0.01	4.8	0.38	13.39	5	2	1	17	5	3	8	25
							15.2%	6.1%	3.0%	51.5%	15.2%	9.1%		
17	Valsad	16	0.12	1.53	0.17	2.04	7	0	0	7	2	0	7	9
							43.8%	0.0%	0.0%	43.8%	12.5%	0.0%		
	<b>South Gujarat</b>	<b>158</b>	<b>0.01</b>	<b>4.80</b>	<b>0.01</b>	<b>13.39</b>	<b>39</b>	<b>6</b>	<b>1</b>	<b>90</b>	<b>15</b>	<b>7</b>	46	112
							<b>24.7%</b>	<b>3.8%</b>	<b>0.6%</b>	<b>57.0%</b>	<b>9.5%</b>	<b>4.4%</b>		
18	Amreli	42	0.11	4.44	0.15	12.87	9	2	1	16	4	10	12	30
							21.4%	4.8%	2.4%	38.1%	9.5%	23.8%		
19	Bhavnagar	31	0.01	6.45	0.07	8.12	9	0	2	12	5	3	11	20
							29.0%	0.0%	6.5%	38.7%	16.1%	9.7%		
20	Jamnagar	47	0.01	12.36	0.07	9.06	13	4	3	15	6	6	20	27
							27.7%	8.5%	6.4%	31.9%	12.8%	12.8%		
21	Junagadh	57	0.02	5.88	0.07	8.25	14	3	6	21	9	4	23	34
							24.6%	5.3%	10.5%	36.8%	15.8%	7.0%		
22	Porbandar	29	0.13	2.22	0.09	17.53	5	1	0	12	5	6	6	23
							17.2%	3.4%	0.0%	41.4%	17.2%	20.7%		
23	Rajkot	49	0.05	9.78	0.22	11.13	11	6	5	10	9	8	22	27
							22.4%	12.2%	10.2%	20.4%	18.4%	16.3%		
24	Surendranagar	34	0.37	5.08	0.02	16.33	10	6	1	11	1	5	17	17
							29.4%	17.6%	2.9%	32.4%	2.9%	14.7%		
	<b>Saurashtra</b>	<b>289</b>	<b>0.01</b>	<b>12.36</b>	<b>0.02</b>	<b>17.53</b>	<b>71</b>	<b>22</b>	<b>18</b>	<b>97</b>	<b>39</b>	<b>42</b>	111	178
							<b>24.6%</b>	<b>7.6%</b>	<b>6.2%</b>	<b>33.6%</b>	<b>13.5%</b>	<b>14.5%</b>		
25	Kachchh	31	0.2	3.2	0.06	9.82	3	1	0	12	9	6	4	27
							9.7%	3.2%	0.0%	38.7%	29.0%	19.4%		
	<b>Total</b>	<b>645</b>	<b>0.01</b>	<b>12.36</b>	<b>0.01</b>	<b>22.27</b>	<b>151</b>	<b>45</b>	<b>27</b>	<b>264</b>	<b>84</b>	<b>74</b>	223	422
							<b>23.4%</b>	<b>7.0%</b>	<b>4.2%</b>	<b>40.9%</b>	<b>13.0%</b>	<b>11.5%</b>		

### 3.4.2.2 Decadal average of August (2009 to 2018) to August 2019

A comparison of the water level of the August 2019 with the average water level of the August for last one decade (2009-2018) **Fig 24 & Table 17** reveals that there is a rise in 62% of well analysed. Rise is mostly in the range of 0 to 2 m (41% of Total well). The rise of more than 2m observed mostly in Saurashtra and north Gujarat region. The maximum rise of 11.86m is recorded in Kundheli of Bhavnagar district whereas the maximum decline of 21.87m is recorded in Ranavav of Porbandar district.

In North Gujarat, 35% of wells have shown rise and mostly in range of 0 to 2m (38% of wells) & 2-4m (21% of well). Fall of water level is located in the adjoining area of Mahesana, Banskantha, Gandhinagar and Sabarkantha districts of North Gujarat.

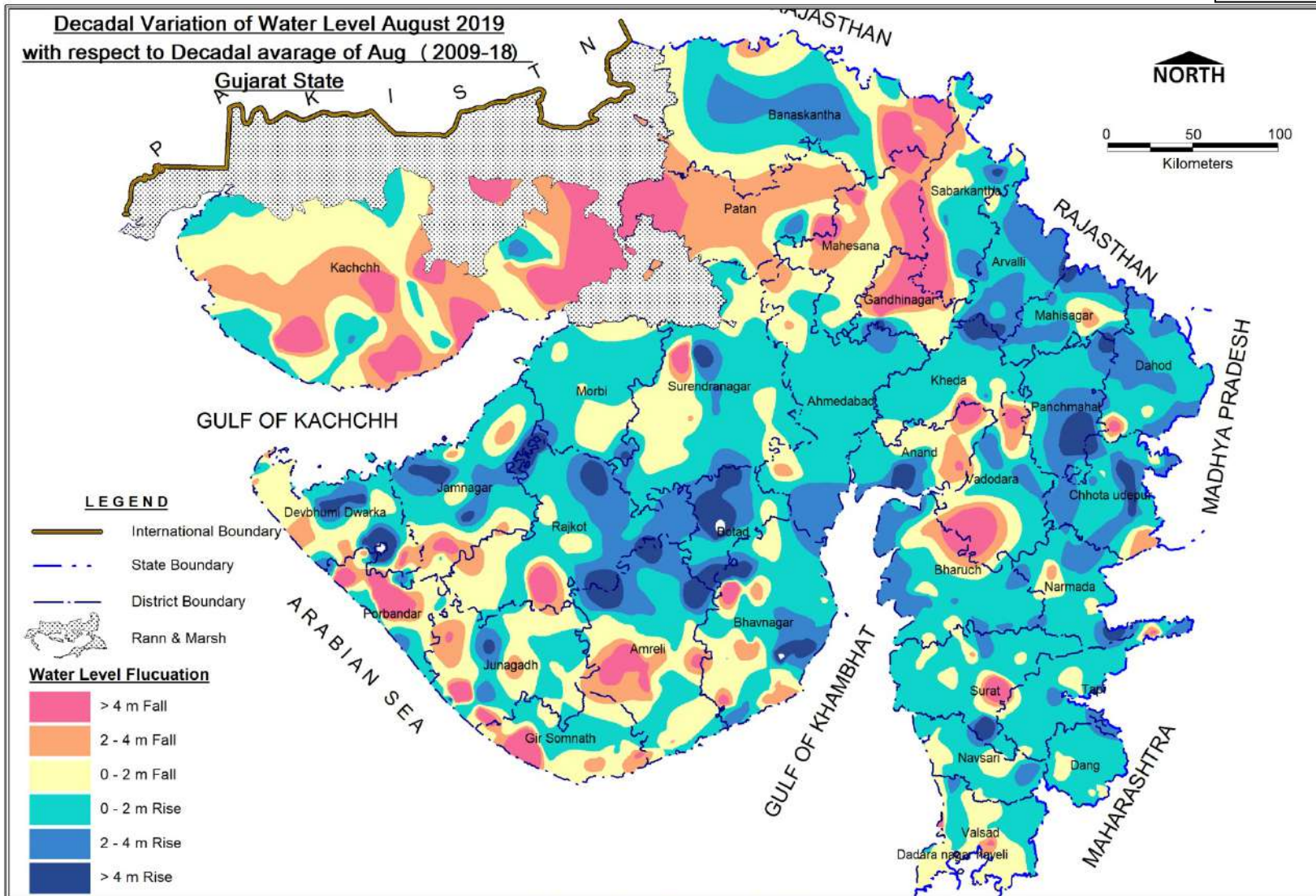
South Gujarat has experienced fall in 29% of wells analysed whereas 71% shows rise. In the range of 0 to 2 m, 23% of well shows fall while 61% of wells shows rise. Morethan 4m of fall in water shows in Valsad, Vadodara, Surat and Navsari distrcits in south region.

In Saurashtra region, 60% of total well shows rise in water level where as 40% shows fall. Fall of water level in more than 4m is observed in 10% of the wells in Junagadh, Amreli, Bhavnagar, Porbandar districts. The rise in water level is mostly in central part of Saurashtra of Bhavnagar, Amreli, Junagarh and Surendranagar districts but fall in water level covers the west and south part of Saurashtra area.

In Kachchh, 70% of the wells analysed have recorded fall in water level in the district. Fall is mostly (51% of wells) in the range of 2 to >4 m. Rise is observed in 26% wells in the district ain the range of 0 – 2 m.



**Fig- 24**



DRG. No. RODC/YB/2019-20/20

जहां होगी जल की बर्बादी, वहां नहीं होगी खुशहाली !

Drg. By : Nilesh Dhokia, Draftsman

Table - 17

Well wise categorisation of changes in water level during August 2019 with respect to decadal average of August (2009 to 2018)

Sr. No.	District Name	No of well analysed	Fluctuation range, m		Fluctuation range, m		No. of wells in difrent depth range						Total No. of wells	
			Rise		Fall		Rise			Fall			Rise	Fall
			Min	Max	Min	Max	0 to 2	2 to 4	> 4	0 to 2	2 to 4	> 4		
1	Ahmedabad	18	0.19	5.47	0.77	8.5	9	3	1	2	2	1	13	5
							50.0%	16.7%	5.6%	11.1%	11.1%	5.6%		
2	Anand	11	1.07	6.84	0.89	8.1	3	1	1	3	1	2	5	6
							27.3%	9.1%	9.1%	27.3%	9.1%	18.2%		
3	Banaskantha	18	0.25	3.77	1.08	12.17	4	5	0	3	2	4	9	9
							22.2%	27.8%	0.0%	16.7%	11.1%	22.2%		
4	Dohad	21	0.37	3.24	0.26	5.28	9	10	0	1	0	1	19	2
							42.9%	47.6%	0.0%	4.8%	0.0%	4.8%		
5	Gandhinagar	4	4.94	4.94	1.09	8.2	0	0	1	2	0	1	1	3
							0.0%	0.0%	25.0%	50.0%	0.0%	25.0%		
6	Kheda	14	0.24	6.37	0.32	1.3	7	2	1	4	0	0	10	4
							50.0%	14.3%	7.1%	28.6%	0.0%	0.0%		
7	Mahesana	21	0.15	0.83	0.5	7.16	4	0	0	9	6	2	4	17
							19.0%	0.0%	0.0%	42.9%	28.6%	9.5%		
8	Panchmahals	25	0.4	7.81	0.63	3.04	8	9	4	2	2	0	21	4
							32.0%	36.0%	16.0%	8.0%	8.0%	0.0%		
9	Patan	9	3.43	3.43	0.23	9.98	0	1	0	2	4	3	1	9
							0.0%	11.1%	0.0%	22.2%	44.4%	33.3%		
10	Sabarkantha	38	0.05	4.67	0.08	8.13	19	6	2	6	3	2	27	11
							50.0%	15.8%	5.3%	15.8%	7.9%	5.3%		
	<b>North Gujarat</b>	<b>179</b>	<b>0.05</b>	<b>7.81</b>	<b>0.08</b>	<b>12.17</b>	<b>63</b>	<b>37</b>	<b>10</b>	<b>34</b>	<b>20</b>	<b>16</b>	110	70
							<b>35.2%</b>	<b>20.7%</b>	<b>5.6%</b>	<b>19.0%</b>	<b>11.2%</b>	<b>8.9%</b>		
11	Bharuch	32	0.07	3.7	0.11	2.47	14	11	0	6	1	0	25	7
							43.8%	34.4%	0.0%	18.8%	3.1%	0.0%		
12	Narmada	20	0.17	5.5	0.06	3.46	8	6	1	4	1	0	15	5
							40.0%	30.0%	5.0%	20.0%	5.0%	0.0%		
13	Navsari	19	0.06	3.4	0.03	4.11	8	2	0	8	0	1	10	9
							42.1%	10.5%	0.0%	42.1%	0.0%	5.3%		
14	Surat	51	0.02	8.12	0.05	7.99	33	4	2	9	1	2	39	12
							64.7%	7.8%	3.9%	17.6%	2.0%	3.9%		
15	The dangs	23	0.023	1.442	-	2.13	17	0	0	5	1	0	17	6
							73.9%	0.0%	0.0%	21.7%	4.3%	0.0%		
16	Vadodara	38	0.07	5.88	0.11	7.19	16	11	3	4	2	2	30	8
							42.1%	28.9%	7.9%	10.5%	5.3%	5.3%		
17	Valsad	20	0.12	2.95	0.23	4.93	7	1	0	10	1	1	8	12
							35.0%	5.0%	0.0%	50.0%	5.0%	5.0%		
	<b>South Gujarat</b>	<b>203</b>	<b>0.02</b>	<b>8.12</b>	<b>0.03</b>	<b>7.99</b>	<b>103</b>	<b>35</b>	<b>6</b>	<b>46</b>	<b>7</b>	<b>6</b>	144	59
							<b>50.7%</b>	<b>17.2%</b>	<b>3.0%</b>	<b>22.7%</b>	<b>3.4%</b>	<b>3.0%</b>		
18	Amreli	46	0.06	10.24	0.19	9.92	14	3	4	12	7	6	21	25
							30.4%	6.5%	8.7%	26.1%	15.2%	13.0%		
19	Bhavnagar	43	0.08	11.86	0.05	10.37	17	5	7	7	4	3	29	14
							39.5%	11.6%	16.3%	16.3%	9.3%	7.0%		
20	Jamnagar	48	0.12	5.42	0.23	6.77	18	3	7	7	10	3	28	20
							37.5%	6.3%	14.6%	14.6%	20.8%	6.3%		
21	Junagadh	54	0.06	6.57	0.14	16.16	22	4	4	10	5	9	30	24
							40.7%	7.4%	7.4%	18.5%	9.3%	16.7%		
22	Porbandar	27	0.3	10.62	0.01	21.87	9	3	2	4	2	7	14	13
							33.3%	11.1%	7.4%	14.8%	7.4%	25.9%		
23	Rajkot	38	0.19	8.09	0.06	8.14	19	5	4	9	0	1	28	10
							50.0%	13.2%	10.5%	23.7%	0.0%	2.6%		
24	Surendranagar	38	0.15	6.08	0.22	8.91	21	4	1	10	1	1	26	12
							55.3%	10.5%	2.6%	26.3%	2.6%	2.6%		
	<b>Saurashtra</b>	<b>294</b>	<b>0.06</b>	<b>11.86</b>	<b>0.01</b>	<b>21.87</b>	<b>120</b>	<b>27</b>	<b>29</b>	<b>59</b>	<b>29</b>	<b>30</b>	176	118
							<b>40.8%</b>	<b>9.2%</b>	<b>9.9%</b>	<b>20.1%</b>	<b>9.9%</b>	<b>10.2%</b>		
25	Kachchh	43	0.11	2.7	0.28	10.79	11	2	0	8	10	12	13	30
							25.6%	4.7%	0.0%	18.6%	23.3%	27.9%		
	<b>Total</b>	<b>719</b>	<b>0.02</b>	<b>11.86</b>	<b>0.01</b>	<b>21.87</b>	<b>297</b>	<b>101</b>	<b>45</b>	<b>147</b>	<b>66</b>	<b>64</b>	443	277
							<b>41.3%</b>	<b>14.0%</b>	<b>6.3%</b>	<b>20.4%</b>	<b>9.2%</b>	<b>8.9%</b>		

### 3.4.2.3 Decadal average of November (2009-2018) to November 2019

A comparison of the water level of the November 2019 with the average water level of the November for last one decade (2009-2018) **Fig 25 & Table 18** reveals that there is a fall in water level in the state (16% of total well analysed). Rise and fall is mostly in the range of 0 to 2m. Fall of more than 2m is observed mostly in Saurashtra and Kachchh region, also Anand, central north Gujarat and Vadodara, districts in south Gujarat region. The maximum rise of 18.18m is recorded in Tatam of Bhavnagar district whereas the maximum fall of 12.25m is recorded in Jaska of Mahesana district.

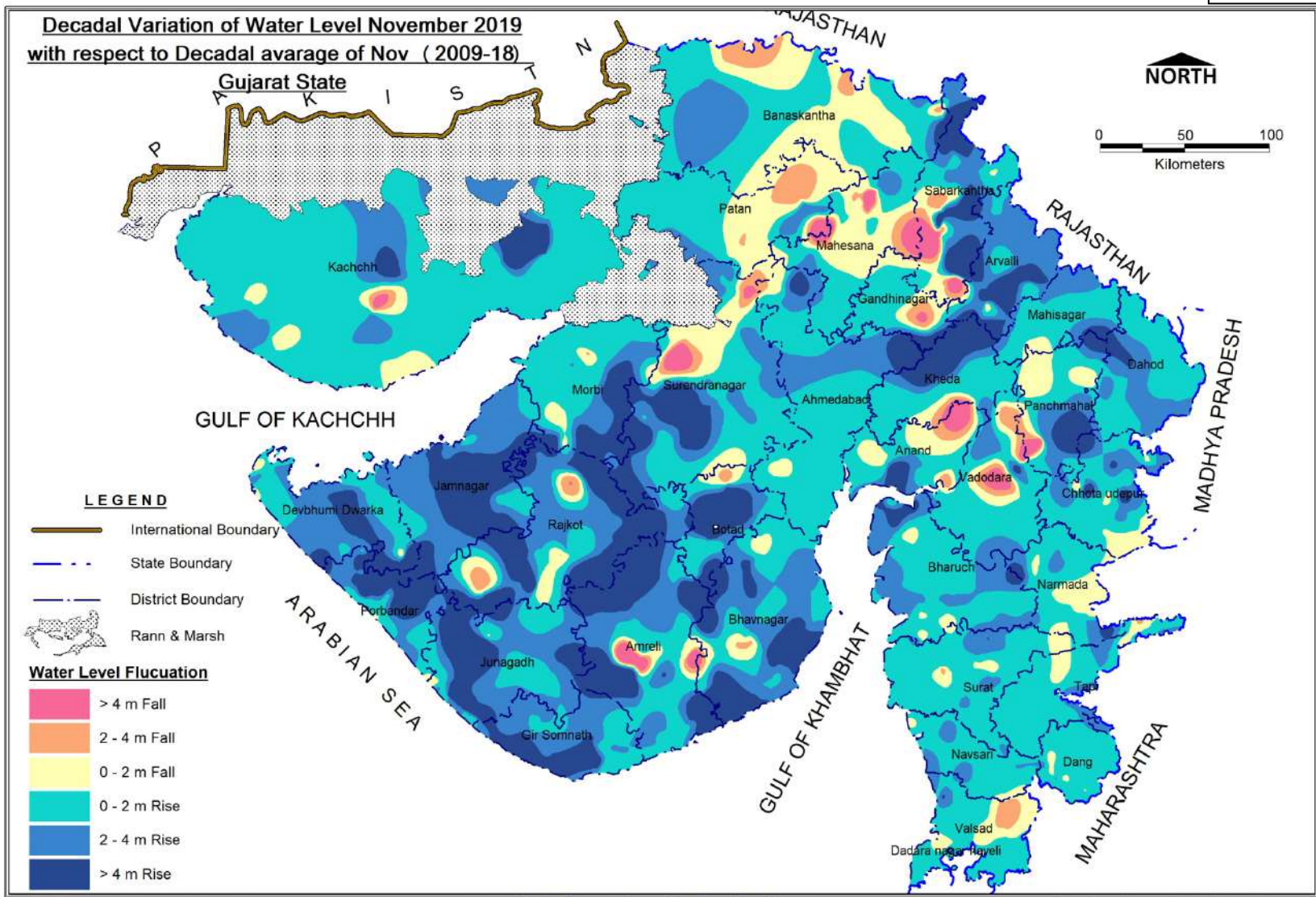
In North Gujarat 25% of wells are shown fall and mostly well are in range of 0 to 2 m (15% of wells) in entire North Gujarat. The Rise of water level found in 75% of the wells of which 42% of wells were found in the range of 0 to 2m.

In South Gujarat, 83% of total well analysed show rise where as 17% shows fall. In the range of 0 to 2 m, 58% shows rise and 13% shows fall scattered in whole South Gujarat region.

In Saurashtra region about 11% of wells analysed show fall in water level and out of which 2% wells in the range > 4m. Rise of water level are experienced in 89% of the well and 32% are in the 0 to 2m.

In Kachchh, 20% of the total wells analysed are recorded fall in water level in the district. Fall is mostly (17% of wells) in the range of 0 – 4 m. Rise in morethan 4m is observed in 10% of the wells analysed in distributed all over the Kachchh region.

**Fig- 25**



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Table - 18

Well wise categorisation of changes in water level during November 2019 with respect to decadal average of November (2009 to 2018)

Sr. No.	District Name	No of well analysed	Fluctuation range, m		Fluctuation range, m		No. of wells in difrent depth range						Total No. of wells	
			Rise		Fall		Rise			Fall			Rise	Fall
			Min	Max	Min	Max	0 to 2	2 to 4	> 4	0 to 2	2 to 4	> 4		
1	Ahmedabad	21	0.04	8.05	1.84	2.93	10	5	3	1	2	0	18	3
							47.6%	23.8%	14.3%	4.8%	9.5%	0.0%		
2	Anand	11	0.14	7.09	0.28	6.6	5	1	1	2	1	1	7	4
							45.5%	9.1%	9.1%	18.2%	9.1%	9.1%		
3	Banaskantha	17	0.03	3.01	0.19	3.7	7	3	0	4	3	0	10	7
							41.2%	17.6%	0.0%	23.5%	17.6%	0.0%		
4	Dohad	23	0.38	3.99	-	-	16	7	0	0	0	0	23	0
							69.6%	30.4%	0.0%	0.0%	0.0%	0.0%		
5	Gandhinagar	5	1.21	1.92	0.53	7.3	2	0	0	2	0	1	2	3
							40.0%	0.0%	0.0%	40.0%	0.0%	20.0%		
6	Kheda	16	0.07	11.51	-	-	11	1	4	0	0	0	16	0
							68.8%	6.3%	25.0%	0.0%	0.0%	0.0%		
7	Mahesana	23	0.11	4	0.01	12.25	9	2	1	8	2	1	12	11
							39.1%	8.7%	4.3%	34.8%	8.7%	4.3%		
8	Panchmahals	24	0.32	7.87	1.52	6.41	9	9	2	3	0	1	20	4
							37.5%	37.5%	8.3%	12.5%	0.0%	4.2%		
9	Patan	6	2.72	3.83	2.04	8.92	0	3	0	0	2	1	3	3
							0.0%	50.0%	0.0%	0.0%	33.3%	16.7%		
10	Sabarkantha	39	0.06	10.36	0.03	9.26	8	10	10	7	2	2	28	11
							20.5%	25.6%	25.6%	17.9%	5.1%	5.1%		
	<b>North Gujarat</b>	<b>185</b>	<b>0.03</b>	<b>11.51</b>	<b>0.01</b>	<b>12.25</b>	<b>77</b>	<b>41</b>	<b>21</b>	<b>27</b>	<b>12</b>	<b>7</b>	<b>139</b>	<b>46</b>
							<b>41.6%</b>	<b>22.2%</b>	<b>11.4%</b>	<b>14.6%</b>	<b>6.5%</b>	<b>3.8%</b>		
11	Bharuch	34	0.19	6.02	0.55	0.93	17	10	3	4	0	0	30	4
							50.0%	29.4%	8.8%	11.8%	0.0%	0.0%		
12	Narmada	19	0.17	5.41	0.37	2.26	9	3	2	3	2	0	14	5
							47.4%	15.8%	10.5%	15.8%	10.5%	0.0%		
13	Navsari	19	0.66	3.43	0.19	0.19	14	4	0	1	0	0	18	1
							73.7%	21.1%	0.0%	5.3%	0.0%	0.0%		
14	Surat	55	0.07	4.75	-	2.61	35	10	2	6	2	0	47	8
							63.6%	18.2%	3.6%	10.9%	3.6%	0.0%		
15	The dangs	24	0.1	2.67	0.06	0.95	17	2	0	5	0	0	19	5
							70.8%	8.3%	0.0%	20.8%	0.0%	0.0%		
16	Vadodara	38	0.38	7.15	-	6.53	15	10	4	5	2	2	29	9
							39.5%	26.3%	10.5%	13.2%	5.3%	5.3%		
17	Valsad	19	0.16	4.25	0.2	3.2	14	0	1	3	1	0	15	4
							73.7%	0.0%	5.3%	15.8%	5.3%	0.0%		
	<b>South Gujarat</b>	<b>208</b>	<b>0.07</b>	<b>7.15</b>	<b>0.06</b>	<b>6.53</b>	<b>121</b>	<b>39</b>	<b>12</b>	<b>27</b>	<b>7</b>	<b>2</b>	<b>172</b>	<b>36</b>
							<b>58.2%</b>	<b>18.8%</b>	<b>5.8%</b>	<b>13.0%</b>	<b>3.4%</b>	<b>1.0%</b>		
18	Amreli	47	0.56	16.76	0.15	9.52	18	10	10	4	2	3	38	9
							38.3%	21.3%	21.3%	8.5%	4.3%	6.4%		
19	Bhavnagar	42	0.17	18.18	0.92	2.24	14	13	12	1	2	0	39	3
							33.3%	31.0%	28.6%	2.4%	4.8%	0.0%		
20	Jamnagar	46	0.29	10.92	0.13	0.92	9	20	14	3	0	0	43	3
							19.6%	43.5%	30.4%	6.5%	0.0%	0.0%		
21	Junagadh	62	0.13	15.11	0.1	2.54	23	13	22	3	1	0	58	4
							37.1%	21.0%	35.5%	4.8%	1.6%	0.0%		
22	Porbandar	29	0.14	10.77	0.09	0.09	10	7	11	1	0	0	28	1
							34.5%	24.1%	37.9%	3.4%	0.0%	0.0%		
23	Rajkot	55	0.24	9.43	0.32	11.28	13	17	17	4	2	2	47	8
							23.6%	30.9%	30.9%	7.3%	3.6%	3.6%		
24	Surendranagar	48	0.09	13.41	0.54	8.25	19	14	8	4	1	2	41	7
							39.6%	29.2%	16.7%	8.3%	2.1%	4.2%		
	<b>Saurashtra</b>	<b>329</b>	<b>0.09</b>	<b>18.18</b>	<b>0.09</b>	<b>11.28</b>	<b>106</b>	<b>94</b>	<b>94</b>	<b>20</b>	<b>8</b>	<b>7</b>	<b>294</b>	<b>35</b>
							<b>32.2%</b>	<b>28.6%</b>	<b>28.6%</b>	<b>6.1%</b>	<b>2.4%</b>	<b>2.1%</b>		
25	Kachchh	30	0.1	15.06	0.34	5.99	17	4	3	5	0	1	24	6
							56.7%	13.3%	10.0%	16.7%	0.0%	3.3%		
	<b>Total</b>	<b>752</b>	<b>0.03</b>	<b>18.18</b>	<b>0.01</b>	<b>12.25</b>	<b>321</b>	<b>178</b>	<b>130</b>	<b>79</b>	<b>27</b>	<b>17</b>	<b>629</b>	<b>123</b>
							<b>42.7%</b>	<b>23.7%</b>	<b>17.3%</b>	<b>10.5%</b>	<b>3.6%</b>	<b>2.3%</b>		

#### **3.4.2.4 Decadal average of January(2010-2019) to January 2020**

A comparison of the water level of the January 2020 with the average water level of the January for last one decade (2010-2019) Fig 26 & Table 19 reveals that there is a rise in water level in the state (77% of total well analysed). Rise and fall is mostly in the range of 0 to 2m. Fall of more than 4m is observed mostly in Saurashtra and Kachchh region and occur as isolated patches scattered in North Gujarat region and Anand district. The maximum rise of 21.18m is recorded at Tatam in Bhavnagar district whereas the maximum fall of 19.84m is recorded at Anand district.

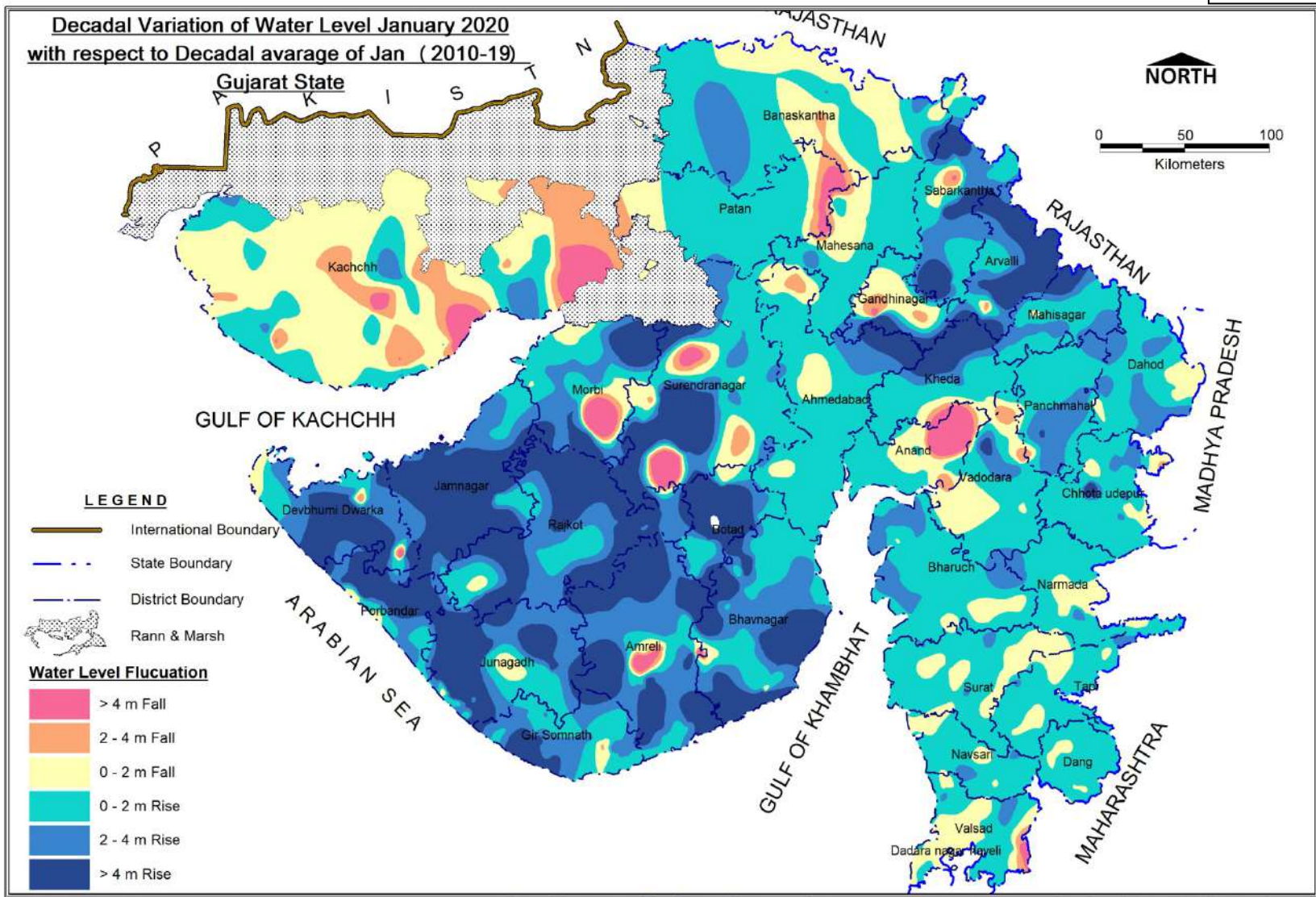
In North Gujarat 70% of wells are shown rise with mostly well are in range of 0 to 2 m (42% of wells), 30% of total well shows fall with 23% in the range of 0 – 2m. In a patch from Gandhinagar, Mahesana and Sabarkantha district shows fall in water level and in isolated patches in Anand, Kheda districts.

In south Gujarat, 74% of total well analysed shows rise whereas 26% shows fall for this decadal variation. The rise and fall mainly in the range of 0 to 2 m (60% rise & 23% fall).

In Saurashtra region, about 12% of wells observed fall in water level and out of which 52% wells shows rise in the range of 0 to 4m. Fall of water level more than 4m are experienced in 3% of the total well in region distributed all over the region. Rise of the water level in the region 88% of which 26% in 0 to 2m range and distributed sporadically in the Saurashtra region.

In Kachchh, 57% of the total wells analysed are recorded fall in water level in the district. Fall is mostly (45% of wells) in the range of 0 – 4 m. Fall mainly observed in the range of >4m in south central and eastern part of Kachchh.

**Fig- 26**



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Table - 19

Well wise categorisation of changes in water level during January 2020 with respect to decadal average of January (2010 to 2019)

Sr. No.	District Name	No of well analysed	Fluctuation range, m		Fluctuation range, m		No. of wells in difrent depth range						Total No. of wells	
			Rise		Fall		Rise			Fall			Rise	Fall
			Min	Max	Min	Max	0 to 2	2 to 4	> 4	0 to 2	2 to 4	> 4		
1	Ahmedabad	20	0.11	8.3	0.31	5.78	9 45.0%	3 15.0%	2 10.0%	4 20.0%	1 5.0%	1 5.0%	14	6
2	Anand	12	0.17	1.3	0.33	19.84	6 50.0%	0 0.0%	0 0.0%	4 33.3%	1 8.3%	1 8.3%	6	6
3	Banaskantha	19	0.33	2.64	-	2.14	6 31.6%	3 15.8%	0 0.0%	9 47.4%	1 5.3%	0 0.0%	9	10
4	Dohad	23	0.04	4.04	0.4	1.29	14 60.9%	5 21.7%	1 4.3%	3 13.0%	0 0.0%	0 0.0%	20	3
5	Gandhinagar	6	0.43	6.78	1.48	8	1 16.7%	0 0.0%	1 16.7%	2 33.3%	1 16.7%	1 16.7%	2	4
6	Kheda	19	0.06	9.22	-	5.19	8 42.1%	2 10.5%	3 15.8%	5 26.3%	0 0.0%	1 5.3%	13	6
7	Mahesana	20	0.23	3.3	0.03	1.81	7 35.0%	3 15.0%	0 0.0%	10 50.0%	0 0.0%	0 0.0%	10	10
8	Panchmahals	21	0.04	6.3	-	-	12 57.1%	7 33.3%	2 9.5%	0 0.0%	0 0.0%	0 0.0%	21	0
9	Patan	7	0.12	1.72	4.49	5.56	4 57.1%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	3 42.9%	4	3
10	Sabarkantha	33	0.73	13.09	-	4.73	9 27.3%	8 24.2%	10 30.3%	4 12.1%	0 0.0%	2 6.1%	27	6
	<b>North Gujarat</b>	<b>180</b>	<b>0.04</b>	<b>13.09</b>	<b>0.03</b>	<b>19.84</b>	<b>76 42.2%</b>	<b>31 17.2%</b>	<b>19 10.6%</b>	<b>41 22.8%</b>	<b>4 2.2%</b>	<b>9 5.0%</b>	126	54
11	Bharuch	32	0.01	3.76	0.06	2.26	20 62.5%	8 25.0%	0 0.0%	3 9.4%	1 3.1%	0 0.0%	28	4
12	Narmada	18	0.22	3.95	0.77	1.74	10 55.6%	3 16.7%	0 0.0%	5 27.8%	0 0.0%	0 0.0%	13	5
13	Navsari	19	0.33	2.93	0.19	0.96	13 68.4%	2 10.5%	0 0.0%	4 21.1%	0 0.0%	0 0.0%	15	4
14	Surat	49	0.15	2.79	0.04	1.92	30 61.2%	6 12.2%	0 0.0%	13 26.5%	0 0.0%	0 0.0%	36	13
15	The dangs	23	0.23	1.63	0.01	1.26	18 78.3%	0 0.0%	0 0.0%	5 21.7%	0 0.0%	0 0.0%	18	5
16	Vadodara	37	0.02	8.37	0.03	4.01	19 51.4%	6 16.2%	2 5.4%	7 18.9%	2 5.4%	1 2.7%	27	10
17	Valsad	19	0.25	2.54	0.22	4.43	7 36.8%	2 10.5%	0 0.0%	8 42.1%	1 5.3%	1 5.3%	9	10
	<b>South Gujarat</b>	<b>197</b>	<b>0.01</b>	<b>8.37</b>	<b>0.01</b>	<b>4.43</b>	<b>117 59.4%</b>	<b>27 13.7%</b>	<b>2 1.0%</b>	<b>45 22.8%</b>	<b>4 2.0%</b>	<b>2 1.0%</b>	146	51
18	Amreli	45	0.2	17.01	0.44	8.04	10 22.2%	15 33.3%	12 26.7%	4 8.9%	0 0.0%	4 8.9%	37	8
19	Bhavnagar	45	0.21	21.18	0.71	2.16	15 33.3%	10 22.2%	18 40.0%	1 2.2%	1 2.2%	0 0.0%	43	2
20	Jamnagar	48	0.27	12.25	0.15	6.29	7 14.6%	13 27.1%	21 43.8%	5 10.4%	1 2.1%	1 2.1%	41	7
21	Junagadh	59	0.04	13.53	0.31	2.27	21 35.6%	12 20.3%	21 35.6%	4 6.8%	1 1.7%	0 0.0%	54	5
22	Porbandar	27	0.26	13.5	0.05	1.57	4 14.8%	5 18.5%	15 55.6%	3 11.1%	0 0.0%	0 0.0%	24	3
23	Rajkot	41	0.41	9.98	0.39	10.3	9 22.0%	13 31.7%	16 39.0%	2 4.9%	0 0.0%	1 2.4%	38	3
24	Surendranagar	40	0.52	10.87	0.19	13.5	13 32.5%	11 27.5%	9 22.5%	3 7.5%	1 2.5%	3 7.5%	33	7
	<b>Saurashtra</b>	<b>305</b>	<b>0.04</b>	<b>21.18</b>	<b>0.05</b>	<b>13.50</b>	<b>79 25.9%</b>	<b>79 25.9%</b>	<b>112 36.7%</b>	<b>22 7.2%</b>	<b>4 1.3%</b>	<b>9 3.0%</b>	270	35
25	Kachchh	42	0.12	3.31	0.11	6.54	13 31.0%	5 11.9%	0 0.0%	13 31.0%	6 14.3%	5 11.9%	18	24
	<b>Total</b>	<b>724</b>	<b>0.01</b>	<b>21.18</b>	<b>0.01</b>	<b>19.84</b>	<b>285 39.4%</b>	<b>142 19.6%</b>	<b>133 18.4%</b>	<b>121 16.7%</b>	<b>18 2.5%</b>	<b>25 3.5%</b>	560	164



### **3.5 Water Table Scenario**

A detailed discussion of water table scenario during different monitoring periods is described below.

#### **3.5.1 May 2019 (Water Table in May 2019)**

The water table map for pre-monsoon period (Fig. 27) reveals that the water table in different parts of the state ranges between 12m bmsl and 591m amsl (Annexure III). The water table mostly follows the topography of the area. Water table is highest along the eastern hilly tract of the eastern side and gradually reduces towards west/south west. Ground water flow direction is westward and southwest in north Gujarat and it turns to west in south Gujarat. Flow directions in Kachchh and Saurashtra are divergent in all directions from the centre of the regions where the height of the water table is 100m amsl, thus making groundwater mound in the central parts of both the Regions. The elevation of the water table is more than 400m amsl in the Banaskantha in north, Valsad and The Dangs in south, part of the main land Gujarat. Water table below mean sea level is observed in coastal Kachchh, Bhavnagar, Jamnagar, Junagadh, Porbandar and Rajkot districts in Saurashtra, Bharuch, Navsari, Surat, Vadodara and Valsad districts in south Gujarat.

### **3.6 Piezometric Configuration**

Northern part of the north Gujarat is underlain by the unconsolidated alluvial deposits of post Miocene age and semi consolidated Mesozoic and Tertiary sediments. These sedimentary formations form the most prolific multi-aquifer system comprising several confined aquifers. Confined aquifers in this area are grouped into, first confined aquifer ranging in depth from 78 to 213 mbgl and second confined aquifer ranging in depth from 154 to 274 mbgl. These aquifers extend from the foothill of the Aravallis in the northeast to the little Rann of Kachchh in the west. The aerial extent of this multi-aquifer system is shown in the maps by dotted line. The data of the depth to water level in confined aquifer is given in Annexure IIB.

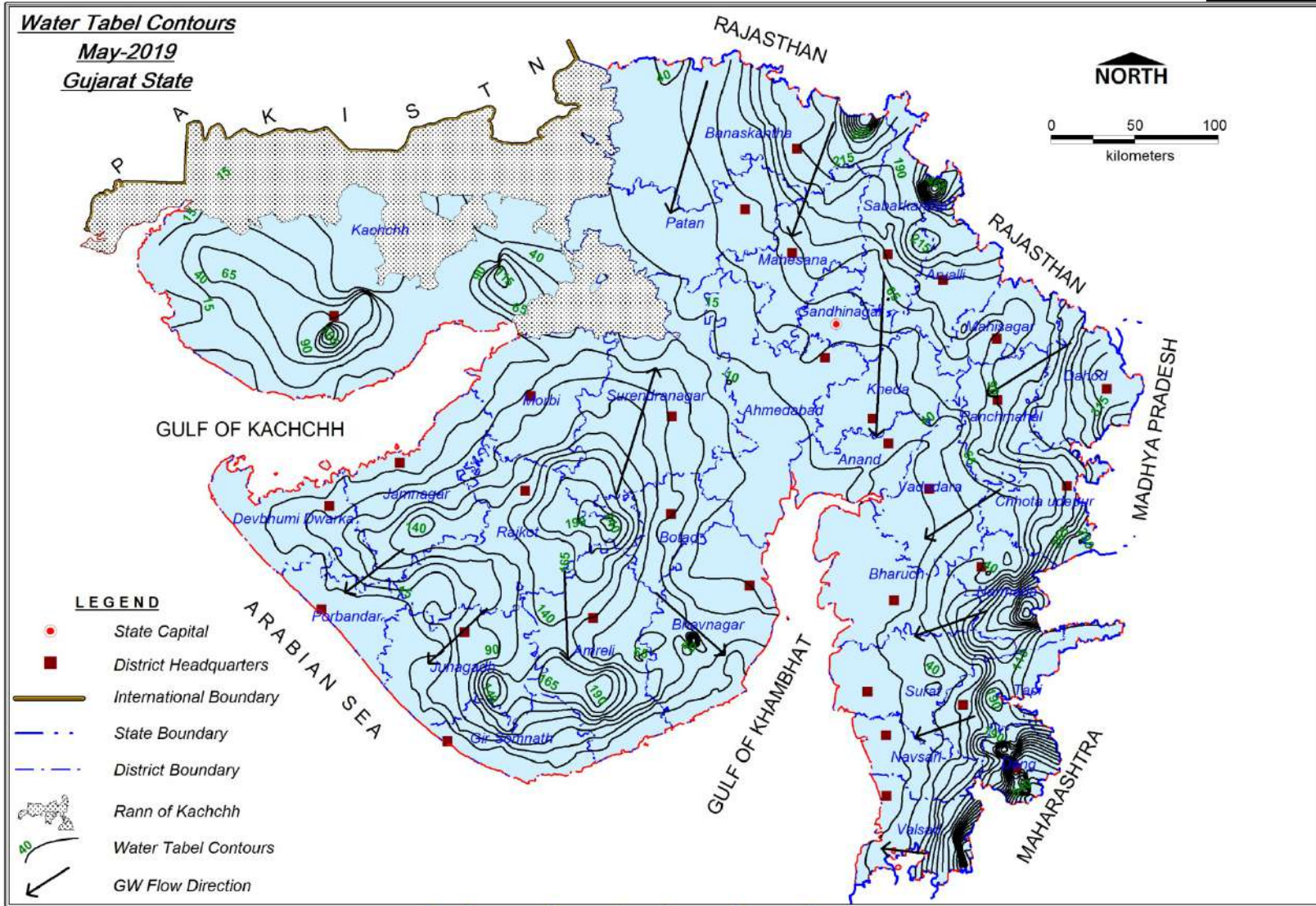
#### **3.6.1 First Confined Aquifer – May 2019**

In the alluvial area, 21 piezometers tapping the first confined aquifers were monitored and analysed during May 2019. Based on the water levels measured, an Isopiestic map was prepared (Fig 28). A perusal of the map shows that in general depth to piezometric surface declines from east to west. A trough of more than 10 m bmsl is found in Patan and Mahesana districts. Another trough of more than 40m bmsl is found in the adjoining area of Ahmedabad and Gandhinagar districts. The elevation of piezometric head varies from 61.97m bmsl at Moti Kumadj of Ahmedabad district to 188m amsl at Palanpur in Banaskantha district.

#### **3.6.2 Second Confined Aquifer – May 2019**

In the alluvial area, 28 piezometers tapping the second confined aquifers were monitored and analysed during May 2019. Based on the water levels measured, an Isopiestic map was prepared Fig 29. A perusal of the map shows that, a trough of more than 80m bmsl is found in adjoining area of Banaskantha, Patan and Mahesana. The elevation of piezometric head ranges from 127.39m amsl at Kheralu in Mahesana to 138.44m bmsl at Jangral in Patan district.

Fig- 27

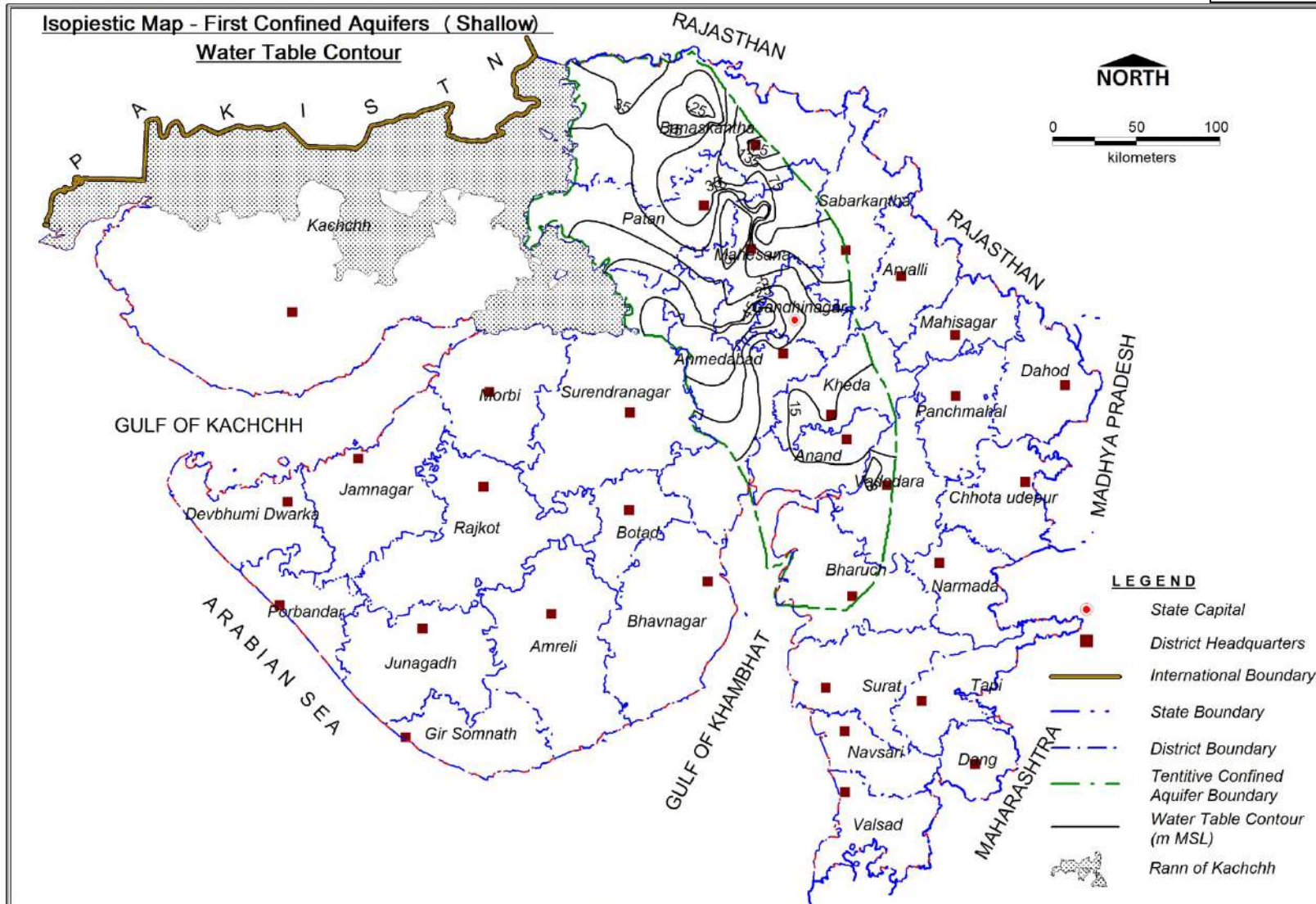


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DrG. By : Nilesh Dhokia, Draftsman

Fig- 28

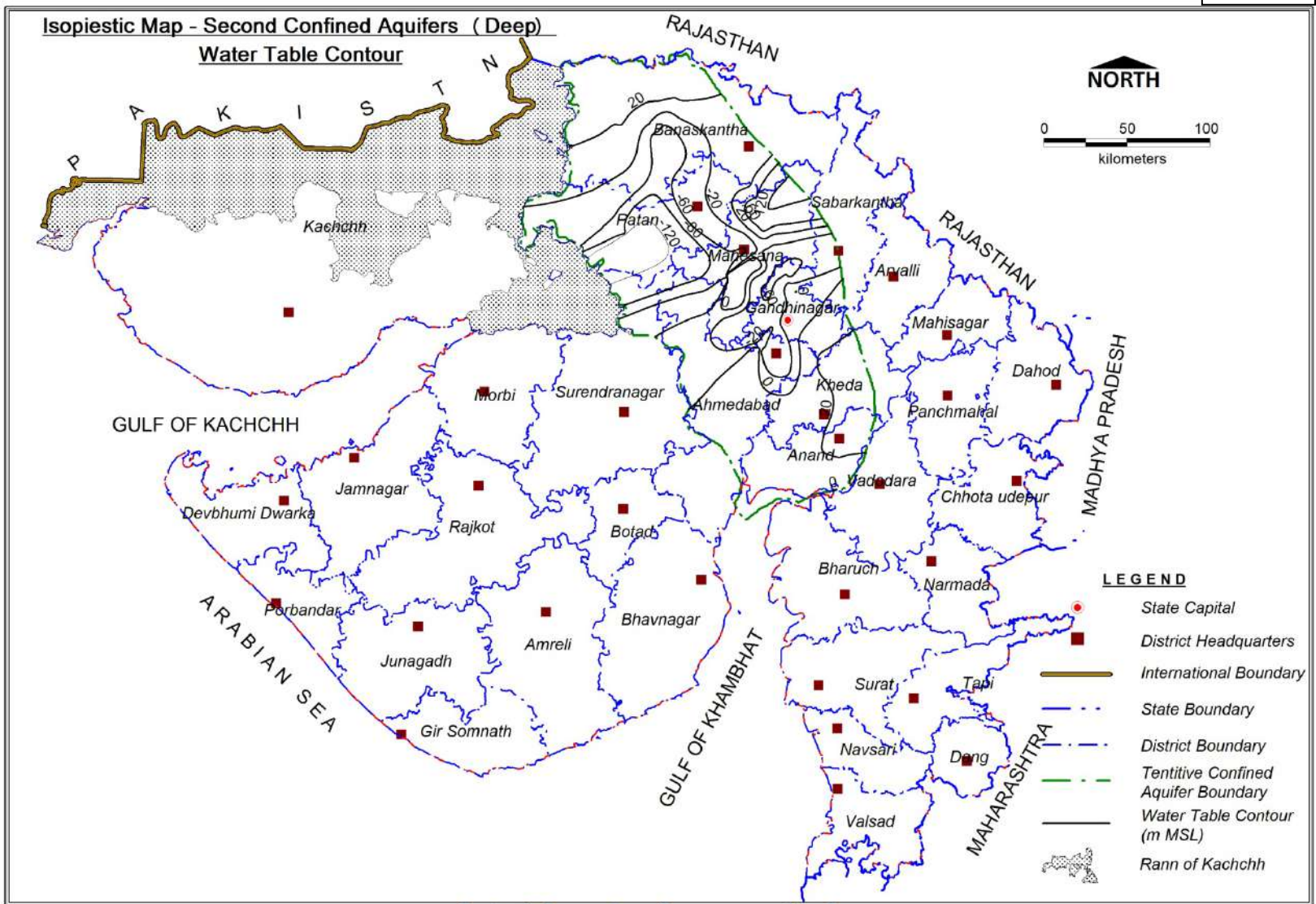


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गांव गांव जाएंगे, जल संरक्षण अपनाएंगे ।

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**Fig- 29**



DRG. No. RODC/YB/2019-20/25

जन जन ने संभाली है जल संचय की कमान, अब बढ़ेगा देश का मान ।

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## **4. HYDROCHEMISTRY**

Hydrochemistry is an interdisciplinary science that deals with the chemistry of water in the natural environment. The classical use of chemical characteristics in hydrochemistry is to provide information about the regional distribution of water qualities. At the same time, hydrochemistry has a potential use for tracing the origin and history of water. The hydrochemistry can also be of immense help in yielding information about the environment through which water has circulated. Hydrochemistry can be helpful in knowing about residence time, flow path and aquifer characteristics, as the chemical reactions are time and space dependent.

The diverse physiographic, climatic, topographic and geologic conditions have given rise to diversified groundwater situations in different parts of Gujarat State. Physiographically, Gujarat State is categorized as the Mainland, Saurashtra and Kachchh. The groundwater quality of Gujarat is variable and complex as its quality is influenced by local geology, coastal salinity, inherent salinity, and contamination and heavy withdrawal of groundwater. Gujarat has the longest coastline in the country with several creeks, as a result, during tides sea water invades inland through these creeks which in turn has impact on groundwater quality along its coasts. High chemical concentrations mostly occur in coastal regions due to seawater intrusion brought by upconing or reversal in hydraulic gradient.

### **4.1 Groundwater Quality Monitoring**

A systematic plan for conducting water quality monitoring is called Monitoring Programme, which includes monitoring network design, preliminary survey, resource estimation, sampling, analysis, data management & reporting. Monitoring of groundwater quality is an effort to obtain information on chemical quality through representative sampling in different hydro geological units. Groundwater is commonly tapped from phreatic aquifers through dug wells in a major part of the state and through springs and hand pumps in hilly areas.

Central Ground Water Board (WCR), Ahmedabad has monitored a total number of 518 water samples collected during May 2019, for basic parameters determining pH, EC, TDS, CO<sub>3</sub>, HCO<sub>3</sub>, Cl, NO<sub>3</sub>, SO<sub>4</sub>, F, Ca, Mg, TH, Alkalinity, Na, K and SAR, involving use of instruments such as pH meter, EC meter, flame photometer, UV/ Visible Spectrophotometer and titrimetric methods. Further 518 water samples were collected for heavy metal analysis from the all locations of NHNS. The samples for heavy metal analysis was collected in 250ml Polypropylene (Tarson make) sample bottles and treated with hydrochloric acid to make the final concentration of acid 0.01 N. The Iron analysis was conducted us by Atomic Absorption spectrophotometer.

### **4.2 Ground water quality scenario in the state**

From the analytical results it has been observed that majority of water samples collected from observation wells of CGWB in a major part of the state fall under desirable or permissible category and hence are suitable for drinking purposes. However, a small percentage of well waters are found to have concentrations of some constituents beyond the permissible limits. Such waters are not fit for human consumption and are likely harmful to health on continuous use. Based on the

results it is found that groundwater in the state is mostly of calcium bicarbonate type when the Electrical conductivity is below 750uS/cm.

There are mixed cation and mixed anions type groundwater in the state when the electrical conductance is between 750 and 3200 uS/cm and waters with electrical conductance more than 3200 uS/cm are of sodium chloride type.

A total number of 538 water samples collected and analyzed for different chemical parameters from National Hydrograph Network Monitoring Station Samples for basic parameters and for Iron analysis spread over 33 districts of Gujarat. The overall results of hydro chemical analysis are attached in **Annexure V**. District wise maximum range distribution of different pollution parameters observed during analysis is summarized in the attached **Table 20**.

#### **Major quality findings are described as under**

##### **4.2.1 The Electrical conductivity**

Electrical conductivity or Total dissolved solids or Salinity is the saltiness or dissolved salt contents of a water body. Different substances dissolve in water giving it taste and odour. In fact, human beings have developed senses, which are able to evaluate the potability of water. Electrical conductivity represents total number of cations and anions present in groundwater, indicating ionic mobility of different ions, total dissolved solids and saline nature of water. In general water having EC < 1500 uS/cm, is considered as fresh water, EC 1500 – 15000uS/cm, is considered as Brackish water and > 15000uS/cm is considered as saline water. In general in most parts of the state the EC value is found to be very high i.e. 3200uS/cm to 15000uS/cm and more. It was observed that out of 539 water samples 106 samples show EC value more than 3200 uS/cm, which indicates the gravity of salinity problem in the area. The map showing of electrical conductivity in state is represented in **Fig 30**.

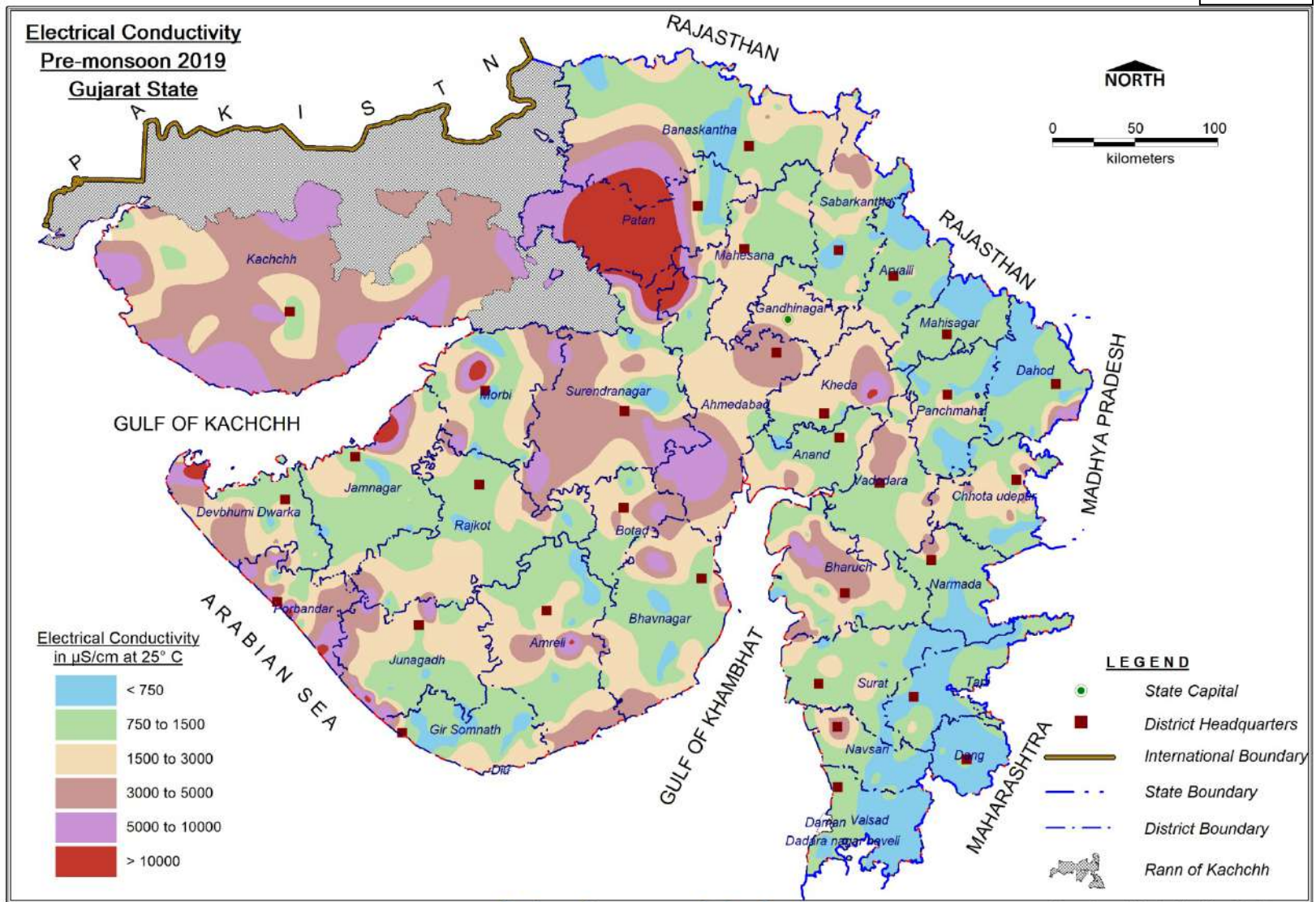
A close observation of the **Annexure-V** reveals High **EC Values** > 3200 uS/cm have been found in 106 number of samples out of 539 total number of samples analyzed indicating saline nature of water in most part of the state. Salinity problem in Northwestern parts of the state to the extent of EC having > 10000 uS/cm, showing brackish water problem.

Table 20

**QUALITY INDEX OF NATIONAL HYDROGRAPH MONITORING STATIONS OF GUJARAT MAY 2019**

District	No of Samples	EC in uS/cm			Cl in mg/l			NO3 in mg/l			F in mg/l		
		Max	Min	No of samples with EC >3200 uS/cm	Max	Min	No of samples >1000 mg/l	Max	Min	No of samples >45 mg/l	Max	Min	No of samples >1.5 mg/l
Ahmedabad	11	20980	679	6	6000	50	3	1058	2.12	3	5.00	0.52	6
Amreli	26	10470	331	5	2840	21	3	200	1.0	10	3.90	0.15	1
Anand	10	3524	679	1	794	57	0	80	5.0	1	3.00	0.42	1
Banaskantha	12	3043	492	0	710	43	0	127	0.96	4	2.70	0.15	2
Bharuch	33	8614	405	8	1582	14	2	1164	5.0	14	2.80	0.10	3
Bhavnagar	19	6158	292	3	1420	21	1	320	0.6	6	1.69	0.26	1
Dohad	17	6888	395	1	1312	21	1	795	1.1	5	6.50	0.46	5
Gandhinagar	1	2434	2434	0	327	327	0	112.8	113	1	1.28	1.28	0
Jamnagar	40	14380	556	10	4622	35	5	196.8	0.02	13	7.00	0.03	4
Junagadh	44	11560	555	10	3531	43	9	150	1.3	19	1.60	0.11	1
Kachchh	26	9253	840	18	2694	92	9	210	0.77	7	10.10	0.22	7
Kheda	7	11160	665	1	3621	21	1	170	6.0	2	1.30	0.24	0
Mahesana	12	4401	815	3	1065	36	1	131	3.9	5	1.92	0.35	1
Narmada	18	3600	468	1	539	14	0	141	10	7	0.75	0.12	0
Navsari	12	4187	467	1	952	28	0	29	7.1	0	0.77	0.14	0
Panchmahal	25	2723	318	0	581	28	0	138	4.0	6	2.40	0.15	5
Patan	5	26520	540	2	9217	35	2	132	4.3	2	8.60	0.34	1
Porbandar	25	13200	377	13	4467	28	10	214	1.4	7	5.00	0.04	3
Rajkot	36	14430	507	6	4544	36	5	273	2.45	11	4.80	0.00	4
Sabarkantha	37	5031	455	2	1335	28	2	237	2.7	21	5.50	0.21	8
Surat	29	2558	427	0	462	21	0	66	1.4	3	1.35	0.06	0
Surendranagar	18	6960	350	7	2024	36	4	276	1.9	5	5.20	0.72	9
The dangs	23	1038	267	0	227	14	0	68	1.6	2	0.60	0.10	0
Vadodara	39	5535	565	8	1021	28	1	290	18	24	6.40	0.10	6
Valsad	14	1025	352	0	128	36	0	40	2.2	0	0.91	0.05	0
<b>Grand Total</b>	<b>539</b>	<b>26520</b>	<b>267</b>	<b>106</b>	<b>9217</b>	<b>14</b>	<b>59</b>	<b>1164</b>	<b>0.02</b>	<b>178</b>	<b>10.1</b>	<b>0</b>	<b>68</b>

**Fig- 30**



DRG. No. RODC/YB/2019-20/27

जल है जीवन की आस, बचा रहे ये करो प्रयास !

Drg. By : Nilesh Dhokia, Draftsman

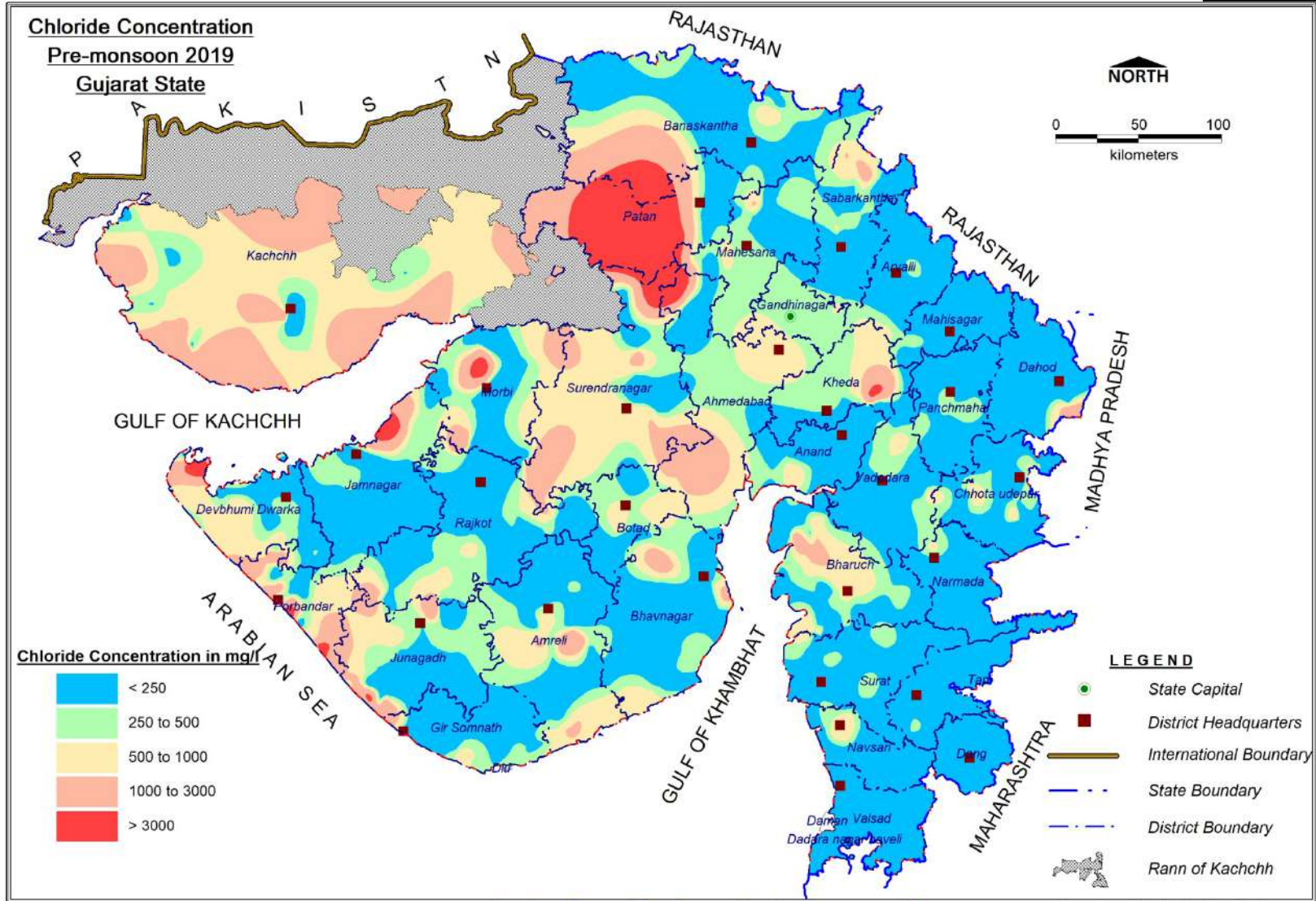


#### 4.2.2 Chloride

Chloride is present in all natural waters being highly soluble and moves freely through soil and rock. In groundwater Chloride content is mostly below 250 mg/l except in cases where inland salinity is prevalent and in coastal areas. BIS have recommended a desirable limit of 250mg/l of chloride in drinking water; this concentration limit can be extended to 1000 mg/l of chloride in cases where no alternative source of water with desired concentration is available. The map showing distribution of Chloride in the state is represented in **Fig 31**.

A close observation of the **Annexure-V**, High Chloride > 1000mg/L have been found in 59 numbers of samples out of 539 total numbers of samples analyzed indicating saline nature of water in most part of the state. The maximum chloride value is observed in scattered way in western parts of the state to the extent of Chloride having >5000 mg/l, showing high salinity.

**Fig- 31**



DRG. No. RODC/YB/2019-20/31

आज बूंद-बूंद नहीं बचाओगे, तो कल बूंद बूंद को तरस जाओगे !

Drg. By : Nilesh Dhokia, Draftsman

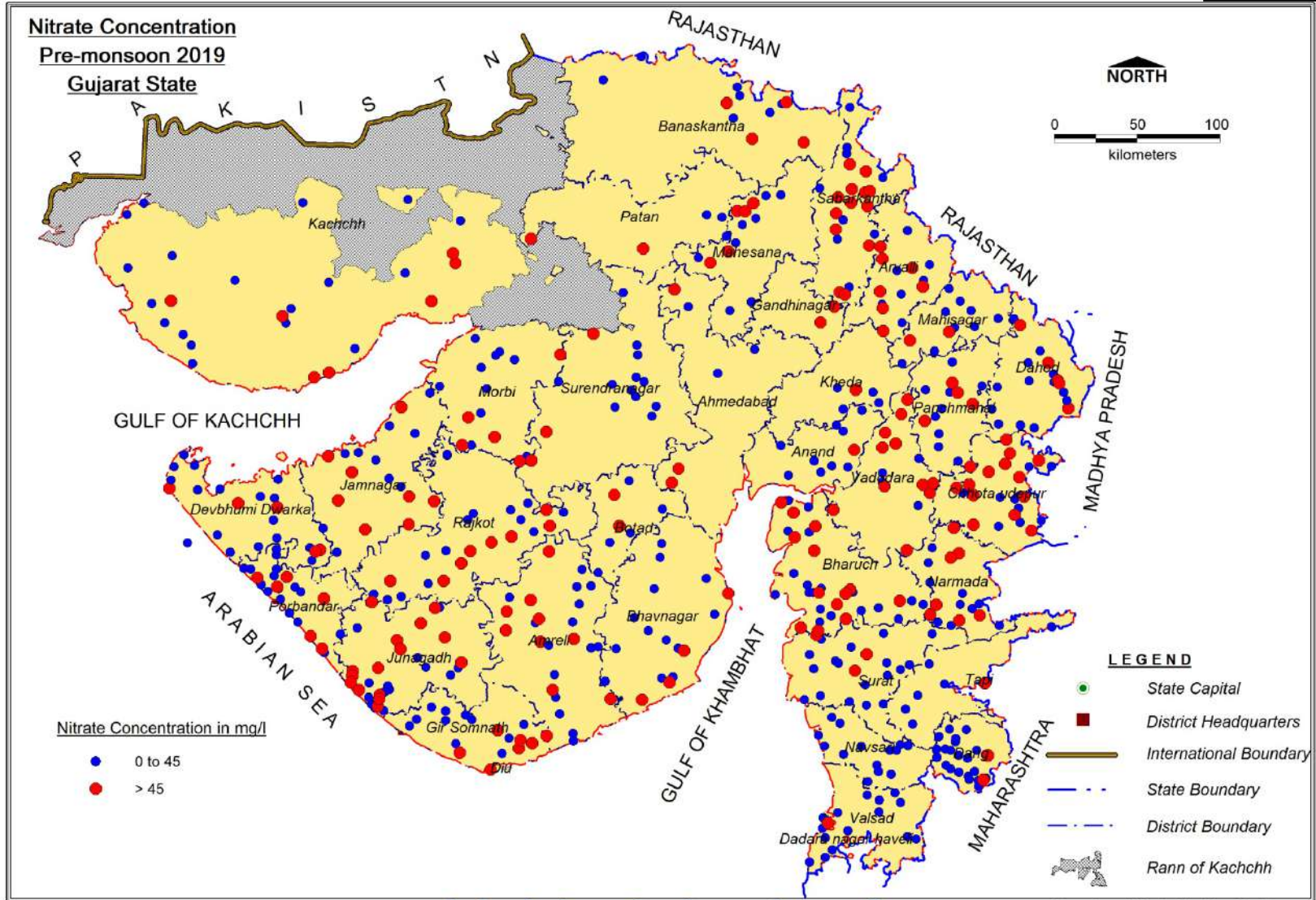
### 4.2.3 Nitrate

Nitrate is a naturally occurring compound that is formed in the soil when nitrogen and oxygen combine. The primary source of all nitrates is atmospheric nitrogen gas. This is converted into organic nitrogen by some plants by a process called nitrogen fixation. Dissolved nitrogen in the form of nitrate is the most common contaminant of groundwater. Nitrate in groundwater generally originates from non point sources such as leaching of chemical fertilizers and animal manure, groundwater pollution from septic and sewage discharges etc. It is difficult to identify the natural and man-made sources of nitrogen contamination of ground water. Some chemical and microbiological processes such as nitrification and denitrification also influence the nitrate concentration in ground water. The map showing distribution of nitrate in the state is represented in **Fig 32**.

As per the BIS standard for drinking water the maximum desirable limit of nitrate concentration in groundwater is 45 mg/l .Though nitrate is considered relatively non-toxic, a high nitrate concentration in drinking water is an environmental health concern arising from increased risks of methaemoglobinemia particularly to infants. Adults can tolerate little higher concentration.

Nitrate value have been found in the range of 1 to 500 mg/l where **high Nitrate** > 45mg/L, (**Annexure V**) have been found in 178 number of samples out of 539 total number of samples analyzed indicating high nitrate pollution due to use of nitrogen containing fertilizer, domestic and agriculture waste and man made anthropogenic activities. The maximum nitrate value is observed in scattered way in all parts of the state.

**Fig- 32**



DRG. No. RODC/YB/2019-20/29

पानी को व्यर्थ नहीं गवाना है, पानी बचाकर जीवन बचाना है !

Drg. By : Nilesh Dhokia, Draftsman

#### 4.2.4 Fluoride

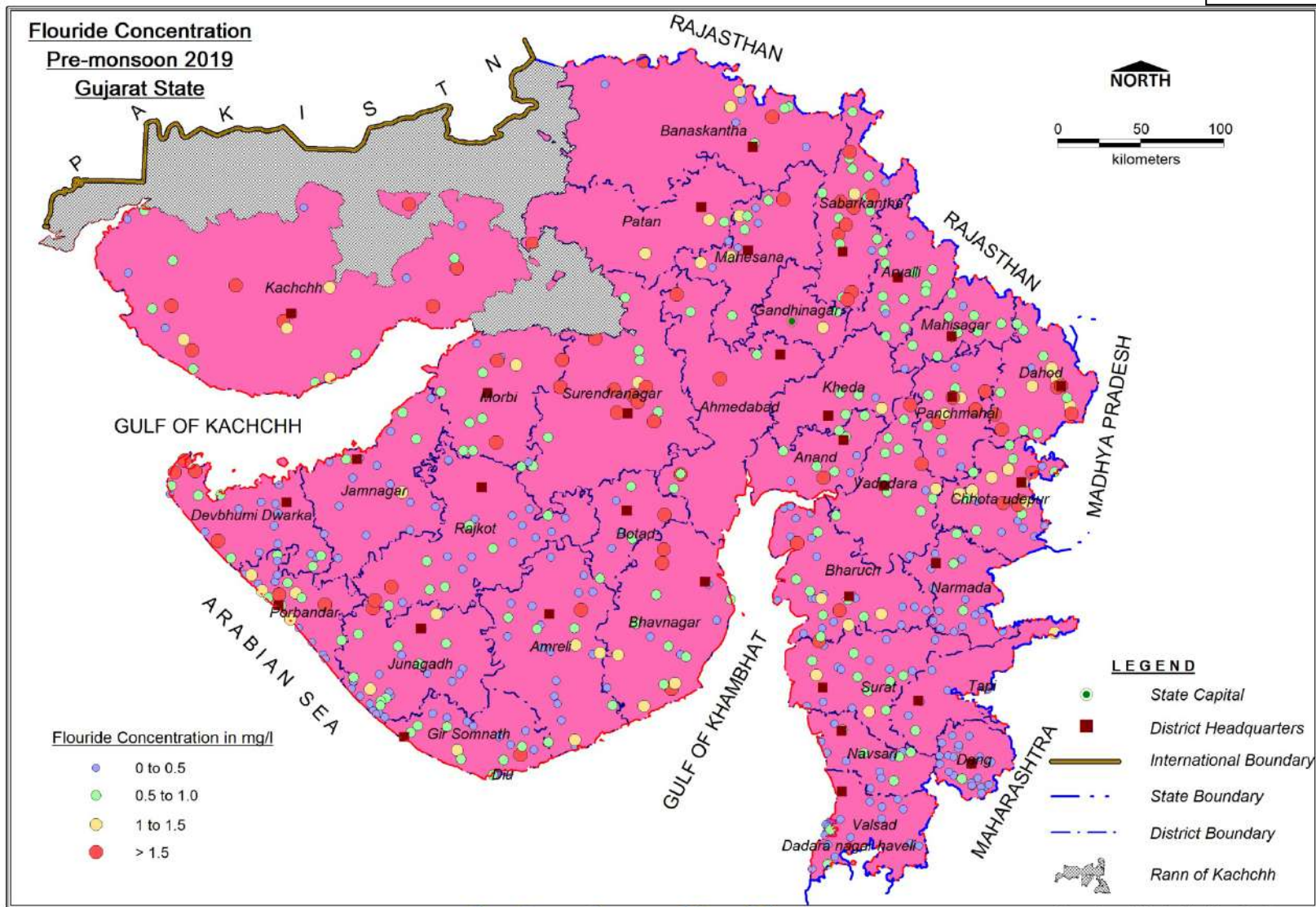
Fluorine is a fairly common element but it does not occur in the elemental state in nature because of its high reactivity. Fluorine is the most electronegative and reactive of all elements that occur naturally within many type of rocks. It exists in the form of fluorides in a number of minerals of which fluorspar, cryolite, fluorite & fluorapatite are the most common.

Most of the fluoride found in groundwater is naturally occurring from the breakdown of rocks and soils or weathering and deposition of atmospheric particles. Most of the fluorides are sparingly soluble and are present in groundwater in small amount. The type of rocks, climatic conditions, nature of hydro geological strata and time of contact between rock and the circulating groundwater affect the occurrence of fluoride in natural water. Presence of other ions particularly bicarbonate and calcium ions also affects the concentration of fluoride in groundwater. The map showing distribution of Fluoride in the state is represented in **Fig 33**.

It is well known that small amount of fluoride (>1.0 mg/l) have proven to be beneficial in reducing tooth decay. Community water supplies commonly are treated with sodium fluoride or fluorosilicates to maintain fluoride level ranging from 0.8 to 1.2 mg/l to reduce the incidences of dental carries. However, high concentrations (>1.5mg/l) have resulted in staining of tooth enamel while higher levels of fluoride (> 5.0 mg/l) further creates the critical problems such as stiffness of bones. BIS has recommended an upper desirable limit of 1.0 mg/l of fluoride concentration in drinking water, which can be extended to 1.5 mg/l in case no alternative source of drinking water is available. Water having fluoride concentration more than 1.5mg/l is not suitable for drinking purposes.

**High Fluoride** >1.5mg/l, (**Annexure V**) which is mainly attributed due to geogenic conditions ranged from 0 to 8.6 mg/l, have been observed in 68 water samples out of 539 water samples analyzed.

**Fig- 33**



DRG. No. RODC/YB/2019-20/30

पानी बचाने का करो जतन, क्योंकि पानी है बहुमूल्य स्तन !

Drg. By : Nilesh Dhokia, Draftsman

## 4.2.5 Heavy Metal Analysis

### Iron

Iron is a common constituent in soil and groundwater. It is present in water either as soluble ferrous iron or the insoluble ferric iron. Water containing ferrous iron is clear and colorless because the iron is completely dissolved. When exposed to air the water turns cloudy due to oxidation of ferrous iron into reddish brown ferric oxide.

The concentration of iron in natural water is controlled by both physico-chemical and microbiological factors. It is contributed in ground water mainly from weathering of ferruginous minerals of igneous rocks such as hematite, magnetite and sulphide ores of sedimentary and metamorphic rocks. The permissible iron concentration in groundwater is less than 1.0mg/l as per the BIS Standard for drinking water. The map showing distribution of Iron in the state is represented in **Fig 34**.

A total number of 538 water samples from selected Groundwater monitoring wells were collected separately for iron analysis after filtration and hydrochloric acid treatment (Annexure\_V). Iron values ranges from 0 to as high as 6.0 ppm. Out of these samples 25 numbers of samples have been found to contain Fe value > 0.3 ppm (Table 21). Of which 14 samples shows morethan 1.0 ppm.

### Chromium

Chromium values ranges from 0 to as high as 0.3405 ppm. Out of 538 samples, 0 numbers of samples have been found to contain Cr value > 0.05 ppm (Table 21) which shows morethan desirable limit as BIS 2012 standard.

### Copper

Copper values ranges from 0 to as high as 0.1446 ppm. Out of 538 samples, 0 numbers of samples have been found to contain Cu value > 0.05 ppm (Table 21) which shows morethan desirable limit as BIS 2012 standard.

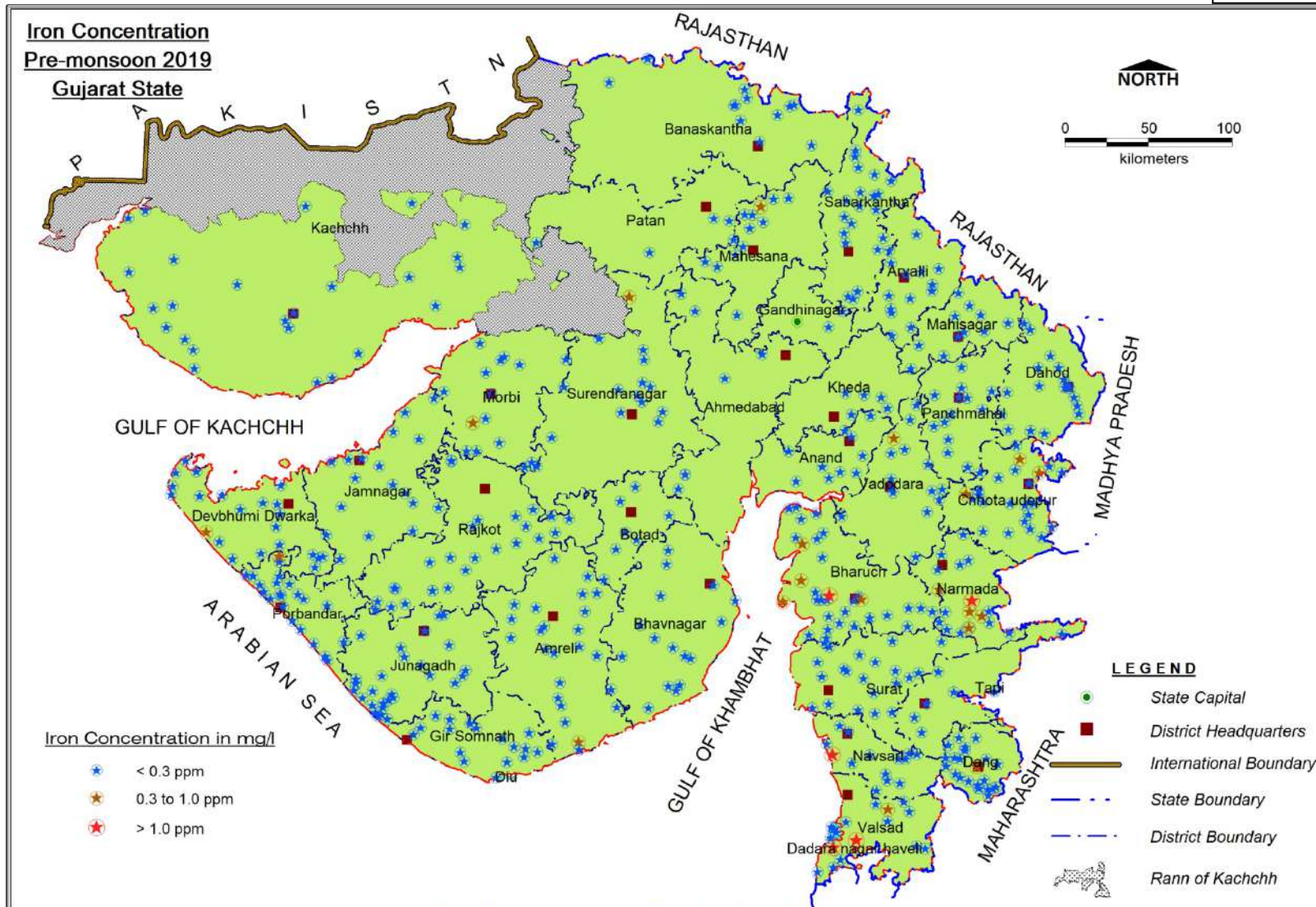
### Manganese

Manganese values ranges from 0 to as high as 23.50 ppm. Out of 538 samples, 21 numbers of samples have been found to contain Mn value > 0.3 ppm (Table 21) which shows morethan desirable limit as BIS 2012 standard.

### Zinc

Zinc values ranges from 0 to as high as 0.466 ppm. Out of 538 samples, all samples have been found to contain Zn value less than 5 ppm (Table 21) which is the desirable limit as BIS 2012 standard. Hence all the samples may be treated safe.

**Fig- 34**



DRG. No. RODC/YB/2019-20/26

पानी प्रकृति का अमूल्य उपहार है, इसे भविष्य के लिए बचाए !

Drg. By : Nilesh Dhokia, Draftsman



Table 21

## QUALITY INDEX OF NATIONAL HYDROGRAPH MONITORING STATIONS OF GUJARAT MAY 2019

District	No of Samples	Cr in ppm			Fe in ppm			Mn in ppm			Cu in ppm			Zn in ppm		
		Max	Min	No of samples >0.05	Max	Min	No of samples >0.3	Max	Min	No of samples >0.3	Max	Min	No of samples >0.05	Max	Min	No of samples > 5 ppm
Ahmedabad	11	0.012	0.000	0	0.135	0.006	0	0.286	0.001	0	0.010	0.000	0	0.288	0.009	0
Amreli	26	0.008	0.000	0	0.410	0.000	1	0.786	0.000	1	0.006	0.000	0	0.456	0.000	0
Anand	10	0.035	0.000	0	0.061	0.004	0	0.197	0.000	0	0.004	0.000	0	0.031	0.005	0
Banaskantha	12	0.003	0.000	0	0.295	0.010	0	0.268	0.000	0	0.000	0.000	0	0.058	0.002	0
Bharuch	33	0.008	0.000	0	1.411	0.008	5	0.405	0.000	1	0.038	0.000	0	0.363	0.001	0
Bhavnagar	19	0.002	0.000	0	0.191	0.007	0	0.347	0.001	1	0.006	0.000	0	0.473	0.012	0
Dohad	17	0.001	0.000	0	0.085	0.013	0	0.305	0.001	0	0.104	0.000	0	0.141	0.004	0
Gandhinagar	1	0.009	0.009	0	0.024	0.024	0	0.001	0.001	1	0.001	0.001	0	0.009	0.009	0
Jamnagar	40	0.001	0.000	0	0.087	0.001	0	1.953	0.000	1	0.032	0.000	0	0.026	0.002	0
Junagadh	44	0.017	0.000	0	0.167	0.009	0	0.379	0.000	1	0.014	0.000	0	0.466	0.002	0
Kachchh	26	0.006	0.000	0	0.213	0.011	0	0.754	0.001	5	0.003	0.000	0	0.140	0.000	0
Kheda	7	0.004	0.000	0	0.058	0.011	0	0.003	0.001	0	0.001	0.000	0	0.110	0.006	0
Mahesana	12	0.005	0.000	0	0.380	0.016	1	0.745	0.001	1	0.002	0.000	0	0.095	0.005	0
Narmada	18	0.002	0.000	0	1.648	0.013	5	0.071	0.001	0	0.008	0.000	0	2.608	0.002	0
Navsari	12	0.004	0.000	0	2.527	0.048	1	0.087	0.002	0	0.007	0.000	0	0.022	0.002	0
Panchmahal	24	0.002	0.000	0	0.097	0.011	0	0.281	0.001	0	0.005	0.000	0	0.048	0.005	0
Patan	5	0.002	0.000	0	0.162	0.012	0	0.441	0.001	1	0.002	0.000	0	0.017	0.000	0
Porbandar	25	0.003	0.000	0	0.730	0.001	2	0.984	0.000	1	0.018	0.000	0	0.041	0.002	0
Rajkot	36	0.002	0.000	0	0.564	0.008	1	0.224	0.000	0	0.007	0.000	0	0.051	0.001	0
Sabarkantha	37	0.005	0.000	0	0.235	0.013	0	0.111	0.000	0	0.004	0.000	0	0.415	0.001	0
Surat	29	0.007	0.000	0	0.133	0.011	0	0.646	0.001	2	0.002	0.000	0	0.037	0.004	0
Surendranaga	18	0.000	0.000	0	0.421	0.004	1	0.667	0.000	2	0.010	0.000	0	0.035	0.001	0
The dangs	23	0.003	0.000	0	0.741	0.032	1	2.013	0.004	3	0.013	0.000	0	0.328	0.003	0
Vadodara	39	0.013	0.000	0	0.633	0.009	4	0.277	0.000	0	0.051	0.000	0	0.409	0.004	0
Valsad	14	0.003	0.000	0	1.066	0.034	3	0.058	0.002	0	0.003	0.000	0	0.019	0.003	0
<b>Total</b>	<b>538</b>	<b>0.035</b>	<b>0.000</b>	<b>0</b>	<b>2.527</b>	<b>0.000</b>	<b>25</b>	<b>2.013</b>	<b>0.000</b>	<b>21</b>	<b>0.104</b>	<b>0.000</b>	<b>0</b>	<b>2.608</b>	<b>0.000</b>	<b>0</b>

## DISTRIBUTION OF GROUND WATER MONITORING WELLS IN THE MAJOR RIVER BASIN

DISTRICT_NAME	BASIN_NAME	SUB_BASIN_NAME	Total
Ahmedabad	Draining into Gulf of Kutch	Rupen	17
	Draining into Gulf of Kutch Total		17
	Luni and other drainage into Great Rann of Kutch	Mostly Great Rann Of Kutch	1
	Luni and other drainage into Great Rann of Kutch Total		1
	Sabarmati	Lb Of Sabarmati Upto Hathmati Rb Of Sabarmati And Upper Part Beyond Hathmati	22
	Sabarmati Total		43
	Southern Kathiawar	Draining Into Gulf Of Khambat	10
Southern Kathiawar Total		10	
Ahmedabad Total			71
Amreli	Southern Kathiawar	Draining Into Gulf Of Khambat Rivers draining into Arabian Sea (Western part)	58
	Southern Kathiawar Total		5
			63
Amreli Total			21
Anand	Mahi	Upto Kadana Dam	21
	Mahi Total		18
	Sabarmati	Lb Of Sabarmati Upto Hathmati	15
	Sabarmati Total		15
Anand Total			36
Banaskantha	Draining into Gulf of Kutch	Rupen	32
	Draining into Gulf of Kutch Total		32
	Luni and other drainage into Great Rann of Kutch	Mainly Luni Mostly Great Rann Of Kutch	8
	Luni and other drainage into Great Rann of Kutch Total		32
	Sabarmati	Lb Of Sabarmati Upto Hathmati Rb Of Sabarmati And Upper Part Beyond Hathmati	1
	Sabarmati Total		1
Banaskantha Total			2
Banaskantha Total			74
Bharuch	Mahi	Upto Kadana Dam	13
	Mahi Total		13
	Narmada	Confluence With Sea To Navgam Dam	20
	Narmada Total		20
	Tapti	Sea Confluence To Ukai	11
	Tapti Total		11
Bharuch Total			44
Bhavnagar	Mahi	Upto Kadana Dam	1
	Mahi Total		1
	Southern Kathiawar	Draining Into Gulf Of Khambat Rivers draining into Arabian Sea (Western part)	54
	Southern Kathiawar Total		1
			54
Bhavnagar Total			55
Dohad	Mahi	Kadana Dam To Jakham Confluence Upto Kadana Dam	16
	Mahi Total		16
			32
Dohad Total			32
Gandhinagar	Draining into Gulf of Kutch	Rupen	10
	Draining into Gulf of Kutch Total		10
	Sabarmati	Lb Of Sabarmati Upto Hathmati Rb Of Sabarmati And Upper Part Beyond Hathmati	9
	Sabarmati Total		14
Gandhinagar Total			23
Gandhinagar Total			33
Jamnagar	Draining into Gulf of Kutch	North Flowing Drainage Of Jamnagar	42
	Draining into Gulf of Kutch Total		42
	Southern Kathiawar	Rivers draining into Arabian Sea (Western part)	17
	Southern Kathiawar Total		17
Jamnagar Total			17
Jamnagar Total			59
Junagadh	Southern Kathiawar	Draining Into Gulf Of Khambat Rivers draining into Arabian Sea (Western part)	9
	Southern Kathiawar Total		67
			76
Junagadh Total			76
Kachchh	Draining into Gulf of Kutch	South Flowing Drainage Mostly Bhuj Area	41
	Draining into Gulf of Kutch Total		41
	Luni and other drainage into Great Rann of Kutch	Mostly Great Rann Of Kutch	29
	Luni and other drainage into Great Rann of Kutch Total		29
Kachchh Total			70
Kheda	Mahi	Kadana Dam To Jakham Confluence Upto Kadana Dam	1
	Mahi Total		5
	Sabarmati	Lb Of Sabarmati Upto Hathmati	6
	Sabarmati Total		22
Kheda Total			22
Kheda Total			28
Mahesana	Draining into Gulf of Kutch	Rupen	53
	Draining into Gulf of Kutch Total		53
	Sabarmati	Lb Of Sabarmati Upto Hathmati Rb Of Sabarmati And Upper Part Beyond Hathmati	2
	Sabarmati Total		6
			8

DISTRICT_NAME	BASIN_NAME	SUB_BASIN_NAME	Total
Mahesana Total			61
Narmada	Narmada	Confluence With Sea To Navgam Dam	22
	Narmada Total		22
	Tapti	Rb Ukai Dam To Purna Confluence	5
	Tapti Total		5
Narmada Total			27
Navsari	Sharavati to Tapti	Savitri To Tapti	25
	Sharavati to Tapti Total		25
Navsari Total			25
Panchmahals	Mahi	Kadana Dam To Jakhm Confluence Upto Kadana Dam	3
	Mahi Total		35
	Narmada	Confluence With Sea To Navgam Dam	3
	Narmada Total		3
	Sabarmati	Lb Of Sabarmati Upto Hathmati	5
	Sabarmati Total		5
	Sharavati to Tapti	Savitri To Tapti	3
	Sharavati to Tapti Total		3
Panchmahals Total			50
Patan	Draining into Gulf of Kutch	Rupen South Flowing Drainage Mostly Bhuj Area	26
	Draining into Gulf of Kutch Total		4
	Luni and other drainage into Great Rann of Kutch	Mainly Luni Mostly Great Rann Of Kutch	2
	Luni and other drainage into Great Rann of Kutch Total		3
	Luni and other drainage into Great Rann of Kutch Total		5
	Sabarmati	Lb Of Sabarmati Upto Hathmati	3
	Sabarmati Total		3
Patan Total			38
Porbandar	Southern Kathiawar	Rivers draining into Arabian Sea (Western part)	32
	Southern Kathiawar Total		32
Porbandar Total			32
Rajkot	Draining into Gulf of Kutch	North Flowing Drainage Of Jamnagar	30
	Draining into Gulf of Kutch Total		31
	Southern Kathiawar	Draining Into Gulf Of Khambat Rivers draining into Arabian Sea (Western part)	4
	Southern Kathiawar Total		26
	Southern Kathiawar Total		30
Rajkot Total			61
Sabarkantha	Sabarmati	Lb Of Sabarmati Upto Hathmati Rb Of Sabarmati And Upper Part Beyond Hathmati	47
	Sabarmati Total		13
	Sabarmati Total		60
Sabarkantha Total			60
Surat	Narmada	Confluence With Sea To Navgam Dam	5
	Narmada Total		5
	Sharavati to Tapti	Savitri To Tapti	30
	Sharavati to Tapti Total		30
	Tapti	Lb Ukai Dam To Purna Confluence Sea Confluence To Ukai	4
	Tapti Total		36
	Tapti Total		40
Surat Total			75
Surendranagar	Draining into Gulf of Kutch	North Flowing Drainage Of Jamnagar Ruper	24
	Draining into Gulf of Kutch Total		14
	Draining into Gulf of Kutch Total		38
	Sabarmati	Rb Of Sabarmati And Upper Part Beyond Hathmati	17
	Sabarmati Total		17
Surendranagar Total			55
The dangs	Sharavati to Tapti	Savitri To Tapti	33
	Sharavati to Tapti Total		33
The dangs Total			33
Vadodara	Mahi	Upto Kadana Dam	30
	Mahi Total		30
	Narmada	Confluence With Sea To Navgam Dam	36
	Narmada Total		36
Vadodara Total			66
Valsad	Sharavati to Tapti	Savitri To Tapti	30
	Sharavati to Tapti Total		30
Valsad Total			30
Grand Total			1212

Water Level of the National Hydrograph Stations in Gujarat 2019-20									
Sl. No.	District	Well Name	LAT_Y	LONG_X	Well Type	MAY 2019	AUG 2019	NOV 2019	JAN 2020
1	Ahmedabad	Barvala	22.15000	71.89167	Dug Well	13.00	9.32	6.89	6.70
2	Ahmedabad	Salangpor	22.15833	71.77083	Dug Well	0.00	4.33	3.85	6.20
3	Ahmedabad	Pachcham_Pz	22.23222	72.17889	Piezometer	2.76	0.55	0.74	1.05
4	Ahmedabad	Kundali	22.26944	71.70000	Dug Well	10.40	4.60	3.39	2.80
5	Ahmedabad	Tagadi1	22.29583	71.94722	Dug Well	4.50	1.65	1.81	2.64
6	Ahmedabad	Rajpada	22.30833	71.69167	Dug Well	17.15	8.88	17.72	17.40
7	Ahmedabad	Gamph	22.35833	72.16667	Dug Well	2.25	0.53	0.64	1.20
8	Ahmedabad	Vagad(Repl)_Pz	22.36028	71.86806	Piezometer	5.61	4.37	4.43	4.10
9	Ahmedabad	Dhandhuka1	22.37500	71.98611	Dug Well	4.37	2.14	2.64	1.95
10	Ahmedabad	Devalia	22.37778	71.98611	Dug Well	0.00	20.40	20.40	20.40
11	Ahmedabad	Bagodara_Pz_II	22.64167	72.21389	Piezometer	7.56	0.00	5.43	6.30
12	Ahmedabad	Kumarkhan	22.90000	72.01667	Dug Well	27.55	4.31	1.00	2.45
13	Ahmedabad	Kundal	22.90139	72.22361	Dug Well	8.37	6.01	5.60	11.80
14	Ahmedabad	Ghuma	23.03333	72.44583	Dug Well	4.71	2.72	2.70	0.00
15	Ahmedabad	Bopal_Pz_III	23.03861	72.45778	Piezometer	2.76	0.00	1.20	1.80
16	Ahmedabad	Hansalpur_Pz-III	23.08889	72.01667	Piezometer	5.12	4.08	3.10	3.65
17	Ahmedabad	Viramgam2	23.14167	72.03333	Dug Well	4.23	3.81	1.50	2.27
18	Ahmedabad	Endla	23.27222	72.05833	Dug Well	3.83	1.48	0.10	1.11
19	Ahmedabad	Mandal2	23.27500	71.91667	Dug Well	10.63	0.00	2.83	0.00
20	Ahmedabad	Dalod	23.36667	71.96667	Dug Well	8.97	9.31	7.70	7.70
21	Ahmedabad	Ughraj1	23.36667	72.10000	Dug Well	11.28	0.00	1.47	11.28
22	Amreli	Jafrabad	20.86667	71.36250	Dug Well	5.42	0.53	0.63	0.08
23	Amreli	Bherai	20.86806	71.36250	Dug Well	3.58	2.77	1.93	1.76
24	Amreli	Timbi2	20.89583	71.20417	Dug Well	7.22	4.83	2.74	2.92
25	Amreli	Kadiyali	20.90833	71.36028	Dug Well	5.87	5.24	1.94	3.15
26	Amreli	Nageshri	20.92500	71.35417	Dug Well	5.55	3.75	2.99	2.45
27	Amreli	Lotpur	20.96250	71.43333	Dug Well	0.00	7.39	4.62	4.75
28	Amreli	Trakuda	21.01667	71.28056	Dug Well	15.80	3.39	2.18	3.10
29	Amreli	Mandal	21.10000	71.58333	Dug Well	28.72	26.36	12.71	14.00
30	Amreli	Bhavardi1	21.10833	71.25833	Dug Well	6.44	0.24	0.18	0.40
31	Amreli	Khamba_Pz	21.14167	71.25417	Piezometer	12.83	0.00	6.46	2.90
32	Amreli	Khamba	21.15000	71.23889	Dug Well	11.13	7.31	3.62	3.11
33	Amreli	Goradka	21.22500	71.41111	Dug Well	0.00	2.76	2.93	3.88
34	Amreli	Ingorala	21.23333	71.20000	Dug Well	0.00	19.95	8.65	10.85
35	Amreli	Vankiya1	21.23333	71.25000	Dug Well	23.20	8.92	4.81	5.45
36	Amreli	Virpur	21.25417	71.15000	Dug Well	0.00	12.62	4.62	13.11
37	Amreli	Badhda	21.26583	71.33889	Dug Well	0.00	6.03	3.48	5.50
38	Amreli	Dhari_Pz	21.32639	71.01806	Piezometer	26.56	15.52	5.52	5.79
39	Amreli	Dharangani	21.33333	71.20000	Dug Well	38.45	32.75	37.20	39.35
40	Amreli	Jesar_Pz	21.37139	71.67028	Piezometer	7.41	5.28	6.04	6.85
41	Amreli	Gopalpura Vanda Pz	21.37500	71.49167	Piezometer	34.23	32.10	33.10	21.30
42	Amreli	Morjhar	21.37611	71.11861	Dug Well	50.65	41.35	42.75	0.00
43	Amreli	Hipavadli	21.37889	71.61472	Dug Well	10.30	10.30	8.70	9.10
44	Amreli	Piyava	21.38333	71.46667	Dug Well	33.80	27.75	25.70	21.40
45	Amreli	Charkhadia_Pz	21.38750	71.29167	Piezometer	28.05	24.46	19.34	25.48
46	Amreli	Charkhadia1	21.39167	71.29583	Dug Well	0.00	19.64	20.30	21.74
47	Amreli	Kerala	21.39722	71.21667	Dug Well	42.55	34.05	32.25	36.13
48	Amreli	Chalala	21.41667	71.16667	Dug Well	29.35	26.71	25.68	24.63
49	Amreli	Bhuva	21.43278	71.36389	Dug Well	4.97	3.43	3.32	3.70
50	Amreli	Manila Pz	21.43333	71.16667	Piezometer	22.18	20.95	19.80	20.30

51	Amreli	Fifad	21.43611	71.54028	Dug Well	7.13	6.71	6.25	6.30
52	Amreli	Bagasara	21.47917	70.96250	Dug Well	19.13	13.84	10.05	13.25
53	Amreli	Vankiya	21.52083	71.13611	Dug Well	9.40	4.83	4.65	5.00
54	Amreli	Punjabadar	21.52500	71.35833	Dug Well	12.06	5.22	3.51	4.85
55	Amreli	Govadka	21.54167	71.15833	Dug Well	19.15	2.00	1.52	0.00
56	Amreli	Sanaria	21.55778	71.46806	Dug Well	0.00	1.92	1.50	3.10
57	Amreli	Vaghania juna	21.58333	70.96667	Dug Well	10.68	4.96	2.80	3.50
58	Amreli	Amreli	21.60833	71.22500	Dug Well	11.70	2.84	2.71	4.92
59	Amreli	Amreli_Pz	21.61250	71.22500	Piezometer	13.35	0.00	5.66	6.90
60	Amreli	Luariya	21.62500	71.39583	Dug Well	10.74	3.63	2.81	3.99
61	Amreli	Ankadia mota	21.64583	71.10833	Dug Well	7.41	3.54	3.48	5.77
62	Amreli	Kunkavav	21.66250	70.98333	Dug Well	20.05	6.35	5.03	9.15
63	Amreli	Lathi	21.72083	71.38333	Dug Well	10.48	1.60	1.57	2.25
64	Amreli	Tajpur	21.72500	71.46667	Dug Well	24.60	3.68	2.29	8.14
65	Amreli	Chavand	21.81667	71.41250	Dug Well	12.15	3.05	4.58	5.30
66	Amreli	Dhrai Balmukand	21.83417	71.21722	Dug Well	0.00	8.86	3.44	4.44
67	Amreli	Untvad	21.91667	71.21667	Dug Well	16.52	1.96	1.83	6.45
68	Amreli	Kotadapitha	21.95833	71.20417	Dug Well	10.05	0.08	0.29	3.99
69	Anand	Navapura	22.31250	72.96250	Dug Well	0.00	0.00	28.56	28.56
70	Anand	Kansari1	22.34167	72.65000	Dug Well	5.36	3.46	3.63	11.54
71	Anand	Ras	22.34583	72.83333	Dug Well	2.10	0.74	0.88	1.78
72	Anand	Bhadran	22.35556	72.89722	Dug Well	18.45	16.16	14.20	15.95
73	Anand	Anklav2	22.38333	73.00833	Dug Well	28.60	24.35	23.18	22.72
74	Anand	Laxmipura	22.41667	72.60833	Dug Well	0.00	0.38	1.48	1.18
75	Anand	Dharmaj	22.42083	72.79444	Dug Well	9.42	7.85	7.78	13.65
76	Anand	Davalpura_Pz	22.45833	72.80278	Piezometer	4.82	0.10	1.46	2.46
77	Anand	Tarapur Pz-II	22.48611	72.66111	Piezometer	4.53	2.77	2.05	3.07
78	Anand	Bandhani	22.54167	72.81667	Dug Well	6.59	5.55	4.88	5.23
79	Anand	Ghora	22.69167	73.05417	Dug Well	0.00	11.21	10.30	0.00
80	Banaskantha	Mohabbat gadh	24.16667	72.72778	Dug Well	31.20	31.20	19.59	20.36
81	Banaskantha	Ratanpur2	24.17500	72.74583	Dug Well	25.00	24.20	14.46	15.85
82	Banaskantha	Dantiwada	24.18889	72.76056	Piezometer	33.73	33.92	33.99	32.97
83	Banaskantha	Danta	24.18889	72.76528	Piezometer	11.61	11.50	8.17	8.25
84	Banaskantha	Palanpur2	24.19444	72.43333	Dug Well	27.27	25.89	26.79	25.69
85	Banaskantha	Dantiwada	24.27750	72.26139	Dug Well	25.05	23.32	26.73	28.10
86	Banaskantha	Ganapipli	24.29722	72.94722	Dug Well	13.90	13.57	11.35	11.05
87	Banaskantha	Ambaji_Pz	24.33611	72.84722	Piezometer	15.07	14.33	5.26	5.63
88	Banaskantha	Iqbalgarh	24.34583	72.53750	Dug Well	30.55	27.99	28.45	29.08
89	Banaskantha	Tharad Pziii	24.38500	71.61944	Piezometer	9.99	9.85	9.44	9.70
90	Banaskantha	Kidotar	24.39444	72.62778	Dug Well	18.90	14.97	14.70	16.72
91	Banaskantha	Meda	24.39722	72.28472	Dug Well	6.56	6.10	7.02	7.75
92	Banaskantha	Sodapur	24.40139	72.29583	Dug Well	18.19	9.20	12.69	12.14
93	Banaskantha	Amirgadh	24.40556	72.64167	Dug Well	11.10	10.05	11.31	11.75
94	Banaskantha	Gangodra	24.43611	72.36528	Dug Well	25.90	0.00	16.83	15.97
95	Banaskantha	Bharol1	24.52917	71.54167	Dug Well	2.62	2.24	1.82	1.94
96	Banaskantha	Khoda	24.65833	71.76667	Dug Well	21.17	23.25	23.45	23.92
97	Bharuch	Ilav	21.45000	72.80000	Dug Well	0.00	0.00	3.70	3.97
98	Bharuch	Sahol	21.47278	72.80972	Dug Well	6.37	1.63	2.79	3.35
99	Bharuch	Jetpur1	21.49167	72.70833	Dug Well	3.51	0.20	0.14	1.75
100	Bharuch	Raymal	21.52083	72.82083	Dug Well	2.42	1.20	1.20	1.20
101	Bharuch	Mokhdi	21.53333	73.28750	Dug Well	0.00	3.04	2.66	4.37
102	Bharuch	Panoli	21.53750	72.97500	Dug Well	3.86	2.47	2.67	3.35
103	Bharuch	Motwan	21.55556	72.88750	Dug Well	2.95	1.70	1.98	2.14
104	Bharuch	Kondh	21.58056	73.06806	Dug Well	4.31	1.44	1.87	3.53

105	Bharuch	Hansot	21.58333	72.80833	Piezometer	5.91	2.40	2.76	4.01
106	Bharuch	Utraj	21.59167	72.82500	Dug Well	5.81	2.20	4.96	3.20
107	Bharuch	Jokhla	21.59583	73.16917	Dug Well	2.21	0.00	0.25	4.53
108	Bharuch	Arethi	21.61250	73.43528	Dug Well	0.00	3.23	4.38	6.11
109	Bharuch	Sajod	21.61667	72.92361	Dug Well	4.91	2.47	2.87	3.70
110	Bharuch	Netrang1	21.63333	73.36667	Dug Well	0.00	2.95	2.79	6.94
111	Bharuch	Netrang(Rep)_Pz	21.64167	73.36667	Piezometer	10.21	3.70	5.24	7.25
112	Bharuch	Luhara	21.67500	72.55833	Dug Well	0.95	0.74	0.60	0.42
113	Bharuch	Juna borbhata	21.67500	72.97500	Dug Well	0.00	2.10	2.26	5.60
114	Bharuch	Mahegam1	21.68333	72.75833	Dug Well	3.56	1.47	0.10	0.05
115	Bharuch	Kaswa	21.68333	72.81667	Dug Well	7.67	2.22	2.40	3.49
116	Bharuch	Mulad	21.68333	73.01944	Dug Well	8.16	5.20	3.13	0.00
117	Bharuch	Bharuch	21.70000	73.00417	Dug Well	7.46	2.58	2.61	3.95
118	Bharuch	Navetha	21.70778	72.83056	Dug Well	7.71	5.36	4.49	4.80
119	Bharuch	Bhensli	21.72500	72.75000	Dug Well	3.56	2.29	0.68	1.40
120	Bharuch	Simodra	21.74167	73.20833	Dug Well	0.00	0.00	2.16	0.00
121	Bharuch	Nirnavi	21.79167	72.66806	Dug Well	9.25	1.02	4.00	4.90
122	Bharuch	Roja tankaria	21.91667	72.79167	Dug Well	9.41	7.65	7.52	7.73
123	Bharuch	Tankari	21.99167	72.67500	Dug Well	6.31	3.62	2.94	4.02
124	Bharuch	Kalak1	22.01861	72.76306	Dug Well	10.52	5.65	5.93	4.80
125	Bharuch	Sindhav	22.02694	72.63611	Dug Well	9.48	3.43	4.23	4.48
126	Bharuch	Bhaskodra	22.05833	72.59167	Dug Well	0.00	1.46	2.25	2.90
127	Bharuch	Chhindra	22.12667	72.66972	Dug Well	9.58	4.61	3.96	5.35
128	Bharuch	Sarod	22.15833	72.75833	Dug Well	8.92	6.90	5.50	6.40
129	Bharuch	Dahegam	22.18472	72.59722	Dug Well	8.42	2.95	4.20	7.13
130	Bharuch	Kavi	22.19361	72.63944	Dug Well	7.72	6.33	5.60	5.70
131	Bhavnagar	Mahuva1	21.09583	71.76667	Dug Well	17.86	16.42	10.48	10.56
132	Bhavnagar	Malvav_Pz	21.16056	71.90833	Piezometer	29.70	27.00	20.88	23.20
133	Bhavnagar	Bora	21.19111	71.92889	Dug Well	30.78	28.33	24.10	25.10
134	Bhavnagar	Motivadal	21.19722	71.55000	Dug Well	6.92	2.99	2.46	2.87
135	Bhavnagar	Longadi	21.21389	71.88333	Dug Well	5.60	2.04	1.46	3.30
136	Bhavnagar	Datha	21.22083	71.95000	Dug Well	8.24	4.62	2.93	4.34
137	Bhavnagar	Shantinagar	21.24583	71.65000	Dug Well	0.00	7.49	0.87	4.20
138	Bhavnagar	Pasvi	21.29167	71.96667	Dug Well	0.00	7.13	5.64	10.00
139	Bhavnagar	Talaja2	21.36667	72.01667	Dug Well	16.01	5.29	2.93	4.43
140	Bhavnagar	Kundheli	21.37944	71.98056	Dug Well	18.86	3.34	2.59	7.80
141	Bhavnagar	Sajnasar	21.42500	71.91250	Dug Well	11.16	1.97	1.21	1.72
142	Bhavnagar	Trapaj	21.42500	72.09583	Dug Well	0.00	2.98	3.24	6.30
143	Bhavnagar	Chowk Pz	21.42917	71.76389	Piezometer	26.67	26.68	25.19	25.15
144	Bhavnagar	Satanes	21.44167	71.83750	Dug Well	9.62	10.73	6.73	10.06
145	Bhavnagar	Vadal	21.47694	71.80611	Dug Well	7.99	1.20	3.36	5.50
146	Bhavnagar	Tansa	21.50833	72.12500	Dug Well	0.00	2.90	3.30	5.60
147	Bhavnagar	Palitana2	21.52222	71.83889	Dug Well	0.00	4.19	3.97	6.85
148	Bhavnagar	Palitana1	21.52500	71.82361	Piezometer	10.47	4.62	3.98	5.60
149	Bhavnagar	Gariyadhar	21.54306	71.56528	Dug Well	0.00	12.13	7.02	9.30
150	Bhavnagar	Panchpipla	21.55000	71.72083	Dug Well	15.10	1.45	1.27	1.40
151	Bhavnagar	Vavdi	21.56806	72.19806	Dug Well	12.85	0.74	0.88	1.50
152	Bhavnagar	Piparla	21.63639	71.91889	Dug Well	0.00	2.04	1.73	2.16
153	Bhavnagar	Khijadiya	21.63750	71.70000	Dug Well	15.85	0.00	7.89	9.50
154	Bhavnagar	Bhumbhali	21.67944	72.24417	Dug Well	3.65	2.08	2.19	2.38
155	Bhavnagar	Ghogha1	21.68333	72.27917	Dug Well	4.00	0.06	1.32	1.69
156	Bhavnagar	Sandhida	21.68750	71.75833	Dug Well	0.00	1.34	0.67	1.08
157	Bhavnagar	Bhudel	21.69167	72.15833	Dug Well	0.00	1.34	0.62	1.85
158	Bhavnagar	Ambala	21.71111	71.84167	Dug Well	21.67	18.08	12.07	15.68

159	Bhavnagar	Bhavnagar1	21.76667	72.15000	Dug Well	10.00	3.53	3.00	4.05
160	Bhavnagar	Dhasa	21.80000	71.50833	Dug Well	4.59	0.00	1.74	2.21
161	Bhavnagar	Jalia	21.80000	71.61667	Dug Well	0.00	6.50	4.38	12.90
162	Bhavnagar	Porbada	21.80000	71.70000	Dug Well	0.00	5.61	5.23	6.38
163	Bhavnagar	Timbi2	21.83167	71.76611	Dug Well	13.48	4.54	8.36	10.00
164	Bhavnagar	Umrالا	21.84722	71.80833	Dug Well	0.00	6.08	5.73	6.58
165	Bhavnagar	Vallbhipur	21.88333	71.87500	Dug Well	6.30	3.84	2.65	3.40
166	Bhavnagar	Vallbhipur1	21.88333	71.87778	Piezometer	5.95	3.84	3.88	4.10
167	Bhavnagar	Ayodhayapuram	21.96028	71.88639	Dug Well	9.63	9.07	8.40	8.90
168	Bhavnagar	Gadhada2	21.96667	71.57917	Dug Well	4.35	3.59	3.76	4.25
169	Bhavnagar	Ningala	22.01806	71.70000	Dug Well	13.38	6.05	6.14	5.45
170	Bhavnagar	Tatam	22.05833	71.63333	Dug Well	26.84	4.64	3.29	5.49
171	Bhavnagar	Panvi1	22.07500	71.89167	Dug Well	12.30	2.68	3.05	3.14
172	Bhavnagar	Lonjdhara	22.09722	71.89722	Dug Well	0.00	23.10	18.10	24.21
173	DAMAN	Jempore	20.37778	72.82694	Dug Well	3.50	0.80	0.85	2.10
174	DAMAN	Warkund	20.40806	72.85972	Dug Well	6.00	1.30	1.95	3.20
175	DAMAN	Dabhel	20.41111	72.88611	Dug Well	0.00	1.80	2.55	7.10
176	DAMAN	Daman	20.42417	72.85028	Piezometer	9.05	0.15	1.85	3.55
177	DAMAN	Morwad	20.43528	72.83111	Dug Well	8.80	2.40	3.60	5.50
178	DAMAN	Dalwada	20.44306	72.85194	Dug Well	0.00	0.85	2.25	4.35
179	DIU	Chakarteeth_Pz	20.70833	70.96889	Piezometer	6.30	6.21	6.08	6.50
180	Dohad	Kanjetha	22.58056	74.11389	Dug Well	10.98	2.67	4.15	5.38
181	Dohad	Dabhava	22.58333	73.90417	Dug Well	0.00	7.99	2.90	4.20
182	Dohad	Tokarba	22.60417	74.03750	Dug Well	6.59	0.77	3.08	3.56
183	Dohad	Dhanpur	22.63333	74.10417	Dug Well	14.07	0.00	5.25	6.95
184	Dohad	Pipero	22.64722	74.09028	Piezometer	13.55	6.15	4.68	6.68
185	Dohad	Garbara	22.68056	74.31250	Dug Well	8.72	0.89	0.66	2.47
186	Dohad	Devghadh Baria	22.70000	73.91389	Dug Well	11.98	4.31	6.53	7.97
187	Dohad	Devghadh bariya	22.70000	73.91667	Piezometer	15.46	4.62	5.13	8.17
188	Dohad	Khandania	22.70417	73.83750	Dug Well	13.22	5.78	8.75	11.36
189	Dohad	Panchwada	22.72917	74.30833	Dug Well	7.90	1.92	2.78	3.81
190	Dohad	Varamkheda	22.80000	74.27500	Dug Well	3.45	0.00	0.75	1.60
191	Dohad	Salaya1	22.80833	73.89167	Dug Well	0.00	1.99	2.97	4.65
192	Dohad	Dahod2	22.82500	74.23333	Dug Well	10.04	2.28	4.67	5.66
193	Dohad	Limkheda	22.83056	73.98611	Piezometer	8.55	0.77	3.72	5.48
194	Dohad	Dadhela	22.83750	74.06667	Dug Well	8.29	1.33	1.85	3.52
195	Dohad	Dahod	22.84028	74.26250	Piezometer	1.80	0.04	1.49	2.87
196	Dohad	Wadia	22.90000	74.05000	Dug Well	0.00	1.10	0.84	5.24
197	Dohad	Mirakhedi	22.93333	74.20000	Dug Well	6.68	0.54	1.60	3.41
198	Dohad	Limbdi2	23.00417	74.15833	Dug Well	3.69	0.86	0.62	0.94
199	Dohad	Jhalod1	23.09167	74.13333	Dug Well	6.77	2.54	4.83	4.58
200	Dohad	Jhalod	23.09306	74.14722	Piezometer	8.97	2.77	5.63	3.87
201	Dohad	Sukhsar	23.15000	74.05000	Dug Well	11.81	4.47	6.28	6.31
202	Dohad	Fatepura(Karodia)	23.25417	74.02917	Piezometer	13.50	3.94	7.40	8.87
203	Gandhinagar	Dahegam II	23.17083	72.84167	Piezometer	0.00	0.00	14.32	0.00
204	Gandhinagar	Adalaj_Pz_III	23.17500	72.55833	Piezometer	19.35	18.58	24.30	15.70
205	Gandhinagar	Paliya	23.17917	72.84167	Dug Well	14.33	12.23	13.12	13.62
206	Gandhinagar	Kasturinagar(IFFCO)	23.19028	72.55278	Piezometer	15.61	11.70	9.52	14.00
207	Gandhinagar	Pethapur_Pz-III	23.26722	72.67306	Piezometer	36.44	35.77	33.43	36.62
208	Jamnagar	Modpar	21.85833	69.80833	Dug Well	0.00	15.33	5.58	12.85
209	Jamnagar	Balwa	21.90417	69.95833	Dug Well	21.98	14.64	3.50	10.14
210	Jamnagar	Jamjodhpur	21.90556	70.03056	Piezometer	7.47	3.84	2.85	4.47
211	Jamnagar	Mota kalawad	21.90833	69.82917	Dug Well	20.11	20.28	17.25	26.46
212	Jamnagar	Ambardi	21.91639	69.85806	Dug Well	10.44	9.25	1.60	3.43

213	Jamnagar	Raval	21.92972	69.49194	Dug Well	8.78	5.23	1.72	4.18
214	Jamnagar	Khirsara	21.97917	69.60000	Dug Well	11.02	1.01	1.40	0.00
215	Jamnagar	Bhogat1	21.99167	69.24583	Dug Well	10.53	7.16	2.37	4.12
216	Jamnagar	Kalyanpur2	22.01667	69.39167	Dug Well	11.72	0.00	9.60	9.65
217	Jamnagar	Seth vadala	22.03333	70.12500	Dug Well	10.33	4.43	1.52	2.71
218	Jamnagar	Motagop	22.03750	69.87500	Dug Well	5.40	3.33	5.88	5.79
219	Jamnagar	Toda	22.06250	70.38333	Dug Well	18.12	6.10	0.35	0.58
220	Jamnagar	Bhadthar	22.07917	69.57917	Dug Well	0.00	8.27	2.38	4.30
221	Jamnagar	Bhatiya	22.09444	69.26667	Piezometer	5.88	4.19	0.22	0.86
222	Jamnagar	Sumana	22.10833	70.16667	Dug Well	12.08	6.08	1.99	5.11
223	Jamnagar	Vinjalpur	22.15000	69.60000	Dug Well	8.45	4.04	2.41	3.46
224	Jamnagar	Juvanpur	22.17083	69.36667	Dug Well	22.12	7.00	8.80	7.58
225	Jamnagar	Lalpur1	22.19167	69.96111	Dug Well	18.90	4.75	4.57	4.11
226	Jamnagar	Nikava	22.19167	70.53333	Dug Well	4.00	1.83	1.80	2.37
227	Jamnagar	Kuvadla	22.20139	69.58333	Dug Well	9.33	2.45	5.05	14.82
228	Jamnagar	Vadtara	22.20833	69.50000	Dug Well	12.25	2.34	2.71	7.61
229	Jamnagar	Khambhaliya	22.20972	69.64583	Piezometer	15.38	5.77	3.57	3.60
230	Jamnagar	Kalawad	22.21667	70.38333	Dug Well	3.56	2.40	1.66	2.79
231	Jamnagar	Vad panchasara	22.23333	70.11667	Dug Well	16.92	10.25	1.51	3.46
232	Jamnagar	Dwarka	22.24583	68.95833	Dug Well	8.03	7.30	7.92	7.85
233	Jamnagar	Pindara1	22.24722	69.25833	Dug Well	7.85	2.57	1.51	3.48
234	Jamnagar	Haripur2	22.27083	70.33333	Dug Well	15.61	3.03	0.96	3.82
235	Jamnagar	Varwada	22.29167	68.96667	Dug Well	18.45	11.33	5.82	14.35
236	Jamnagar	Salaya	22.30556	69.60417	Dug Well	4.19	0.31	2.10	2.59
237	Jamnagar	Moti matli	22.31667	70.26389	Dug Well	21.06	4.63	1.56	2.56
238	Jamnagar	Kajuda	22.33333	69.70833	Dug Well	6.10	2.23	1.59	2.03
239	Jamnagar	Changa	22.35000	70.04167	Dug Well	14.66	5.49	6.56	6.12
240	Jamnagar	Mojap	22.36667	68.98333	Dug Well	10.27	4.20	7.75	8.29
241	Jamnagar	Samrasar1	22.37500	69.10417	Dug Well	7.40	3.48	1.82	2.66
242	Jamnagar	Vijarkha	22.41667	70.18333	Dug Well	16.70	5.00	0.76	1.22
243	Jamnagar	Aramda	22.43333	69.04167	Dug Well	8.59	6.64	4.41	5.03
244	Jamnagar	Bed1	22.43750	69.90000	Dug Well	8.92	3.46	3.42	4.81
245	Jamnagar	Gordhanpur	22.45000	70.00139	Dug Well	10.12	5.18	1.79	2.34
246	Jamnagar	Jamnagar2	22.45833	70.07917	Dug Well	11.34	7.71	1.15	1.40
247	Jamnagar	Jamnagar1	22.47083	70.05000	Piezometer	21.04	4.91	0.96	2.19
248	Jamnagar	Jambuda	22.52500	70.20417	Dug Well	10.36	1.64	2.55	3.65
249	Jamnagar	Dhrol2	22.56667	70.41667	Dug Well	7.52	5.37	0.57	1.65
250	Jamnagar	Haryana	22.60833	70.26250	Dug Well	0.00	4.10	3.35	0.00
251	Jamnagar	Bedanpur	22.68333	70.31667	Dug Well	7.20	2.33	1.45	1.20
252	Jamnagar	Amran_Pz	22.82222	70.54583	Piezometer	4.42	1.15	0.14	1.97
253	Jamnagar	Amran1	22.82917	70.56250	Dug Well	5.61	0.17	1.06	4.96
254	Junagadh	Kesariya1	20.79639	70.94194	Dug Well	14.84	9.94	2.25	0.00
255	Junagadh	Kodinar	20.80000	70.69167	Piezometer	11.00	7.53	2.66	4.50
256	Junagadh	Kodinar1	20.80000	70.69167	Dug Well	14.66	11.78	4.89	7.40
257	Junagadh	Una2	20.82500	71.04167	Dug Well	5.70	0.00	3.36	4.13
258	Junagadh	Prasli	20.85083	70.66917	Dug Well	18.10	1.85	1.46	7.28
259	Junagadh	Sametar	20.85417	71.12083	Dug Well	16.50	11.80	7.28	7.75
260	Junagadh	Gangda_Pz	20.85833	71.16667	Piezometer	10.15	9.17	3.55	4.30
261	Junagadh	Kansari	20.87000	71.05111	Dug Well	10.10	9.17	7.40	6.85
262	Junagadh	Jargla Jargali	20.88083	70.98417	Dug Well	15.44	2.03	2.10	10.40
263	Junagadh	Ajotha	20.90194	70.51806	Dug Well	0.00	21.49	1.76	4.91
264	Junagadh	Prachi_Pz	20.92194	70.61333	Piezometer	0.00	5.80	3.57	4.85
265	Junagadh	Girgadhada	20.92500	70.91667	Dug Well	16.57	2.39	2.94	6.00
266	Junagadh	Govindpura2	20.94583	70.39583	Dug Well	33.63	12.80	5.85	13.80



267	Junagadh	Dhokadva	20.95833	71.07083	Dug Well	15.28	10.44	10.09	10.90
268	Junagadh	Bhim Deval	20.97750	70.60917	Dug Well	14.28	0.00	4.10	6.70
269	Junagadh	Moraj	20.98333	70.43611	Dug Well	13.99	3.32	3.48	0.00
270	Junagadh	Jamvala1	20.98333	70.76250	Dug Well	6.00	4.18	5.25	5.10
271	Junagadh	Jamvala	20.98472	70.76944	Piezometer	6.94	1.58	1.15	4.70
272	Junagadh	Amervel Nes	21.00889	70.72583	Dug Well	5.87	0.76	1.27	3.15
273	Junagadh	Jambur[madhapar	21.02917	70.60833	Dug Well	9.69	2.97	2.85	3.18
274	Junagadh	Kanek	21.03056	70.24167	Dug Well	15.82	5.72	5.66	3.42
275	Junagadh	Chorwad	21.04167	70.21667	Dug Well	9.98	0.00	2.32	4.70
276	Junagadh	Khambalia1	21.04444	70.19167	Dug Well	9.01	3.12	7.18	8.48
277	Junagadh	Ankolvadi 1	21.04694	70.66472	Dug Well	0.00	0.00	2.42	4.80
278	Junagadh	Talala1	21.05139	70.52500	Dug Well	11.74	5.58	4.02	6.79
279	Junagadh	Kukaswada	21.05417	70.20833	Dug Well	12.09	9.74	6.61	8.67
280	Junagadh	Gadu	21.05417	70.27917	Piezometer	33.76	27.93	15.25	23.65
281	Junagadh	Khorada1	21.06389	70.17361	Dug Well	8.15	5.54	1.77	2.49
282	Junagadh	Talala_Pz	21.06389	70.53833	Piezometer	10.35	5.50	4.75	7.34
283	Junagadh	Arena	21.08056	70.17639	Dug Well	13.25	3.86	5.14	7.08
284	Junagadh	Budhecha	21.09583	70.21667	Dug Well	7.83	0.00	3.32	5.58
285	Junagadh	Shardagram	21.10417	70.15278	Dug Well	13.15	8.46	6.18	11.00
286	Junagadh	Sepa	21.11667	70.21944	Dug Well	21.07	14.12	6.31	17.39
287	Junagadh	Mangrol	21.12500	70.10833	Piezometer	18.73	15.86	15.82	16.92
288	Junagadh	Mangrol1	21.13056	70.11944	Dug Well	0.00	0.00	8.60	10.01
289	Junagadh	Seriakhan	21.13333	70.24861	Dug Well	21.22	9.33	8.62	19.18
290	Junagadh	Maktupur1	21.14306	70.09583	Dug Well	8.86	6.07	7.41	7.95
291	Junagadh	Galodar	21.14722	70.27500	Dug Well	17.36	1.86	7.07	11.89
292	Junagadh	Manketara	21.15000	70.12917	Dug Well	28.95	28.63	5.61	16.90
293	Junagadh	Lohej	21.16667	70.06667	Dug Well	9.45	8.63	8.31	10.45
294	Junagadh	Juthal	21.16667	70.26667	Dug Well	6.68	3.89	6.58	6.90
295	Junagadh	Goraj1	21.18333	70.15417	Dug Well	29.50	20.66	4.65	10.90
296	Junagadh	Sil	21.18556	70.04639	Dug Well	6.38	4.36	3.15	4.81
297	Junagadh	Bamanwara	21.22083	70.05556	Dug Well	11.21	10.59	6.91	9.57
298	Junagadh	Sil bandar	21.22361	70.05556	Dug Well	3.47	1.72	3.68	3.34
299	Junagadh	Bhatsimroli	21.22361	70.18333	Dug Well	19.40	0.00	1.87	11.78
300	Junagadh	Antroli	21.23611	70.00694	Dug Well	0.00	0.00	6.26	0.00
301	Junagadh	Kalej	21.24861	70.05833	Dug Well	16.64	11.05	8.56	5.01
302	Junagadh	Kewarda	21.26667	70.20833	Dug Well	20.50	7.26	3.64	6.22
303	Junagadh	Kasia Naka Check Post	21.27028	70.68056	Dug Well	6.24	1.04	1.19	1.95
304	Junagadh	Kanadipur	21.27222	70.47972	Piezometer	0.00	0.00	0.66	0.00
305	Junagadh	Prempara	21.30000	70.70000	Dug Well	19.72	14.23	7.17	9.60
306	Junagadh	Mendarda1	21.32500	70.43333	Dug Well	19.21	4.86	5.11	14.43
307	Junagadh	Mendarda	21.32500	70.44028	Piezometer	17.06	17.01	13.60	0.00
308	Junagadh	Mandawad	21.35833	70.74583	Dug Well	0.00	4.00	5.18	12.07
309	Junagadh	Khoras ahir	21.37083	70.33889	Dug Well	16.00	5.11	2.97	9.97
310	Junagadh	Khokharda	21.42083	70.31667	Dug Well	24.78	8.02	2.02	5.41
311	Junagadh	Bilkha	21.43889	70.60000	Dug Well	14.48	5.45	5.91	5.67
312	Junagadh	Vanthali ii	21.47083	70.32778	Dug Well	0.00	0.00	6.22	6.03
313	Junagadh	Bantva	21.48750	70.08333	Dug Well	24.55	13.53	6.91	7.08
314	Junagadh	Junagadh	21.50944	70.46222	Piezometer	12.44	7.34	9.90	10.44
315	Junagadh	Junagadh1	21.51667	70.45833	Dug Well	14.28	8.54	1.12	2.65
316	Junagadh	Patla	21.60417	70.56917	Dug Well	12.75	3.99	2.72	3.87
317	Kachchh	Luni	22.87333	69.81167	Dug Well	11.76	10.47	8.23	5.95
318	Kachchh	Bhadreshwar	22.90000	69.90000	Dug Well	10.93	10.48	8.64	6.45
319	Kachchh	Bambhdai	22.93889	69.08278	Dug Well	6.55	4.00	3.75	4.45
320	Kachchh	Asambia mota_Pz	22.96806	69.45139	Piezometer	13.68	7.26	5.16	7.41

321	Kachchh	Shinaya	23.03333	70.05417	Dug Well	12.70	0.70	0.72	2.32
322	Kachchh	Kotaya	23.04167	69.07500	Dug Well	14.85	14.22	9.37	13.36
323	Kachchh	Dunai	23.05000	69.50000	Dug Well	13.03	8.10	7.16	10.73
324	Kachchh	Vinjhan1	23.10000	69.02500	Dug Well	12.38	6.41	3.96	4.56
325	Kachchh	Kothara	23.16194	68.91194	Dug Well	7.62	2.04	1.77	3.57
326	Kachchh	Sedat	23.17139	69.63750	Dug Well	11.68	10.97	8.69	10.51
327	Kachchh	Sukhpar	23.20833	69.61667	Dug Well	16.58	15.36	12.87	15.15
328	Kachchh	Bhuj (Circuit House)	23.25000	69.66667	Dug Well	19.29	21.17	19.53	19.77
329	Kachchh	Naliya	23.25583	68.84000	Piezometer	13.85	10.47	7.82	12.77
330	Kachchh	Naliya (Bus S)	23.26667	68.83333	Dug Well	13.00	13.12	8.71	9.02
331	Kachchh	Tera	23.28333	68.94722	Dug Well	13.40	12.98	11.61	12.47
332	Kachchh	Samkhiari	23.30000	70.50833	Dug Well	9.52	3.90	3.31	2.34
333	Kachchh	Haboi	23.35833	69.86667	Dug Well	0.88	0.21	0.26	0.64
334	Kachchh	Lodai	23.40000	69.89167	Dug Well	16.82	16.81	13.55	16.78
335	Kachchh	Devisar	23.40278	69.32917	Dug Well	15.16	14.22	10.66	13.00
336	Kachchh	Dhori1	23.43333	69.75417	Dug Well	12.55	12.24	9.17	11.08
337	Kachchh	Kharoi	23.45417	70.35000	Dug Well	9.57	5.35	5.05	5.15
338	Kachchh	Lilpur	23.51111	70.65000	Dug Well	0.96	0.40	0.36	0.35
339	Kachchh	Mata no madh	23.53333	68.95000	Dug Well	11.99	9.02	8.11	8.44
340	Kachchh	Kuda	23.53444	70.44028	Dug Well	0.00	20.28	15.83	25.70
341	Kachchh	Rapar2	23.56667	70.63750	Dug Well	27.18	0.00	9.69	24.62
342	Kachchh	Deshalpur rapar	23.74722	70.67917	Dug Well	14.74	13.10	9.72	14.95
343	Kachchh	Moti cher	23.75833	68.67500	Dug Well	4.77	2.31	2.09	3.01
344	Kachchh	Lakhat	23.82306	68.77500	Dug Well	10.00	6.21	5.22	3.90
345	Kachchh	Khavada	23.83889	69.73056	Dug Well	7.92	3.77	3.36	5.39
346	Kachchh	Ratanpur Khadir1	23.86083	70.36306	Dug Well	17.81	0.00	10.76	18.90
347	Kheda	Vaso	22.66111	72.75417	Piezometer	7.59	4.44	4.15	5.40
348	Kheda	Nes_Pz	22.70833	73.20278	Piezometer	10.24	7.56	0.24	8.27
349	Kheda	Kalesar	22.72083	73.19167	Dug Well	0.45	0.00	1.20	1.85
350	Kheda	Dakor	22.76250	73.16944	Dug Well	7.33	2.80	4.34	5.05
351	Kheda	Mahudha	22.78333	72.94167	Dug Well	9.20	1.58	2.25	2.69
352	Kheda	Thasra	22.79444	73.21111	Piezometer	0.00	1.50	2.30	2.95
353	Kheda	Alina	22.80833	73.05833	Dug Well	11.61	9.14	7.65	7.48
354	Kheda	Ladvel	22.90833	73.12083	Dug Well	3.24	0.08	0.50	0.95
355	Kheda	Balasinor1	22.95000	73.32500	Dug Well	6.89	2.99	1.70	2.16
356	Kheda	Balasinor	22.95833	73.33611	Piezometer	5.33	0.85	2.58	3.13
357	Kheda	Sarkhej_Pz-III	22.98611	72.88056	Piezometer	36.82	0.00	24.65	27.52
358	Kheda	Kapadvanj	23.00417	73.09167	Dug Well	0.00	5.17	3.85	6.35
359	Kheda	Juna vasadra	23.08333	73.36250	Dug Well	4.80	0.50	1.66	2.48
360	Kheda	Vyas vasna	23.10556	73.10417	Piezometer	26.96	13.62	9.95	11.35
361	Kheda	Bar	23.16806	73.41111	Dug Well	5.29	1.36	2.19	2.69
362	Kheda	Virpur_Pz	23.19306	73.48528	Piezometer	0.00	4.44	3.70	6.51
363	Mahesana	Kalyanpur	23.12694	72.19306	Piezometer	4.81	4.54	3.89	3.93
364	Mahesana	Daran_Pz-III	23.20639	72.27972	Piezometer	3.14	3.06	2.10	2.11
365	Mahesana	Vidaj	23.24722	72.30000	Dug Well	2.50	2.21	1.39	0.00
366	Mahesana	Budasan	23.28750	72.37500	Dug Well	4.85	4.42	2.30	2.25
367	Mahesana	Asjol	23.50833	72.18333	Dug Well	7.69	7.01	2.00	2.65
368	Mahesana	Mau	23.51028	72.51917	Piezometer	9.15	0.00	7.53	7.50
369	Mahesana	Padhadya	23.52250	72.53333	Piezometer	12.79	12.56	11.84	11.63
370	Mahesana	Dharpura	23.54583	72.11250	Dug Well	8.69	8.36	7.24	7.05
371	Mahesana	Maguna	23.57778	72.28889	Dug Well	10.52	10.00	8.57	8.03
372	Mahesana	Panchot	23.62917	72.34167	Dug Well	7.07	6.57	5.38	5.65
373	Mahesana	Visnagar iv	23.70000	72.53333	Piezometer	3.72	3.53	2.09	2.05
374	Mahesana	Modhera iii	23.71667	72.46667	Piezometer	10.30	10.54	10.23	9.98

375	Mahesana	Bhandupara	23.72500	72.38333	Dug Well	9.93	9.54	8.13	8.61
376	Mahesana	Tarabh	23.75833	72.45833	Dug Well	11.57	10.90	8.27	7.94
377	Mahesana	Unawa	23.76667	72.36250	Dug Well	4.55	4.23	3.45	3.41
378	Mahesana	Sihi	23.80000	72.35000	Dug Well	14.91	13.79	10.23	9.60
379	Mahesana	Karalli (iii)	23.80417	72.48611	Piezometer	11.21	10.80	11.91	12.32
380	Mahesana	Jaska(Sy_4'')Pz_II	23.82361	72.53472	Piezometer	0.00	0.00	26.33	0.00
381	Mahesana	Dosaj	23.84167	72.45000	Dug Well	14.23	13.53	10.34	9.75
382	Mahesana	Kheralu1	23.88750	72.61250	Dug Well	11.57	10.90	8.06	10.21
383	Mahesana	Rampura1	23.89167	72.51667	Dug Well	8.32	7.62	8.55	8.95
384	Mahesana	Kheralu(shallow	23.89778	72.61056	Piezometer	4.92	4.66	1.72	3.05
385	Narmada	Umran	21.48806	73.88306	Dug Well	8.01	0.47	1.03	0.00
386	Narmada	Jankh	21.49222	73.59694	Dug Well	3.61	2.10	3.30	3.45
387	Narmada	Khaidipada	21.51389	73.51944	Dug Well	5.71	0.05	0.14	0.97
388	Narmada	Chikada	21.52083	73.64583	Dug Well	0.00	1.33	1.45	0.38
389	Narmada	Kanbi pitha	21.52083	73.64583	Dug Well	0.00	3.43	3.71	4.15
390	Narmada	Amayar	21.54722	73.76667	Dug Well	0.00	0.00	2.30	3.14
391	Narmada	Chuli	21.55472	73.47556	Dug Well	0.00	2.13	2.76	6.80
392	Narmada	Almadi	21.60889	73.51083	Dug Well	0.00	0.25	0.78	3.80
393	Narmada	Ralda	21.61000	73.65250	Dug Well	5.71	0.15	1.79	2.54
394	Narmada	Selemba 1	21.61000	73.76333	Dug Well	7.55	7.33	7.50	7.90
395	Narmada	Nani singlot	21.66944	73.66667	Dug Well	9.51	5.11	7.65	8.30
396	Narmada	Khota amba	21.73333	73.47500	Dug Well	0.00	2.27	1.09	1.15
397	Narmada	Baman Phalia_Pz	21.79833	73.37917	Piezometer	21.07	14.01	11.18	14.27
398	Narmada	Ringani	21.84167	73.46667	Dug Well	2.26	1.65	2.22	2.10
399	Narmada	Hirapura	21.86806	73.60000	Dug Well	6.11	0.80	1.50	0.00
400	Narmada	Kewadia_Pz	21.88278	73.70056	Piezometer	8.52	0.52	2.53	2.72
401	Narmada	Garudeshwar	21.89167	73.65000	Dug Well	13.47	6.62	8.18	9.65
402	Narmada	Agar(Rep)_Pz	22.03111	73.65667	Piezometer	13.16	3.92	6.35	9.05
403	Narmada	Namaria	22.04444	73.62222	Dug Well	6.19	1.05	2.05	2.26
404	Navsari	Khergam	20.63333	73.09583	Dug Well	8.60	1.60	1.76	4.00
405	Navsari	Panikhadak	20.64917	73.16694	Dug Well	13.10	3.90	4.80	7.90
406	Navsari	Manav Khadak	20.67417	73.23333	Dug Well	3.40	1.90	1.72	3.90
407	Navsari	Pipalkhed	20.67500	73.28333	Dug Well	0.00	0.00	4.11	8.25
408	Navsari	Kaliyari	20.72500	73.15000	Dug Well	12.50	1.30	1.57	2.90
409	Navsari	Hond	20.73889	73.04583	Dug Well	8.70	2.00	1.60	3.50
410	Navsari	Vansda	20.76444	73.36306	Piezometer	11.05	4.15	6.15	7.35
411	Navsari	Sari_khurd	20.78750	72.95417	Dug Well	4.95	1.55	1.28	2.45
412	Navsari	Kantasvel	20.79722	73.29167	Dug Well	0.00	2.35	2.66	4.10
413	Navsari	Moti Valzar	20.80500	73.26667	Dug Well	7.85	3.25	2.90	4.45
414	Navsari	Rankuva	20.81250	73.15833	Dug Well	0.00	2.40	0.75	5.60
415	Navsari	Duvada	20.82861	73.05750	Dug Well	4.20	0.90	3.05	5.30
416	Navsari	Chadav	20.83111	73.33444	Dug Well	13.40	2.80	3.91	4.20
417	Navsari	Onjal	20.83333	72.84167	Dug Well	7.25	3.15	0.55	4.55
418	Navsari	Abrama	20.86250	72.90000	Dug Well	6.35	1.60	0.30	1.60
419	Navsari	Dandi	20.89167	72.80833	Dug Well	4.00	1.80	1.47	2.80
420	Navsari	Navsari 1	20.95806	72.93500	Dug Well	6.27	1.07	0.11	3.77
421	Navsari	Chinam	20.99167	72.88611	Dug Well	4.33	1.33	0.98	3.33
422	Navsari	Ubhrat	21.00833	72.74583	Dug Well	4.65	0.55	2.76	3.65
423	Panchmahals	Jambughoda	22.36944	73.72500	Piezometer	7.49	3.22	5.47	6.11
424	Panchmahals	Shivrajpur	22.42500	73.59167	Dug Well	0.00	1.14	4.20	5.44
425	Panchmahals	Pavagadh	22.48750	73.55556	Dug Well	10.23	0.63	3.31	4.88
426	Panchmahals	Timbi2	22.50833	73.50833	Dug Well	8.35	0.00	10.19	0.00
427	Panchmahals	Palla Rajgarh Pz	22.52278	73.70083	Piezometer	21.08	3.75	5.54	0.00
428	Panchmahals	Tarkanda	22.54583	73.52917	Dug Well	11.21	0.05	1.40	4.66

429	Panchmahals	Vejalpur	22.69583	73.55833	Dug Well	7.62	1.48	2.15	2.87
430	Panchmahals	Ranipura	22.72500	73.75833	Dug Well	10.88	1.68	2.00	3.10
431	Panchmahals	Godhra2	22.77083	73.63333	Dug Well	10.59	4.48	4.76	5.93
432	Panchmahals	Tuwa	22.80417	73.47083	Dug Well	5.23	0.77	5.00	2.64
433	Panchmahals	Natapur	22.85722	73.82056	Dug Well	8.55	4.03	8.10	6.18
434	Panchmahals	Morwa (Hadaf) Pz-I	22.91806	73.84444	Piezometer	13.10	5.48	9.15	0.00
435	Panchmahals	Shehra	22.95417	73.62500	Dug Well	2.34	0.60	1.18	1.46
436	Panchmahals	Kothamba	23.01944	73.51944	Dug Well	3.67	0.52	4.20	3.12
437	Panchmahals	Suliyat	23.06222	73.85083	Dug Well	22.40	4.96	9.92	15.94
438	Panchmahals	Ucharpi Pz	23.11917	73.47167	Piezometer	23.36	8.86	8.68	11.14
439	Panchmahals	Lunawada	23.12917	73.60833	Dug Well	11.19	5.80	6.21	7.01
440	Panchmahals	Gadhar	23.15000	73.77500	Dug Well	0.00	7.68	1.63	4.95
441	Panchmahals	Santrampur	23.17083	73.90833	Piezometer	11.22	4.90	4.60	5.27
442	Panchmahals	Santrampur1	23.19167	73.90833	Dug Well	9.32	7.60	2.28	5.60
443	Panchmahals	Limbadia peti	23.20417	73.60000	Dug Well	7.28	2.25	2.44	2.66
444	Panchmahals	Malekpur1	23.23056	73.73611	Dug Well	6.30	3.53	1.45	2.30
445	Panchmahals	Bavaliya_Pz	23.30667	73.55500	Piezometer	32.03	1.74	1.82	0.00
446	Panchmahals	Pandarvada	23.37500	73.63333	Dug Well	0.00	0.24	1.69	6.29
447	Patan	Moti chander	23.59444	71.78056	Dug Well	8.05	4.18	3.73	0.00
448	Patan	Dhinoj1	23.66250	72.27917	Dug Well	21.62	21.20	20.45	15.96
449	Patan	Dharmoda	23.69722	72.06944	Dug Well	4.64	2.43	2.18	4.00
450	Patan	Sander	23.76667	72.25417	Dug Well	18.14	11.85	9.74	17.27
451	Patan	Shankhari	23.77917	72.16250	Dug Well	21.28	15.15	13.45	14.34
452	Patan	Patan2	23.84167	72.12361	Dug Well	0.00	20.96	19.09	15.78
453	Porbandar	Pata	21.29722	69.94167	Dug Well	5.75	2.30	3.00	3.60
454	Porbandar	Balej	21.37083	69.87500	Dug Well	4.82	2.60	1.71	2.67
455	Porbandar	Navibandar	21.44583	69.79167	Dug Well	7.98	0.68	2.02	2.35
456	Porbandar	Kadegi	21.45056	69.98333	Dug Well	3.47	0.00	0.52	0.97
457	Porbandar	Tukda	21.51611	69.72861	Dug Well	3.23	2.18	2.19	2.60
458	Porbandar	Oddar	21.56667	69.68056	Dug Well	6.33	4.33	6.07	6.56
459	Porbandar	Kutiyana_Pz	21.62222	69.99722	Piezometer	16.64	3.07	1.87	5.90
460	Porbandar	Kutiyana1	21.63056	70.01667	Dug Well	15.27	4.16	2.60	6.08
461	Porbandar	Porbandar1	21.64167	69.62500	Dug Well	4.27	1.37	3.03	3.48
462	Porbandar	Porbandar	21.64500	69.64250	Piezometer	6.56	1.03	1.52	2.18
463	Porbandar	Kandorna	21.64778	69.88333	Dug Well	23.11	16.22	6.46	10.84
464	Porbandar	Bhod	21.65889	69.82111	Dug Well	29.24	0.00	10.75	12.81
465	Porbandar	Kuchhadi	21.68333	69.55000	Dug Well	2.93	1.55	1.63	4.43
466	Porbandar	Ranavav2	21.68333	69.74583	Dug Well	33.40	27.66	7.11	8.41
467	Porbandar	Kolikhada	21.69972	69.61417	Dug Well	30.08	26.61	9.93	13.19
468	Porbandar	Adityana	21.70861	69.71083	Dug Well	28.62	29.02	7.60	9.09
469	Porbandar	Degam	21.71028	69.60556	Dug Well	18.98	9.52	11.05	10.91
470	Porbandar	Ratadi	21.72028	69.51194	Dug Well	7.59	4.20	3.90	6.67
471	Porbandar	Palkhada1	21.75833	69.48750	Dug Well	17.03	13.81	4.13	6.56
472	Porbandar	Bakharla	21.76472	69.66111	Dug Well	27.40	16.39	3.41	6.83
473	Porbandar	Babda	21.77000	69.58806	Dug Well	16.30	7.40	1.08	3.32
474	Porbandar	Visavada Mul Dwarka	21.78556	69.44639	Dug Well	10.83	12.31	6.02	6.83
475	Porbandar	Hanumangadh1	21.79306	69.80278	Dug Well	34.20	12.23	10.50	0.00
476	Porbandar	Khambodar	21.80833	69.60139	Dug Well	14.49	7.19	1.54	2.54
477	Porbandar	Bhavpura	21.80972	69.40833	Dug Well	7.74	4.64	3.15	4.10
478	Porbandar	Miyani	21.83333	69.38889	Dug Well	7.65	2.39	1.66	0.00
479	Porbandar	Mojiwana	21.88583	69.60028	Dug Well	17.19	6.55	0.94	4.60
480	Porbandar	Adwana2	21.91667	69.60000	Dug Well	14.57	12.55	6.94	8.32
481	Porbandar	Simar	21.94694	69.68583	Dug Well	14.78	3.46	4.54	4.77
482	Rajkot	Patanvav	21.64444	70.26111	Dug Well	26.20	6.29	3.20	6.40

483	Rajkot	Bhada jodiya	21.66250	70.34167	Dug Well	29.50	0.00	2.30	4.15
484	Rajkot	Upleta3	21.67028	70.18278	Dug Well	20.40	0.00	4.70	12.75
485	Rajkot	Ganod	21.67500	70.17917	Dug Well	9.00	0.00	3.10	0.00
486	Rajkot	Motagundala	21.73472	70.50139	Dug Well	17.65	3.19	2.45	4.00
487	Rajkot	Dhoraji	21.74583	70.28583	Dug Well	22.40	11.33	6.30	11.95
488	Rajkot	Upleta1	21.74861	70.27500	Dug Well	0.00	0.00	16.16	0.00
489	Rajkot	Pedhla	21.75139	70.59167	Dug Well	25.45	19.39	7.35	0.00
490	Rajkot	Jetpur	21.75611	70.61944	Piezometer	0.00	0.00	7.20	5.40
491	Rajkot	Virpur1	21.85000	70.69583	Dug Well	9.93	0.00	8.03	8.63
492	Rajkot	Jasapur	21.89167	70.48333	Dug Well	11.50	6.26	3.40	5.65
493	Rajkot	Chordi	21.91667	70.74861	Dug Well	9.40	2.88	9.40	8.30
494	Rajkot	Umrali	21.91944	70.60417	Dug Well	12.10	0.00	4.30	7.28
495	Rajkot	Jamwali	21.93333	70.76667	Dug Well	12.75	3.19	2.25	0.00
496	Rajkot	Gogavadar	21.96667	70.87500	Dug Well	6.00	5.28	5.80	8.00
497	Rajkot	Hadmadiya	21.97806	70.62306	Dug Well	9.00	5.46	3.20	0.00
498	Rajkot	Mota Dadwa	21.99833	70.99389	Dug Well	9.23	1.44	2.63	0.00
499	Rajkot	Kalithad1	22.01944	70.66028	Dug Well	7.50	0.00	3.40	0.00
500	Rajkot	Viranagar	22.02500	71.12500	Dug Well	8.58	4.35	1.03	0.00
501	Rajkot	Jasdan	22.04444	71.21389	Piezometer	9.45	6.48	3.55	4.50
502	Rajkot	Jasdan2	22.05833	71.22083	Dug Well	9.80	2.64	1.60	5.60
503	Rajkot	Dadia	22.09167	70.73333	Dug Well	12.77	4.31	5.37	6.30
504	Rajkot	Halenda	22.09167	71.05000	Dug Well	6.33	0.28	0.53	0.86
505	Rajkot	Ribda	22.12500	70.76667	Dug Well	10.00	2.31	4.60	5.35
506	Rajkot	Lalavadar	22.13333	71.30417	Dug Well	6.13	2.14	1.83	4.09
507	Rajkot	Lodhika1	22.14167	70.64167	Dug Well	0.00	5.42	2.40	0.00
508	Rajkot	Sardhar1	22.14583	70.98889	Dug Well	4.10	0.72	0.90	1.55
509	Rajkot	Kamlapur1	22.15194	71.19972	Dug Well	14.60	3.82	2.80	0.00
510	Rajkot	Bhadla	22.18333	71.09167	Dug Well	18.60	5.73	4.70	6.45
511	Rajkot	Vinchhia	22.20833	71.37917	Dug Well	6.65	0.00	2.65	1.95
512	Rajkot	Khirsara1	22.24167	70.64583	Dug Well	14.20	0.00	5.30	0.00
513	Rajkot	Rajkot1	22.30000	70.80000	Dug Well	7.07	0.00	9.17	0.00
514	Rajkot	Ranpur1	22.36667	70.92917	Dug Well	0.00	2.73	2.40	6.18
515	Rajkot	Targhari	22.38333	70.66667	Dug Well	7.60	0.00	3.30	2.28
516	Rajkot	Gavriday	22.40000	70.79583	Dug Well	6.91	0.00	3.51	0.00
517	Rajkot	Bhalgam	22.44167	71.08333	Dug Well	5.82	1.24	2.92	7.32
518	Rajkot	Padadhari1	22.44722	70.60833	Dug Well	10.20	5.35	3.00	4.00
519	Rajkot	Movaiya	22.45000	70.60833	Dug Well	11.30	0.00	4.50	6.40
520	Rajkot	Khamta	22.47500	70.55000	Dug Well	16.15	1.27	0.95	2.00
521	Rajkot	Neknam	22.50417	70.69583	Dug Well	9.35	8.86	3.75	0.00
522	Rajkot	Chhatar	22.50417	70.75417	Dug Well	9.40	1.42	4.60	2.10
523	Rajkot	Sindhavadar	22.55000	70.89167	Dug Well	0.00	11.07	3.35	6.35
524	Rajkot	Wankaner-1	22.62083	70.92917	Dug Well	7.95	0.00	2.85	17.40
525	Rajkot	Kalyanpur2	22.65833	70.73333	Dug Well	10.20	2.75	5.50	1.35
526	Rajkot	Hadmatia	22.68333	70.80833	Dug Well	8.60	0.00	4.50	1.87
527	Rajkot	Lajai	22.71667	70.77917	Dug Well	0.00	2.77	2.65	2.70
528	Rajkot	Morvi	22.81667	70.84167	Dug Well	3.65	1.63	1.80	1.95
529	Rajkot	Nichi mandal	22.85833	70.95000	Dug Well	7.12	3.22	3.10	3.25
530	Rajkot	Modpar1	22.90000	70.66667	Dug Well	3.46	0.51	0.46	1.26
531	Rajkot	Amar nagar	22.93333	70.80833	Dug Well	4.50	0.86	1.20	1.74
532	Rajkot	Mota dhansura	22.95833	70.61667	Dug Well	12.50	3.71	4.40	5.15
533	Rajkot	Macchukunda	23.00139	70.89583	Dug Well	7.30	0.00	6.70	0.00
534	Rajkot	Sarvad	23.00639	70.70694	Dug Well	3.25	2.38	0.45	1.35
535	Rajkot	Jetpur Pithad	23.02194	70.91806	Dug Well	14.30	9.67	5.70	9.00
536	Rajkot	Malia	23.09167	70.76250	Dug Well	6.10	1.52	0.90	2.50

537	Sabarkantha	Boral	23.12500	73.20833	Dug Well	21.63	7.20	5.22	5.96
538	Sabarkantha	Sathamba	23.17500	73.33750	Dug Well	23.52	2.25	2.95	6.93
539	Sabarkantha	Bayad_Pz	23.21667	73.22917	Piezometer	12.65	9.22	9.50	9.84
540	Sabarkantha	Boriya	23.24278	72.94083	Dug Well	8.76	8.50	7.10	7.09
541	Sabarkantha	Bibipur1	23.25278	73.21250	Dug Well	18.44	11.52	14.25	15.98
542	Sabarkantha	Alwakampa	23.27472	73.20833	Dug Well	20.95	2.01	1.60	10.87
543	Sabarkantha	Karanpur	23.33333	73.30000	Dug Well	10.39	0.09	1.75	2.14
544	Sabarkantha	Malpur_Pz	23.34167	73.46806	Piezometer	18.13	8.40	8.03	0.00
545	Sabarkantha	Dhansura1	23.35000	73.20000	Dug Well	10.70	1.12	1.65	3.47
546	Sabarkantha	Waliampura Pz	23.35111	72.97083	Piezometer	44.29	39.70	38.90	24.30
547	Sabarkantha	Harsol1	23.37778	73.01667	Dug Well	18.29	10.92	17.95	13.46
548	Sabarkantha	Anwarpura Pz	23.40556	72.84556	Piezometer	44.05	43.65	38.00	0.00
549	Sabarkantha	Hamirpur	23.40833	73.45833	Dug Well	17.60	3.45	3.12	8.14
550	Sabarkantha	Varvada	23.44194	73.05667	Dug Well	14.26	9.91	2.20	13.42
551	Sabarkantha	Modasa	23.46250	73.30833	Dug Well	6.53	5.13	5.58	5.87
552	Sabarkantha	Seenawad	23.48639	73.39861	Dug Well	0.00	2.20	2.55	3.34
553	Sabarkantha	Derol Pz-II	23.59944	72.90250	Piezometer	55.20	47.82	50.62	42.83
554	Sabarkantha	Himmatnagar_Pz	23.60833	72.97083	Piezometer	8.83	6.87	6.26	0.00
555	Sabarkantha	Virpur (Himmat)	23.65417	72.95833	Dug Well	0.00	0.00	9.04	0.00
556	Sabarkantha	Punasan	23.66944	73.17361	Dug Well	8.87	4.13	2.05	4.16
557	Sabarkantha	Shamlaji	23.68611	73.36667	Dug Well	10.10	4.86	6.20	6.68
558	Sabarkantha	Gadha	23.70833	72.94167	Dug Well	21.57	9.75	7.01	17.30
559	Sabarkantha	Bhadreshwar	23.74583	72.97917	Dug Well	29.76	25.67	19.27	19.96
560	Sabarkantha	Bhiloda2	23.76667	73.27222	Dug Well	0.00	2.90	3.58	0.00
561	Sabarkantha	Virpur (Idar)	23.78333	72.93333	Dug Well	0.00	9.74	8.85	9.99
562	Sabarkantha	Vejpur_Pz	23.79722	73.22083	Piezometer	19.83	9.58	2.35	4.60
563	Sabarkantha	Revas	23.82083	73.11667	Dug Well	20.61	13.38	6.92	10.31
564	Sabarkantha	Idar	23.84167	73.03750	Dug Well	9.99	4.59	6.50	5.48
565	Sabarkantha	Choriwad	23.90000	73.11944	Dug Well	25.38	23.56	16.96	18.44
566	Sabarkantha	Chandap_Pz	23.93194	72.85694	Piezometer	15.88	9.91	8.50	9.14
567	Sabarkantha	Wadali	23.93333	73.03333	Dug Well	0.00	20.65	15.56	27.67
568	Sabarkantha	Abhapur	23.96417	73.25806	Dug Well	8.54	2.00	7.00	4.96
569	Sabarkantha	Vijaynagar_Pz	24.00694	73.33333	Piezometer	14.00	5.59	4.55	5.38
570	Sabarkantha	Silwad	24.00833	73.11667	Dug Well	11.75	6.75	4.48	6.17
571	Sabarkantha	Vijaynagar	24.00833	73.35417	Dug Well	6.80	2.65	2.50	0.00
572	Sabarkantha	Khedbrahma_Pz	24.03611	73.04444	Piezometer	5.35	0.48	1.30	2.31
573	Sabarkantha	Matoda	24.11111	73.00833	Dug Well	16.94	10.75	5.30	6.08
574	Sabarkantha	Ratanpur	24.20833	72.99861	Dug Well	0.00	0.00	4.28	0.00
575	Sabarkantha	Poshina2	24.37500	73.03333	Dug Well	0.00	3.18	1.15	5.09
576	Surat	Vaheval	20.83722	73.28778	Dug Well	12.75	1.15	2.12	7.45
577	Surat	Puna	20.92361	73.23333	Piezometer	14.10	6.88	7.22	8.70
578	Surat	Puna1	20.92917	73.22917	Dug Well	0.00	2.90	2.96	5.80
579	Surat	Bedchit	20.95000	73.35139	Dug Well	10.20	2.30	4.07	8.00
580	Surat	Karanjvel	21.01278	73.45806	Dug Well	7.70	2.10	3.80	6.90
581	Surat	Mahuva2	21.02083	73.14583	Dug Well	0.00	6.88	15.76	17.05
582	Surat	Kelkui	21.04194	73.32333	Dug Well	5.80	1.20	1.42	2.30
583	Surat	Valod	21.05000	73.26667	Dug Well	4.40	2.30	2.24	3.20
584	Surat	Sarbhon	21.05833	73.09167	Dug Well	2.90	1.70	1.71	2.40
585	Surat	Allu	21.06250	73.19167	Dug Well	3.65	3.35	1.27	4.55
586	Surat	Palsana	21.07778	72.99167	Dug Well	4.19	0.99	0.08	1.99
587	Surat	Sultanabad	21.09167	72.72500	Dug Well	6.11	3.61	3.62	5.21
588	Surat	Sachin town	21.09167	72.87500	Dug Well	0.00	0.10	0.23	0.00
589	Surat	Vyara1	21.10833	73.39583	Dug Well	3.70	3.10	2.64	3.90
590	Surat	Bardoli	21.11528	73.10000	Piezometer	0.00	3.95	2.91	0.00

591	Surat	Ten-bardoli	21.11667	73.10000	Dug Well	0.00	4.30	1.95	4.40
592	Surat	Gangadhra	21.11861	73.07528	Dug Well	0.00	5.51	4.10	7.05
593	Surat	Madhi 1	21.13361	73.24861	Dug Well	0.00	0.00	4.50	0.00
594	Surat	Chapawadi	21.15139	73.39361	Dug Well	0.00	2.40	2.26	4.00
595	Surat	Gandhinagar	21.16417	73.69556	Dug Well	0.00	2.41	0.37	2.91
596	Surat	Mota	21.17028	73.06861	Dug Well	3.40	2.00	1.11	1.40
597	Surat	Jesingpura[sg]	21.17083	73.55417	Dug Well	8.50	3.50	5.07	7.10
598	Surat	Uchchhal	21.17194	73.76917	Dug Well	11.70	4.30	4.21	7.30
599	Surat	Motichher	21.21250	73.36222	Dug Well	0.00	0.20	0.64	1.90
600	Surat	Kadod 1	21.22139	73.21889	Dug Well	12.35	12.35	4.02	0.00
601	Surat	Bhurvel (ukai)	21.22500	73.57917	Dug Well	0.00	2.10	2.85	3.70
602	Surat	Digas	21.24833	73.02556	Dug Well	12.10	3.20	4.17	8.90
603	Surat	Vadade-Khurd	21.25167	73.81694	Dug Well	0.00	0.90	0.25	0.80
604	Surat	Mandvi2	21.25417	73.29583	Dug Well	13.90	11.20	9.63	13.70
605	Surat	Moti Sarkui	21.27917	73.34972	Dug Well	9.75	2.25	3.35	5.95
606	Surat	Khedwada (Ashram Falia)	21.28111	73.46528	Dug Well	7.90	3.50	3.75	6.00
607	Surat	Nogama	21.29083	73.21444	Dug Well	2.54	0.94	2.39	1.64
608	Surat	Kathor	21.29167	72.92917	Dug Well	16.00	11.10	12.11	10.60
609	Surat	Sayan	21.30556	72.91083	Dug Well	7.80	5.65	4.60	7.70
610	Surat	Tokarwa 1	21.31000	73.85111	Dug Well	0.00	0.00	1.97	0.00
611	Surat	Navi pardi	21.32222	72.97083	Dug Well	3.98	2.18	1.99	2.58
612	Surat	Kasal	21.32222	73.12694	Dug Well	0.00	2.10	3.82	5.40
613	Surat	Ushker	21.34056	73.09778	Dug Well	6.70	2.80	4.11	6.10
614	Surat	Olpad2	21.34167	72.75833	Dug Well	3.40	1.30	0.60	2.20
615	Surat	Malda	21.36667	73.35000	Dug Well	0.00	2.50	1.32	6.00
616	Surat	Tawali	21.37611	73.90167	Dug Well	0.00	2.80	3.17	6.15
617	Surat	Bhatkol	21.38028	73.00417	Dug Well	3.75	2.25	2.15	2.85
618	Surat	Tadkeshwar	21.38083	73.07639	Dug Well	0.00	8.20	4.70	6.70
619	Surat	Dungri	21.40833	73.13333	Dug Well	11.15	0.15	0.10	4.05
620	Surat	Kherwa	21.41889	73.95972	Dug Well	0.00	0.60	1.35	0.70
621	Surat	Wadoli	21.42500	72.82917	Dug Well	0.00	0.55	0.85	0.25
622	Surat	Jhankhavav	21.45000	73.32917	Dug Well	0.00	2.60	3.00	5.10
623	Surat	Paneshwar	21.45417	73.19833	Dug Well	18.70	5.60	4.15	7.70
624	Surat	Jhankhvav	21.46667	72.95278	Piezometer	5.75	3.45	3.75	4.65
625	Surat	Chavada	21.47472	73.59500	Dug Well	0.00	1.40	0.72	1.80
626	Surat	Nizar1	21.47722	74.19056	Dug Well	13.10	6.00	4.15	7.70
627	Surat	Nizar	21.48056	74.20000	Piezometer	0.00	0.00	13.43	12.15
628	Surat	Gangtha	21.52500	74.00000	Dug Well	0.00	7.20	7.54	0.00
629	Surat	Paniwara	21.53944	74.06944	Dug Well	0.00	5.65	7.25	5.45
630	Surendranagar	Dhandhalpur 1	22.38139	71.35083	Dug Well	0.00	0.00	2.30	19.00
631	Surendranagar	Bamanbor	22.41667	71.04167	Dug Well	6.45	4.53	5.15	6.05
632	Surendranagar	Moti Moladi	22.42083	71.11028	Dug Well	16.61	2.35	2.30	3.49
633	Surendranagar	Chotila1	22.42500	71.18167	Piezometer	13.80	5.96	3.60	3.50
634	Surendranagar	Vanala	22.43333	71.92083	Dug Well	0.00	3.04	1.48	0.08
635	Surendranagar	Sudamda	22.45417	71.48500	Dug Well	3.20	1.56	0.10	1.80
636	Surendranagar	Dheduki 1	22.50056	71.32167	Dug Well	0.00	9.42	9.10	0.00
637	Surendranagar	Sayala	22.53333	71.48333	Piezometer	29.15	3.92	0.95	4.43
638	Surendranagar	Limbdi1	22.56667	71.81250	Dug Well	0.00	0.81	2.50	9.20
639	Surendranagar	Limbdi-Pz	22.57222	71.80833	Piezometer	2.40	0.38	0.50	1.00
640	Surendranagar	Than	22.57917	71.19972	Dug Well	13.50	0.00	3.68	5.93
641	Surendranagar	Tarnetar	22.64167	71.21667	Dug Well	16.75	15.87	13.75	16.10
642	Surendranagar	Muli	22.65000	71.46667	Dug Well	9.63	8.76	3.00	2.35
643	Surendranagar	Shiyani	22.66667	71.82917	Dug Well	3.90	2.81	0.70	2.70
644	Surendranagar	Surendranagar2	22.71667	71.60833	Dug Well	3.68	1.07	1.25	2.10

645	Surendranagar	Tavi 1	22.72028	71.85167	Dug Well	0.30	0.27	0.20	0.00
646	Surendranagar	Surendranagar	22.72361	71.67083	Piezometer	3.53	0.92	0.60	1.52
647	Surendranagar	Sarla	22.73333	71.36667	Dug Well	10.28	9.15	0.90	5.65
648	Surendranagar	Nava Raisngpur	22.74194	71.26167	Dug Well	21.90	0.00	6.70	17.40
649	Surendranagar	Dedadra	22.77500	71.73333	Dug Well	2.60	1.66	0.50	0.50
650	Surendranagar	Anindra	22.81028	71.70583	Dug Well	3.68	0.60	0.68	1.44
651	Surendranagar	Latuda	22.81306	71.60806	Dug Well	3.93	0.32	2.90	0.00
652	Surendranagar	Mathak	22.84000	71.05778	Dug Well	6.80	0.00	3.90	10.14
653	Surendranagar	Rajsitapur	22.84167	71.59167	Dug Well	7.85	1.07	1.15	1.90
654	Surendranagar	Ratanpur1	22.85833	71.27083	Dug Well	9.50	0.00	6.90	6.83
655	Surendranagar	Lakhtar	22.85833	71.78333	Dug Well	4.10	3.62	3.00	3.60
656	Surendranagar	Modhvana	22.88139	71.73556	Dug Well	5.50	0.42	0.20	0.30
657	Surendranagar	Gamda	22.89833	71.55694	Dug Well	0.00	0.00	4.88	8.38
658	Surendranagar	Olak	22.91861	71.86333	Dug Well	8.15	2.80	1.95	2.25
659	Surendranagar	Juna Devaliya 1	22.97944	71.00889	Dug Well	2.38	0.51	0.88	1.23
660	Surendranagar	Vitthalgarh	22.98750	71.97500	Dug Well	9.50	4.41	3.10	0.00
661	Surendranagar	Soldi	22.99389	71.41556	Dug Well	0.00	21.92	16.45	0.00
662	Surendranagar	Kherwa	23.00417	71.74583	Dug Well	4.04	0.00	0.29	0.39
663	Surendranagar	Sukhpar1	23.00833	71.28333	Dug Well	4.40	2.31	1.10	0.00
664	Surendranagar	Halvad2	23.02083	71.18750	Dug Well	0.00	10.77	8.66	4.61
665	Surendranagar	Pipli	23.06000	71.73417	Dug Well	0.30	0.14	0.10	0.40
666	Surendranagar	Ghansyam Gadh	23.10667	71.48417	Dug Well	0.00	0.00	5.80	0.90
667	Surendranagar	Miani	23.11250	71.12917	Dug Well	0.00	0.00	1.60	0.00
668	Surendranagar	Bajana	23.11667	71.78333	Dug Well	3.06	0.22	0.34	0.41
669	Surendranagar	Kukavati	23.12278	71.47972	Dug Well	15.10	2.44	2.90	3.65
670	Surendranagar	Kharaghoda	23.18750	71.75000	Dug Well	0.00	3.10	3.05	0.92
671	Surendranagar	Dasada1	23.32083	71.82917	Dug Well	0.00	0.00	7.00	0.00
672	Surendranagar	Visawadi	23.34167	71.73333	Dug Well	5.25	4.43	2.45	2.85
673	Surendranagar	Jhinjuwada	23.35000	71.65833	Dug Well	10.55	3.27	3.15	3.20
674	Surendranagar	Dhama	23.38528	71.67944	Dug Well	8.10	5.92	4.50	5.00
675	Surendranagar	Adriyana	23.42500	71.70833	Dug Well	0.00	0.67	0.60	0.00
676	Surendranagar	Surel	23.47917	71.61944	Dug Well	0.00	0.00	0.70	0.00
677	The dangs	Malegaon	20.60000	73.74583	Dug Well	5.30	0.10	0.43	0.50
678	The dangs	Jakana	20.63333	73.74583	Dug Well	11.35	1.65	1.17	1.65
679	The dangs	Chinchpada	20.63750	73.77500	Dug Well	4.35	0.50	1.40	2.10
680	The dangs	Gadad	20.63750	73.77500	Dug Well	0.00	0.95	1.05	2.35
681	The dangs	Bari Pada	20.64000	73.69139	Dug Well	11.50	0.10	0.25	3.90
682	The dangs	Dhumkal	20.64583	73.79167	Dug Well	5.20	1.30	0.65	1.15
683	The dangs	Chikhli	20.65833	73.68750	Dug Well	9.80	0.80	0.26	1.00
684	The dangs	Umberpada	20.68333	73.72500	Dug Well	5.75	0.75	0.97	2.75
685	The dangs	Aherdi	20.69167	73.61667	Dug Well	0.00	1.35	1.91	2.45
686	The dangs	Nana pada	20.70000	73.58333	Dug Well	9.68	1.28	0.31	4.43
687	The dangs	Sakarpatal	20.71944	73.55694	Dug Well	7.50	3.40	1.75	1.70
688	The dangs	Jamalpada	20.73167	73.52056	Dug Well	0.00	2.50	3.85	4.20
689	The dangs	Ahwa1	20.75833	73.68333	Dug Well	2.70	0.10	0.19	1.10
690	The dangs	Ahwa_Pz	20.75889	73.68611	Piezometer	3.00	1.03	2.35	2.10
691	The dangs	Vaghai	20.76389	73.50444	Dug Well	13.55	0.00	6.18	0.00
692	The dangs	Ghubita	20.80000	73.73750	Dug Well	3.90	0.20	0.15	0.80
693	The dangs	Nadak khadi	20.80417	73.61250	Dug Well	7.35	1.65	0.21	1.85
694	The dangs	Chinchnogaatha	20.80833	73.55278	Dug Well	8.01	1.81	3.06	4.21
695	The dangs	Bori Gaatha 1	20.81083	73.50306	Dug Well	9.10	2.20	3.11	5.30
696	The dangs	Sodmal	20.86667	73.61667	Dug Well	11.60	0.90	0.73	5.80
697	The dangs	Vazat Amba	20.87833	73.51833	Dug Well	6.80	2.20	2.64	3.20
698	The dangs	Mahal	20.91667	73.67917	Dug Well	4.20	2.60	2.55	3.10



699	The dangs	Kalibel	20.92083	73.58056	Dug Well	3.52	0.50	0.45	1.30
700	The dangs	Subir	20.92222	73.58056	Dug Well	6.30	0.90	0.38	1.40
701	Vadodara	Moti chikhali	22.01111	74.08333	Dug Well	6.40	5.99	3.11	3.08
702	Vadodara	Sengpur	22.03750	73.88750	Dug Well	11.31	2.40	5.93	6.56
703	Vadodara	Saidivasana	22.05833	74.01667	Dug Well	6.61	1.70	2.28	2.45
704	Vadodara	Vagudan	22.06667	74.14167	Dug Well	6.27	2.25	6.02	5.87
705	Vadodara	Devat (thadgam)	22.10000	73.98333	Dug Well	9.11	2.60	3.36	5.33
706	Vadodara	Baladgam	22.13750	74.00833	Dug Well	10.81	1.59	7.78	12.12
707	Vadodara	Kosindra Pz-I	22.14667	73.75556	Piezometer	0.00	1.41	2.16	2.15
708	Vadodara	Vega	22.15944	73.41250	Dug Well	7.66	2.81	3.22	4.55
709	Vadodara	Chitral PZ_II	22.18194	72.94583	Piezometer	26.13	24.60	22.80	24.85
710	Vadodara	Bhindol	22.20000	73.90000	Dug Well	10.75	4.14	5.11	6.01
711	Vadodara	Panwad	22.20000	74.04167	Dug Well	9.77	1.15	2.39	6.37
712	Vadodara	Asar	22.20361	74.01056	Dug Well	0.00	6.80	7.92	9.64
713	Vadodara	Govindpura	22.21111	73.74139	Dug Well	8.11	2.04	2.07	3.67
714	Vadodara	Amreshwar	22.22778	73.48333	Dug Well	4.04	1.51	2.52	1.97
715	Vadodara	Ghayaj ii	22.23333	73.05417	Piezometer	29.53	21.38	22.53	24.02
716	Vadodara	Alladpur	22.25000	73.71667	Dug Well	0.00	6.75	10.43	0.00
717	Vadodara	Pitha	22.25417	73.64167	Dug Well	0.00	0.69	2.62	5.27
718	Vadodara	Vadtalav Pz	22.25861	73.78389	Piezometer	16.63	7.45	4.06	4.92
719	Vadodara	Bodeli	22.27083	73.71667	Dug Well	0.00	0.72	1.41	0.00
720	Vadodara	Patiyapura	22.27500	73.44167	Dug Well	9.42	2.40	3.72	5.80
721	Vadodara	Saidal	22.28333	73.50278	Dug Well	3.05	0.90	1.30	0.00
722	Vadodara	Suskal	22.29167	73.77917	Dug Well	0.00	0.86	2.41	4.36
723	Vadodara	Vadodara li	22.30472	73.27167	Piezometer	8.36	5.05	11.86	4.41
724	Vadodara	Chhota udepur	22.30833	74.01667	Dug Well	10.42	0.00	3.36	4.42
725	Vadodara	Pavi	22.34167	73.83333	Dug Well	6.85	2.43	3.19	4.95
726	Vadodara	Waghodia Pz	22.36389	73.37694	Piezometer	9.92	0.10	0.57	3.52
727	Vadodara	Ghamodi	22.36667	74.07500	Dug Well	9.15	1.13	2.33	4.82
728	Vadodara	Ferkuva	22.36667	74.20833	Dug Well	9.12	0.36	1.46	8.35
729	Vadodara	Asala	22.38333	73.93333	Dug Well	0.00	0.40	1.86	4.20
730	Vadodara	Chella Karamsiya Pz	22.39667	73.43222	Piezometer	5.12	0.62	1.40	2.07
731	Vadodara	Chisadia	22.40000	74.13333	Dug Well	0.00	11.88	11.88	0.00
732	Vadodara	Karamasiya	22.42083	73.41944	Dug Well	0.00	0.00	13.20	13.20
733	Vadodara	Jojh	22.44167	73.96250	Dug Well	11.72	5.50	6.57	7.97
734	Vadodara	Tundav	22.48333	73.20278	Dug Well	15.03	6.28	5.60	4.88
735	Vadodara	Juna samalya	22.50417	73.28333	Dug Well	14.02	12.10	9.30	10.05
736	Vadodara	Kevadi	22.51667	73.94167	Dug Well	7.61	2.70	3.56	4.60
737	Vadodara	Chhaliyar	22.66667	73.31667	Dug Well	27.38	24.15	24.85	24.71
738	Vadodara	Veipur2	22.74722	73.35556	Dug Well	3.45	0.80	0.90	1.12
739	Valsad	Umargaon	20.19167	72.75000	Dug Well	4.30	3.50	3.00	4.30
740	Valsad	Tumb	20.21667	72.84167	Dug Well	3.30	2.00	1.70	2.70
741	Valsad	Dahli (bhilad)	20.25833	72.88333	Dug Well	5.09	1.69	2.28	3.99
742	Valsad	Fali	20.31306	73.37611	Dug Well	10.70	0.20	0.27	7.70
743	Valsad	Kanadu	20.32500	72.84167	Dug Well	6.90	1.60	2.90	6.70
744	Valsad	Chavshala	20.32833	73.32583	Dug Well	5.20	0.60	0.13	1.40
745	Valsad	Kaparda	20.34167	73.21667	Dug Well	0.00	2.35	1.20	2.55
746	Valsad	Motaponda	20.35833	73.03333	Dug Well	0.00	0.00	4.68	0.00
747	Valsad	Karwad	20.36250	72.97500	Dug Well	5.25	1.00	3.48	4.30
748	Valsad	Mandwa	20.36667	73.17500	Dug Well	0.00	7.15	3.80	0.00
749	Valsad	Vapi Balitha	20.38028	72.90444	Dug Well	9.70	2.00	4.70	9.40
750	Valsad	Udwada	20.46361	72.91806	Dug Well	5.95	0.45	1.10	3.95
751	Valsad	Awadha	20.51667	73.28750	Dug Well	4.05	0.35	7.52	1.85
752	Valsad	Dharampur 3	20.53083	73.16250	Dug Well	14.60	11.00	7.56	13.60

753	Valsad	Dharampur1	20.53639	73.17056	Piezometer	11.10	2.90	4.51	6.60
754	Valsad	Tithal	20.60000	72.90000	Dug Well	8.10	5.70	4.03	6.30
755	Valsad	Valsad1	20.60556	72.92778	Piezometer	23.20	4.50	4.95	10.80
756	Valsad	Muli1	20.63333	73.02500	Dug Well	0.00	1.40	0.82	2.90
757	Valsad	Dungri	20.68861	72.94944	Dug Well	0.00	1.70	3.45	6.80

## Annexure\_IIB

## WATER LEVELS OF THE NATIONAL HYDROGRAPH STATIONS IN GUJARAT 2018-19 (CONFINED)

DISTRICT	SITE NAME	AQUIFER Type	LAT_Y	LONG_X	Elevation, m	May 2018 in m blg	WT Elevation m MSL
Ahmedabad	Bopal_Pz_I	Confined I	23.038611	72.457778	44.10	36.37	7.73
Ahmedabad	Chandisar OW	Confined I	22.798700	72.480500	27.90	28.75	-0.85
Ahmedabad	Jholapur_Pz_I	Confined I	22.987500	72.204167	28.00	83.40	-55.40
Ahmedabad	Jhund OW I	Confined I	23.165600	71.932200	20.80	72.40	-51.60
Ahmedabad	Moti Kumad OW I	Confined I	23.133300	72.125000	29.00	90.97	-61.97
Ahmedabad	Ukhlod OWI	Confined I	23.222000	72.039500	29.70	62.68	-32.98
Ahmedabad	Vatwa Pz-III	Confined I	22.953611	72.616389	45.30	32.24	13.06
Anand	Hariyan_Pz	Confined I	22.404167	72.672222	14.70	6.49	8.21
Anand	Kathana_Pz_I	Confined I	22.294444	72.790278	23.30	13.42	9.88
Anand	Sarsa_Pz_I	Confined I	22.544444	73.070833	52.00	21.79	30.21
Anand	Tarapur Pz-I	Confined I	22.486111	72.661111	25.10	4.57	20.53
Banaskantha	Bhabhar iii	Confined I	24.059722	71.596111	37.00	30.45	6.55
Banaskantha	Deesa Pzi	Confined I	24.256667	72.187500	143.00	83.71	59.29
Banaskantha	Jerda Pz-I	Confined I	24.376944	72.126389	154.60	198.50	-43.90
Banaskantha	Naroli Pzi	Confined I	24.616389	71.638611	50.30	6.13	44.17
Banaskantha	Naroli Pzii	Confined I	24.616389	71.638611	50.30	5.21	45.09
Banaskantha	Palanpur_Pz	Confined I	24.172222	72.450000	226.30	38.33	187.97
Banaskantha	Phagudara OW	Confined I	25.760000	72.250000	114.00	94.59	19.41
Banaskantha	Tharad Pzii	Confined I	24.385000	71.619444	46.30	9.89	36.41
Banaskantha	Vav ii	Confined I	24.361111	71.511111	51.20	34.13	17.07
Banaskantha	Vinchivadi PZ-I	Confined I	24.586111	71.933333	103.00	68.69	34.31
Bhavnagar	Gadhada1	Confined I	21.968056	71.581944	83.30	10.21	73.09
Bhavnagar	Kardej	Confined I	21.751944	72.031111	19.00	29.10	-10.10
Bhavnagar	Wadia Pz	Confined I	21.777500	71.933333	16.00	68.00	-52.00
Gandhinagar	Adalaj_Pz_I	Confined I	23.175000	72.558333	64.00	97.05	-33.05
Gandhinagar	Amrapur Pzii	Confined I	23.373611	72.705000	94.00	80.54	13.46
Gandhinagar	Charada Pz -II	Confined I	23.481667	72.651667	110.00	96.35	13.65
Gandhinagar	Dahegam I	Confined I	23.170833	72.841667	75.00	65.42	9.58
Gandhinagar	Gandhinagar II	Confined I	23.234722	72.641667	78.70	93.10	-14.40
Gandhinagar	Kalol(Rep)_Pz_II	Confined I	23.243333	72.485000	70.00	128.61	-58.61
Gandhinagar	Lakroda OW	Confined I	23.429167	72.788333	110.00	75.40	34.60
Gandhinagar	Nardipur i	Confined I	23.331944	72.566667	83.00	97.34	-14.34
Kachchh	Balasar	Confined I	23.844444	70.669444	26.90	7.74	19.16
Kachchh	Khavda	Confined I	23.844444	69.731944	21.30	8.38	12.92
Kachchh	Madhapar	Confined I	23.231944	69.697222	111.80	51.32	60.48
Kachchh	Mandvi	Confined I	22.842222	69.370833	8.00	32.91	-24.91
Kachchh	Nirona	Confined I	23.465278	69.525000	18.70	20.02	-1.32
Kheda	Matar II	Confined I	22.709722	72.668056	26.60	7.32	19.28
Kheda	Nadiad Pz-I	Confined I	22.711111	72.866667	36.00	22.21	13.79
Mahesana	Dharampur OW I	Confined I	23.217700	72.213400	44.50	49.00	-4.50
Mahesana	Karalli ( i)	Confined I	23.804167	72.486111	132.30	144.55	-12.25

Mahesana	Laxmanpura (OW I)	Confined I	23.177997	72.311473	47.80	108.23	-60.43
Mahesana	Manipur OW I	Confined I	23.215900	72.314600	53.40	73.62	-20.22
Mahesana	Mehsana v	Confined I	23.597500	72.398611	90.00	29.09	60.91
Mahesana	Mehsana III	Confined I	23.597500	72.398611	90.00	101.19	-11.19
Mahesana	Modhera i	Confined I	23.716667	72.466667	117.00	9.53	107.47
Mahesana	Nani Hirvani (OW I)	Confined I	23.881404	72.547033	158.10	79.10	79.00
Mahesana	Ramvijaynagar (OW I Deep)	Confined I	23.713914	72.336441	94.00	147.92	-53.92
Patan	Bhutia vasna i	Confined I	23.916667	72.100000	74.00	23.30	50.70
Patan	Biliya(Temple)_Pz_I	Confined I	23.888333	72.398611	132.30	47.90	84.40
Patan	Kakosi Pz-II	Confined I	24.001667	72.305833	135.00	34.00	101.00
Patan	Kanesara OW	Confined I	23.888333	72.338056	122.30	104.37	17.93
Patan	Lukhasan OW	Confined I	23.960100	72.467400	150.10	133.45	16.65
Patan	Nagwasan OW	Confined I	23.941600	72.473800	162.70	98.50	64.20
Patan	Sidhpur Nadi OW I	Confined I	23.925200	72.398300	140.10	87.92	52.18
Patan	Vanasan OW	Confined I	23.898400	72.258000	102.10	105.72	-3.62
Vadodara	Raypura i	Confined I	22.281944	73.090278	31.30	36.42	-5.12
Vadodara	Sankarda	Confined I	22.438889	73.122222	39.90	48.72	-8.82
Vadodara	Segwa chouki ii	Confined I	22.008333	73.383333	42.00	50.00	-8.00
Vadodara	Segwa chowki I	Confined I	22.008333	73.383333	42.00	49.00	-7.00
Vadodara	Vadodara I	Confined I	22.304722	73.271667	36.30	27.92	8.38
Vadodara	Vadshala Pzi	Confined I	22.163056	73.169444	25.20	24.58	0.62
Ahmedabad	Bagodara_Pz_I	Confined II	22.641667	72.213889	11.70	10.13	1.57
Ahmedabad	Hansalpur_Pz-I	Confined II	23.088889	72.016667	23.70	38.20	-14.50
Anand	Anklav_Pz_I	Confined II	22.376389	72.997222	36.20	26.66	9.54
Anand	Petlad_Pz_I	Confined II	22.475000	72.800000	33.00	13.87	19.13
Anand	Walmi_I	Confined II	22.511111	72.981944	47.20	23.80	23.40
Banaskantha	Balodhar_Pz-I	Confined II	24.230556	71.912222	94.40	169.10	-74.70
Banaskantha	Dhanera Pz-I	Confined II	24.506111	72.029167	136.30	106.84	29.46
Banaskantha	Lakhani i	Confined II	24.313889	71.818056	81.80	99.73	-17.93
Banaskantha	Mahi_Pz	Confined II	24.028611	72.380833	159.00	157.84	1.16
Banaskantha	Tharad Pzi	Confined II	24.385000	71.619444	46.30	10.07	36.23
Banaskantha	Vav i	Confined II	24.358333	71.508333	51.00	22.50	28.50
Gandhinagar	Amrapur Pzi	Confined II	23.373611	72.705000	94.00	93.96	0.04
Gandhinagar	Charada_Pz_I	Confined II	23.481667	72.651667	110.00	178.87	-68.87
Gandhinagar	Khoraj Dabhi OW I	Confined II	23.384444	72.522500	86.30	143.23	-56.93
Gandhinagar	Khoraj Dabhi OW II	Confined II	23.384444	72.522500	86.30	159.09	-72.79
Gandhinagar	Mansa	Confined II	23.423056	72.665000	103.70	124.04	-20.34
Gandhinagar	Padusma OW I	Confined II	23.494200	72.621700	110.80	183.65	-72.85
Gandhinagar	Pethapur_Pz-I	Confined II	23.267222	72.673056	81.20	108.88	-27.68
Gandhinagar	Sardhav Pz -I	Confined II	23.297222	72.573889	81.10	110.83	-29.73
Gandhinagar	Sardhav Pz-II	Confined II	23.297222	72.573889	81.10	144.81	-63.71
Kheda	Matar I	Confined II	22.709722	72.668056	26.60	21.55	5.05
Mahesana	Daran_Pz-I	Confined II	23.206389	72.279722	49.30	104.50	-55.20
Mahesana	Jotana Pzi	Confined II	23.473889	72.287778	73.80	141.21	-67.41
Mahesana	Jotana Pziii	Confined II	23.466667	72.297222	72.30	18.09	54.21
Mahesana	Kherwa OW I	Confined II	23.546667	72.444722	94.70	92.26	2.44
Mahesana	Kherwa OW II	Confined II	23.546466	72.444634	94.70	77.43	17.27
Mahesana	Mehsana I	Confined II	23.597500	72.398611	90.00	151.17	-61.17

Mahesana	Mehsana II	Confined II	23.597500	72.398611	90.00	151.51	-61.51
Mahesana	Motipura_Pz_I	Confined II	23.533889	72.604167	111.00	167.58	-56.58
Mahesana	Suraj	Confined II	23.389722	72.306667	68.00	29.72	38.28
Mahesana	Thol Pz -V	Confined II	23.130556	72.376111	57.20	118.05	-60.85
Patan	Jangral Pzi	Confined II	23.694722	71.693889	25.10	163.54	-138.44
Patan	Jangral Pzii	Confined II	23.705556	71.675000	22.70	95.10	-72.40
Vadodara	Chitral Pz-I	Confined II	22.181944	72.945833	23.00	27.09	-4.09

## Annexure III

## Groundwater Table of Gujarat state during May 2018

DISTRICT	SITE NAME	LAT Y	LONG X	Elevation, m	May 2019, m	WT May, m
Ahmedabad	Bagodara Pz II	22.6417	72.2139	11.70	7.56	4.14
Ahmedabad	Barvala	22.1500	71.8917	28.00	13.00	15.00
Ahmedabad	Bopal Pz III	23.0386	72.4578	44.10	2.76	41.34
Ahmedabad	Dalod	23.3667	71.9666	31.00	8.97	22.03
Ahmedabad	Dhandhuka1	22.3750	71.9861	22.70	4.37	18.33
Ahmedabad	Endla	23.2722	72.0583	34.30	3.83	30.47
Ahmedabad	Gamph	22.3583	72.1666	16.00	2.25	13.75
Ahmedabad	Ghuma	23.0333	72.4458	44.00	4.71	39.29
Ahmedabad	Hansalpur Pz-III	23.0889	72.0167	23.70	5.12	18.58
Ahmedabad	Jhanjharwa Pz II	23.4147	72.0583	42.70	20.10	22.60
Ahmedabad	Kumarkhan	22.9000	72.0167	17.00	27.55	-10.55
Ahmedabad	Kundal	22.9014	72.2236	22.00	8.37	13.63
Ahmedabad	Kundali	22.2694	71.7000	80.30	10.40	69.90
Ahmedabad	Mandal2	23.2750	71.9166	25.00	10.63	14.37
Ahmedabad	Pachcham Pz	22.2322	72.1788	9.10	2.76	6.34
Ahmedabad	Rajpada	22.3083	71.6917	81.00	17.15	63.85
Ahmedabad	Tagadi1	22.2958	71.9472	23.00	4.50	18.50
Ahmedabad	Ughraj1	23.3667	72.1000	45.00	11.28	33.72
Ahmedabad	Upardhal1	22.8500	72.1458	20.00	11.90	8.10
Ahmedabad	Vagad(Repl) Pz	22.3603	71.8680	40.20	5.61	34.59
Ahmedabad	Viramgam2	23.1417	72.0333	29.00	4.23	24.77
Amreli	Amreli	21.6083	71.2250	127.00	11.70	115.30
Amreli	Amreli Pz	21.6125	71.2250	128.00	13.35	114.65
Amreli	Amritvel Pz	21.3972	71.3583	99.30	4.90	94.40
Amreli	Ankadia mota	21.6458	71.1083	153.00	7.41	145.59
Amreli	Bagasara	21.4792	70.9625	152.00	19.13	132.87
Amreli	Bhavardi1	21.1083	71.2583	191.00	6.44	184.56
Amreli	Bherai	20.8680	71.3625	8.30	3.58	4.72
Amreli	Bhuva	21.4328	71.3638	86.20	4.97	81.23
Amreli	Chalala	21.4167	71.1666	135.00	29.35	105.65
Amreli	Charkhadia Pz	21.3875	71.2916	112.00	28.05	83.95
Amreli	Chavand	21.8167	71.4125	116.00	12.15	103.85
Amreli	Dharangani	21.3333	71.2000	167.00	38.45	128.55
Amreli	Dhari Pz	21.3264	71.0180	211.00	26.56	184.44
Amreli	Fifad	21.4361	71.5402	66.70	7.13	59.57
Amreli	Gopalpura Vanda Pz	21.3750	71.4916	98.00	34.23	63.77
Amreli	Govadka	21.5417	71.1583	113.00	19.15	93.85
Amreli	Hipavadli	21.3789	71.6147	93.10	10.30	82.80
Amreli	Jafrabad	20.8667	71.3625	17.00	5.42	11.58
Amreli	Jesar Pz	21.3714	71.6702	95.80	7.41	88.39
Amreli	Kadiyali	20.9083	71.3602	8.30	5.87	2.43
Amreli	Kerala	21.3972	71.2166	127.30	42.55	84.75
Amreli	Khamba	21.1500	71.2388	219.70	11.13	208.57
Amreli	Khamba Pz	21.1417	71.2542	202.00	12.83	189.17
Amreli	Kotadapitha	21.9583	71.2042	202.00	10.05	191.95
Amreli	Kunkavav	21.6625	70.9833	173.00	20.05	152.95
Amreli	Lathi	21.7208	71.3833	121.00	10.48	110.52

Amreli	Luvariya	21.6250	71.3958	100.00	10.74	89.26
Amreli	Mandal	21.1000	71.5833	46.00	28.72	17.28
Amreli	Manila Pz	21.4333	71.1666	129.00	22.18	106.82
Amreli	Morjhar	21.3761	71.1186	171.00	50.65	120.35
Amreli	Nageshri	20.9250	71.3541	11.00	5.55	5.45
Amreli	Piyava	21.3833	71.4666	98.00	33.80	64.20
Amreli	Punjabadar	21.5250	71.3583	91.00	12.06	78.94
Amreli	Tajpur	21.7250	71.4666	114.00	24.60	89.40
Amreli	Timbi2	20.8958	71.2042	35.00	7.22	27.78
Amreli	Trakuda	21.0167	71.2805	81.30	15.80	65.50
Amreli	Untvad	21.9167	71.2166	192.00	16.52	175.48
Amreli	Vaghania juna	21.5833	70.9666	152.00	10.68	141.32
Amreli	Vanda	21.3897	71.5074	86.00	9.97	76.03
Amreli	Vankiya	21.5208	71.1361	120.30	9.40	110.90
Amreli	Vankiya1	21.2333	71.2500	233.00	23.20	209.80
Amreli	Victor	21.0125	71.5416	7.00	0.55	6.45
Anand	Anklav2	22.3833	73.0083	37.00	28.60	8.40
Anand	Bandhani	22.5417	72.8167	34.00	6.59	27.41
Anand	Bhadran	22.3555	72.8972	28.10	18.45	9.65
Anand	Dali	22.2750	72.7667	24.00	5.26	18.74
Anand	Davalpura Pz	22.4583	72.8027	28.30	4.82	23.48
Anand	Dharmaj	22.4208	72.7944	23.70	9.42	14.28
Anand	Kansari1	22.3417	72.6500	14.00	5.36	8.64
Anand	Ras	22.3458	72.8333	24.00	2.10	21.90
Anand	Tarapur Pz-II	22.4861	72.6611	25.10	4.53	20.57
Banaskantha	Ambaji Pz	24.3361	72.8472	454.30	15.07	439.23
Banaskantha	Amirgadh	24.4055	72.6417	227.30	11.10	216.20
Banaskantha	Bharol1	24.5292	71.5416	34.00	2.62	31.38
Banaskantha	Danta	24.1889	72.7653	279.60	11.61	267.99
Banaskantha	Dantiwada	24.1889	72.7605	271.80	33.73	238.07
Banaskantha	Dantiwada	24.2775	72.2614	158.70	25.05	133.65
Banaskantha	Deesa Pzii	24.2567	72.1875	143.00	59.91	83.09
Banaskantha	Ganapipli	24.2972	72.9472	259.20	13.90	245.30
Banaskantha	Gangodra	24.4361	72.3652	196.60	25.90	170.70
Banaskantha	Iqbalgarh	24.3458	72.5375	210.00	30.55	179.45
Banaskantha	Jhat	24.4875	72.3527	193.70	16.01	177.69
Banaskantha	Khoda	24.6583	71.7667	61.00	21.17	39.83
Banaskantha	Kidotar	24.3944	72.6277	222.30	18.90	203.40
Banaskantha	Meda	24.3972	72.2847	173.80	6.56	167.24
Banaskantha	Mohabbat gadh	24.1667	72.7277	252.30	31.20	221.10
Banaskantha	Naroli Pziii	24.6164	71.6386	50.30	6.15	44.15
Banaskantha	Palanpur2	24.1944	72.4333	217.00	27.27	189.73
Banaskantha	Ratanpur2	24.1750	72.7458	262.00	25.00	237.00
Banaskantha	Sodapur	24.4014	72.2958	173.30	18.19	155.11
Banaskantha	Tharad Pziii	24.3850	71.6194	46.30	9.99	36.31
Bharuch	Bharuch	21.7000	73.0042	6.00	7.46	-1.46
Bharuch	Bhensli	21.7250	72.7500	8.00	3.56	4.44
Bharuch	Chhindra	22.1267	72.6697	11.70	9.58	2.12
Bharuch	Dahegam	22.1847	72.5972	11.60	8.42	3.18
Bharuch	Hansot	21.5833	72.8083	14.00	5.91	8.09
Bharuch	Jambusar	22.0528	72.8055	14.10	11.15	2.95
Bharuch	Jetpur1	21.4917	72.7083	8.00	3.51	4.49
Bharuch	Jokhla	21.5958	73.1691	46.00	2.21	43.79

Bharuch	Kalak1	22.0186	72.7630	8.60	10.52	-1.92
Bharuch	Kaswa	21.6833	72.8167	11.00	7.67	3.33
Bharuch	Kavi	22.1936	72.6394	15.90	7.72	8.18
Bharuch	Kondh	21.5806	73.0681	35.10	4.31	30.79
Bharuch	Luhara	21.6750	72.5583	10.00	0.95	9.05
Bharuch	Mahegam1	21.6833	72.7583	6.00	3.56	2.44
Bharuch	Motwan	21.5555	72.8875	12.30	2.95	9.35
Bharuch	Mulad	21.6833	73.0194	9.30	8.16	1.14
Bharuch	Navetha	21.7078	72.8305	9.40	7.71	1.69
Bharuch	Netrang(Rep) Pz	21.6417	73.3666	126.00	10.21	115.79
Bharuch	Nirnavi	21.7917	72.6680	8.70	9.25	-0.55
Bharuch	Panoli	21.5375	72.9750	26.00	3.86	22.14
Bharuch	Raymal	21.5208	72.8208	13.00	2.42	10.58
Bharuch	Roja tankaria	21.9167	72.7916	7.00	9.41	-2.41
Bharuch	Sahol	21.4728	72.8097	12.20	6.37	5.83
Bharuch	Sajod	21.6167	72.9236	10.00	4.91	5.09
Bharuch	Sarod	22.1583	72.7583	19.00	8.92	10.08
Bharuch	Sindhav	22.0269	72.6361	6.00	9.48	-3.48
Bharuch	Tankari	21.9917	72.6750	6.00	6.31	-0.31
Bharuch	Utraj	21.5917	72.8250	6.00	5.81	0.19
Bhavnagar	Ambala	21.7111	71.8416	55.00	21.67	33.33
Bhavnagar	Ayodhayapuram	21.9603	71.8864	17.40	9.63	7.77
Bhavnagar	Bhavnagar1	21.7667	72.1500	25.00	10.00	15.00
Bhavnagar	Bhumbhali	21.6794	72.2441	7.70	3.65	4.05
Bhavnagar	Bora	21.1911	71.9288	18.70	30.78	-12.08
Bhavnagar	Chowk Pz	21.4292	71.7639	55.70	26.67	29.03
Bhavnagar	Datha	21.2208	71.9500	31.00	8.24	22.76
Bhavnagar	Dhasa	21.8000	71.5083	90.00	4.59	85.41
Bhavnagar	Dudhala	21.1375	71.6583	53.00	14.96	38.04
Bhavnagar	Gadhada2	21.9667	71.5792	83.00	4.35	78.65
Bhavnagar	Ghogha1	21.6833	72.2791	12.00	4.00	8.00
Bhavnagar	Khijadiya	21.6375	71.7000	95.00	15.85	79.15
Bhavnagar	Kundheli	21.3794	71.9805	40.80	18.86	21.94
Bhavnagar	Longadi	21.2139	71.8833	38.30	5.60	32.70
Bhavnagar	Mahuva1	21.0958	71.7667	21.00	17.86	3.14
Bhavnagar	Malvav Pz	21.1606	71.9083	33.70	29.70	4.00
Bhavnagar	Motivadal	21.1972	71.5500	114.70	6.92	107.78
Bhavnagar	Ningala	22.0181	71.7000	56.30	13.38	42.92
Bhavnagar	Palitana1	21.5250	71.8236	67.70	10.47	57.23
Bhavnagar	Panchpipla	21.5500	71.7208	82.00	15.10	66.90
Bhavnagar	Panvi1	22.0750	71.8917	16.00	12.30	3.70
Bhavnagar	Sajnasar	21.4250	71.9125	66.00	11.16	54.84
Bhavnagar	Satanes	21.4417	71.8375	85.00	9.62	75.38
Bhavnagar	Talaja2	21.3667	72.0167	21.00	16.01	4.99
Bhavnagar	Tardhera	22.2292	71.6041	112.00	23.47	88.53
Bhavnagar	Tatam	22.0583	71.6333	79.00	26.84	52.16
Bhavnagar	Timbi2	21.8317	71.7661	29.30	13.48	15.82
Bhavnagar	Vadal	21.4769	71.8061	254.20	7.99	246.21
Bhavnagar	Vallabhipur1	21.8833	71.8777	16.00	5.95	10.05
Bhavnagar	Vallbhipur	21.8833	71.8750	16.00	6.30	9.70
Bhavnagar	Vavdi	21.5681	72.1980	70.70	12.85	57.85
DAMAN	Ambawadi	20.4028	72.8444	14.10	5.30	8.80
DAMAN	Daman	20.4242	72.8502	17.00	9.05	7.95



DAMAN	Jempore	20.3778	72.8269	13.10	3.50	9.60
DAMAN	Khariwad daman	20.4250	72.8458	14.00	1.83	12.17
DAMAN	Morwad	20.4353	72.8311	19.00	8.80	10.20
DAMAN	Warkund	20.4081	72.8597	9.30	6.00	3.30
DIU	Chakarteeth Pz	20.7083	70.9689	7.30	6.30	1.00
DIU	Diu	20.7147	70.9486	6.10	5.10	1.00
Dohad	Dadhela	22.8375	74.0667	262.00	8.29	253.71
Dohad	Dahod	22.8403	74.2625	305.00	1.80	303.20
Dohad	Dahod2	22.8250	74.2333	310.00	10.04	299.96
Dohad	Devgadh Baria	22.7000	73.9139	200.70	11.98	188.72
Dohad	Devgadh bariya	22.7000	73.9166	207.00	15.46	191.54
Dohad	Dhanpur	22.6333	74.1041	258.00	14.07	243.93
Dohad	Fatepura(Karodia)	23.2542	74.0291	188.00	13.50	174.50
Dohad	Garbara	22.6805	74.3125	353.70	8.72	344.98
Dohad	Jhalod	23.0930	74.1472	269.70	8.97	260.73
Dohad	Jhalod1	23.0917	74.1333	273.00	6.77	266.23
Dohad	Kanjetha	22.5806	74.1138	253.20	10.98	242.22
Dohad	Khandania	22.7042	73.8375	220.00	13.22	206.78
Dohad	Limbd2	23.0042	74.1583	277.00	3.69	273.31
Dohad	Limkheda	22.8306	73.9861	205.00	8.55	196.45
Dohad	Mirakhedi	22.9333	74.2000	323.00	6.68	316.32
Dohad	Panchwada	22.7292	74.3083	327.00	7.90	319.10
Dohad	Pipero	22.6472	74.0903	244.10	13.55	230.55
Dohad	Sukhsar	23.1500	74.0500	196.00	11.81	184.19
Dohad	Tokarba	22.6042	74.0375	232.00	6.59	225.41
Dohad	Varamkheda	22.8000	74.2750	298.00	3.45	294.55
Gandhinagar	Adalaj Pz III	23.1750	72.5583	64.00	19.35	44.65
Gandhinagar	Kasturinagar(IFFCO)	23.1903	72.5527	74.00	15.61	58.39
Gandhinagar	Paliya	23.1792	72.8416	78.00	14.33	63.67
Gandhinagar	Pethapur Pz-III	23.2672	72.6730	81.20	36.44	44.76
Gandhinagar	Serthapara1	23.1944	72.5667	66.70	20.45	46.25
Jamnagar	Ambardi	21.9164	69.8580	82.30	10.44	71.86
Jamnagar	Amran Pz	22.8222	70.5458	13.00	4.42	8.58
Jamnagar	Amran1	22.8292	70.5625	12.00	5.61	6.39
Jamnagar	Aramda	22.4333	69.0416	7.00	8.59	-1.59
Jamnagar	Balwa	21.9042	69.9583	116.00	21.98	94.02
Jamnagar	Bed1	22.4375	69.9000	16.00	8.92	7.08
Jamnagar	Bedanpur	22.6833	70.3167	13.00	7.20	5.80
Jamnagar	Bhanvad	21.9278	69.7958	63.00	15.91	47.09
Jamnagar	Bhatia	22.0917	69.3013	36.30	17.92	18.38
Jamnagar	Bhatiya	22.0944	69.2667	20.30	5.88	14.42
Jamnagar	Bhogat1	21.9917	69.2458	9.00	10.53	-1.53
Jamnagar	Changa	22.3500	70.0416	41.00	14.66	26.34
Jamnagar	Dhrol2	22.5667	70.4166	32.00	7.52	24.48
Jamnagar	Dudhai2	22.7917	70.5042	14.00	5.28	8.72
Jamnagar	Dwarka	22.2458	68.9583	12.00	8.03	3.97
Jamnagar	Gordhanpur	22.4500	70.0013	13.70	10.12	3.58
Jamnagar	Haripur2	22.2708	70.3333	86.00	15.61	70.39
Jamnagar	Jambuda	22.5250	70.2042	8.00	10.36	-2.36
Jamnagar	Jamjodhpur	21.9055	70.0305	101.00	7.47	93.53
Jamnagar	Jamnagar1	22.4708	70.0500	22.00	21.04	0.96
Jamnagar	Jamnagar2	22.4583	70.0792	16.00	11.34	4.66
Jamnagar	Juvanpur	22.1708	69.3666	44.00	22.12	21.88

Jamnagar	Kajuda	22.3333	69.7083	22.00	6.10	15.90
Jamnagar	Kalawad	22.2167	70.3833	88.00	3.56	84.44
Jamnagar	Kalyanpur2	22.0167	69.3917	38.00	11.72	26.28
Jamnagar	Khambhaliya	22.2097	69.6458	38.30	15.38	22.92
Jamnagar	Khirsara	21.9792	69.6000	38.00	11.02	26.98
Jamnagar	Kuvadla	22.2014	69.5833	44.00	9.33	34.67
Jamnagar	Lalpur1	22.1917	69.9611	74.70	18.90	55.80
Jamnagar	Mojap	22.3667	68.9833	10.00	10.27	-0.27
Jamnagar	Mota kalawad	21.9083	69.8292	69.00	20.11	48.89
Jamnagar	Motagop	22.0375	69.8750	101.00	5.40	95.60
Jamnagar	Moti khavdi	22.3875	69.8666	23.00	11.32	11.68
Jamnagar	Moti matli	22.3167	70.2639	75.30	21.06	54.24
Jamnagar	Nikava	22.1917	70.5333	126.00	4.00	122.00
Jamnagar	Pindara1	22.2472	69.2583	15.00	7.85	7.15
Jamnagar	Raval	21.9297	69.4919	7.40	8.78	-1.38
Jamnagar	Salaya	22.3055	69.6041	7.70	4.19	3.51
Jamnagar	Samrasar1	22.3750	69.1041	9.00	7.40	1.60
Jamnagar	Seth vadala	22.0333	70.1250	149.00	10.33	138.67
Jamnagar	Sumana	22.1083	70.1666	164.00	12.08	151.92
Jamnagar	Toda	22.0625	70.3833	147.00	18.12	128.88
Jamnagar	Vad panchasara	22.2333	70.1166	96.00	16.92	79.08
Jamnagar	Vadtara	22.2083	69.5000	43.00	12.25	30.75
Jamnagar	Varwada	22.2917	68.9666	14.00	18.45	-4.45
Jamnagar	Vijarkha	22.4167	70.1833	29.00	16.70	12.30
Jamnagar	Vinjalpur	22.1500	69.6000	61.00	8.45	52.55
Junagadh	Alwani	21.2305	70.6375	216.00	3.40	212.60
Junagadh	Amervel Nes	21.0089	70.7258	143.30	5.87	137.43
Junagadh	Arena	21.0806	70.1763	11.60	13.25	-1.65
Junagadh	Bamanwara	21.2208	70.0555	12.30	11.21	1.09
Junagadh	Bantva	21.4875	70.0833	22.00	24.55	-2.55
Junagadh	Bhatsimroli	21.2236	70.1833	44.00	19.40	24.60
Junagadh	Bhim Deval	20.9775	70.6091	80.00	14.28	65.72
Junagadh	Bilkha	21.4389	70.6000	95.30	14.48	80.82
Junagadh	Budhecha	21.0958	70.2166	24.00	7.83	16.17
Junagadh	Chorwad	21.0417	70.2166	18.00	9.98	8.02
Junagadh	Dhokadva	20.9583	71.0708	75.00	15.28	59.72
Junagadh	Gadu	21.0542	70.2791	31.00	33.76	-2.76
Junagadh	Galodar	21.1472	70.2750	54.00	17.36	36.64
Junagadh	Gangda_Pz	20.8583	71.1666	22.00	10.15	11.85
Junagadh	Girgadhada	20.9250	70.9166	84.00	16.57	67.43
Junagadh	Goraj1	21.1833	70.1541	37.00	29.50	7.50
Junagadh	Govindpura2	20.9458	70.3958	27.00	33.63	-6.63
Junagadh	Jambur[madhapar	21.0292	70.6083	113.00	9.69	103.31
Junagadh	Jamvala	20.9847	70.7694	103.30	6.94	96.36
Junagadh	Jamvala1	20.9833	70.7625	97.00	6.00	91.00
Junagadh	Jargla Jargali	20.8808	70.9841	55.00	15.44	39.56
Junagadh	Junagadh	21.5094	70.4622	100.30	12.44	87.86
Junagadh	Junagadh1	21.5167	70.4583	90.00	14.28	75.72
Junagadh	Juthal	21.1667	70.2667	62.00	6.68	55.32
Junagadh	Kalej	21.2486	70.0583	13.30	16.64	-3.34
Junagadh	Kanek	21.0305	70.2416	13.30	15.82	-2.52
Junagadh	Kansari	20.8700	71.0511	44.30	10.10	34.20
Junagadh	Kasia Naka Check	21.2703	70.6805	169.20	6.24	162.96

	Post					
Junagadh	Kesariyal	20.7964	70.9419	28.40	14.84	13.56
Junagadh	Kewarda	21.2667	70.2083	52.00	20.50	31.50
Junagadh	Khambalia l	21.0444	70.1917	11.00	9.01	1.99
Junagadh	Khokharda	21.4208	70.3167	37.00	24.78	12.22
Junagadh	Khoradal	21.0639	70.1736	11.30	8.15	3.15
Junagadh	Khoras ahir	21.3708	70.3389	47.00	16.00	31.00
Junagadh	Kodinar	20.8000	70.6917	15.00	11.00	4.00
Junagadh	Kodinar l	20.8000	70.6917	15.00	14.66	0.34
Junagadh	Kukaswada	21.0542	70.2083	14.00	12.09	1.91
Junagadh	Lohej	21.1667	70.0667	15.00	9.45	5.55
Junagadh	Maktupur l	21.1431	70.0958	15.70	8.86	6.84
Junagadh	Mangrol	21.1250	70.1083	14.00	18.73	-4.73
Junagadh	Manketara	21.1500	70.1292	26.00	28.95	-2.95
Junagadh	Mendarda	21.3250	70.4402	87.30	17.06	70.24
Junagadh	Mendardal	21.3250	70.4333	86.00	19.21	66.79
Junagadh	Moraj	20.9833	70.4361	55.70	13.99	41.71
Junagadh	Patla	21.6042	70.5692	106.00	12.75	93.25
Junagadh	Prasli	20.8508	70.6691	23.00	18.10	4.90
Junagadh	Prempara	21.3000	70.7000	146.00	19.72	126.28
Junagadh	Sametar	20.8542	71.1208	31.00	16.50	14.50
Junagadh	Sepa	21.1167	70.2194	40.30	21.07	19.23
Junagadh	Seriakhan	21.1333	70.2486	47.70	21.22	26.48
Junagadh	Shardagram	21.1042	70.1528	10.70	13.15	-2.45
Junagadh	Sil	21.1855	70.0464	11.10	6.38	4.72
Junagadh	Sil bandar	21.2236	70.0555	13.20	3.47	9.73
Junagadh	Talala Pz	21.0639	70.5383	94.30	10.35	83.95
Junagadh	Talala l	21.0514	70.5250	87.30	11.74	75.56
Junagadh	Una2	20.8250	71.0416	31.00	5.70	25.30
Junagadh	Visavadar	21.3389	70.7486	135.00	15.30	119.70
Kachchh	Asambia mota Pz	22.9680	69.4514	67.80	13.68	54.12
Kachchh	Bambhdai	22.9389	69.0828	7.70	6.55	1.15
Kachchh	Bhadreshwar	22.9000	69.9000	10.00	10.93	-0.93
Kachchh	Bhuj (Circuit House)	23.2500	69.6666	105.00	19.29	85.71
Kachchh	Deshalpur rapar	23.7472	70.6791	13.70	14.74	-1.04
Kachchh	Devisar	23.4028	69.3292	82.70	15.16	67.54
Kachchh	Dholavira	23.8833	70.2166	24.00	11.63	12.37
Kachchh	Dhoril	23.4333	69.7542	15.00	12.55	2.45
Kachchh	Dunai	23.0500	69.5000	108.00	13.03	94.97
Kachchh	Haboi	23.3583	69.8666	112.00	0.88	111.12
Kachchh	Kharoi	23.4542	70.3500	39.00	9.57	29.43
Kachchh	Khavada	23.8389	69.7305	16.80	7.92	8.88
Kachchh	Kotaya	23.0417	69.0750	35.00	14.85	20.15
Kachchh	Kothara	23.1619	68.9119	30.70	7.62	23.08
Kachchh	Lakhat	23.8230	68.7750	14.30	10.00	4.30
Kachchh	Lilpur	23.5111	70.6500	123.30	0.96	122.34
Kachchh	Lodai	23.4000	69.8917	27.00	16.82	10.18
Kachchh	Luni	22.8733	69.8116	13.00	11.76	1.24
Kachchh	Mata no madh	23.5333	68.9500	91.00	11.99	79.01
Kachchh	Mokha	22.9500	69.8000	41.00	17.66	23.34
Kachchh	Moti cher	23.7583	68.6750	16.00	4.77	11.23
Kachchh	Naliya	23.2558	68.8400	24.00	13.85	10.15
Kachchh	Naliya (Bus S)	23.2667	68.8333	21.00	13.00	8.00

Kachchh	Rapar2	23.5667	70.6375	63.00	27.18	35.82
Kachchh	Ratanpur Khadir1	23.8608	70.3630	37.00	17.81	19.19
Kachchh	Samkhiari	23.3000	70.5083	42.00	9.52	32.48
Kachchh	Sedat	23.1714	69.6375	221.00	11.68	209.32
Kachchh	Shinaya	23.0333	70.0541	40.00	12.70	27.30
Kachchh	Sukhpar	23.2083	69.6166	120.00	16.58	103.42
Kachchh	Tera	23.2833	68.9472	46.30	13.40	32.90
Kachchh	Vinjhan1	23.1000	69.0250	47.00	12.38	34.62
Kheda	Alina	22.8083	73.0583	49.00	11.61	37.39
Kheda	Balasinor	22.9583	73.3361	92.00	5.33	86.67
Kheda	Balasinor1	22.9500	73.3250	92.00	6.89	85.11
Kheda	Bar	23.1680	73.4111	147.30	5.29	142.01
Kheda	Dakor	22.7625	73.1694	60.30	7.33	52.97
Kheda	Juna vasadra	23.0833	73.3625	103.00	4.80	98.20
Kheda	Kalesar	22.7208	73.1917	59.00	0.45	58.55
Kheda	Ladvel	22.9083	73.1208	69.00	3.24	65.76
Kheda	Mahudha	22.7833	72.9417	40.00	9.20	30.80
Kheda	Nes Pz	22.7083	73.2028	61.70	10.24	51.46
Kheda	Sarkhej Pz-III	22.9861	72.8806	54.20	36.82	17.38
Kheda	Vaso	22.6611	72.7542	32.00	7.59	24.41
Kheda	Vyas vasna	23.1055	73.1041	86.00	26.96	59.04
Mahesana	Asjol	23.5083	72.1833	56.00	7.69	48.31
Mahesana	Bhandupara	23.7250	72.3833	101.00	9.93	91.07
Mahesana	Budasan	23.2875	72.3750	62.00	4.85	57.15
Mahesana	Daran Pz-III	23.2064	72.2797	49.30	3.14	46.16
Mahesana	Dharpura	23.5458	72.1125	51.00	8.69	42.31
Mahesana	Dosaj	23.8417	72.4500	131.00	14.23	116.77
Mahesana	Kalyanpur	23.1269	72.1931	34.30	4.81	29.49
Mahesana	Karalli (iii)	23.8042	72.4861	132.30	11.21	121.09
Mahesana	Kheralu(shallow	23.8978	72.6105	176.20	4.92	171.28
Mahesana	Kheralu1	23.8875	72.6125	174.00	11.57	162.43
Mahesana	Maguna	23.5778	72.2889	72.60	10.52	62.08
Mahesana	Mau	23.5103	72.5192	100.70	9.15	91.55
Mahesana	Modhera iii	23.7167	72.4666	117.00	10.30	106.70
Mahesana	Padhadya	23.5225	72.5333	106.00	12.79	93.21
Mahesana	Panchot	23.6292	72.3416	82.00	7.07	74.93
Mahesana	Rampur1	23.8917	72.5167	160.00	8.32	151.68
Mahesana	Sihi	23.8000	72.3500	111.00	14.91	96.09
Mahesana	Tarabh	23.7583	72.4583	122.00	11.57	110.43
Mahesana	Thol Pz-IV	23.1306	72.3761	57.20	37.30	19.90
Mahesana	Unad1	23.8458	72.7166	170.00	22.72	147.28
Mahesana	Unawa	23.7667	72.3625	110.00	4.55	105.45
Mahesana	Vidaj	23.2472	72.3000	56.70	2.50	54.20
Mahesana	Visnagar iv	23.7000	72.5333	125.00	3.72	121.28
Narmada	Agar(Rep) Pz	22.0311	73.6566	60.00	13.16	46.84
Narmada	Baman Phalia Pz	21.7983	73.3792	90.00	21.07	68.93
Narmada	Garudeshwar	21.8917	73.6500	42.00	13.47	28.53
Narmada	Hirapura	21.8680	73.6000	65.00	6.11	58.89
Narmada	Jankh	21.4922	73.5969	206.80	3.61	203.19
Narmada	Kewadia Pz	21.8828	73.7005	60.90	8.52	52.38
Narmada	Khaidipada	21.5139	73.5194	220.00	5.71	214.29
Narmada	Namaria	22.0444	73.6222	62.10	6.19	55.91
Narmada	Nani singlot	21.6694	73.6666	242.30	9.51	232.79

Narmada	Ralda	21.6100	73.6525	265.00	5.71	259.29
Narmada	Ringani	21.8417	73.4666	73.00	2.26	70.74
Narmada	Selemba 1	21.6100	73.7633	383.00	7.55	375.45
Narmada	Sunderpura Pz	21.8389	73.5347	69.00	32.01	36.99
Narmada	Umran	21.4881	73.8830	111.60	8.01	103.59
Navsari	Abrama	20.8625	72.9000	4.00	6.35	-2.35
Navsari	Chadav	20.8311	73.3344	73.70	13.40	60.30
Navsari	Chinam	20.9917	72.8861	7.70	4.33	3.37
Navsari	Dandi	20.8917	72.8083	4.00	4.00	0.00
Navsari	Duvada	20.8286	73.0575	23.00	4.20	18.80
Navsari	Hond	20.7389	73.0458	20.70	8.70	12.00
Navsari	Kaliyari	20.7250	73.1500	47.00	12.50	34.50
Navsari	Khergam	20.6333	73.0958	41.00	8.60	32.40
Navsari	Manav Khadak	20.6742	73.2333	81.00	3.40	77.60
Navsari	Moti Valzar	20.8050	73.2667	72.00	7.85	64.15
Navsari	Navsari 1	20.9581	72.9350	7.00	6.27	0.73
Navsari	Onjal	20.8333	72.8416	11.00	7.25	3.75
Navsari	Panikhadak	20.6492	73.1669	62.30	13.10	49.20
Navsari	Sari khurd	20.7875	72.9542	5.00	4.95	0.05
Navsari	Ubhrat	21.0083	72.7458	3.00	4.65	-1.65
Navsari	Vansda	20.7644	73.3630	108.90	11.05	97.85
Panchmahals	Bavaliya Pz	23.3067	73.5550	166.00	32.03	133.97
Panchmahals	Godhra2	22.7708	73.6333	128.00	10.59	117.41
Panchmahals	Jambughoda	22.3694	73.7250	107.00	7.49	99.51
Panchmahals	Kothamba	23.0194	73.5194	92.10	3.67	88.43
Panchmahals	Limbadia peti	23.2042	73.6000	91.00	7.28	83.72
Panchmahals	Lunawada	23.1292	73.6083	103.00	11.19	91.81
Panchmahals	Malekpur1	23.2305	73.7361	110.00	6.30	103.70
Panchmahals	Morwa (Hadaf) Pz-I	22.9180	73.8444	147.60	13.10	134.50
Panchmahals	Natapur	22.8572	73.8205	153.90	8.55	145.35
Panchmahals	Palla Rajgarh Pz	22.5228	73.7008	191.70	21.08	170.62
Panchmahals	Pavagadh	22.4875	73.5555	127.00	10.23	116.77
Panchmahals	Ranipura	22.7250	73.7583	174.00	10.88	163.12
Panchmahals	Santrampur	23.1708	73.9083	136.00	11.22	124.78
Panchmahals	Santrampur1	23.1917	73.9083	144.00	9.32	134.68
Panchmahals	Shehra	22.9542	73.6250	126.00	2.34	123.66
Panchmahals	Suliyat	23.0622	73.8508	148.30	22.40	125.90
Panchmahals	Tarkanda	22.5458	73.5291	103.00	11.21	91.79
Panchmahals	Timbi2	22.5083	73.5083	127.00	8.35	118.65
Panchmahals	Tuwa	22.8042	73.4708	82.00	5.23	76.77
Panchmahals	Ucharpi Pz	23.1192	73.4716	104.00	23.36	80.64
Panchmahals	Vejalpur	22.6958	73.5583	105.00	7.62	97.38
Patan	Dharmoda	23.6972	72.0694	60.20	4.64	55.56
Patan	Dhinoj1	23.6625	72.2791	80.00	21.62	58.38
Patan	Moti chander	23.5944	71.7805	27.30	8.05	19.25
Patan	Sander	23.7667	72.2542	89.00	18.14	70.86
Patan	Shankhari	23.7792	72.1625	80.00	21.28	58.72
Porbandar	Adityana	21.7086	69.7108	23.30	28.62	-5.32
Porbandar	Adwana2	21.9167	69.6000	20.00	14.57	5.43
Porbandar	Babda	21.7700	69.5880	15.30	16.30	-1.00
Porbandar	Bakharla	21.7647	69.6611	46.80	27.40	19.40
Porbandar	Balej	21.3708	69.8750	6.00	4.82	1.18
Porbandar	Bhavpura	21.8097	69.4083	10.00	7.74	2.26

Porbandar	Bhod	21.6589	69.8211	21.90	29.24	-7.34
Porbandar	Degam	21.7103	69.6055	18.60	18.98	-0.38
Porbandar	Hanumangadh1	21.7930	69.8027	72.70	34.20	38.50
Porbandar	Kadegi	21.4505	69.9833	10.00	3.47	6.53
Porbandar	Kandorna	21.6478	69.8833	22.00	23.11	-1.11
Porbandar	Khambodar	21.8083	69.6014	22.00	14.49	7.51
Porbandar	Kolikhada	21.6997	69.6141	19.00	30.08	-11.08
Porbandar	Kuchhadi	21.6833	69.5500	0.00	2.93	-2.93
Porbandar	Kutiyana Pz	21.6222	69.9972	10.70	16.64	-5.94
Porbandar	Kutiyana1	21.6306	70.0167	21.00	15.27	5.73
Porbandar	Miyani	21.8333	69.3889	10.00	7.65	2.35
Porbandar	Mojiwana	21.8858	69.6002	21.00	17.19	3.81
Porbandar	Navibandar	21.4458	69.7916	9.00	7.98	1.02
Porbandar	Oddar	21.5667	69.6805	9.30	6.33	2.97
Porbandar	Palkhada1	21.7583	69.4875	13.00	17.03	-4.03
Porbandar	Pata	21.2972	69.9417	5.30	5.75	-0.45
Porbandar	Porbandar	21.6450	69.6425	7.00	6.56	0.44
Porbandar	Porbandar1	21.6417	69.6250	8.00	4.27	3.73
Porbandar	Ranavav2	21.6833	69.7458	30.00	33.40	-3.40
Porbandar	Ratadi	21.7203	69.5119	6.10	7.59	-1.49
Porbandar	Simar	21.9469	69.6858	54.70	14.78	39.92
Porbandar	Tukda	21.5161	69.7286	6.90	3.23	3.67
Porbandar	Visavada Mul Dwarka	21.7856	69.4464	16.70	10.83	5.87
Rajkot	Amar nagar	22.9333	70.8083	33.00	4.50	28.50
Rajkot	Bhada jodiya	21.6625	70.3416	61.00	29.50	31.50
Rajkot	Bhadla	22.1833	71.0916	230.00	18.60	211.40
Rajkot	Bhalgam	22.4417	71.0833	180.00	5.82	174.18
Rajkot	Chhatar	22.5042	70.7542	97.00	9.40	87.60
Rajkot	Chordi	21.9167	70.7486	127.30	9.40	117.90
Rajkot	Dadia	22.0917	70.7333	153.00	12.77	140.23
Rajkot	Dhoraji	21.7458	70.2858	44.00	22.40	21.60
Rajkot	Ganod	21.6750	70.1791	31.00	9.00	22.00
Rajkot	Gavridad	22.4000	70.7958	108.00	6.91	101.09
Rajkot	Gogavadar	21.9667	70.8750	155.00	6.00	149.00
Rajkot	Hadmadiya	21.9780	70.6230	134.90	9.00	125.90
Rajkot	Hadmatia	22.6833	70.8083	80.00	8.60	71.40
Rajkot	Halenda	22.0917	71.0500	212.00	6.33	205.67
Rajkot	Jamwali	21.9333	70.7667	131.00	12.75	118.25
Rajkot	Jasapur	21.8917	70.4833	99.00	11.50	87.50
Rajkot	Jasdan	22.0444	71.2139	200.60	9.45	191.15
Rajkot	Jasdan2	22.0583	71.2208	205.00	9.80	195.20
Rajkot	Jetpur Pithad	23.0219	70.9180	26.60	14.30	12.30
Rajkot	Kalithad1	22.0194	70.6602	126.80	7.50	119.30
Rajkot	Kalyanpur2	22.6583	70.7333	63.00	10.20	52.80
Rajkot	Kamlapur1	22.1519	71.1997	245.00	14.60	230.40
Rajkot	Khamta	22.4750	70.5500	73.00	16.15	56.85
Rajkot	Khirsara1	22.2417	70.6458	125.00	14.20	110.80
Rajkot	Lalavadar	22.1333	71.3041	255.00	6.13	248.87
Rajkot	Macchukunda	23.0014	70.8958	26.30	7.30	19.00
Rajkot	Malia	23.0917	70.7625	6.00	6.10	-0.10
Rajkot	Modpar1	22.9000	70.6666	24.00	3.46	20.54
Rajkot	Morvi	22.8167	70.8416	47.00	3.65	43.35

Rajkot	Mota Dadwa	21.9983	70.9938	164.30	9.23	155.07
Rajkot	Mota dhansura	22.9583	70.6166	9.00	12.50	-3.50
Rajkot	Motagundala	21.7347	70.5013	81.40	17.65	63.75
Rajkot	Movaiya	22.4500	70.6083	70.00	11.30	58.70
Rajkot	Neknam	22.5042	70.6958	86.00	9.35	76.65
Rajkot	Nichi mandal	22.8583	70.9500	72.00	7.12	64.88
Rajkot	Padadhari I	22.4472	70.6083	70.00	10.20	59.80
Rajkot	Patanvav	21.6444	70.2611	81.70	26.20	55.50
Rajkot	Pedhla	21.7514	70.5916	97.70	25.45	72.25
Rajkot	Rajkot I	22.3000	70.8000	133.00	7.07	125.93
Rajkot	Ribda	22.1250	70.7667	173.00	10.00	163.00
Rajkot	Sardhar I	22.1458	70.9888	213.70	4.10	209.60
Rajkot	Sarvad	23.0064	70.7069	18.00	3.25	14.75
Rajkot	Targhari	22.3833	70.6666	84.00	7.60	76.40
Rajkot	Umrali	21.9194	70.6041	101.30	12.10	89.20
Rajkot	Upleta 3	21.6703	70.1827	34.80	20.40	14.40
Rajkot	Vinchhia	22.2083	71.3792	171.00	6.65	164.35
Rajkot	Viranagar	22.0250	71.1250	181.00	8.58	172.42
Rajkot	Virpur I	21.8500	70.6958	114.00	9.93	104.07
Rajkot	Wankaner-I	22.6208	70.9291	81.00	7.95	73.05
Sabarkantha	Abhapur	23.9642	73.2580	491.70	8.54	483.16
Sabarkantha	Alwakampa	23.2747	73.2083	104.00	20.95	83.05
Sabarkantha	Anwarpura Pz	23.4055	72.8455	113.10	44.05	69.05
Sabarkantha	Bayad Pz	23.2167	73.2291	104.00	12.65	91.35
Sabarkantha	Bhadreshwar	23.7458	72.9791	167.00	29.76	137.24
Sabarkantha	Bibipur I	23.2528	73.2125	103.70	18.44	85.26
Sabarkantha	Boral	23.1250	73.2083	104.00	21.63	82.37
Sabarkantha	Boriya	23.2428	72.9408	80.70	8.76	71.94
Sabarkantha	Chandap Pz	23.9319	72.8569	163.70	15.88	147.82
Sabarkantha	Choriwad	23.9000	73.1194	218.70	25.38	193.32
Sabarkantha	Derol Pz-II	23.5994	72.9025	142.70	55.20	87.50
Sabarkantha	Dhansura I	23.3500	73.2000	131.00	10.70	120.30
Sabarkantha	Gadha	23.7083	72.9417	166.00	21.57	144.43
Sabarkantha	Hamirpur	23.4083	73.4583	148.00	17.60	130.40
Sabarkantha	Harsol I	23.3778	73.0167	116.70	18.29	98.41
Sabarkantha	Himmatnagar Pz	23.6083	72.9708	137.00	8.83	128.17
Sabarkantha	Idar	23.8417	73.0375	200.00	9.99	190.01
Sabarkantha	Karanpur	23.3333	73.3000	134.00	10.39	123.61
Sabarkantha	Khedbrahma Pz	24.0361	73.0444	200.00	5.35	194.65
Sabarkantha	Malpur Pz	23.3417	73.4680	150.00	18.13	131.87
Sabarkantha	Matoda	24.1111	73.0083	208.00	16.94	191.06
Sabarkantha	Modasa	23.4625	73.3083	147.00	6.53	140.47
Sabarkantha	Punasan	23.6694	73.1736	239.10	8.87	230.23
Sabarkantha	Revas	23.8208	73.1166	199.00	20.61	178.39
Sabarkantha	Sathamba	23.1750	73.3375	148.00	23.52	124.48
Sabarkantha	Shamlaji	23.6861	73.3666	218.30	10.10	208.20
Sabarkantha	Silwad	24.0083	73.1166	224.00	11.75	212.25
Sabarkantha	Varvada	23.4419	73.0566	119.30	14.26	105.04
Sabarkantha	Vejpur Pz	23.7972	73.2208	216.00	19.83	196.17
Sabarkantha	Vijaynagar	24.0083	73.3541	356.00	6.80	349.20
Sabarkantha	Vijaynagar Pz	24.0069	73.3333	350.70	14.00	336.70
Sabarkantha	Waliampura Pz	23.3511	72.9708	109.00	44.29	64.71
Surat	Allu	21.0625	73.1917	42.00	3.65	38.35

Surat	Bedchit	20.9500	73.3514	73.70	10.20	63.50
Surat	Bhatkol	21.3803	73.0042	27.00	3.75	23.25
Surat	Digas	21.2483	73.0255	27.00	12.10	14.90
Surat	Dungri	21.4083	73.1333	48.00	11.15	36.85
Surat	Jesingpura[sg]	21.1708	73.5541	215.00	8.50	206.50
Surat	Jhankhvav	21.4667	72.9528	30.70	5.75	24.95
Surat	Kadod 1	21.2214	73.2189	22.10	12.35	9.75
Surat	Karanjvel	21.0128	73.4580	111.70	7.70	104.00
Surat	Kathor	21.2917	72.9291	21.00	16.00	5.00
Surat	Kelkui	21.0419	73.3233	63.00	5.80	57.20
Surat	Khedwada (Ashram Falia)	21.2811	73.4653	57.10	7.90	49.20
Surat	Mandvi2	21.2542	73.2958	41.00	13.90	27.10
Surat	Mota	21.1703	73.0686	26.80	3.40	23.40
Surat	Moti Sarkui	21.2792	73.3497	43.30	9.75	33.55
Surat	Navi pardi	21.3222	72.9708	23.30	3.98	19.32
Surat	Nizar1	21.4772	74.1906	119.90	13.10	106.80
Surat	Nogama	21.2908	73.2144	51.30	2.54	48.76
Surat	Olpad2	21.3417	72.7583	9.00	3.40	5.60
Surat	Palsana	21.0778	72.9916	16.70	4.19	12.51
Surat	Paneshwar	21.4542	73.1983	56.00	18.70	37.30
Surat	Puna	20.9236	73.2333	50.70	14.10	36.60
Surat	Sarbhon	21.0583	73.0916	27.00	2.90	24.10
Surat	Sayan	21.3055	72.9108	17.30	7.80	9.50
Surat	Sultanabad	21.0917	72.7250	2.00	6.11	-4.11
Surat	Uchchhal	21.1719	73.7692	119.70	11.70	108.00
Surat	Ushker	21.3405	73.0977	34.10	6.70	27.40
Surat	Vaheval	20.8372	73.2877	68.00	12.75	55.25
Surat	Valod	21.0500	73.2667	54.00	4.40	49.60
Surat	Vyara1	21.1083	73.3958	81.00	3.70	77.30
Surendranagar	Anindra	22.8103	71.7058	58.30	3.68	54.62
Surendranagar	Bajana	23.1167	71.7833	10.00	3.06	6.94
Surendranagar	Bamanbor	22.4167	71.0416	194.00	6.45	187.55
Surendranagar	Chotila1	22.4250	71.1816	197.00	13.80	183.20
Surendranagar	Dedadra	22.7750	71.7333	51.00	2.60	48.40
Surendranagar	Dhama	23.3853	71.6794	19.30	8.10	11.20
Surendranagar	Jhinjhuwada	23.3500	71.6583	18.00	10.55	7.45
Surendranagar	Juna Devaliya 1	22.9794	71.0089	46.20	2.38	43.82
Surendranagar	Kherwa	23.0042	71.7458	39.00	4.04	34.96
Surendranagar	Kukavati	23.1228	71.4797	10.70	15.10	-4.40
Surendranagar	Lakhtar	22.8583	71.7833	42.00	4.10	37.90
Surendranagar	Latuda	22.8130	71.6080	72.30	3.93	68.37
Surendranagar	Limbdi-Pz	22.5722	71.8083	48.00	2.40	45.60
Surendranagar	Mathak	22.8400	71.0577	85.70	6.80	78.90
Surendranagar	Modhvana	22.8814	71.7355	45.70	5.50	40.20
Surendranagar	Moti Moladi	22.4208	71.1102	194.70	16.61	178.09
Surendranagar	Muli	22.6500	71.4666	110.00	9.63	100.37
Surendranagar	Nava Raisngpur	22.7419	71.2617	100.30	21.90	78.40
Surendranagar	Olak	22.9186	71.8633	25.00	8.15	16.85
Surendranagar	Pipli	23.0600	71.7341	26.00	0.30	25.70
Surendranagar	Rajsitapur	22.8417	71.5916	72.00	7.85	64.15
Surendranagar	Ratanpur1	22.8583	71.2708	85.00	9.50	75.50
Surendranagar	Sarla	22.7333	71.3666	118.00	10.28	107.72



Surendranagar	Sayala	22.5333	71.4833	122.00	29.15	92.85
Surendranagar	Shiyani	22.6667	71.8292	36.00	3.90	32.10
Surendranagar	Sudamda	22.4542	71.4850	114.00	3.20	110.80
Surendranagar	Sukhparl	23.0083	71.2833	56.00	4.40	51.60
Surendranagar	Surendranagar	22.7236	71.6708	66.00	3.53	62.47
Surendranagar	Surendranagar2	22.7167	71.6083	75.00	3.68	71.32
Surendranagar	Tarnetar	22.6417	71.2166	126.00	16.75	109.25
Surendranagar	Tavi 1	22.7203	71.8516	29.00	0.30	28.70
Surendranagar	Than	22.5792	71.1997	139.70	13.50	126.20
Surendranagar	Visawadi	23.3417	71.7333	29.00	5.25	23.75
Surendranagar	Vitthalgarh	22.9875	71.9750	21.00	9.50	11.50
The dangs	Ahwa Pz	20.7589	73.6861	470.70	3.00	467.70
The dangs	Ahwal	20.7583	73.6833	464.00	2.70	461.30
The dangs	Bari Pada	20.6400	73.6913	440.70	11.50	429.20
The dangs	Bori Gaotha 1	20.8108	73.5031	124.70	9.10	115.60
The dangs	Chikhli	20.6583	73.6875	397.00	9.80	387.20
The dangs	Chinchnogaatha	20.8083	73.5527	172.00	8.01	163.99
The dangs	Chinchpada	20.6375	73.7750	596.00	4.35	591.65
The dangs	Dhumkal	20.6458	73.7916	484.00	5.20	478.80
The dangs	Ghubita	20.8000	73.7375	462.00	3.90	458.10
The dangs	Jakana	20.6333	73.7458	458.00	11.35	446.65
The dangs	Kalibel	20.9208	73.5805	173.00	3.52	169.48
The dangs	Mahal	20.9167	73.6791	212.00	4.20	207.80
The dangs	Malegaon	20.6000	73.7458	553.00	5.30	547.70
The dangs	Nadak khadi	20.8042	73.6125	207.00	7.35	199.65
The dangs	Nana pada	20.7000	73.5833	236.00	9.68	226.32
The dangs	Sakarpatal	20.7194	73.5569	232.30	7.50	224.80
The dangs	Sodmal	20.8667	73.6166	342.00	11.60	330.40
The dangs	Subir	20.9222	73.5805	170.80	6.30	164.50
The dangs	Umberpada	20.6833	73.7250	361.00	5.75	355.25
The dangs	Vaghai	20.7639	73.5044	158.00	13.55	144.45
The dangs	Vazat Amba	20.8783	73.5183	217.00	6.80	210.20
Vadodara	Amreshwar	22.2278	73.4833	51.00	4.04	46.96
Vadodara	Baladgam	22.1375	74.0083	160.00	10.81	149.19
Vadodara	Bhindol	22.2000	73.9000	109.00	10.75	98.25
Vadodara	Chavaria	22.1875	73.9875	151.00	9.21	141.79
Vadodara	Chella Karamsiya Pz	22.3967	73.4322	70.70	5.12	65.58
Vadodara	Chhaliyar	22.6667	73.3167	50.00	27.38	22.62
Vadodara	Chhota udepur	22.3083	74.0167	151.00	10.42	140.58
Vadodara	Chitral PZ II	22.1819	72.9458	23.00	26.13	-3.13
Vadodara	Devat (thadgam)	22.1000	73.9833	159.00	9.11	149.89
Vadodara	Ferkuva	22.3667	74.2083	241.00	9.12	231.88
Vadodara	Ghamodi	22.3667	74.0750	174.00	9.15	164.85
Vadodara	Ghayaj ii	22.2333	73.0541	29.00	29.53	-0.53
Vadodara	Govindpura	22.2111	73.7413	78.80	8.11	70.69
Vadodara	Handod2	22.0736	73.0458	26.70	32.22	-5.52
Vadodara	Jojh	22.4417	73.9625	164.00	11.72	152.28
Vadodara	Juna samalya	22.5042	73.2833	55.00	14.02	40.98
Vadodara	Kevadi	22.5167	73.9417	198.00	7.61	190.39
Vadodara	Makni	22.2250	73.6791	73.00	10.77	62.23
Vadodara	Moti chikhali	22.0111	74.0833	296.70	6.40	290.30
Vadodara	Panwad	22.2000	74.0416	174.00	9.77	164.23
Vadodara	Patiyapura	22.2750	73.4417	60.00	9.42	50.58

Vadodara	Pavi	22.3417	73.8333	102.00	6.85	95.15
Vadodara	Saidal	22.2833	73.5027	65.70	3.05	62.65
Vadodara	Saidivasana	22.0583	74.0167	218.00	6.61	211.39
Vadodara	Sankheda	22.5389	73.1750	51.30	37.90	13.40
Vadodara	Sengpur	22.0375	73.8875	162.00	11.31	150.69
Vadodara	Tundav	22.4833	73.2028	44.70	15.03	29.67
Vadodara	Vadodara Ii	22.3047	73.2716	36.30	8.36	27.94
Vadodara	Vadtalav Pz	22.2586	73.7839	97.00	16.63	80.37
Vadodara	Vagudan	22.0667	74.1417	263.00	6.27	256.73
Vadodara	Vega	22.1594	73.4125	46.00	7.66	38.34
Vadodara	Veipur2	22.7472	73.3555	70.80	3.45	67.35
Vadodara	Waghodia Pz	22.3639	73.3769	66.30	9.92	56.38
Valsad	Awadha	20.5167	73.2875	157.00	4.05	152.95
Valsad	Chavshala	20.3283	73.3258	242.00	5.20	236.80
Valsad	Dahli (bhilad)	20.2583	72.8833	42.00	5.09	36.91
Valsad	Dharampur 3	20.5308	73.1625	70.00	14.60	55.40
Valsad	Dharampur1	20.5364	73.1705	78.60	11.10	67.50
Valsad	Fali	20.3130	73.3761	500.60	10.70	489.90
Valsad	Kanadu	20.3250	72.8416	43.00	6.90	36.10
Valsad	Karwad	20.3625	72.9750	25.00	5.25	19.75
Valsad	Lakadmal	20.4667	73.1583	69.00	7.90	61.10
Valsad	Nanaponda	20.4139	73.1208	63.30	11.80	51.50
Valsad	Tithal	20.6000	72.9000	6.00	8.10	-2.10
Valsad	Tumb	20.2167	72.8416	20.00	3.30	16.70
Valsad	Udwada	20.4636	72.9180	20.00	5.95	14.05
Valsad	Umargaon	20.1917	72.7500	10.00	4.30	5.70
Valsad	Valsad1	20.6055	72.9277	17.30	23.20	-5.90
Valsad	Vapi Balitha	20.3803	72.9044	25.90	9.70	16.20

## Annexure IV

## Mean Decadal Water Level of the National Hydrograph Stations in Gujarat State (Phreatic) 2019-20

District	Location	LAT_Y	LONG_X	Pre-Monsoon	Post-Monsoon
Ahmedabad	Bagodara_Pz_II	22.64167	72.21389	6.88	5.67
Ahmedabad	Barvala	22.15000	71.89167	10.58	9.01
Ahmedabad	Bopal_Pz_III	23.03861	72.45778	4.68	0.00
Ahmedabad	Dalod	23.36667	71.96667	6.87	5.83
Ahmedabad	Devalia	22.37778	71.98611	19.39	18.27
Ahmedabad	Dhandhuka1	22.37500	71.98611	4.28	3.03
Ahmedabad	Endla	23.27222	72.05833	3.50	2.05
Ahmedabad	Gamph	22.35833	72.16667	2.99	1.50
Ahmedabad	Ghuma	23.03333	72.44583	5.35	2.94
Ahmedabad	Ghuma_Pz_II	23.03389	72.44972	5.92	3.21
Ahmedabad	Hansalpur_Pz-III	23.08889	72.01667	4.09	3.00
Ahmedabad	Kumarkhan	22.90000	72.01667	7.82	3.86
Ahmedabad	Kundal	22.90139	72.22361	10.60	7.27
Ahmedabad	Kundali	22.26944	71.70000	16.49	7.34
Ahmedabad	Mandal2	23.27500	71.91667	5.40	3.81
Ahmedabad	Pachcham_Pz	22.23222	72.17889	2.82	1.18
Ahmedabad	Rajpada	22.30833	71.69167	20.00	15.27
Ahmedabad	Salangpor	22.15833	71.77083	21.24	10.08
Ahmedabad	Sola_Pz_III	23.08056	72.51861	12.72	0.00
Ahmedabad	Tagadi1	22.29583	71.94722	6.50	2.85
Ahmedabad	Ughraj1	23.36667	72.10000	8.43	6.01
Ahmedabad	Upardhal1	22.85000	72.14583	11.03	9.28
Ahmedabad	Vagad(Repl)_Pz	22.36028	71.86806	7.49	5.35
Ahmedabad	Vastrapur_lake_II(2)	23.03833	72.52972	21.31	0.00
Ahmedabad	Viramgam2	23.14167	72.03333	3.58	1.88
Ahmedabad	Visalpur_Pz-II	22.91861	72.48778	8.83	5.86
Amreli	Amreli	21.60833	71.22500	12.37	5.84
Amreli	Amreli_Pz	21.61250	71.22500	14.36	7.54
Amreli	Amritvel_Pz	21.39722	71.35833	3.40	3.07
Amreli	Ankadia mota	21.64583	71.10833	10.83	6.86
Amreli	Badhda	21.26583	71.33889	10.05	7.15
Amreli	Bagasara	21.47917	70.96250	18.14	13.67
Amreli	Bhavardi1	21.10833	71.25833	5.84	0.79
Amreli	Bherai	20.86806	71.36250	3.22	2.48
Amreli	Bhuva	21.43278	71.36389	4.63	3.89
Amreli	Chalala	21.41667	71.16667	29.36	26.81
Amreli	Charkhadia_Pz	21.38750	71.29167	22.38	20.31
Amreli	Charkhadia1	21.39167	71.29583	18.71	17.76
Amreli	Chavand	21.81667	71.41250	10.44	5.21
Amreli	Devaliya	21.82083	71.10833	13.36	10.95
Amreli	Dharangani	21.33333	71.20000	31.64	31.49
Amreli	Dhari	21.33750	71.04167	13.12	0.00
Amreli	Dhari_Pz	21.32639	71.01806	22.10	9.48
Amreli	Fifad	21.43611	71.54028	5.91	5.12
Amreli	Gopalpura Vanda Pz	21.37500	71.49167	27.63	27.08
Amreli	Goradka	21.22500	71.41111	11.24	3.90

Amreli	Govadka	21.54167	71.15833	7.12	2.67
Amreli	Hipavadli	21.37889	71.61472	9.35	8.49
Amreli	Ingorala	21.23333	71.20000	16.43	9.64
Amreli	Jafrabad	20.86667	71.36250	2.67	1.71
Amreli	Jira	21.23750	71.09167	9.37	4.27
Amreli	Kadiyali	20.90833	71.36028	6.16	2.75
Amreli	Kerala	21.39722	71.21667	38.60	33.25
Amreli	Khamba	21.15000	71.23889	10.15	4.21
Amreli	Khamba_Pz	21.14167	71.25417	13.39	8.16
Amreli	Kotadapitha	21.95833	71.20417	13.31	0.00
Amreli	Kunkavav	21.66250	70.98333	18.23	20.07
Amreli	Lathi	21.72083	71.38333	8.99	3.67
Amreli	Lotpur	20.96250	71.43333	5.54	5.01
Amreli	Luvariya	21.62500	71.39583	10.53	4.84
Amreli	Mandal	21.10000	71.58333	29.09	23.91
Amreli	Manila Pz	21.43333	71.16667	19.65	17.95
Amreli	Morjhar	21.37611	71.11861	39.55	35.90
Amreli	Nageshri	20.92500	71.35417	5.54	2.78
Amreli	Piyava	21.38333	71.46667	28.70	25.88
Amreli	Punjabadar	21.52500	71.35833	12.18	5.59
Amreli	Tajpur	21.72500	71.46667	22.07	8.26
Amreli	Timbi2	20.89583	71.20417	7.68	5.45
Amreli	Trakuda	21.01667	71.28056	11.16	5.32
Amreli	Untvad	21.91667	71.21667	15.05	10.60
Amreli	Vaghania juna	21.58333	70.96667	11.06	4.73
Amreli	Vanda	21.38972	71.50750	12.01	0.00
Amreli	Vankiya	21.52083	71.13611	11.03	6.19
Amreli	Vankiya1	21.23333	71.25000	16.95	6.46
Amreli	Victor	21.01250	71.54167	1.33	0.69
Amreli	Virpur	21.25417	71.15000	18.95	0.00
Anand	Anand	22.57500	72.97222	12.32	8.22
Anand	Anklav2	22.38333	73.00833	25.54	23.85
Anand	Bandhani	22.54167	72.81667	5.66	4.16
Anand	Bhadran	22.35556	72.89722	17.56	14.98
Anand	Dali	22.27500	72.76667	4.70	2.96
Anand	Davalpura_Pz	22.45833	72.80278	3.80	1.58
Anand	Dharmaj	22.42083	72.79444	12.58	10.98
Anand	Ghora	22.69167	73.05417	6.27	3.77
Anand	Kansari1	22.34167	72.65000	13.26	9.53
Anand	Laxmipura	22.41667	72.60833	3.17	1.26
Anand	Navapura	22.31250	72.96250	25.96	25.40
Anand	Ras	22.34583	72.83333	2.37	1.67
Anand	Tarapur Pz-II	22.48611	72.66111	3.85	2.30
Banaskantha	Ambaji_Pz	24.33611	72.84722	12.00	6.76
Banaskantha	Amirgadh	24.40556	72.64167	11.74	10.35
Banaskantha	Asodar	24.41667	71.81667	29.32	0.00
Banaskantha	Bharol1	24.52917	71.54167	3.31	2.83
Banaskantha	Danta	24.18889	72.76528	10.64	8.09
Banaskantha	Dantiwada	24.18889	72.76056	36.24	34.32
Banaskantha	Dantiwada	24.27750	72.26139	28.85	26.40

Banaskantha	Deesa Pzii	24.25667	72.18750	59.07	57.99
Banaskantha	Ganapipli	24.29722	72.94722	11.74	8.79
Banaskantha	Gangodra	24.43611	72.36528	22.50	14.55
Banaskantha	Iqbalgarh	24.34583	72.53750	30.16	26.45
Banaskantha	Jhat	24.48750	72.35278	15.87	13.38
Banaskantha	Jorapura	24.37972	72.28972	20.76	13.50
Banaskantha	Khoda	24.65833	71.76667	22.15	20.07
Banaskantha	Kidotar	24.39444	72.62778	19.90	17.30
Banaskantha	Kuchwada	24.46667	72.25278	24.86	23.88
Banaskantha	Manglore	24.51389	71.69722	9.25	9.46
Banaskantha	Meda	24.39722	72.28472	11.06	8.66
Banaskantha	Mohabbat gadh	24.16667	72.72778	23.88	18.25
Banaskantha	Naroli Pzii	24.61639	71.63861	9.66	8.49
Banaskantha	Palanpur2	24.19444	72.43333	31.03	26.47
Banaskantha	Ratanpur2	24.17500	72.74583	18.50	14.43
Banaskantha	Sodapur	24.40139	72.29583	15.68	12.27
Banaskantha	Tharad Pzii	24.38500	71.61944	13.56	11.84
Banaskantha	Vadgamda	24.40833	71.69167	28.80	28.02
Bharuch	Arethi	21.61250	73.43528	10.19	5.99
Bharuch	Bharuch	21.70000	73.00417	6.81	3.62
Bharuch	Bhensli	21.72500	72.75000	3.27	2.02
Bharuch	Chhindra	22.12667	72.66972	9.59	8.77
Bharuch	Dahegam	22.18472	72.59722	7.87	8.04
Bharuch	Hansot	21.58333	72.80833	4.79	3.14
Bharuch	Ilav	21.45000	72.80000	7.58	6.22
Bharuch	Jambusar	22.05278	72.80556	7.12	7.44
Bharuch	Jambusar2	22.05000	72.80000	8.15	0.00
Bharuch	Jetpur1	21.49167	72.70833	3.65	1.95
Bharuch	Jokhla	21.59583	73.16917	3.01	1.09
Bharuch	Juna borbhata	21.67500	72.97500	6.94	5.17
Bharuch	Kaswa	21.68333	72.81667	7.35	4.30
Bharuch	Kavachiya	21.52917	73.35417	6.46	3.72
Bharuch	Kavi	22.19361	72.63944	7.30	6.20
Bharuch	Kondh	21.58056	73.06806	4.94	2.88
Bharuch	Luhara	21.67500	72.55833	3.60	2.19
Bharuch	Mahegam1	21.68333	72.75833	5.64	3.07
Bharuch	Modoliya	21.63333	73.29583	8.87	7.85
Bharuch	Mokhdi	21.53333	73.28750	9.72	5.20
Bharuch	Motwan	21.55556	72.88750	2.57	2.16
Bharuch	Mulad	21.68333	73.01944	7.83	5.09
Bharuch	Navetha	21.70778	72.83056	6.81	5.24
Bharuch	Netrang(Rep)_Pz	21.64167	73.36667	9.55	6.08
Bharuch	Netrang1	21.63333	73.36667	7.25	3.13
Bharuch	Nirnavi	21.79167	72.66806	9.93	5.97
Bharuch	Panoli	21.53750	72.97500	2.73	1.85
Bharuch	Raymal	21.52083	72.82083	1.87	1.49
Bharuch	Roja tankaria	21.91667	72.79167	9.02	7.84
Bharuch	Sajod	21.61667	72.92361	4.41	3.70
Bharuch	Sarod	22.15833	72.75833	11.53	9.40
Bharuch	Simodra	21.74167	73.20833	6.84	3.93

Bharuch	Sindhav	22.02694	72.63611	8.10	6.92
Bharuch	Tankari	21.99167	72.67500	5.14	2.98
Bharuch	Utraj	21.59167	72.82500	5.31	4.41
Bhavnagar	Ambala	21.71111	71.84167	22.16	16.26
Bhavnagar	Ayodhayapuram	21.96028	71.88639	9.57	7.61
Bhavnagar	Bhavnagar1	21.76667	72.15000	7.88	5.24
Bhavnagar	Bhudel	21.69167	72.15833	5.34	2.69
Bhavnagar	Bhumbhali	21.67944	72.24417	3.05	2.43
Bhavnagar	Bhutia	21.74722	71.70000	18.95	14.81
Bhavnagar	Bora	21.19111	71.92889	27.42	26.22
Bhavnagar	Chowk Pz	21.42917	71.76389	24.94	23.42
Bhavnagar	Datha	21.22083	71.95000	5.69	4.02
Bhavnagar	Dhasa	21.80000	71.50833	5.93	2.52
Bhavnagar	Dudhala	21.13750	71.65833	14.06	7.52
Bhavnagar	Gadhada2	21.96667	71.57917	4.75	4.00
Bhavnagar	Gariyadhar	21.54306	71.56528	19.57	11.47
Bhavnagar	Ghogha1	21.68333	72.27917	4.14	1.61
Bhavnagar	Jalia	21.80000	71.61667	18.64	14.75
Bhavnagar	Khijadiya	21.63750	71.70000	12.35	9.62
Bhavnagar	Kundheli	21.37944	71.98056	20.30	12.96
Bhavnagar	Longadi	21.21389	71.88333	5.37	3.18
Bhavnagar	Lonjdhara	22.09722	71.89722	25.98	18.83
Bhavnagar	Mahuva1	21.09583	71.76667	19.76	18.08
Bhavnagar	Malvav_Pz	21.16056	71.90833	29.80	23.86
Bhavnagar	Motivadal	21.19722	71.55000	8.34	3.15
Bhavnagar	Ningala	22.01806	71.70000	13.66	7.88
Bhavnagar	Palitana1	21.52500	71.82361	9.68	5.98
Bhavnagar	Palitana2	21.52222	71.83889	12.76	5.79
Bhavnagar	Paliyad2	22.25556	71.56389	21.11	6.66
Bhavnagar	Panchpipla	21.55000	71.72083	6.65	1.95
Bhavnagar	Panvi1	22.07500	71.89167	10.48	4.22
Bhavnagar	Pasvi	21.29167	71.96667	16.08	8.22
Bhavnagar	Porbada	21.80000	71.70000	12.99	8.55
Bhavnagar	Sajnsar	21.42500	71.91250	10.28	2.79
Bhavnagar	Sandhida	21.68750	71.75833	5.61	2.54
Bhavnagar	Satanes	21.44167	71.83750	15.37	4.74
Bhavnagar	Shantinagar	21.24583	71.65000	12.18	5.21
Bhavnagar	Talaja2	21.36667	72.01667	12.20	6.57
Bhavnagar	Tansa	21.50833	72.12500	14.85	7.98
Bhavnagar	Tardhera	22.22917	71.60417	21.90	19.12
Bhavnagar	Tatam	22.05833	71.63333	27.34	18.26
Bhavnagar	Timbi2	21.83167	71.76611	13.03	10.66
Bhavnagar	Trapaj	21.42500	72.09583	15.77	9.45
Bhavnagar	Umrالا	21.84722	71.80833	13.33	10.03
Bhavnagar	Vadal	21.47694	71.80611	11.76	3.52
Bhavnagar	Vallabhipur1	21.88333	71.87778	6.02	4.59
Bhavnagar	Vallbhipur	21.88333	71.87500	5.74	4.00
Bhavnagar	Vavdi	21.56806	72.19806	11.59	2.44
DAMAN	Ambawadi	20.40278	72.84444	5.66	3.56
DAMAN	Bhimpur k.falia	20.45833	72.87083	7.83	4.62

DAMAN	Dabhel	20.41111	72.88611	4.43	2.58
DAMAN	Dalwada	20.44306	72.85194	7.82	2.12
DAMAN	Daman	20.42417	72.85028	9.03	2.73
DAMAN	Jempore	20.37778	72.82694	3.50	1.56
DAMAN	Khariwad daman	20.42500	72.84583	4.35	2.61
DAMAN	Morwad	20.43528	72.83111	8.61	4.81
DAMAN	Warkund	20.40806	72.85972	6.18	2.07
DIU	Chakarteeth_Pz	20.70833	70.96889	6.31	6.15
DIU	Diu	20.71472	70.94861	4.02	0.00
Dohad	Dabhava	22.58333	73.90417	5.63	3.78
Dohad	Dadhela	22.83750	74.06667	8.51	3.49
Dohad	Dahod	22.84028	74.26250	3.92	1.78
Dohad	Dahod2	22.82500	74.23333	8.93	5.70
Dohad	Devgadh Baria	22.70000	73.91389	11.73	7.42
Dohad	Devgadh bariya	22.70000	73.91667	13.84	7.24
Dohad	Dhanpur	22.63333	74.10417	13.29	7.37
Dohad	Fatepura(Karodia)	23.25417	74.02917	13.01	8.29
Dohad	Garbara	22.68056	74.31250	7.81	3.01
Dohad	Jhalod	23.09306	74.14722	9.62	6.52
Dohad	Jhalod1	23.09167	74.13333	8.39	5.18
Dohad	Kanjetha	22.58056	74.11389	10.42	6.06
Dohad	Khandania	22.70417	73.83750	13.00	10.48
Dohad	Limbdi2	23.00417	74.15833	4.49	2.27
Dohad	Limkheda	22.83056	73.98611	8.49	5.12
Dohad	Mirakhedi	22.93333	74.20000	6.78	3.06
Dohad	Panchwada	22.72917	74.30833	6.25	4.18
Dohad	Pipero	22.64722	74.09028	13.01	6.12
Dohad	Salaya1	22.80833	73.89167	13.23	5.27
Dohad	Sukhsar	23.15000	74.05000	10.00	7.14
Dohad	Tokarba	22.60417	74.03750	6.15	3.29
Dohad	Varamkheda	22.80000	74.27500	2.43	1.56
Dohad	Wadia	22.90000	74.05000	8.00	4.15
Gandhinagar	Adalaj_Pz_III	23.17500	72.55833	23.32	23.85
Gandhinagar	Amrapur Pziii	23.37361	72.70500	55.47	0.00
Gandhinagar	Kasturinagar(IFFCO)	23.19028	72.55278	13.28	11.19
Gandhinagar	Paliya	23.17917	72.84167	13.86	11.47
Gandhinagar	Serthapara1	23.19444	72.56667	14.66	12.23
Jamnagar	Ambardi	21.91639	69.85806	10.65	6.91
Jamnagar	Amran_Pz	22.82222	70.54583	4.60	1.99
Jamnagar	Amran1	22.82917	70.56250	5.07	2.59
Jamnagar	Aramda	22.43333	69.04167	5.79	4.73
Jamnagar	Balwa	21.90417	69.95833	21.45	13.28
Jamnagar	Bed1	22.43750	69.90000	8.91	5.38
Jamnagar	Bedanpur	22.68333	70.31667	6.24	4.10
Jamnagar	Bhadthar	22.07917	69.57917	15.10	7.38
Jamnagar	Bhanvad	21.92778	69.79583	14.36	7.77
Jamnagar	Bhatia	22.09167	69.30139	14.02	6.33
Jamnagar	Bhatiya	22.09444	69.26667	4.88	2.18
Jamnagar	Bhogat1	21.99167	69.24583	9.50	5.02
Jamnagar	Changa	22.35000	70.04167	16.09	10.74

Jamnagar	Dhrol2	22.56667	70.41667	5.32	2.74
Jamnagar	Dudhai2	22.79167	70.50417	4.02	1.74
Jamnagar	Dwarka	22.24583	68.95833	8.05	7.82
Jamnagar	Gordhanpur	22.45000	70.00139	12.95	7.27
Jamnagar	Haripur2	22.27083	70.33333	18.79	6.76
Jamnagar	Haryana	22.60833	70.26250	8.68	6.07
Jamnagar	Jambuda	22.52500	70.20417	8.11	4.12
Jamnagar	Jamjodhpur	21.90556	70.03056	7.21	4.80
Jamnagar	Jamnagar1	22.47083	70.05000	13.03	4.83
Jamnagar	Jamnagar2	22.45833	70.07917	7.72	4.26
Jamnagar	Juvanpur	22.17083	69.36667	22.63	11.92
Jamnagar	Kajuda	22.33333	69.70833	6.95	4.07
Jamnagar	Kalawad	22.21667	70.38333	4.15	2.96
Jamnagar	Kalyanpur2	22.01667	69.39167	22.90	12.32
Jamnagar	Khambhaliya	22.20972	69.64583	10.17	4.33
Jamnagar	Khirsara	21.97917	69.60000	13.22	4.89
Jamnagar	Kuvadla	22.20139	69.58333	14.92	8.39
Jamnagar	Lalpur1	22.19167	69.96111	13.93	7.66
Jamnagar	Modpar	21.85833	69.80833	17.40	9.78
Jamnagar	Mojap	22.36667	68.98333	8.56	7.17
Jamnagar	Mota kalawad	21.90833	69.82917	23.03	16.72
Jamnagar	Motagop	22.03750	69.87500	9.06	6.47
Jamnagar	Moti khavdi	22.38750	69.86667	9.99	7.71
Jamnagar	Moti matli	22.31667	70.26389	21.59	8.34
Jamnagar	Nikava	22.19167	70.53333	4.46	2.59
Jamnagar	Pindara1	22.24722	69.25833	7.08	4.44
Jamnagar	Raval	21.92972	69.49194	7.88	3.38
Jamnagar	Salaya	22.30556	69.60417	3.03	2.66
Jamnagar	Samrasar1	22.37500	69.10417	5.58	3.78
Jamnagar	Seth vadala	22.03333	70.12500	11.37	4.89
Jamnagar	Sumana	22.10833	70.16667	12.72	10.11
Jamnagar	Toda	22.06250	70.38333	13.46	5.30
Jamnagar	Vad panchasara	22.23333	70.11667	16.87	8.61
Jamnagar	Vadtara	22.20833	69.50000	12.36	8.21
Jamnagar	Varwada	22.29167	68.96667	15.29	8.45
Jamnagar	Vijarkha	22.41667	70.18333	12.14	6.78
Jamnagar	Vinjalpur	22.15000	69.60000	8.72	5.43
Junagadh	Ajotha	20.90194	70.51806	21.51	6.17
Junagadh	Alwani	21.23056	70.63750	3.46	2.40
Junagadh	Amervel Nes	21.00889	70.72583	5.10	1.98
Junagadh	Antroli	21.23611	70.00694	6.89	4.69
Junagadh	Arena	21.08056	70.17639	12.21	6.42
Junagadh	Bamanwara	21.22083	70.05556	10.68	5.88
Junagadh	Bantva	21.48750	70.08333	19.71	12.21
Junagadh	Bhatsimroli	21.22361	70.18333	21.98	10.59
Junagadh	Bhim Deval	20.97750	70.60917	12.92	4.85
Junagadh	Bilkha	21.43889	70.60000	13.97	8.17
Junagadh	Budhecha	21.09583	70.21667	7.81	4.41
Junagadh	Chorwad	21.04167	70.21667	7.20	4.08
Junagadh	Dhokadva	20.95833	71.07083	13.75	10.19



Junagadh	Gadu	21.05417	70.27917	35.02	21.96
Junagadh	Galodar	21.14722	70.27500	22.49	8.11
Junagadh	Gangda_Pz	20.85833	71.16667	8.78	4.35
Junagadh	Girgadhada	20.92500	70.91667	9.54	6.84
Junagadh	Goraj1	21.18333	70.15417	33.26	9.84
Junagadh	Govindpura2	20.94583	70.39583	29.03	10.35
Junagadh	Jambur[madhapar	21.02917	70.60833	8.86	3.60
Junagadh	Jamvala1	20.98333	70.76250	6.59	5.27
Junagadh	Jargla Jargali	20.88083	70.98417	14.08	2.95
Junagadh	Junagadh	21.50944	70.46222	13.01	10.08
Junagadh	Junagadh1	21.51667	70.45833	12.00	6.00
Junagadh	Juthal	21.16667	70.26667	9.10	8.62
Junagadh	Kalej	21.24861	70.05833	14.40	10.01
Junagadh	Kanek	21.03056	70.24167	14.67	6.96
Junagadh	Kansari	20.87000	71.05111	14.35	9.41
Junagadh	Kesariya1	20.79639	70.94194	14.35	7.46
Junagadh	Kewarda	21.26667	70.20833	16.23	9.26
Junagadh	Khambalia1	21.04444	70.19167	8.94	8.16
Junagadh	Khokharda	21.42083	70.31667	23.11	11.64
Junagadh	Khorada1	21.06389	70.17361	9.18	6.57
Junagadh	Khoras ahir	21.37083	70.33889	13.68	8.75
Junagadh	Kodinar	20.80000	70.69167	12.22	6.93
Junagadh	Kodinar1	20.80000	70.69167	14.36	8.87
Junagadh	Kukaswada	21.05417	70.20833	9.87	6.88
Junagadh	Lohej	21.16667	70.06667	9.75	8.96
Junagadh	Maktupur1	21.14306	70.09583	9.75	8.76
Junagadh	Mandawad	21.35833	70.74583	14.23	8.49
Junagadh	Mangrol	21.12500	70.10833	17.47	16.45
Junagadh	Mangrol1	21.13056	70.11944	13.62	11.78
Junagadh	Manketara	21.15000	70.12917	31.96	18.62
Junagadh	Mendarda	21.32500	70.44028	18.07	11.49
Junagadh	Mendarda1	21.32500	70.43333	16.91	10.24
Junagadh	Moraj	20.98333	70.43611	11.02	5.12
Junagadh	Patla	21.60417	70.56917	9.64	3.43
Junagadh	Prachi_Pz	20.92194	70.61333	18.19	6.69
Junagadh	Prasli	20.85083	70.66917	17.08	4.55
Junagadh	Prempara	21.30000	70.70000	19.79	10.13
Junagadh	Sametar	20.85417	71.12083	16.85	8.96
Junagadh	Sepa	21.11667	70.21944	27.11	19.52
Junagadh	Seriakhan	21.13333	70.24861	20.31	13.77
Junagadh	Shardagram	21.10417	70.15278	11.92	9.90
Junagadh	Sil	21.18556	70.04639	7.25	5.30
Junagadh	Sil bandar	21.22361	70.05556	8.96	5.64
Junagadh	Talala_Pz	21.06389	70.53833	11.33	6.17
Junagadh	Talala1	21.05139	70.52500	11.74	6.73
Junagadh	Una2	20.82500	71.04167	5.89	3.70
Junagadh	Vanthali ii	21.47083	70.32778	13.45	6.47
Junagadh	Visavadar	21.33889	70.74861	15.74	9.53
Kachchh	Asambia mota_Pz	22.96806	69.45139	7.80	6.70
Kachchh	Asambia mota1	22.96806	69.43750	13.05	10.61

Kachchh	Bambhdai	22.93889	69.08278	5.89	5.07
Kachchh	Bhadreshwar	22.90000	69.90000	8.28	6.88
Kachchh	Bhuj (Circuit House)	23.25000	69.66667	14.88	14.06
Kachchh	Chandranagar	23.45000	69.40000	7.61	6.18
Kachchh	Dayapar	23.63056	68.90000	18.13	20.93
Kachchh	Deshalpur rapar	23.74722	70.67917	13.07	11.02
Kachchh	Devisar	23.40278	69.32917	12.50	10.96
Kachchh	Dholavira	23.88333	70.21667	10.54	8.57
Kachchh	Dhori	23.43750	69.75111	16.50	16.15
Kachchh	Dhori1	23.43333	69.75417	15.36	13.42
Kachchh	Dunai	23.05000	69.50000	10.73	9.00
Kachchh	Gagodar	23.41667	70.80000	29.28	26.76
Kachchh	Gandhidham2	23.07556	70.15139	6.55	0.00
Kachchh	Haboi	23.35833	69.86667	1.45	0.70
Kachchh	Kakarwa	23.47500	70.40417	16.76	15.17
Kachchh	Karagoga	22.94167	69.66250	3.20	2.59
Kachchh	Kharoi	23.45417	70.35000	6.67	5.32
Kachchh	Khavada	23.83889	69.73056	6.48	5.01
Kachchh	Kotadi	23.04167	69.19167	8.40	7.52
Kachchh	Kotaya	23.04167	69.07500	10.12	8.70
Kachchh	Kothara	23.16194	68.91194	5.30	4.61
Kachchh	Kuda	23.53444	70.44028	26.21	23.11
Kachchh	Kumbhariya	23.34111	70.72361	7.65	6.94
Kachchh	Lakhpatt	23.82306	68.77500	8.77	5.77
Kachchh	Lilpur	23.51111	70.65000	0.83	0.62
Kachchh	Lodai	23.40000	69.89167	14.72	14.03
Kachchh	Luni	22.87333	69.81167	9.44	7.72
Kachchh	Mandvi (Shitla Mata)	22.83333	69.33333	7.47	4.69
Kachchh	Mata no madh	23.53333	68.95000	11.12	10.10
Kachchh	Mathak1	22.99722	70.02500	10.16	9.31
Kachchh	Mokha	22.95000	69.80000	13.93	0.00
Kachchh	Mothala	23.20833	69.12500	4.04	3.36
Kachchh	Moti cher	23.75833	68.67500	4.09	3.61
Kachchh	Mundra	22.82778	69.72083	5.89	5.07
Kachchh	Naliya	23.25583	68.84000	10.16	8.91
Kachchh	Naliya (Bus S)	23.26667	68.83333	10.56	8.44
Kachchh	Rapar2	23.56667	70.63750	27.04	22.86
Kachchh	Ratanpur Khadir1	23.86083	70.36306	17.09	13.87
Kachchh	Rawapar	23.51667	69.07500	14.38	14.03
Kachchh	Rudramata	23.39167	69.70833	8.86	5.56
Kachchh	Samkhiari	23.30000	70.50833	8.01	4.11
Kachchh	Sedat	23.17139	69.63750	12.60	11.77
Kachchh	Shinaya	23.03333	70.05417	3.42	1.88
Kachchh	Shivlakra	23.37500	70.62361	16.50	8.26
Kachchh	Sukhpar	23.20833	69.61667	14.46	13.52
Kachchh	Tera	23.28333	68.94722	11.64	11.26
Kachchh	Vinjhan1	23.10000	69.02500	9.09	6.54
Kheda	Alina	22.80833	73.05833	10.88	8.88
Kheda	Balasinor	22.95833	73.33611	4.39	2.72
Kheda	Balasinor1	22.95000	73.32500	7.66	3.62

Kheda	Bar	23.16806	73.41111	6.30	3.18
Kheda	Dakor	22.76250	73.16944	7.37	5.34
Kheda	Juna vasadra	23.08333	73.36250	5.44	3.17
Kheda	Kalesar	22.72083	73.19167	4.33	1.93
Kheda	Kapadvanj	23.00417	73.09167	13.44	8.13
Kheda	Kheda	22.73750	72.70417	6.37	0.00
Kheda	Ladvel	22.90833	73.12083	2.70	1.09
Kheda	Mahudha	22.78333	72.94167	5.01	2.84
Kheda	Nadiad2	22.68333	72.88333	9.38	6.91
Kheda	Nes_Pz	22.70833	73.20278	9.18	6.29
Kheda	Sarkhej_Pz-III	22.98611	72.88056	40.31	35.17
Kheda	Shekhupura	22.57500	72.62500	1.26	1.07
Kheda	Thasra	22.79444	73.21111	5.35	2.38
Kheda	Vaso	22.66111	72.75417	6.97	4.31
Kheda	Virpur_Pz	23.19306	73.48528	9.23	4.63
Kheda	Vyas vasna	23.10556	73.10417	25.65	16.26
Mahesana	Asjol	23.50833	72.18333	7.88	4.31
Mahesana	Bhandupara	23.72500	72.38333	9.74	8.45
Mahesana	Budasan	23.28750	72.37500	5.70	2.55
Mahesana	Daran_Pz-III	23.20639	72.27972	3.01	1.99
Mahesana	Dharpura	23.54583	72.11250	8.37	7.04
Mahesana	Dosaj	23.84167	72.45000	9.85	8.58
Mahesana	Jaska(Sy_4")Pz_II	23.82361	72.53472	15.12	15.37
Mahesana	Kalyanpur	23.12694	72.19306	5.47	4.72
Mahesana	Karalli (iii)	23.80417	72.48611	11.29	10.99
Mahesana	Kheralu(shallow	23.89778	72.61056	7.05	5.04
Mahesana	Kheralu1	23.88750	72.61250	13.29	8.97
Mahesana	Maguna	23.57778	72.28889	9.24	6.33
Mahesana	Mau	23.51028	72.51917	9.26	0.00
Mahesana	Modhera iii	23.71667	72.46667	9.83	8.59
Mahesana	Panchot	23.62917	72.34167	6.70	4.20
Mahesana	Rampura1	23.89167	72.51667	9.03	7.88
Mahesana	Sihi	23.80000	72.35000	13.34	10.89
Mahesana	Tarabh	23.75833	72.45833	8.97	6.69
Mahesana	Thol Pz-IV	23.13056	72.37611	21.00	0.00
Mahesana	Unad1	23.84583	72.71667	13.59	12.14
Mahesana	Unawa	23.76667	72.36250	4.81	3.70
Mahesana	Vidaj	23.24722	72.30000	4.73	2.78
Mahesana	Visnagar iv	23.70000	72.53333	3.09	2.30
Narmada	Agar(Rep)_Pz	22.03111	73.65667	10.19	7.63
Narmada	Amayar	21.54722	73.76667	8.70	4.26
Narmada	Baman Phalia_Pz	21.79833	73.37917	19.73	15.92
Narmada	Chikada	21.52083	73.64583	5.45	3.34
Narmada	Dediapada	21.63333	73.58333	7.98	6.58
Narmada	Garudeshwar	21.89167	73.65000	11.70	9.18
Narmada	Hirapura	21.86806	73.60000	5.79	4.01
Narmada	Jankh	21.49222	73.59694	3.53	0.00
Narmada	Kanbi pitha	21.52083	73.64583	3.60	1.90
Narmada	Kewadia_Pz	21.88278	73.70056	5.97	3.24
Narmada	Khaidipada	21.51389	73.51944	5.38	0.46

Narmada	Khota amba	21.73333	73.47500	1.98	1.26
Narmada	Namaria	22.04444	73.62222	4.55	3.05
Narmada	Nani singlot	21.66944	73.66667	9.76	6.97
Narmada	Ralda	21.61000	73.65250	4.78	2.17
Narmada	Rasela	21.92500	73.49167	14.67	15.77
Narmada	Ringani	21.84167	73.46667	2.01	1.85
Narmada	Selemba	21.60833	73.75833	8.86	0.00
Narmada	Sunderpura_Pz	21.83889	73.53472	31.25	27.82
Narmada	Umran	21.48806	73.88306	8.14	0.00
Navsari	Abrama	20.86250	72.90000	3.86	1.07
Navsari	Anklas	20.61944	73.26667	10.24	7.93
Navsari	Chadav	20.83111	73.33444	11.15	4.98
Navsari	Chinam	20.99167	72.88611	3.22	1.92
Navsari	Dandi	20.89167	72.80833	3.86	2.30
Navsari	Duvada	20.82861	73.05750	5.24	4.33
Navsari	Hond	20.73889	73.04583	8.86	3.95
Navsari	Kaliyari	20.72500	73.15000	11.67	2.59
Navsari	Kantasvel	20.79722	73.29167	8.20	3.96
Navsari	Khergam	20.63333	73.09583	8.25	2.89
Navsari	Manav Khadak	20.67417	73.23333	4.03	2.84
Navsari	Moti Valzar	20.80500	73.26667	7.62	3.46
Navsari	Navsari	20.95000	72.93333	28.65	20.49
Navsari	Navsari 1	20.95806	72.93500	5.51	2.26
Navsari	Onjal	20.83333	72.84167	6.22	3.45
Navsari	Panikhadak	20.64917	73.16694	12.68	5.83
Navsari	Pipalkhed	20.67500	73.28333	16.53	5.47
Navsari	Rankuva	20.81250	73.15833	7.48	1.94
Navsari	Sari_khurd	20.78750	72.95417	4.12	2.01
Navsari	Ubhrat	21.00833	72.74583	4.61	2.61
Navsari	Unai	20.85000	73.34167	9.29	5.63
Navsari	Vansda	20.76444	73.36306	11.33	7.94
Panchmahals	Bavaliya	23.32500	73.56944	9.01	4.46
Panchmahals	Bavaliya_Pz	23.30667	73.55500	24.86	4.47
Panchmahals	Gadhar	23.15000	73.77500	12.28	3.51
Panchmahals	Godhra	22.78333	73.60972	4.01	2.01
Panchmahals	Godhra2	22.77083	73.63333	7.30	5.40
Panchmahals	Jambughoda	22.36944	73.72500	7.16	5.77
Panchmahals	Kothamba	23.01944	73.51944	4.65	2.79
Panchmahals	Limbadia peti	23.20417	73.60000	6.12	2.70
Panchmahals	Lunawada	23.12917	73.60833	10.16	7.19
Panchmahals	Malekpur1	23.23056	73.73611	3.62	1.88
Panchmahals	Morwa (Hadaf) Pz-I	22.91806	73.84444	13.29	10.36
Panchmahals	Natapur	22.85722	73.82056	8.73	6.63
Panchmahals	Palla Rajgarh Pz	22.52278	73.70083	24.68	12.28
Panchmahals	Pandarvada	23.37500	73.63333	15.40	4.23
Panchmahals	Pavagadh	22.48750	73.55556	10.16	5.32
Panchmahals	Ranipura	22.72500	73.75833	9.30	4.62
Panchmahals	Santrampur	23.17083	73.90833	9.67	5.36
Panchmahals	Santrampur1	23.19167	73.90833	9.92	4.85
Panchmahals	Santroad	22.80000	73.81250	13.32	8.71

Panchmahals	Shehra	22.95417	73.62500	3.86	1.31
Panchmahals	Shivrajpur	22.42500	73.59167	12.12	6.02
Panchmahals	Suliyat	23.06222	73.85083	19.97	15.49
Panchmahals	Tarkanda	22.54583	73.52917	12.47	3.79
Panchmahals	Tarvada	22.60556	73.52222	13.27	11.65
Panchmahals	Timbi2	22.50833	73.50833	7.14	4.47
Panchmahals	Tuwa	22.80417	73.47083	5.04	3.33
Panchmahals	Ucharpi Pz	23.11917	73.47167	17.76	10.35
Panchmahals	Vejalpur	22.69583	73.55833	6.76	4.00
Patan	Dharmoda	23.69722	72.06944	5.71	4.64
Patan	Dhinoj1	23.66250	72.27917	13.52	12.15
Patan	Harij iii	23.68639	71.89722	12.72	0.00
Patan	Moti chander	23.59444	71.78056	3.16	1.84
Patan	Patan2	23.84167	72.12361	17.42	16.54
Patan	Radhanpur2	23.82500	71.61389	2.06	0.51
Patan	Sander	23.76667	72.25417	15.52	12.16
Patan	Sankheshwar	23.52194	71.79083	2.73	1.21
Patan	Santhalpur	23.75833	71.17500	2.10	1.81
Patan	Shankhari	23.77917	72.16250	17.59	16.97
Porbandar	Adityana	21.70861	69.71083	24.22	13.27
Porbandar	Adwana2	21.91667	69.60000	14.19	8.56
Porbandar	Babda	21.77000	69.58806	15.16	5.57
Porbandar	Bakharla	21.76472	69.66111	23.28	11.55
Porbandar	Bhavpura	21.80972	69.40833	9.87	6.89
Porbandar	Bhod	21.65889	69.82111	25.85	17.41
Porbandar	Degam	21.71028	69.60556	18.45	14.27
Porbandar	Hanumangadh1	21.79306	69.80278	26.91	15.31
Porbandar	Kadegi	21.45056	69.98333	2.84	0.58
Porbandar	Kandorna	21.64778	69.88333	20.36	11.83
Porbandar	Khambodar	21.80833	69.60139	12.02	5.10
Porbandar	Kolikhada	21.69972	69.61417	29.63	19.16
Porbandar	Kuchhadi	21.68333	69.55000	3.11	2.31
Porbandar	Kutiyana_Pz	21.62222	69.99722	14.12	5.39
Porbandar	Kutiyana1	21.63056	70.01667	13.68	5.37
Porbandar	Miyani	21.83333	69.38889	7.57	6.28
Porbandar	Mojiwana	21.88583	69.60028	14.97	6.28
Porbandar	Navibandar	21.44583	69.79167	5.43	3.84
Porbandar	Oddar	21.56667	69.68056	6.60	6.01
Porbandar	Palkhada1	21.75833	69.48750	13.12	7.51
Porbandar	Pata	21.29722	69.94167	5.55	4.22
Porbandar	Porbandar	21.64500	69.64250	5.96	2.61
Porbandar	Porbandar1	21.64167	69.62500	4.40	3.46
Porbandar	Ranavav2	21.68333	69.74583	18.11	9.09
Porbandar	Ratadi	21.72028	69.51194	7.26	5.28
Porbandar	Simar	21.94694	69.68583	15.69	8.08
Porbandar	Tukda	21.51611	69.72861	3.82	2.50
Porbandar	Visavada Mul Dwarka	21.78556	69.44639	9.56	7.71
Rajkot	Amar nagar	22.93333	70.80833	3.53	3.02
Rajkot	Bhada jodiya	21.66250	70.34167	20.06	10.21
Rajkot	Bhadla	22.18333	71.09167	18.15	11.56

Rajkot	Bhalgam	22.44167	71.08333	14.99	7.74
Rajkot	Chhatar	22.50417	70.75417	6.47	4.14
Rajkot	Chordi	21.91667	70.74861	10.33	7.41
Rajkot	Dadia	22.09167	70.73333	12.76	7.68
Rajkot	Dhoraji	21.74583	70.28583	18.82	10.92
Rajkot	Ganod	21.67500	70.17917	5.16	3.39
Rajkot	Gavridad	22.40000	70.79583	9.32	6.81
Rajkot	Gogavadar	21.96667	70.87500	10.60	5.93
Rajkot	Hadmatia	22.68333	70.80833	9.01	6.14
Rajkot	Halenda	22.09167	71.05000	9.00	3.02
Rajkot	Jamwali	21.93333	70.76667	7.56	3.60
Rajkot	Jasapur	21.89167	70.48333	12.92	8.80
Rajkot	Jasdan	22.04444	71.21389	9.03	5.95
Rajkot	Jasdan2	22.05833	71.22083	11.40	6.95
Rajkot	Jetpur	21.75611	70.61944	13.70	5.96
Rajkot	Jetpur pithad.	21.77500	70.63333	15.13	8.19
Rajkot	Kalithad1	22.01944	70.66028	8.44	5.51
Rajkot	Kalyanpur2	22.65833	70.73333	8.07	4.36
Rajkot	Kamlapur	22.14583	71.20000	14.42	12.94
Rajkot	Kamlapur1	22.15194	71.19972	12.40	7.33
Rajkot	Khamta	22.47500	70.55000	13.93	7.48
Rajkot	Khirsara1	22.24167	70.64583	17.50	8.55
Rajkot	Lajai	22.71667	70.77917	6.68	3.75
Rajkot	Lalavadar	22.13333	71.30417	12.11	5.99
Rajkot	Lodhika1	22.14167	70.64167	10.00	5.49
Rajkot	Macchukunda	23.00139	70.89583	6.09	4.82
Rajkot	Malia	23.09167	70.76250	2.97	2.29
Rajkot	Modpar1	22.90000	70.66667	3.07	1.91
Rajkot	Morvi	22.81667	70.84167	3.69	2.08
Rajkot	Mota Dadwa	21.99833	70.99389	12.51	5.64
Rajkot	Mota dhansura	22.95833	70.61667	8.94	5.96
Rajkot	Motagundala	21.73472	70.50139	10.27	6.04
Rajkot	Movaiya	22.45000	70.60833	11.93	7.71
Rajkot	Neknam	22.50417	70.69583	14.54	10.46
Rajkot	Nichi mandal	22.85833	70.95000	6.21	4.26
Rajkot	Padadhari1	22.44722	70.60833	7.74	5.56
Rajkot	Patanvav	21.64444	70.26111	17.34	7.67
Rajkot	Pedhla	21.75139	70.59167	21.79	12.52
Rajkot	Rajkot	22.30556	70.80833	5.55	3.57
Rajkot	Rajkot1	22.30000	70.80000	8.10	4.54
Rajkot	Ranpur1	22.36667	70.92917	15.24	10.69
Rajkot	Ribda	22.12500	70.76667	11.57	6.62
Rajkot	Sardhar2	22.14167	70.98333	6.09	0.00
Rajkot	Sarvad	23.00639	70.70694	2.74	1.32
Rajkot	Sindhavadar	22.55000	70.89167	12.61	10.11
Rajkot	Targhari	22.38333	70.66667	7.98	5.39
Rajkot	Umralli	21.91944	70.60417	9.73	5.41
Rajkot	Upleta1	21.74861	70.27500	7.51	6.18
Rajkot	Vinchhia	22.20833	71.37917	5.41	3.11
Rajkot	Viranagar	22.02500	71.12500	10.84	6.43

Rajkot	Virpur1	21.85000	70.69583	10.49	7.98
Rajkot	Wankaner-1	22.62083	70.92917	6.66	4.89
Sabarkantha	Alwakampa	23.27472	73.20833	14.60	7.39
Sabarkantha	Anwarpura Pz	23.40556	72.84556	39.26	38.48
Sabarkantha	Atarsumba	23.98611	73.20833	10.57	6.04
Sabarkantha	Bayad_Pz	23.21667	73.22917	10.60	9.48
Sabarkantha	Bhadreshwar	23.74583	72.97917	27.18	23.42
Sabarkantha	Bhiloda_Pz	23.76667	73.25000	9.03	3.44
Sabarkantha	Bibipur1	23.25278	73.21250	17.26	0.00
Sabarkantha	Boral	23.12500	73.20833	18.40	10.76
Sabarkantha	Boriya	23.24278	72.94083	7.62	6.50
Sabarkantha	Chandap_Pz	23.93194	72.85694	14.40	8.66
Sabarkantha	Choriwad	23.90000	73.11944	26.00	20.13
Sabarkantha	Derol Pz-II	23.59944	72.90250	46.52	42.52
Sabarkantha	Dhansura1	23.35000	73.20000	10.34	4.42
Sabarkantha	Gadha	23.70833	72.94167	19.07	15.04
Sabarkantha	Hamirpur	23.40833	73.45833	16.53	9.68
Sabarkantha	Harsol1	23.37778	73.01667	16.32	11.04
Sabarkantha	Himmatnagar_Pz	23.60833	72.97083	9.26	7.70
Sabarkantha	Idar	23.84167	73.03750	9.03	5.21
Sabarkantha	Jhaloti	23.95000	73.33750	11.27	5.13
Sabarkantha	Karanpur	23.33333	73.30000	12.32	9.29
Sabarkantha	Khedbrahma_Pz	24.03611	73.04444	4.73	2.06
Sabarkantha	Malpur_Pz	23.34167	73.46806	14.51	7.90
Sabarkantha	Matoda	24.11111	73.00833	17.54	10.35
Sabarkantha	Modasa	23.46250	73.30833	7.41	6.16
Sabarkantha	Panvath/porvad	23.89722	73.33194	9.96	6.18
Sabarkantha	Poshina2	24.37500	73.03333	7.50	3.37
Sabarkantha	Punasan	23.66944	73.17361	7.36	5.39
Sabarkantha	Ratanpur	24.20833	72.99861	14.94	11.44
Sabarkantha	Revas	23.82083	73.11667	20.98	12.83
Sabarkantha	Sathamba	23.17500	73.33750	17.43	6.37
Sabarkantha	Seenawad	23.48639	73.39861	11.47	4.53
Sabarkantha	Shamlaji	23.68611	73.36667	13.17	9.25
Sabarkantha	Silwad	24.00833	73.11667	12.90	7.67
Sabarkantha	Varvada	23.44194	73.05667	14.62	11.13
Sabarkantha	Vejpur_Pz	23.79722	73.22083	17.30	5.29
Sabarkantha	Vijaynagar	24.00833	73.35417	9.20	2.32
Sabarkantha	Vijaynagar_Pz	24.00694	73.33333	12.60	4.75
Sabarkantha	Virpur (Himmat)	23.65417	72.95833	11.29	6.54
Sabarkantha	Virpur (Idar)	23.78333	72.93333	15.03	0.00
Sabarkantha	Wadali	23.93333	73.03333	29.28	17.29
Sabarkantha	Waliampura Pz	23.35111	72.97083	38.07	37.16
Surat	Allu	21.06250	73.19167	3.90	2.71
Surat	Bardoli	21.11528	73.10000	6.97	3.81
Surat	Bedchit	20.95000	73.35139	10.15	5.18
Surat	Bhatkol	21.38028	73.00417	4.10	3.06
Surat	Bhurvel (ukai)	21.22500	73.57917	5.09	2.52
Surat	Chapawadi	21.15139	73.39361	6.81	2.79
Surat	Chavada	21.47472	73.59500	3.87	1.83

Surat	Digas	21.24833	73.02556	11.53	4.90
Surat	Dungri	21.40833	73.13333	10.81	3.16
Surat	Gandhinagar	21.16417	73.69556	6.38	2.67
Surat	Gangadhra	21.11861	73.07528	9.93	7.43
Surat	Jesingpura[sg]	21.17083	73.55417	7.90	6.13
Surat	Jhankhavav	21.45000	73.32917	7.40	4.41
Surat	Jhankhvav	21.46667	72.95278	9.33	4.07
Surat	Juna umarpada	21.45833	73.49167	5.51	2.83
Surat	Kadod 1	21.22139	73.21889	6.52	6.51
Surat	Karanjvel	21.01278	73.45806	8.67	4.65
Surat	Kasal	21.32222	73.12694	7.47	3.65
Surat	Kathor	21.29167	72.92917	13.54	9.93
Surat	Kelkui	21.04194	73.32333	2.57	1.80
Surat	Khedwada (Ashram Falia)	21.28111	73.46528	7.48	5.25
Surat	Kherwa	21.41889	73.95972	5.84	1.16
Surat	Kosamba	21.46667	72.95278	20.14	18.24
Surat	Madhi	21.14167	73.25417	5.35	0.00
Surat	Mahuva2	21.02083	73.14583	17.75	15.75
Surat	Malda	21.36667	73.35000	7.98	3.21
Surat	Mandvi2	21.25417	73.29583	13.87	11.07
Surat	Mota	21.17028	73.06861	3.24	2.11
Surat	Moti Sarkui	21.27917	73.34972	9.07	4.13
Surat	Motichher	21.21250	73.36222	4.34	2.41
Surat	Navi pardi	21.32222	72.97083	3.41	3.16
Surat	Nizar	21.48056	74.20000	15.28	13.11
Surat	Nizar1	21.47722	74.19056	11.39	8.32
Surat	Nogama	21.29083	73.21444	3.15	1.77
Surat	Olpad2	21.34167	72.75833	2.52	1.82
Surat	Palsana	21.07778	72.99167	2.80	1.42
Surat	Paneshwar	21.45417	73.19833	14.49	7.59
Surat	Puna	20.92361	73.23333	12.74	7.82
Surat	Puna1	20.92917	73.22917	10.06	5.48
Surat	Sachin town	21.09167	72.87500	3.77	2.04
Surat	Sarbhon	21.05833	73.09167	3.82	2.56
Surat	Sultanabad	21.09167	72.72500	5.94	4.54
Surat	Tawali	21.37611	73.90167	7.68	4.84
Surat	Ten-bardoli	21.11667	73.10000	7.29	3.31
Surat	Tokarwa 1	21.31000	73.85111	8.10	4.03
Surat	Uchchhal	21.17194	73.76917	11.76	7.65
Surat	Ushker	21.34056	73.09778	5.45	4.58
Surat	Vadade-Khurd	21.25167	73.81694	3.15	0.94
Surat	Vaheval	20.83722	73.28778	11.38	4.07
Surat	Valod	21.05000	73.26667	4.95	2.54
Surat	Vyara1	21.10833	73.39583	4.24	3.49
Surat	Wadoli	21.42500	72.82917	1.82	1.15
Surendranagar	Adriyana	23.42500	71.70833	3.09	3.18
Surendranagar	Anindra	22.81028	71.70583	6.74	2.28
Surendranagar	Bajana	23.11667	71.78333	2.40	2.16
Surendranagar	Bamanbor	22.41667	71.04167	9.83	6.98
Surendranagar	Chotila1	22.42500	71.18167	10.42	6.02



Surendranagar	Dasada	23.32000	71.82417	5.11	3.81
Surendranagar	Dasada1	23.32083	71.82917	2.81	2.98
Surendranagar	Dedadra	22.77500	71.73333	4.38	3.04
Surendranagar	Dhandhalpur 1	22.38139	71.35083	9.36	3.06
Surendranagar	Halvad2	23.02083	71.18750	13.83	11.33
Surendranagar	Jhinjuwada	23.35000	71.65833	7.55	5.48
Surendranagar	Juna Devaliya 1	22.97944	71.00889	3.49	2.32
Surendranagar	Kharaghoda	23.18750	71.75000	1.74	1.83
Surendranagar	Kherwa	23.00417	71.74583	3.49	1.35
Surendranagar	Lakhtar	22.85833	71.78333	5.00	3.54
Surendranagar	Latuda	22.81306	71.60806	4.77	3.28
Surendranagar	Limbdi1	22.56667	71.81250	3.08	1.95
Surendranagar	Limbdi-Pz	22.57222	71.80833	2.73	1.74
Surendranagar	Mathak2	22.84167	71.05833	11.99	11.51
Surendranagar	Miani	23.11250	71.12917	2.49	2.20
Surendranagar	Moti Moladi	22.42083	71.11028	11.65	7.18
Surendranagar	Muli	22.65000	71.46667	9.79	6.52
Surendranagar	Olak	22.91861	71.86333	7.20	3.44
Surendranagar	Pipli	23.06000	71.73417	0.94	0.18
Surendranagar	Rajsitapur	22.84167	71.59167	7.53	3.30
Surendranagar	Ratanpur1	22.85833	71.27083	8.37	6.15
Surendranagar	Sara	22.80000	71.19722	3.06	2.77
Surendranagar	Sarla	22.73333	71.36667	14.02	8.88
Surendranagar	Sayala	22.53333	71.48333	14.87	6.49
Surendranagar	Shiyani	22.66667	71.82917	4.37	2.93
Surendranagar	Sudamda	22.45417	71.48500	5.56	2.63
Surendranagar	Sukhpar1	23.00833	71.28333	7.13	3.27
Surendranagar	Surendranagar	22.72361	71.67083	3.52	1.89
Surendranagar	Surendranagar2	22.71667	71.60833	5.16	4.88
Surendranagar	Tarnetar	22.64167	71.21667	18.43	15.39
Surendranagar	Vanala	22.43333	71.92083	4.00	2.81
Surendranagar	Visawadi	23.34167	71.73333	4.30	3.17
Surendranagar	Vitthalgarh	22.98750	71.97500	8.54	5.94
The dangs	Aherdi	20.69167	73.61667	4.77	1.67
The dangs	Ahwa_Pz	20.75889	73.68611	3.63	2.46
The dangs	Ahwa1	20.75833	73.68333	4.04	1.13
The dangs	Bari Pada	20.64000	73.69139	11.53	0.57
The dangs	Bori Gaotha 1	20.81083	73.50306	9.23	4.35
The dangs	Chikhli	20.65833	73.68750	9.06	0.94
The dangs	Chinchnogaotha	20.80833	73.55278	7.58	2.22
The dangs	Chinchpada	20.63750	73.77500	6.10	1.16
The dangs	Dhumkal	20.64583	73.79167	4.23	1.17
The dangs	Gadad	20.63750	73.77500	5.06	2.13
The dangs	Ghubita	20.80000	73.73750	2.79	0.68
The dangs	Jakana	20.63333	73.74583	5.70	1.20
The dangs	Jamalpada	20.73167	73.52056	6.98	4.22
The dangs	Kalibel	20.92083	73.58056	3.37	0.94
The dangs	Mahal	20.91667	73.67917	5.81	3.05
The dangs	Malegaon	20.60000	73.74583	4.09	0.68
The dangs	Nadak khadi	20.80417	73.61250	5.91	1.63

The dangs	Nana pada	20.70000	73.58333	7.70	2.26
The dangs	Sakarpatal	20.71944	73.55694	6.06	1.42
The dangs	Sodmal	20.86667	73.61667	11.19	2.00
The dangs	Subir	20.92222	73.58056	6.60	1.17
The dangs	Umberpada	20.68333	73.72500	5.74	1.43
The dangs	Vaghai	20.76389	73.50444	12.71	8.32
The dangs	Vazat Amba	20.87833	73.51833	6.72	3.44
Vadodara	Alladpur	22.25000	73.71667	8.52	8.12
Vadodara	Amreshwar	22.22778	73.48333	4.12	2.35
Vadodara	Asala	22.38333	73.93333	11.58	5.82
Vadodara	Baladgam	22.13750	74.00833	12.76	9.27
Vadodara	Bhindol	22.20000	73.90000	9.42	4.82
Vadodara	Bodeli	22.27083	73.71667	3.72	1.83
Vadodara	Chavaria	22.18750	73.98750	11.96	11.63
Vadodara	Chella Karamsiya Pz	22.39667	73.43222	4.03	2.11
Vadodara	Chhaliyar	22.66667	73.31667	22.36	21.66
Vadodara	Chhota udepur	22.30833	74.01667	7.59	3.65
Vadodara	Chisadia	22.40000	74.13333	11.88	11.57
Vadodara	Chitral PZ_II	22.18194	72.94583	25.46	24.40
Vadodara	Chota udepur	22.30833	74.01667	8.55	0.00
Vadodara	Devat (thadgam)	22.10000	73.98333	10.23	6.65
Vadodara	Ferkuva	22.36667	74.20833	7.87	3.71
Vadodara	Ghamodi	22.36667	74.07500	8.71	5.18
Vadodara	Ghayaj ii	22.23333	73.05417	26.04	22.91
Vadodara	Govindpura	22.21111	73.74139	6.77	3.93
Vadodara	Jojh	22.44167	73.96250	12.82	8.40
Vadodara	Juna samalya	22.50417	73.28333	12.52	10.70
Vadodara	Kaprali	21.97917	73.94167	8.01	2.60
Vadodara	Karamasiya	22.42083	73.41944	11.62	8.24
Vadodara	Kevadi	22.51667	73.94167	6.96	4.35
Vadodara	Kosindra Pz-I	22.14667	73.75556	3.02	2.92
Vadodara	Makni	22.22500	73.67917	9.83	8.47
Vadodara	Masor	22.14167	72.90833	13.54	12.07
Vadodara	Moti chikhali	22.01111	74.08333	4.24	2.98
Vadodara	Panwad	22.20000	74.04167	14.11	5.64
Vadodara	Patiyapura	22.27500	73.44167	8.93	5.32
Vadodara	Pavi	22.34167	73.83333	4.96	3.76
Vadodara	Pitha	22.25417	73.64167	8.70	5.41
Vadodara	Rasulpur	22.60000	73.23333	5.02	0.00
Vadodara	Saidal	22.28333	73.50278	3.11	1.83
Vadodara	Saidivasana	22.05833	74.01667	6.40	3.03
Vadodara	Sankarda1	22.43889	73.12222	31.54	0.00
Vadodara	Sankheda	22.53889	73.17500	26.51	19.71
Vadodara	Sengpur	22.03750	73.88750	10.61	5.73
Vadodara	Sinor	21.91250	73.34167	23.81	22.36
Vadodara	Tokri	22.14722	74.02778	14.53	6.40
Vadodara	Tundav	22.48333	73.20278	13.47	8.65
Vadodara	Vadodara li	22.30472	73.27167	6.78	5.89
Vadodara	Vadtalav Pz	22.25861	73.78389	12.89	9.07
Vadodara	Vagudan	22.06667	74.14167	6.79	5.37

Vadodara	Vega	22.15944	73.41250	6.38	3.99
Vadodara	Vejpur2	22.74722	73.35556	2.61	1.80
Vadodara	Waghach	22.07083	73.85000	9.95	6.27
Vadodara	Waghodia Pz	22.36389	73.37694	7.34	4.70
Vadodara	Wankaner2	22.53889	73.17500	40.95	0.00
Valsad	Awadha	20.51667	73.28750	4.66	4.64
Valsad	Chavshala	20.32833	73.32583	5.30	1.37
Valsad	Dahli (bhilad)	20.25833	72.88333	4.61	2.42
Valsad	Dharampur 3	20.53083	73.16250	12.85	8.31
Valsad	Dharampur1	20.53639	73.17056	10.70	4.69
Valsad	Dungri	20.68861	72.94944	10.00	4.84
Valsad	Fali	20.31306	73.37611	11.69	1.07
Valsad	Kanadu	20.32500	72.84167	6.18	3.19
Valsad	Kaparda	20.34167	73.21667	6.44	2.06
Valsad	Karwad	20.36250	72.97500	4.62	3.28
Valsad	Lakadmal	20.46667	73.15833	8.16	3.67
Valsad	Muli1	20.63333	73.02500	3.57	1.95
Valsad	Nanaponda	20.41389	73.12083	10.37	5.17
Valsad	Tithal	20.60000	72.90000	7.96	5.68
Valsad	Tumb	20.21667	72.84167	4.51	2.87
Valsad	Udwada	20.46361	72.91806	6.55	1.88
Valsad	Umargaon	20.19167	72.75000	4.00	3.46
Valsad	Valsad1	20.60556	72.92778	21.62	8.47
Valsad	Vapi Balitha	20.38028	72.90444	9.93	4.10

## Annexure V

## WATER QUALITY DATA OF NATIONAL HYDROGRAPH NETWORK STATIONS OF GUJARAT MAY 2018

District	Location	pH	EC	TDS	CO3	HCO3	Cl	NO3	S04	F	Alkalinity	Ca	Mg	TH	Na	K	SAR
Ahmedabad	Ayodhyapuram	8.54	2394	1604	132	671	284	26	119	1.8	770	32	39	240	475	7.9	16.7
Ahmedabad	Barvala	8.52	5749	3852	168	830	767	19	860	1.8	960	40	68	380	1198	0.3	20.0
Ahmedabad	Dalod	8.5	20980	14057	200	1025	6000	78	557	3.5	1173	200	1277	5750	2016	63	11.6
Ahmedabad	Devaliya	8.23	2618	1754	0	524	412	43	236	0.88	430	24	24	160	525	1.4	14.2
Ahmedabad	Dhandhuka	8.19	14330	9601	0	1232	3124	1058	906	5.0	1010	120	304	1550	3025	20	38.7
Ahmedabad	Endla	8.03	755	506	0	354	50	16	16	0.52	290	52	34	270	45	10	1.2
Ahmedabad	Ghuma	7.57	4245	2844	0	817	717	43	342	0.75	670	108	117	750	474	200	7.5
Ahmedabad	Kundal	7.96	1951	1307	0	427	298	2	188	1.53	350	36	24	190	363	1.48	11.4
Ahmedabad	Rajpara	7.98	679	455	0	244	64	23	25	0.65	200	28	27	180	70	0.5	15.1
Ahmedabad	Tagadi	8.12	3430	2298	0	500	515	85	394	0.73	410	144	107	800	380	30	33.6
Ahmedabad	Vallabipur	8.30	6845	4586	0	976	1740	9.6	594	1.7	800	100	134	800	1310	1.3	30.1
Amreli	Ankadia Mota	8.12	1051	704	0	403	78	72	31	0.41	330	40	44	280	118	0.7	18.4
Amreli	Bagasara	7.82	2812	1884	0	366	540	158	205	0.50	300	120	126	820	274	0.90	31.8
Amreli	Bhavardi	7.94	1370	918	0	573	128	18	60	0.39	470	108	56	500	93	7.4	29.1
Amreli	Bherai	8.14	3602	2413	0	573	852	8.0	104	0.45	470	64	129	740	489	30	28.3
Amreli	Bhuva	8.09	10470	7015	0	952	2840	180	607	1.2	780	100	207	1100	2030	115	33.2
Amreli	Chalala	7.57	4609	3088	0	451	1108	183	124	0.15	370	152	223	1300	463	0.50	37.9
Amreli	Chavand	8.05	587	393	0	293	36	10	25	0.32	240	36	24	190	64	0.30	16.9
Amreli	Govadka	7.91	2740	1836	0	354	568	131	191	0.45	290	88	112	680	350	0.90	27.9
Amreli	Hippavadli	9.11	2282	1529	168	805	99	34	34	1.4	940	16	24	140	465	4.8	12.4
Amreli	Kadiyali	7.87	4827	3234	0	586	1278	23	64	1.3	480	240	68	880	697	11	46.4
Amreli	Kerala	8.06	1599	1071	0	500	263	25	32	0.25	410	32	22	170	304	0.9	15.8
Amreli	Khambha	7.76	1008	675	0	366	85	103	40	0.24	300	52	54	350	89	0.40	20.7
Amreli	Kunkvav	7.99	1305	874	0	293	227	32	60	0.45	240	88	51	430	103	1.2	26.2
Amreli	Lathi	7.80	1749	1172	0	573	284	14	65	0.36	470	44	75	420	251	0.60	21.1
Amreli	Luvaria	8.22	931	624	0	488	28	9.5	9.0	3.9	400	8	10	60	184	0.40	8.3
Amreli	Mandal	7.99	2772	1857	0	427	596	139	63	0.76	350	80	34	340	479	4.2	25.4
Amreli	Piyava	8.30	1454	974	0	708	92	29	20	0.45	580	20	39	210	253	1.6	14.6
Amreli	Punjabadar	7.99	628	421	0	329	36	4.0	17	0.86	270	24	7.0	90	108	7.2	14.8
Amreli	Tajpur	7.82	331	222	0	171	21	1.0	17	0.30	140	28	19	150	18	2.3	15.0
Amreli	Timbi	7.84	3151	2111	0	549	575	188	198	0.93	450	48	107	560	450	32	23.5

Amreli	Trakuda	7.95	1056	708	0	268	170	9.0	76	0.38	220	64	29	270	117	11	21.8
Amreli	Untvad	7.75	1088	729	0	281	121	200	34	0.41	230	92	46	420	77	0.7	26.9
Amreli	Vaghania Juna	8.25	1895	1270	0	366	333	124	150	0.64	300	16	65	310	350	11.3	16.7
Amreli	Vanda	8.54	4072	2728	204	1122	469	28	145	1.2	1260	80	15	260	838	0.90	29.2
Amreli	Vankiya	7.97	680	456	0	256	57	39	30	0.36	210	52	32	260	42	0.23	20.0
Amreli	Vankiya	8.29	918	615	0	427	57	19	26	0.51	350	16	17	110	168	0.90	11.6
Anand	Adas DW	8.25	1354	907	0	561	99	80	70	0.46	460	24	133	610	64	1.2	23.0
Anand	Anand	7.83	1567	1050	0	720	128	21	76	0.65	590	84	56	440	185	4.4	3.8
Anand	Anklav2	8.13	1174	787	0	561	92	37	33	0.43	460	20	68	330	148	1.7	17.4
Anand	Bhadran (Utiyapara)	8.2	1325	888	0	622	99	32	49	0.79	510	32	90	450	128	1.3	2.6
Anand	Boriyavi	8.15	1095	734	0	488	107	27	38	0.52	400	20	56	280	142	16.5	16.3
Anand	Dharmaj	8.3	1386	929	0	549	142	41	38	0.61	450	24	46	250	216	2.5	16.0
Anand	Kansari1	7.94	3524	2361	0	610	794	6.8	49	0.42	500	52	22	220	650	21	19.1
Anand	Parvata	7.45	1043	699	0	500	71	19	46	0.99	410	32	51	290	130	0.7	3.3
Anand	Ras	8.54	1446	969	60	573	128	13	32	3.0	470	12	17	100	323	1.4	14.0
Anand	Tol	8.11	679	455	0	305	57	5.0	37	0.77	250	36	34	230	57	10.2	17.1
Banaskantha	Amirgadh	8.35	2031	1361	60	439	341	53	123	0.83	460	44	102	530	285	2.2	5.4
Banaskantha	Bharol1	8.48	705	472	60	293	50	4.9	15	0.45	340	80	24	300	32	49	0.8
Banaskantha	Dantiwada	8.15	492	330	0	220	43	34	16	0.33	180	56	22	230	28	0.62	0.8
Banaskantha	Gangodra	8.02	566	379	0	232	57	42	22	0.28	190	48	34	260	35	0.94	0.9
Banaskantha	Iqbalgarh	8.12	3043	2039	0	439	710	34	110	2.7	360	180	107	890	300	14	4.4
Banaskantha	Jhat	8.6	1343	900	48	439	135	25	75	1.4	440	16	15	100	295	26	13.0
Banaskantha	Khoda	8.23	1786	1197	0	451	320	0.96	126	1.9	370	20	24	150	368	4.5	13.0
Banaskantha	Kidotar	8.18	1200	804	0	647	121	19	25	0.80	530	68	58	410	150	6.0	3.2
Banaskantha	Meda	7.8	810	543	0	183	114	65	39	0.52	150	68	24	270	72	2.3	1.9
Banaskantha	Palanpur2	8.02	1421	952	0	305	227	116	63	0.70	250	48	51	330	188	0.68	4.5
Banaskantha	Ratanpur2	7.8	1151	771	0	146	192	127	68	0.15	120	108	36	420	78	4.1	1.7
Banaskantha	Sodapur	8.25	801	537	0	366	64	20	41	1.45	300	20	22	140	145	1.9	5.3
Bharuch	Arethi	7.45	882	591	0	220	43	172	26	0.24	180	60	39	310	59	0.57	1.5
Bharuch	Bharuch	7.34	4250	2848	0	415	922	410	61	0.29	340	72	202	1010	514	2.2	7.03
Bharuch	Bhensli	7.98	2920	1956	0	549	418	360	44	0.74	450	44	61	360	500	14	11.5
Bharuch	Chhindra	7.95	1075	720	0	366	78	75	63	0.40	300	64	44	340	65	47	1.5
Bharuch	Dahegam	7.64	1010	677	0	366	92	30	50	0.18	300	44	71	400	32	31	0.7
Bharuch	Ilav	7.94	2550	1709	0	793	142	310	124	2.5	650	24	10	100	541	1.6	23.5
Bharuch	Jambusar2	7.82	4330	2901	0	390	929	455	72	0.86	320	52	51	340	839	1.8	19.8
Bharuch	Jetpur1_(नवी नगरी)	7.49	4350	2915	0	439	908	475	51	0.29	360	88	92	600	714	17	12.7
Bharuch	Jokhla	7.51	989	663	0	427	71	14	42	1.2	350	48	41	290	96	0.51	2.5

Bharuch	Juna Borbhata	7.76	3500	2345	0	537	610	385	69	0.66	440	52	58	370	618	31	14.0
Bharuch	Kalak 1	8.01	1170	784	0	171	220	112	21	0.35	140	44	29	230	159	7.0	4.6
Bharuch	Kaswa	7.81	2570	1722	0	842	206	238	70	1.3	690	40	24	200	498	2.7	15.3
Bharuch	Kavi	7.81	1715	1149	0	207	326	198	27	0.29	170	40	39	260	273	7.4	7.4
Bharuch	Kondh	7.64	670	449	0	268	64	12	13	0.76	220	48	10	160	79	1.0	2.7
Bharuch	Luhara	7.67	405	271	0	183	14	26	5	0.26	150	36	19	170	13	2.0	0.4
Bharuch	Mahegam1	7.77	1270	851	0	159	156	259	18	0.22	130	28	34	210	192	7.0	5.8
Bharuch	Modoliya	7.32	1695	1136	0	317	326	52	89	0.21	260	88	128	745	45	0.50	0.7
Bharuch	Mokhdi	7.06	1180	791	0	354	170	36	27	0.25	290	72	80	510	35	0.35	0.7
Bharuch	Motwan	7.38	740	496	0	232	71	64	15	0.48	190	40	39	260	49	2.3	1.3
Bharuch	Mulad	7.51	3255	2181	0	427	539	472	34	0.42	350	40	54	320	600	6.8	14.6
Bharuch	Navetha	7.81	650	436	0	183	99	22	13	0.29	150	32	27	190	59	4.3	1.9
Bharuch	Netrang1	7.16	1213	813	0	232	206	88	34	0.18	190	128	46	510	39	0.30	0.8
Bharuch	Nirnavi	7.63	1655	1109	0	317	305	212	26	0.56	260	48	32	250	307	4.7	8.4
Bharuch	Panoli	7.89	2700	1809	0	635	291	358	55	1.5	520	28	34	210	522	3.2	15.7
Bharuch	Rayma	7.81	720	482	0	146	113	58	23	0.17	120	8	44	200	73	1.7	2.2
Bharuch	Roja Tankaria	7.44	5420	3631	0	439	1135	482	305	0.15	360	88	195	1020	771	11	10.5
Bharuch	Sahol	7.53	4040	2707	0	415	638	314	560	0.68	340	84	78	530	681	4.9	12.9
Bharuch	Sajod	8.01	2401	1609	0	720	362	45	69	2.8	590	24	32	190	463	2.9	14.6
Bharuch	Sarod	7.28	1119	750	0	317	170	41	14	0.46	260	40	49	300	116	4.4	2.9
Bharuch	Sindhav	7.98	1530	1025	0	512	121	155	14	0.1	420	28	19	150	269	27	9.6
Bharuch	Tankari	8.01	8614	5771	0	757	1582	495	1164	2.0	620	28	41	240	1860	22	52.2
Bharuch	Utraj	7.99	962	645	0	378	57	67	24	0.64	310	60	34	290	86	2.4	2.2
Bharuch*	Manad(मनाड)	7.71	1798	1205	0	476	234	152	23	0.41	390	64	80	490	182	10	3.6
Bhavnagar	Aambla	8.13	697	467	0	280	78	13	45	0.79	230	32	49	280	56	2.8	17.4
Bhavnagar	Bhavnagar	7.92	1154	773	0	415	142	32	57	0.41	340	40	41	270	164	0.50	18.3
Bhavnagar	Bora	8.46	1607	1077	108	549	107	68	81	1.7	630	16	19	120	360	2.6	12.0
Bhavnagar	Datha	8.11	1214	813	0	464	178	7.5	15	1.2	380	40	29	220	204	4.9	17.8
Bhavnagar	Dhasa	8.02	1342	899	0	598	142	28	45	0.63	490	76	41	360	188	4.9	24.4
Bhavnagar	Gadhada	7.77	1145	767	0	488	128	5.2	15	0.27	400	68	49	370	110	2.2	23.0
Bhavnagar	Gogha	8.08	6158	4126	0	695	1420	320	298	0.71	570	140	73	650	1124	11	33.1
Bhavnagar	Kundheli	7.96	292	196	0	159	21	0.60	7	0.26	130	24	22	150	8.0	2.2	13.9
Bhavnagar	Longadi	8.17	705	472	0	354	43	4.9	26	0.88	290	36	22	180	80	25	16.7
Bhavnagar	Mahuva	8.26	3872	2594	0	903	724	66	171	1.2	740	24	29	180	836	1.9	14.5
Bhavnagar	Motivadal	8.07	1320	884	0	439	199	19	70	0.33	360	40	90	470	106	9.0	21.5
Bhavnagar	Ningala	8.19	918	615	0	390	71	14	39	0.76	320	16	19	120	163	1.0	12.0
Bhavnagar	Panchpipla	8.12	1296	868	0	451	170	19	46	0.79	370	32	43	260	188	1.0	17.2

Bhavnagar	Sanjnasar	7.95	784	525	0	378	71	10	17	0.80	310	68	24	270	76	6.0	24.0
Bhavnagar	Talaja	7.87	1986	1331	0	195	497	70	106	0.64	160	76	124	700	156	0.80	27.3
Bhavnagar	Tatum	7.92	3247	2175	0	305	710	136	206	0.45	250	200	78	820	370	3.0	40.4
Bhavnagar	Thardera	7.97	2769	1855	0	366	454	269	170	0.47	300	136	151	960	196	2.9	34.0
Bhavnagar	Vadal	7.71	1067	715	0	342	128	18	50	0.36	280	44	72	410	53	0.5	21.0
Bhavnagar	Vavdi	8.10	773	518	0	366	71	30	21	0.41	300	36	49	290	71	0.90	18.0
Daman	Jampor	7.99	1072	718	0	329	163	18	50	0.17	270	64	66	430	63	24	23.0
Daman	Khariwad daman	7.87	482	323	0	244	50	13	12	0.35	200	44	15	170	57	9.5	19.1
Daman	Manwad	7.98	616	413	0	268	57	11	50	0	220	40	36	250	50	1.7	18.1
Daman	Warkund	7.85	1715	1149	0	403	305	51	82	0.67	330	60	136	710	109	1.2	26.5
Diu	Gomtimata	8.16	2157	1445	0	598	305	104	107	0.64	490	48	85	470	309	6.2	22.2
Dohad	Badpa	8.17	970	650	0	427	92	3.0	42	4.6	350	32	10	120	185	1.2	7.3
Dohad	Dadhela	7.79	784	525	0	366	64	33	38	1.3	300	24	61	310	65	4.9	17.3
Dohad	Dahod Urban-1	7.72	576	386	0	220	35	37	26	1.4	180	56	17	210	40	0.58	1.2
Dohad	Dahod Urban-2	7.85	1909	1279	0	378	291	185	115	3.5	310	76	83	530	215	3.8	4.1
Dohad	Dahod Urban-3	7.78	1414	947	0	305	184	110	135	0.50	250	60	46	340	185	3.0	4.4
Dohad	Dahod2	7.89	1530	1025	0	451	220	28	76	2.2	370	48	49	320	225	2.0	5.5
Dohad	Garbara	7.86	6888	4615	0	525	1312	795	440	6.5	430	104	231	1211	1048	26	13.1
Dohad	Kanjetha	8.02	692	464	0	293	50	14	29	0.73	240	40	27	210	66	2.8	2.0
Dohad	Khandania	7.82	510	342	0	256	21	16	18	3.0	210	40	22	190	43	0.97	1.4
Dohad	Limbdi	7.86	776	520	0	281	106	1.1	26	1.0	230	40	29	220	85	4.9	2.5
Dohad	Mirakhedi	7.76	835	559	0	293	71	74	37	1.04	240	96	24	340	52	0.61	1.2
Dohad	Panchwada	7.99	759	509	0	329	57	34	25	1.5	270	24	46	250	77	4.1	2.1
Dohad	Sarsava	7.84	655	439	0	329	35	3	20	0.57	270	68	12	220	52	3.5	1.5
Dohad	Sukhsar	7.82	682	457	0	268	57	56	27	0.76	220	56	17	210	69	1.6	2.1
Dohad	Thada	7.85	395	265	0	171	35	7.9	19	0.46	140	40	15	160	25	3.1	0.9
Dohad	Tokarba	7.84	1280	858	0	525	163	9.1	27	0.85	430	188	32	600	47	6.0	0.8
Dohad	Varamkheda	7.97	465	312	0	220	35	13	15	0.65	180	44	15	170	38	3.4	1.3
Gandhinagar	Paliya	8.32	2434	1631	84	464	327	113	131	1.3	520	64	129	690	240	1.55	4.0
Jamnagar	Amaliya Chokari	7.86	3486	2336	0	488	788	14	131	0.78	400	160	146	1000	346	5.7	4.8
Jamnagar	Ambardi	7.74	1459	978	0	464	185	55	88	0.62	380	68	61	420	171	1.9	3.6
Jamnagar	Amran	8.31	1020	683	36	317	92	3.1	73	0.85	320	40	7.3	130	176	4.1	6.7
Jamnagar	Aramda	8.13	1325	888	0	403	192	2.6	113	2.2	330	60	12	200	240	17	7.4
Jamnagar	Balva	7.63	1239	830	0	476	170	22	34	0.3	390	132	41	500	84	3.7	1.6
Jamnagar	Bed	7.41	2060	1380	0	317	341	197	152	0.14	260	128	54	540	220	1.8	4.1
Jamnagar	Bhadthar	6.89	563	377	0	268	35	15	15	0.41	220	36	17	160	65	2.4	2.2
Jamnagar	Bhanvad	7.73	1113	746	0	464	85	16	51	0.42	380	100	39	410	80	1.5	1.7

Jamnagar	Bhogat	7.61	3272	2192	0	305	724	22	227	1.62	250	160	61	650	440	8.5	7.5
Jamnagar	Changa	7.64	1543	1034	0	281	277	81	101	0.03	230	132	58	570	99	0.69	1.8
Jamnagar	Dhrol	7.93	2158	1446	0	634	327	0.02	142	0.61	520	84	88	570	235	3.1	4.3
Jamnagar	Dwarka	7.55	3510	2352	0	427	724	101	227	0.25	350	120	61	550	550	38	10.2
Jamnagar	Govardhanpur	8.05	990	663	0	329	163	3.9	27	0.52	270	32	24	180	159	2.8	5.1
Jamnagar	Hadiyana	7.52	14380	9635	0	281	4622	2.0	339	0.46	230	1840	24	4700	1300	2.9	8.2
Jamnagar	Haripar	7.28	1300	871	0	598	92	5.0	25	1.3	490	96	41	410	111	16	2.4
Jamnagar	Jamdudhai	8.22	934	626	0	268	143	2.6	48	0.33	220	32	10	120	160	2.6	6.4
Jamnagar	Jamnagar	7.96	853	572	0	305	99	3.5	47	0.26	250	52	19	210	106	0.91	3.2
Jamnagar	Jodiya	7.98	7025	4707	0	329	1820	141	430	0.84	270	276	221	1600	874	1.4	9.5
Jamnagar	Juvanpur	7.97	3321	2225	0	439	753	53	187	0.30	360	60	158	800	392	4.5	6.0
Jamnagar	Kalavad	8.11	1510	1012	0	610	163	78	50	0.47	500	104	44	440	155	7.4	3.2
Jamnagar	Khirsara	7.18	3105	2080	0	439	709	36	195	0.34	360	224	85	911	300	5.6	4.3
Jamnagar	Kuvadiya	7.73	1281	858	0	256	249	42	52	0.17	210	108	41	440	94	0.35	2.0
Jamnagar	Lalpur	7.89	1482	993	0	366	227	61	83	0.28	300	76	56	420	171	0.57	3.6
Jamnagar	Lambha	7.51	4786	3207	0	378	980	25	450	0.56	310	160	158	1050	624	1.8	8.4
Jamnagar	Modpar	7.39	1094	733	0	390	142	22	24	0.51	320	72	19	260	154	2.6	4.2
Jamnagar	Mojap	8.00	7076	4741	0	549	1811	12	343	1.5	450	160	170	1100	1042	167	13.7
Jamnagar	Mota Gop	7.92	679	455	0	171	135	20	25	0.21	140	40	29	220	70	1.0	2.1
Jamnagar	Mota Kalvad	7.82	1675	1122	0	256	348	105	54	0.33	210	148	63	630	105	0	1.8
Jamnagar	Moti Matli	7.81	705	472	0	220	107	6.3	32	0.30	180	44	22	200	82	2.9	2.5
Jamnagar	Nikava	8.03	888	595	0	378	78	70	20	0.38	310	52	32	260	102	8.6	2.8
Jamnagar	Pindara	7.81	711	476	0	195	114	0.94	53	0.84	160	52	15	190	78	5.6	2.4
Jamnagar	Raval	7.22	2531	1696	0	439	532	32	79	0.24	360	148	58	610	303	0.62	5.3
Jamnagar	Salaya	7.96	781	523	0	293	85	38	38	0.14	240	48	27	230	90	7.3	2.6
Jamnagar	Samlasar	7.81	13680	9166	0	525	4118	6.8	357	7.0	430	420	450	2900	2013	12	16.3
Jamnagar	Seth Vadla	7.45	1396	935	0	342	199	92	82	0.23	280	92	66	500	107	0.4	2.1
Jamnagar	Toda	7.65	740	496	0	220	71	66	49	0.35	180	60	4.9	170	97	1.1	3.2
Jamnagar	Vadtara	7.83	809	542	0	378	71	25	40	0.24	310	72	24	280	89	0.95	2.3
Jamnagar	Varvala	7.41	5378	3603	0	378	1456	19	49	0.67	310	280	207	1550	501	8.3	5.5
Jamnagar	Vijarkhi	8.06	556	373	0	268	36	1.9	21	0.47	220	32	10	120	74	0.23	2.9
Jamnagar	Vinjalpar	7.80	1924	1289	0	427	355	69	134	0.11	350	112	83	620	173	20	3.0
Junagadh	Alwani	7.73	905	606	0	476	57	1.3	6.0	0.18	390	40	69	360	60	1.0	18.8
Junagadh	Amervel Nes	7.9	705	472	0	390	50	3.5	12	0.22	320	68	29	290	55	3.0	23.4
Junagadh	Bamanvada	7.02	4173	2796	0	159	1333	59	45	0.14	130	481	61	1451	255	5.3	2.9
Junagadh	Bhimdeval	7.62	1031	691	0	317	135	38	40	0.84	260	64	27	270	115	2.5	22.6
Junagadh	Bilkha	7.78	2010	1347	0	525	284	133	133	0.67	430	96	136	801	129	1.3	2.0



Junagadh	Budhecha	7.65	1813	1215	0	293	347	48	158	0.78	240	140	24	450	240	5.8	4.9
Junagadh	Chokli	7.02	8054	5396	0	85	2283	148	590	1.3	70	188	207	1321	1282	17	15.3
Junagadh	Dhokadhva	8.14	691	463	0	378	50	23	21	0.11	310	48	46	310	53	1.9	19.9
Junagadh	Galodar	7.86	652	437	0	268	71	4.3	21	0.24	220	56	29	260	45	1.4	1.2
Junagadh	Girgadhada	7.59	1085	727	0	293	92	108	51	0.18	240	76	63	450	31	0.7	24.7
Junagadh	Goraj	7.98	1024	686	0	207	135	41	118	1.1	170	56	29	260	114	1.7	3.1
Junagadh	Govindpura	7.73	927	621	0	354	64	27	46	0.60	290	64	22	250	95	1.5	23.2
Junagadh	Jambur	7.61	776	520	0	329	78	7.2	20	0.13	270	48	27	230	79	1.3	19.3
Junagadh	Jamvala	7.45	607	407	0	280	43	6.8	50	0.22	230	52	34	270	38	0.7	20.1
Junagadh	Jargali	7.98	555	372	0	256	78	4.2	17	0.26	210	48	29	240	45	0.8	19.4
Junagadh	Junagadh	7.70	1399	937	0	244	248	75	72	0.4	200	104	54	480	99	2.5	2.0
Junagadh	Juthal	7.62	838	561	0	378	78	20	11	0.23	310	88	27	330	57	3.1	1.4
Junagadh	Kanedipur	7.38	727	487	0	354	50	3.9	20	0.25	290	76	22	280	42	0.2	1.1
Junagadh	Kanek	7.01	6710	4496	0	268	2070	24	190	0.28	220	922	51	2512	380	24	3.3
Junagadh	Kansari	8.15	1691	1133	0	439	206	148	95	0.71	360	48	95	510	154	3.7	22.8
Junagadh	Karej	7.05	2595	1739	0	110	766	90	92	0.79	90	337	2.4	851	230	2.7	3.4
Junagadh	Kasia Naka	7.66	724	485	0	366	64	9.0	41	0.13	300	52	54	350	42	0	20.7
Junagadh	Kesariyaji	7.60	735	492	0	244	71	25	31	0.83	200	52	36	280	34	6.0	20.3
Junagadh	Kevadra	7.56	1297	869	0	171	248	64	152	0.33	140	100	36	400	125	1.3	2.7
Junagadh	Khambhaliya	7.42	4045	2710	0	268	1078	34	201	0.25	220	273	46	871	505	17	7.4
Junagadh	Khodada	7.25	8365	5605	0	268	2581	18	284	0.24	220	778	151	2562	730	3.1	6.3
Junagadh	Khokharda	7.57	2800	1876	0	354	581	91	252	0.62	290	108	63	530	395	1.1	7.5
Junagadh	Khoras Ahir	7.65	1478	990	0	378	241	48	63	0.46	310	124	44	490	109	2.0	2.1
Junagadh	Kodinar	7.58	2516	1686	0	329	596	50	115	0.87	270	112	126	800	215	1.6	31.0
Junagadh	Kukaswada	7.15	5035	3373	0	305	1418	93	157	0.28	250	609	19	1601	360	82	3.9
Junagadh	Maktupur	6.99	6368	4267	0	439	1801	101	211	0.29	360	345	4.9	881	910	235	13.0
Junagadh	Mendarda	7.67	1306	875	0	390	184	37	61	0.52	320	84	80	540	72	1.8	1.3
Junagadh	Moraj	7.55	577	387	0	232	71	3.4	30	0.62	190	64	19	240	40	1.6	23.9
Junagadh	Patla	7.69	921	617	0	366	106	15	38	0.42	300	68	46	360	73	1.0	1.7
Junagadh	Pransli	7.82	638	427	0	183	107	17	17	1.3	150	52	32	260	32	7.1	20.0
Junagadh	Prempara	7.66	1477	990	0	281	227	150	100	0.43	230	104	90	630	70	0.50	28.9
Junagadh	Sametar	7.90	1249	837	0	464	92	64	51	0.28	380	48	71	400	100	8.8	20.6
Junagadh	Shardagram	7.45	11560	7745	0	329	3531	17	577	0.35	270	569	179.968	2162	1744	12	16.3
Junagadh	Shepa	7.38	1006	674	0	397	99	51	35	0.52	325	100	29	370	70	1.7	1.6
Junagadh	Sheriyakhan	7.76	976	654	0	293	121	39	60	0.67	240	56	34	280	95	7.7	2.5
Junagadh	Shil	7.02	3358	2250	0	317	879	47	103	0.46	260	200	4.9	520	470	99	9.0
Junagadh	Shil Bandar	7.37	8725	5846	0	488	2453	21	455	0.19	400	112	195	1081	1536	53	20.0

Junagadh	Talala	7.72	892	598	0	464	64	8.8	20	0.16	380	68	41	340	73	1.7	23.1
Junagadh	Una	7.96	2592	1737	0	647	412	82	16	1.6	530	56	36	580	281	3.8	42.0
Jundagadh	Bantva	7.35	2943	1972	0	512	596	22	258	0.66	420	60	49	350	580	2.0	13.0
Kachchh	Bambhdai	7.45	9253	6200	0	305	2694	5.5	640	0.9	250	269	209	1531	1340	6.1	14.9
Kachchh	Bhadreshwar	7.83	3486	2336	0	561	808	89	16	1.2	460	244	122	1111	218	23	2.8
Kachchh	Bhuj	7.42	929	622	0	293	106	13	106	0.72	240	100	19	330	72	11	1.7
Kachchh	Desalpar	8.08	3894	2609	0	354	830	19	390	0.39	290	144	100	771	453	37	7.1
Kachchh	Devisar	7.68	3202	2145	0	281	837	28	204	2.5	230	208	112	981	229	83	3.2
Kachchh	Haboi	7.68	1351	905	0	268	227	5.8	140	1.5	220	72	44	360	140	8.7	3.2
Kachchh	Kharai	7.66	6328	4240	0	451	1546	8.6	810	0.36	370	240	199	1421	950	21	11.0
Kachchh	Kharoi	7.65	1230	824	0	293	248	0.77	66	0.41	240	60	71	440	88	5	1.8
Kachchh	Khavda	7.35	5591	3746	0	268	1418	41	548	0.33	220	232	102	1001	775	26	10.7
Kachchh	Kotaya	8.19	1358	910	0	427	191	26	54	2.5	350	24	36	210	215	0.79	6.5
Kachchh	Kothara	7.95	4044	2709	0	451	1021	19	205	0.31	370	232	41	751	510	48	8.1
Kachchh	Lakhpat	7.24	3443	2307	0	293	915	3.9	146	0.58	240	184	119	951	293	6.3	4.1
Kachchh	Lilpar	7.98	4890	3276	0	256	950	46	900	1.6	210	200	122	1001	630	33	8.7
Kachchh	Lodai	7.63	3579	2398	0	305	645	25	592	1.1	250	172	100	841	392	22	5.9
Kachchh	Luni	7.98	4069	2726	0	805	851	54	66	0.56	660	128	58	560	576	37	10.6
Kachchh	Mata Na Madh	7.88	1184	793	0	207	213	18	107	0.84	170	84	22	300	122	6.5	3.1
Kachchh	Moticher	7.85	1000	670	0	268	191	4.7	4	0.22	220	76	34	330	57	19	1.4
Kachchh	Naliya	8.23	1655	1109	0	537	241	22	64	0.96	440	36	4.9	110	330	3.5	13.7
Kachchh	Rapar	7.63	3976	2664	0	256	744	47	720	0.96	210	204	124	1021	405	43	5.5
Kachchh	Ratanpur Kahdir	7.79	4300	2881	0	342	1049	5.7	309	1.6	280	84	105	641	614	17	10.6
Kachchh	Samkhiari	7.66	6156	4125	0	488	1546	210	325	3.8	400	112	214	1161	830	17	10.6
Kachchh	Sedat	7.76	840	563	0	281	92	1.3	45	0.28	230	72	29	300	52	3.4	1.3
Kachchh	Shinaya	7.72	5704	3822	0	293	1546	1.5	309	0.99	240	100	92	631	905	6.4	15.7
Kachchh	Sukhpar	7.32	8315	5571	0	232	2056	50	1220	2.8	190	429	199	1892	1130	6.9	11.3
Kachchh	Tera	8.18	4218	2826	0	1025	581	81	390	10	840	36	39	250	915	5.2	25.2
Kachchh	Vinjhan	7.74	5048	3382	0	281	1333	3.1	307	1.5	230	140	134	901	650	11	9.4
Kheda	Alina	7.88	3150	2111	0	476	561	170	272	0.78	390	24	185	820	363	8.3	26.2
Kheda	Alindra	8.24	690	462	0	366	21	6.0	24	0.66	300	32	41	250	56	10	17.0
Kheda	Balasinor I	7.08	665	446	0	220	85	12	38	0.24	180	64	19	240	46	0.31	1.3
Kheda	Juna vasadra	7.62	1469	984	0	207	291	65	101	0.62	170	116	78	610	67	1.3	1.2
Kheda	Kalesar	8.42	1224	820	72	500	64	13	44	1.3	410	28	54	290	179	0.66	4.6
Kheda	Mahudha	8.27	2366	1585	0	586	419	9.0	100	0.67	480	20	114	520	300	31	21.2
Kheda	Muliyad	7.43	11160	7477	0	232	3621	28	420	0.48	190	260	547	2900	1500	37	53.9
Mahesana	Asjol	8.23	815	546	0	451	36	70	2.35	0.5	370	120	22	390	31	28	0.7

Mahesana	Bhandupara	8.16	1900	1273	0	390	419	21	125	0.58	320	52	36	280	334	14	8.7
Mahesana	Dharpura	8.52	3251	2178	96	866	298	13	480	1.2	870	28	71	360	638	36	14.6
Mahesana	Dosaj	7.89	4401	2949	0	305	1065	80	490	0.35	250	112	90	650	650	88	11.0
Mahesana	Kheralul	8.18	1525	1022	0	537	270	17	68	1.9	440	52	51	340	273	0.80	6.4
Mahesana	Maguna	8.46	3930	2633	312	708	746	48	86	1.3	1100	116	173	1000	636	33	8.7
Mahesana	Panchot	8.46	1707	1144	108	354	327	7	20	0.39	470	72	17	250	296	69	8.1
Mahesana	Rampural	8.46	980	657	96	317	99	17	18	0.70	420	72	36	330	107	4.1	2.6
Mahesana	Sihi	8.2	1180	791	0	305	151	57	45	1.3	250	48	32	250	120	41	3.3
Mahesana	Tarabh	8.1	872	584	0	268	170	3.9	11	0.39	220	68	44	350	44	16	1.0
Mahesana	Unjha	8.35	2640	1769	84	317	433	131	234	0.71	400	48	56	350	450	46	10.0
Mahesana	Vidaj	8.62	2380	1595	60	427	447	31	83	0.53	450	64	15	220	300	198	8.8
Narmada	Almavadi	7.26	1034	693	0	268	121	22	127	0.22	220	84	58	450	29	0.60	0.6
Narmada	Amayar	7.41	646	433	0	244	35	23	60	0.21	200	60	34	290	14	0.30	0.4
Narmada	Chikada	7.26	841	563	0	244	106	16	66	0.22	200	64	39	320	46	0.80	1.1
Narmada	Chuli	7.12	990	663	0	220	99	58	141	0.12	180	124	32	440	24	0.40	0.5
Narmada	Dev Mogra	6.98	725	486	0	329	28	22	34	0.22	270	76	32	320	19	0.10	0.5
Narmada	Garudeshwar	7.23	1030	690	0	378	71	48	70	0.36	310	60	61	400	52	2.3	1.1
Narmada	Hirapura	7.55	750	503	0	305	50	12	52	0.68	250	56	36	290	38	1.1	1.0
Narmada	Jankh	7.41	605	405	0	256	35	21	24	0.46	210	72	22	270	14	0.30	0.4
Narmada	Kanbi Pitha	7.14	587	393	0	281	14	18	27	0.28	230	56	29	260	15	0.10	0.4
Narmada	Khaidi Pada	7.18	544	364	0	232	43	10	16	0.31	190	56	19	220	23	0.20	0.7
Narmada	Khota Amba	6.94	925	620	0	415	35	55	21	0.36	340	58	62	400	30	0.30	0.7
Narmada	Namaria	7.35	1349	904	0	415	121	112	58	0.75	340	48	107	560	51	1.0	0.9
Narmada	Nani Singlot	7.51	674	452	0	171	43	108	28	0.45	140	76	27	300	16	0.30	0.4
Narmada	Ralda	7.66	468	314	0	195	35	15	10	0.53	160	40	26	205	14	0.10	0.4
Narmada	Rasela	7.42	3600	2412	0	1037	539	155	41	0.16	850	60	185	910	410	3.1	5.9
Narmada	Ringani	7.29	905	606	0	390	43	55	17	0.46	320	44	61	360	42	0.40	1.0
Narmada	Salemba 1	7.31	1011	677	0	207	199	20	37	0.37	170	104	12	310	87	0.50	2.2
Narmada	Umaran	7.53	560	375	0	207	50	28	15	0.27	170	56	24	240	20	0.10	0.6
Navsari	Chadai	7.50	878	588	0	366	85	7.9	41	0.63	300	48	68	400	32	1.1	21.1
Navsari	Chhinam	8.27	3040	2037	0	769	469	28	109	0.23	630	48	63	380	285	415	20.8
Navsari	Dandi	7.75	1274	854	0	476	128	26	90	0.19	390	44	54	330	112	65.5	19.5
Navsari	Doldha	7.62	467	313	0	244	28	11	16	0.36	200	44	22	200	28	0.50	18.5
Navsari	Duwada	7.97	1020	683	0	427	71	6.6	97	0.91	350	36	56	320	100	1.2	18.6
Navsari	Kaliyari	7.78	620	415	0	244	57	16	11	0.26	200	76	17	260	22	2.4	27.4
Navsari	Khergam	7.44	743	498	0	268	78	16	31	0.23	220	60	29	270	43	0.3	21.8
Navsari	Mandav khadak	7.63	676	453	0	354	50	7.1	27	0.77	290	76	22	280	47	1.1	26.0

Navsari	Moti Valzhar	7.72	803	538	0	281	78	22	87	0.74	230	44	53	330	51	0.70	19.7
Navsari	Navsari	7.87	4187	2805	0	549	952	10	137	0.57	450	216	229	1480	277	9.6	42.5
Navsari	Onjal	7.97	912	611	0	390	99	13	28	0.39	320	44	34	250	108	5.6	18.6
Navsari	Rumla	7.73	779	522	0	293	78	29	29	0.26	240	76	32	320	45	0.6	24.6
Navsari	Sarikhurd	8.08	1069	716	0	366	114	17	35	0.14	300	28	36	220	135	18	15.9
Panchmahal	Dhanol	7.16	696	466	0	281	78	7.8	30	1.9	230	36	2	100	117	11	5.1
Panchmahal	Gadhar	7.65	882	591	0	293	99	22	61	0.73	240	64	34	300	66	3.2	1.7
Panchmahal	Godhra2	7.66	728	488	0	232	57	59	60	1.5	190	72	24	280	52	0.96	1.4
Panchmahal	Jambugoda	7.02	755	506	0	268	71	85	25	0.68	220	68	22	260	67	0.95	1.8
Panchmahal	Kothamba	7.38	1206	808	0	342	191	29	90	0.69	280	64	41	330	146	1.8	3.5
Panchmahal	Malekpur1	7.42	644	431	0	268	57	13	43	0.76	220	48	29	240	48	1.7	1.3
Panchmahal	Natapur	7.39	707	474	0	244	71	36	34	1.6	200	64	22	250	61	2	1.7
Panchmahal	Ranipura	7.48	1927	1291	0	390	355	138	89	2.4	320	84	117	691	170	4.3	2.8
Panchmahal	Santrampur1	7.32	850	570	0	244	135	16	49	0.62	200	68	29	290	70	0.72	1.8
Panchmahal	Santroad 1	7.35	675	452	0	293	50	15	28	0.62	240	60	27	260	46	2.6	1.2
Panchmahal	Tarkanda	7.5	478	320	0	195	50	4.5	27	0.68	160	52	12	180	38	1.6	1.2
Panchmahal	Tuwa	8.18	714	478	0	354	50	4.2	16	0.6	290	68	4.9	190	76	10	2.4
Panchmahal	Vejalpur	7.64	1607	1077	0	378	305	44	87	1.2	310	64	100	570	138	6.4	2.5
Panchmahals	Chhabanpur	7.22	689	462	0	268	50	53	32	0.66	220	56	19	220	63	1.3	1.8
Panchmahals	Godhra UR_3	7.86	2723	1824	0	378	581	4.7	179	1.6	310	144	148	971	174	3.2	2.4
Panchmahals	Javan	7.68	318	213	0	122	28	4.2	19	0.28	100	32	4.9	100	21	8.3	0.9
Panchmahals	Kalol UR_2	7.95	1846	1237	0	464	298	105	95	0.54	380	32	117	560	186	0.58	3.4
Panchmahals	Kantha	7.87	858	575	0	281	99	12	51	0.82	230	48	19	200	101	1.4	3.1
Panchmahals	Khadki Vadiya	8.22	1487	996	0	659	85	4.0	140	2.2	540	16	80	370	210	1.4	19.5
Panchmahals	Khanpur	7.05	684	458	0	268	71	32	31	0.15	220	56	27	250	52	0.7	1.4
Panchmahals	Limbadia peti	7.89	792	531	0	390	71	7.0	40	0.97	320	32	58	320	69	1.3	14.2
Panchmahals	Lunawada	7.58	1150	771	0	354	170	57	47	0.76	290	116	34	430	71	20	1.5
Panchmahals	Pandarvada	7.52	560	375	0	256	43	6.3	16	0.76	210	44	22	200	48	0.55	1.5
Panchmahals	Pavagadh	7.85	886	594	0	390	78	27	35	0.32	320	104	32	390	40	2.5	0.9
Panchmahals	Shehra	8.3	1350	905	0	647	114	9.0	45	0.41	530	24	43	240	153	119	15.9
Patan	Dhinoj	7.49	2315	1551	0	366	475	7.4	134	0.34	300	40	80	430	275	30	5.8
Patan	Moti Chander	7.48	26520	17768	0	598	9217	104	1040	1.2	490	589	883	5104	4350	60	26.5
Patan	Piprala	8.20	6657	4460	0	866	1553	132	400	8.6	710	40	92	480	1360	1.1	27.0
Patan	Sander	7.92	540	362	0	281	35	4.3	13	0.8	230	48	17	190	42	5.5	1.3
Patan	Sankhari	7.82	605	405	0	305	43	6.3	17	1.1	250	32	17	150	77	7.5	2.7
Porbanadar	Adityana	7.33	925	620	0	439	64	24	17	1.5	360	36	24	190	146	1.5	4.6
Porbanadar	Advana	7.08	2058	1379	0	927	220	10	30	1.0	760	140	97	751	174	6.0	2.8

Porbanadar	Babda	7.80	903	605	0	281	128	11	36	0.41	230	36	24	190	121	3.6	3.8
Porbanadar	Bakhrala	7.00	1911	1280	0	415	319	113	64	0.63	340	88	54	440	250	7.5	5.2
Porbanadar	Balej	7.26	13090	8770	0	354	4098	46	341	0.26	290	417	328	2392	1792	148	16.0
Porbanadar	Bhavpura	7.57	5642	3780	0	244	1491	34	183	0.29	200	360	109	1350	607	75	7.2
Porbanadar	Degam	7.04	7873	5275	0	183	2379	53	107	0.56	150	700	158	2400	689	53	6.1
Porbanadar	Kadegi	7.02	7622	5107	0	488	2070	1.4	351	0.74	400	192	156	1121	1275	6.2	17.0
Porbanadar	Kandorna Rana	6.98	3255	2181	0	317	766	57	160	2.35	260	128	73	620	452	3.0	7.9
Porbanadar	Khambodar	7.50	387	259	0	159	28	6.7	17	0.41	130	40	10	140	25	4.2	0.9
Porbanadar	Kolikhada	7.56	1778	1191	0	720	184	28	41	5.0	590	20	19	130	370	1.2	14.0
Porbanadar	Kuchhadi	7.63	6927	4641	0	342	1917	6.9	350	0.70	280	80	109	650	1310	97	22.3
Porbanadar	Kutiyaana	7.25	5830	3906	0	378	1439	148	416	1.7	310	236	170	1291	766	58	9.3
Porbanadar	Mocha	7.11	9800	6566	0	342	3035	16	267	0.04	280	453	109	1581	1528	26	17.0
Porbanadar	Mojiwana	7.18	7021	4704	0	244	2024	32	350	0.41	200	460	207	2000	774	1.8	7.5
Porbanadar	Odadar	7.04	13200	8844	0	268	4467	6.4	62	1.4	220	192	384	2062	2098	65	20.0
Porbanadar	Palkhada	7.48	4525	3032	0	354	959	214	274	0.38	290	260	85	1000	542	43	7.5
Porbanadar	Porbandar	7.15	1914	1282	0	537	298	4.3	109	0.57	440	40	49	300	320	24	8.0
Porbanadar	Ranavav	7.35	767	514	0	293	71	16	22	0.86	240	60	10	190	87	1.1	2.7
Porbanadar	Ratadi	7.92	4248	2846	0	549	888	30	310	1.2	450	100	36	400	824	7.4	17.9
Porbanadar	Ratiya	7.22	3199	2143	0	390	744	137	94	0.39	320	152	46	570	400	145	7.3
Porbanadar	Simar	7.26	377	253	0	195	28	1.4	9.6	0.24	160	32	15	140	29	1.9	1.1
Porbanadar	Tukada	6.98	785	526	0	293	92	9.6	17	0.42	240	72	15	240	55	42	1.5
Porbanadar	Visavada	7.48	5970	4000	0	268	1811	32	280	1.29	220	420	24	1150	841	75	10.8
Rajkot	Amarnagar	8.13	14430	9668	0	610	4544	2.5	654.8	0.81	500	180	766	3600	1900	3.1	13.8
Rajkot	Bhada Jodiya	7.67	1698	1138	0	73	462	5.8	63	0.42	60	108	29	390	184	2.0	4.1
Rajkot	Bhadla	7.82	3407	2283	0	122	923	28	183	0.42	100	176	112	900	275	3.7	4.0
Rajkot	Bhalgam	7.75	508	340	0	171	99	11	0	0.39	140	40	27	210	32	2.01	0.9
Rajkot	Chhatar	8.29	619	415	0	293	71	16	43	0.75	240	76	10	230	70	0.38	2.0
Rajkot	Chordi	7.86	2490	1668	0	73	653	54	66	0.25	60	224	68	840	118.5	1.18	1.8
Rajkot	Dadiya	8.03	507	340	0	183	43	38	29	0.52	150	44	19	190	42	0.81	1.3
Rajkot	Dhorajee	7.97	541	362	0	171	85	2.8	30	0.37	140	32	29	200	46	3.6	1.4
Rajkot	Ganod	7.86	5660	3792	0	427	1243	36	700	3.5	350	100	134	800	936	0.61	14.4
Rajkot	Gogavadar	8.19	969	649	0	281	114	46	67	0.51	230	68	36	320	90	2.05	2.2
Rajkot	Hadmatiya	8.04	982	658	0	256	135	30	85	0.67	210	48	51	330	95	0.80	2.3
Rajkot	Halenda	8.21	1323	886	0	415	234	15	56	0.49	340	68	83	510	102	2.4	2.0
Rajkot	Jasapar	7.82	1265	848	0	378	185	34	83	0.65	310	104	78	580	62	3.2	1.1
Rajkot	Jasdan	8.03	1649	1105	0	256	320	54	76	0.34	210	64	107	600	102.5	1.6	1.8
Rajkot	Jetpur Pithad	8.13	573	384	0	220	78	5.3	26	0.23	180	28	34	210	50	4.3	1.5

Rajkot	Kalyanpur	7.76	2302	1542	0	342	497	65	56	0.62	280	64	156	800	170	1.2	2.6
Rajkot	kamlapur	7.76	4196	2811	0	146	1051	236	239	0.55	120	360	151	1520	274	0.89	3.1
Rajkot	Lalavadar	7.96	710	476	0	378	43	7.6	18	0.13	310	104	7.3	290	50	0.84	1.3
Rajkot	Machhu Kunda	8.12	1570	1052	0	354	284	13	114	1.9	290	64	44	340	197	0.03	4.6
Rajkot	Maliya	8.2	695	466	0	329	57	4.7	41	0.50	270	36	36	240	63	12	1.8
Rajkot	Morvi	8.15	531	356	0	195	64	3.7	29	0.35	160	28	27	180	50	3.3	1.6
Rajkot	Mota Gundala	8.14	570	382	0	268	57	8.0	14	0.86	220	20	24	150	80	0.57	2.8
Rajkot	Mota Gundala	8	4257	2852	0	146	1136	40	222	0.45	120	80	190	980	485	24	6.7
Rajkot	Motadadva	8.15	1454	974	0	293	249	86	74	0.37	240	128	61	570	91	0.83	1.7
Rajkot	Movaiya	8.14	1991	1334	0	281	391	37	184	0.00	230	72	92	560	176	7.9	3.2
Rajkot	Neknam	7.57	8364	5604	0	244	2556	273	548	0.67	200	360	572	3250	727	1.17	5.5
Rajkot	Patan Vav	8.18	607	407	0	342	36	3.6	20	0.68	280	20	34	190	69	1.6	2.2
Rajkot	Pedhla	7.77	2550	1709	0	244	639	48	57	0.55	200	216	117	1020	103	4.3	1.4
Rajkot	Ribda	7.83	961	644	0	354	149	39	63	0.25	290	140	15	410	75	0.59	1.6
Rajkot	Sardhar	8.18	1868	1252	0	671	270	32	64	0.19	550	80	51	410	235	87	5.0
Rajkot	Sindhavadar	8.19	1172	785	0	366	149	57	58	1.58	300	36	39	250	162	0.37	4.4
Rajkot	Targhari	7.98	1700	1139	0	342	355	29	104	0.49	280	36	126	610	143	1.8	2.5
Rajkot	Umralli	7.97	1821	1220	0	183	369	45	141	0.47	150	16	109	490	176	1.2	3.5
Rajkot	Upleta	8.36	2715	1819	96	634	284	89	118	4.8	680	40	24	200	500	1.47	15.4
Rajkot	Virnagar	8.29	1008	675	0	293	156	17	42	0.35	240	68	46	360	80	4.8	1.8
Rajkot	Virpur	8.12	1706	1143	0	366	263	148	98	0.25	300	116	61	540	145.5	3.0	2.7
Sabarkantha	Alwa Kampa	8.09	850	570	0	415	64	18	39	0.61	340	24	63	320	81	0.5	17.5
Sabarkantha	Atarsumba_2	7.65	850	570	0	207	135	12	50	0.35	170	44	46	300	59	1.7	19.2
Sabarkantha	Bhadreshwar(Daramli)	7.54	2190	1467	0	659	326	14	188	2.0	540	104	71	550	303	4.7	5.6
Sabarkantha	Bibipur1	7.56	1425	955	0	232	191	169	64	0.33	190	108	66	540	70	1.9	1.3
Sabarkantha	Boral	7.88	2914	1952	0	451	567	145	143	0.61	370	72	134	731	337	1.0	5.4
Sabarkantha	Boriya	7.63	2594	1738	0	232	560	125	108	0.52	190	112	112	741	210	0.75	3.4
Sabarkantha	Chandap_DW	7.49	1275	854	0	256	248	35	62	0.78	210	84	39	370	130	3.5	2.9
Sabarkantha	Choriwad	7.89	2174	1457	0	329	432	220	73	0.73	270	329	56	1051	70	2.9	0.9
Sabarkantha	Dhansura	7.52	1135	760	0	354	142	60	64	0.54	290	84	66	480	68	0.86	1.3
Sabarkantha	Gadada	7.81	1659	1112	0	268	241	65	250	0.92	220	44	112	570	142	6.2	23.4
Sabarkantha	Gadhali	7.78	2631	1763	0	268	546	87	265	1.7	220	84	41	380	414	1.7	9.2
Sabarkantha	Hamirpur	7.68	1106	741	0	183	213	38	46	0.74	150	80	36	350	74	0.77	1.7
Sabarkantha	Harsoli	8.2	1598	1071	0	793	106	18	69	1.7	650	56	46	330	255	1.9	6.1
Sabarkantha	Hingatiya	7.58	2558	1714	0	317	539	8.1	200	1.7	260	92	117	711	255	7.7	4.2
Sabarkantha	Idar	7.63	1026	687	0	195	121	139	64	5.5	160	84	29	330	95	1.1	2.3
Sabarkantha	Karanpur	7.8	693	464	0	256	78	44	20	0.74	210	16	49	240	63	0.3	14.9

Sabarkantha	Kesarpura(Mayal)	8.08	1832	1227	0	439	234	237	80	3.7	360	28	39	230	332	0.45	9.5
Sabarkantha	Kesharpura	7.73	1110	744	0	183	191	95	63	0.77	150	124	22	400	67	2.1	1.5
Sabarkantha	Khedbramha 1	7.35	3166	2121	0	195	808	71	147	0.74	160	325	54	1031	195	2.6	2.6
Sabarkantha	Malpur 1	7.76	775	519	0	256	57	115	36	0.69	210	48	58	360	30	0.3	20.6
Sabarkantha	Mathasuliya	7.63	1395	935	0	244	199	141	86	0.21	200	36	78	410	107	35	20.2
Sabarkantha	Matoda	7	3963	2655	0	134	1056	16	250	0.68	110	313	56	1011	410	15	5.6
Sabarkantha	Medasana	7.26	922	618	0	305	99	51	36	0.72	250	60	36	300	86	1.1	2.2
Sabarkantha	Megraj 1	7.68	953	639	0	281	149	3.0	63	0.54	230	40	19	180	159	2.2	5.2
Sabarkantha	Modasa2	7.75	1002	671	0	183	142	39	76	0.28	150	68	24	270	84	2.6	2.2
Sabarkantha	Poshina2	7.78	1511	1012	0	439	220	5.0	129	1.0	360	112	61	530	120	35	2.3
Sabarkantha	Punasan	7.72	623	417	0	232	71	11	27	0.52	190	44	19	190	58	0.22	1.8
Sabarkantha	Revas	7.67	1603	1074	0	207	269	170	56	0.85	170	120	63	560	84	0.85	1.5
Sabarkantha	Sabalwad	7.85	967	648	0	244	99	69	99	5.0	200	60	29	270	102	0.88	2.6
Sabarkantha	Sathamba	7.82	960	643	0	354	106	30	37	0.64	290	52	58	370	59	0.38	1.3
Sabarkantha	Seenawad	7.28	1608	1077	0	183	312	104	101	0.52	150	140	49	550	122	2.3	2.3
Sabarkantha	Shamlaji	8.19	548	367	0	268	43	2.7	16	0.47	220	64	7.3	190	45	1.6	1.4
Sabarkantha	Silwad	7.6	5031	3371	0	366	1335	113	205	0.91	300	72	321	1500	475	11	36.4
Sabarkantha	Umedpura	7.56	1279	857	0	439	155.98	78	39	1.6	360	40	66	370	137	0.51	3.1
Sabarkantha	Vadali	7.38	1390	931	0	207	213	138	78	1.2	170	108	36	420	118	3.6	2.5
Sabarkantha	Virpur 1(Himmat)	7.75	455	305	0	195	28	27	16	0.58	160	48	15	180	23	0.24	0.7
Sabarkantha	Virpur2	7.25	1215	814	0	207	220	76	60	0.94	170	88	44	400	82	21	1.8
Surat	Allu	7.95	665	446	0	354	28	20	26	1.0	290	24	58	300	35	0.40	17.1
Surat	Bedchit	7.64	1620	1085	0	427	284	31	56	0.66	350	24	139	630	97	0.60	25.7
Surat	Bhatkol	7.85	937	628	0	366	114	1.7	50	0.86	300	40	61	350	72	1.8	19.5
Surat	Digas	8.1	1084	726	0	622	50	53	61	0.63	510	28	68	350	156	1.8	19.7
Surat	Jesingpura (S)	7.84	717	480	0	427	21	13	10	0.12	350	40	56	330	30	0.70	19.2
Surat	Jiav	7.52	1217	815	0	293	227	9.9	31	0.16	240	72	58	420	91	12	24.0
Surat	Juna Umarpada	7.66	427	286	0	207	28	1.4	42	0.28	170	40	27	210	21	0.50	17.6
Surat	Kadod	8.00	1066	714	0	512	92	23	28	0.61	420	24	80	390	97	3.2	19.0
Surat	Kathor	7.86	1673	1121	0	592	185	26	152	0.50	485	24	107	500	198	1.2	21.0
Surat	Katradevi	7.71	876	587	0	220	142	14	41	0.34	180	28	34	210	105	0.50	15.7
Surat	Kelkui	7.83	498	334	0	256	35	12	12	0.24	210	24	39	220	29	0.50	15.3
Surat	Kherwada	7.83	635	425	0	281	50	19	15	0.39	230	24	49	260	34	0.10	16.2
Surat	Mandvi	7.50	1247	835	0	439	121	22	53	0.51	360	24	83	400	95	0.50	19.1
Surat	Mota	8.05	2558	1714	0	646	462	18	110	0.92	530	24	61	310	465	1.6	17.3
Surat	Moti Sarkui	7.77	709	475	0	281	50	35	19	0.41	230	24	51	270	37	0.20	16.4
Surat	Nizar ( new well)	7.92	925	620	0	464	50	42	36	1.12	380	44	51	320	95	0.40	19.5

Surat	Nogama	7.95	724	485	0	293	57	19	25	0.40	240	20	51	260	48	1.9	15.8
Surat	Olpad	7.97	1158	776	0	500	113	17	51	0.77	410	28	53	290	154	4.4	17.3
Surat	Palsana	7.78	976	654	0	488	71	11.2	18	0.06	400	28	58	310	101	13	17.7
Surat	Paneshwar	7.59	1694	1135	0	232	369	32	100	0.33	190	32	114	550	137	0.90	22.4
Surat	Sarbhon	8.08	1128	756	0	403	128	6.9	63	1.35	330	20	75	360	105	2.6	18.1
Surat	Saroli	8.01	1440	965	0	671	121	17	47	1.01	550	24	34	200	205	97	14.9
Surat	sayan	7.83	1930	1293	0	451	398	27	116	0.42	370	36	156	730	162	0.60	25.4
Surat	Sultanbaugh	8.03	1140	764	0	464	107	45	57	0.18	380	40	68	380	102	29	20.0
Surat	Uchhal	7.52	1003	672	0	427	78	66	36	0.35	350	100	49	450	42	0.30	26.9
Surat	Uskher	7.67	805	539	0	378	43	52	21	0.33	310	16	36	190	113	2.0	13.8
Surat	Vaheval	7.54	866	580	0	366	64	28	43	0.19	300	32	71	370	41	0.50	19.1
Surat	Vyara	7.81	679	455	0	317	50	27	40	0.16	260	68	32	300	46	6.5	23.1
Surat	Wankal/Wadoli	7.87	507	340	0	293	21	11	23	0.24	240	32	41	250	26	0.20	17.0
Surendranagar	Anindra	7.74	608	407	0	207	36	2.0	109	3.0	170	80	22	290	29	1.7	0.7
Surendranagar	Baman Bor	7.67	1422	953	0	427	170	98	103	0.89	350	188	27	580	82	2.9	1.5
Surendranagar	Dedadra	7.53	888	595	0	476	50	6.5	61	3.5	390	68	17	240	117	9.5	3.3
Surendranagar	Jinjuvada	7.62	1077	722	0	378	121	2.7	52	0.91	310	60	61	400	49	4.7	1.1
Surendranagar	Juna Devaliya	7.63	1216	815	0	372	149	33	95	1.1	305	40	32	230	173	6.4	4.9
Surendranagar	Kankavati	7.35	3169	2123	0	293	703	104	218	1.5	240	128	68	600	398	5.6	7.1
Surendranagar	Kherva	7.52	4801	3217	0	134	1370	21	218	0.95	110	240	195	1400	400	12	4.6
Surendranagar	Lakhtar	7.18	602	403	0	256	43	2.4	29	1.8	210	48	7.3	150	73	7.7	2.6
Surendranagar	Modhvana	7.38	1241	831	0	268	163	1.9	98	1.2	220	80	46	390	73	9.5	1.6
Surendranagar	Moti Moladi	7.1	6960	4663	0	207	2024	218	431	0.76	170	60	545	2390	500	0.81	4.4
Surendranagar	Pipli	7.6	474	318	0	183	36	3.3	15	0.72	150	24	12	110	43	4.8	1.8
Surendranagar	Rajsitapur	7.85	2206	1478	0	390	476	13	66	1.6	320	80	54	420	300	4.6	6.4
Surendranagar	Ratanpur	7.42	3382	2266	0	378	753	41	287	5.2	310	104	112	720	426	1.1	6.9
Surendranagar	Siyani	7.79	5111	3424	0	342	987	8.9	980	1.9	280	120	63	560	872	12	16.0
Surendranagar	Sukhpar	7.68	5581	3739	0	305	1278	276	439	5.0	250	84	136	770	849	6.4	13.3
Surendranagar	Surendranagar	8.04	3585	2402	0	622	675	28	301	4.4	510	40	66	370	610	1.2	13.8
Surendranagar	Tavi	7.35	350	235	0	146	36	2.2	25	0.72	120	24	9.7	100	41	4.6	1.8
Surendranagar	Than	7.44	4018	2692	0	232	1001	61	303	0.94	190	316	56	1020	397	3.5	5.4
The Dangs	Ahwa	6.99	1038	695	0	366	99	20	36	0.30	300	52	41	300	90	11	20.4
The Dangs	Ambapada	7.44	379	254	0	195	21	15	5.0	0.60	160	48	15	180	13	0.30	20.2
The Dangs	Bardipada	7.30	619	415	0	305	36	19	5.0	0.40	250	68	27	280	20	0.20	23.4
The Dangs	Baripada	7.46	418	280	0	183	28	9.6	17	0.40	150	48	15	180	17	0.60	20.2
The Dangs	Borigantha	7.55	498	334	0	244	43	23	22	0.18	200	68	24	270	17	0.4	24.0
The Dangs	Chikhali	7.43	475	318	0	244	14	15	11	0.30	200	56	17	210	16	0.50	22.1



The Dangs	Chinchinnogautha	7.58	874	586	0	85	227	1.6	22	0.30	70	40	32	230	87	0.40	17.7
The Dangs	Chinchpada	7.17	760	509	0	244	78	68	13	0.40	200	80	17	270	51	2.7	28.5
The Dangs	Dhumkhal	7.43	349	234	0	207	14	6.9	35	0.40	170	44	22	200	15	0.30	18.5
The Dangs	Ghubitah	7.58	510	342	0	256	21	12	6	0.30	210	64	10	200	26	0.30	27.5
The Dangs	Jakhana	7.49	397	266	0	220	14	1.9	9.0	0.40	180	40	2.0	110	47	0.20	33.8
The Dangs	Kalibel	7.69	638	427	0	317	50	11	0.0	0.10	260	52	2.0	140	92	0.60	43.0
The Dangs	Kamal vihir	7.31	608	407	0	171	36	58	73	0.50	140	80	17	270	21	1.2	28.5
The Dangs	Mahal	7.48	532	356	0	305	28	19	10	0.30	250	56	34	280	17	0.90	20.9
The Dangs	Malegam	7.49	553	371	0	183	78	16	16	0.30	150	44	34	250	19	0.50	18.6
The Dangs	Nanapada	7.38	376	252	0	207	14	16	14	0.40	170	48	17	190	13	0.30	20.0
The Dangs	Pipri	7.47	333	223	0	195	14	14	0	0.40	160	40	15	160	15	0.40	18.0
The Dangs	Sakarpatal	7.50	344	230	0	171	21	13	3.0	0.40	140	48	7.0	150	16	0.40	24.7
The Dangs	Sarvar	7.19	267	179	0	159	21	1.6	2.0	0.40	130	36	10	130	16	1.4	17.9
The Dangs	Sodmal	7.70	490	328	0	268	28	17	20	0.19	220	52	27	240	25	0.3	20.1
The Dangs	Umarpada	7.39	441	295	0	207	28	21	5.0	0.30	170	56	15	200	15	0.6	22.5
The Dangs	Vanzatamba	7.62	445	298	0	220	43	16	19	0.15	180	56	19	220	25	0.4	21.9
The Dangs	Waghai	7.44	424	284	0	244	21	14	10	0.30	200	52	21	220	15	0.30	20.9
Vadodara	Alladpur	7.33	1150	771	0	439	85	58	43	1.2	360	52	56	360	98	2.6	2.3
Vadodara	Amreshwar	7.57	3434	2301	0	586	730	132	85	0.58	480	48	73	420	593	2.9	12.6
Vadodara	Asala	7.38	972	651	0	195	135	54	99	1.1	160	136	12	390	44	2.0	1.0
Vadodara	Asar	7.71	2450	1642	0	561	252	356	45	6.4	460	32	32	210	462	6.5	13.9
Vadodara	Baladgam	7.85	1320	884	0	293	92	265	18	1.0	240	32	7.3	110	253	2.0	10.5
Vadodara	Bhindol	7.95	2302	1542	0	976	138	136	18	2.6	800	20	73	350	367	1.9	8.5
Vadodara	Bodeli	7.27	5535	3708	0	573	1021	775	64	1.2	470	220	202	1380	640	1.6	7.5
Vadodara	Chavaria	7.47	2590	1735	0	525	269	445	26	3.7	430	48	71	410	401	8.9	8.6
Vadodara	Chhaliyar(राजपुर)	7.68	1210	811	0	488	57	70	61	0.84	400	32	63	340	119	0.90	2.8
Vadodara	Chhota Udepur	7.42	810	543	0	244	78	33	71	1.2	200	68	17	240	75	0.90	2.1
Vadodara	Chisadia	7.25	1355	908	0	305	149	115	114	0.35	250	92	63	490	83	5.0	1.6
Vadodara	Devat (Thadgam)	7.35	3650	2446	0	317	823	350	54	0.13	260	104	173	970	390	6.3	5.4
Vadodara	Ferkuva	7.44	901	604	0	403	28	45	37	0.99	330	88	41	390	25	1.9	0.6
Vadodara	Ghamodi	7.65	4025	2697	0	915	553	421	44	1.6	750	32	97	480	702	1.5	13.9
Vadodara	Govindpura	7.26	2760	1849	0	207	716	130	77	0.21	170	196	175	1210	77	3.6	1.0
Vadodara	Jojh or Joz	7.48	1376	922	0	439	142	81	47	0.96	360	32	88	440	112	0.90	2.3
Vadodara	Juna_Samalya	7.31	4000	2680	0	366	688	650	52	0.76	300	56	165	820	538	1.8	8.2
Vadodara	Karamasiya(Kheda)	7.56	1030	690	0	451	78	10	31	1.8	370	24	68	340	79	2.2	1.9
Vadodara	Kevada Bag	7.46	653	438	0	256	35	50	21	1.0	210	48	36	270	27	0.50	0.7
Vadodara	Kevdi	7.32	1115	747	0	232	149	98	68	0.68	190	56	44	320	109	0.80	2.7

Vadodara	Makni	7.42	647	433	0	256	43	42	42	0.97	210	44	36	260	39	1.6	1.1
Vadodara	Masor	7.36	790	529	0	268	78	20	53	0.71	220	40	39	260	60	1.9	1.6
Vadodara	Moti Chikhali	7.28	800	536	0	268	35	68	73	0.37	220	96	29	360	16	3.3	0.4
Vadodara	ONGC	7.27	870	583	0	329	32	70	55	0.82	270	60	61	400	13	3.7	0.3
Vadodara	Panwad	7.48	3200	2144	0	610	461	375	76	1.3	500	44	131	650	429	17	7.3
Vadodara	Patiyapura	7.19	1150	771	0	207	106	157	111	0.18	170	112	49	480	41	1.5	0.8
Vadodara	Pavi(Jetpur)	7.47	2460	1648	0	525	255	340	106	1.3	430	56	78	460	326	45	6.6
Vadodara	Peetha	8.12	2520	1688	0	769	206	275	63	1.5	630	12	41	200	484	1.9	14.9
Vadodara	Saidal	8.12	1930	1293	0	598	170	158	87	1.3	490	24	44	240	331	5.9	9.3
Vadodara	Saidivasana	7.73	565	379	0	220	35	26	30	0.10	180	52	17	200	38	0.50	1.2
Vadodara	Sama	7.87	3925	2630	0	671	397	790	34	0.98	550	28	136	630	580	50	10.1
Vadodara	Sengpur	7.85	715	479	0	305	43	11	45	0.35	250	60	36	300	25	1.2	0.6
Vadodara	Sinor	7.35	1320	884	0	439	106	95	59	0.17	360	60	105	580	34	0.30	0.6
Vadodara	Tundav	7.36	3201	2145	0	451	348	600	137	0.87	370	64	214	1040	245	23	3.3
Vadodara	Vagudan	7.46	683	458	0	98	71	135	27	0.26	80	24	19	140	94	0.80	3.5
Vadodara	Vega	7.45	2820	1889	0	561	291	485	40	0.67	460	44	58	350	482	3.5	11.2
Vadodara	Vejpur2	7.68	2040	1367	0	610	170	215	66	1.9	500	44	39	270	345	0.6	9.1
Vadodara*	SAVLI	7.16	3665	2456	0	903	333	375	290	1.0	740	36	129	620	445	200	7.8
Valsad	Ambatalat	7.57	826	553	0	342	78	10	90	0.30	280	68	61	420	34	0.3	23.4
Valsad	Awdha	7.71	587	393	0	305	71	4.1	15	0.14	250	100	15	310	28	0.2	20.6
Valsad	Chavsala	7.72	528	354	0	183	78	16	27	0.17	150	56	24	240	29	7.8	21.3
Valsad	Dahli (Bhilad)	7.76	744	498	0	281	85	18	37	0.18	230	88	19	300	46	0.60	29.9
Valsad	Dharampur	7.56	713	478	0	305	71	13	27	0.34	250	56	51	350	21	0.2	21.3
Valsad	Kanadu	7.86	433	290	0	220	36	2.2	29	0.31	180	40	27	210	25	0.70	17.6
Valsad	Karwad	7.80	886	594	0	342	99	17	47	0.17	280	72	46	370	53	10.2	23.7
Valsad	Lakadmal	7.60	435	291	0	159	57	11	31	0.17	130	48	22	210	20	0.90	19.5
Valsad	Phali	7.80	352	236	0	183	43	2.4	12	0.05	150	44	17	180	21	2.7	19.0
Valsad	Tumb	7.88	754	505	0	268	85	19	19	0.56	220	44	44	290	45	0.60	19.0
Valsad	Udwada	7.74	1025	687	0	305	128	40	73	0.29	250	96	54	460	35	0.60	27.2
Valsad	Umargam	7.85	810	543	0	281	92	34	35	0.07	230	44	54	330	45	5.7	19.5
Valsad	Wankal	7.74	675	452	0	366	36	22	40	0.48	300	40	46	290	56	1.3	10.9