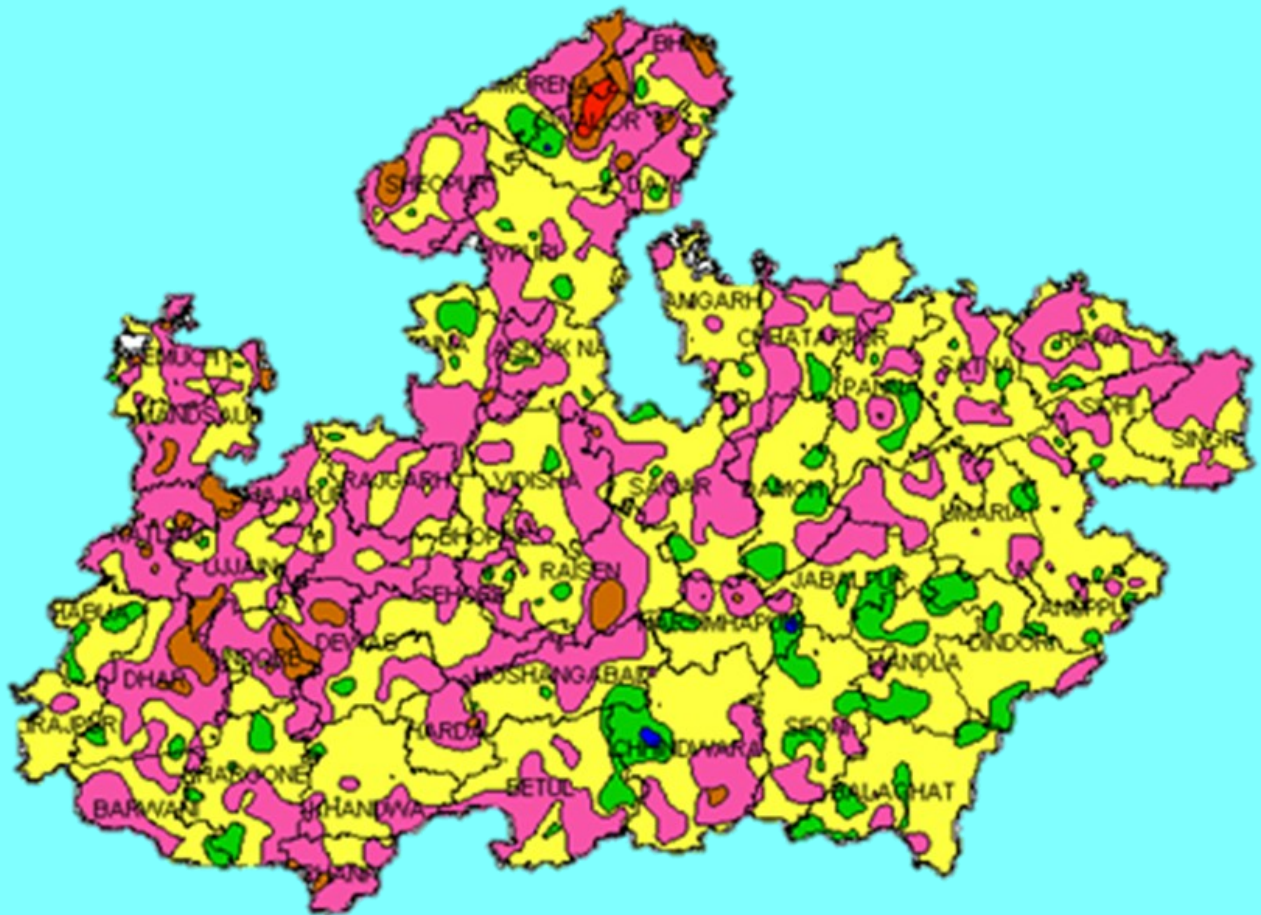




# Ground Water Year Book - Madhya Pradesh (2020-21)



**Central Ground Water Board**

North Central Region  
**GOVERNMENT OF INDIA**  
**MINISTRY OF JAL SHAKTI**

**DEPARTMENT OF WATER RESOURCES, RIVER DEVELOPMENT AND GANGA REJUVENATION**

**June 2021**



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## FOREWORD

Ground water is of fundamental importance to meet the rapidly expanding drinking, agricultural and industrial water requirement of the country. Periodic monitoring of the ground water regime is an essential prerequisite for effective planning, management and sustenance of quantity as well quality of this precious resource. To keep track of the changes in ground water regime, Central Ground Water Board (CGWB) monitors ground water level four times in a year, i.e. during May, August, November and January, through a network of ground water monitoring wells scattered throughout the length and breadth of the country. The present report gives an overview of the status of ground water level monitored during the year 2020-21 by the officers of CGWB in the state of Madhya Pradesh. As of 31.03.2021, there is a 1511 ground water monitoring dug wells and piezometers in the state.

Water samples are collected once in a year during May and are subjected to detailed chemical analysis to monitor the changes in chemical quality of ground water. The water level and water quality data so generated are updated and stored in computer and subjected to rigorous analyses using the latest software. The results of the analyses are reflected in the periodic reports on status of ground water level, which are usually issued within a month of completion of each monitoring. As such, four reports are issued every year beside the "Ground Water Year Book", which is published annually. The presents report deals with the cumulative action of the work done during the year 2020-21. During this year, the existing observation wells were monitored during May 2020, August 2020, November 2020 and January 2021.

The ground water regime monitoring work is a joint endeavor of all the officers and staff of this region and their contribution in this important activity is highly appreciated. This year book is prepared under the supervision of Shri. *Mahesh Sonkusare, Scientist D*. Preparation of this report has been an arduous task which has been successfully completed by *Dr. Sarita Tiwari, Scientist B (Hydrometeorologist)*. We would also like to acknowledge to *Shri Tej Singh, Assistant Chemist* for his contribution in writing the hydrochemistry of Madhya Pradesh State. I hope that the state government and other user agencies would utilize the data incorporated in the report for proper planning of the ground water development and management activities in the state.

*PK Jain*  
*30/6/2021*

(Padam Kumar Jain)  
Regional Director

## EXECUTIVE SUMMARY

Central Ground Water Board, North Central Region, Bhopal monitors ground water level in the entire state of Madhya Pradesh through a network of 1511 ground water monitoring dug wells and piezometers, four times in a year in order to bring out the spatial and temporal changes in the ground water regime. This continuous monitoring provides a valuable tool to decipher the seasonal and long-term changes in ground water level and quality and in turn helps in managing the ground water resources in a more scientific and effective manner. The present report incorporates the overall behavior of the ground water regime including the quality aspects in the state of Madhya Pradesh on the basis of the detailed analyses of the field data collected from observation wells during the Year 2020-21.

Total geographical area of Madhya Pradesh State is 3, 08,252 km<sup>2</sup>, which comprises fifty two districts. The state exhibits six distinct physiographic units namely the Malwa Plateau, the Satpura Range, the Vindhyan Range, the Mahakoshal Range, the Bundelkhand Region and the river valleys. There are six river basins in Madhya Pradesh which is Ganga Basin (Yamuna sub basin - Chambal sub-sub basin, Kunwari sindh sub-sub basin, Jamni sub-sub basin, Betwa sub-sub basin, Dhasan sub-sub basin, Ken sub-sub basin, Paisuni and Waidhan sub-sub basin, Tons sub basin and Sone sub basin), Narmada Basin, Godavari Basin, Tapti Basin, Mahi Basin and Mahanadi Basin.

Central Ground Water Board, North Central Region, Bhopal has set up a network of monitoring wells spread over the state in different hydrogeological conditions, consisting of 1202 dugwells and 309 piezometers, which are being monitored four times in a year. The periods of monitoring are – January 1<sup>st</sup> to 10<sup>th</sup>, May 20<sup>th</sup> to 30<sup>th</sup>, August 20<sup>th</sup> to 30<sup>th</sup> and November 1<sup>st</sup> to 10<sup>th</sup>. Water samples are being collected for analysis during the month of May.

The state has varied hydrogeological set-up due to which ground water potential differs from place to place. The area is underlain by various geological formations ranging in age from Archaean to Recent. Hard rock areas cover more than 80% of total land area of the state. These hard rock areas show wide variations and complexities in nature and composition of rocks, geological structures, geomorphological set up and hydrometeorological conditions. The crystalline rocks of Archaean age like granite, gneiss, granulites, schist, quartzite and granitoids occupy about 14.7% of geographical area of the state. The basaltic rocks of Deccan lava flows are the predominant formations and occupy nearly 44.5% of total geographical area. The consolidated sedimentary rocks of Vindhyan Super Group and Mahakoshal (Cuddapah) Super Group of Proterozoic age occupy about 19.1% of total geographical area and the semi consolidated (Gondwana Formation) occupies about 6.7% area. Recent unconsolidated alluvial sediments occupy about 14.4% of total geographical area.

Rainfall is the sole source of natural recharge to ground water regime and rainfall pattern has an important impact on groundwater level in the phreatic aquifer. Rainfall in the state occurs during south-west monsoon season (mid June to September) and sometimes during winter (November to February). Most of the rainfall (more than 90%) occurs during the south-west monsoon season.

Monsoon rainfall within  $\pm 19\%$  of the normal monsoon rainfall is considered normal. Monsoon rainfall between 20 per cent and 59 per cent of the normal monsoon rainfall is considered excess and above 60 % is considered as large excess. Monsoon rainfall less than -20% and more than -59% of the normal monsoon rainfall is considered deficit and if the monsoon rainfall is lesser than -60% of the normal monsoon rainfall, it is considered large deficient.

Madhya Pradesh State has recorded 5 percent surplus rain during 2020 monsoon period with respect to normal rainfall. The normal monsoon rainfall and normal post monsoon rainfall of the Madhya Pradesh State is 940.6 mm and 53.7 mm respectively. During monsoon season state has received 990.8mm, 5% above monsoon normal and in the post monsoon season 28.5 mm, 47% below post monsoon normal. However as compared to last year monsoon rainfall, this year state has received 30 % less rain. The percent departures of the monsoon rainfall from the normal rainfall worked out, which show that most of the districts have received normal to excess rainfall except in Bhind, Datia, Gwalior, Tikamgarh, Katni (part) and Chhatarpur (part). Dewas District has received the highest rainfall of 1387.2 mm and Bhind District has received the least rainfall of 448.7 mm. East Madhya Pradesh and West Madhya Pradesh have received normal monsoon rainfall with a slight variation in percentage departure at -2% and 12% respectively. However, during post monsoon both the subdivisions (East and West MP) have received deficit rainfall, -34% and -58% below normal respectively. Most of the districts in East Madhya Pradesh are showing normal to deficit monsoon rainfall as compared to west side. Shahdol has received highest post monsoon rainfall, 41% above normal and Narsinghpur is lowest, 97% below normal. Out of 53 districts only 11 districts namely Alirajpur, Dindori, Ratlam, Mandla, Indore, Anuppur, Balaghat, Singrauli, Neemuch, Umaria and Shahdol District has received normal to excess post monsoon rainfall.

The groundwater level monitored in May is the pre-monsoon water level and the water level as it stands at the end of the ground water year after all the inputs and outputs have taken place. It is the resultant ultimate/deepest water level. Depth to water level (DTWL) during May 2020 ranged from 0.35 to 54.97 (dry) metres below ground level (m bgl) in Madhya Pradesh. About 2.20% percent of the wells in the state recorded a water level up to 2 m bgl, 23.01% between 2-5 m bgl, 46.28% between 5-10 m bgl, 23.77% between 10-20 m bgl, 4.23% between 20-40 m bgl and 0.51% in more than 40 m bgl. DTWL between 5-10 m bgl is the most prominent over the entire State.

The groundwater level monitored in November is the post-monsoon water level and the water level as it stands after the major portion of rainfall recharge has taken place. DTWL during November 2020 ranged from 0.60 m agl to 54.10 m (Dry) bgl in Madhya Pradesh. 11.96 % percent of the wells in the state recorded a water level up to 2 m bgl, 40.51 % between 2-5 m bgl, 36.27 % between 5-10 m bgl, 9.80 % between 10-20 m bgl, and 1.39% between 20-40 m bgl and 0.08% well comes under more than 40 m bgl. In the major part of the state depth to water level ranges between 2 to 10 m bgl.

Ground water is a dynamic system. The ground water level or head is subject to change both due to natural and man made causes. Comparison of November 2020 water level with that of May 2020 shows that there is a rise in the ground water level in about 85.46% of the wells due



to monsoon recharge and only 14.54% of wells show decline in water level. Rise in the order of 0-2 m is seen in about 32.25% of wells in the state. 28.46% of wells show a rise in the order of 2-4 m. About 24.75% wells recorded a rise of water level by more than 4 m. About 10.57% of the wells show a decline in water level up to 2 m, 2.26% of the wells show a decline in water level between 2 to 4 m and 1.72% wells shows decline more than 4 m.

Long term behaviour of water level of the phreatic zone have been analysed by comparing the average water level data of last ten years with the current water level of different measurements during the year. The ground water level of May 2020 were compared with the 10 years May (2010-2019) average ground water level to decipher the long-term changes in the ground water regime. It is observed that about 74.20% of the wells show rise and about 25.80% wells show decline in water levels in the state. The rise in water level is in the order of 0-2 m in 41.29% of the wells, 2-4 m in 19.71% of the wells and more than 4 m in about 13.20% of the wells. The decline in water level in the order of 0-2 m is shown by about 16.58% of the wells, between 2-4 m in 4.82% of the wells and more than 4 m in 4.40% of the wells.

Ground water level trend of pre-monsoon period (May 2011 to May 2020) shows the general rise and fall in water level in the state. Around 48% of monitoring wells are showing declining water levels trend while 52 % monitoring wells are showing rising ground water level trend. Rising trend and declining trend less than 0.5 m/year of ground water level is found during the past decade in most of the district of the state. The declining trend of pre-monsoon water levels reflects the ground water developmental activities in an area, whereas the rising trend indicates that either the developmental activities have reduced, or that, recharge due to sources other than the rainfall, such as applied irrigation has increased.

Like a pre monsoon ground water level trend, post monsoon ground water trend (Nov 2011 to Nov 2020) shows that there is a general rising trend as well as declining trend of less than 0.5 m/year during the past decade in most of the district of the state. Declining trend at a rate -0.5 to -1 m/year is observed mainly in Datia, Vidisha, Betul, Gwalior, Morena and Sheopur District of the state. Rising ground water trend at a rate 0.5 to 1m/yr is noticed in part of some districts. The declining trend in post-monsoon water levels suggests that a part of the aquifer is being dewatered every year, due either to deficient rainfall or to developmental activities. The rising post-monsoon trend, on the other hand, shows that additional water is being stored in the aquifer, due either to increased rainfall or to seepage through applied irrigation.

1038 number of ground water samples was collected from the ground water monitoring wells during May 2020 in the entire state. The analyses of ground water samples indicate that ground water in the state of Madhya Pradesh is generally good for drinking purposes and suitable for irrigation. In most of the part of the state the ground water has low to medium salinity ( $EC \approx 1000 \mu\text{s/cm}$ ) except in few pockets. In some parts of the state very high electrical conductivity i.e. more than  $3000 \mu\text{s/cm}$  at  $25^\circ\text{C}$  (0.77%) has been recorded specially in Agar Malwa, Alirajpur, Bhind, Indore, Neemuch, Ratlam, Sagar and Sehore District.

Fluoride concentration more than permissible limit i.e. 1.5 mg/l is observed in Chhindwara, Datia, Dewas, Dindori, Khandwa, Mandsaur, Morena, Neemuch, Ratlam, Sehore, Tikamgarh and Umaria District. The maximum fluoride concentration has been observed at Borgaon of

Chhindwara District and Nigahari of Umaria District (1.98 mg/l). In Madhya Pradesh, 89.69% wells fluoride concentration is within the desirable limit of 1.0 mg/l where as 1.83% wells show fluoride concentration above the maximum permissible limit of 1.5 mg/l.

The analyses of ground water samples indicate that 65.13% wells have nitrate concentration within the permissible limit of 45mg/l, while 34.87% wells have nitrate concentration above permissible limit. Nitrate concentration more than permissible limits have been observed in Agar Malwa, Alirajpur, Ashok Nagar, Balaghat, Barwani, Betul, Bhind, Burhanpur, Chhatarpur, Chhindwara, Damoh, Datia, Dewas, Dhar, Dindori, Gwalior, Harda, Hoshangabad, Indore, Jabalpur, Jhabua, Katni, Khandwa, Khargone, Mandla, Mandsaur, Morena, Narsinghpur, Neemuch, Panna, Raisen, Rajgarh, Ratlam, Rewa, Sagar, Satna, Sehore, Seoni, Shahdol, Shajapur, Sheopur, Shivpuri, Sidhi, Singrauli Tikamgarh, Ujjain, Umaria and Vidisha District. Very high nitrate concentration of 321 mg/l was found in the ground water sample from Bachhukhera of Ujjain District.

Total Hardness in ground water samples ranges between 20 to 1450 mg/l. Most of the waters are calcium bicarbonate type attributing to temporary hardness of water. The analyses reveal that 5.88% of wells show hardness more than the permissible limit of 600 mg/l.

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## 1 INTRODUCTION

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Madhya Pradesh is located in the central part of India and is a land-locked state, bordered on the west by Gujarat, on the northwest by Rajasthan, on the northeast by Uttar Pradesh, on the east by Chhattisgarh and on the south by Maharashtra State. It has a geographical area of 3,08,252 km<sup>2</sup> and is situated between north latitudes 21° 04' and 26° 54' and east longitudes 74° 00' and 82° 50'. There are 52 districts and 313 community development blocks in Madhya Pradesh. The population of state as per census 2011 is 7, 25, 97, 565 with a population density of 236 persons per km<sup>2</sup> area. Out of total population, 75% lives in the villages and their main occupation is agriculture. The important urban areas in the state are Bhopal, Indore, Jabalpur, Ujjain and Gwalior. Dhupgarh in Pachmarhi is the highest point in the state.

Madhya Pradesh comprises several linguistically and culturally distinct regions, of which the major regions are:

**Malwa Plateau Region** is located in the northwest of the state and north of the Vindhya Range, with its distinct language and culture. Indore is the major city of the region, while Ujjain is a town of historical importance. Bhopal, the capital city lies on the extension of Malwa Region and on the edge of Bundelkhand Region.

**Nimar Region** is located in the western portion of the Narmada River valley, lying south of the Vindhyas in the southwest portion of the state. Khandwa, Khargone, Burhanpur and Barwani are the major district of the Nimar Region.

**Bundelkhand** is a region of rolling hills and fertile valleys in the northern part of the state, which slopes down toward the Indo-Gangetic plain to the north. Gwalior is an historic center of the region. This region encompasses Gwalior, Sagar, Damoh, Panna, Chhatarpur and Tikamgarh Districts.

**Chambal region** is located in the north-western parts of the state. The climate is harsh, and the area is known for murderous pirates who were active in hundreds in the late 1900s. This region is comprised of Sheopur, Morena and Bhind Districts.

**Baghelkhand** is a hilly region in the northeast parts of the state, which includes the eastern end of the Vindhya Range. Satna, Rewa and Sidhi Districts lie in this region.

**Mahakoshal (Mahakaushal)** is the southeastern portion of the state, which includes the eastern end of the Narmada River valley and the Eastern Satpuras. Jabalpur is the most important city in the region. Katni and Jabalpur Districts lie in this region.

**Central Vindhyan and Satpura Region** is occupying most parts of the central Narmada River valley. Hoshangabad, Harda and Narsimhapur Districts lies in this region.

Agriculture is the main stay of the people of Madhya Pradesh State. Water is essential for irrigation purposes, but its indiscriminate use can lead not only to shortages, but also to the deterioration of crop yields and soils. Ground water resource of a region is one of the building blocks for balanced economic development of the area, especially in an agriculture based society. Dependence on ground water for irrigation and increasing water requirements in urban areas in Madhya Pradesh has necessitated judicious and planned uses of ground water resources in order to reach sustainability. For proper planning and management of ground water development in a judicious and socio-economically equitable manner, assessment of ground water scenario is one of the most important prerequisites.

Central Ground Water Board (CGWB) monitors ground water levels all over the country four times in a year in order to bring out the spatial and temporal changes in the ground water regime. This continuous monitoring provides a valuable tool to decipher the annual, seasonal and long-term changes in ground water regime, and in turn helps in managing the ground water resources in a scientific manner.

The North Central Region office of CGWB, based at Bhopal, monitor the ground water wells spreaded all over the state. As on start of the year i.e. 31-03-2021, the number of ground water monitoring wells are 1511 which includes 1202 dugwells and 309 piezometers. Few of the exiting dugwells and piezometers were declared as abandoned. District-wise distribution of Ground Water Monitoring Wells in Madhya Pradesh during 2020-21 is given in Table 1. The locations of these monitoring wells are shown in Figure 1-1. All monitoring wells are monitored four times in a given hydrological year in the months of August (20<sup>st</sup> to 30<sup>th</sup> day), November (postmonsoon) (1<sup>st</sup> to 10<sup>th</sup> day), January (1<sup>st</sup> to 10<sup>th</sup> day) and May (premonsoon) (20<sup>th</sup> to 30<sup>th</sup> day). The long-term data generated during these monitoring seasons are important for computation, comparison and analysis of ground water utilization and its availability.

Reports on the status of ground water levels are produced within one month from each monitoring period and contain analysis of ground water levels in that particular season, and



compare these water levels with those of the same season of previous year, premonsoon period and previous seasons of the same hydrological year and decadal mean (10 years of average) of the same season.

Figure 1-1 Location Map of Ground Water Monitoring Wells in Madhya Pradesh State

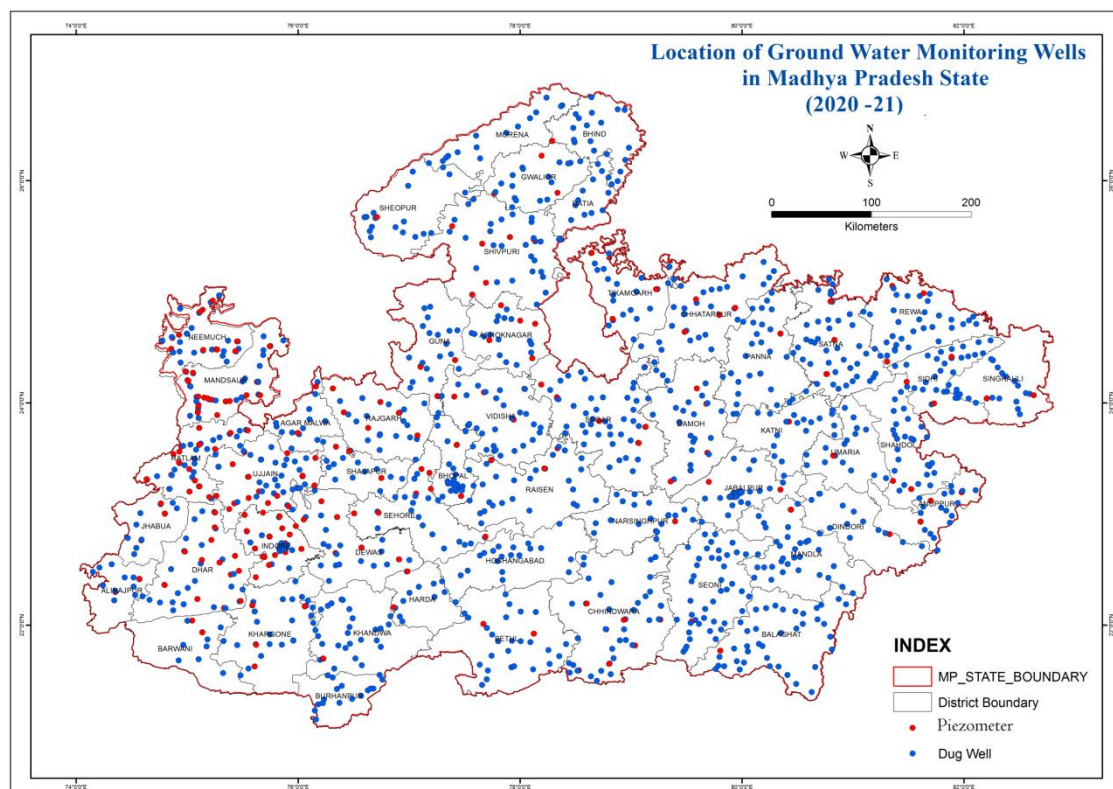


Table 1-1 District-Wise Distribution of Ground Water Monitoring Wells in Madhya Pradesh State

S No.	District	No of monitoring stations As on 31.03.2021		
		DW	PZ	Total
1	AGAR MALWA	13	3	16
2	ALIRAJPUR	12	2	14
3	ANUPPUR	21	5	26
4	ASHOK NAGAR	18	5	23

5	BALAGHAT	40	6	46
6	BARWANI	9	2	11
7	BETUL	28	4	32
8	BHIND	19	1	20
9	BHOPAL	26	4	30
10	BURHANPUR	17	0	17
11	CHHATARPUR	32	7	39
12	CHHINDWARA	37	9	46
13	DAMOH	21	6	27
14	DATIA	12	0	12
15	DEWAS	20	8	28
16	DHAR	26	19	45
17	DINDORI	14	2	16
18	GUNA	21	5	26
19	GWALIOR	17	3	20
20	HARDA	11	2	13
21	HOSHANGABAD	19	0	19
22	INDORE	22	25	47
23	JABALPUR	33	6	39
24	JHABUA	10	4	14
25	KATNI	18	1	19
26	KHANDWA	30	1	31

27	KHARGONE	21	6	27
28	MANDLA	32	2	34
29	MANDSAUR	24	24	48
30	MORENA	14	0	14
31	NARSINGHPUR	18	1	19
32	NEEMUCH	24	13	37
33	PANNA	26	4	30
34	RAISEN	27	4	31
35	RAJGARH	21	13	34
36	RATLAM	28	21	49
37	REWA	32	6	38
38	SAGAR	43	8	51
39	SATNA	46	7	53
40	SEHORE	19	9	28
41	SEONI	45	2	47
42	SHAHDOL	28	3	31
43	SHAJAPUR	16	5	21
44	SHEOPUR	20	1	21
45	SHIVPURI	30	6	36
46	SIDHI	29	6	35
47	SINGRAULI	20	4	24
48	TIKAMGARH	20	7	27

49	UJJAIN	28	21	49
50	UMARIA	16	1	17
51	VIDISHA	29	5	34
	STATE TOTAL	1202	309	1511

### 1.1. PHYSIOGRAPHY

The State of Madhya Pradesh exhibits six distinct physiographic units as follows:

The Malwa Plateau

The Satpura Range

The Vindhyan Range

The Mahakoshal Range

The Bundelkhand Region

The River valleys

The Malwa Plateau marks the northern span of the Deccan Plateau and this region forms a part of the vast Deccan Plateau of Central India. The hill ranges run across the plateau. The Satpura Range located in the southern part of the State is E-W trending. It has an average elevation of 600 m amsl and highest elevation of 1350 m amsl. The Vindhyan range occupies in the northern and central part of the region and has ENE-WSW trend. The Mahakoshal Range also has a similar trend. The Vindhyan Range extends into the Malwa Plateau and Bundelkhand Region. The Vindhyan Range and Mahakoshal Range are separated from the Satpura Range by the Narmada River and vast tract of its basin area. The river valleys, other than the Narmada alluvial plain and Chambal alluvial plain, are very limited and form narrow belts along the rivers.

### 1.2. DRAINAGE

Madhya Pradesh State represents great river basins and the watershed of a number of rivers. Catchments of many rivers of India lie in Madhya Pradesh. There are six river basins in Madhya Pradesh namely 1 Ganga Basin (1.1 Yamuna sub basin - Chambal sub-sub basin, Kunwari sindh sub-sub basin, Jamni sub-sub basin, Betwa sub-sub basin, Dhasan sub-sub basin, Ken sub-sub basin, Paisuni and Baidhan sub sub basin 1.2 Tons sub basin, 1.3 Sone

sub basin), 2 Narmada Basin, 3 Godavari Basin, 4 Tapi Basin, 5 Mahi Basin and 6 Mahanadi Basin. As Madhya Pradesh is located in the center of India, most of the rivers are interstate rivers. The rivers namely, Chambal, Sindh, Betwa, Ken flows northward and meet with Yamuna, whereas the Sone River falls directly into Ganga. Narmada, Tapi and Mahi Rivers flow westward and meet Arabian Sea whereas Wainganga and Pench Rivers meet Godavari in the south. The Narmada (originating from Amarkantak) and Tapi (originating from Multai in Betul District) Rivers and their basins divide the state in two, with the northern part draining largely into the Ganga basin and the southern part into the Godavari and Mahanadi systems. The Vindhyas form the southern boundary of the Ganga basin, with the western part of the Ganga basin draining into the Yamuna and the eastern part directly into the Ganga itself. All the rivers, which drain into the Ganga, flow from south to north, with the Chambal, Kshipra, Kalisindh, Parbati, Kuno, Sind, Betwa, Dhasan and Ken Rivers being the main tributaries of the Yamuna. The land drained by these rivers is agriculturally rich, with the natural vegetation largely consisting of grass and dry deciduous forest types. The eastern part of the Ganga basin consists of the Son, the Tons and the Rihand Rivers, with the Son being the major tributary. This is also the junction point of the Satpura and the Vindhya Ranges, with the Maikal and Kaimur Hills being the fulcrum. The forests here are much richer than the thorn forests of the northwestern part of Madhya Pradesh. The Son River is of great significance in that it is the largest tributary going into the Ganga on the south bank and arising out of the hills of Madhya Pradesh rather than from the Himalayas. This river and its tributaries contribute the bulk of the monsoon flow into Ganga, because the north bank tributaries are all snow fed.

The major tributary of the Ganga, the Son River, arises in one of the most important watersheds in India, the Maikal hills around Amarkantak. Three of the great rivers of India, Narmada, Mahanadi and Son, are given birth to by these hills. This is also one of the few ranges in the state having a north south configuration. The Mahanadi itself, together with its tributaries such as Hasdeo, Mand and Kharun flows southeast into Chhattisgarh and converts that state into a green rice bowl. The upper Mahanadi catchment contains some of the finest forests in the state, ranging from mixed deciduous to teak, bamboo and sal. Just as the Mahanadi flows east from the Maikal hills and the Son flows north, the mighty Narmada charts a westerly course from these very hills. The Narmada flows through a rift valley, with the Vindhyas marching along its northern bank and the Satpuras along the southern. Its tributaries include Banjar, Tawa, Machna, Denwa and Sonbhardra Rivers. Taken in

combination with its parallel sister river, the Tapti, which also flows through a rift valley, the Narmada - Tapti systems carry an enormous volume of water and provide drainage for almost a quarter of the land area of Madhya Pradesh.

The Satpuras, in the Gawligarh and Mahadeo hills, also contain a watershed, which is south facing. The Indrawati, Wainganga, Wardha, Pench, Kanhan and Penganga Rivers, discharge an enormous volume of water into the Godavari system. The Godavari is the lifeline of Andhra Pradesh, but the water which feeds it is a gift of the central India watershed.

### **1.3. HYDROGEOLOGY**

The state of Madhya Pradesh has varied hydrogeological characteristics due to which ground water potential differs from place to place. The area is underlain by various geological formations ranging in age from the Archaean to the Recent. Hard rock areas cover more than 80% of total land area of the state. These hard-rock areas show wide variations and complexities in nature and composition of rocks, geological structures, geomorphological set up and hydrometeorological conditions. The crystalline rocks of Archaean age like granite, gneiss, granulites, schist, quartzite and granitoids occupy about 14.7% of geographical area of the State. The basaltic rocks of Deccan lava flows are the predominant formations and occupy nearly 44.5% of total geographical area. The consolidated sedimentary rocks of Vindhyan Super Group and Mahakoshal (Cuddapah) Super Group of Proterozoic age occupy about 19.1% of total geographical area and the semi consolidated (Gondwana Formation) occupies about 6.7%. Recent unconsolidated alluvial sediments occupy about 14.4% of total geographical area. Hydrogeological units of Madhya Pradesh State are given in Table 1-2 and Hydrogeological map of Madhya Pradesh State has been given in Figure 1-2 a and Figure 1-2 b.

#### **Archeans**

Archeans comprise of old metamorphics, granites, gneisses and schists. They are hard and compact formations with low primary permeability, forming poor aquifers. Ground water occurs in these only in the weathered mantle and underlying fractured zone. Dug wells in this formation have depths of 5-30 m with water levels between 3-17 mbgl. Where thickness of aquifer is considerable, specific capacity ranges from 20-200 lpm/m of draw down. Hydraulic conductivity is generally less than 1 m/d and specific yield less than 5%. The yield of open wells ranges between 40-135 m<sup>3</sup>/d.



**Vindhyan**

Vindhyan Group of rocks comprise of sandstone, shale and limestone. The sandstone and shale are hard and compact and form poor aquifers. Ground water occurs in these in the weathered mantle and fractured zone or bedding plane fissures. The limestone is different in its hydrogeological properties having large solution cavities, which give rise to immense secondary permeability. The wells in limestone formations yield 100-500 m<sup>3</sup>/day for less than 5m draw down. Specific capacity ranges from 100-300 lpm/m of draw down, hydraulic conductivity varies between 5-15 m/d and specific yield ranges from 5-15% in good karstic zones.

**Gondwanas**

The Gondwanas are sedimentary formations rich in granular zones and form good aquifers. They support both dugwells and tubewells, capable of yielding 100-500 m<sup>3</sup>/d for the drawdown of 6-10 m. the specific capacity ranges between 75-250 lpm/m of drawdown, hydraulic conductivity varies between 10-25 m/d and specific yield is from 10-15%. However, the clayey and silty formations (shales/claystone/siltstone) of Dewas District are poor aquifers.

**Infra Trappeans**

The Bagh and Lameta beds and Nimar Sandstone are also sedimentary formations but have a limited extent and poor to moderate permeability. The limestone and calcareous clays when karstified form productive aquifers. The corraling limestone, the marls and nodular limestone are hard and compact having poor permeability. The Nimar sandstone has intergranular porosity, joints, fracture, bedding planes, which give moderate scope for ground water movement. The depth of wells varies from 3 to 13 m and depth to water level between 2 to 12 mbgl.

**Deccan Traps**

These form the most important aquifers in the region. The weathered, fractured, jointed and vesicular units of basalts form moderate to good aquifers. These formations have highly variable yields ranging from 10 to 750 m<sup>3</sup>/d. Dugwells range in depth from 4 to 20 m with water levels varying between 2 and 14 mbgl. The specific capacity ranges from 50 to 150 lpm/m of drawdown, hydraulic conductivity varies between 5 and 15 m/d and the specific yield is 5-10%. The Deccan Traps formations can be tapped by dug-cum-bore and drilled wells. It is observed that the yield increases by 5-10 times when 10-15 m bores extending

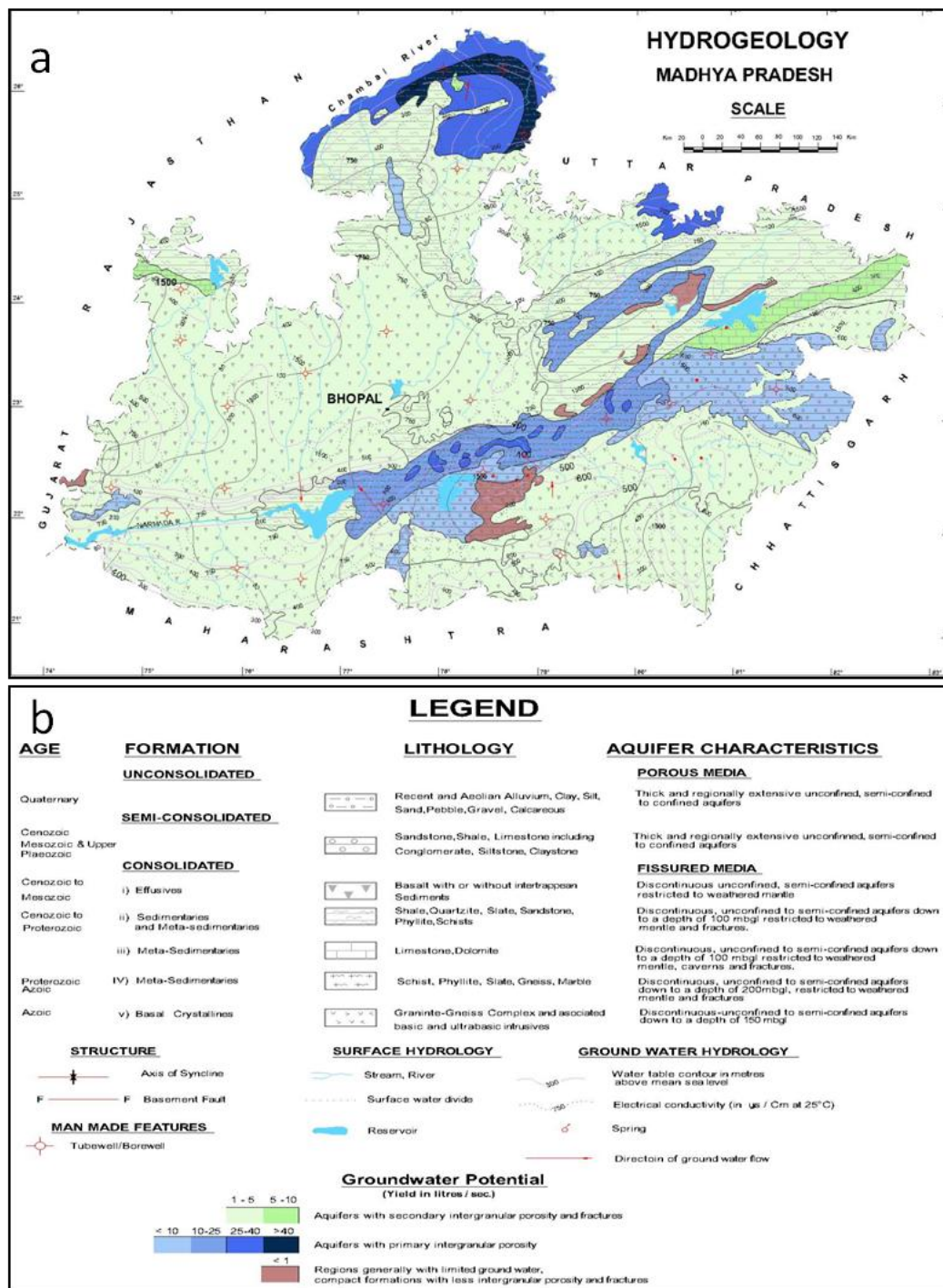
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down to the lower vesicular zone are drilled at the base of dugwells. Yields of 400-600 m<sup>3</sup>/d can be obtained in this way. In some areas the control of doleritic dykes on occurrence of ground water was observed. Wells located on the upstream side of these dykes gave better yields. Also wells located on tectonic lineaments gave better yields.

### **Alluvium**

It comprises of unconsolidated gravel, sand, silt, clay in various proportions and has primary intergranular porosity and permeability. Hence it is the most promising formation for ground water development. The thickness of alluvium varies from 10 to 318 m with aquifer thickness from 10 to 160 m being more in the Ganga basin than in the Narmada basin. The depth to water ranges from 5 to 30 mbgl. The transmissivity is high in the Ganga basin reached upto 300 m<sup>2</sup>/d. In the Narmada basin transmissivity ranges between 83-283 m<sup>2</sup>/d. the yields vary from 30 to 50 m<sup>3</sup>/hr in the shallow wells and 30-200 m<sup>3</sup>/hr for deep wells in the Ganga basin. In the Narmada basin the yields are of the order of 15-30 m<sup>3</sup>/hr in the phreatic zone and 70-200 m<sup>3</sup>/hr in the deeper zone. In the Wainganga sub basin the wells yield 60-600 m<sup>3</sup>/d. In the Tapi basin, the yields are 25-95 m<sup>3</sup>/d.

Figure 1-2 Hydrogeological Map of Madhya Pradesh



(Source: Geological Survey of India)

Table 1-2 Hydrogeological Units in Madhya Pradesh, their Potential and Ground Water Scenario

<b>Geological Age</b>	<b>Group</b>	<b>Rock Formation</b>	<b>Surface Exposure Area (Approx.)</b>	<b>Occurrence and Hydrogeological Characters.</b>
Pleistocene to Recent	Alluvial plains (older and Newer Alluvium)	Unconsolidated clays and silts, gravels and sands of different mix. Lenses of Peat and organic matter carbonate and siliceous concretions (Kankars)	38,000 Sq.Km.	Occur widespread in Bhind (Chambal basin), Hoshangabad and Narsimhapur districts (Narmada basin) and also in Sheopur, Morena, Datia, Chhatarpur, Jabalpur, Katni, Khandwa, Burhanpur, Raisen, Sidhi and Balaghat Districts and along rivers in some other districts. Form very potential ground water reservoirs with a thick sequence of sandy aquifers down to great depths (>300 m.bgl). The aquifers are unconfined, semi-confined (leaky confined) or confined.
Cretaceous to Eocene	Deccan Trap	Basalts	1,43,300 Sq.Km.	Occupy the Malwa Plateau covering Nimuch, Mandsaur, Indore, Dhar, Ratlam, Shajapur, Sagar, Rajgarh, Sehore, Badwani, Khargone, Khandwa and Burhanpur Districts and parts of Jhabua, Raisen, Guna, Ashoknagar, Vidisha, Bhopal, Sehore, Betul, Jabalpur, Katni, Hoshangabad, Harda, Narsimhapur, Chhindwara, Seoni, Dindori, Mandla, Shahdol and Anuppur Districts.

	Bagh and Lameta Groups	Sandstones cherty limestones	8,500 Sq.Km.	Infra Trappean formation of Bagh & Lameta occurs in Dhar, Jhabua & Jabalpur Districts and small patches in Sagar, Hoshangabad and Narsimhapur Districts. Weathered, Fractured and vesicular basaltic layers of Traps, inter-trappeans and infratrappeans form productive unconfined hallow aquifers and leaky confined/confined deeper aquifers and yield upto 5 lips. (Infra trappeans are less productive). Storativity 1 to 4% Hydraulic conductivity 5-15 m/day.
Palaeozoic to Cretaceous	Gondwana super Group. Jabalpur, Mahadeva, Panchet, Raniganj, Barakars and Talchir Groups	Boulder beds Sand-stones, shales, clays, limestone, coal seams	28,000 Sq.Km.	Occur in Betul, Chhindwara, Narsimhapur, Hoshangabad, Jabalpur, Katni, Sidhi, Umaria, Shahdol and Anuppur Districts. Possess moderate primary porosity. Groundwater occurs under phreatic as well as semi-confined to confined conditions. Free flowing conditions with free flow discharge of 150 to 200 lpm have been recorded in North-eastern part of Jabalpur District.

Precambrian (Proteozoic)	Vindhyan Super Group. Bhander, Rewa, Kaimur and Semri Groups.  <b>Mahakoshal (Cuddaph) Super Group</b>  Bijawar and Gwalior Groups.	Shales, Sandstones limestones	58,700 Sq.Km.	Occur in Gwalior, Morena, Sheopur, Shivpuri, Guna, Ashoknagar, Rewa, Panna, Satna, Jabalpur, Katni, Damoh, Sagar, Chhatarpur, Raisen, Bhopal, Vidisha, Nimuch, Mandsaur and Dewas Districts. Generally, devoid of any primary porosity. Weathering and denudation, structurally weak planes and fractures impart porosity and permeability in the rock mass. Solution cavities (Cavernous) in carbonate rocks, at places give rise to large groundwater storage/circulation. Sp. Yield value of unconfined aquifer is generally low (0.2% to 3%). Hydraulic conductivity varies widely depending upon fracture incidence (2 to 10 m/day.)
Archaean	Older Metamorphics Sausar, Sakoli and Chilpi Groups. & Bundelkh and Granites.	Granitoid gneisses, schists, gneisses, quartzites and granites	31,500 Sq.Km.	Occur in Seoni, Balaghat, Shahdol, Anuppur, Mandla, Dindori, Sidhi, Rewa, Panna, Datia, Tikamgarh, Gwalior, Chhatarpur, Jabalpur, Katni, Jhabua and Shivpuri Districts, as also parts of Chhindwara, Harda, Hoshangabad, Narsimhapur and Dewas Districts. Do not possess primary porosity. Weathering, fracturing, jointing impart secondary porosity. Groundwater mostly occurs under phreatic conditions and at some places also under confined/semi confined conditions.

#### 1.4. MONSOON AND POST MONSOON RAINFALL DISTRIBUTION 2020

Rainfall is the sole source of natural recharge to ground water and rainfall pattern has an important impact on groundwater levels in the phreatic aquifer. Rainfall in the State of Madhya Pradesh occurs during south-west monsoon season (mid June to September) and



sometimes during winter season (December to February). Most of the rainfall (more than 90%) occurs during the south-west monsoon season, August being the rainiest month.

The rainfall data for the period 1<sup>st</sup> June 2020 to 30<sup>th</sup> September 2020 (monsoon period) of 51 rain gauge stations located in Madhya Pradesh State, collected from IMD website (presented in previous report). The isohyetal map of monsoon rainfall 2020, prepared on the basis of this data is given in Figure 1-3a. In order to further understand the impact of rainfall on ground water level, monsoon rainfall (1<sup>st</sup> June 2020 to 30<sup>th</sup> September 2020) and post monsoon rainfall (1<sup>st</sup> Oct. 2020 to 31<sup>st</sup> Dec. 2020) data of the state collected from IMD, Bhopal Regional Centre and presented in Table 1-3 & Table 1-4. The isohyetal map of post monsoon rainfall 2020, prepared on the basis of this data is given in Figure 1-3b. Rainfall within  $\pm 19\%$  of the normal rainfall is considered as normal rainfall. Rainfall above 19% of the normal monsoon rainfall is considered excess rainfall. Rainfall less than -19% and less than -59% of the normal rainfall is considered deficit and if the rainfall is even lesser than -59% of the normal monsoon rainfall, it is considered scanty rainfall.

The normal rainfall of the Madhya Pradesh State is 977.5 mm. The normal monsoon rainfall and normal post monsoon rainfall of the Madhya Pradesh State is 940.6 mm and 53.7 mm respectively. During monsoon season state has received 990.8mm, 5% above monsoon normal and in the post monsoon season 28.5 mm, 47% below post monsoon normal. However as compared to last year monsoon rainfall this year state has received 30 % less rain. The percent departures of the monsoon rainfall from the normal rainfall worked out, which show that most of the Districts have received normal to excess rainfall except in Bhind, Datia, Gwalior, Tikamgarh, Katni (part) and Chhatarpur (part). Dewas District has received the highest rainfall of 1387.2 mm and Bhind District has received the least rainfall of 448.7 mm.

East Madhya Pradesh (E MP) and West Madhya Pradesh (W MP) have received normal monsoon rainfall with a slight variation in percentage departure at -2% and 12% respectively. However, during post monsoon both the subdivisions (E and W MP) have received deficit rainfall, -34% and -58% below normal respectively. Most of the districts in east Madhya Pradesh are showing normal to deficit monsoon rainfall as compared to west side. Bhind (448.7mm) has received lowest rainfall while Dewas District has received highest monsoon rainfall (1387.2mm). Shahdol has received highest post monsoon rainfall, 41% above normal and Narsinghpur is lowest, 97% below normal. Out of total districts only 11 districts namely Alirajpur, Dindori, Ratlam, Mandla, Indore, Anuppur, Balaghat, Singrauli, Neemuch, Umaria

and Shahdol District has received normal to excess post monsoon rainfall. The percent monsoon and post monsoon rainfall departure from normal of Madhya Pradesh State for the Year 2020 is given in Figure 1-4a & Figure 1-4b.

Average rainy days for a particular district are calculated by taking the average of rainy days of the rain gauge stations located in that district. It has been found that in the month of August (rainiest month) maximum number of rainy days lays in the range of 18 to 20 days specially, in Shivpuri part, Ashoknagar part, Vidisha part, Sagar, Raisen, Hoshangabad, Betul, Chhindwara, Narsinghpur, Damoh, Panna, Umaria part, Shahdol and Anuppur part. While minimum number of rainy days lies in the range 12 to 14 days specially, in Ujjain, Mandsaur and Datia District. Remaining district falls in the range of 14 to 22.

In order to see the rainfall recharge condition a rainfall intensity map for the month of August prepared. Rainfall data is collected from regional centre IMD Bhopal. Rainfall intensity is calculated by dividing the accumulated rainfall of a month to number of rainy days using 311 India Meteorological Department rain gauge station data distributed in Madhya Pradesh. Khargone, Barwani, Burhanpur, Dhar part, Alirajpur, Panna, Satna part and Sidhi has received lowest intensity rainfall (10-20mm/day) while Hoshangabad, Sehore and Rajgarh has highest intensity rainfall (60 to 70mm/day). And all other districts have intensity between 20 to 60mm/day.

The percent monsoon and post monsoon rainfall departure from normal monsoon and post monsoon rainfall of Madhya Pradesh State for the year 2020 is presented in Figure 1-4. District wise monsoon rainfall and post monsoon rainfall distribution during monsoon and post monsoon period for 2020 is given in Table 1-3 & Table 1-4 and monsoon and post monsoon rainfall distribution pattern of Madhya Pradesh State for the year 2020 is presented in Figure 1-3.

Table 1-3 Monsoon Rainfall in Madhya Pradesh State in the Year 2020

S.No.	Name of District	Actual rainfall Monsoon (1 <sup>st</sup> June- 30 <sup>th</sup> Sept)	Normal rainfall Monsoon (1 <sup>st</sup> June- 30 <sup>th</sup> Sept)	Departure(%) of Monsoon Rainfall wrt Normal of the Year 2020	Category
1	AGAR-MALWA	981.4	812.1	21	Excess
2	ALIRAJPUR	842	784.3	7	Normal
3	ANUPPUR	1177.9	1099.6	7	Normal
4	ASHOKNAGAR	940	852.1	10	Normal
5	BALAGHAT	1197.5	1323	-9	Normal
6	BARWANI	849.7	658.7	29	Excess
7	BETUL	1119.1	957.8	17	Normal
8	BHIND	448.7	657.7	-32	Deficit
9	BHOPAL	1249.6	962.4	30	Excess
10	BURHANPUR	844	741.4	14	Normal
11	CHHATARPUR	720	947.5	-24	Deficit
12	CHINDWARA	1360.1	1001.3	36	Excess
13	DAMOH	968.6	1046.3	-7	Normal
14	DATIA	557.4	755.8	-26	Deficit
15	DEWAS	1387.2	904.4	53	Excess
16	DHAR	860.3	835.9	3	Normal

17	DINDORI	1283.9	1182	9	Normal
18	GUNA	847	888.1	-5	Normal
19	GWALIOR	519.4	747.9	-31	Deficit
20	HARDA	1159.8	1042.1	11	Normal
21	HOSHANGABAD	1310.2	1308.7	0	Normal
22	INDORE	1203.8	827	46	Excess
23	JABALPUR	1033.8	1111.2	-7	Normal
24	JHABUA	1010.8	774.7	30	Excess
25	KATNI	803.3	1011.9	-21	Deficit
26	KHANDWA	1006.3	790.9	27	Excess
27	KHARGONE	843.8	714.4	18	Normal
28	MANDLA	1214.7	1210.7	0	Normal
29	MANDSAUR	620.8	786.5	-21	Deficit
30	MORENA	524	651.5	-20	Deficit
31	NARSINGHPUR	1128	1046.6	8	Normal
32	NEEMUCH	669	742.3	-10	Normal
33	PANNA	910.5	1087.4	-16	Normal
34	RAISEN	1394.6	1074.9	30	Excess
35	RAJGARH	1009.1	833.2	21	Excess
36	RATLAM	1085.1	867.5	25	Excess
37	REWA	980.9	950.7	3	Normal

38	SAGAR	938.7	1080.2	-13	Normal
39	SATNA	782.2	949.2	-18	Normal
40	SEHORE	1425.8	1043.3	37	Excess
41	SEONI	1146.6	1027	12	Normal
42	SHAHDOL	868	989.5	-12	Normal
43	SHAJAPUR	1072.9	886.7	21	Excess
44	SHEOPUR	579.4	670.7	-14	Deficit
45	SHIVPURI	747.4	779.8	-4	Deficit
46	SIDHI	869.1	987.5	-12	Deficit
47	SINGRAULI	1062	837	27	Excess
48	TIKAMGARH	709.9	889.2	-20	Deficit
49	UJJAIN	1080.3	844.3	28	Excess
50	UMARIA	1093.6	1075	2	Normal
51	VIDISHA	1082.4	982.2	10	Normal

Table 1-4 Post Monsoon Rainfall in Madhya Pradesh State in the Year 2020

S. No.	Name of District	Actual rainfall (01.10.2020 to 31.10.2020)	Normal rainfall Post-Monsoon (1 <sup>st</sup> Oct- 31 <sup>st</sup> Dec)	Departure (%) of Post Monsoon Rainfall wrt Normal of the Year 2020	Category
1	AGAR-MALWA	16.9	44.5	-62	Large Deficit

2	ALIRAJPUR	31.7	36.2	-12	Normal
3	ANUPPUR	79.8	72.7	10	Normal
4	ASHOKNAGAR	6.5	39.8	-84	Large Deficit
5	BALAGHAT	90.3	80.4	12	Normal
6	BARWANI	36.8	48.3	-24	Deficit
7	BETUL	38.6	70.4	-45	Deficit
8	BHIND	31.8	43.9	-27	Deficit
9	BHOPAL	34.9	57.5	-39	Deficit
10	BURHANPUR	41.9	72.2	-42	Deficit
11	CHHATARPUR	22.7	50.4	-55	Deficit
12	CHINDWARA	49.7	77	-35	Deficit
13	DAMOH	12.6	45.3	-72	Large Deficit
14	DATIA	10.5	42.5	-75	Large Deficit
15	DEWAS	12.6	51.5	-76	Large Deficit
16	DHAR	37.5	53.1	-29	Deficit
17	DINDORI	52.7	59.5	-11	Normal
18	GUNA	18.2	48.8	-63	Large Deficit
19	GWALIOR	19.7	47.5	-59	Large Deficit
20	HARDA	24.1	64.5	-63	Large Deficit

21	HOSHANGA BAD	7.6	62.3	-88	Large Deficit
22	INDORE	54.1	56.1	-4	Normal
23	JABALPUR	8.7	50.8	-83	Large Deficit
24	JHABUA	18.3	47.6	-62	Large Deficit
25	KATNI	18.8	34.6	-46	Deficit
26	KHANDWA	15.8	54.9	-71	Large Deficit
27	KHARGONE	25.6	49.4	-48	Deficit
28	MANDLA	56.2	59	-5	Normal
29	MANDSAUR	13.2	46.5	-72	Large Deficit
30	MORENA	18.5	30.4	-39	Deficit
31	NARSINGHP UR	1.2	43.9	-97	Large Deficit
32	NEEMUCH	41.7	35.7	17	Normal
33	PANNA	22.8	47.1	-52	Deficit
34	RAISEN	7.2	55.3	-87	Large Deficit
35	RAJGARH	16	53.9	-70	Large Deficit
36	RATLAM	51.2	55.8	-8	Normal
37	REWA	17.8	50.5	-65	Large Deficit
38	SAGAR	12.8	54.7	-77	Large Deficit
39	SATNA	18.6	47.5	-61	Large Deficit

40	SEHORE	11.8	57.9	-80	Large Deficit
41	SEONI	35.4	76.7	-54	Deficit
42	SHAHDOL	64.2	45.5	41	Excess
43	SHAJAPUR	11.4	51.6	-78	Large Deficit
44	SHEOPUR	8.2	33.4	-76	Large Deficit
45	SHIVPURI	2.1	43.6	-95	Large Deficit
46	SIDHI	39.2	49.8	-21	Deficit
47	SINGRAULI	64.6	56.8	14	Normal
48	TIKAMGARH	9.1	43.5	-79	Large Deficit
49	UJJAIN	32.8	52	-37	Deficit
50	UMARIA	93.4	70.4	33	Excess
51	VIDISHA	13.9	49.4	-72	Large Deficit
	<b>State: Madhya Pradesh</b>	<b>28.5</b>	<b>53.7</b>	<b>-47</b>	Deficit

Source: [www.imd.gov.in](http://www.imd.gov.in) and IMD BHOPAL REGIONAL CENTRE



Figure 1-3 Actual Rainfall in Madhya Pradesh State (Year - 2020)

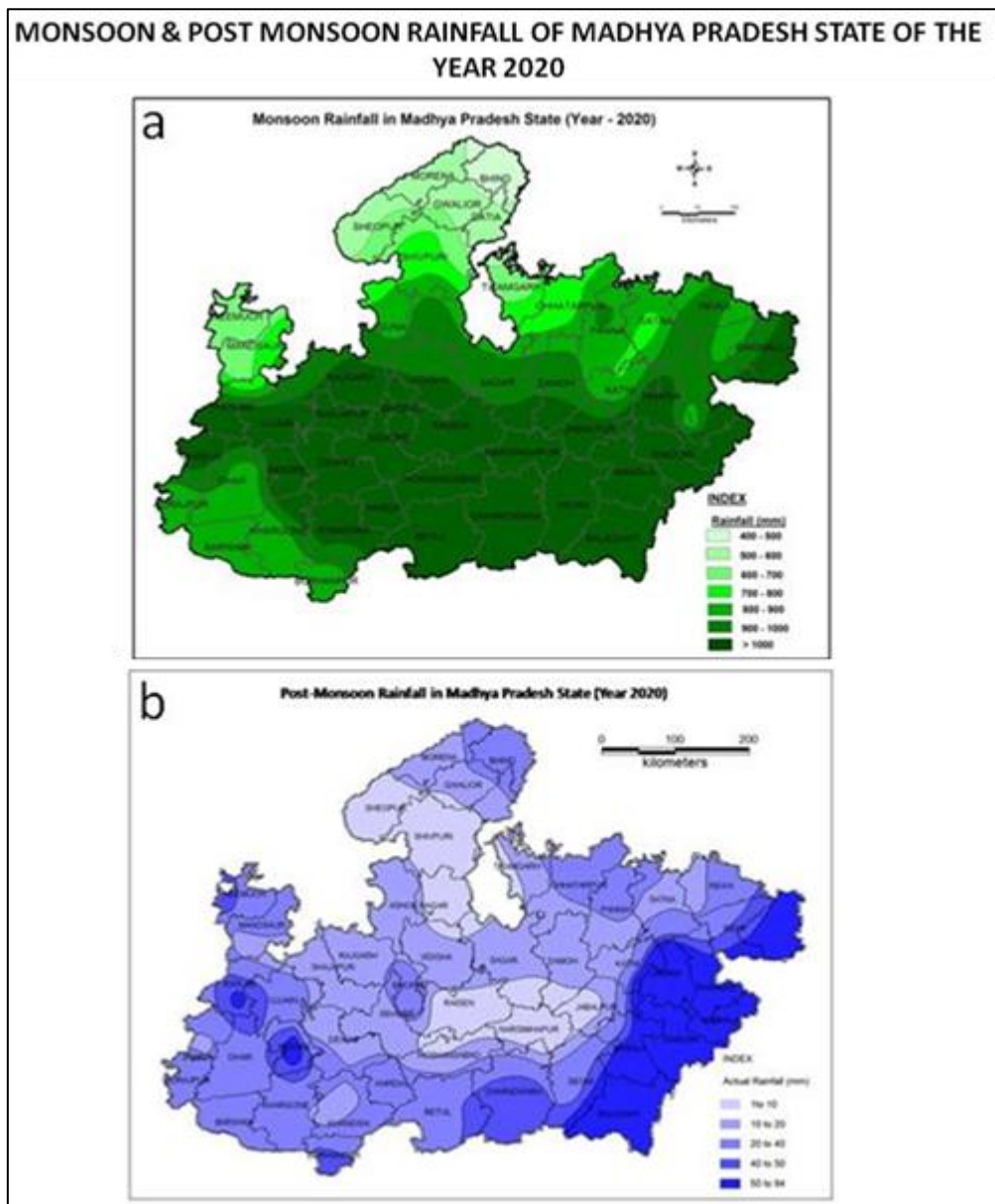
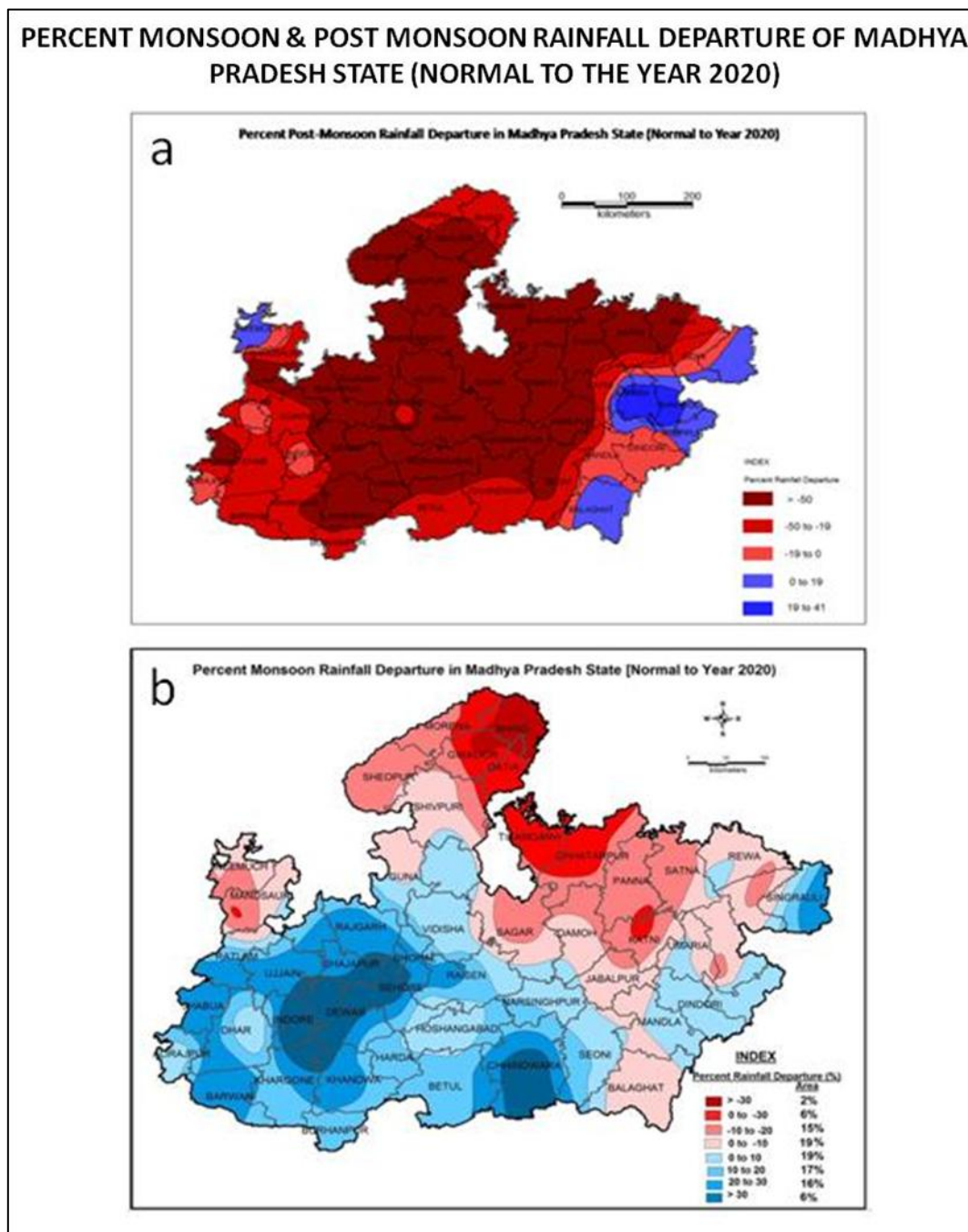


Figure 1-4 Percent Rainfall Departure from Normal Rainfall in Madhya Pradesh State (Year - 2020)



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## **2 ANALYSIS OF GROUND WATER LEVELS**

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### **2.1. DEPTH TO WATER LEVELS**

During the water year, the existing monitoring wells were monitored four times, i.e., during May 2020, August 2020, November 2020 and January 2021. With the field data, maps were prepared for visual interpretation of the behaviours of the ground water levels. Depth to ground water levels were demarcated into various zones in the ranges of less than 2 m, 2-5 m, 5-10 m, 10-20 m, 20-40 m and more than 40 m. The description of the depth to water level during different monitoring seasons is as follows:

#### **DEPTH TO WATER LEVEL MAY 2020**

Depth to water levels ranges from 0.35 in Jhoteswar monitoring station, Gotegaon Block of Narsinghpur District to 54.97 m bgl (dry) in Nayagaon monitoring station of Ghatigaon Block of Gwalior District of Madhya Pradesh. Depth to Water level ranges from 0.35 to 54.97 m bgl in Madhya Pradesh. Very shallow water level up to 2 m bgl are very few and observed as small patches in part of Chhindwara, Narsinghpur, Damoh, Panna, Balaghat, and Dindori District of the state. Only 2.20% of wells in Madhya Pradesh State fall in this category. About 23.01% of wells spreading all over Madhya Pradesh State has recorded a water level in depth range of 2-5 m bgl occurring mainly in south-east and in sporadic patches in entire state. Depth to water level ranging 5-10 m bgl is spread in most parts of the state. About 46.28% of wells fall under this category. Deeper ground water level ranging 10-20 m bgl are seen mostly in northern western, central and north parts of the state and in isolated patches in the eastern and south eastern parts of the state. About 23.77% of wells in the state fall in this category. Ground water level of 20-40 m bgl are found in about 4.23% of the wells and occur mainly in Bind, Morena, Gwalior, Sheopur, Ratlam, Ujjain, Indore, Dhar, Dewas and in Mandsaur District it is found in patches. Depth to water level more than 40 m bgl is very few and a small patches of this occur in Gwalior and Dewas and only 0.51% of wells fall under this category.

#### **DEPTH TO WATER LEVEL AUGUST 2020**

Depth to water level ranges from above ground level to 39.40 m bgl in Madhya Pradesh State. During this year the state has received 13% excess rainfall from normal till the 31st august 2020. Shallow water levels up to 2 m bgl are seen in south eastern Madhya Pradesh, Panna (parts), Alirajpur, Dewas, Khandwa (parts), Betul, Bhopal, Vidisha(parts), Seoni, Balaghat, Mandla and in pockets in many districts. About 41.43% of monitoring wells

recorded water level less than 2 m bgl category. About 35.94% of monitoring wells spreading all over Madhya Pradesh State has recorded a water level in the depth range of 2-5 m bgl. Depth to water level ranging 2-5 m bgl is noticed prominently in all parts of the state and in pockets in many districts of the state. About 16.44% of wells measured water level between 5-10 m bgl. Deeper ground water level ranging 10-20 m bgl are seen in northern part and in isolated patches in Raisen, Dewas, Sehore and Rewa Districts. About 5.17% of wells in the state fall in this category. Ground water levels of 20-40 m bgl are found in about 1.02% of the wells and are seen in Bhind, Morena and Gwalior District.

#### **DEPTH TO WATER LEVEL NOVEMBER 2020**

Depth to water level ranges from above ground level to 54.10 m bgl in Madhya Pradesh State. During this year the state has received very less rainfall and many of the districts are rainfall deficit. Very shallow water levels up to 2 m bgl are seen in Sehore, Chhindwara, Seoni, Balaghat, Mandla, Dindori, Damoh and Vidisha and in pockets in many districts. About 11.96% of monitoring wells recorded water level less than 2 m bgl category. About 40.51% of monitoring wells spreading all over Madhya Pradesh State has recorded a water level in the depth range of 2-5 m bgl. Depth to water level ranging 5-10 m bgl is noticed prominently in all parts of the state and in pockets in many districts of the state. About 36.57% of wells fall in this category. Deeper ground water level ranging 10-20 m bgl are seen in northern part and in isolated patches in Burhanpur, Hoshangabad, Singrauli, Mandasaur, Neemuch and Rewa District and in patches in many districts of the state. About 9.80% of wells in the state fall in this category. Ground water level of more than 20 m are found in about 1.39% of the wells and are seen in Bhind, Morena, Gwalior, Shivpuri, Sheopur and Dewas District.

#### **DEPTH TO WATER LEVEL JANUARY 2021**

Depth to water level ranges from ground level to 0.31 m bgl to 54.10 (dry depth) m bgl in Madhya Pradesh State. During monsoon season state has received rainfall of 990.8mm i.e. 5% more as compared to monsoon normal and in the post monsoon season 28.5 mm which is 47% less as compared to post monsoon normal. However there is large spatial variability in rainfall. Very shallow water levels up to 2 m bgl are seen in Seoni, Balaghat, Dindori, Damoh and Vidisha District. About 4.62% of monitoring wells recorded water level less than 2 m bgl category. About 30.78% of monitoring wells spreading all over Madhya Pradesh State has recorded a water level in the depth range of 2-5 m bgl. Depth to water level ranging 5-10 m bgl is noticed prominently in all parts of the state and in pockets in many districts of the state.

About 43.75% of wells fall in this category. Deeper ground water levels ranging 10-20 m bgl are seen in northern part and in isolated patches in Burhanpur, Raisen, Dewas, Indore, Ratlam, Rajgarh, Betul, Chhindwara, Rewa and Chhatarpur District and in patches in many districts of the state. About 18.35% of wells in the state fall in this category. Ground water levels of more than 20 m are found in about 2.50% of the wells and are seen in Bhind, Morena, Gwalior, Shivpuri, Sheopur, Dewas District.

Depth to water level at a glance is shown in Figure 2-1. Depths to water level maps of different period have been depicted in Figure 2-2 to Figure 2-5. The district wise depth to water level and frequency distribution of wells in different ranges is given in Annexures (I to IV).

Figure 2-1 Depth to Water Level at a Glance

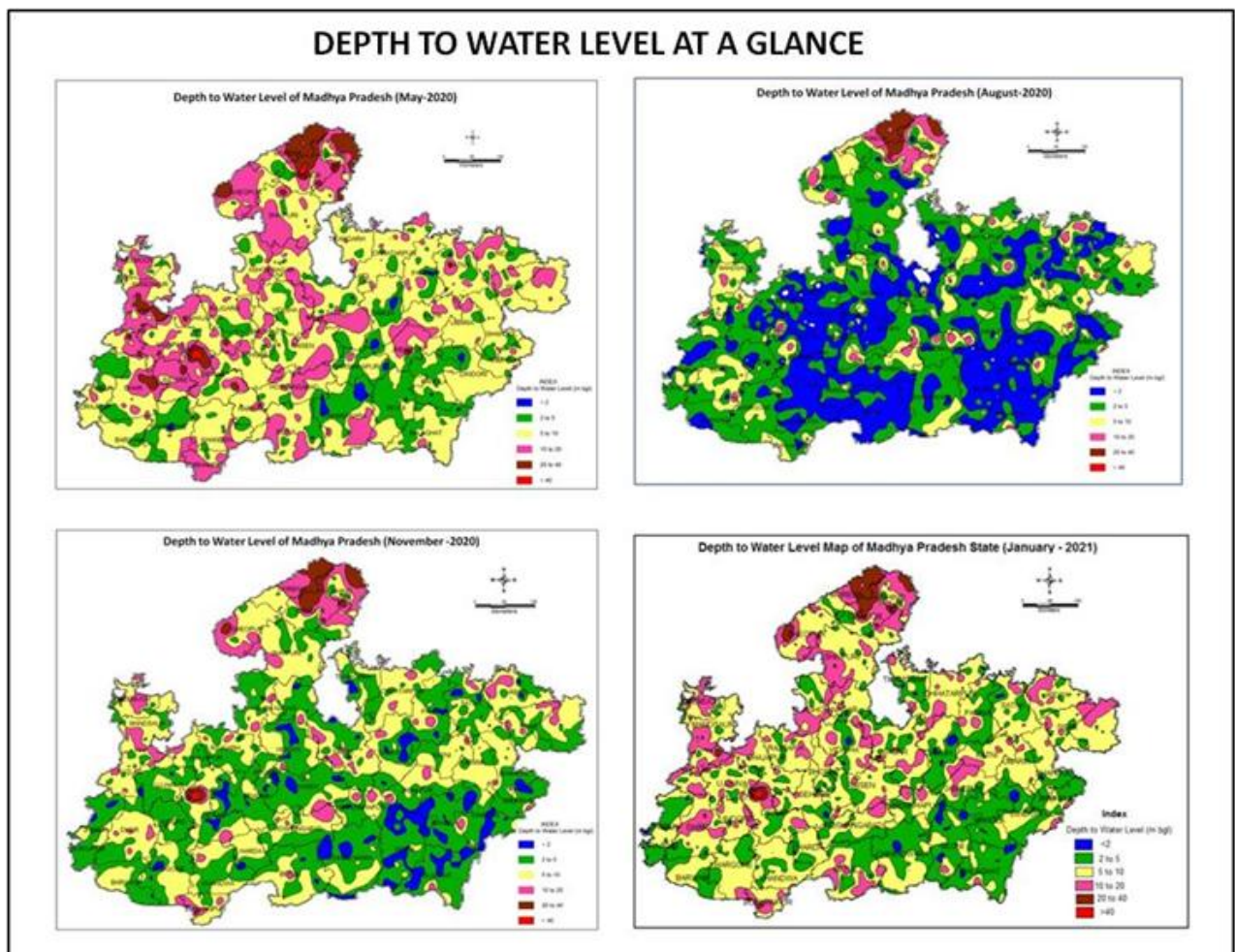




Figure 2-2 Depth to Water Level (May 2020)

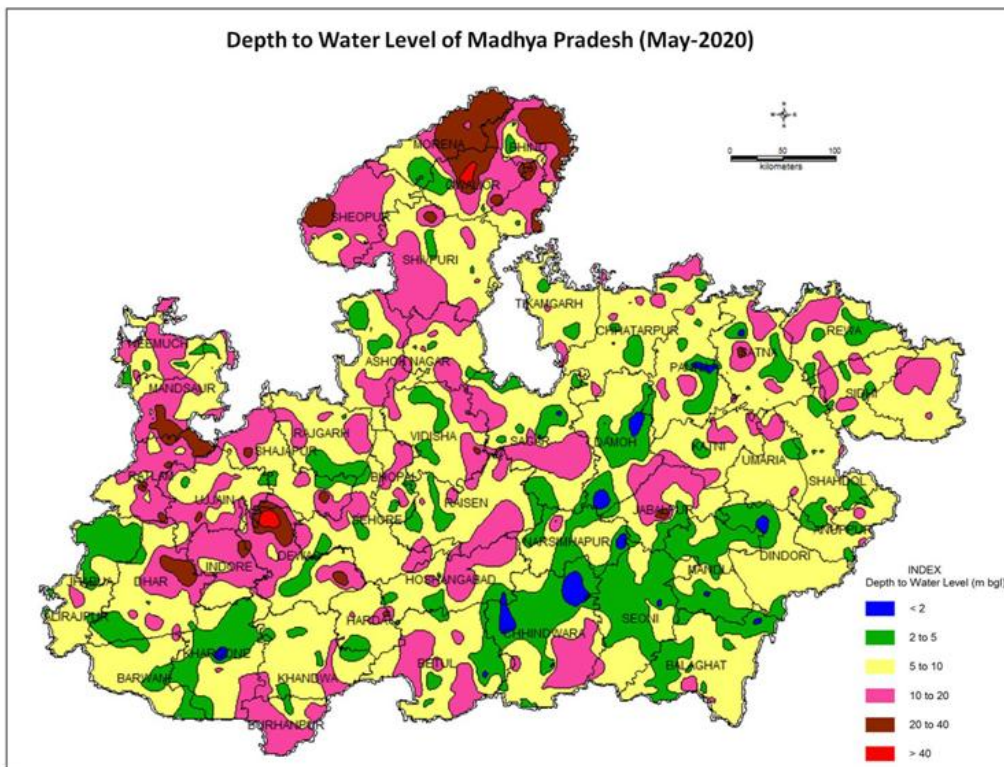


Figure 2-3 Depth to Water Level (August 2020)

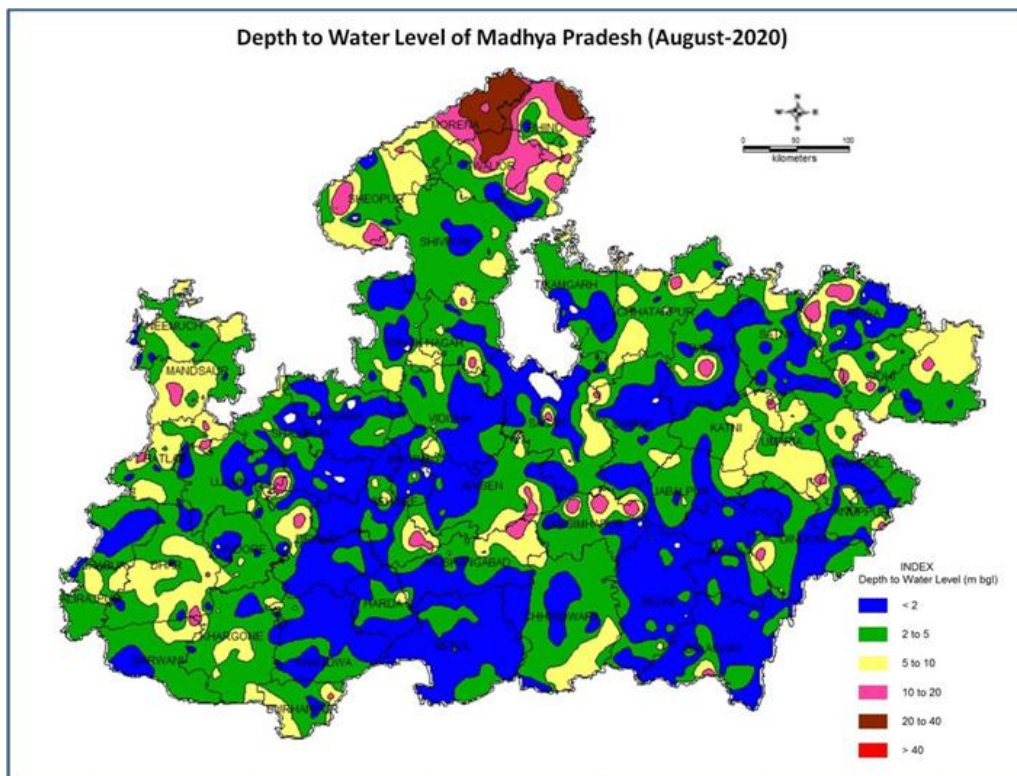


Figure 2-4 Depth to Water Level (November 2020)

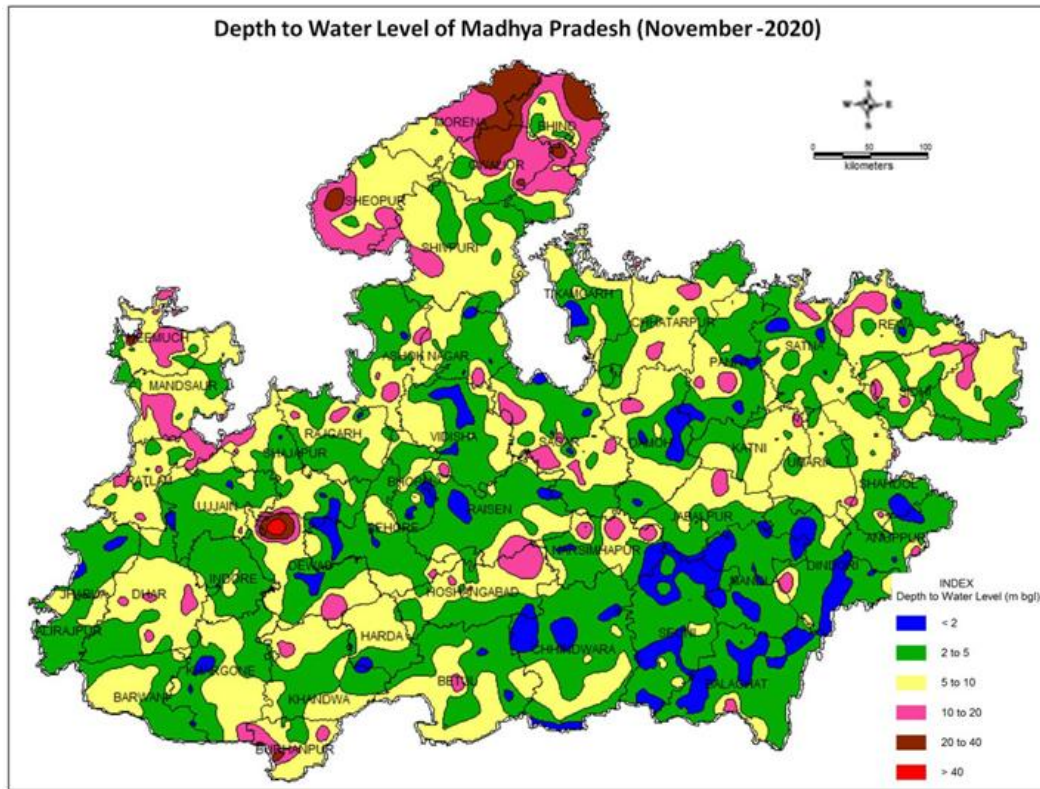
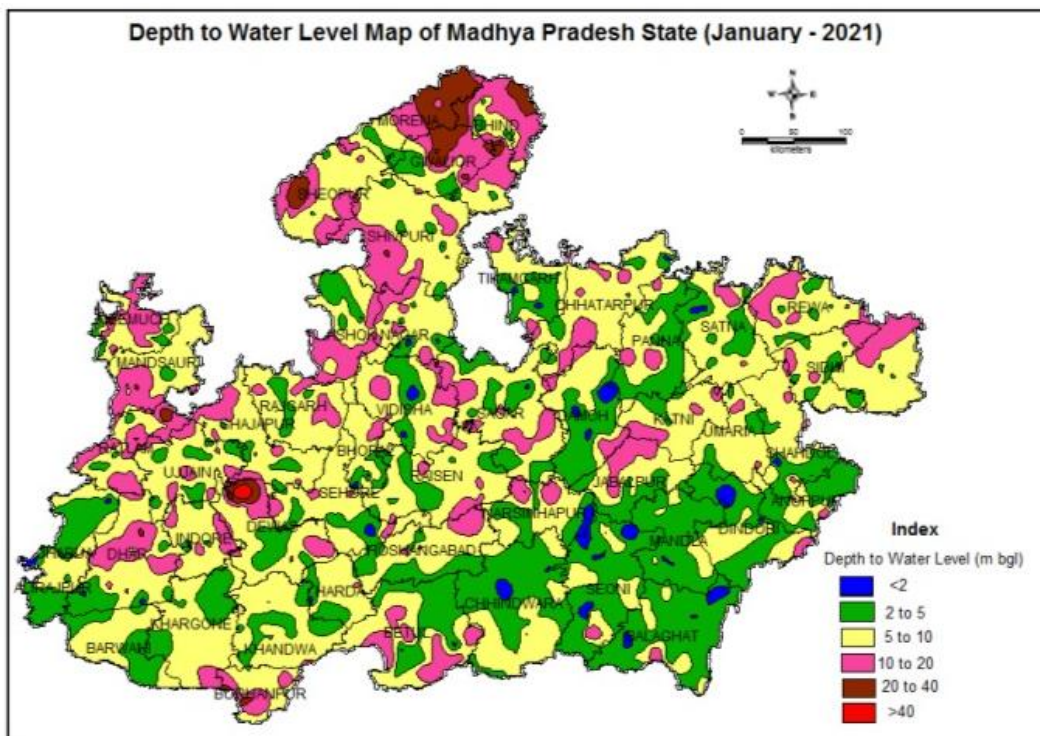


Figure 2-5 Depth to Water Level (January 2021)



## **2.2. WATER LEVEL FLUCTUATIONS**

Water level fluctuations were analysed and maps were prepared after every water level measurement comparing the current water levels with that of the same season of the previous year, preceding season, pre-monsoon season and the decadal seasonal mean. These fluctuations were carefully examined to decipher the ground water situation with respect to time.

### **2.2.1. ANNUAL WATER LEVEL FLUCTUATIONS**

#### **WATER LEVEL FLUCTUATION MAY 2019 TO MAY 2020**

The ground water levels of monitoring wells during May 2020 were compared with those of May 2019 to decipher the changes that took place in the ground water regime. As a result of excess rainfall in the monsoon season in 2019, In Madhya Pradesh, 76.23% of the wells show a rise and the rest 23.77% wells show a decline in water levels. About 41.02% of the wells show a rise in water level up to 2 m spreading in sporadic patches in many parts of the state. About 20.15% of the wells show a rise in water level between 2 to 4 m and, and 15.06% of the wells shows rise more than 4 m. The rise in water level in the range of 2-4 m and more than 4 m are found in most of the parts of the states except northern. At the tri-junction of Bhind, Morena and Gwalior District water level rises more than 4m.

About 15.25% of the wells show a decline in water level up to 2 m and covering central and northern district of the state. About 3.27% of the wells show a decline in water level between 2 to 4 m and occur in sporadic patches of the state. About 5.26% of the wells shows decline more than 4 m. Water level decline more than 4 m is mainly seen in Ratlam, Mandsaur, Dhar, Indore, Dewas, Satna, Jabalpur, Bhind, Shivpuri, Betul Gwalior and Morena District and seen as small pockets in many parts of the state. Decline in water level in the above mentioned district is well corroborated with the reduced rainfall in the same. In general this year, there is a rise in water level in the state as compared to last year.

#### **WATER LEVEL FLUCTUATION AUGUST 2019 TO AUGUST 2020**

About 48.67% of wells show rise and 51.33% decline in water levels in August 2020 compared to those in August 2019. About 31.62% of wells in Madhya Pradesh State, shows rise in water levels up to 2 m and seen mainly in northern most part of state, Khargone (part), Khandwa, Jabalpur, Katni, Rewa, Satna, Umaria and Balaghat Districts. Rise of 2-4 m has occurred in 9.77% of wells mainly in Khargone, Shahdol, Harda, Shivpuri (Parts), Jabalpur



(parts), Seoni (parts), Rewa (parts) and Umaria District. About 7.28% of wells in Khargone, Umaria and Shahdol District show rise in water levels more than 4 m.

Ground water levels decline is recorded in about 51.33% of the wells, mostly spread in entire parts of the state except in Khargone, Barwani, Jhabua, Anuppur and Shahdol District. Decline in water levels up to 2 m are seen in about 37.28% of wells. Decline in water level between 2-4 m is observed in 8.48% of wells spread in North, Central, and North Eastern parts of the state. Decline in water level more than 4 m is observed by 5.57% monitoring wells spread in Mandsaur, Neemuch, Sheopur (parts) and in few districts in pockets. In general this year there is a decline in water level in the state as compared to last year.

#### **WATER LEVEL FLUCTUATION NOVEMBER 2019 TO NOVEMBER 2020**

As a result of less monsoon rainfall (<30%) in the current year compared to 2019, only 22.91% of wells show rise and 77.09 % decline in water levels in November 2020. About 17.47 % of wells in Madhya Pradesh State, shows rise in water levels up to 2 m and seen mainly in Khargone, Seoni, Chhindwara, Balaghat, Barwani, Narsinghpur, Mandla (part) and Sagar District and patches in many districts of the state. Rise of 2-4 m has occurred in 3.66% of wells mainly in Khargone, Harda (part), Seoni and Rajgarh Districts. About 1.79% of wells in Rajgarh and Chhindwara Districts show rise in water levels more than 4 m. Chhindwara is the only district in the state which has received more rainfall (1360.1mm) as compared to 2019 (1275.3mm) monsoon rainfall. As a consequence of this about 70 % of wells in the district show rise in water level in November 2020. Balaghat District has received highest rainfall in October (77.1mm with 2 to 5 no. of rainy days), 59% above normal. As a result of this and normal monsoon rainfall, 79% of the wells shows rise in water level.

Ground water levels decline is recorded in about 77.09% of the wells, mostly spread in entire parts of the state except in Khargone, Khandwa, Harda, Betul, Seoni, Chhindwara, Balaghat, Narsinghpur and Sagar District. Decline in water levels up to 2 m are seen in about 50.61% of wells. Decline in water level between 2-4 m is observed in 15.84% of wells spread in North, Central, and North Eastern parts and Western parts of the state. Decline in water level more than 4 m is observed by 10.64% monitoring wells spread in Dhar, Shajapur, Rajgarh, Shivpuri, Gwalior, Morena and Chhatarpur Districts and in many districts in pockets.

**WATER LEVEL FLUCTUATION JANUARY 2020 TO JANUARY 2021**

Average monsoon rainfall of the state in the year 2020 was about 30 % less than the year 2019. Due to this 25.24% of wells show rise and 74.76% decline in water levels in January 2021 compared to January 2020. About 18.07% of wells in the Madhya Pradesh State, shows rise in water levels up to 2 m and seen mainly in Khargone, Harda, Seoni, Chhindwara, Balaghat, Narsinghpur and Sagar District and in the form of patches in the other districts of the state. Rise of 2-4 m has occurred in 4.30% of wells mainly in Chhindwara, Khandwa (part), Barwani and Rajgarh and in patches of many districts. About 2.87% of wells in Rajgarh, Seoni, Rajgarh, Bhind and Gwalior District show rise in water levels more than 4 m. Chhindwara District is showing rise in water level from 0 to more than 4 m that could be due to increased monsoon rainfall (36 % above normal). Chhindwara District has observed increased monsoon rainfall in 2020 as compared to 2019. Balaghat, Anuppur, Shahdol, Dindori, Mandla, Sidhi, Indore, Ratlam and Alirajpur have received normal to excess post monsoon rainfall. And this impact of rainfall is more visible over Indore, Balaghat and 33 % wells of Anuppur.

Ground water levels decline is recorded in about 74.76% of the wells, mostly spread in entire parts of the state except in Khargone, Khandwa, Harda, Betul, Seoni, Chhindwara, Balaghat, Narsinghpur, Vidisha and Sagar District. Decline in water levels up to 2 m are seen in about 48.17% of wells. Decline in water level between 2-4 m is observed in 16.88% of wells spread in North, Central, and North Eastern parts and Western parts of the state. Decline in water level more than 4 m is measured by 9.71% monitoring wells spread in Shajapur part, Shivpuri, Sheopur, Gwalior, Morena, and Neemuch Districts and in many districts in pockets. Neemuch has received the normal rainfall during monsoon season and post monsoon season however the wells are showing decline more than 4m. It may be the lithology which prevents to recharge the aquifer.

Annual water level fluctuations at a glance are shown in Figure 2-6. The seasonal water level fluctuation maps of different period have been depicted in Figure 2-7 to Figure 2-10. The district wise annual water level fluctuation and frequency distribution of wells in different ranges is given in Annexures (V to VIII).

Figure 2-6 Annual Water Level Fluctuation at a Glance

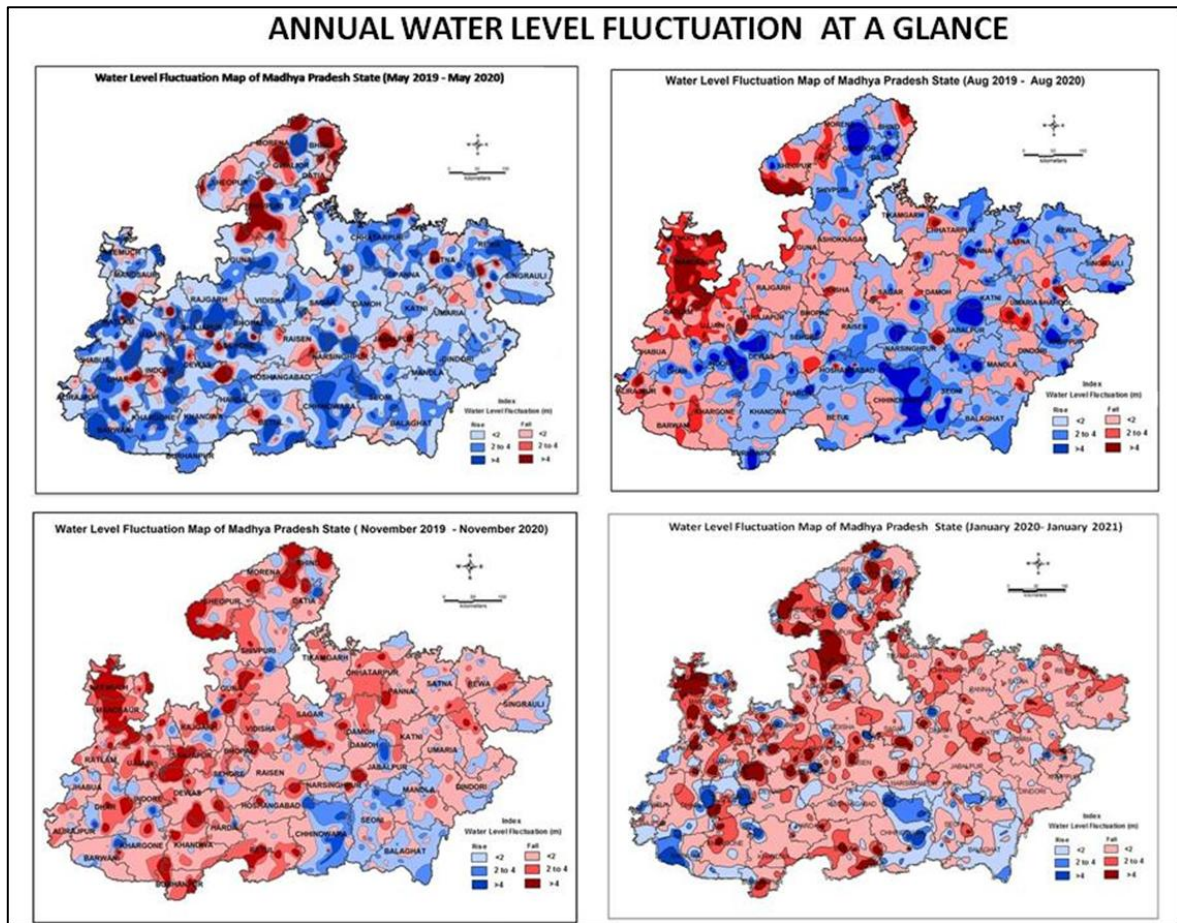


Figure 2-7 Annual Water Level Fluctuation (May 2019 to May 2020)

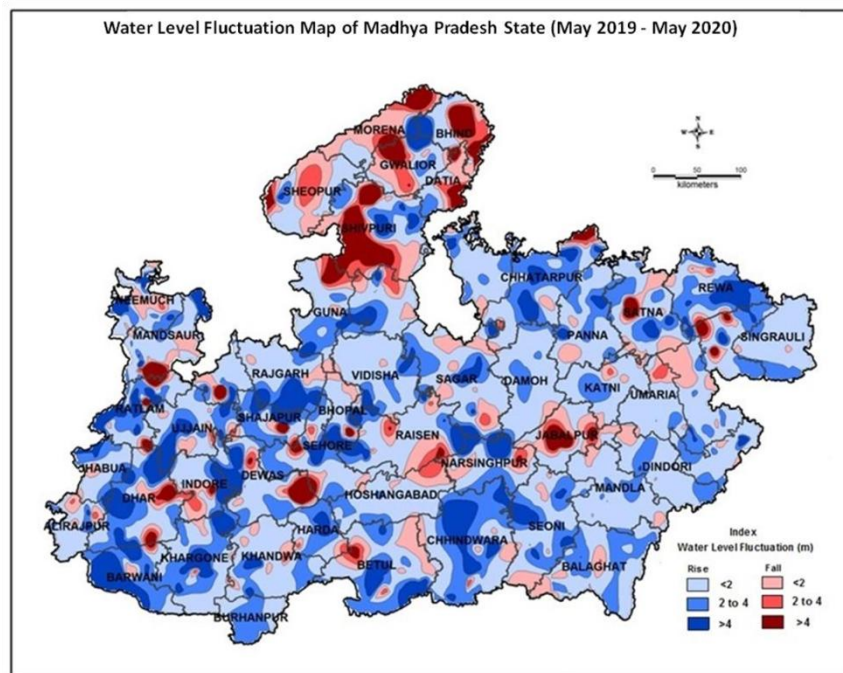


Figure 2-8 Annual Water Level Fluctuation (August 2019 to August 2020)

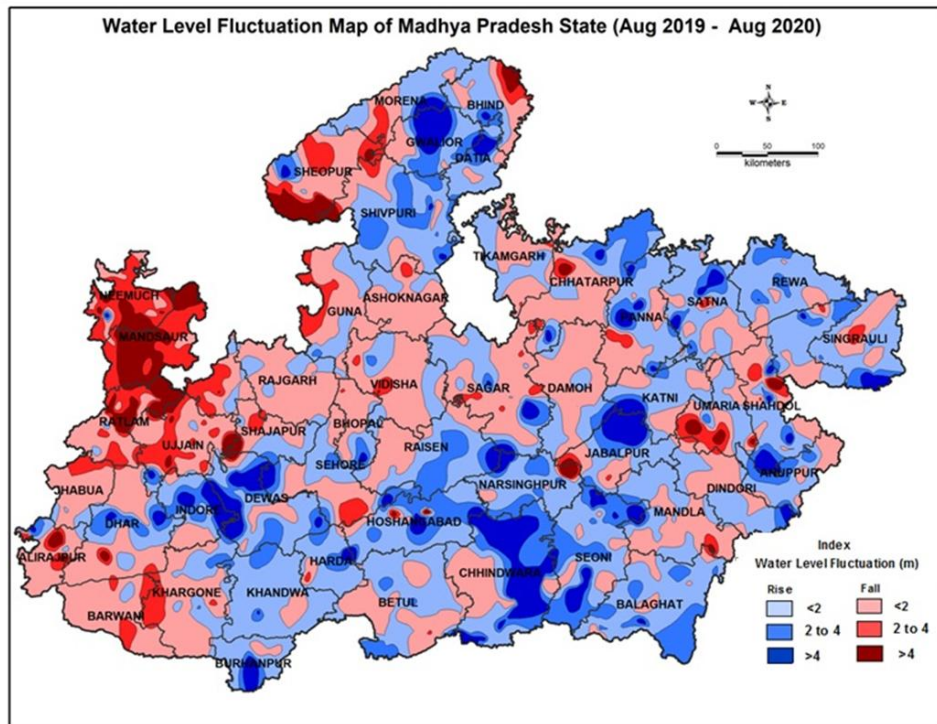


Figure 2-9 Annual Water Level Fluctuation (November 2019 to November 2020)

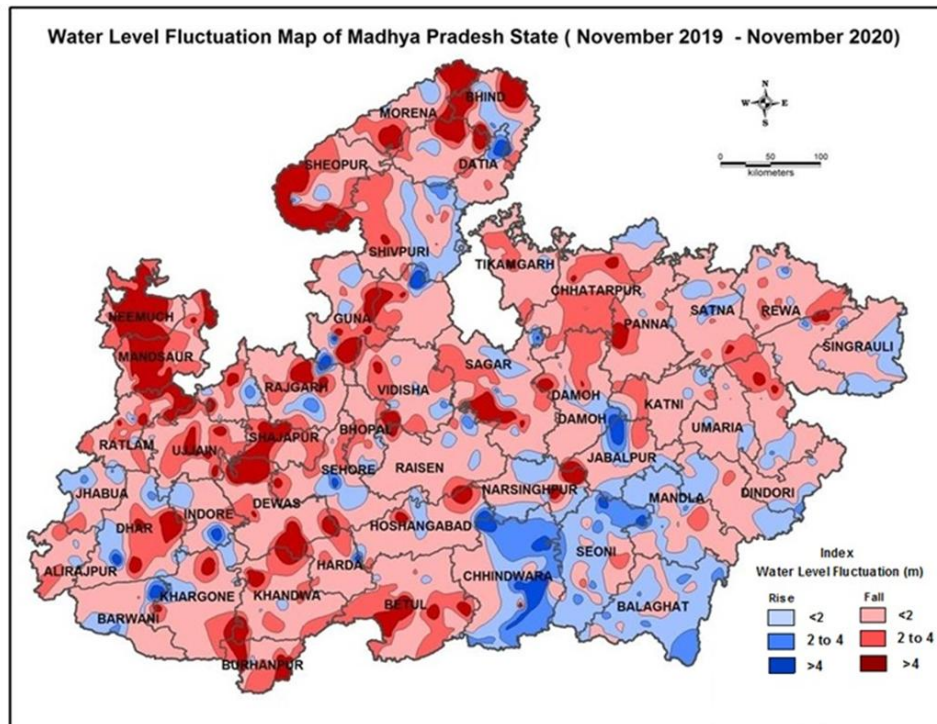
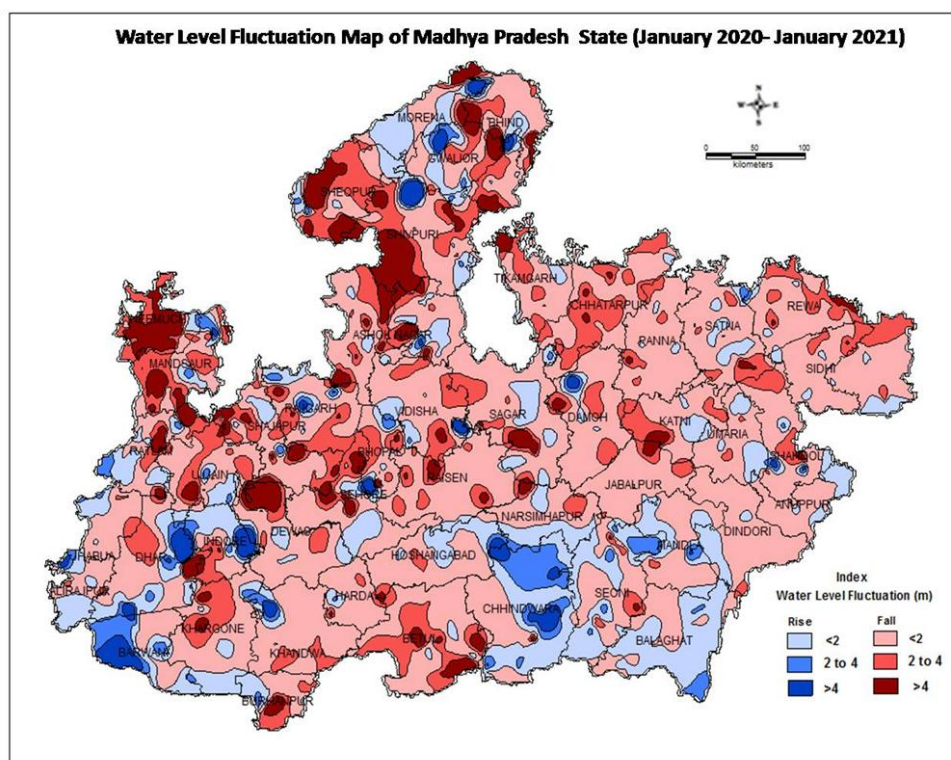




Figure 2-10 Annual Water Level Fluctuation (January 2020 to January 2021)



## 2.2.2. SEASONAL WATER LEVEL FLUCTUATIONS

### WATER LEVEL FLUCTUATION MAY 2020 TO AUGUST 2020

Water levels have shown a general rise in 96.52% of the wells. Such a rise is a normal phenomenon in the hydrological cycle since the rainfall forms the sole source of natural recharge to ground water regime in the state. Rise in the order of 0 to 2 m is seen in 12.35% of wells and are seen in Khargone, Bhind, Morena, Shivpuri, Gwalior, Hosangabad, Chhindwara, Narsinghpur, Hoshangabad, Jabalpur, Annapur, Datia and in patches in some of the districts of the state. About 19.65% of the wells have shown a rise of 2-4 m and are seen in almost all parts of the state except the North. Significant rise of >4 m is found in 64.51% of wells, in entire parts of the state except the northern most districts such as Bind, Morena and Gwalior .

About 3.48% of the wells in Madhya Pradesh state show a marginal decline in water level up to 2 m and 0.25% wells more than 2 m. The Marginal decline in water level is mainly due to less rainfall as observed mainly in northern parts of the state.

**WATER LEVEL FLUCTUATION MAY 2020 TO NOVEMBER 2020**

Water levels have shown a general rise in 85.46% of the wells. Such a rise is a normal phenomenon in the hydrological cycle since the monsoon rainfall forms the sole source of natural recharge to ground water regime in the state. Rise in the order of 0 to 2 m is seen in 32.25% of wells and are seen in Khargone, Bhind, Morena, Shivpuri, Narsinghpur, Hoshangabad, Shahdol and in patches in some of the districts of the state. About 28.46% of the wells have shown a rise of 2-4 m and are seen in almost all parts of the state. Significant rise of >4 m is found in 24.75% of wells, in entire parts of the state except the northern parts of the state.

About 10.57% of the wells in Madhya Pradesh State show a marginal decline in water level up to 2 m and 2.26% wells more than 2 m. The decline in water level is mainly due to less rainfall as observed mainly in northern parts of the state.

**WATER LEVEL FLUCTUATION MAY 2020 TO JANUARY 2021**

Water levels have shown a general rise in 70.70% of the wells. Rise in water level is well corroborated with the increased monsoon rainfall (2020) over many of the districts. Such a rise is a normal phenomenon in the hydrological cycle since the monsoon rainfall and post monsoon rainfall forms the sole source of natural recharge to ground water regime in the state. Rise in the order of 0 to 2 m is seen in 40.25% of wells and are seen in most of the district of the state. About 18.34% of the wells have shown a rise of 2-4 m and are seen in Chhindwara, Hoshangabad, Indore, Dewas, Balaghat, Umaria and Dhar part. Significant rise of >4 m is found in 12.11% of wells, in Ratlam, Ujjain, Indore, Dewas, Sagar, Betul, Dhar and in patches in many districts of the state.

About 21.64% of the wells in Madhya Pradesh state show a marginal decline in water level up to 2 m and 7.66% wells more than 2 m. The decline in water level is mainly due to less rainfall as observed in Rewa, Sidhi, Chhatarpur part, Panna, Burhanpur, Khandwa, Sheopur, Shivpuri, Bhind, Ashoknagar, and Tikamgarh and in part of many district of the state. However Rajgarh, Khargone, Betul and Dhar District have received normal to excess rainfall but the decline in water level is more than 4m. Moreover Bhind, Gwalior, Datia, Morena has received deficit rainfall but the wells are showing rise in water level. As the well recharge depends on lithology and other conditions too this type of scenario is observed.

Seasonal water level fluctuations at a glance are shown in Figure 2-11. The seasonal water level fluctuation maps of different period have been depicted in Figure 2-12 to Figure 2-14).

The district wise seasonal water level fluctuation and frequency distribution of wells in different ranges is given in Annexures (IX to XI).

Figure 2-11 Seasonal Water Level Fluctuation at a Glance

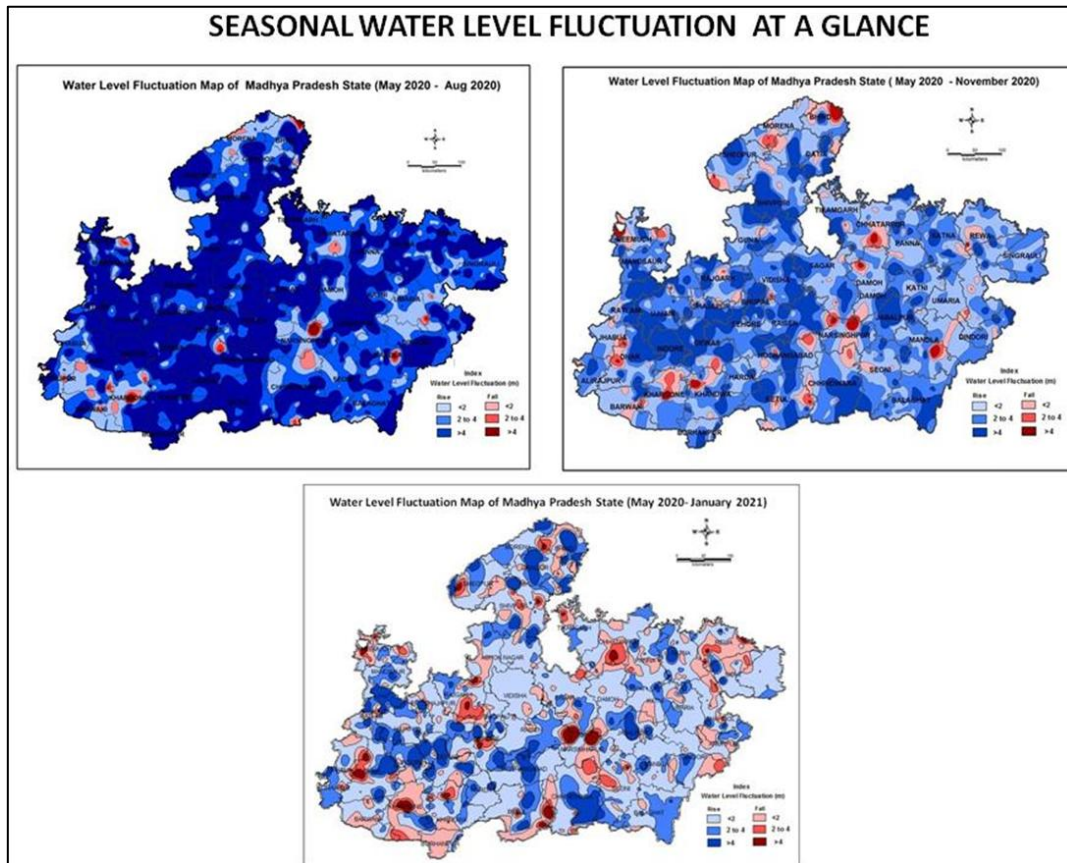


Figure 2-12 Seasonal Water Level Fluctuation (May 2020 to August 2020)

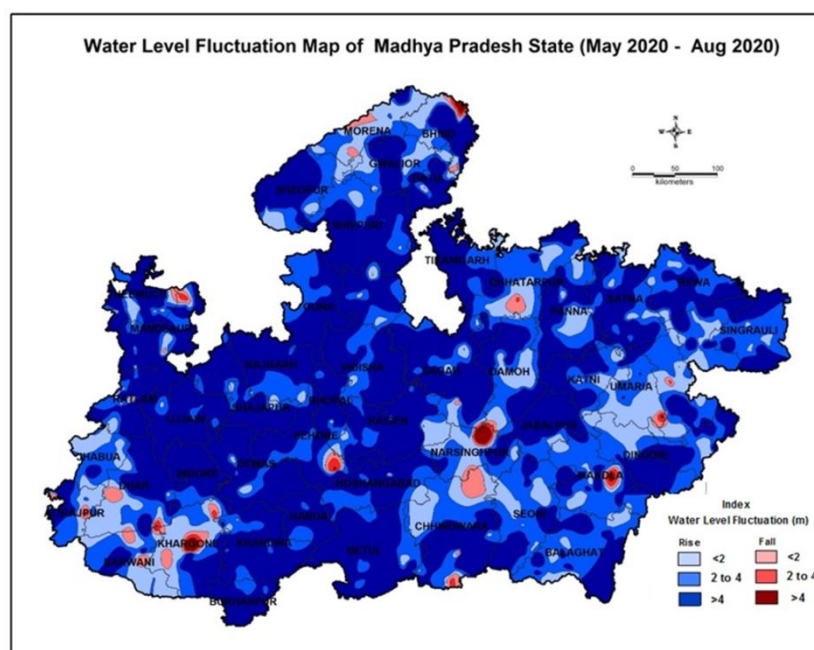




Figure 2-13 Seasonal Water Level Fluctuation (May 2020 to November 2020)

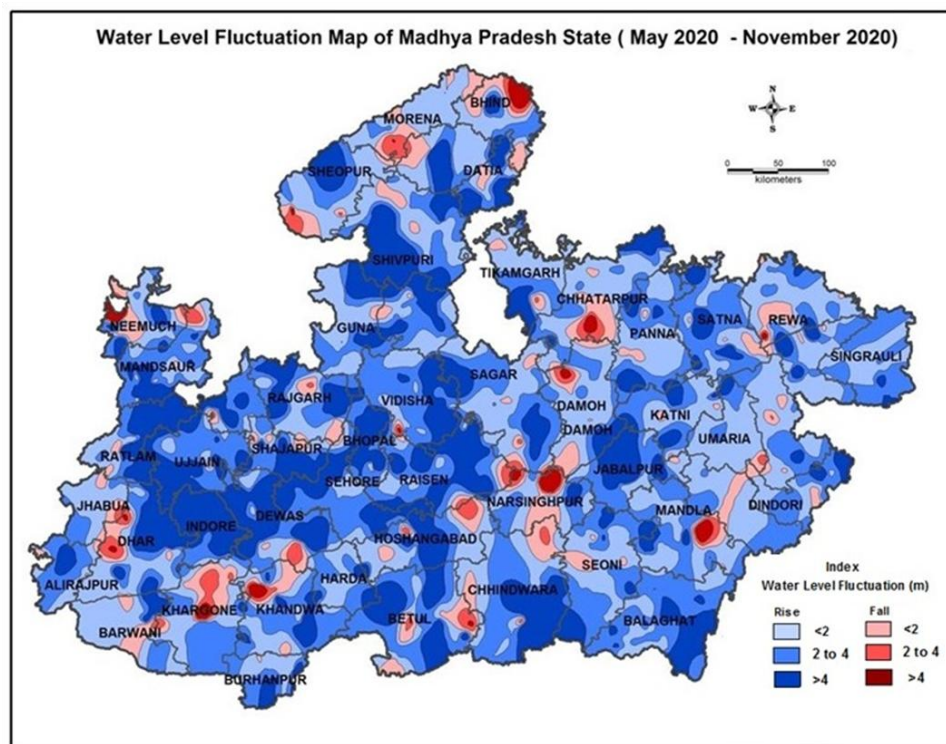
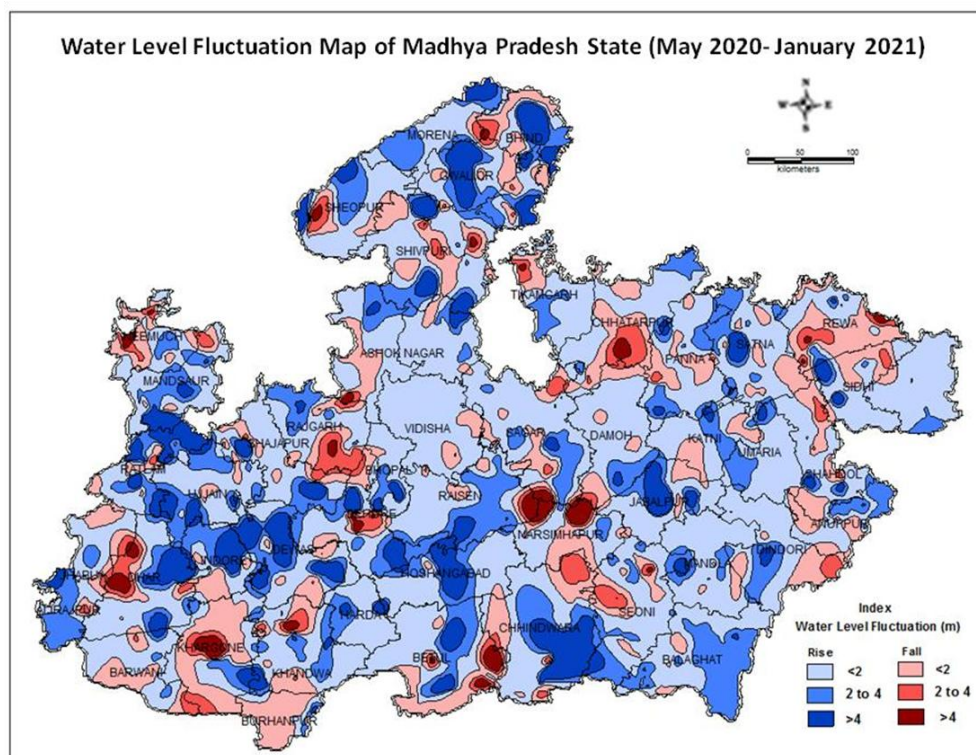


Figure 2-14 Seasonal Water Level Fluctuation (May 2020 to January 2021)





### **2.2.3. DECADAL WATER LEVEL FLUCTUATIONS**

Depth to ground water level of a particular monitoring season is compared with its 10 years of mean data, i.e., decadal mean of water levels, to get an idea about the water level conditions of that particular season with respect to the decadal mean. Such a comparison helps in the assessment of drought situations or otherwise of the abundance of ground water resources in a particular monitoring season.

Decadal water level fluctuations at a glance are shown in Figure 2-15. The decadal water level fluctuation maps of different period have been depicted in Figure 2-16 to Figure 2-19). The district wise decadal water level fluctuation and frequency distribution of wells in different ranges is given in Annexures (XII to XV).

#### **WATER LEVEL FLUCTUATIONS DECADAL MEAN (MAY 2010-2019) TO MAY 2020**

The ground water levels of May 2020 were compared with the 10 years May (2010-2019) average ground water levels to decipher the long-term changes in the ground water regime. It is observed that 74.20% of the wells show rise and about 25.80% of wells show decline in water levels in the state. The rise in water level is in the order of 0-2 m in 41.29% of the wells, 2-4 m in 19.71% of the wells and more than 4 m in about 13.20% of the wells. The rise in water level is more prominent in the Eastern part of the state compared to that of Western part. Water level rise more than 4m is mainly observed in Morena, Gwalior, Sheopur, Sagar, Sehore, Shajapur, Ratlam, Ujjain, Khargone, Narsinghpur, Rewa and Satna District.

The decline in water levels in the order of 0-2 m is about 16.58% of the wells, between 2-4 m in 4.82% of the wells and more than 4 m in 4.40% of the wells. Decline in water level less than 2 m is covering most of the district in Northern and Central part of the state. Decline in water level more than 4m is mainly observed in Gwalior, Bhind Dewas, Dhar, Mandasaur, Jabalpur, Shivpuri, Satna, Datia and Sheopur District of the state. In general by comparing mean of water level of previous 10 year and current year water level, it is inferred that there is no significant decline in water level but in general there is a rise in water level in most of the part of the state due to excess to large excess rainfall in most of the districts in monsoon season of 2019.

**WATER LEVEL FLUCTUATION DECADAL MEAN (AUGUST 2010-2019) TO AUGUST 2020**

There is a rise in the water levels in about 69.59% of wells and fall in 30.41% wells. About 49.45% of wells spreading in mainly central and eastern parts of the state and many districts in patches show a rise in water level up to 2 m. About 14.58% of the wells show a rise in the order of 2- 4 m and is found in patches only in south western part of state. Rise in water level of more than 4 m is found in about 5.56% of the wells and are seen in patches in western part and north eastern parts of the state

Water level decline up to 2 m is recorded in about 22.81% of wells spread in central and northern parts of the state. About 4.86% of the wells show a decline in the order of 2-4 m and 2.74% in the order of more than 4m, mostly spread in Bhind, Morena, Gwalior, Sehore, Mandsaur, Neemuch and in patches in many districts.

**WATER LEVEL FLUCTUATION MEAN (NOVEMBER 2010-2019) TO NOVEMBER 2020**

However monsoon rainfall in the year 2020 is thirty percent less than 2019 even though rise in the water levels is observed in about 61.56% of wells and fall in 38.44% wells. The large contribution in average water level rise comes from Chhindwara (93.94%), Balaghat (87%), Bhopal (92.59%) and Raisen District (86.21%). This could be due to excess monsoon rainfall occurred in Chhindwara, Bhopal and Raisen. In Balaghat normal to excess rainfall continue till October and Chhindwara also received normal rainfall in the October Month. About 46.02% of wells spreading in mainly western and eastern parts of the state and many districts in patches show a rise in water level up to 2 m. About 12.22% of the wells show a rise in the order of 2- 4 m and is found in patches only. Rise in water level of more than 4 m is found in about 3.33% of the wells and are seen in patches in North and Western part and North Eastern parts of the state.

Water level decline up to 2 m is recorded in about 28.77% of wells spread in Central, Eastern and Northern parts of the state. About 6.42% of the wells show a decline in the order of 2-4 m and 3.25% in the order of more than 4m, mostly spread in Bhind, Morena, Gwalior, Dewas, Jabalpur, Hoshangabad, Raisen, Jabalpur and in patches in many districts. Decline in water level is well corroborated with less rainfall in the corresponding district.

**WATER LEVEL FLUCTUATION MEAN (JANUARY 2011-2020) TO JANUARY 2021**

There is a rise in the water levels in about 59.21% of wells and fall in 40.79% wells. About 43.84% of wells spreading in mainly western and central parts of the state and many districts

in patches show a rise in water level up to 2 m. About 10.65% of the wells show a rise in the order of 2- 4 m and is found in Chhindwara, Indore, Barwani, Bhind, Ujjain and in many districts in patches only. Rise in water level of more than 4 m is found in about 4.72% of the wells and are seen in Chhindwara, Barwani, Jhabua District and western part that may be contributed to increased monsoon rainfall. Normal to excess rainfall of monsoon and post monsoon season in Balaghat, Anuppur, Umaria, and Barwani District has increased the water level of about of less than 4m. In the Indore District 75% of wells shows rise in water level that could be due to excess rainfall in monsoon and normal rainfall in post monsoon season.

Water level decline up to 2 m is recorded in about 31.28% of wells spread in central, eastern and northern parts of the state. About 6.54% of the wells show a decline in the order of 2-4 m and 2.97% in the order of more than 4m, mostly spread in Bhind, Morena, Gwalior, Sheopur, Shivpuri, Jabalpur, Betul, Chhatarpur, Neemuch and Jabalpur Districts and in patches in many districts that could be due to normal to deficit rainfall. However 42% of the wells in Bhind District shows rise in water level but the region has received deficit rainfall during monsoon and post monsoon season.

Figure 2-15 Decadal Water Level Fluctuation at a Glance

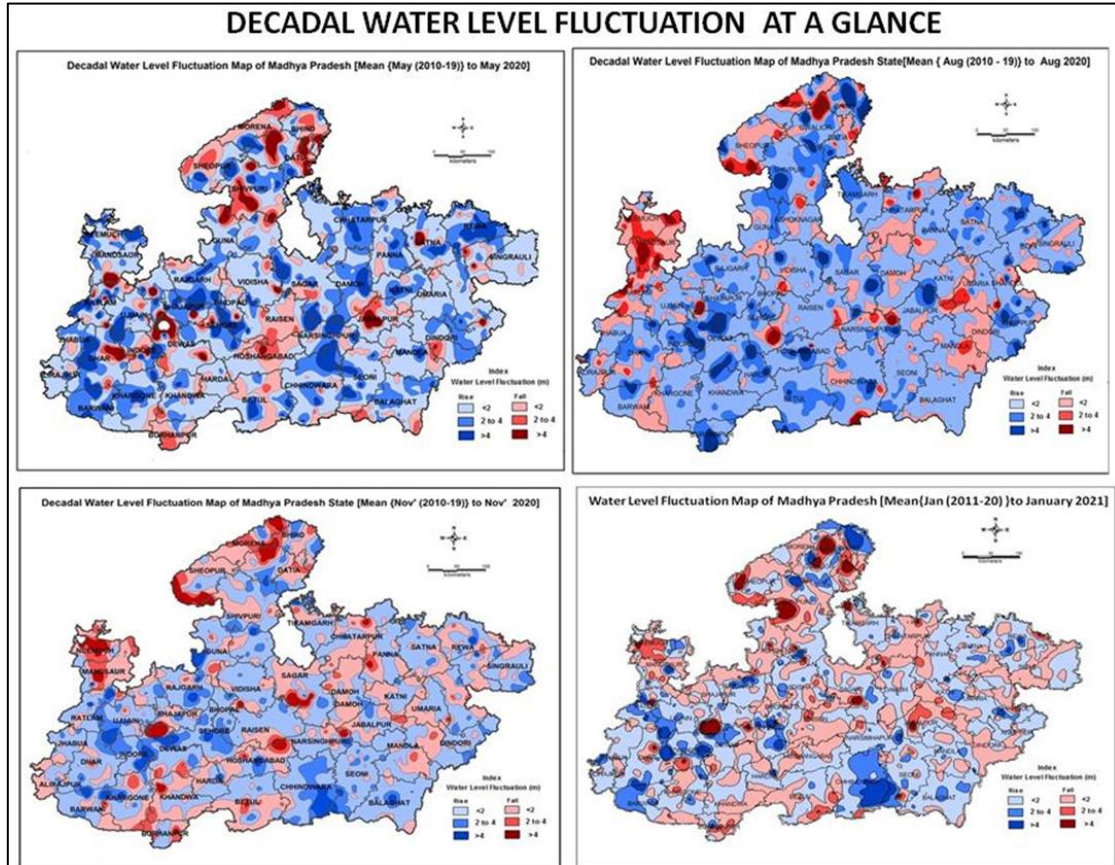


Figure 2-16 Water Level Fluctuation Decadal Mean (May 2010 - May 2019) to May 2020

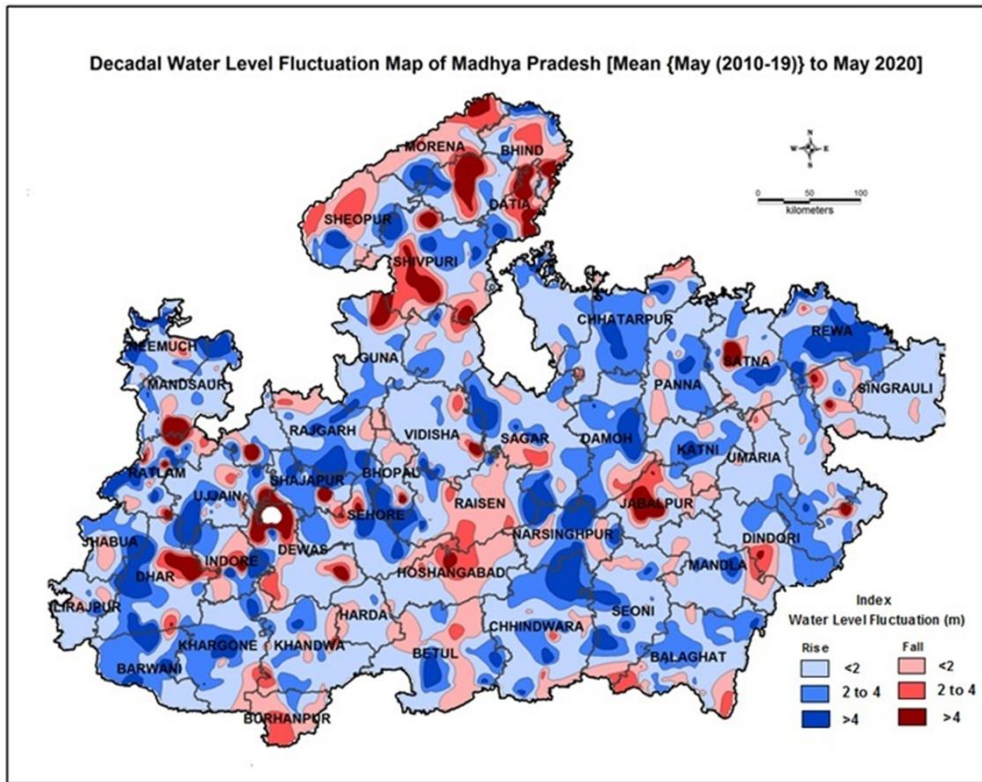


Figure 2-17 Water Level Fluctuation Decadal Mean (August 2010 - August 2019) to August 2020

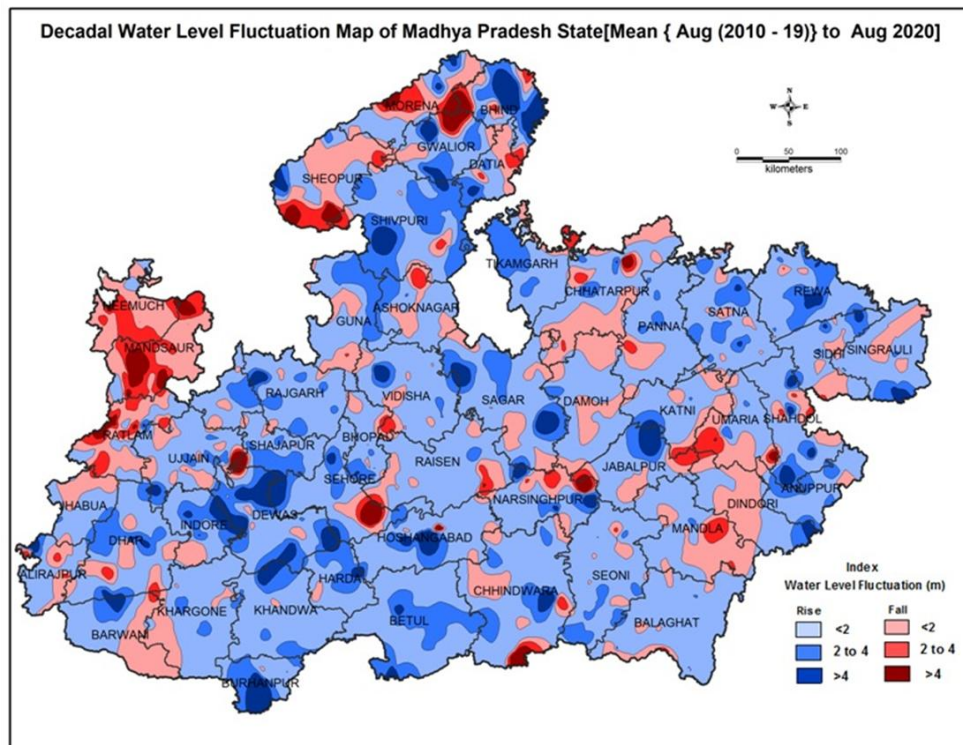




Figure 2-18 Water Level Fluctuation Decadal Mean (November 2010 - November 2019) to November 2020

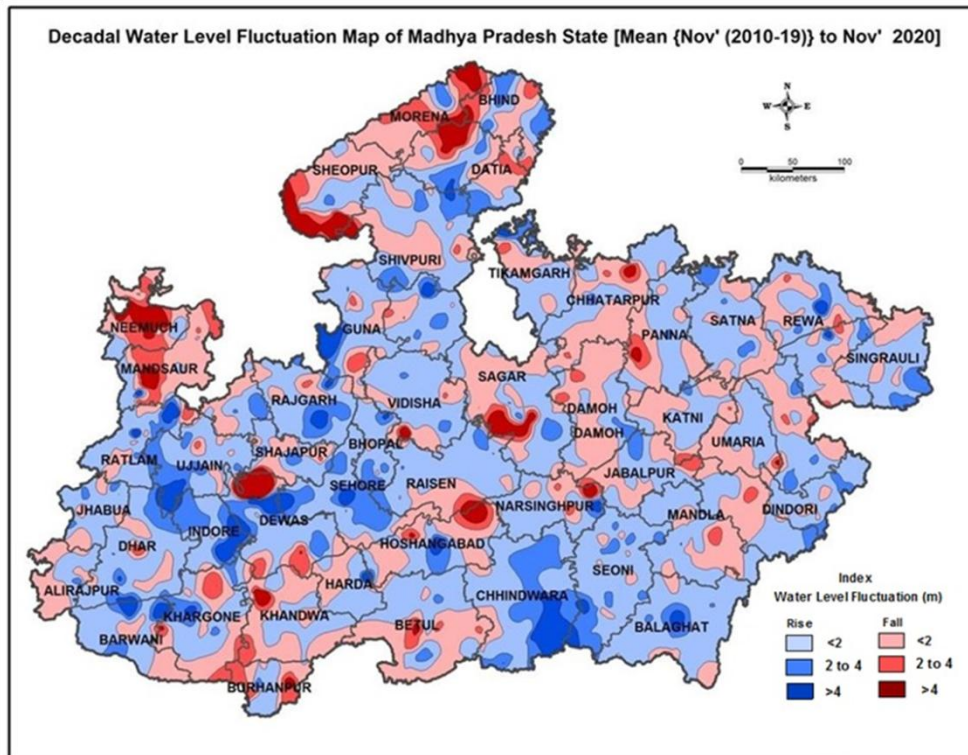
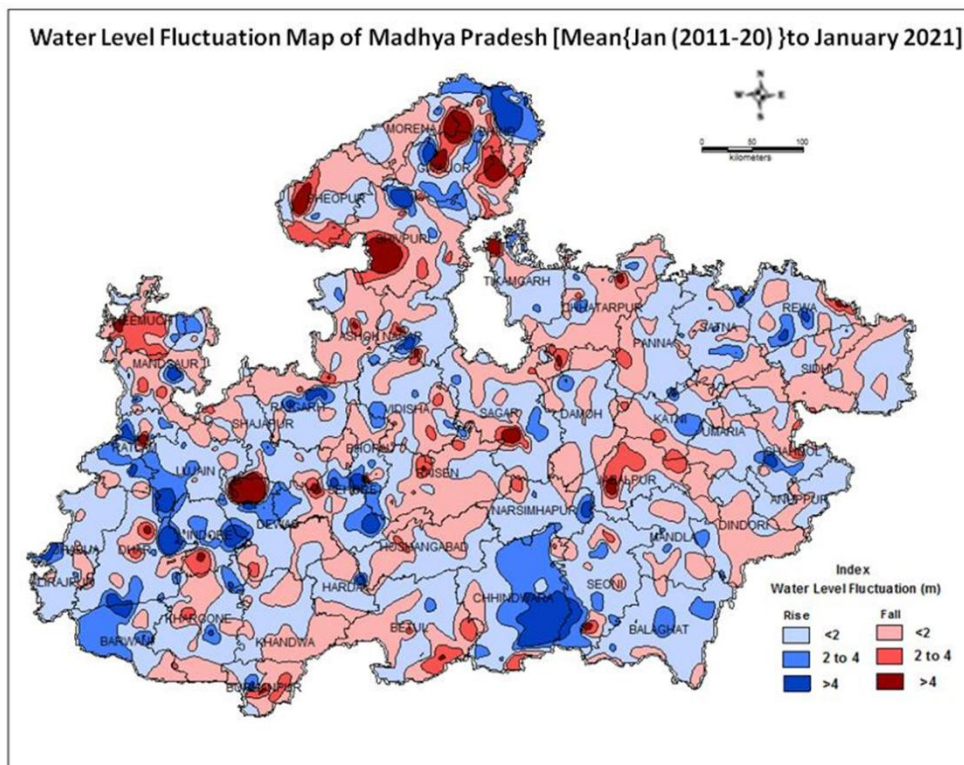


Figure 2-19 Water Level Fluctuation Decadal Mean (January 2011 - January 2020) to January 2021



### **2.3. LONG TERM TREND OF GROUND WATER LEVELS**

The trend analysis of depth to ground water levels (time series analysis) using the data from the hydrograph network stations for the past one decade 2011-20 was carried out using the least square method. Based on this analysis, maps are prepared demarcating various zones of rising and declining trends for the decade 2011-20.

#### **GROUND WATER LEVELS TREND PRE MONSOON (May 2011 to May 2020)**

Ground water levels trend map of pre-monsoon period (May 2011 to May 2020) in Madhya Pradesh state has been depicted in Figure 2-20. The Map shows a general rising trend and declining trend less than 0.5 m/year of ground water levels during the past decade in most of the districts of the state. The rising trend more than 1 m/year has been observed in a small pocket in few districts. Declining trend at a rate less than 0.5 m/year is observed in patches in many parts of the state and declining trend at a rate (-0.5 to -1.0 m/year) has been observed mainly in Damoh, Narsinghpur, Chhindwara, Indore, Dhar, Ratlam, Raisen District of the state. The declining trend at a higher rate (>1 m/year) has seen in Dhar, Chhindwara, Bind, Morena, Guna, Ratlam Districts of the state. The declining trend of pre-monsoon water levels reflects the ground water developmental activities in an area, whereas the rising trend indicates that either the developmental activities have reduced, or that, recharge due to sources other than the rainfall, such as applied irrigation has increased. Around 48% of monitoring wells are showing declining water levels trend while 52 % monitoring wells are showing rising ground water level trend.

#### **GROUND WATER LEVELS TREND POST MONSOON (November 2011 to November 2020)**

Ground water levels trend map of post-monsoon period (Nov 2011 to Nov 2020) in Madhya Pradesh state has been depicted in Figure 2-21. Like a pre monsoon ground water levels trend, post-monsoon trend (Nov 2011 to Nov 2020) shows that there is a general rising trend as well as declining trend of less than 0.5 m/year of ground water levels during the past decade in most of the districts of the state. Declining trend at a rate -0.5 to -1 m/year is observed mainly in Datia, Vidisha, Betul, Gwalior, Morena and Sheopur District of the state. Rising ground water trend at a rate 0.5 to 1m/yr is noticed in the part of some districts. The declining trend in post-monsoon water levels suggests that a part of the aquifer is being dewatered every year, due either to deficient rainfall or to developmental activities. The rising post-monsoon trend, on the other hand, shows that additional water is being stored in the aquifer, due either to increased rainfall or to seepage through applied irrigation.

Figure 2-20 Ground Water Level Trends Pre Monsoon (May 2011 to May 2020)

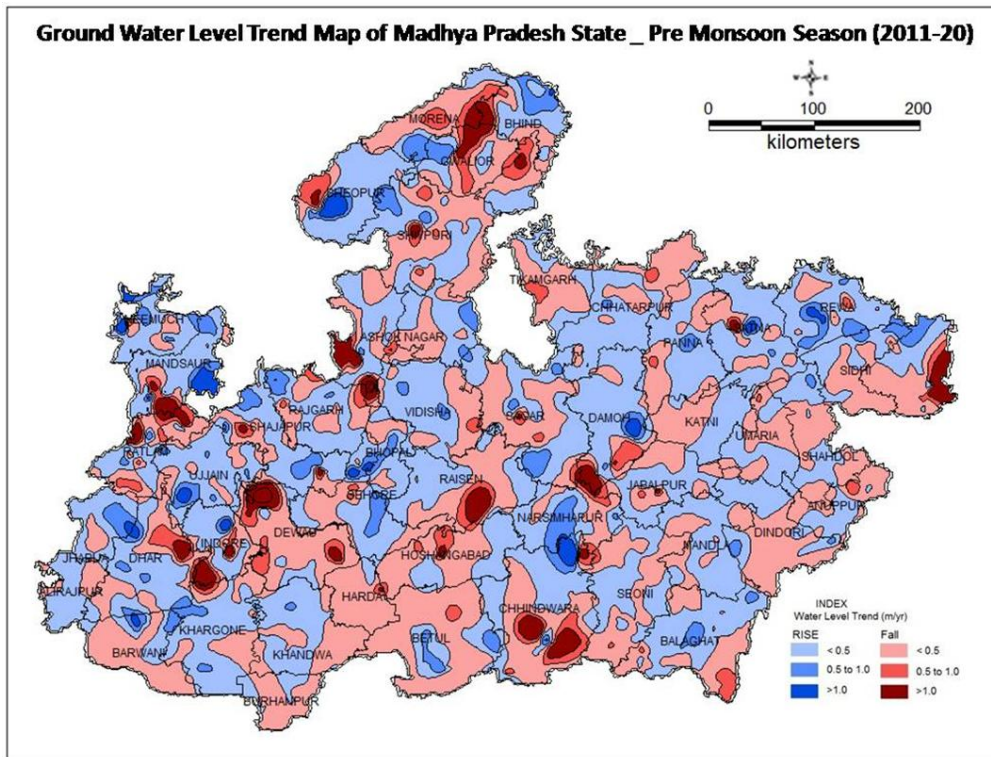
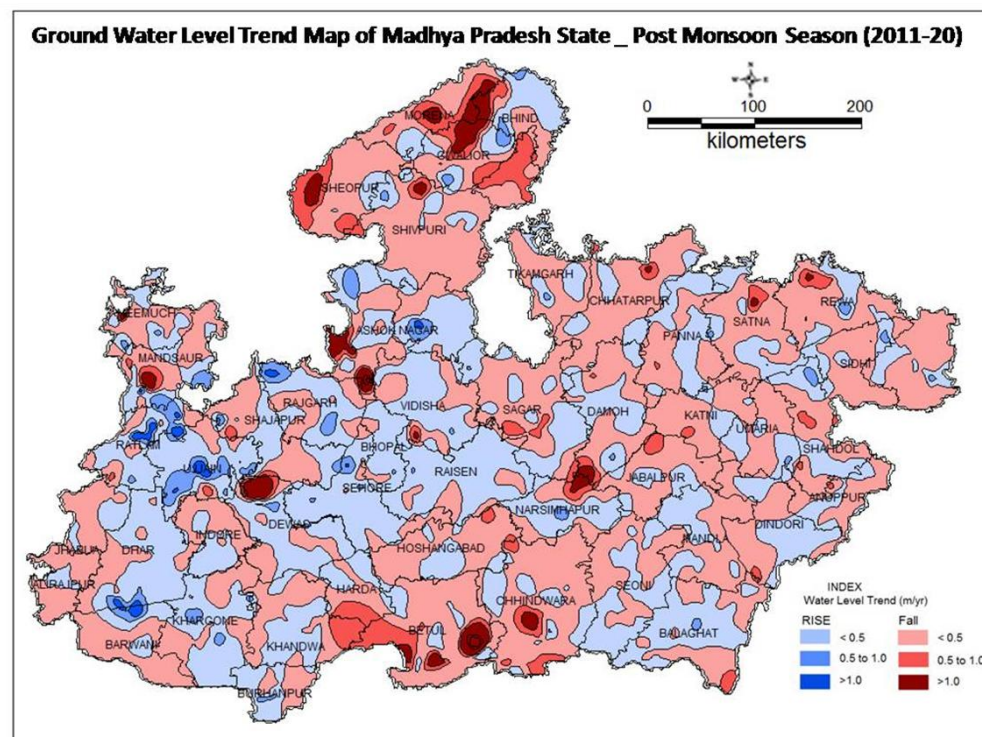


Figure 2-21 Ground Water Level Trends Post Monsoon (November 2011 to November 2020)



### **3 HYDROCHEMISTRY OF GROUND WATER (2019-20)**

Water samples were collected from 1038 Ground Water Monitoring Wells during May 2020 and monitored for chemical quality of ground water (phreatic aquifer) and their location is given in Figure 26. Detailed analysis of the chemical samples was carried out parameters namely: pH, Electrical Conductivity (EC), Carbonate, Bi-carbonate, Chloride, Fluoride, Nitrate, Sulphate, Phosphate, Total hardness, Calcium, Magnesium, Sodium and Potassium. The results of chemical data observed are given in ANNEXURE - XVI.

#### **3.1. SALINITY**

The salinity of water is represented by electrical conductivity. Electrical conductivity is a numerical expression of the ability of water to conduct an electric current. It depends on the total concentration of the ionized substances dissolved in water and the temperature at which the measurement is made. Electrical conductivity increases by about 2% per degree Celsius rise in temperature. The mobility of the dissolved ions, their valencies and their concentration affect conductivity. As electrical conductivity is an index of salinity in water, high electrical conductivity means high salinity. High salinity not only imparts bad taste to drinking water but such water is not suitable for irrigation purposes as it leads to deposition of salt content in the soil and affects the fertility of soil in the absence of adequate soil management practices.

The water having electrical conductivity upto 1000  $\mu\text{S}/\text{cm}$  at 25°C may be considered fresh & suitable for drinking purpose. The ground water quality of Madhya Pradesh is generally good as 59.83% wells have electrical conductivity below 1000  $\mu\text{S}/\text{cm}$  at 25°C. The salinity tolerant crop may be grown in the area where electrical conductivity is more than 2000  $\mu\text{S}/\text{cm}$  25°C.

The chemical quality of ground water of Madhya Pradesh is generally good as the perusal of the frequency distribution of electrical conductivity in phreatic aquifer. Table 3-1 shows that 87.86% wells fall in the range of 0-1500  $\mu\text{S}/\text{cm}$  at 25°C and only 0.77% wells have electrical conductivity more than 3000  $\mu\text{S}/\text{cm}$  at 25°C.

Table 3-1 Frequency Distribution of Electrical Conductivity in Phreatic Aquifer Range

EC Range ( $\mu\text{S}/\text{cm}$ at 25°C)	No. of Samples	%
0-1500	912	87.86
1501-3000	118	11.37
>3001	8	0.77



The distribution of major ions indicates that in the Madhya Pradesh ground water has low to medium salinity ( $EC \approx 1000 \mu\text{s/cm}$ ) and bicarbonate is the predominant anion but there is conspicuous increase in chloride, sulphate and nitrate ion concentration with increase in salinity which indicates that the leaching of minerals of these constituents or human activity is contributing towards salinity in ground water of the area. In general the ground water in the Madhya Pradesh is alkaline earth bicarbonate type. In Madhya Pradesh, the electrical conductivity of water in shallow aquifer is more than  $3000 \mu\text{s/cm}$  at  $25^\circ\text{C}$  in Agar Malwa, Alirajpur, Bhind, Indore, Neemuch, Ratlam, Sagar and Sehore District. The list of samples having electrical conductivity more than  $3000 \mu\text{s/cm}$  at  $25^\circ\text{C}$  is given in Table 3-2 and distribution of electrical conductivity in Madhya Pradesh is given in the Figure 3-2.

Table 3-2 Locations Showing Electrical Conductivity Above  $3000 \mu\text{s/cm}$  at  $25^\circ\text{C}$

S. No.	District	Block	Location	Latitude	Longitude	EC ( $\mu\text{s/cm}$ at $25^\circ\text{C}$ )
1	Agar Malwa	Susner	Soyat	24.188	76.174	3330
2	Alirajpur	Jobat	Jobat New	22.413	74.570	3210
3	Bhind	Ater	Ater	26.750	78.644	4069
4	Bhind	Mehgaon	Chirole	26.355	78.634	3902
5	Neemuch	Manasa	Kundaliya	24.467	75.331	3350
6	Shivpuri	Narwar	Sehore	25.665	78.106	3371
7	Ujjain	Tarana	Kaiytha	23.233	76.018	3565
8	Ujjain	Mahidpur	Mahidpur Road	23.567	75.508	3046

Figure 3-1 Location Map of Ground Water Sampling Wells in Madhya Pradesh State 2020

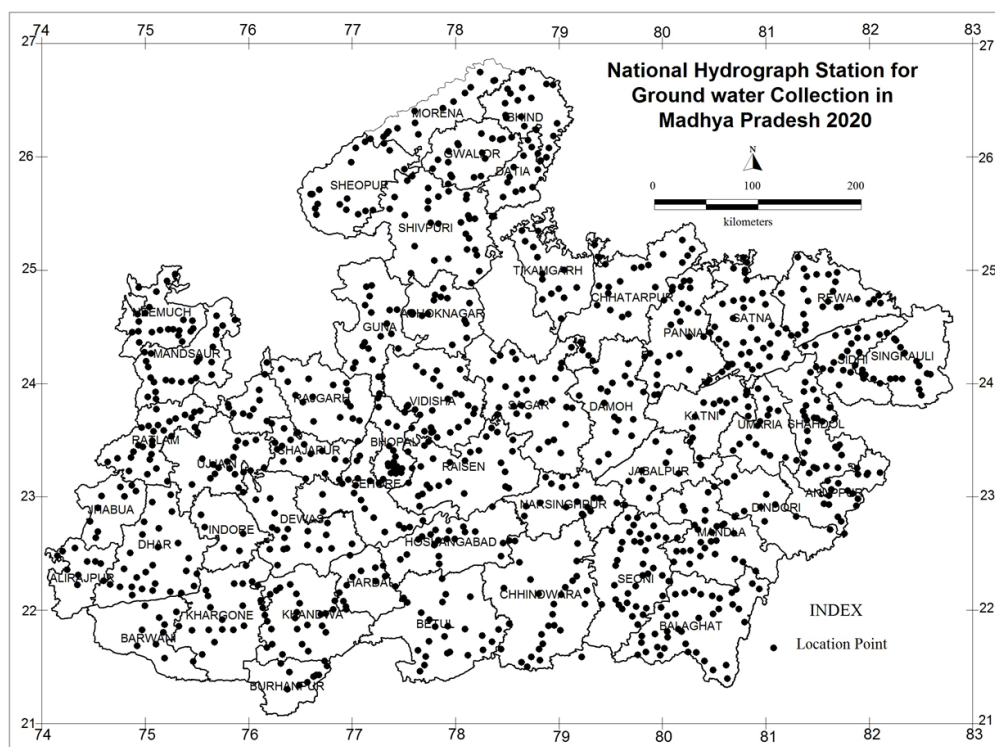
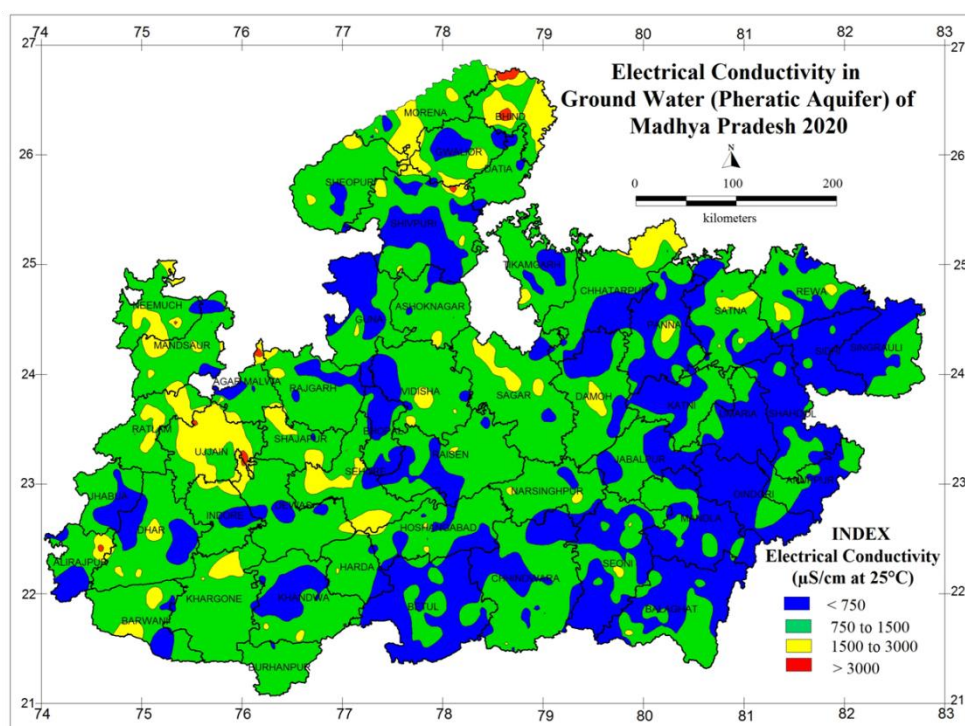


Figure 3-2 Electrical Conductivity in Ground Water (Phreatic Aquifer) Madhya Pradesh 2020



### 3.2. FLUORIDE

In common, fluoride is present in low concentration in natural water. The presence of fluoride in ground water is very important from health point of view for human consumption as in low concentration as it prevents dental caries (upto 1.0 mg/l). However, the high concentration of fluoride above the permissible limit of 1.5 mg/l in drinking water (IS: 10500 Drinking Water Standards) is harmful for human consumption as it causes mottling of teeth and skeletal fluorosis. Its accumulation leads not only to high skeletal concentration, but also has crippling ill effects.

In the Madhya Pradesh State fluoride rich water in shallow aquifer occurs in Chhindwara, Datia, Dewas, Dindori, Khandwa, Mandsaur, Morena, Neemuch, Ratlam, Sehore, Tikamgarh and Umaria District. The distribution of fluoride in the state is shown in Figure 3-3. Fluoride analysis reveals that there is no specific trend observed for distribution of fluoride in the state. The maximum fluoride concentration has been observed at Borgaon of Chhindwara District and Nigahari of Umaria District (1.98 mg/l).

Table 3-3 Frequency Distribution of Fluoride in Phreatic Aquifer

Fluoride Conc. Range (mg/l)	No. of Samples	%
0-1	931	89.69
1-1.5	88	8.48

>1.5	19	1.83
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The frequency distribution of fluoride is given in the Table 3-3 shows that in 89.69% (931 nos.) wells fluoride concentration is within the desirable limit of 1.0 mg/l where as 1.83% (19 nos.) wells show fluoride concentration above the maximum permissible limit of 1.5 mg/l. The list of locations having fluoride concentration more than 1.5mg/l is given in Table 3-4.

Table 3-4 Locations Showing Fluoride Exceeding 1.5 mg/l in Ground Water

Sl. No	District	Block	Location	Lattitude	Longitude	F (mg/l)
1	Chhindwara	Pandhuran	Borgaon1	21.821	79.013	1.98
2	Chhindwara	Chaurai	Chaurai1	22.260	79.132	1.69
3	Chhindwara	Sausar	Ramakona New	21.702	78.843	1.63
4	Datia	Seondha	Chhikau	25.825	78.523	1.57
5	Datia	Datia	Dursadha	25.710	78.644	1.66
6	Dewas	Bagli	Bamohri	22.709	76.275	1.55
7	Dewas	Kannod	Kusumania	22.768	76.760	1.62
8	Dindori	Mehadwani	Harra	22.875	80.792	1.62
9	Dindori	Shahpura	Katangi1	23.126	80.626	1.57
10	Dindori	Shahpura	Vikrampur 1			1.55
11	Khandwa	Punasa	Gujar Khedi	22.197	76.301	1.55
12	Mandsaur	Sitamau	Suwasara	24.077	75.643	1.75
13	Morena	Joura	Huseinpur	26.405	77.603	1.60
14	Neemuch	Manasa	Barlai	24.424	75.320	1.68
15	Neemuch	Jawad	Lalpura	24.614	74.926	1.56
16	Ratlam	Ratlam	Rattagarhkhera	23.139	75.216	1.65
17	Sehore	Ichhawar	Kankad Kheda	23.101	77.036	1.85
18	Tikamgarh	Prithvipur	Prithipur	25.206	78.754	1.64
19	Umariya	Karkeli	Nigahari	23.409	80.683	1.98

### 3.3. NITRATE

Undesirable changes in the natural quality of ground water due to anthropogenic activities of man are a matter of great concern. The contribution of atmospheric and geological sources for nitrate in ground water is small in comparison to the sources related to pollution as a result of activities of human. Sewage and animal waste contain considerable amount of nitrate and its discharge on land & subsequent leaching by rainfall causes enrichment of nitrate in ground water. Similarly, agricultural sources such as excessive use of fertilizers, irrigation with wastewaters, legumes and farm yard wastes contribute nitrate to ground water.

Concentration of nitrate in excess of 45mg/l in water is harmful for human consumption, particularly for infants as it may cause blue baby disease. The highest desirable and

maximum permissible limit of nitrate is 45mg/l (IS: 10500 Drinking Water Standards). The locations of wells in Madhya Pradesh, where concentration of nitrate ion was more than 45mg/l in ground water are shown in Figure 3-4. Perusal of frequency distribution of nitrate in ground water reveals that 65.13% (676 nos.) wells have nitrate concentration within the permissible limit of 45mg/l while 34.87% (362 nos.) well water contain nitrate in excess of 45 mg/l (Table 3-5).

Table 3-5 Frequency Distribution of Nitrate in Shallow Aquifer

Nitrate Conc. Range (mg/l)	No. of Samples	%
0-45	676	65.13
46-100	270	26.01
>100	92	8.86

In Madhya Pradesh, nitrate concentration in shallow aquifer occurs in Agar Malwa, Alirajpur, Ashok Nagar, Balaghat, Barwani, Betul, Bhind, Burhanpur, Chhatarpur, Chhindwara, Damoh, Datia, Dewas, Dhar, Dindori, Gwalior, Harda, Hoshangabad, Indore, Jabalpur, Jhabua, Katni, Khandwa, Khargone, Mandla, Mandsaur, Morena, Narsinghpur, Neemuch, Panna, Raisen, Rajgarh, Ratlam, Rewa, Sagar, Satna, Sehore, Seoni, Shahdol, Shajapur, Sheopur, Shivpuri, Sidhi, Singrauli Tikamgarh, Ujjain, Umaria and Vidisha District. The distribution of nitrate concentration in the state is shown in Figure 3-4. Very high nitrate concentration of 321 mg/l was found in the ground water sample from Bachhukhera of Ujjain District. The locations having more than 45 mg/l nitrate in ground water of Madhya Pradesh are shown in Table 3-6.

Figure 3-3 Fluoride Concentration in Ground Water (Phreatic Aquifer) Madhya Pradesh State 2020

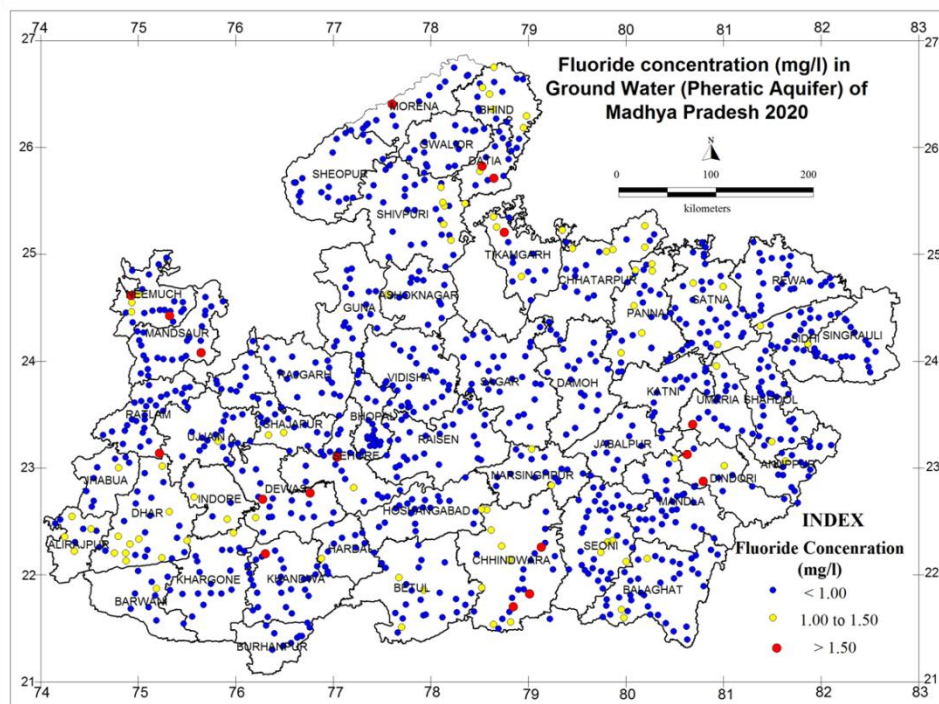


Figure 3-4 Nitrate Concentration in Ground Water (Phreatic Aquifer) Madhya Pradesh State 2020

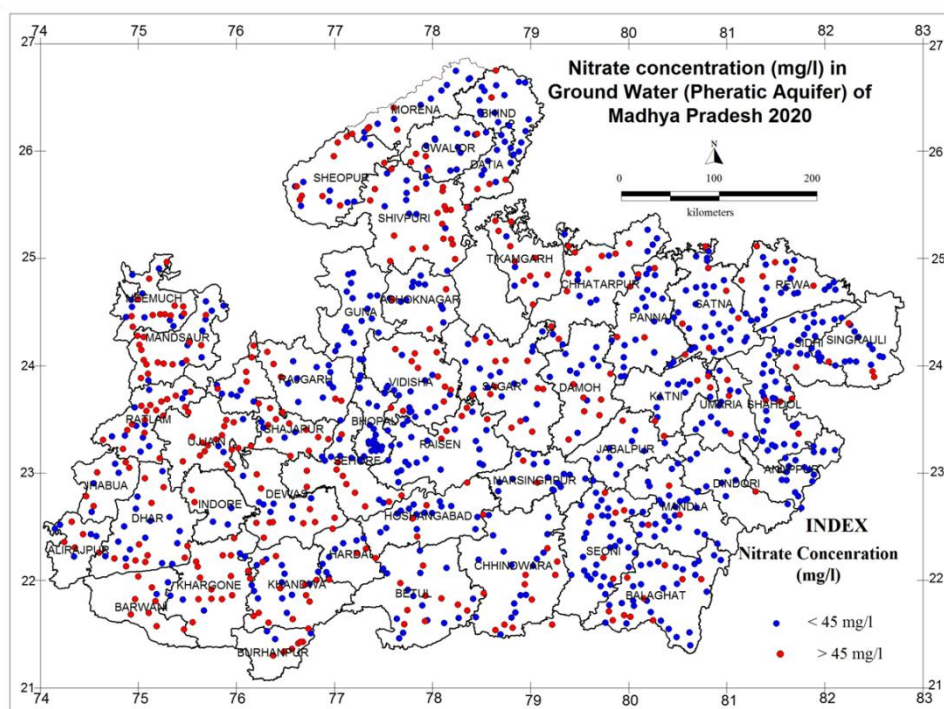


Table 3-6 Locations Showing Nitrate More than 45 mg/l in Ground Water

S. No.	District	Block	Location	Lat.	Long.	NO <sub>3</sub> (more than 45 mg/l)
1	Agar Malwa	Agar	Amla	23.853	76.104	63
2	Agar Malwa	Badod	Barod	23.788	75.806	146
3	Agar Malwa	Susner	Guradi Bangla	24.080	76.155	110
4	Agar Malwa	Susner	Soyat	24.188	76.174	278
5	Agar Malwa	Susner	Susner New	23.944	76.101	46
6	Agar Malwa	NA	Tanodia village	NA	NA	56
7	Alirajpur	Alirajpur	Alirajpur	22.309	74.353	134
8	Alirajpur	Alirajpur	Ambua	22.430	74.437	110
9	Alirajpur	Bhabra	Bhabra New	22.549	74.319	55
10	Alirajpur	Kattiwada	Chandpur	22.357	74.243	70
11	Alirajpur	Alirajpur	Fatta	22.259	74.598	90
12	Ashok Nagar	Mungoali	Bahadurpur	24.342	77.969	144
13	Ashok Nagar	Chanderi	Chanderi	24.712	78.136	109
14	Ashok Nagar	Ashok Nagar	Shadora	24.620	77.590	76
15	Balaghat	Waraseoni	Amai	21.676	79.952	78
16	Balaghat	Paraswada	Bagholi	22.142	80.369	87
17	Balaghat	Birsa	Birsa	22.011	80.740	50
18	Balaghat	Lalbarra	Kanjai	22.026	79.986	49
19	Balaghat	Waraseoni	Kanki	21.832	80.152	70
20	Balaghat	Katangi	Katedhara	21.714	79.797	66
21	Balaghat	Khairlanji	Miragpur	21.631	79.839	165
22	Balaghat	Baihar	Parsatola	22.012	80.546	51
23	Balaghat	Kirnapur	Rajegaon	21.631	80.250	66
24	Balaghat	Khairlanji	Rampalli	21.664	80.017	54
25	Barwani	Rajpur	Balsamund	21.806	75.175	92
26	Barwani	Thikri	Borlai	22.038	74.997	60
27	Barwani	Sendhawa	Chachariya	21.576	75.186	54
28	Barwani	Newali	Niwali1	21.684	74.923	195
29	Barwani	Rajpur	Palsud	21.825	74.968	58
30	Barwani	Rajpur	Rajpur	31.936	75.136	177
31	Barwani		Sendhwa	21.700	75.105	46
32	Betul	Athner	Athner1	21.621	77.921	48
33	Betul	Betul	Betul1	21.860	77.927	75
34	Betul	Multai	Ghatpiparia	21.882	78.519	95
35	Betul	Bhainsdehi	Gudagaon	21.592	77.710	55
36	Betul	Bhainsdehi	Jhallar	21.726	77.743	53



37	Betul	Chicholi	Jogli	21.976	77.669	52
38	Betul	Prabhat Pattan	Junapani	21.721	78.353	55
39	Betul	Chicholi	Khokharkheda	22.208	77.419	72
40	Betul	Multai	Multaidw	21.775	78.256	60
41	Betul	Amla	Sasundra	21.833	78.091	48
42	Betul	Shahpur	Shahpur	22.141	77.904	62
43	Bhind	Ater	Ater	26.750	78.644	140
44	Bhind	Mehgaon	Mehgaon	26.498	78.601	77
45	Burhanpur	Khaknar	Karkheda	21.337	76.487	73
46	Burhanpur	Khaknar	Khaknardw	21.365	76.567	50
47	Burhanpur	Khaknar	Manjrod Kalan	21.413	76.628	58
48	Burhanpur	Khaknar	Pipalpani	21.430	76.679	65
49	Burhanpur	Khaknar	Shekhpura	21.552	76.734	60
50	Burhanpur	Khaknar	Sirpur	21.302	76.373	48
51	Burhanpur	Khaknar	Tukai Thad	21.429	76.653	47
52	Chhatarpur	Buxwaha	Buxwaha	24.249	79.287	48
53	Chhatarpur	Chhatarpur	Chhatarpur	24.900	79.591	62
54	Chhatarpur	Bijawar	Gulganj	24.693	79.369	60
55	Chhatarpur	Chhatarpur	Issanagar	24.862	79.385	59
56	Chhatarpur	Laundi	Lavkush Nagar	25.139	80.006	100
57	Chhatarpur	Nowgaon	Maharajpur	25.021	79.726	58
58	Chhatarpur	Nowgaon	Nowgaon	25.054	79.450	95
59	Chhatarpur	Nowgaon	Putaria	25.115	79.388	100
60	Chhatarpur	Nowgaon	Tatampur	25.045	79.865	120
61	Chhindwara	Pandhuran	Borgaon1	21.821	79.013	189
62	Chhindwara	Chhindwara	Chhindwara	21.559	78.816	69
63	Chhindwara	Pandhurana	Chincholiwad	22.054	79.251	51
64	Chhindwara	Jamai	Damua	22.053	78.949	49
65	Chhindwara	Mohkhed	Goni	22.301	79.171	65
66	Chhindwara	Harai	HarraiDW	21.589	79.221	48
67	Chhindwara	Mohkhed	Linga rly.stn.	21.963	78.938	107
68	Chhindwara	Pandhurana	Pandurna	22.613	78.518	47
69	Chhindwara	Pandhurana	Piplanarayanwar	21.588	78.731	51
70	Chhindwara	Pandhurana	Rajna	21.540	78.639	59
71	Chhindwara	Chaurai	Ramgarh	22.175	79.272	49
72	Damoh	Damoh	Abhana	23.705	79.537	240
73	Damoh	Jabera	Bamhori	23.685	79.719	86
74	Damoh	Damoh	Damoh2	23.828	79.436	200
75	Damoh	Jabera	Jabera1	23.538	79.701	46
76	Damoh	Patera	Kumhari	23.926	79.815	156
77	Damoh	Tendukheda	Samnapur	23.313	79.386	119
78	Damoh	Jabera	Tejgarh	23.575	79.546	112
79	Datia	Bhander	Bhander	25.733	78.743	58

80	Datia	Datia	Datia	25.645	78.459	59
81	Datia	Datia	Imaliya	25.694	78.581	85
82	Dewas	Bagli	Bhikupura	22.539	76.339	65
83	Dewas	Sonkatch	Bhonrasa	22.988	76.207	100
84	Dewas	Khategaon	Dhayali	22.546	76.800	54
85	Dewas	Kannod	Kannod	22.664	76.751	50
86	Dewas	Bagli	Nevri	22.858	76.250	55
87	Dewas	Khategaon	Pipilianankar	22.586	77.001	52
88	Dewas	Bagli	Pipri	22.399	76.278	54
89	Dewas	Bagli	Punjabura	22.546	76.370	70
90	Dewas	Kannod	Satwas New	22.534	76.682	93
91	Dewas	Bagli	Udainagardw	22.538	76.204	82
92	Dhar	Sardarpur	Dasai	22.722	75.132	126
93	Dhar	Dharampuri	Dhamnod	22.214	75.473	78
94	Dhar	Gandhwani	Gandhwani	22.336	75.005	48
95	Dhar	Dharampuri	Gujri1	22.321	75.500	46
96	Dhar	Badnawar	Kanwan New	22.870	75.258	92
97	Dhar	Kukshi	Kukshi1	22.204	74.755	182
98	Dhar	Manawar	Manawar	22.235	75.094	80
99	Dhar	Nisarpur	Pipalya	22.134	74.875	83
100	Dhar	Sardarpur	Rajod	22.954	75.067	75
101	Dhar	Manawar	Singhana	22.188	74.969	67
102	Dindori	Bajag	Sagar Tola	22.828	81.292	50
103	Gwalior	Morar	Aarauli	26.160	78.455	160
104	Gwalior	Ghatigaon	Aron	25.952	77.931	98
105	Gwalior	Ghatigaon	Charai Shyampur	25.975	77.831	80
106	Gwalior	Bhitarwar	Dongarpur	25.822	77.964	285
107	Gwalior	Ghatigaon	Mohna	25.897	77.777	47
108	Harda	Harda	Handia	22.484	76.981	134
109	Harda	Timarni	Mohanpur1	22.255	77.230	82
110	Harda	Khirkhya	Morgarhi	22.008	76.944	84
111	Harda	Timarni	Temagaon	22.298	77.321	89
112	Hoshangabad	Babai	Babaidw	22.700	77.939	50
113	Hoshangabad	Kesla	Pathrautadw	22.576	77.796	86
114	Hoshangabad	Pipariya	Sandia	22.913	78.355	66
115	Hoshangabad	Kesla	Suktawa	22.408	77.843	201
116	Indore	Depalpur	Depalpur	22.843	75.539	76
117	Indore	Rangwasa	Rangwasa	22.732	75.574	55
118	Jabalpur	Majhauhi	Majholi	23.489	79.936	94
119	Jabalpur	Sihora	Sihora1	23.486	80.269	48
120	Jhabua	Petlawad	Karwar	23.101	74.870	65
121	Jhabua	Jhabua	Pitol	22.785	74.466	69
122	Jhabua	Petlawad	Sarangi	23.052	74.908	72



123	Jhabua	Thandla	Thandla1	23.008	74.579	94
124	Jhabua	Ranapur	Tikadimoti	22.694	74.542	49
125	Katni	Vijay Raghavgarh	Barhi	23.902	80.811	70
126	Katni	Badwara	Kewlari	23.797	80.830	75
127	Katni	Vijay Raghavgarh	Piparia2	23.862	80.699	65
128	Katni	Dhimarkheda	Siloni	23.345	80.361	53
129	Khandwa	Pandhana	Borgaon Buzurg	21.609	76.325	69
130	Khandwa	Harsud	Bori Saray	22.006	76.817	119
131	Khandwa	Harsud	Chanera	21.962	76.698	81
132	Khandwa	Chhegaon Makhan	Dhangaon	22.088	76.118	111
133	Khandwa	Pandhana	Gurhi	21.639	76.574	194
134	Khandwa	Khandwa	Jawar	21.930	76.448	47
135	Khandwa	Khalwa	Kalamkalan	21.863	76.709	127
136	Khandwa	Punasa	Kelwa Kalan	22.174	76.267	66
137	Khandwa	Khalwa	Khalwa1	21.805	76.746	85
138	Khandwa	Pandhana	Kusumbia	21.671	76.175	122
139	Khandwa	Chhegaon Makhan	Pandhana	21.699	76.227	185
140	Khandwa	Punasa	Udaipur	22.226	76.403	150
141	Khargone	Barwaha	Amba	22.041	75.944	72
142	Khargone	Maheshwar	Baddiya	22.233	75.943	200
143	Khargone	Barwaha	Balwara	22.394	75.975	65
144	Khargone	Bhikangaon	Bamnala New	21.825	75.853	87
145	Khargone	Bhikangaon	Bhikangaon1	21.862	75.955	73
146	Khargone	Bhagwanpura	Bhulwani	21.546	75.465	100
147	Khargone	Bhikangaon	Daudwa	22.020	76.137	94
148	Khargone	Bhagwanpura	Dhulkot	21.611	75.552	71
149	Khargone	Gogawan	Divalgaon	21.829	75.744	95
150	Khargone	Gogawan	Gogaon	21.918	75.743	127
151	Khargone	Kasrawad	Kasrawad1	22.127	75.606	112
152	Khargone	Khargone	Khargone	21.826	75.614	70
153	Khargone	Maheshwar	Maheshwar	22.178	75.587	160
154	Khargone	Maheshwar	Piplyabuzrug	22.235	75.861	129
155	Khargone	Barwaha	Sanawad New	22.173	75.071	59
156	Khargone	Kasrawad	Sawda	22.026	75.628	63
157	Mandla	Narayanganj	Babaliya	22.883	80.414	104
158	Mandla	Nainpur	Dithori	22.519	80.199	49
159	Mandla	Mandla	Ramnagar1	22.614	80.521	53
160	Mandsaur	Bhanpura	Babulda	24.474	75.688	104
161	Mandsaur	Garoth	Barkheranayak	24.219	75.522	140

162	Mandsaur	Mandsaur	Basakheda	24.032	75.198	70
163	Mandsaur	Mandsaur	Botalganj	24.148	75.029	60
164	Mandsaur	Mandsaur	Chirmoliya	24.022	75.257	85
165	Mandsaur	Mandsaur	Daloda1	23.925	75.099	65
166	Mandsaur	Sitamau	Khejriya	24.050	75.490	48
167	Mandsaur	Malhargarh	Malhargarh	24.278	74.991	55
168	Mandsaur	Mandsaur	Mandsaur	24.053	75.053	53
169	Mandsaur	Sitamau	Manpura	23.884	75.026	120
170	Mandsaur	Malhargarh	Narayangarh	24.267	75.054	135
171	Mandsaur	Mandsaur	Nayakhera	24.014	75.083	57
172	Mandsaur	Malhargarh	Pipaliya	24.196	75.008	50
173	Mandsaur	Garoth	Shamgarh1	24.191	75.640	154
174	Mandsaur	Sitamau	Sitamau	24.013	75.349	55
175	Morena	Joura	Huseinpur	26.405	77.603	47
176	Morena	Sabalgarh	Mangrol	26.223	77.352	148
177	Morena	Pahadgarh	Pahargarh	26.200	77.639	224
178	Morena	Sabalgarh	Ranipura	26.206	77.335	51
179	Narsinghpur	Chawarpatha	Dobhi	23.115	78.925	96
180	Narsinghpur	Kareli	Kareli Basti	22.911	79.068	55
181	Neemuch	Manasa	Besla	24.554	75.457	52
182	Neemuch	Manasa	Bhadanadw	24.561	75.369	130
183	Neemuch	Neemuch	Girdola	24.462	74.932	175
184	Neemuch	Manasa	Gota Pipliya	24.480	75.223	129
185	Neemuch	Manasa	Jamalpura	24.487	75.464	87
186	Neemuch	Neemuch	Kacholi	24.363	74.941	75
187	Neemuch	Manasa	Kukreshwar	24.480	75.268	60
188	Neemuch	Manasa	Kundaliya	24.467	75.331	105
189	Neemuch	Manasa	Manasa	24.471	75.144	315
190	Neemuch	Jawad	Morban1	24.622	75.000	95
191	Neemuch	Jawad	Ratangarh	24.811	75.109	120
192	Neemuch	Jawad	Singoli	24.968	75.288	95
193	Panna	Ajaigarh	Ajaigarh	24.909	80.266	90
194	Panna	Ajaigarh	Bariyarpur	24.851	80.098	115
195	Panna	Panna	Madla	24.737	80.014	61
196	Panna	Pawai	Powai	24.266	80.162	80
197	Panna	Pawai	Semaria1	24.267	79.880	71
198	Raisen	Begamganj	Begumganj	23.607	78.349	75
199	Raisen	Gairatganj	Dehgaon	23.319	78.091	86
200	Raisen	Gairatganj	Garhi	23.394	78.142	78
201	Raisen	Begamganj	Paloha	23.532	78.296	138
202	Raisen	Begamganj	Sultanganj	23.503	78.555	77
203	Rajgarh	Jirapur	Chhapihera	23.897	76.453	78
204	Rajgarh	Narsinghgarh	Ganayari	23.691	77.008	69

205	Rajgarh	Narsinghgarh	Gandhigram	23.674	77.069	71
206	Rajgarh	Jirapur	Machalpur	24.13	76.314	99
207	Rajgarh	Sarangpur	Sarangpur	23.569	76.472	65
208	Rajgarh	Jirapur	Zirapur	24.016	76.378	89
209	Ratlam	Alot	Alot	23.758	75.530	51
210	Ratlam	Bajna	Bajna	23.309	74.638	54
211	Ratlam	Piploda	Barkheda	23.625	75.031	48
212	Ratlam	Jaora	Jaora	23.633	75.122	107
213	Ratlam	Alot	Kharwa Kalan	23.615	75.478	52
214	Ratlam	Ratlam	Mewasa	23.497	75.067	47
215	Ratlam	Jaora	Mindli	23.690	75.292	70
216	Ratlam	Jaora	Ramnagar	23.537	75.255	56
217	Ratlam	Bajna	Raoti	23.227	74.842	77
218	Ratlam	Ratlam	Rattagarhkhera	23.139	75.216	78
219	Ratlam	Sailana	Sailana	23.457	74.933	48
220	Ratlam	Sailana	Saser	23.400	74.887	93
221	Ratlam	Ratlam	Sejawata	23.377	75.060	86
222	Ratlam	Jaora	Sindurkiya	23.666	75.235	61
223	Ratlam	Piploda	Sohangarh	23.580	75.080	73
224	Ratlam	Alot	Tal	23.722	75.383	125
225	Ratlam	Jaora	Ukediya	23.585	75.180	251
226	Rewa	Jawa	Dabhoura	25.115	81.307	100
227	Rewa	Jawa	Jawa1	24.963	81.492	98
228	Rewa	Teonthar	Katra	24.897	81.673	51
229	Rewa	Mauganj	Pahadi	24.747	81.884	51
230	Rewa	Sirmour	Semaria2	24.796	81.151	179
231	Rewa	Sirmour	Sirmaur1	24.834	81.364	75
232	Sagar	Malthon	Bamhori Lal	24.246	78.433	54
233	Sagar	Banda	Banda	24.046	78.967	106
234	Sagar	Malthon	Bandri	24.042	78.640	71
235	Sagar	Malthon	Barodia	24.216	78.583	54
236	Sagar	Banda	Behrol	24.050	78.746	48
237	Sagar	Jaisinagar	Bhapel	23.806	78.638	59
238	Sagar	Deori	Deorikhas	23.386	79.016	53
239	Sagar	Rehli	Garhakota	23.784	79.129	146
240	Sagar	Shahgarh	Hirapur	24.366	79.211	77
241	Sagar	Rahatgarh	Hurra	23.728	78.405	61
242	Sagar	Kesli	Kesli	23.421	78.806	252
243	Sagar	Kesli	Nayanagar	23.484	78.896	109
244	Sagar	Rehli	Parsiya	23.792	79.071	175
245	Sagar	Jaisinagar	Sarkhedi	23.736	78.589	52
246	Sagar	Jaisinagar	Surkhi	NA	NA	169
247	Satna	Maihar	Amdara	24.104	80.576	61

248	Satna	Maihar	Bhadanpur New	24.166	80.821	46
249	Satna	Rampur Baghelan	Kotar	24.699	80.995	157
250	Satna	Majhgawan	Majhgawa	24.911	80.813	52
251	Satna	Amarpatan	Mauhari Katra	24.444	81.118	77
252	Satna	Unchehara	Pahari	24.392	80.547	89
253	Satna	Majhgawan	Paldeo	25.110	80.783	111
254	Sehore	Ashta	Ashta	23.023	76.716	104
255	Sehore	Budni	Bayan	22.734	77.556	56
256	Sehore	Ichhawar	Bordi	22.973	77.086	62
257	Sehore	Budni	Budhni	22.791	77.683	80
258	Sehore	Ichhawar	Ichhawar	23.032	77.019	82
259	Sehore	Ichhawar	Kankad Kheda	23.101	77.036	56
260	Sehore	Ashta	Khachrod	22.872	76.718	110
261	Sehore	Sehore	Khajuria Kalan	23.361	77.073	52
262	Sehore	Nasrullaganj	Larkui New	22.817	77.209	63
263	Sehore	Ichhawar	Nadan	22.897	77.122	69
264	Sehore	Nasrullaganj	Rala	22.690	77.314	81
265	Seoni	Lakhnadon	Banjari	22.818	79.758	47
266	Seoni	Ghansaur	Ghansor1	22.654	79.953	57
267	Seoni	Seoni	Kaniwara	22.212	79.740	49
268	Seoni	Barghat	Kauria	22.017	79.843	52
269	Seoni	Lakhnadon	Lakhnadon1	22.599	79.613	65
270	Seoni	Dhanaura	Mehta	22.631	79.866	101
271	Shahdol	Jiysingh Nagar	Amjhor	23.667	81.546	47
272	Shahdol	Jiysingh Nagar	Jaisinghnagar1	23.678	81.397	111
273	Shahdol	Burhar	Khamhidol	23.369	81.732	51
274	Shahdol	Jiysingh Nagar	Sidi	23.692	81.665	55
275	Shajapur	Kalapipal	Arandia	23.208	76.739	75
276	Shajapur	Moman Badodia	Chouma	23.649	76.225	73
277	Shajapur	Kalapipal	Kalapipal	23.334	76.833	77
278	Shajapur	Shajapur	Majhania	23.448	76.321	61
279	Shajapur	Shajapur	Makshi New	23.253	76.148	60
280	Shajapur	Moman Badodia	Moman Badodia	23.606	76.341	100
281	Shajapur	Kalapipal	Nandni	23.318	76.938	47
282	Shajapur	Shajapur	Panwadi	23.504	76.404	63
283	Shajapur	Moman Badodia	Salsalai	23.464	76.538	70
284	Shajapur	Shujalpur	Shujalpur	23.406	76.709	56
285	Shajapur	Shajapur	Tilawad Govind	23.310	76.333	72
286	Shajapur		Pagrawat Kalan	23.160	76.551	62

287	Sheopur	Sheopur	Bhagwara	25.673	76.615	64
288	Sheopur	Vijaypur	Dhobni	25.832	77.580	86
289	Sheopur	Sheopur	Filojpora	25.585	76.665	223
290	Sheopur	Vijaypur	Ghaswani	25.892	77.506	48
291	Sheopur	Vijaypur	Harkui	26.159	77.179	89
292	Sheopur	Karahal	Kalmi	25.581	76.879	94
293	Sheopur	Karahal	Karahal	25.493	77.057	63
294	Sheopur	Vijaypur	Panchoncolony	26.135	77.124	281
295	Sheopur	Sheopur	Pandola	25.546	76.644	59
296	Sheopur	Vijaypur	Pura	25.953	76.991	162
297	Sheopur	Vijaypur	Shyampur	26.081	77.034	60
298	Shivpuri	Khaniyadhana	Achhroni New	24.992	78.231	103
299	Shivpuri	Pohri	Ainpura	25.647	77.410	196
300	Shivpuri	Karera	Awas	25.473	78.351	55
301	Shivpuri	Badarwas	Badarwas	24.975	77.568	132
302	Shivpuri	Narwar	Behgwan	25.629	78.103	74
303	Shivpuri	Pichhore	Bhonti	25.320	78.100	71
304	Shivpuri	Badarwas	Ganeshkhera	25.087	77.793	115
305	Shivpuri	Karera	Karera	25.454	78.136	91
306	Shivpuri	Karera	Languri	25.484	78.123	58
307	Shivpuri	Kolaras	Manipura New	25.213	77.606	49
308	Shivpuri	Khaniyadhana	Masoori	25.100	77.930	65
309	Shivpuri	Narwar	Narwar	25.651	77.833	127
310	Shivpuri	Pichhore	Pichhore	25.179	78.191	114
311	Shivpuri	Pohri	Pohari	25.541	77.365	76
312	Shivpuri	Karera	Sarsod	25.423	78.051	118
313	Shivpuri	Narwar	Sehore	25.665	78.106	296
314	Shivpuri	Pichhore	Semri	25.182	78.112	51
315	Shivpuri	Karera	Sirsod Chouraha	25.422	78.051	108
316	Shivpuri	Khaniyadhana	Sitapur	25.133	78.207	96
317	Shivpuri	Karera	Toda Karea	25.453	78.185	50
318	Sidhi	Majhauri	Bastua	23.987	81.709	49
319	Singrauli	Deosar	Karthua	24.395	82.244	105
320	Singrauli	Waidhan	Koyal Khunth	23.946	82.485	68
321	Singrauli	Waidhan	Mara	23.897	82.503	49
322	Singrauli	Deosar	Parasi	24.040	82.041	66
323	Tikamgarh	Tikamgarh	Baragaon	24.572	79.022	65
324	Tikamgarh	Prithvipur	Birorakhet	25.115	78.792	83
325	Tikamgarh	Jatara	Digaura	24.971	78.839	79
326	Tikamgarh	Jatara	Jatara	25.003	79.048	50
327	Tikamgarh	Tikamgarh	Majna	24.836	78.997	110
328	Tikamgarh	Baldeogarh	Manikpur	24.848	79.171	74
329	Tikamgarh	Tikamgarh	Mawai	24.794	78.928	56

330	Tikamgarh	Prithvipur	Nengawan	25.255	78.673	87
331	Tikamgarh	Niwari	Niwari New	25.345	78.801	87
332	Tikamgarh	Niwari	Orchha	25.349	78.641	94
333	Ujjain	Ghatia	Bachhukhera	23.312	75.791	321
334	Ujjain	Ujjain	Chakrawada Grid	23.257	75.708	108
335	Ujjain	Badnagar	Chhoti Ghadsod	23.108	75.452	104
336	Ujjain	Tarana	Dablahardu	23.495	75.895	65
337	Ujjain	Mahidpur	Ghosla	23.439	75.876	78
338	Ujjain	Tarana	Kaiytha	23.233	76.018	147
339	Ujjain	Badnagar	Kharotia	23.163	75.630	53
340	Ujjain	Mahidpur	Mahidpurroad	23.567	75.508	55
341	Ujjain	Ujjain	Naikhedi	23.204	75.675	85
342	Ujjain	Ujjain	Narwar	23.080	75.902	73
343	Ujjain	Ghatia	Nazarpur	23.352	75.853	55
344	Ujjain	Ujjain	Palkhanda	23.041	75.946	74
345	Ujjain	Ghatia	Ruie	23.286	75.652	90
346	Ujjain	Tarana	Rupakhedi	23.475	75.971	93
347	Ujjain	Khachrod	Unhel	23.338	75.549	117
348	Ujjain	Ujjain	Vijayganj Mandi	23.219	75.952	87
349	Umaria	Pali	Birsinghpur I	23.367	81.040	65
350	Umaria	Bandhavgarh	Tala	23.721	81.021	75
351	Umaria	Manpur	Panpatha	23.869	81.005	55
352	Vidisha	Vidisha	Bilari	23.578	77.70	88
353	Vidisha	Sironj	Dehri Jagir	24.041	77.786	49
354	Vidisha	Sironj	Deopur	24.155	77.621	63
355	Vidisha	Basoda	Ghatera	23.807	78.124	101
356	Vidisha	Gyaraspur	Gyaraspur1	23.667	78.114	80
357	Vidisha	Kurwai	Kurwai1	24.125	78.043	73
358	Vidisha	Basoda	Malkapur	23.979	77.851	49
359	Vidisha	Basoda	Mudra	23.777	78.186	51
360	Vidisha	Sironj	Patharia	24.115	77.819	125
361	Vidisha	Vidisha	Salaiya	23.608	77.576	186
362	Vidisha	Basoda	Udaipur	23.901	78.055	109

### 3.4. TOTAL HARDNESS

Hardness is mainly caused by the presence of calcium and magnesium bicarbonate, Sulphate and chloride ions. As per Bureau of Indian Standard IS:10500: 2012 (drinking water), the desirable limit of total hardness is 200 mg/l and permissible limit is 600 mg/l. Total hardness in the shallow ground water in Madhya Pradesh ranges between 20 to 1450 mg/l (1450 mg/l in Kaiytha and Ujjain District). Most of the waters are calcium bicarbonate type attributing to temporary hardness of water. Permanent hardness of water caused by calcium



and magnesium, sulphate and chloride can be removed by ion exchange.

Table 3-7 Frequency Distribution of Total Hardness in Shallow Aquifer

Total Hardness Range (mg/l)	No. of Samples	%
<200	245	23.60
200-600	732	70.52
>600	61	5.88

The study of total hardness in ground water reveals that 61 nos. (5.88%) of well waters contain hardness more than the permissible limit of 600 mg/l and 732 nos. (70.52%) of well waters has total hardness above the desirable limit of 200 mg/l but below the permissible limit of 600 mg/l (Table 3-7). The locations having total hardness more than 600 mg/l in ground water of Madhya Pradesh are shown in Table 3-8.

Table 3-8 Locations Showing Total Hardness Exceeding 600 mg/l in Ground Water

S. No.	District	Block	Location	Latitude	Longitude	Total Hardness (More Than 600 mg/L)
1	Agar Malwa	Badod	Barod	23.788	75.806	817
2	Agar Malwa	Susner	Soyat	24.188	76.174	871
3	Agar Malwa	NA	Tanodia village	NA	NA	614
4	Alirajpur	Jobat	Jobat New	22.413	74.570	680
5	Balaghat	Khairlanji	Miragpur	21.631	79.839	695
6	Barwani	Newali	Niwali1	21.684	74.923	675
7	Barwani	Rajpur	Rajpur	31.936	75.136	723
8	Bhind	Ater	Ater	26.750	78.644	1115
9	Bhind	Lahar	Balaji	26.296	78.980	825
10	Chhatarpur	Laundi	Lavkush Nagar	25.139	80.006	920
11	Damoh	Jabera	Nohta	23.678	79.574	705
12	Gwalior	Bhitarwar	Dongarpur	25.822	77.964	861
13	Khandwa	Pandhana	Gurhi	21.639	76.574	693
14	Khandwa	Chhegaon Makhan	Pandhana	21.699	76.227	727
15	Khargone	Maheshwar	Baddiya	22.233	75.943	827
16	Mandsaur	Bhanpura	Babulda	24.474	75.688	655
17	Mandsaur	Garoth	Barkheranayak	24.219	75.522	795
18	Mandsaur	Malhargarh	Narayangarh	24.267	75.054	955
19	Mandsaur	Mandsaur	Nayakhera	24.014	75.083	625
20	Mandsaur	Garoth	Shamgarh1	24.191	75.640	670
21	Morena	Morena	Khera Mewda New	26.563	78.090	605
22	Morena	Sabargarh	Mangrol	26.223	77.352	800
23	Neemuch	Neemuch	Girdola	24.462	74.932	870

24	Neemuch	Manasa	Kundaliya	24.467	75.331	1380
25	Neemuch	Manasa	Manasa	24.471	75.144	900
26	Panna	Gunnor	Amanganj	29.416	80.261	901
27	Panna	Pawai	Powai	24.266	80.162	670
28	Raisen	Gairatganj	Dehgaon	23.319	78.091	653
29	Ratlam	Piploda	Barkheda	23.625	75.031	795
30	Ratlam	Jaora	Jaora	23.633	75.122	710
31	Ratlam	Ratlam	Namli	23.455	75.066	680
32	Ratlam	Ratlam	Ratlam	23.331	75.045	605
33	Ratlam	Ratlam	Sejawata	23.377	75.060	910
34	Ratlam	Alot	Tal	23.722	75.383	935
35	Ratlam	Jaora	Ukediya	23.585	75.180	765
36	Rewa	Rewa	Reethi	24.522	81.385	780
37	Rewa	Rewa	Sagra	24.611	81.362	610
38	Sagar	Malthon	Bamhori Lal	24.246	78.433	865
39	Sagar	Sagar	Khajuria	23.940	78.686	1155
40	Sagar	Sagar	Parsoria	23.854	78.936	820
41	Satna	Amarpatan	Amarpatan1	24.314	80.976	695
42	Satna	Sohawal	Barakalan	24.671	80.787	800
43	Satna	Rampur Baghelan	Kotar	24.699	80.995	640
44	Sehore	Ichhawar	Bordi	22.973	77.086	624
45	Sehore	Ichhawar	Ichhawar	23.032	77.019	648
46	Sehore	Nasrullaganj	Rala	22.690	77.314	743
47	Shajapur	Kalapipal	Arandia	23.208	76.739	910
48	Shajapur	Moman Badodia	Chouma	23.649	76.225	705
49	Shajapur	Moman Badodia	Moman Badodia	23.606	76.341	805
50	Shajapur	Moman Badodia	Salsalai	23.464	76.538	680
51	Sheopur	Vijaypur	Panchoncolony	26.135	77.124	658
52	Shivpuri	Narwar	Sehore	25.665	78.106	718
53	Tikamgarh	Tikamgarh	Majna	24.836	78.997	605
54	Tikamgarh	Tikamgarh	Tikamgarh	24.744	78.838	765
55	Ujjain	Tarana	Dablahardu	23.495	75.895	1010
56	Ujjain	Mahidpur	Ghosla	23.439	75.876	745
57	Ujjain	Tarana	Kaiytha	23.233	76.018	1450
58	Ujjain	Badnagar	Kharotia	23.163	75.630	660
59	Ujjain	Mahidpur	Mahidpurroad	23.567	75.508	1195
60	Ujjain	Ujjain	Palkhanda	23.041	75.946	690
61	Ujjain	Khachrod	Unhel	23.338	75.549	885

### 3.5. SUITABILITY FOR IRRIGATION

The crop productivity depends on the quality of the water used for irrigation. Water suitability for irrigation needs to be evaluated on the basis of hazards it can create in the soil, affecting yield & quality of crops. The potential hazards to crop growth are salinity, sodicity, alkalinity and toxicity.

#### SODIUM ADSORPTION RATIO

Sodium Adsorption Ratio (SAR) is an estimate of the degree to which Sodium will be absorbed by soil from water. Sodium in irrigation, waters adversely affects soil structure and permissibility by replacing Ca and Mg ions.

$$SAR = \frac{Na^+}{\sqrt{\frac{Ca^{++} + Mg^{++}}{2}}}$$

Where: Na<sup>+</sup>, Ca<sup>+2</sup> and Mg<sup>+2</sup> is expressed in meq/l

Table 3-9 Quality of Water on the Basis of SAR Values

S.No.	Range of SAR	No. of Sample	% of Samples	Quality of Water
1.	<10	1036	99.81	Low Sodium hazard good quality
2.	10-18	2	0.19	Medium Sodium hazard medium quality
3.	18-26	0	0.00	High Sodium hazard bad quality
4.	>26	0	0.00	Very High Sodium hazard very bad quality

Table 3-9 shows that the quality of water samples as per SAR is good as 99.81% (1036 nos.) wells have SAR value below 10.

#### RESIDUAL SODIUM CARBONATE

Residual Sodium Carbonate (RSC) equals the sum of bicarbonate and carbonate ion concentration minus the sum of calcium & magnesium ions, when all the ions are expressed in meq/l.

$$RSC = (CO_3^{--} + HCO_3^-) - (Ca^{++} + Mg^{++})$$

According to Eaton (1950) and USSL (1954), irrigation waters containing residual sodium carbonate (RSC) above 2.5 meq/l are not suitable for irrigation purpose. Water containing 1.25 to 2.5 meq/l of RSC is marginally suitable & those containing less than 1.25 meq/l of

RSC are safe. The water quality of Madhya Pradesh has been evaluated on the basis of RSC in Table 3-10.

Table 3-10 Number of Wells Falling in Different RSC Ranges

S.No.	RSC Range in meq/l	No. of wells	% of wells	Suitability
1.	< 1.25	961	92.58	Suitab
2.	1.25 – 2.5	48	4.62	Marginally suitable
3.	>2.5	29	2.79	Unsuitable

Nearly 97.21% (1009 Nos.) of dug well water of Madhya Pradesh were found to have RSC values below 2.5meq/l, which infers that the water is free from alkalinity hazards. However, 2.79% (29 Nos.) of wells have RSC more than 2.5 meq/l. Excessive use of these high RSC waters for irrigation can adversely affect fertility of the soil in the area by making it alkaline, resulting at times in hardening of the soil due to deposition of sodium carbonate. For safe use of such waters gypsum requirement for different soils needs to be evaluated.

Table 3-11 Maximum and Minimum Values and Values Exceeding Desirable and Permissible Limit for Drinking Use of Different Parameters

	pH	TH	Ca	Mg	Na	K	PO <sub>4</sub>	SiO <sub>2</sub>	CO <sub>3</sub>	HCO <sub>3</sub>	Cl	SO <sub>4</sub>	NO <sub>3</sub>	F	EC	
		mg/l													μS/cm at 25°C	
Range of values	6.54	20	6	1	2	0.1	BDL to 0.01	1.0	0	12	7	1	1	0.01	Minimum	130
Range of values	8.43	1450	486	198	675	128	3.2	78	48	1336	887	750	321	1.98	Maximum	4069
IS:10500 drinking water (permissible)	6.5-8.5	200	75	30						Bicarbonate alkalinity 200	250	200	45	1	Range of EC	% of samples
IS: 10500 drinking water (permissible)	6.5-8.5	600	200	100						600	1000	400	45	1.5	<1500	87.86
% samples exceeding	Nil	70.52	33.04	43.35						77.36	7.03	0.10	34.87	8.48	1501-3000	11.37
% samples exceeding	Nil	5.88	2.98	1.64						3.18	0.0	0.10	34.87	1.83	>3000	0.77

**District-wise Depth to water Level and Distribution of Percentage of Wells for the Period of May-2020(Unconfined)**

**Annexure- I**

S. No.	Name of District	No. of wells Analysed	Depth to Water Level (mbgl)		Number & Percentage of Wells Showing Depth to Water Level (mbgl) in the Range of											
			Min	Max	0-2		2-5		5-10		10-20		20-40		> 40	
					No	%	No	%	No	%	No	%	No	%	No	%
1	Agar Malwa	15	6.00	49.54	0	0.00	0	0.00	6	40.00	7	46.67	1	6.67	1	6.67
2	Alirajpur	12	2.67	13.03	0	0.00	3	25.00	7	58.33	2	16.67	0	0.00	0	0.00
3	Anuppur	18	3.00	14.02	0	0.00	6	33.33	10	55.56	2	11.11	0	0.00	0	0.00
4	Ashok Nagar	18	2.13	13.76	0	0.00	4	22.22	8	44.44	6	33.33	0	0.00	0	0.00
5	Balaghat	39	1.62	14.60	1	2.56	17	43.59	18	46.15	3	7.69	0	0.00	0	0.00
6	Barwani	9	2.75	9.47	0	0.00	3	33.33	6	66.67	0	0.00	0	0.00	0	0.00
7	Betul	31	1.65	15.61	1	3.23	7	22.58	13	41.94	10	32.26	0	0.00	0	0.00
8	Bhind	20	2.50	30.40	0	0.00	3	15.00	6	30.00	4	20.00	7	35.00	0	0.00
9	Bhopal	27	1.60	19.10	1	3.70	11	40.74	10	37.04	5	18.52	0	0.00	0	0.00
10	Burhanpur	10	4.62	17.20	0	0.00	1	10.00	4	40.00	5	50.00	0	0.00	0	0.00
11	Chhatarpur	31	3.35	17.00	0	0.00	9	29.03	14	45.16	8	25.81	0	0.00	0	0.00
12	Chhindwara	30	1.10	18.90	4	13.33	8	26.67	8	26.67	10	33.33	0	0.00	0	0.00
13	Damoh	17	1.18	13.85	4	23.53	5	29.41	7	41.18	1	5.88	0	0.00	0	0.00
14	Datia	12	4.30	42.10	0	0.00	1	8.33	4	33.33	5	41.67	1	8.33	1	8.33
15	Dewas	22	2.22	54.10	0	0.00	5	22.73	5	22.73	8	36.36	3	13.64	1	4.55
16	Dhar	38	2.83	34.30	0	0.00	9	23.68	16	42.11	10	26.32	3	7.89	0	0.00
17	Dindori	11	1.20	9.74	1	9.09	5	45.45	5	45.45	0	0.00	0	0.00	0	0.00
18	Guna	20	2.96	20.28	0	0.00	3	15.00	11	55.00	5	25.00	1	5.00	0	0.00
19	Gwalior	20	2.72	54.97	0	0.00	5	25.00	5	25.00	6	30.00	3	15.00	1	5.00
20	Harda	13	3.05	22.40	0	0.00	3	23.08	6	46.15	3	23.08	1	7.69	0	0.00
21	Hoshangabad	19	1.94	18.30	1	5.26	3	15.79	9	47.37	6	31.58	0	0.00	0	0.00
22	Indore	10	5.50	22.60	0	0.00	0	0.00	5	50.00	4	40.00	1	10.00	0	0.00
23	Jabalpur	14	2.80	29.20	0	0.00	3	21.43	6	42.86	4	28.57	1	7.14	0	0.00
24	Jhabua	10	2.50	6.83	0	0.00	8	80.00	2	20.00	0	0.00	0	0.00	0	0.00
25	Katni	15	4.00	18.20	0	0.00	1	6.67	7	46.67	7	46.67	0	0.00	0	0.00
26	Khandwa	29	2.05	13.10	0	0.00	6	20.69	17	58.62	6	20.69	0	0.00	0	0.00
27	Khargone	21	1.07	10.32	2	9.52	11	52.38	6	28.57	2	9.52	0	0.00	0	0.00
28	Mandla	33	1.75	9.05	3	9.09	12	36.36	18	54.55	0	0.00	0	0.00	0	0.00
29	Mandsaur	36	4.30	34.40	0	0.00	3	8.33	20	55.56	8	22.22	5	13.89	0	0.00
30	Morena	13	3.11	39.40	0	0.00	1	7.69	5	38.46	2	15.38	5	38.46	0	0.00
31	Narsinghpur	17	0.35	20.40	1	5.88	7	41.18	8	47.06	0	0.00	1	5.88	0	0.00
32	Neemuch	30	3.10	19.00	0	0.00	6	20.00	12	40.00	12	40.00	0	0.00	0	0.00
33	Panna	27	1.48	17.50	2	7.41	3	11.11	18	66.67	4	14.81	0	0.00	0	0.00
34	Raisen	27	3.10	14.40	0	0.00	7	25.93	12	44.44	8	29.63	0	0.00	0	0.00
35	Rajgarh	25	2.20	14.20	0	0.00	5	20.00	10	40.00	10	40.00	0	0.00	0	0.00
36	Ratlam	39	4.10	45.40	0	0.00	3	7.69	13	33.33	18	46.15	3	7.69	2	5.13
37	Rewa	28	2.55	20.01	0	0.00	8	28.57	14	50.00	5	17.86	1	3.57	0	0.00
38	Sagar	36	1.44	21.62	2	5.56	6	16.67	15	41.67	12	33.33	1	2.78	0	0.00
39	Satna	45	1.15	21.75	2	4.44	8	17.78	25	55.56	9	20.00	1	2.22	0	0.00
40	Sehore	23	2.70	29.46	0	0.00	3	13.04	11	47.83	8	34.78	1	4.35	0	0.00
41	Seoni	39	1.71	9.80	1	2.56	22	56.41	16	41.03	0	0.00	0	0.00	0	0.00
42	Shahdol	28	2.80	12.72	0	0.00	8	28.57	18	64.29	2	7.14	0	0.00	0	0.00
43	Shajapur	18	2.70	35.42	0	0.00	3	16.67	8	44.44	4	22.22	3	16.67	0	0.00
44	Sheopur	19	2.45	25.90	0	0.00	3	15.79	5	26.32	8	42.11	3	15.79	0	0.00
45	Shivpuri	31	3.52	24.42	0	0.00	5	16.13	17	54.84	8	25.81	1	3.23	0	0.00
46	Sidhi	24	3.05	23.66	0	0.00	6	25.00	9	37.50	8	33.33	1	4.17	0	0.00
47	Singrauli	22	4.30	16.50	0	0.00	2	9.09	13	59.09	7	31.82	0	0.00	0	0.00
48	Tikamgarh	18	3.50	11.80	0	0.00	2	11.11	14	77.78	2	11.11	0	0.00	0	0.00
49	Ujjain	29	4.37	24.40	0	0.00	3	10.34	16	55.17	9	31.03	1	3.45	0	0.00
50	Umariya	14	3.40	12.67	0	0.00	1	7.14	11	78.57	2	14.29	0	0.00	0	0.00
51	Vidisha	30	2.17	22.50	0	0.00	5	16.67	18	60.00	6	20.00	1	3.33	0	0.00
	<b>Total</b>	<b>1182</b>	<b>0.35</b>	<b>54.97(dry)</b>	<b>26</b>	<b>2.20</b>	<b>272</b>	<b>23.01</b>	<b>547</b>	<b>46.28</b>	<b>281</b>	<b>23.77</b>	<b>50</b>	<b>4.23</b>	<b>6</b>	<b>0.51</b>



**District-wise Depth to water Level and Distribution of Percentage of Wells for the Period of August-2020**

Annexure- II

S. No.	Name of District	No. of wells Analysed	Depth to Water Level (mbgl)		Number & Percentage of Wells Showing Depth to Water Level (mbgl) in the Range of											
					0-2		2-5		5-10		10-20		20-40		> 40	
					Min	Max	No	%	No	%	No	%	No	%	No	%
1	Agar Malwa	16	-0.46	7.10	5	31.25	7	43.75	4	25.00	0	0.00	0	0.00	0	0.00
2	Alirajpur	13	0.08	9.15	2	15.38	6	46.15	5	38.46	0	0.00	0	0.00	0	0.00
3	Anuppur	18	0.73	11.47	8	44.44	9	50.00	0	0.00	1	5.56	0	0.00	0	0.00
4	Ashok Nagar	20	0.71	11.60	9	45.00	8	40.00	1	5.00	2	10.00	0	0.00	0	0.00
5	Balaghat	38	0.24	12.70	25	65.79	10	26.32	2	5.26	1	2.63	0	0.00	0	0.00
6	Barwani	9	1.86	6.95	1	11.11	5	55.56	3	33.33	0	0.00	0	0.00	0	0.00
7	Betul	29	0.02	4.54	22	75.86	7	24.14	0	0.00	0	0.00	0	0.00	0	0.00
8	Bhind	17	0.20	32.60	2	11.76	4	23.53	5	29.41	4	23.53	2	11.76	0	0.00
9	Bhopal	26	-0.60	6.60	18	69.23	7	26.92	1	3.85	0	0.00	0	0.00	0	0.00
10	Burhanpur	12	0.51	11.75	3	25.00	5	41.67	2	16.67	2	16.67	0	0.00	0	0.00
11	Chhatarpur	34	0.30	16.40	7	20.59	14	41.18	11	32.35	2	5.88	0	0.00	0	0.00
12	Chhindwara	33	0.44	9.77	10	30.30	15	45.45	8	24.24	0	0.00	0	0.00	0	0.00
13	Damoh	18	-0.07	5.65	13	72.22	4	22.22	1	5.56	0	0.00	0	0.00	0	0.00
14	Datia	11	0.90	14.47	3	27.27	2	18.18	4	36.36	2	18.18	0	0.00	0	0.00
15	Dewas	22	-0.50	11.95	13	59.09	5	22.73	3	13.64	1	4.55	0	0.00	0	0.00
16	Dhar	41	-0.10	15.35	12	29.27	16	39.02	8	19.51	5	12.20	0	0.00	0	0.00
17	Dindori	15	0.35	4.65	8	53.33	7	46.67	0	0.00	0	0.00	0	0.00	0	0.00
18	Guna	21	-0.50	12.06	9	42.86	7	33.33	4	19.05	1	4.76	0	0.00	0	0.00
19	Gwalior	19	0.60	34.00	4	21.05	5	26.32	4	21.05	4	21.05	2	10.53	0	0.00
20	Harda	13	-0.65	9.50	7	53.85	5	38.46	1	7.69	0	0.00	0	0.00	0	0.00
21	Hoshangabad	17	0.66	11.03	8	47.06	4	23.53	3	17.65	2	11.76	0	0.00	0	0.00
22	Indore	33	-0.20	6.12	9	27.27	20	60.61	4	12.12	0	0.00	0	0.00	0	0.00
23	Jabalpur	29	0.07	15.20	16	55.17	10	34.48	2	6.90	1	3.45	0	0.00	0	0.00
24	Jhabua	12	0.39	4.00	6	50.00	6	50.00	0	0.00	0	0.00	0	0.00	0	0.00
25	Katni	17	2.12	11.42	0	0.00	8	47.06	8	47.06	1	5.88	0	0.00	0	0.00
26	Khandwa	31	0.34	6.84	19	61.29	10	32.26	2	6.45	0	0.00	0	0.00	0	0.00
27	Khargone	23	1.26	11.15	6	26.09	11	47.83	5	21.74	1	4.35	0	0.00	0	0.00
28	Mandla	32	0.20	11.00	20	62.50	10	31.25	1	3.13	1	3.13	0	0.00	0	0.00
29	Mandsaur	36	1.40	22.60	4	11.11	13	36.11	15	41.67	3	8.33	1	2.78	0	0.00
30	Morena	13	3.31	39.40	0	0.00	5	38.46	1	7.69	3	23.08	4	30.77	0	0.00
31	Narsinghpur	17	-0.18	20.40	6	35.29	7	41.18	1	5.88	2	11.76	1	5.88	0	0.00
32	Neemuch	34	0.40	9.60	7	20.59	16	47.06	11	32.35	0	0.00	0	0.00	0	0.00
33	Panna	27	0.40	16.00	13	48.15	8	29.63	5	18.52	1	3.70	0	0.00	0	0.00
34	Raisen	28	0.09	14.40	15	53.57	10	35.71	1	3.57	2	7.14	0	0.00	0	0.00
35	Rajgarh	28	-1.50	6.27	16	57.14	10	35.71	2	7.14	0	0.00	0	0.00	0	0.00
36	Ratlam	39	1.10	14.15	11	28.21	11	28.21	13	33.33	4	10.26	0	0.00	0	0.00
37	Rewa	34	-0.60	20.01	16	47.06	11	32.35	4	11.76	2	5.88	1	2.94	0	0.00
38	Sagar	40	-0.46	14.04	20	50.00	12	30.00	5	12.50	3	7.50	0	0.00	0	0.00
39	Satna	49	-0.05	17.40	21	42.86	20	40.82	6	12.24	2	4.08	0	0.00	0	0.00
40	Sehore	23	0.37	11.90	10	43.48	9	39.13	2	8.70	2	8.70	0	0.00	0	0.00
41	Seoni	43	-0.08	6.32	34	79.07	8	18.60	1	2.33	0	0.00	0	0.00	0	0.00
42	Shahdol	25	0.15	11.82	10	40.00	6	24.00	7	28.00	2	8.00	0	0.00	0	0.00
43	Shajapur	20	-0.58	30.06	14	70.00	4	20.00	1	5.00	0	0.00	1	5.00	0	0.00
44	Sheopur	19	-0.90	20.30	4	21.05	7	36.84	5	26.32	2	10.53	1	5.26	0	0.00
45	Shivpuri	30	1.10	7.25	6	20.00	19	63.33	5	16.67	0	0.00	0	0.00	0	0.00
46	Sidhi	31	0.70	13.35	4	12.90	11	35.48	13	41.94	3	9.68	0	0.00	0	0.00
47	Singrauli	23	0.60	15.17	4	17.39	11	47.83	6	26.09	2	8.70	0	0.00	0	0.00
48	Tikamgarh	14	-0.80	4.28	6	42.86	8	57.14	0	0.00	0	0.00	0	0.00	0	0.00
49	Ujjain	40	0.20	8.10	23	57.50	14	35.00	3	7.50	0	0.00	0	0.00	0	0.00
50	Umari	14	1.40	12.30	1	7.14	4	28.57	7	50.00	2	14.29	0	0.00	0	0.00
51	Vidisha	31	0.17	8.97	19	61.29	8	25.81	4	12.90	0	0.00	0	0.00	0	0.00
	<b>Total</b>	<b>1277</b>	<b>-1.50</b>	<b>39.40</b>	<b>529</b>	<b>41.43</b>	<b>459</b>	<b>35.94</b>	<b>210</b>	<b>16.44</b>	<b>66</b>	<b>5.17</b>	<b>13</b>	<b>1.02</b>	<b>0</b>	<b>0.00</b>

**District-wise Depth to water Level and Distribution of Percentage of Wells for the Period of November-2020**

Annexure- III

S. No.	Name of District	No. of wells Analysed	Depth to Water Level (mbgl)		Number & Percentage of Wells Showing Depth to Water Level (mbgl) in the Range of											
					0-2		2-5		5-10		10-20		20-40		> 40	
					No	%	No	%	No	%	No	%	No	%	No	%
1	Agar Malwa	15	1.92	13.06	1	6.67	3	20.00	9	60.00	2	13.33	0	0.00	0	0.00
2	Alirajpur	12	2.44	6.81	0	0.00	7	58.33	5	41.67	0	0.00	0	0.00	0	0.00
3	Anuppur	18	1.63	12.57	3	16.67	11	61.11	3	16.67	1	5.56	0	0.00	0	0.00
4	Ashok Nagar	21	0.56	13.30	3	14.29	11	52.38	5	23.81	2	9.52	0	0.00	0	0.00
5	Balaghat	39	0.61	12.70	14	35.90	21	53.85	2	5.13	2	5.13	0	0.00	0	0.00
6	Barwani	9	2.00	7.18	1	11.11	5	55.56	3	33.33	0	0.00	0	0.00	0	0.00
7	Betul	31	1.25	17.10	5	16.13	13	41.94	12	38.71	1	3.23	0	0.00	0	0.00
8	Bhind	16	1.90	34.90	1	6.25	3	18.75	5	31.25	5	31.25	2	12.50	0	0.00
9	Bhopal	27	-0.60	10.58	8	29.63	15	55.56	3	11.11	1	3.70	0	0.00	0	0.00
10	Burhanpur	17	2.82	32.35	0	0.00	3	17.65	8	47.06	4	23.53	2	11.76	0	0.00
11	Chhatarpur	36	2.00	14.60	1	2.78	12	33.33	19	52.78	4	11.11	0	0.00	0	0.00
12	Chhindwara	33	0.81	9.43	6	18.18	16	48.48	11	33.33	0	0.00	0	0.00	0	0.00
13	Damoh	18	0.1	13.99	5	27.78	7	38.89	5	27.78	1	5.56	0	0.00	0	0.00
14	Datia	10	2.80	29.00	0	0.00	4	40.00	3	30.00	2	20.00	1	10.00	0	0.00
15	Dewas	21	1.82	54.10	3	14.29	8	38.10	8	38.10	1	4.76	0	0.00	1	4.76
16	Dhar	40	2.05	15.81	0	0.00	19	47.50	13	32.50	8	20.00	0	0.00	0	0.00
17	Dindori	14	0.40	5.55	5	35.71	6	42.86	3	21.43	0	0.00	0	0.00	0	0.00
18	Guna	23	1.28	15.72	1	4.35	9	39.13	9	39.13	4	17.39	0	0.00	0	0.00
19	Gwalior	20	1.10	37.00	2	10.00	4	20.00	6	30.00	4	20.00	4	20.00	0	0.00
20	Harda	13	0.90	8.78	2	15.38	2	15.38	9	69.23	0	0.00	0	0.00	0	0.00
21	Hoshangabad	18	1.79	19.75	1	5.56	5	27.78	9	50.00	3	16.67	0	0.00	0	0.00
22	Indore	32	1.01	9.70	1	3.13	21	65.63	10	31.25	0	0.00	0	0.00	0	0.00
23	Jabalpur	31	0.39	14.60	5	16.13	18	58.06	6	19.35	2	6.45	0	0.00	0	0.00
24	Jhabua	11	0.82	5.38	2	18.18	8	72.73	1	9.09	0	0.00	0	0.00	0	0.00
25	Katni	17	3.70	11.70	0	0.00	6	35.29	8	47.06	3	17.65	0	0.00	0	0.00
26	Khandwa	31	2.10	16.60	0	0.00	18	58.06	12	38.71	1	3.23	0	0.00	0	0.00
27	Khargone	23	0.72	11.97	5	21.74	8	34.78	9	39.13	1	4.35	0	0.00	0	0.00
28	Mandla	33	0.70	13.70	10	30.30	21	63.64	1	3.03	1	3.03	0	0.00	0	0.00
29	Mandsaur	36	2.20	20.90	0	0.00	11	30.56	19	52.78	5	13.89	1	2.78	0	0.00
30	Morena	11	4.55	39.40	0	0.00	1	9.09	4	36.36	3	27.27	3	27.27	0	0.00
31	Narsinghpur	18	0.06	20.40	3	51.43	5	27.78	6	33.33	3	16.67	1	5.56	0	0.00
32	Neemuch	34	1.80	37.40	2	5.88	8	23.53	18	52.94	5	14.71	1	2.94	0	0.00
33	Panna	26	1.48	16.60	4	15.38	11	42.31	8	30.77	3	11.54	0	0.00	0	0.00
34	Raisen	29	0.75	9.15	2	6.90	21	72.41	6	20.69	0	0.00	0	0.00	0	0.00
35	Rajgarh	27	0.95	12.62	1	3.70	9	33.33	14	51.85	3	11.11	0	0.00	0	0.00
36	Ratlam	39	1.91	15.60	1	2.56	12	30.77	17	43.59	9	23.08	0	0.00	0	0.00
37	Rewa	34	-0.30	20.01	2	5.88	9	26.47	18	52.94	4	11.76	1	2.94	0	0.00
38	Sagar	42	0.95	16.94	5	11.90	15	35.71	12	28.57	10	23.81	0	0.00	0	0.00
39	Satna	49	1.05	18.86	5	10.20	22	44.90	19	38.78	3	6.12	0	0.00	0	0.00
40	Sehore	23	1.60	11.30	4	17.39	8	34.78	9	39.13	2	8.70	0	0.00	0	0.00
41	Seoni	44	0.42	6.76	20	45.45	19	43.18	5	11.36	0	0.00	0	0.00	0	0.00
42	Shahdol	26	1.00	12.22	3	11.54	9	34.62	11	42.31	3	11.54	0	0.00	0	0.00
43	Shajapur	18	0.86	8.90	3	16.67	6	33.33	9	50.00	0	0.00	0	0.00	0	0.00
44	Sheopur	19	2.20	25.90	0	0.00	4	21.05	8	42.11	5	26.32	2	10.53	0	0.00
45	Shivpuri	30	1.80	11.50	1	3.33	9	30.00	19	63.33	1	3.33	0	0.00	0	0.00
46	Sidhi	33	2.25	13.30	0	0.00	11	33.33	14	42.42	8	24.24	0	0.00	0	0.00
47	Singrauli	22	3.15	15.17	0	0.00	10	45.45	9	40.91	3	13.64	0	0.00	0	0.00
48	Tikamgarh	19	1.50	9.60	2	10.53	6	31.58	11	57.89	0	0.00	0	0.00	0	0.00
49	Ujjain	41	0.35	10.80	4	9.76	21	51.22	15	36.59	1	2.44	0	0.00	0	0.00
50	Umariya	14	2.00	11.20	1	7.14	3	21.43	8	57.14	2	14.29	0	0.00	0	0.00
51	Vidisha	33	1.23	14.70	7	21.21	11	33.33	14	42.42	1	3.03	0	0.00	0	0.00
	<b>Total</b>	<b>1296</b>	<b>-0.60</b>	<b>54.10</b>	<b>155</b>	<b>11.96</b>	<b>525</b>	<b>40.51</b>	<b>470</b>	<b>36.27</b>	<b>127</b>	<b>9.80</b>	<b>18</b>	<b>1.39</b>	<b>1</b>	<b>0.08</b>

**District-wise Depth to water Level and Distribution of Percentage of Wells for the Period of January-2021**

Annexure- IV

S. No.	Name of District	No. of wells Analysed	Depth to Water Level (mbgl)		Number & Percentage of Wells Showing Depth to Water Level (mbgl) in the Range of											
					0-2		2-5		5-10		10-20		20-40		> 40	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
1	Agar Malwa	16	0.39	18.80	1	6.25	0	0.00	10	62.50	5	31.25	0	0.00	0	0.00
2	Alirajpur	13	0.95	8.25	2	15.38	2	15.38	9	69.23	0	0.00	0	0.00	0	0.00
3	Anuppur	19	2.04	13.62	0	0.00	11	57.89	6	31.58	2	10.53	0	0.00	0	0.00
4	Ashok Nagar	21	0.90	15.12	3	14.29	3	14.29	9	42.86	6	28.57	0	0.00	0	0.00
5	Balaghat	40	1.07	12.70	4	10.00	28	70.00	6	15.00	2	5.00	0	0.00	0	0.00
6	Barwani	9	3.15	8.93	0	0.00	4	44.44	5	55.56	0	0.00	0	0.00	0	0.00
7	Betul	28	1.65	19.38	3	10.71	9	32.14	7	25.00	9	32.14	0	0.00	0	0.00
8	Bhind	19	2.05	31.52	0	0.00	3	15.79	5	26.32	8	42.11	3	15.79	0	0.00
9	Bhopal	27	0.77	10.43	3	11.11	12	44.44	10	37.04	2	7.41	0	0.00	0	0.00
10	Burhanpur	16	4.90	32.35	0	0.00	1	6.25	8	50.00	5	31.25	2	12.50	0	0.00
11	Chhatarpur	36	1.62	16.12	1	2.78	7	19.44	18	50.00	10	27.78	0	0.00	0	0.00
12	Chhindwara	37	1.17	10.46	2	5.41	17	45.95	17	45.95	1	2.70	0	0.00	0	0.00
13	Damoh	19	0.31	11.76	4	21.05	7	36.84	7	36.84	1	5.26	0	0.00	0	0.00
14	Datia	12	3.35	33.00	0	0.00	2	16.67	5	41.67	4	33.33	1	8.33	0	0.00
15	Dewas	23	2.17	54.10	0	0.00	6	26.09	12	52.17	4	17.39	0	0.00	1	4.35
16	Dhar	39	1.65	21.24	2	5.13	10	25.64	17	43.59	9	23.08	1	2.56	0	0.00
17	Dindori	16	0.69	9.93	2	12.50	8	50.00	6	37.50	0	0.00	0	0.00	0	0.00
18	Guna	23	1.73	17.00	1	4.35	4	17.39	10	43.48	8	34.78	0	0.00	0	0.00
19	Gwalior	20	2.25	42.02	0	0.00	8	40.00	2	10.00	6	30.00	3	15.00	1	5.00
20	Harda	13	0.34	10.55	1	7.69	3	23.08	8	61.54	1	7.69	0	0.00	0	0.00
21	Hoshangabad	18	2.04	14.35	0	0.00	6	33.33	9	50.00	3	16.67	0	0.00	0	0.00
22	Indore	33	1.90	14.81	1	3.03	8	24.24	17	51.52	7	21.21	0	0.00	0	0.00
23	Jabalpur	32	1.31	14.50	2	6.25	17	53.13	10	31.25	3	9.38	0	0.00	0	0.00
24	Jhabua	12	1.60	7.01	1	8.33	9	75.00	2	16.67	0	0.00	0	0.00	0	0.00
25	Katni	18	4.19	14.65	0	0.00	4	22.22	9	50.00	5	27.78	0	0.00	0	0.00
26	Khandwa	30	2.78	10.08	0	0.00	11	36.67	18	60.00	1	3.33	0	0.00	0	0.00
27	Khargone	23	2.20	11.55	0	0.00	10	43.48	12	52.17	1	4.35	0	0.00	0	0.00
28	Mandla	33	0.72	7.93	4	12.12	20	60.61	9	27.27	0	0.00	0	0.00	0	0.00
29	Mandsaur	36	2.72	24.54	0	0.00	6	16.67	18	50.00	9	25.00	3	8.33	0	0.00
30	Morena	11	4.70	31.90	0	0.00	1	9.09	2	18.18	3	27.27	5	45.45	0	0.00
31	Narsinghpur	16	0.53	20.40	1	51.43	5	31.25	6	37.50	3	18.75	1	6.25	0	0.00
32	Neemuch	34	1.05	37.35	1	2.94	7	20.59	13	38.24	11	32.35	2	5.88	0	0.00
33	Panna	26	1.93	22.07	1	3.85	9	34.62	13	50.00	2	7.69	1	3.85	0	0.00
34	Raisen	28	2.15	11.50	0	0.00	8	28.57	15	53.57	5	17.86	0	0.00	0	0.00
35	Rajgarh	27	2.65	13.82	0	0.00	7	25.93	12	44.44	8	29.63	0	0.00	0	0.00
36	Ratlam	41	2.20	26.10	0	0.00	8	19.51	16	39.02	15	36.59	2	4.88	0	0.00
37	Rewa	34	2.80	20.01	0	0.00	8	23.53	18	52.94	7	20.59	1	2.94	0	0.00
38	Sagar	43	1.15	20.54	3	6.98	10	23.26	18	41.86	11	25.58	1	2.33	0	0.00
39	Satna	47	1.85	19.21	2	4.26	13	27.66	28	59.57	4	8.51	0	0.00	0	0.00
40	Sehore	23	1.32	14.80	1	4.35	6	26.09	10	43.48	6	26.09	0	0.00	0	0.00
41	Seoni	45	0.93	15.25	5	11.11	25	55.56	12	26.67	3	6.67	0	0.00	0	0.00
42	Shahdol	27	0.52	12.72	2	7.41	8	29.63	12	44.44	5	18.52	0	0.00	0	0.00
43	Shajapur	20	2.62	11.48	0	0.00	6	30.00	10	50.00	4	20.00	0	0.00	0	0.00
44	Sheopur	20	3.60	29.50	0	0.00	4	20.00	8	40.00	5	25.00	3	15.00	0	0.00
45	Shivpuri	31	1.25	20.30	1	3.23	5	16.13	18	58.06	6	19.35	1	3.23	0	0.00
46	Sidhi	32	2.85	14.41	0	0.00	7	21.88	16	50.00	9	28.13	0	0.00	0	0.00
47	Singrauli	22	3.75	15.90	0	0.00	4	18.18	15	68.18	3	13.64	0	0.00	0	0.00
48	Tikamgarh	24	1.45	25.36	2	8.33	7	29.17	12	50.00	2	8.33	1	4.17	0	0.00
49	Ujjain	41	1.40	13.25	2	4.88	11	26.83	19	46.34	9	21.95	0	0.00	0	0.00
50	Umaria	13	3.15	11.34	0	0.00	3	23.08	8	61.54	2	15.38	0	0.00	0	0.00
51	Vidisha	33	0.65	19.15	3	9.09	8	24.24	15	45.45	7	21.21	0	0.00	0	0.00
	<b>Total</b>	<b>1319</b>	<b>0.31</b>	<b>54.1(dry)</b>	<b>61</b>	<b>4.62</b>	<b>406</b>	<b>30.78</b>	<b>577</b>	<b>43.75</b>	<b>242</b>	<b>18.35</b>	<b>31</b>	<b>2.35</b>	<b>2</b>	<b>0.15</b>

District-Wise Annual Fluctuation & Frequency Distribution of Different Ranges from May 2019 to May 2020

Annexure -V

S. No.	Name of District	No. of wells Analysed	Range in m		Rise						Fall						Rise		Fall			
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		No	%	No	%
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Agar Malwa	13	0.50	5.80	0.10	48.20	5	38.46	1	7.69	2	15.38	3	23.08	1	7.69	1	7.69	8	61.54	5	38.46
2	Alirajpur	12	0.50	5.45	2.20	6.93	5	41.67	1	8.33	3	25.00	0	0.00	2	16.67	1	8.33	9	75.00	3	25.00
3	Anuppur	16	0.07	24.79	0.05	0.43	10	62.50	2	12.50	1	6.25	3	18.75	0	0.00	0	0.00	13	81.25	3	18.75
4	Ashok Nagar	17	0.48	5.64	0.10	2.93	7	41.18	2	11.76	2	11.76	4	23.53	2	11.76	0	0.00	11	64.71	6	35.29
5	Balaghat	35	0.29	4.02	0.48	2.08	12	34.29	17	48.57	2	5.71	3	8.57	1	2.86	0	0.00	31	88.57	4	11.43
6	Barwani	9	0.53	9.17	1.70	1.70	1	11.11	3	33.33	4	44.44	1	11.11	0	0.00	0	0.00	8	88.89	1	11.11
7	Betul	26	0.17	10.55	0.25	5.80	6	23.08	7	26.92	8	30.77	3	11.54	1	3.85	1	3.85	21	80.77	5	19.23
8	Bhind	17	0.27	16.56	0.01	25.00	7	41.18	1	5.88	1	5.88	4	23.53	2	11.76	2	11.76	9	52.94	8	47.06
9	Bhopal	25	0.30	10.10	0.10	11.10	12	48.00	1	4.00	5	20.00	5	20.00	0	0.00	2	8.00	18	72.00	7	28.00
10	Burhanpur	6	0.80	3.25	-	-	4	66.67	2	33.33	0	0.00	0	0.00	0	0.00	0	0.00	6	100.00	0	0.00
11	Chhatarpur	30	0.15	10.76	0.45	4.31	12	40.00	10	33.33	6	20.00	1	3.33	0	0.00	1	3.33	28	93.33	2	6.67
12	Chhindwara	25	0.62	8.50	0.79	3.30	5	20.00	9	36.00	7	28.00	3	12.00	1	4.00	0	0.00	21	84.00	4	16.00
13	Damoh	17	0.08	3.45	0.02	0.02	11	64.71	5	29.41	0	0.00	1	5.88	0	0.00	0	0.00	16	94.12	1	5.88
14	Datia	12	0.11	2.55	0.05	12.10	2	16.67	1	8.33	0	0.00	5	41.67	0	0.00	4	33.33	3	25.00	9	75.00
15	Dewas	19	0.20	11.90	0.18	18.48	6	31.58	6	31.58	2	10.53	2	10.53	1	5.26	2	10.53	14	73.68	5	26.32
16	Dhar	38	0.20	18.70	1.00	9.80	12	31.58	10	26.32	10	26.32	2	5.26	0	0.00	4	10.53	32	84.21	6	15.79
17	Dindori	11	0.08	4.10	0.01	3.11	5	45.45	3	27.27	1	9.09	1	9.09	0	0.00	1	9.09	9	81.82	2	18.18
18	Guna	20	0.40	8.72	1.31	6.00	7	35.00	8	40.00	3	15.00	1	5.00	0	0.00	1	5.00	18	90.00	2	10.00
19	Gwalior	19	0.10	3.05	1.00	11.70	8	42.11	3	15.79	0	0.00	5	26.32	0	0.00	3	15.79	11	57.89	8	42.11
20	Harda	13	0.55	7.45	0.10	6.50	3	23.08	3	23.08	4	30.77	1	7.69	1	7.69	1	7.69	10	76.92	3	23.08
21	Hoshangabad	11	0.35	2.90	2.80	2.80	7	63.64	3	27.27	0	0.00	0	0.00	1	9.09	0	0.00	10	90.91	1	9.09
22	Indore	10	0.40	21.70	0.70	7.00	4	40.00	1	10.00	2	20.00	1	10.00	0	0.00	2	20.00	7	70.00	3	30.00
23	Jabalpur	12	0.07	0.75	0.01	12.98	6	50.00	0	0.00	0	0.00	3	25.00	0	0.00	3	25.00	6	50.00	6	50.00
24	Jhabua	10	0.50	4.20	1.55	1.55	6	60.00	2	20.00	1	10.00	1	10.00	0	0.00	0	0.00	9	90.00	1	10.00
25	Katni	14	0.32	3.96	0.01	2.69	8	57.14	1	7.14	0	0.00	2	14.29	3	21.43	0	0.00	9	64.29	5	35.71
26	Khandwa	28	0.12	8.02	0.23	3.60	15	53.57	3	10.71	2	7.14	6	21.43	2	7.14	0	0.00	20	71.43	8	28.57
27	Khargone	21	0.35	11.80	0.04	3.02	6	28.57	6	28.57	2	9.52	2	9.52	1	4.76	0	0.00	18	85.71	3	14.29
28	Mandla	33	0.05	4.28	0.02	0.14	23	69.70	4	12.12	1	3.03	5	15.15	0	0.00	0	0.00	28	84.85	5	15.15
29	Mandsaur	36	0.06	16.00	0.05	21.10	15	41.67	6	16.67	4	11.11	6	16.67	1	2.78	4	11.11	25	69.44	11	30.56
30	Morena	9	0.42	0.45	0.20	9.20	2	22.22	0	0.00	0	0.00	6	66.67	0	0.00	1	11.11	2	22.22	7	77.78
31	Narsinghpur	14	0.37	16.98	0.49	4.68	6	42.86	2	14.29	3	21.43	2	14.29	0	0.00	1	7.14	11	78.57	3	21.43
32	Neemuch	30	0.20	22.30	0.20	2.40	11	36.67	6	20.00	8	26.67	4	13.33	1	3.33	0	0.00	25	83.33	5	16.67
33	Panna	26	0.60	14.23	0.05	1.35	10	38.46	8	30.77	3	11.54	5	19.23	0	0.00	0	0.00	21	80.77	5	19.23
34	Raisen	26	0.10	10.35	0.10	5.20	11	42.31	3	11.54	4	15.38	3	11.54	3	11.54	2	7.69	18	69.23	8	30.77
35	Rajgarh	22	0.20	22.00	0.20	1.17	11	50.00	6	27.27	3	13.64	2	9.09	0	0.00	0	0.00	20	90.91	2	9.09
36	Ratlam	36	0.05	19.10	0.70	12.50	15	41.67	5	13.89	11	30.56	2	5.56	0	0.00	3	8.33	31	86.11	5	13.89
37	Rewa	28	0.25	8.02	0.10	4.28	7	25.00	7	25.00	8	28.57	4	14.29	1	3.57	1	3.57	22	78.57	6	21.43
38	Sagar	31	0.05	6.33	0.15	2.85	11	35.48	4	12.90	6	19.35	8	25.81	2	6.45	0	0.00	21	67.74	10	32.26
39	Satna	45	0.10	14.12	0.01	12.35	17	37.78	7	15.56	7	15.56	12	26.67	0	0.00	2	4.44	31	68.89	14	31.11
40	Sehore	21	0.76	10.20	0.10	7.74	6	28.57	5	23.81	4	19.05	3	14.29	1	4.76	2	9.52	15	71.43	6	28.57
41	Seoni	36	0.30	5.63	0.06	1.01	14	38.89	10	27.78	7	19.44	5	13.89	0	0.00	0	0.00	31	86.11	5	13.89
42	Shahdol	28	0.15	5.83	0.02	1.60	13	46.43	5	17.86	3	10.71	7	25.00	0	0.00	0	0.00	21	75.00	7	25.00
43	Shajapur	16	0.40	15.48	0.20	18.85	5	31.25	5	31.25	3	18.75	1	6.25	1	6.25	1	6.25	13	81.25	3	18.75
44	Sheopur	19	0.08	4.40	0.25	5.45	6	31.58	1	5.26	1	5.26	7	36.84	2	10.53	2	10.53	8	42.11	11	57.89
45	Shivpuri	28	0.10	7.10	0.10	16.95	9	32.14	4	14.29	3	10.71	5	17.86	2	7.14	5	17.86	16	57.14	12	42.86
46	Sidhi	24	0.07	7.85	0.30	10.81	11	45.83	4	16.67	3	12.50	2	8.33	0	0.00	4	16.67	18	75.00	6	25.00
47	Singrauli	22	0.10	3.43	0.30	2.95	15	68.18	3	13.64	0	0.00	3	13.64	1	4.55	0	0.00	18	81.82	4	18.18
48	Tikamgarh	18	0.05	5.10	0.75	1.05	9	50.00	5	27.78	2	11.11	2	11.11	0	0.00	0	0.00	16	88.89	2	11.11
49	Ujjain	27	0.25	18.10	0.10	4.60	10	37.04	4	14.81	7	25.93	5	18.52	0	0.00	1	3.70	21	77.78	6	22.22
50	Umaria	14	0.12	2.52	0.02	3.27	10	71.43	1	7.14	0	0.00	2	14.29	1	7.14	0	0.00	11	78.57	3	21.43
51	Vidisha	27	0.05	11.90	0.30	4.46	13	48.15	6	22.22	3	11.11	4	14.81	0	0.00	1	3.70	22	81.48	5	18.52
	<b>Total</b>	<b>1102</b>	<b>0.08</b>	<b>24.79</b>	<b>0.01</b>	<b>48.20</b>	<b>452</b>	<b>41.02</b>	<b>222</b>	<b>20.15</b>	<b>166</b>	<b>15.06</b>	<b>168</b>	<b>15.25</b>	<b>36</b>	<b>3.27</b>	<b>58</b>	<b>5.26</b>	<b>840</b>	<b>76.23</b>	<b>262</b>	<b>23.77</b>

District-Wise Annual Fluctuation & Frequency Distribution of Different Ranges from August 2019 to August 2020

Annexure -VI

S. No.	Name of District	No. of wells Analysed	Range in m				Rise						Fall						Rise		Fall			
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		No	%	No	%		
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%		
1	Agar Malwa	15	0.01	1.25	0.53	4.20	4	26.67	0	0.00	0	0.00	0	0.00	5	33.33	5	33.33	1	6.67	4	26.67	11	73.33
2	Alirajpur	12	0.75	4.42	0.40	6.85	3	25.00	0	0.00	1	8.33	4	33.33	2	16.67	2	16.67	4	33.33	8	66.67		
3	Anuppur	17	0.10	4.00	0.10	1.05	6	35.29	5	29.41	0	0.00	6	35.29	0	0.00	0	0.00	11	64.71	6	35.29		
4	Ashok Nagar	16	0.68	1.59	0.10	2.67	2	12.50	0	0.00	0	0.00	13	81.25	1	6.25	0	0.00	2	12.50	14	87.50		
5	Balaghat	36	0.10	5.39	0.11	1.01	16	44.44	13	36.11	2	5.56	5	13.89	0	0.00	0	0.00	31	86.11	5	13.89		
6	Barwani	9	1.40	1.40	0.81	2.42	1	11.11	0	0.00	0	0.00	5	55.56	3	33.33	0	0.00	1	11.11	8	88.89		
7	Betul	29	0.03	3.48	0.01	2.05	12	41.38	3	10.34	0	0.00	13	44.83	1	3.45	0	0.00	15	51.72	14	48.28		
8	Bhind	16	0.30	4.80	0.05	5.95	7	43.75	1	6.25	1	6.25	6	37.50	0	0.00	1	6.25	9	56.25	7	43.75		
9	Bhopal	12	0.20	4.95	0.56	2.08	2	16.67	1	8.33	1	8.33	7	58.33	1	8.33	0	0.00	4	33.33	8	66.67		
10	Burhanpur	12	0.16	6.52	0.05	1.61	8	66.67	0	0.00	1	8.33	3	25.00	0	0.00	0	0.00	9	75.00	3	25.00		
11	Chhatarpur	31	0.05	6.56	0.05	5.67	11	35.48	3	9.68	4	12.90	10	32.26	1	3.23	2	6.45	18	58.06	13	41.94		
12	Chhindwara	29	0.13	13.90	0.06	1.94	8	27.59	4	13.79	11	37.93	6	20.69	0	0.00	0	0.00	23	79.31	6	20.69		
13	Damoh	18	0.10	2.00	0.03	1.60	4	22.22	0	0.00	0	0.00	14	77.78	0	0.00	0	0.00	4	22.22	14	77.78		
14	Datia	11	0.35	8.90	0.05	0.70	3	27.27	3	27.27	1	9.09	4	36.36	0	0.00	0	0.00	7	63.64	4	36.36		
15	Dewas	22	0.20	9.80	0.11	1.40	7	31.82	2	9.09	5	22.73	8	36.36	0	0.00	0	0.00	14	63.64	8	36.36		
16	Dhar	40	0.35	9.50	0.15	9.25	8	20.00	3	7.50	3	7.50	22	55.00	2	5.00	2	5.00	14	35.00	26	65.00		
17	Dindori	14	0.05	5.05	0.10	1.50	5	35.71	0	0.00	1	7.14	8	57.14	0	0.00	0	0.00	6	42.86	8	57.14		
18	Guna	21	0.05	2.72	0.19	2.82	5	23.81	1	4.76	0	0.00	11	52.38	4	19.05	0	0.00	6	28.57	15	71.43		
19	Gwalior	17	0.45	21.40	0.17	1.96	6	35.29	3	17.65	3	17.65	5	29.41	0	0.00	0	0.00	12	70.59	5	29.41		
20	Harda	13	0.15	12.30	1.25	3.36	8	61.54	2	15.38	1	7.69	1	7.69	1	7.69	0	0.00	11	84.62	2	15.38		
21	Hoshangabad	18	0.12	6.05	0.76	7.70	10	55.56	4	22.22	1	5.56	1	5.56	0	0.00	2	11.11	15	83.33	3	16.67		
22	Indore	19	0.10	9.90	0.16	1.83	5	26.32	4	21.05	5	26.32	5	26.32	0	0.00	0	0.00	14	73.68	5	26.32		
23	Jabalpur	13	0.15	13.40	0.20	2.10	3	23.08	1	7.69	2	15.38	6	46.15	1	7.69	0	0.00	6	46.15	7	53.85		
24	Jhabua	10	0.16	0.16	0.02	3.40	1	10.00	0	0.00	0	0.00	7	70.00	2	20.00	0	0.00	1	10.00	9	90.00		
25	Katni	16	0.60	3.35	0.25	1.35	7	43.75	1	6.25	0	0.00	8	50.00	0	0.00	0	0.00	8	50.00	8	50.00		
26	Khandwa	31	0.04	4.43	1.27	1.27	27	87.10	1	3.23	2	6.45	1	3.23	0	0.00	0	0.00	30	96.77	1	3.23		
27	Khargone	22	0.18	3.85	0.15	2.55	5	2.00	3	13.64	0	0.00	12	54.55	2	9.09	0	0.00	8	36.36	14	63.64		
28	Mandla	30	0.05	5.30	0.05	4.90	8	26.67	1	3.33	1	3.33	19	63.33	0	0.00	1	3.33	10	33.33	20	66.67		
29	Mandsaur	36	-	-	1.23	19.94	0	0.00	0	0.00	0	0.00	6	16.67	11	30.56	19	52.78	0	0.00	36	100.00		
30	Morena	10	0.10	1.30	0.10	3.30	6	60.00	0	0.00	0	0.00	2	20.00	2	20.00	0	0.00	6	60.00	4	40.00		
31	Narsinghpur	16	0.23	7.89	0.23	8.29	8	50.00	4	25.00	1	6.25	2	12.50	0	0.00	1	6.25	13	81.25	3	18.75		
32	Neemuch	34	0.15	5.00	0.79	8.50	1	2.94	0	0.00	1	2.94	10	29.41	13	38.24	9	26.47	2	5.88	32	94.12		
33	Panna	26	0.10	6.50	0.05	4.70	8	30.77	2	7.69	4	15.38	9	34.62	2	7.69	1	3.85	14	53.85	12	46.15		
34	Raisen	23	0.07	4.68	0.11	1.07	6	26.09	2	8.70	1	4.35	14	60.87	0	0.00	0	0.00	9	39.13	14	60.87		
35	Rajgarh	24	0.03	1.60	0.33	2.50	8	33.33	0	0.00	0	0.00	15	62.50	1	4.17	0	0.00	8	33.33	16	66.67		
36	Ratlam	39	1.60	2.10	0.02	11.95	1	2.56	1	2.56	0	0.00	19	48.72	8	20.51	10	25.64	2	5.13	37	94.87		
37	Rewa	33	0.10	4.15	0.35	1.75	21	63.64	5	15.15	1	3.03	6	18.18	0	0.00	0	0.00	27	81.82	6	18.18		
38	Sagar	36	0.03	6.05	0.10	4.00	11	30.56	0	0.00	2	5.56	16	44.44	7	19.44	0	0.00	13	36.11	23	63.89		
39	Satna	46	0.10	6.65	0.05	3.90	21	45.65	4	8.70	4	8.70	15	32.61	2	4.35	0	0.00	29	63.04	17	36.96		
40	Sehore	21	0.09	8.90	0.25	3.25	10	47.62	1	4.76	2	9.52	6	28.57	2	9.52	0	0.00	13	61.90	8	38.10		
41	Seoni	41	0.06	7.76	0.12	1.76	13	31.71	9	21.95	10	24.39	9	21.95	0	0.00	0	0.00	32	78.05	9	21.95		
42	Shahdol	24	0.10	7.20	0.05	6.85	5	20.83	3	12.50	5	20.83	7	29.17	3	12.50	1	4.17	13	54.17	11	45.83		
43	Shajapur	15	0.28	0.55	0.05	29.22	4	26.67	0	0.00	0	0.00	9	60.00	1	6.67	1	6.67	4	26.67	11	73.33		
44	Sheopur	18	0.25	4.80	0.10	9.70	2	11.11	0	0.00	1	5.56	7	38.89	4	22.22	4	22.22	3	16.67	15	83.33		
45	Shivpuri	28	0.10	5.30	0.10	2.55	11	39.29	9	32.14	2	7.14	5	17.86	1	3.57	0	0.00	22	78.57	6	21.43		
46	Sidhi	30	0.15	5.67	0.10	5.16	14	46.67	7	23.33	2	6.67	5	16.67	1	3.33	1	3.33	23	76.67	7	23.33		
47	Singrauli	23	0.25	5.00	0.19	3.90	9	39.13	4	17.39	1	4.35	5	21.74	4	17.39	0	0.00	14	60.87	9	39.13		
48	Tikamgarh	14	0.05	5.84	0.08	2.12	5	35.71	0	0.00	1	7.14	6	42.86	2	14.29	0	0.00	6	42.86	8	57.14		
49	Ujjain	39	0.20	4.79	0.20	5.50	4	10.26	0	0.00	1	2.56	23	58.97	8	20.51	3	7.69	5	12.82	34	87.18		
50	Umaria	14	0.40	3.70	0.50	5.35	5	35.71	1	7.14	0	0.00	5	35.71	0	0.00	3	21.43	6	42.86	8	57.14		
51	Vidisha	28	0.30	2.85	0.22	4.23	4	14.29	3	10.71	0	0.00	19	67.86	1	3.57	1	3.57	7	25.00	21	75.00		
	<b>Total</b>	<b>1167</b>	<b>0.01</b>	<b>21.40</b>	<b>0.01</b>	<b>29.22</b>	<b>369</b>	<b>31.62</b>	<b>114</b>	<b>9.77</b>	<b>85</b>	<b>7.28</b>	<b>435</b>	<b>37.28</b>	<b>99</b>	<b>8.48</b>	<b>65</b>	<b>5.57</b>	<b>568</b>	<b>48.67</b>	<b>599</b>	<b>51.33</b>		

District-Wise Annual Fluctuation & Frequency Distribution of Different Ranges from November 2019 to November 2020

Annexure -VII

S. No.	Name of District	No. of wells Analysed	Range in m				Rise						Fall						Rise		Fall	
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		No	%	No	%
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Agar Malwa	14	0.15	2.62	0.42	8.20	2	14.29	1	7.14	0	0.00	6	42.86	3	21.43	2	14.29	3	21.43	11	78.57
2	Alirajpur	12	0.68	1.59	0.56	3.40	3	25.00	0	0.00	0	0.00	6	50.00	3	25.00	0	0.00	3	25.00	9	75.00
3	Anuppur	18	0.15	2.70	0.10	1.35	3	16.67	1	5.56	0	0.00	14	77.78	0	0.00	0	0.00	4	22.22	14	77.78
4	Ashok Nagar	20	0.59	10.00	0.03	8.38	2	10.00	0	0.00	1	5.00	13	65.00	2	10.00	2	10.00	3	15.00	17	85.00
5	Balaghat	34	0.01	3.85	0.04	0.84	20	58.82	7	20.59	0	0.00	7	20.59	0	0.00	0	0.00	27	79.41	7	20.59
6	Barwani	9	0.14	6.06	0.31	2.08	2	22.22	1	11.11	1	11.11	4	44.44	1	11.11	0	0.00	4	44.44	5	55.56
7	Betul	29	0.03	0.90	0.01	11.18	3	10.34	0	0.00	0	0.00	14	48.28	6	20.69	6	20.69	3	10.34	26	89.66
8	Bhind	15	0.84	10.10	0.35	9.82	2	13.33	2	13.33	1	6.67	5	33.33	2	13.33	3	20.00	5	33.33	10	66.67
9	Bhopal	27	0.08	1.24	0.15	3.86	5	18.52	0	0.00	0	0.00	18	66.67	4	14.81	0	0.00	5	18.52	22	81.48
10	Burhanpur	14	0.90	0.90	0.30	7.66	1	7.14	0	0.00	0	0.00	8	57.14	3	21.43	2	14.29	1	7.14	13	92.86
11	Chhatarpur	34	0.85	0.85	0.10	5.20	1	2.94	0	0.00	0	0.00	19	55.88	12	35.29	2	5.88	1	2.94	33	97.06
12	Chhindwara	31	0.05	11.58	0.15	6.31	9	29.03	7	22.58	6	19.35	8	25.81	0	0.00	1	3.23	22	70.97	9	29.03
13	Damoh	16	0.04	1.25	0.50	5.30	6	37.50	0	0.00	0	0.00	6	37.50	2	12.50	2	12.50	6	37.50	10	62.50
14	Datia	9	0.95	3.65	0.35	2.40	1	11.11	1	11.11	0	0.00	5	55.56	2	22.22	0	0.00	2	22.22	7	77.78
15	Dewas	19	-	-	0.06	53.63	0	0.00	0	0.00	0	0.00	13	68.42	2	10.53	4	21.05	0	0.00	19	100.00
16	Dhar	38	0.06	6.72	0.05	8.74	8	21.05	0	0.00	2	5.26	18	47.37	5	13.16	5	13.16	10	26.32	28	73.68
17	Dindori	13	0.10	0.80	0.15	2.80	6	46.15	0	0.00	0	0.00	6	46.15	1	7.69	0	0.00	6	46.15	7	53.85
18	Guna	23	0.10	12.29	0.03	8.58	3	13.04	0	0.00	2	8.70	8	34.78	6	26.09	4	17.39	5	21.74	18	78.26
19	Gwalior	19	0.10	1.35	0.05	16.30	4	21.05	0	0.00	0	0.00	9	47.37	3	15.79	3	15.79	4	21.05	15	78.95
20	Harda	13	0.17	4.80	0.32	3.35	1	7.69	0	0.00	1	7.69	8	61.54	3	23.08	0	0.00	2	15.38	11	84.62
21	Hoshangabad	17	0.32	0.90	0.32	8.15	3	17.65	0	0.00	0	0.00	11	64.71	1	5.88	2	11.76	3	17.65	14	82.35
22	Indore	32	0.01	5.61	0.05	3.28	4	12.50	0	0.00	1	3.13	21	65.63	6	18.75	0	0.00	5	15.63	27	84.38
23	Jabalpur	30	0.10	6.00	0.05	3.80	11	36.67	0	0.00	1	3.33	17	56.67	1	3.33	0	0.00	12	40.00	18	60.00
24	Jhabua	11	0.72	2.38	0.44	2.69	2	18.18	2	18.18	0	0.00	6	54.55	1	9.09	0	0.00	4	36.36	7	63.64
25	Katni	17	0.70	1.25	0.10	2.80	3	17.65	0	0.00	0	0.00	11	64.71	3	17.65	0	0.00	3	17.65	14	82.35
26	Khandwa	31	0.06	0.43	0.20	10.63	3	9.68	0	0.00	0	0.00	20	64.52	5	16.13	3	9.68	3	9.68	28	90.32
27	Khargone	22	0.27	1.79	0.16	5.04	5	22.73	0	0.00	0	0.00	13	59.09	2	9.09	2	9.09	5	22.73	17	77.27
28	Mandla	32	0.05	5.10	0.20	3.50	11	34.38	0	0.00	2	6.25	18	56.25	1	3.13	0	0.00	13	40.63	19	59.38
29	Mandsaur	36	-	-	0.40	15.10	0	0.00	0	0.00	0	0.00	13	36.11	9	25.00	14	38.89	0	0.00	36	100.00
30	Morena	10	0.20	0.90	0.70	10.00	2	20.00	0	0.00	0	0.00	2	20.00	3	30.00	3	30.00	2	20.00	8	80.00
31	Narsinghpur	16	0.05	2.70	0.05	14.90	5	31.25	1	6.25	0	0.00	7	43.75	1	6.25	2	12.50	6	37.50	10	62.50
32	Neemuch	33	-	-	0.20	30.60	0	0.00	0	0.00	0	0.00	9	27.27	7	21.21	17	51.52	0	0.00	33	100.00
33	Panna	26	0.10	0.30	0.10	9.83	2	7.69	0	0.00	0	0.00	15	57.69	6	23.08	3	11.54	2	7.69	24	92.31
34	Raisen	29	0.05	3.92	0.03	4.70	3	10.34	2	6.90	0	0.00	21	72.41	2	6.90	1	3.45	5	17.24	24	82.76
35	Rajgarh	22	0.20	3.31	0.30	8.70	2	9.09	2	9.09	0	0.00	7	31.82	6	27.27	5	22.73	4	18.18	18	81.82
36	Ratlam	37	0.10	2.60	0.10	10.00	3	8.11	1	2.70	0	0.00	14	37.84	12	32.43	7	18.92	4	10.81	33	89.19
37	Rewa	32	0.10	3.98	0.07	4.40	3	9.38	1	3.13	0	0.00	18	56.25	9	28.13	1	3.13	4	12.50	28	87.50
38	Sagar	37	0.02	8.42	0.50	8.90	7	18.92	1	2.70	1	2.70	15	40.54	8	21.62	5	13.51	9	24.32	28	75.68
39	Satna	48	0.10	3.65	0.05	4.35	6	12.50	1	2.08	0	0.00	32	66.67	7	14.58	2	4.17	7	14.58	41	85.42
40	Sehore	21	0.22	5.50	0.09	4.40	3	14.29	1	4.76	1	4.76	12	57.14	3	14.29	1	4.76	5	23.81	16	76.19
41	Seoni	41	0.04	4.98	0.12	3.30	18	43.90	7	17.07	2	4.88	10	24.39	4	9.76	0	0.00	27	65.85	14	34.15
42	Shahdol	24	0.10	2.30	0.10	4.60	5	20.83	1	4.17	0	0.00	15	62.50	1	4.17	2	8.33	6	25.00	18	75.00
43	Shajapur	16	-	-	0.40	8.30	0	0.00	0	0.00	0	0.00	6	37.50	6	37.50	4	25.00	0	0.00	16	100.00
44	Sheopur	18	1.10	2.85	0.10	17.45	1	5.56	1	5.56	0	0.00	7	38.89	3	16.67	6	33.33	2	11.11	16	88.89
45	Shivpuri	29	0.05	3.90	0.20	4.15	10	34.48	1	3.45	0	0.00	10	34.48	7	24.14	1	3.45	11	37.93	18	62.07
46	Sidhi	31	0.05	3.30	0.10	4.70	5	16.13	2	6.45	0	0.00	20	64.52	2	6.45	2	6.45	7	22.58	24	77.42
47	Singrauli	22	0.75	1.52	0.10	1.80	6	27.27	0	0.00	0	0.00	16	72.73	0	0.00	0	0.00	6	27.27	16	72.73
48	Tikamgarh	19	1.80	1.80	0.32	5.50	1	5.26	0	0.00	0	0.00	11	57.89	6	31.58	1	5.26	1	5.26	18	94.74
49	Ujjain	40	1.00	1.00	0.10	7.40	1	2.50	0	0.00	0	0.00	24	60.00	8	20.00	7	17.50	1	2.50	39	97.50
50	Umaria	14	0.10	0.60	0.10	2.20	3	21.43	0	0.00	0	0.00	10	71.43	1	7.14	0	0.00	3	21.43	11	78.57
51	Vidisha	31	0.15	2.90	0.07	13.92	5	16.13	1	3.23	0	0.00	17	54.84	4	12.90	4	12.90	6	19.35	25	80.65
	<b>Total</b>	<b>1231</b>	<b>0.01</b>	<b>12.29</b>	<b>0.01</b>	<b>53.63</b>	<b>215</b>	<b>17.47</b>	<b>45</b>	<b>3.66</b>	<b>22</b>	<b>1.79</b>	<b>623</b>	<b>50.61</b>	<b>195</b>	<b>15.84</b>	<b>131</b>	<b>10.64</b>	<b>282</b>	<b>22.91</b>	<b>949</b>	<b>77.09</b>



## District-Wise Annual Fluctuation &amp; Frequency Distribution of Different Ranges from January 2020 to January 2021

Annexure -VIII

S. No.	Name of District	No. of wells Analysed	Range in m						Rise						Fall						Rise		Fall	
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		No	%	No	%		
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%		
1	Agar Malwa	16	0.4	3.61	0.95	6.74	3	18.75	1	6.25	0	0.00	2	12.50	7	43.75	3	18.75	4	25.00	12	75.00		
2	Alirajpur	11	0.9	5.9	0.1	3.23	3	27.27	0	0.00	1	9.09	5	45.45	2	18.18	0	0.00	4	36.36	7	63.64		
3	Anuppur	18	0.06	1.47	0.16	1.33	6	33.33	0	0.00	0	0.00	12	66.67	0	0.00	0	0.00	6	33.33	12	66.67		
4	Ashok Nagar	20	0.15	5.2	0.4	11.35	9	45.00	0	0.00	1	5.00	6	30.00	1	5.00	3	15.00	10	50.00	10	50.00		
5	Balaghat	37	0.11	3.03	0.04	1.03	20	54.05	4	10.81	0	0.00	13	35.14	0	0.00	0	0.00	24	64.86	13	35.14		
6	Barwani	9	0.2	5.3	0.1	1.53	1	11.11	1	11.11	1	11.11	6	66.67	0	0.00	0	0.00	3	33.33	6	66.67		
7	Betul	28	0.3	0.78	0.13	7.71	3	10.71	0	0.00	0	0.00	14	50.00	4	14.29	7	25.00	3	10.71	25	89.29		
8	Bhind	17	0.15	0.15	0.15	10.4	1	5.88	0	0.00	0	0.00	10	58.82	4	23.53	2	11.76	1	5.88	16	94.12		
9	Bhopal	26	0.08	16.53	0.2	9.4	6	23.08	1	3.85	1	3.85	13	50.00	3	11.54	2	7.69	8	30.77	18	69.23		
10	Burhanpur	12	0.72	3.2	0.58	8.6	1	8.33	1	8.33	0	0.00	5	41.67	3	25.00	2	16.67	2	16.67	10	83.33		
11	Chhatarpur	36	0.48	1.55	0.11	6.68	2	5.56	0	0.00	0	0.00	20	55.56	9	25.00	5	13.89	2	5.56	34	94.44		
12	Chhindwara	33	0.12	11.38	0.24	6.49	13	39.39	6	18.18	5	15.15	7	21.21	1	3.03	1	3.03	24	72.73	9	27.27		
13	Damoh	19	0.19	6.62	0.1	5.2	3	15.79	0	0.00	1	5.26	9	47.37	5	26.32	1	5.26	4	21.05	15	78.95		
14	Datia	12	0.2	9.1	0.05	5	3	25.00	0	0.00	1	8.33	4	33.33	2	16.67	2	16.67	4	33.33	8	66.67		
15	Dewas	23	0.03	1.84	0.16	50.97	5	21.74	0	0.00	0	0.00	13	56.52	3	13.04	2	8.70	5	21.74	18	78.26		
16	Dhar	35	0.2	20.5	0.04	11.4	7	20.00	2	5.71	4	11.43	14	40.00	6	17.14	2	5.71	13	37.14	22	62.86		
17	Dindori	16	0.29	0.29	0.05	1.02	1	6.25	0	0.00	0	0.00	15	93.75	0	0.00	0	0.00	1	6.25	15	93.75		
18	Guna	23	0.46	1.5	0.2	10.54	4	17.39	0	0.00	0	0.00	9	39.13	5	21.74	5	21.74	4	17.39	19	82.61		
19	Gwalior	20	0.05	11.5	0.05	17.95	3	15.00	3	15.00	1	5.00	7	35.00	5	25.00	1	5.00	7	35.00	13	65.00		
20	Harda	12	2.62	2.62	0.01	4.87	0	0.00	1	8.33	0	0.00	9	75.00	1	8.33	1	8.33	1	8.33	11	91.67		
21	Hoshangabad	18	0.07	0.45	0.05	3.4	6	33.33	0	0.00	0	0.00	10	55.56	2	11.11	0	0.00	6	33.33	12	66.67		
22	Indore	29	0.5	13.29	0.29	7.21	5	17.24	4	13.79	4	13.79	11	37.93	2	6.90	3	10.34	13	44.83	16	55.17		
23	Jabalpur	30	0.02	4.36	0.07	5.05	6	20.00	0	0.00	1	3.33	19	63.33	2	6.67	2	6.67	7	23.33	23	76.67		
24	Jhabua	10	0.5	1.8	0.38	2.11	2	20.00	0	0.00	0	0.00	6	60.00	2	20.00	0	0.00	2	20.00	8	80.00		
25	Katni	18	0.01	1.68	0.17	5.81	3	16.67	0	0.00	0	0.00	10	55.56	4	22.22	1	5.56	3	16.67	15	83.33		
26	Khandwa	30	0.05	11.35	0.03	2.85	3	10.00	1	3.33	1	3.33	20	66.67	5	16.67	0	0.00	5	16.67	25	83.33		
27	Khargone	21	1.7	2.8	0.6	5.31	1	4.76	3	14.29	0	0.00	12	57.14	2	9.52	3	14.29	4	19.05	17	80.95		
28	Mandla	33	0.13	4.28	0.05	2.92	7	21.21	1	3.03	1	3.03	21	63.64	3	9.09	0	0.00	9	27.27	24	72.73		
29	Mandsaur	36	0.2	11.17	0.1	11.03	3	8.33	2	5.56	1	2.78	7	19.44	14	38.89	9	25.00	6	16.67	30	83.33		
30	Morena	8	0.43	7.5	0.5	8.8	4	50.00	0	0.00	1	12.50	2	25.00	0	0.00	1	12.50	5	62.50	3	37.50		
31	Narsinghpur	14	0.02	1.26	0.17	5.88	5	35.71	0	0.00	0	0.00	5	35.71	3	21.43	1	7.14	5	35.71	9	64.29		
32	Neemuch	34	0.17	0.81	0.15	26.25	3	8.82	0	0.00	0	0.00	6	17.65	11	32.35	14	41.18	3	8.82	31	91.18		
33	Panna	26	0.1	2.5	0.1	11.69	3	11.54	1	3.85	0	0.00	14	53.85	6	23.08	2	7.69	4	15.38	22	84.62		
34	Raisen	27	0.88	0.88	0.02	5.7	1	3.70	0	0.00	0	0.00	17	62.96	6	22.22	3	11.11	1	3.70	26	96.30		
35	Rajgarh	27	0.11	7	0.32	5.03	2	7.41	0	0.00	3	11.11	15	55.56	4	14.81	3	11.11	5	18.52	22	81.48		
36	Ratlam	38	0.06	6.35	0.07	16.7	10	26.32	1	2.63	2	5.26	12	31.58	7	18.42	6	15.79	13	34.21	25	65.79		
37	Rewa	33	0.55	3.75	0.2	5.75	2	6.06	1	3.03	0	0.00	20	60.61	7	21.21	3	9.09	3	9.09	30	90.91		
38	Sagar	38	0.22	3.25	0.12	8.4	6	15.79	2	5.26	0	0.00	23	60.53	5	13.16	2	5.26	8	21.05	30	78.95		
39	Satna	47	0.05	1.1	0.05	5.85	9	19.15	0	0.00	0	0.00	29	61.70	6	12.77	3	6.38	9	19.15	38	80.85		
40	Sehore	21	1.49	3.35	0.17	8	2	9.52	1	4.76	0	0.00	13	61.90	1	4.76	4	19.05	3	14.29	18	85.71		
41	Seoni	43	0.01	3.41	0.35	4.68	12	27.91	7	16.28	0	0.00	17	39.53	5	11.63	2	4.65	19	44.19	24	55.81		
42	Shahdol	26	0.08	5.78	0.3	7.61	1	3.85	1	3.85	2	7.69	16	61.54	5	19.23	1	3.85	4	15.38	22	84.62		
43	Shajapur	16	3.9	3.9	0.12	7.7	0	0.00	1	6.25	0	0.00	9	56.25	3	18.75	3	18.75	1	6.25	15	93.75		
44	Sheopur	19	0.2	5.45	0.25	15.5	3	15.79	0	0.00	2	10.53	6	31.58	3	15.79	5	26.32	5	26.32	14	73.68		
45	Shivpuri	29	0.1	17.2	0.15	8.1	4	13.79	2	6.90	1	3.45	10	34.48	7	24.14	5	17.24	7	24.14	22	75.86		
46	Sidhi	31	0.1	0.8	0.05	4.35	5	16.13	0	0.00	0	0.00	21	67.74	4	12.90	1	3.23	5	16.13	26	83.87		
47	Singrauli	22	0.48	0.95	0.2	3.7	5	22.73	0	0.00	0	0.00	14	63.64	3	13.64	0	0.00	5	22.73	17	77.27		
48	Tikamgarh	24	0.02	2.01	0.08	17.89	3	12.50	1	4.17	0	0.00	9	37.50	9	37.50	2	8.33	4	16.67	20	83.33		
49	Ujjain	41	0.05	3.35	0.25	5.77	9	21.95	2	4.88	0	0.00	17	41.46	11	26.83	2	4.88	11	26.83	30	73.17		
50	Umaria	13	0.79	1.98	0.59	3.1	3	23.08	0	0.00	0	0.00	7	53.85	3	23.08	0	0.00	3	23.08	10	76.92		
51	Vidisha	31	0.03	11.2	0.3	5.33	5	16.13	3	9.68	1	3.23	14	45.16	6	19.35	2	6.45	9	29.03	22	70.97		
	<b>Total</b>	<b>1256</b>	<b>3.9</b>	<b>16.53</b>	<b>0.01</b>	<b>50.97</b>	<b>227</b>	<b>18.07</b>	<b>54</b>	<b>4.30</b>	<b>36</b>	<b>2.87</b>	<b>605</b>	<b>48.17</b>	<b>212</b>	<b>16.88</b>	<b>122</b>	<b>9.71</b>	<b>317</b>	<b>25.24</b>	<b>939</b>	<b>74.76</b>		

District-Wise Seasonal Fluctuation & Frequency Distribution of Different Ranges from May 2020 to August 2020

Annexure -IX

S. No.	Name of District	No. of wells Analysed	Range in m				Rise						Fall						Rise		Fall			
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		No	%	No	%		
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%		
1	Agar Malwa	15	3.15	50.00	-	-	0	0.00	7	46.67	8	53.33	0	0.00	0	0.00	0	0.00	0	0.00	15	100.00	0	0.00
2	Alirajpur	12	1.75	9.12	0.91	2.80	3	25.00	3	25.00	4	33.33	1	8.33	1	8.33	0	0.00	10	83.33	2	16.67		
3	Anuppur	15	0.40	7.00	-	-	4	26.67	6	40.00	5	33.33	0	0.00	0	0.00	0	0.00	15	100.00	0	0.00		
4	Ashok Nagar	17	0.60	7.49	0.14	0.14	3	17.65	3	17.65	10	58.82	1	5.88	0	0.00	0	0.00	16	94.12	1	5.88		
5	Balaghat	35	0.14	8.27	-	-	7	20.00	12	34.29	16	45.71	0	0.00	0	0.00	0	0.00	35	100.00	0	0.00		
6	Barwani	9	0.49	5.22	1.89	1.98	2	22.22	3	33.33	2	22.22	2	22.22	0	0.00	0	0.00	7	77.78	2	22.22		
7	Betul	30	0.79	12.53	-	-	1	3.33	5	16.67	24	80.00	0	0.00	0	0.00	0	0.00	30	100.00	0	0.00		
8	Bhind	17	0.05	23.65	0.25	6.10	7	41.18	4	23.53	3	17.65	2	11.76	0	0.00	1	5.88	14	82.35	3	17.65		
9	Bhopal	26	0.55	18.75	-	-	5	19.23	7	26.92	14	53.85	0	0.00	0	0.00	0	0.00	26	100.00	0	0.00		
10	Burhanpur	10	2.26	13.72	-	-	0	0.00	4	40.00	6	60.00	0	0.00	0	0.00	0	0.00	10	100.00	0	0.00		
11	Chhatarpur	28	0.60	8.10	0.40	2.30	8	28.57	12	42.86	6	21.43	1	3.57	1	3.57	0	0.00	26	92.86	2	7.14		
12	Chhindwara	25	0.18	11.72	1.72	2.35	5	20.00	9	36.00	8	32.00	2	8.00	1	4.00	0	0.00	22	88.00	3	12.00		
13	Damoh	14	0.53	8.96	-	-	6	42.86	1	7.14	7	50.00	0	0.00	0	0.00	0	0.00	14	100.00	0	0.00		
14	Datia	11	0.90	18.10	0.25	0.25	2	18.18	3	27.27	5	45.45	1	9.09	0	0.00	0	0.00	10	90.91	1	9.09		
15	Dewas	22	0.60	53.57	-	-	3	13.64	4	18.18	15	68.18	0	0.00	0	0.00	0	0.00	22	100.00	0	0.00		
16	Dhar	38	0.18	26.80	0.55	8.95	11	28.95	7	18.42	16	42.11	3	7.89	0	0.00	1	2.63	34	89.47	4	10.53		
17	Dindori	10	0.50	7.54	-	-	3	30.00	3	30.00	4	40.00	0	0.00	0	0.00	0	0.00	10	100.00	0	0.00		
18	Guna	18	2.08	13.78	-	-	0	0.00	6	33.33	12	66.67	0	0.00	0	0.00	0	0.00	18	100.00	0	0.00		
19	Gwalior	18	0.60	31.75	-	-	7	38.89	5	27.78	6	33.33	0	0.00	0	0.00	0	0.00	18	100.00	0	0.00		
20	Harda	13	2.17	12.90	-	-	0	0.00	4	30.77	9	69.23	0	0.00	0	0.00	0	0.00	13	100.00	0	0.00		
21	Hoshangabad	18	1.08	16.44	1.30	1.30	2	11.11	6	33.33	9	50.00	1	5.56	0	0.00	0	0.00	17	94.44	1	5.56		
22	Indore	10	0.30	19.30	-	-	1	10.00	0	0.00	9	90.00	0	0.00	0	0.00	0	0.00	10	100.00	0	0.00		
23	Jabalpur	10	1.00	14.00	-	-	1	10.00	3	30.00	6	60.00	0	0.00	0	0.00	0	0.00	10	100.00	0	0.00		
24	Jhabua	10	0.50	5.01	-	-	4	40.00	5	50.00	1	10.00	0	0.00	0	0.00	0	0.00	10	100.00	0	0.00		
25	Katni	14	0.10	10.70	-	-	6	42.86	2	14.29	6	42.86	0	0.00	0	0.00	0	0.00	14	100.00	0	0.00		
26	Khandwa	29	1.19	11.38	0.11	0.11	3	10.34	5	17.24	20	68.97	1	3.45	0	0.00	0	0.00	28	96.55	1	3.45		
27	Khargone	21	0.49	6.60	0.02	8.20	8	38.10	4	19.05	3	14.29	4	19.05	1	4.76	1	4.76	15	71.43	6	28.57		
28	Mandla	32	0.70	7.40	5.00	5.00	9	28.13	12	37.50	10	31.25	0	0.00	0	0.00	1	3.13	31	96.88	1	3.13		
29	Mandsaur	36	0.30	28.80	0.50	2.70	6	16.67	8	22.22	19	52.78	2	5.56	1	2.78	0	0.00	33	91.67	3	8.33		
30	Morena	9	0.05	9.20	0.20	0.30	1	11.11	5	55.56	1	11.11	2	22.22	0	0.00	0	0.00	7	77.78	2	22.22		
31	Narsinghpur	14	0.53	7.65	10.07	10.07	5	35.71	5	35.71	3	21.43	0	0.00	0	0.00	1	7.14	13	92.86	1	7.14		
32	Neemuch	29	0.40	14.50	0.10	0.10	7	24.14	6	20.69	15	51.72	1	3.45	0	0.00	0	0.00	28	96.55	1	3.45		
33	Panna	27	0.45	8.60	-	-	7	25.93	7	25.93	13	48.15	0	0.00	0	0.00	0	0.00	27	100.00	0	0.00		
34	Raisen	25	1.20	11.40	0.10	0.10	1	4.00	9	36.00	14	56.00	1	4.00	0	0.00	0	0.00	24	96.00	1	4.00		
35	Rajgarh	25	0.40	12.95	-	-	2	8.00	7	28.00	16	64.00	0	0.00	0	0.00	0	0.00	25	100.00	0	0.00		
36	Ratlam	37	1.50	43.90	1.50	1.90	4	10.81	4	10.81	27	72.97	2	5.41	0	0.00	0	0.00	35	94.59	2	5.41		
37	Rewa	27	0.50	8.65	-	-	3	11.11	10	37.04	14	51.85	0	0.00	0	0.00	0	0.00	27	100.00	0	0.00		
38	Sagar	34	0.80	20.24	0.10	1.43	3	8.82	6	17.65	23	67.65	2	5.88	0	0.00	0	0.00	32	94.12	2	5.88		
39	Satna	44	0.65	17.24	-	-	10	22.73	10	22.73	24	54.55	0	0.00	0	0.00	0	0.00	44	100.00	0	0.00		
40	Sehore	23	2.30	25.90	4.27	4.27	0	0.00	7	30.43	15	65.22	0	0.00	0	0.00	1	4.35	22	95.65	1	4.35		
41	Seoni	38	0.86	8.88	-	-	10	26.32	15	39.47	13	34.21	0	0.00	0	0.00	0	0.00	38	100.00	0	0.00		
42	Shahdol	24	0.90	9.50	0.10	2.50	7	29.17	10	41.67	4	16.67	1	4.17	2	8.33	0	0.00	21	87.50	3	12.50		
43	Shajapur	17	0.90	36.00	-	-	2	11.76	3	17.65	12	70.59	0	0.00	0	0.00	0	0.00	17	100.00	0	0.00		
44	Sheopur	18	0.20	25.35	-	-	4	22.22	5	27.78	9	50.00	0	0.00	0	0.00	0	0.00	18	100.00	0	0.00		
45	Shivpuri	30	0.40	16.70	-	-	2	6.67	11	36.67	17	56.67	0	0.00	0	0.00	0	0.00	30	100.00	0	0.00		
46	Sidhi	23	0.85	17.38	-	-	10	43.48	5	21.74	8	34.78	0	0.00	0	0.00	0	0.00	23	100.00	0	0.00		
47	Singrauli	22	0.60	8.30	-	-	5	22.73	9	40.91	8	36.36	0	0.00	0	0.00	0	0.00	22	100.00	0	0.00		
48	Tikamgarh	12	2.08	8.12	-	-	0	0.00	5	41.67	7	58.33	0	0.00	0	0.00	0	0.00	12	100.00	0	0.00		
49	Ujjain	27	1.70	19.50	-	-	2	7.41	4	14.81	21	77.78	0	0.00	0	0.00	0	0.00	27	100.00	0	0.00		
50	Umaria	13	0.70	6.90	4.80	4.80	5	38.46	4	30.77	3	23.08	0	0.00	0	0.00	1	7.69	12	92.31	1	7.69		
51	Vidisha	28	1.05	18.25	0.85	0.85	1	3.57	5	17.86	21	75.00	1	3.57	0	0.00	0	0.00	27	96.43	1	3.57		
	<b>Total</b>	<b>1109</b>	<b>0.05</b>	<b>53.57</b>	<b>0.02</b>	<b>10.07</b>	<b>208</b>	<b>18.76</b>	<b>305</b>	<b>27.50</b>	<b>551</b>	<b>49.68</b>	<b>31</b>	<b>2.80</b>	<b>7</b>	<b>0.63</b>	<b>7</b>	<b>0.63</b>	<b>1064</b>	<b>95.94</b>	<b>45</b>	<b>4.06</b>		

District-Wise Seasonal Fluctuation & Frequency Distribution of Different Ranges from May 2020 to Nov 2020

Annexure -X

S. No.	Name of District	No. of wells Analysed	Range in m		Rise						Fall						Rise		Fall					
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		No	%	No	%		
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%		
1	Agar Malwa	14	0.05	26.49	2.80	2.80	5	35.71	4	28.57	4	28.57	0	0.00	0	0.00	1	7.14	0	0.00	13	92.86	1	7.14
2	Alirajpur	11	1.65	8.00	0.50	0.84	1	9.09	6	54.55	2	18.18	2	18.18	0	0.00	0	0.00	9	81.82	2	18.18		
3	Anuppur	15	1.20	6.55	0.10	0.70	5	33.33	5	33.33	2	13.33	3	20.00	0	0.00	0	0.00	12	80.00	3	20.00		
4	Ashok Nagar	18	0.02	9.86	0.12	1.76	4	22.22	4	22.22	7	38.89	3	16.67	0	0.00	0	0.00	15	83.33	3	16.67		
5	Balaghat	37	0.01	6.28	0.02	0.02	10	27.03	17	45.95	9	24.32	1	2.70	0	0.00	0	0.00	36	97.30	1	2.70		
6	Barwani	9	0.04	6.29	0.52	1.67	3	33.33	1	11.11	2	22.22	3	33.33	0	0.00	0	0.00	6	66.67	3	33.33		
7	Betul	31	0.40	10.13	0.15	4.40	5	16.13	7	22.58	11	35.48	5	16.13	2	6.45	1	3.23	23	74.19	8	25.81		
8	Bhind	16	0.40	7.26	0.30	8.40	5	31.25	2	12.50	1	6.25	6	37.50	1	6.25	1	6.25	8	50.00	8	50.00		
9	Bhopal	27	0.58	16.30	-	-	9	33.33	8	29.63	10	37.04	0	0.00	0	0.00	0	0.00	27	100.00	0	0.00		
10	Burhanpur	8	1.40	6.30	0.35	0.35	3	37.50	1	12.50	3	37.50	1	12.50	0	0.00	0	0.00	7	87.50	1	12.50		
11	Chhatarpur	30	0.30	8.50	0.70	5.95	15	50.00	8	26.67	3	10.00	3	10.00	0	0.00	1	3.33	26	86.67	4	13.33		
12	Chhindwara	25	0.06	11.29	0.18	3.10	8	32.00	8	32.00	6	24.00	1	4.00	2	8.00	0	0.00	22	88.00	3	12.00		
13	Damoh	16	0.30	5.45	0.26	5.24	7	43.75	4	25.00	1	6.25	3	18.75	0	0.00	1	6.25	12	75.00	4	25.00		
14	Datia	10	0.55	17.60	0.50	0.51	2	20.00	1	10.00	5	50.00	2	20.00	0	0.00	0	0.00	8	80.00	2	20.00		
15	Dewas	21	1.14	26.63	0.20	4.05	2	9.52	5	23.81	11	52.38	2	9.52	0	0.00	1	4.76	18	85.71	3	14.29		
16	Dhar	37	0.08	23.96	1.23	4.68	16	43.24	6	16.22	11	29.73	1	2.70	0	0.00	3	8.11	33	89.19	4	10.81		
17	Dindori	9	0.80	4.70	0.50	1.10	4	44.44	1	11.11	1	11.11	3	33.33	0	0.00	0	0.00	6	66.67	3	33.33		
18	Guna	20	0.64	9.70	0.10	0.78	8	40.00	6	30.00	3	15.00	3	15.00	0	0.00	0	0.00	17	85.00	3	15.00		
19	Gwalior	17	0.30	18.95	0.15	1.00	9	52.94	4	23.53	2	11.76	2	11.76	0	0.00	0	0.00	15	88.24	2	11.76		
20	Harda	13	0.39	14.00	-	-	8	61.54	2	15.38	3	23.08	0	0.00	0	0.00	0	0.00	13	100.00	0	0.00		
21	Hoshangabad	18	0.15	12.60	0.85	3.88	5	27.78	5	27.78	5	27.78	1	5.56	2	11.11	0	0.00	15	83.33	3	16.67		
22	Indore	9	2.00	17.77	0.19	0.19	1	11.11	0	0.00	7	77.78	1	11.11	0	0.00	0	0.00	8	88.89	1	11.11		
23	Jabalpur	12	0.10	14.60	-	-	5	41.67	3	25.00	4	33.33	0	0.00	0	0.00	0	0.00	12	100.00	0	0.00		
24	Jhabua	9	0.48	3.80	0.83	0.83	4	44.44	4	44.44	0	0.00	1	11.11	0	0.00	0	0.00	8	88.89	1	11.11		
25	Katni	13	0.70	6.50	0.30	0.40	3	23.08	4	30.77	3	23.08	3	23.08	0	0.00	0	0.00	10	76.92	3	23.08		
26	Khandwa	29	0.80	7.20	0.30	10.40	12	41.38	5	17.24	7	24.14	2	6.90	2	6.90	1	3.45	24	82.76	5	17.24		
27	Khargone	21	0.41	4.32	0.38	8.10	9	42.86	4	19.05	1	4.76	3	14.29	3	14.29	1	4.76	14	66.67	7	33.33		
28	Mandla	32	0.40	6.30	0.40	7.70	12	37.50	13	40.63	5	15.63	1	3.13	0	0.00	1	3.13	30	93.75	2	6.25		
29	Mandsaur	36	0.30	24.65	0.10	4.00	12	33.33	10	27.78	10	27.78	3	8.33	1	2.78	0	0.00	32	88.89	4	11.11		
30	Morena	7	1.65	2.60	0.55	4.05	2	28.57	2	28.57	0	0.00	2	28.57	0	0.00	1	14.29	4	57.14	3	42.86		
31	Narsinghpur	14	0.09	6.98	0.62	10.64	4	28.57	5	35.71	1	7.14	1	7.14	1	7.14	2	14.29	10	71.43	4	28.57		
32	Neemuch	29	0.10	7.50	0.10	22.70	9	31.03	6	20.69	4	13.79	8	27.59	0	0.00	2	6.90	19	65.52	10	34.48		
33	Panna	24	0.30	7.00	1.00	1.81	7	29.17	8	33.33	6	25.00	3	12.50	0	0.00	0	0.00	21	87.50	3	12.50		
34	Raisen	26	0.30	9.68	0.90	0.90	9	34.62	4	15.38	12	46.15	1	3.85	0	0.00	0	0.00	25	96.15	1	3.85		
35	Rajgarh	25	0.25	8.50	0.30	3.72	5	20.00	6	24.00	8	32.00	4	16.00	2	8.00	0	0.00	19	76.00	6	24.00		
36	Ratlam	37	0.30	39.90	0.30	1.90	7	18.92	6	16.22	20	54.05	4	10.81	0	0.00	0	0.00	33	89.19	4	10.81		
37	Rewa	26	0.20	4.25	0.10	6.70	8	30.77	11	42.31	1	3.85	5	19.23	0	0.00	1	3.85	20	76.92	6	23.08		
38	Sagar	33	0.15	9.90	0.30	2.83	8	24.24	14	42.42	7	21.21	3	9.09	1	3.03	0	0.00	29	87.88	4	12.12		
39	Satna	44	0.09	14.30	0.10	0.60	10	22.73	20	45.45	8	18.18	6	13.64	0	0.00	0	0.00	38	86.36	6	13.64		
40	Sehore	23	0.84	21.50	-	-	7	30.43	7	30.43	9	39.13	0	0.00	0	0.00	0	0.00	23	100.00	0	0.00		
41	Seoni	39	0.18	8.18	0.01	0.87	12	30.77	18	46.15	5	12.82	4	10.26	0	0.00	0	0.00	35	89.74	4	10.26		
42	Shahdol	25	0.10	8.20	0.30	2.30	14	56.00	6	24.00	1	4.00	2	8.00	2	8.00	0	0.00	21	84.00	4	16.00		
43	Shajapur	15	0.77	27.00	1.20	2.33	2	13.33	3	20.00	7	46.67	2	13.33	1	6.67	0	0.00	12	80.00	3	20.00		
44	Sheopur	18	0.25	7.25	2.35	6.50	9	50.00	3	16.67	3	16.67	0	0.00	2	11.11	1	5.56	15	83.33	3	16.67		
45	Shivpuri	30	0.45	10.80	0.30	1.80	12	40.00	6	20.00	9	30.00	3	10.00	0	0.00	0	0.00	27	90.00	3	10.00		
46	Sidhi	23	0.10	13.36	0.05	0.30	11	47.83	4	17.39	4	17.39	4	17.39	0	0.00	0	0.00	19	82.61	4	17.39		
47	Singrauli	20	0.30	5.65	-	-	7	35.00	10	50.00	3	15.00	0	0.00	0	0.00	0	0.00	20	100.00	0	0.00		
48	Tikamgarh	15	0.10	5.40	0.10	2.40	6	40.00	2	13.33	3	20.00	3	20.00	1	6.67	0	0.00	11	73.33	4	26.67		
49	Ujjain	28	0.80	21.00	0.10	1.00	2	7.14	13	46.43	11	39.29	2	7.14	0	0.00	0	0.00	26	92.86	2	7.14		
50	Umaria	13	0.50	6.30	3.70	3.70	7	53.85	4	30.77	1	7.69	0	0.00	1	7.69	0	0.00	12	92.31	1	7.69		
51	Vidisha	30	0.23	15.36	0.18	4.80	7	23.33	9	30.00	12	40.00	1	3.33	0	0.00	1	3.33	28	93.33	2	6.67		
	<b>Total</b>	<b>1107</b>	<b>0.01</b>	<b>26.63</b>	<b>0.01</b>	<b>22.70</b>	<b>357</b>	<b>32.25</b>	<b>315</b>	<b>28.46</b>	<b>274</b>	<b>24.75</b>	<b>117</b>	<b>10.57</b>	<b>25</b>	<b>2.26</b>	<b>19</b>	<b>1.72</b>	<b>946</b>	<b>85.46</b>	<b>161</b>	<b>14.54</b>		







District-Wise Decadal Water Level Fluctuation With Mean [November (2010 to 2019)] and November 2020

Annexure - XIV

S. No.	Name of District	No. of wells Analysed	Range in m				Rise						Fall						Rise		Fall	
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		No	%	No	%
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Agar Malwa	15	0.06	3.30	0.04	2.02	5	33.33	2	13.33	0	0.00	7	46.67	1	6.67	0	0.00	7	46.67	8	53.33
2	Alirajpur	12	0.44	3.30	0.10	1.86	4	33.33	1	8.33	0	0.00	7	58.33	0	0.00	0	0.00	5	41.67	7	58.33
3	Anuppur	18	0.13	2.86	0.30	0.56	8	44.44	4	22.22	0	0.00	6	33.33	0	0.00	0	0.00	12	66.67	6	33.33
4	Ashok Nagar	21	0.27	6.65	0.01	2.66	8	38.10	3	14.29	1	4.76	7	33.33	2	9.52	0	0.00	12	57.14	9	42.86
5	Balaghat	39	0.19	5.08	0.07	2.47	31	79.49	2	5.13	1	2.56	4	10.26	1	2.56	0	0.00	34	87.18	5	12.82
6	Barwani	9	0.43	7.31	0.13	1.49	3	33.33	1	11.11	2	22.22	3	33.33	0	0.00	0	0.00	6	66.67	3	33.33
7	Betul	31	0.23	3.33	0.06	5.05	13	41.94	3	9.68	0	0.00	9	29.03	4	12.90	2	6.45	16	51.61	15	48.39
8	Bhind	16	0.47	3.76	0.37	4.83	3	18.75	4	25.00	0	0.00	4	25.00	4	25.00	1	6.25	7	43.75	9	56.25
9	Bhopal	27	0.12	4.51	0.11	3.11	19	70.37	5	18.52	1	3.70	1	3.70	1	3.70	0	0.00	25	92.59	2	7.41
10	Burhanpur	17	0.12	2.98	0.37	6.32	6	35.29	1	5.88	0	0.00	5	29.41	3	17.65	2	11.76	7	41.18	10	58.82
11	Chhatarpur	36	0.04	2.51	0.24	5.98	16	44.44	3	8.33	0	0.00	13	36.11	3	8.33	1	2.78	19	52.78	17	47.22
12	Chhindwara	33	0.14	6.97	0.12	0.17	16	48.48	11	33.33	4	12.12	2	6.06	0	0.00	0	0.00	31	93.94	2	6.06
13	Damoh	18	0.06	2.11	0.19	3.37	7	38.89	1	5.56	0	0.00	7	38.89	3	16.67	0	0.00	8	44.44	10	55.56
14	Datia	10	0.09	3.44	0.65	2.56	2	20.00	1	10.00	0	0.00	5	50.00	2	20.00	0	0.00	3	30.00	7	70.00
15	Dewas	22	0.03	6.76	0.06	49.71	10	45.45	4	18.18	2	9.09	3	13.64	1	4.55	2	9.09	16	72.73	6	27.27
16	Dhar	40	0.11	5.20	0.01	4.79	20	50.00	6	15.00	3	7.50	8	20.00	1	2.50	2	5.00	29	72.50	11	27.50
17	Dindori	14	0.11	3.06	0.16	2.75	6	42.86	1	7.14	0	0.00	6	42.86	1	7.14	0	0.00	7	50.00	7	50.00
18	Guna	23	0.20	5.89	0.08	3.82	12	52.17	1	4.35	1	4.35	7	30.43	2	8.70	0	0.00	14	60.87	9	39.13
19	Gwalior	20	0.61	5.73	0.25	10.09	3	15.00	5	25.00	1	5.00	8	40.00	1	5.00	2	10.00	9	45.00	11	55.00
20	Harda	13	0.18	7.67	0.18	2.05	6	46.15	0	0.00	1	7.69	5	38.46	1	7.69	0	0.00	7	53.85	6	46.15
21	Hoshangabad	18	0.21	5.29	0.05	5.83	6	33.33	1	5.56	1	5.56	7	38.89	1	5.56	2	11.11	8	44.44	10	55.56
22	Indore	32	0.10	7.20	0.13	2.59	14	43.75	10	31.25	2	6.25	5	15.63	1	3.13	0	0.00	26	81.25	6	18.75
23	Jabalpur	31	0.03	3.99	0.01	3.23	18	58.06	2	6.45	0	0.00	10	32.26	1	3.23	0	0.00	20	64.52	11	35.48
24	Jhabua	11	0.02	3.43	0.02	1.79	4	36.36	3	27.27	0	0.00	4	36.36	0	0.00	0	0.00	7	63.64	4	36.36
25	Katni	17	0.07	1.71	0.03	3.31	8	47.06	0	0.00	0	0.00	7	41.18	2	11.76	0	0.00	8	47.06	9	52.94
26	Khandwa	31	0.15	2.61	0.03	11.36	12	38.71	1	3.23	0	0.00	15	48.39	1	3.23	2	6.45	13	41.94	18	58.06
27	Khargone	23	0.06	4.73	0.04	4.54	10	43.48	3	13.04	1	4.35	6	26.09	1	4.35	2	8.70	14	60.87	9	39.13
28	Mandla	33	0.10	3.62	0.00	3.21	17	51.52	2	6.06	0	0.00	12	36.36	2	6.06	0	0.00	19	57.58	14	42.42
29	Mandsaur	36	0.07	12.01	0.12	8.02	6	16.67	1	2.78	1	2.78	18	50.00	7	19.44	3	8.33	8	22.22	28	77.78
30	Morena	11	4.04	4.04	0.69	4.75	0	0.00	0	0.00	1	9.09	5	45.45	3	27.27	2	18.18	1	9.09	10	90.91
31	Narsinghpur	18	0.36	5.46	0.15	6.73	8	44.44	2	11.11	1	5.56	4	22.22	2	11.11	1	5.56	11	61.11	7	38.89
32	Neemuch	34	0.28	1.82	0.15	25.78	9	26.47	0	0.00	0	0.00	11	32.35	9	26.47	5	14.71	9	26.47	25	73.53
33	Panna	26	0.02	2.31	0.04	8.10	14	53.85	1	3.85	0	0.00	6	23.08	4	15.38	1	3.85	15	57.69	11	42.31
34	Raisen	29	0.01	3.91	0.06	0.63	21	72.41	4	13.79	0	0.00	4	13.79	0	0.00	0	0.00	25	86.21	4	13.79
35	Rajgarh	27	0.03	5.32	0.06	2.85	14	51.85	3	11.11	2	7.41	6	22.22	2	7.41	0	0.00	19	70.37	8	29.63
36	Ratlam	39	0.02	8.71	0.28	3.03	20	51.28	6	15.38	3	7.69	8	20.51	2	5.13	0	0.00	29	74.36	10	25.64
37	Rewa	34	0.25	7.21	0.00	3.42	15	44.12	2	5.88	1	2.94	15	44.12	1	2.94	0	0.00	18	52.94	16	47.06
38	Sagar	40	0.01	3.12	0.13	7.17	19	47.50	3	7.50	0	0.00	12	30.00	2	5.00	4	10.00	22	55.00	18	45.00
39	Satna	49	0.02	5.88	0.04	4.13	28	57.14	4	8.16	1	2.04	15	30.61	0	0.00	1	2.04	33	67.35	16	32.65
40	Sehore	23	0.67	8.71	0.07	1.80	8	34.78	9	39.13	2	8.70	4	17.39	0	0.00	0	0.00	19	82.61	4	17.39
41	Seoni	44	0.02	4.95	0.08	1.70	25	56.82	11	25.00	2	4.55	6	13.64	0	0.00	0	0.00	38	86.36	6	13.64
42	Shahdol	26	0.14	3.20	0.13	3.69	10	38.46	4	15.38	0	0.00	9	34.62	3	11.54	0	0.00	14	53.85	12	46.15
43	Shajapur	16	0.07	3.60	0.38	2.44	5	31.25	4	25.00	0	0.00	6	37.50	1	6.25	0	0.00	9	56.25	7	43.75
44	Sheopur	19	0.41	2.37	0.22	8.84	4	21.05	1	5.26	0	0.00	8	42.11	2	10.53	4	21.05	5	26.32	14	73.68
45	Shivpuri	30	0.05	4.44	0.16	3.25	14	46.67	4	13.33	1	3.33	10	33.33	1	3.33	0	0.00	19	63.33	11	36.67
46	Sidhi	33	0.04	5.63	0.03	2.95	14	42.42	3	9.09	2	6.06	13	39.39	1	3.03	0	0.00	19	57.58	14	42.42
47	Singrauli	22	0.05	2.94	0.21	0.83	14	63.64	2	9.09	0	0.00	6	27.27	0	0.00	0	0.00	16	72.73	6	27.27
48	Tikamgarh	19	0.36	5.60	0.25	2.61	7	36.84	3	15.79	1	5.26	6	31.58	2	10.53	0	0.00	11	57.89	8	42.11
49	Ujjain	41	0.04	7.06	0.31	5.49	23	56.10	7	17.07	4	9.76	6	14.63	0	0.00	1	2.44	34	82.93	7	17.07
50	Umaria	14	0.45	1.70	0.02	4.83	8	57.14	0	0.00	0	0.00	5	35.71	0	0.00	1	7.14	8	57.14	6	42.86
51	Vidisha	33	0.05	3.68	0.08	8.72	22	66.67	3	9.09	0	0.00	6	18.18	1	3.03	1	3.03	25	75.76	8	24.24
	<b>Total</b>	<b>1293</b>	<b>0.01</b>	<b>15.25</b>	<b>0.01</b>	<b>17.68</b>	<b>595</b>	<b>46.02</b>	<b>158</b>	<b>12.22</b>	<b>43</b>	<b>3.33</b>	<b>372</b>	<b>28.77</b>	<b>83</b>	<b>6.42</b>	<b>42</b>	<b>3.25</b>	<b>796</b>	<b>61.56</b>	<b>497</b>	<b>38.44</b>





## Hydrochemical Data of Ground Water Monitoring Wels in Madhya Pradesh (May 2021)

Annexure : XVI

S. No.	District	Block	Location	Source	Lat.	Long.	pH at 25°C	EC µS/cm at	CO3	HCO3	Cl	SO4	NO3	F	PO4	SiO2	TH	Ca	Mg	Na	K
1	Agar Malwa	Agar	Agar New	DW	23.718	76.008	7.27	1005	0	340	129	8	6	0.19	0.12	22	327	91	24	64	21.6
2	Agar Malwa	Agar	Amla	DW	23.853	76.104	7.39	741	0	231	52	29	63	0.25	0.05	19	317	73	33	19	4.8
3	Agar Malwa	Badod	Barod	DW	23.788	75.806	7.38	1908	0	516	277	11	146	0.51	0.23	34	817	107	134	59	1.1
4	Agar Malwa	Susner	Guradi Bangla	DW	24.080	76.155	7.15	1351	0	431	139	15	110	0.47	0.05	29	545	113	64	55	2.4
5	Agar Malwa	Badod	Jahangirpura	DW	23.819	75.800	7.05	341	0	128	15	17	14	0.13	0.08	17	134	34	12	9	7.4
6	Agar Malwa	Badod	Jhounta	DW	23.733	75.946	7.47	943	0	431	40	12	44	0.54	0.11	27	257	97	4	94	2.6
7	Agar Malwa	Agar	Kanad	DW	23.668	76.174	7.37	998	0	474	47	17	10	0.40	0.17	26	337	95	24	65	11.3
8	Agar Malwa	Agar	Kashi Bardiya	DW	23.773	76.044	7.54	1232	0	626	30	25	35	0.93	0.09	34	198	51	17	187	1.6
9	Agar Malwa	Badod	Matkotra	DW	23.739	75.853	7.42	870	0	413	47	15	6	0.35	0.20	30	327	48	51	43	5.8
10	Agar Malwa	Susner	Soyat	BW	24.188	76.174	7.44	3330	0	735	398	66	278	0.55	0.42	48	871	111	144	336	3.1
11	Agar Malwa	Susner	Susner New	DW	23.944	76.101	7.77	793	0	261	69	31	46	0.53	0.08	21	267	73	20	52	8.9
12	Agar Malwa	NA	Tanodia village	DW	NA	NA	7.51	1545	0	389	196	49	56	0.67	0.19	28	614	121	76	62	4.7
13	Alirajpur	Alirajpur	Alirajpur	DW	22.309	74.353	7.63	1475	0	384	205	12	134	0.73	BDL	26	540	160	34	90	1.2
14	Alirajpur	Alirajpur	Ambua	HP	22.430	74.437	7.45	1390	0	293	235	20	110	0.83	BDL	18	545	130	53	68	0.8
15	Alirajpur	Jobat	Badaguda	DW	22.430	74.517	8.06	1015	0	476	52	8	35	1.38	0.025	28	250	48	32	115	1.6
16	Alirajpur	Bhabra	Bhabra New	DW	22.549	74.319	7.81	885	0	390	37	10	55	1.19	0.022	33	255	76	16	85	1
17	Alirajpur	Alirajpur	Borkua	HP	22.224	74.342	8.03	590	0	293	17	4	18	1.02	BDL	23	260	72	19	15	0.3
18	Alirajpur	Kattiwada	Chandpur	DW	22.357	74.243	8.07	1400	0	494	160	13	70	1.09	BDL	21	350	94	28	158	1.3
19	Alirajpur	Alirajpur	Fatta	DW	22.259	74.598	7.88	1295	0	488	57	54	90	0.57	0.03	42	365	106	24	125	3.4
20	Alirajpur	Jobat	Jobat New	HP	22.413	74.570	7.43	3210	0	433	850	9	41	0.68	0.032	45	680	172	61	425	10.2
21	Alirajpur	Kattiwada	Kathiwara	DW	22.481	74.150	7.64	800	0	305	60	27	27	0.72	BDL	35	325	80	30	33	0.2
22	Alirajpur		Salampur	HP	22.519	74.202	7.98	580	0	281	15	10	30	0.75	BDL	38	250	62	23	18	0.2
23	Anuppur	Pushprajgarh	Amarkantak	HP	22.674	81.761	6.75	130	0	55	10	1	1	0.01	0.08	11	30	8	2	10	9.2
24	Anuppur	Anuppur	Anuppur	HP	23.119	81.701	7.53	987	0	371	97	15	8	0.52	0.10	22	425	100	43	28	1.1
25	Anuppur	Kotma	Banshi Tola	HP	23.198	81.889	6.54	282	0	79	37	8	23	0.30	0.12	32	110	24	12	14	1.6
26	Anuppur	Pushprajgarh	Bhejari	HP	22.823	81.698	7.55	469	0	176	47	5	11	0.46	0.06	19	70	26	1	70	5.4
27	Anuppur	Jaithari	Deohara	DW	23.143	81.597	7.36	1431	0	437	265	8	8	0.41	0.23	34	580	186	28	56	4.1
28	Anuppur	Jaithari	Dhangaon	HP	23.031	81.839	7.23	305	0	109	20	22	2	0.33	0.05	15	90	26	6	22	3.6
29	Anuppur	Jaithari	Jamudi	DW	23.066	81.633	7.18	578	0	279	22	9	1	1.19	0.07	27	185	58	10	38	11.4
30	Anuppur	Anuppur	Jhiriyatola	DW	23.214	82.104	7.25	895	0	437	47	12	5	0.52	0.11	23	275	92	11	75	2.8
31	Anuppur	Jaithari	Kerar	DW	23.010	81.610	7.46	1140	0	559	45	25	2	0.39	0.05	28	410	114	30	65	8.7
32	Anuppur	Kotma	Kotma	DW	23.196	81.979	6.70	596	0	97	104	17	32	0.12	0.08	22	225	66	15	28	4.5
33	Anuppur	Jaithari	Lapta	HP	22.984	81.889	6.80	388	0	134	37	19	2	0.52	0.08	18	130	40	7	25	1.6
34	Anuppur	Anuppur	Muddhoba	DW	23.252	81.884	7.32	410	0	225	10	9	3	0.59	0.16	27	110	28	10	45	2.3
35	Anuppur	Jaithari	Murra Tola	DW	23.056	81.793	6.91	487	0	109	54	51	6	0.52	0.12	20	150	48	7	36	5.6
36	Anuppur	Kotma	Nagara Bandh	DW	23.209	81.985	7.27	1130	0	267	208	13	18	0.23	0.09	32	505	192	6	27	1.6
37	Anuppur	Pushprajgarh	Podki	DW	22.784	81.729	7.53	604	0	237	40	15	26	0.13	0.05	39	225	54	22	30	2.9
38	Anuppur	Pushprajgarh	Rajendra Gram	HP	22.933	81.608	6.95	591	0	152	99	22	11	0.04	0.06	41	265	76	18	8	5.3
39	Anuppur	Jaithari	Venkat Nagar	HP	22.923	81.873	6.81	315	0	91	22	29	8	0.69	0.05	22	80	30	1	32	1.7
40	Ashok Nagar	Mungoali	Bahadurpur	DW	24.342	77.969	7.12	1550	0	369	202	22	144	0.29	BDL	27	569	150	47	86	1.2
41	Ashok Nagar	Chanderi	Chanderi	DW	24.712	78.136	7.49	1215	0	442	92	12	109	0.36	BDL	22	386	103	31	93	3.2
42	Ashok Nagar	Isagarh	Dhakoni	HP	24.763	77.858	7.27	612	0	248	27	14	43	0.35	BDL	19	238	63	19	24	1.9
43	Ashok Nagar	Isagarh	Isagarh	BW	24.842	77.880	7.17	712	0	315	22	18	7	0.37	0.1	21	257	71	19	35	2.6

S. No.	District	Block	Location	Source	Lat.	Long.	pH at 25°C	EC µS/cm at	CO3	HCO3	Cl	SO4	NO3	F	PO4	SiO2	TH	Ca	Mg	Na	K
									mg/l												
44	Ashok Nagar	Mungoali	Khalilpur	BW	24.559	78.088	7.67	769	0	327	45	13	25	0.36	BDL	23	302	85	22	32	2.4
45	Ashok Nagar	Mungoali	Mungoali	DW	24.403	78.109	7.27	836	0	248	125	18	4	0.29	BDL	26	366	101	28	14	3.1
46	Ashok Nagar	Isagarh	Pachlana	DW	24.781	77.803	8.05	888	0	405	30	24	24	0.67	BDL	29	238	63	19	86	0.9
47	Ashok Nagar	Ashok Nagar	Rati Kheda	HP	24.597	77.674	7.74	714	0	278	32	16	32	0.58	BDL	32	208	61	13	61	1.7
48	Ashok Nagar	Mungoali	Sahrai	DW	24.529	78.102	7.62	746	0	315	27	15	23	0.45	BDL	27	287	63	31	32	2.4
49	Ashok Nagar	Ashok Nagar	Sankat Mochan	DW	24.615	77.731	7.89	842	0	387	22	14	34	0.50	0.1	19	312	81	26	37	2.1
50	Ashok Nagar	Isagarh	Saraskheri	HP	24.736	77.789	7.23	789	0	333	32	24	13	0.21	BDL	26	267	63	26	46	3.6
51	Ashok Nagar	Ashok Nagar	Semrisahabad	HP	24.628	77.563	7.65	1352	0	520	120	16	25	1.28	BDL	36	460	137	29	85	2.9
52	Ashok Nagar	Ashok Nagar	Shadora	HP	24.620	77.590	7.89	498	0	121	30	35	76	0.14	0.1	22	124	24	16	52	3.2
53	Ashok Nagar	Isagarh	Shankarpur	HP	24.755	77.921	7.62	1042	0	315	125	24	39	0.19	BDL	26	277	71	24	103	1.9
54	Balaghat	Waraseoni	Amai	DW	21.676	79.952	7.46	1172	0	342	142	15	78	1.06	0.06	31	490	96	61	39	1
55	Balaghat	Lanji	Baghatola	HP	21.398	80.627	7.53	1233	0	378	192	12	15	0.10	0.04	30	570	130	60	17	1
56	Balaghat	Paraswada	Bagholi	DW	22.142	80.369	6.71	408	0	49	47	14	87	0.01	0.08	21	140	44	7	20	9
57	Balaghat	Baihar	Baihar1	DW	22.104	80.551	7.35	1007	0	275	137	15	35	0.17	0.06	32	350	90	30	66	3
58	Balaghat	Balaghat	Balaghat	DW	21.813	80.184	7.42	935	0	293	135	10	6	0.10	0.12	31	310	90	21	67	4
59	Balaghat	Baihar	Bhaisanghat	DW	22.183	80.714	7.41	549	0	287	15	7	3	0.22	0.29	72	205	52	18	28	1
60	Balaghat	Kirnapur	Bhanegaon	DW	21.551	80.408	7.37	932	0	250	122	18	44	0.13	0.07	40	350	70	43	49	1
61	Balaghat	Birsa	Birsa	DW	22.011	80.740	7.34	478	0	116	55	14	50	0.13	0.28	63	185	56	11	20	2
62	Balaghat	Khairlanji	Bonkatta	DW	21.606	79.763	7.37	482	0	226	27	8	4	0.34	0.43	19	145	48	6	38	5
63	Balaghat	Birsa	Damoh2	DW	21.896	80.795	7.63	727	0	250	80	11	9	0.09	0.33	28	275	72	23	35	5
64	Balaghat	Baihar	Jawaditula	DW	22.236	80.871	7.48	660	0	250	42	13	32	0.05	0.09	41	270	70	23	21	5
65	Balaghat	Lalbarra	Kanjai	DW	22.026	79.986	7.36	953	0	323	100	17	49	0.64	0.12	43	225	70	12	111	4
66	Balaghat	Waraseoni	Kanki	DW	21.832	80.152	7.09	720	0	79	150	12	70	0.08	0.06	25	205	56	16	65	5
67	Balaghat	Lalbarra	Katang Tola	DW	21.948	80.047	7.63	550	0	244	27	14	9	0.40	0.07	28	190	52	15	35	1
68	Balaghat	Katangi	Katangi	DW	21.771	79.803	7.36	1314	0	445	165	9	25	0.60	0.07	36	465	92	57	84	1
69	Balaghat	Katangi	Katedhara	DW	21.714	79.797	7.54	1109	0	348	120	14	66	0.28	0.06	30	350	78	38	75	25
70	Balaghat	Khairlanji	Khairlanji	DW	21.601	79.979	7.85	912	0	403	60	15	13	1.20	0.10	23	175	38	19	125	2
71	Balaghat	Paraswada	Khurmundi	DW	22.125	80.481	7.66	658	0	323	30	9	5	0.07	0.39	18	260	78	16	25	5
72	Balaghat	Kirnapur	Kirnapur	DW	21.626	80.329	7.31	749	0	232	105	12	25	0.11	0.08	32	210	56	17	51	36
73	Balaghat	Waraseoni	Kochwahi	DW	21.790	79.929	7.41	378	0	171	12	20	3	0.18	0.05	45	125	44	4	26	1
74	Balaghat	Balaghat	Lamta 1	DW	22.142	80.125	7.43	1095	0	365	127	12	34	0.06	0.08	29	385	104	30	70	2
75	Balaghat	Baihar	Laugur	DW	21.930	80.352	7.20	413	0	182	15	14	5	0.13	0.28	23	95	30	5	45	5
76	Balaghat	Balaghat	Magardarta	DW	21.966	80.125	7.13	319	0	115	17	9	42	0.02	0.07	31	130	30	13	10	4
77	Balaghat	Khairlanji	Miragpur	DW	21.631	79.839	7.15	1760	0	267	327	16	165	0.80	0.07	1	695	190	54	79	2
78	Balaghat	Baihar	Mohagaon	DW	22.052	80.681	7.41	608	0	213	55	5	38	0.24	0.06	43	215	54	19	36	3
79	Balaghat	Baihar	Mukki	DW	22.154	80.672	7.33	285	0	122	15	2	10	0.06	0.17	38	110	26	11	11	4
80	Balaghat	Lanji	Nandora	HP	21.515	80.618	7.58	770	0	322	52	9	38	0.03	0.07	10	325	54	46	24	1
81	Balaghat	Waraseoni	Newargaon	DW	21.811	80.046	7.62	1500	0	352	300	14	5	0.56	0.06	38	485	106	54	109	15
82	Balaghat	Lanji	Paldongri	DW	21.471	80.488	7.48	1495	0	419	247	22	7	0.31	1.24	24	495	116	50	78	57
83	Balaghat	Paraswada	Paraswara	BW	22.176	80.301	7.44	374	0	128	30	8	26	0.25	0.17	35	140	40	10	18	1
84	Balaghat	Baihar	Parsatola	DW	22.012	80.546	6.95	500	0	115	65	17	51	0.04	0.07	37	180	46	16	28	1
85	Balaghat	Kirnapur	Rajegaon	HP	21.631	80.250	7.33	1263	0	389	167	13	66	0.16	0.05	40	385	72	50	109	1
86	Balaghat	Khairlanji	Rampalli	DW	21.664	80.017	7.45	599	0	188	50	18	54	0.05	0.06	27	210	48	22	36	2
87	Balaghat	Paraswada	Rangpatbaba	HP	22.153	80.217	7.46	655	0	316	17	12	4	1.22	0.09	56	155	38	15	75	1

S. No.	District	Block	Location	Source	Lat.	Long.	pH at 25°C	EC µS/cm at	mg/l												
									CO3	HCO3	Cl	SO4	NO3	F	PO4	SiO2	TH	Ca	Mg	Na	K
88	Balaghat	Balaghat	Saleteka New	DW	21.705	80.225	7.61	730	0	371	27	7	6	0.20	0.06	43	235	36	35	56	2
89	Balaghat	Baihar	Samnapur	DW	21.969	80.490	7.09	955	0	170	182	19	34	0.17	0.09	58	310	86	23	73	1
90	Balaghat	Baihar	Supkhar	DW	22.189	80.937	7.45	313	0	146	10	3	3	0.09	0.07	26	100	30	6	21	2
91	Balaghat	Waraseoni	Waraseoni I	DW	21.763	80.052	7.26	645	0	243	55	12	11	0.10	0.62	18	175	50	12	57	12
92	Barwani	Rajpur	Balsamund		21.806	75.175	7.72	1235	0	399	120	12	92	0.25	BDL	22	470	103	52	57	2.2
93	Barwani	Thikri	Baruphatak	TW	21.984	75.302	7.42	745	0	272	42	24	27	0.50	0.1	26	208	50	20	65	3.5
94	Barwani	Thikri	Borlai	DW	22.038	74.997	7.78	1212	0	303	145	28	60	0.35	BDL	31	490	125	43	42	1.2
95	Barwani	Sendhawa	Chachariya	DW	21.576	75.186	7.46	545	0	212	12	5	54	0.40	BDL	23	208	53	18	15	1.9
96	Barwani	Rajpur	Julwania	TW	21.872	75.186	7.26	565	0	206	27	22	18	1.10	BDL	17	210	50	21	22	0.9
97	Barwani	Newali	Niwali I	DW	21.684	74.923	7.14	1942	0	424	280	45	195	0.30	0.1	35	675	184	52	127	1.5
98	Barwani	Rajpur	Palsud	HP	21.825	74.968	7.76	912	0	218	127	25	58	0.25	BDL	26	317	105	13	57	2.1
99	Barwani	Rajpur	Rajpur	DW	31.936	75.136	8.02	2123	0	460	325	45	177	0.50	BDL	46	723	224	40	142	2.2
100	Barwani		Sendhwa	BW	21.700	75.105	7.72	965	0	284	110	27	46	0.30	BDL	25	322	105	14	62	3.7
101	Betul	Athner	Athner I	DW	21.621	77.921	7.82	1095	0	431	75	29	48	0.48	BDL	29	361	77	41	80	4.2
102	Betul	Betul	Betul I	DW	21.860	77.927	7.39	1515	0	462	167	70	75	1.02	BDL	22	574	166	38	78	1.5
103	Betul	Bhainsdehi	Bhainsdehi I	DW	21.644	77.637	7.46	550	0	128	42	55	43	0.34	0.35	32	163	32	20	46	0.6
104	Betul	Shahpur	Bhonra	DW	22.278	77.870	7.4	715	0	249	60	15	34	0.4	BDL	29	193	69	5	70	1.2
105	Betul	Chicholi	Chirapatala	HP	22.109	77.497	7.65	470	0	164	42	12	22	0.21	BDL	33	163	32	20	30	0.6
106	Betul	Betul	Gadha	DW	21.915	77.748	7.85	565	0	207	35	20	40	0.35	0.24	29	183	50	14	43	0.8
107	Betul	Multai	Ghatpiparia	DW	21.882	78.519	7.68	1210	0	383	122	30	95	1.15	BDL	33	416	89	47	82	0.5
108	Betul	Bhainsdehi	Gudagaon	DW	21.592	77.710	7.86	795	0	219	75	55	55	0.86	BDL	22	312	85	24	35	1.6
109	Betul	Athner	Gujarmaal	DW	21.630	77.946	7.85	675	0	225	57	32	28	0.52	BDL	21	272	73	22	25	0.6
110	Betul	Bhainsdehi	Jhallar	DW	21.726	77.743	7.68	935	0	304	85	38	53	0.5	BDL	18	307	55	41	70	1.8
111	Betul	Chicholi	Jogli	HP	21.976	77.669	7.35	1093	0	371	105	35	52	1.24	0.12	23	381	77	46	70	2.5
112	Betul	Prabhat Pattan	Junapani	DW	21.721	78.353	7.8	623	0	200	45	20	55	0.62	BDL	36	248	42	35	25	1.3
113	Betul	Multai	Kapasias	DW	21.831	78.415	7.86	705	0	273	45	29	36	0.52	BDL	25	262	65	24	40	2
114	Betul	Betul	Khedi	DW	21.857	77.803	7.9	755	0	286	75	14	18	0.72	0.21	22	228	69	13	66	2.1
115	Betul	Chicholi	Khokharkheda	HP	22.208	77.419	7.65	507	0	140	25	31	72	0.28	BDL	28	208	44	24	16	0.9
116	Betul	Betul	Kolgaon	DW	21.769	77.894	7.68	605	0	207	50	23	26	0.32	BDL	29	188	40	22	47	2.3
117	Betul	Bhainsdehi	Kotal Kund	DW	21.463	77.658	7.82	720	0	231	55	45	45	0.55	0.18	30	248	51	29	48	1.6
118	Betul	Prabhat Pattan	Masod New	DW	21.603	78.118	7.73	454	0	134	67	28	36	0.45	BDL	35	163	42	14	47	1.3
119	Betul	Multai	Multaidw	DW	21.775	78.256	7.45	1130	0	383	115	33	60	0.86	BDL	25	347	85	32	96	2.1
120	Betul	Ghoda Dongri	Nimpani	HP	22.072	77.875	7.62	535	0	194	40	20	30	0.6	BDL	33	193	32	28	30	1.9
121	Betul	Chicholi	Pathakhera	DW	22.068	77.534	7.58	365	0	134	55	12	18	0.42	BDL	35	124	28	13	21	0.9
122	Betul	Prabhat Pattan	Pattan	DW	21.651	78.266	7.82	430	0	146	27	18	20	0.72	BDL	28	168	26	25	18	1.6
123	Betul	Bhainsdehi	Sanwal Medha	DW	21.514	77.699	7.68	615	0	207	40	20	34	1.15	BDL	27	233	34	36	31	1.5
124	Betul	Ghoda Dongri	Sarni	DW	22.118	78.143	7.58	572	0	255	20	15	27	0.42	BDL	18	203	30	31	35	1.6
125	Betul	Amla	Sasundra	HP	21.833	78.091	7.68	485	0	134	40	28	48	0.32	0.1	35	163	30	22	33	1.3
126	Betul	Shahpur	Shahpur	HP	22.141	77.904	7.65	1005	0	365	70	30	62	0.95	BDL	27	366	75	43	52	2.3
127	Bhind	Lahar	Alampur	HP	26.029	78.797	7.23	1089	0	464	67	15	14	0.55	BDL	22	355	104	23	82	1.2
128	Bhind	Ater	Ater	HP	26.750	78.644	7.89	4069	0	708	837	85	140	1.05	0.1	47	1115	332	69	412	2.3
129	Bhind	Lahar	Balaji	HP	26.296	78.980	7.62	2712	0	1336	85	65	23	1.45	BDL	24	825	286	27	225	3.1
130	Bhind	Gohad	Bhagathar	HP	26.344	78.492	7.83	2934	0	512	627	45	37	0.65	BDL	34	535	152	38	415	1.9
131	Bhind	Gohad	Bhirkhari	HP	26.475	78.478	7.42	1565	0	543	172	22	6	1.00	BDL	27	415	112	33	158	1.6

S. No.	District	Block	Location	Source	Lat.	Long.	pH at 25°C	EC µS/cm at	mg/l												
									CO3	HCO3	Cl	SO4	NO3	F	PO4	SiO2	TH	Ca	Mg	Na	K
132	Bhind	Mehgaon	Chirole	HP	26.355	78.634	8.02	3902	0	921	712	65	7	1.35	0.1	46	450	118	38	675	3.3
133	Bhind	Lahar	Daboh	BW	25.996	78.879	8.03	1298	0	647	27	22	11	0.50	BDL	19	370	102	28	112	3.5
134	Bhind	Lahar	Dewri	HP	26.081	78.903	7.46	1189	0	586	37	15	9	0.45	BDL	23	405	124	23	80	2.9
135	Bhind	Mehgaon	Gormi	HP	26.599	78.502	7.58	1423	0	506	112	45	5	0.90	BDL	27	325	86	27	165	2.7
136	Bhind	Ater	Kanuapuradw	HP	26.611	78.647	7.45	1023	0	519	35	13	5	0.30	BDL	20	260	70	21	106	1.6
137	Bhind	Gohad	Khader	DW	26.368	78.484	8.02	1122	0	464	67	15	45	0.80	BDL	22	425	92	47	56	2.3
138	Bhind	Lahar	Lahar	BW	26.186	78.947	7.76	2031	0	836	175	35	23	1.30	BDL	28	455	118	39	245	2.6
139	Bhind	Ater	Lavan	HP	26.521	78.731	7.92	1098	0	543	47	12	9	0.80	0.1	22	405	112	30	56	3.5
140	Bhind	Gohad	Mau	BW	26.270	78.667	7.76	1712	0	366	302	23	19	0.65	BDL	34	595	162	46	111	2.8
141	Bhind	Mehgaon	Mehgaon	BW	26.498	78.601	7.56	1509	0	436	225	12	77	1.35	BDL	44	213	42	26	237	2.9
142	Bhind	Mehgaon	Meroli	DW	26.562	78.530	7.86	1723	0	823	80	25	14	1.40	BDL	22	431	111	37	185	3.6
143	Bhind	Bhind	Nahrakapura	DW	26.637	78.942	7.22	1689	0	557	175	35	34	0.90	BDL	27	441	101	46	171	3.8
144	Bhind	Bhind	Phuph	HP	26.643	78.879	7.96	1285	0	514	87	29	26	1.00	0.1	31	401	123	23	94	4.2
145	Bhind	Ron Mihona	Ratanpura	HP	25.968	78.825	7.67	689	0	297	40	12	3	0.50	BDL	19	243	71	16	36	1.1
146	Bhopal	Berasia	Amlia	DW	23.87	77.248	7.37	585	0	190	50	29	32	0.48	0.12	33	213	57	17	32	1.9
147	Bhopal	Phanda	Ayodhya Nagar	DW	23.267	77.433	7.34	1080	0	404	102	28	15	0.68	0.14	25	307	61	37	98	4.6
148	Bhopal	Phanda	Bairagarh	DW	23.273	77.352	7.25	1520	0	423	222	42	29	0.31	0.21	24	401	107	33	156	7.4
149	Bhopal	Phanda	Balampurghati	DW	23.397	77.542	7.28	809	0	208	107	38	38	0.28	0.14	29	193	44	20	93	1.8
150	Bhopal	Phanda	Barkheda Pathani	DW	23.214	77.475	7.62	1216	0	423	120	35	41	0.30	0.07	35	342	59	47	110	9.9
151	Bhopal	Phanda	Barkhera	DW	23.231	77.468	7.34	293	0	92	27	12	16	0.47	0.09	20	50	8	7	40	4.2
152	Bhopal	Berasia	Berasia	DW	23.623	77.431	7.65	506	0	153	65	16	10	0.59	0.18	18	144	30	17	44	5.7
153	Bhopal	Phanda	Bilkhiria	HP	23.254	77.581	7.27	551	0	208	40	23	19	0.32	0.23	41	149	38	13	52	7.9
154	Bhopal	Phanda	Chichli	DW	23.209	77.376	7.10	299	0	67	40	20	6	0.24	0.21	32	84	24	6	22	9.3
155	Bhopal	Phanda	DIG Bangla	DW	23.278	77.404	7.46	886	0	318	97	17	8	0.55	0.13	28	233	50	26	87	6.7
156	Bhopal	Phanda	E- 2 Nursery	DW	23.22	77.437	7.32	970	0	361	95	28	15	0.38	0.10	24	312	63	37	73	3.9
157	Bhopal	Phanda	Gandhi Nagar	DW	23.294	77.347	7.37	526	0	165	60	19	12	0.29	0.12	31	139	30	16	50	5.5
158	Bhopal	Berasia	Gunga	DW	23.449	77.36	7.33	659	0	129	112	37	8	0.42	0.08	32	153	42	12	72	6.1
159	Bhopal	Phanda	Islamnagar	HP	23.356	77.418	7.12	1183	0	374	125	51	41	0.77	0.05	23	317	63	39	115	6.5
160	Bhopal	Phanda	Lal Ghati	DW	23.277	77.376	6.89	732	0	233	85	28	15	0.29	0.09	25	223	57	19	59	5.7
161	Bhopal	Phanda	Nabibagh	DW	23.308	77.404	7.58	915	0	286	99	32	32	0.48	0.14	42	267	63	26	79	6.4
162	Bhopal	Berasia	Nagirabad	DW	23.794	77.256	7.23	780	0	213	111	26	19	0.12	0.17	21	188	50	16	89	3.5
163	Bhopal	Phanda	Nipaniya Jaat	DW	23.41	77.399	7.26	798	0	237	104	19	16	0.45	0.19	23	223	65	14	71	5.9
164	Bhopal	Phanda	Patel Nagar	BW	23.249	77.483	7.85	458	0	146	47	15	18	0.19	0.09	26	124	26	14	44	2.5
165	Bhopal	Phanda	Piplani	DW	23.214	77.475	7.41	806	0	286	74	27	15	0.54	0.08	34	208	46	23	80	3.9
166	Bhopal	Berasia	Ramgarha	DW	23.654	77.347	7.28	582	0	188	52	18	37	0.35	0.09	44	149	36	14	58	6.9
167	Bhopal	Phanda	Sarvar	DW	23.156	77.3	7.61	777	0	255	74	22	43	0.58	0.19	32	213	48	23	75	4.8
168	Bhopal	Phanda	Shahjahana bad	DW	23.266	77.398	7.48	539	0	176	59	17	11	0.25	0.21	29	144	38	12	48	10.5
169	Bhopal	Phanda	Shahpura	DW	23.207	77.423	7.98	650	0	219	69	25	9	0.29	0.11	33	193	30	29	51	8.3
170	Bhopal	Phanda	South T T Nagar	DW	23.231	77.407	7.22	740	0	298	52	24	10	0.68	0.15	40	218	46	25	61	6.8
171	Bhopal	Berasia	Suhaya Kala	DW	23.744	77.51	7.31	570	0	188	54	20	22	0.43	0.18	22	173	32	23	46	5.7
172	Burhanpur	Khaknar	Dedtalai	HP	21.509	76.758	8.05	842	0	328	72	8	43	0.24	BDL	33	292	75	25	58	1.3
173	Burhanpur	Burhanpur	Dehnala	HP	21.529	76.311	7.63	670	0	322	17	10	34	0.26	0.021	34	223	46	26	50	2
174	Burhanpur	Khaknar	Karkheda	DW	21.337	76.487	7.68	895	0	328	72	12	73	0.14	BDL	24	351	65	46	43	1.7
175	Burhanpur	Khaknar	Khaknardw	HP	21.365	76.567	7.57	1385	0	565	120	10	50	0.26	0.15	38	564	57	102	56	1.4

S. No.	District	Block	Location	Source	Lat.	Long.	pH at 25°C	EC µS/cm at	mg/l												
									CO3	HCO3	Cl	SO4	NO3	F	PO4	SiO2	TH	Ca	Mg	Na	K
176	Burhanpur	Khaknar	Manjrod Kalan	HP	21.413	76.628	7.59	1410	0	565	125	12	58	0.06	BDL	22	515	61	88	85	2.4
177	Burhanpur	Khaknar	Nepa Nagar	DW	21.453	76.394	7.66	1180	0	474	122	10	8	0.14	BDL	32	347	85	32	110	2
178	Burhanpur	Khaknar	Pipalpani	HP	21.430	76.679	7.57	1185	0	437	115	8	65	0.33	0.24	36	426	69	61	75	1.9
179	Burhanpur	Khaknar	Shekhpura	HP	21.552	76.734	8.04	880	0	322	72	18	60	0.37	BDL	22	277	69	25	73	0.9
180	Burhanpur	Khaknar	Sirpur	BW	21.302	76.373	7.62	1395	0	559	120	15	48	0.27	0.02	27	530	55	95	75	1.6
181	Burhanpur	Khaknar	Tukai Thad	DW	21.429	76.653	8.05	800	0	352	32	18	47	0.19	BDL	34	243	40	35	70	0.8
182	Chhatarpur	Buxwaha	Amodha	DW	24.199	79.326	6.95	395	0	213	20	5	6	0.82	BDL	28	120	26	13	48	1.2
183	Chhatarpur	Bijawar	Bijawar	DW	24.650	79.498	7.2	750	0	377	17	10	18	0.71	BDL	22	285	86	17	42	0.5
184	Chhatarpur	Buxwaha	Buxwaha	DW	24.249	79.287	7.25	1010	0	286	110	35	48	0.52	0.018	32	305	102	12	88	2.8
185	Chhatarpur	Laundi	Chandla	DW	25.067	80.194	7.23	1250	0	480	97	42	21	1.39	0.02	29	410	124	24	85	0.8
186	Chhatarpur	Chhatarpur	Chhatarpur	DW	24.900	79.591	7.12	1450	0	529	130	30	62	0.35	BDL	20	510	150	33	90	8
187	Chhatarpur	Buxwaha	Gadhoi	DW	24.295	79.227	7.05	673	0	237	25	23	12	0.6	BDL	18	110	36	5	75	1.9
188	Chhatarpur	Gaurihar	Gaurihar	DW	25.268	80.194	7.45	1580	0	450	210	65	32	1.18	BDL	38	285	86	17	225	1.8
189	Chhatarpur	Bijawar	Gulganj	DW	24.693	79.369	7.22	1250	0	377	110	85	60	0.66	BDL	42	500	160	24	55	1.2
190	Chhatarpur	Chhatarpur	Issanagar	DW	24.862	79.385	7.35	1355	0	425	135	60	59	0.92	BDL	33	220	50	23	208	0.7
191	Chhatarpur	Rajnagar	Khajuraho	DW	24.850	79.931	7.32	1250	0	425	115	80	14	0.9	BDL	42	395	116	26	100	2.5
192	Chhatarpur	Nowgaon	Kukrel	DW	25.226	79.346	7.24	1100	0	480	67	25	15	1.38	0.012	42	210	60	15	152	1.8
193	Chhatarpur	Laundi	Lavkush Nagar	DW	25.139	80.006	7.08	2290	0	401	425	85	100	0.66	BDL	48	920	286	50	95	2.6
194	Chhatarpur	Nowgaon	Maharajpur	DW	25.021	79.726	7.28	1125	0	431	82	39	58	0.38	BDL	20	450	146	21	50	1.9
195	Chhatarpur	Chhatarpur	Mankari	DW	25.027	79.799	7.51	780	0	371	20	10	44	1.09	BDL	39	300	96	15	43	2.5
196	Chhatarpur	Chhatarpur	Matgawan	DW	24.798	79.477	7.28	850	0	322	45	32	29	0.28	BDL	28	345	106	19	25	2.4
197	Chhatarpur	Bijawar	Motigarh	DW	24.613	79.669	7.29	385	0	164	17	8	12	0.33	BDL	22	65	16	6	55	1.8
198	Chhatarpur	Nowgaon	Nowgaon	DW	25.054	79.450	7.36	1295	0	322	125	90	95	1.11	BDL	45	525	166	27	45	3.5
199	Chhatarpur	Chhatarpur	Pipora Khurd	DW	24.850	79.481	7.55	805	0	340	50	30	25	0.55	BDL	32	310	72	32	40	3.2
200	Chhatarpur	Nowgaon	Putaria	DW	25.115	79.388	7.45	1195	0	383	105	40	100	0.62	BDL	29	290	106	6	135	4.5
201	Chhatarpur	Gaurihar	Sarwai	DW	25.186	80.287	7.62	1765	0	352	305	120	42	0.58	BDL	45	580	166	40	140	8.1
202	Chhatarpur	Gaurihar	Singhpur	DW	25.128	80.244	7.42	705	0	322	35	10	22	0.92	BDL	29	300	86	21	22	3.2
203	Chhatarpur	Bijawar	Tapra Lahar	DW	24.588	79.610	7.21	476	0	194	30	8	26	0.42	BDL	18	95	12	16	65	1.2
204	Chhatarpur	Nowgaon	Tatampur	DW	25.045	79.865	7.18	1420	0	377	135	95	120	1.23	BDL	28	495	154	27	95	3.8
205	Chhindwara	Amarwara	Amarwara	DW	22.194	78.469	7.59	748	0	279	62	31	11	0.59	0.10	25	195	43	21	78	2.1
206	Chhindwara	Amarwara	Banjari	DW	22.421	78.618	7.48	765	0	249	70	42	17	1.04	BDL	32	185	24	30	85	1.4
207	Chhindwara	Pandhuran	Borgaon I	DW	21.821	79.013	7.44	1506	0	377	147	58	189	1.98	BDL	41	455	118	39	133	1.5
208	Chhindwara	Chaurai	Chaurai I	DW	22.260	79.132	7.88	880	0	207	105	64	42	1.69	0.14	19	225	48	26	94	1.8
209	Chhindwara	Chhindwara	Chhindwara	DW	21.559	78.816	7.57	1217	0	407	95	56	69	1.10	BDL	25	410	86	47	88	1.9
210	Chhindwara	Pandhurana	Chincholiwad	DW	22.054	79.251	7.80	781	0	255	72	25	51	0.68	BDL	33	245	56	26	63	2.4
211	Chhindwara	Jamai	Damua	DW	22.053	78.949	7.53	1064	0	340	107	43	49	0.98	0.15	42	315	66	36	96	1.3
212	Chhindwara	Tamia	Delakhari	DW	21.500	78.693	7.72	715	0	237	70	32	27	0.51	0.21	29	225	58	19	54	7.9
213	Chhindwara	Mohkhed	Goni	DW	22.301	79.171	7.51	811	0	249	77	24	65	0.67	BDL	41	322	87	26	36	1.2
214	Chhindwara	Harai	HarraiDW	DW	21.589	79.221	7.76	670	0	182	82	17	48	0.42	0.24	38	145	30	17	86	1.4
215	Chhindwara	Chhindwara	Jamunia Ner	DW	22.137	79.023	7.96	635	0	194	52	30	43	0.85	0.15	22	210	48	22	46	0.8
216	Chhindwara	Parasia	Lahgudna	HP	22.272	78.724	7.98	716	0	267	47	44	14	1.10	BDL	39	195	56	13	72	1.5
217	Chhindwara	Mohkhed	Linga rly.stn.	DW	21.963	78.938	7.35	1235	0	310	150	42	107	0.54	0.25	28	315	74	32	135	1.9
218	Chhindwara	Tamia	Mahaljhiri	DW	22.609	78.574	7.37	923	0	322	77	51	24	1.01	0.16	39	213	37	29	112	1.3
219	Chhindwara	Pandhurana	Mohi	DW	21.658	78.441	7.70	628	0	207	62	26	15	0.98	0.10	51	175	24	28	59	2.1

S. No.	District	Block	Location	Source	Lat.	Long.	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	SiO2	TH	Ca	Mg	Na	K
							at 25°C	μS/cm at	mg/l												
220	Chhindwara	Pandhurana	Pandurna	DW	22.613	78.518	7.48	1338	0	352	182	62	47	1.10	0.30	33	255	62	24	187	1.6
221	Chhindwara	Pandhurana	Piplanarayanwar	DW	21.588	78.731	7.43	1019	0	371	80	35	51	0.84	BDL	27	335	93	25	75	2.2
222	Chhindwara	Pandhurana	Rajna	DW	21.540	78.639	7.37	1549	0	480	137	96	59	1.14	0.10	26	421	96	44	157	1.2
223	Chhindwara	Sausar	Ramakona New	DW	21.702	78.843	7.93	706	0	249	55	42	21	1.63	BDL	22	230	48	27	55	1.0
224	Chhindwara	Chaurai	Ramgarh	DW	22.175	79.272	7.43	1258	0	352	110	120	49	0.98	0.10	31	390	90	40	106	1.9
225	Chhindwara	Mohkhed	Sarangbheri	DW	21.867	78.953	7.56	512	0	170	37	24	37	0.27	BDL	25	155	36	16	44	1.3
226	Chhindwara	Sausar	Sathiya	DW	22.590	79.179	7.66	461	0	164	45	10	8	0.32	0.24	34	85	10	15	63	0.8
227	Chhindwara	Sausar	Sausar	DW	21.655	78.806	7.45	1105	0	334	122	46	40	0.30	0.19	37	345	78	36	92	1.4
228	Chhindwara	Amarwara	Silwanighati	DW	21.788	78.831	7.95	696	0	225	65	23	39	0.80	BDL	29	215	54	19	57	0.7
229	Chhindwara	Parasia	Singhori	DW	22.201	79.062	7.29	1219	0	395	127	58	30	0.72	0.10	44	405	86	46	90	1.1
230	Chhindwara	Amarwara	Sonapipri	DW	22.143	78.803	7.61	555	0	158	57	19	42	1.32	0.17	26	160	24	24	49	1.3
231	Chhindwara	Chaurai	Surla	DW	22.433	79.172	7.52	889	0	322	77	34	18	0.54	BDL	27	285	70	27	67	0.9
232	Chhindwara	Mohkhed	Tansara Mal	DW	21.862	78.898	7.31	773	0	255	72	28	31	0.45	0.14	36	245	62	22	59	1.4
233	Damoh	Damoh	Abhana	DW	23.705	79.537	7.53	1842	0	384	240	76	240	0.70	1.2	54	415	122	27	196	49.2
234	Damoh	Jabera	Bamhori	DW	23.685	79.719	7.61	612	0	177	32	18	86	0.20	0.5	12	165	42	15	55	1.9
235	Damoh	Patera	Bangaon New	DW	24.007	79.517	7.62	412	0	171	17	12	20	0.15	0.2	14	150	36	15	20	6.2
236	Damoh	Batiagarh	Batiagarh1	DW	24.111	79.353	7.42	402	0	116	32	26	22	0.05	0.1	16	105	24	11	37	3.2
237	Damoh	Damoh	Damoh2	DW	23.828	79.436	7.12	1477	0	323	137	70	200	0.25	BDL	19	350	118	13	172	1.0
238	Damoh	Tendukheda	Dhangor	DW	23.377	79.477	7.23	842	0	244	107	60	6	0.05	BDL	21	325	104	16	28	24.2
239	Damoh	Hatta	Gaisabad	DW	24.236	79.827	7.46	1342	0	305	260	72	10	0.30	BDL	22	520	152	34	54	7.4
240	Damoh	Hatta	Hardua	DW	24.175	79.671	7.58	698	0	360	20	16	20	0.40	BDL	26	240	62	21	39	2.1
241	Damoh	Jabera	Jabera1	DW	23.538	79.701	7.47	697	0	342	10	10	46	0.40	BDL	28	235	56	23	47	1.3
242	Damoh	Patera	Kumhari	DW	23.926	79.815	7.63	894	0	275	55	24	156	0.40	0.1	22	285	74	24	64	1.2
243	Damoh	Patera	Majhgawa	DW	24.066	79.640	7.71	542	0	275	20	10	5	0.20	0.2	19	170	50	11	40	2.1
244	Damoh	Jabera	Nohta	DW	23.678	79.574	7.31	2206	0	519	347	125	22	0.65	BDL	20	705	156	77	168	14.6
245	Damoh	Damoh	Palar	DW	23.929	79.469	7.53	1589	0	561	160	88	25	0.05	0.2	42	315	90	22	203	17.2
246	Damoh	Patera	Patera2	DW	23.997	79.689	7.36	1245	0	397	137	78	29	0.30	BDL	18	375	90	36	112	6.4
247	Damoh	Patharia	Pathria	DW	23.895	79.196	7.61	842	0	390	52	21	4	0.20	BDL	28	260	62	26	60	8.4
248	Damoh	Damoh	Piparia Champat	DW	23.955	79.404	7.59	789	0	262	72	36	39	0.20	0.4	26	305	102	12	35	6.2
249	Damoh	Tendukheda	Samnapur	DW	23.313	79.386	7.49	989	0	311	72	34	119	0.20	BDL	22	295	88	18	87	1.2
250	Damoh	Jabera	Tejgarh	DW	23.575	79.546	7.69	1045	0	287	130	32	112	0.05	0.1	19	300	72	29	98	4.7
251	Datia	Seondha	Basturi	BW	26.086	78.737	7.85	786	0	321	60	11	13	0.60	0.10	36	208	55	17	79	2.4
252	Datia	Bhander	Bhander	HP	25.733	78.743	7.45	1194	0	358	130	47	58	0.93	0.08	42	292	63	33	137	1.6
253	Datia	Seondha	Chhikau	HP	25.825	78.523	8.17	1019	0	370	108	24	13	1.57	BDL	33	243	42	34	117	1.9
254	Datia	Datia	Datia	BW	25.645	78.459	7.62	818	0	242	73	36	59	0.98	BDL	39	208	38	28	87	2.4
255	Datia	Datia	Dursadha	DW	25.710	78.644	7.97	880	0	321	85	19	15	1.66	BDL	25	213	44	25	99	1.5
256	Datia	Datia	Imaliya	HP	25.694	78.581	7.28	1516	0	388	178	82	85	0.87	BDL	41	391	101	34	157	10.7
257	Datia	Seondha	Indergarh New	HP	25.909	78.564	7.68	1190	0	436	83	76	12	0.50	0.12	18	332	50	51	115	3.1
258	Datia	Seondha	Kasherua	DW	26.238	78.781	8.10	917	0	394	70	9	9	1.00	BDL	35	262	46	36	85	2.6
259	Datia	Bhander	Pandokhar	HP	25.890	78.796	8.01	675	0	297	35	14	13	0.58	BDL	33	223	57	19	48	1.5
260	Datia	Datia	Ruduapura	HP	25.778	78.501	8.11	893	0	315	83	29	16	1.40	0.08	29	213	42	26	100	1.9
261	Datia	Seondha	Seondha	HP	26.149	78.701	7.71	602	0	236	53	12	10	0.5	BDL	32	163	28	23	60	2.1
262	Datia	Seondha	Tharet	HP	26.011	78.657	7.88	862	0	309	73	24	44	0.63	BDL	34	252	51	30	76	5.4
263	Dewas	Bagli	Bagli1	DW	22.639	76.347	7.53	900	0	332	95	8	35	0.36	BDL	21	406	85	47	18	3



S. No.	District	Block	Location	Source	Lat.	Long.	pH at 25°C	EC µS/cm at	mg/l												
									CO3	HCO3	Cl	SO4	NO3	F	PO4	SiO2	TH	Ca	Mg	Na	K
264	Dewas	Bagli	Bamohri	DW	22.709	76.275	7.45	972	0	338	110	10	32	1.55	BDL	33	361	81	38	55	0.8
265	Dewas	Bagli	Bhikupura	DW	22.539	76.339	7.61	905	0	356	60	5	65	0.3	BDL	28	416	57	66	15	1.2
266	Dewas	Sonkatch	Bhonrasa	DW	22.988	76.207	7.51	1256	0	380	134	7	100	0.01	BDL	32	460	141	26	68	2.5
267	Dewas	Kannod	Bijawad	DW	22.699	76.572	7.5	800	0	260	100	6	31	0.72	BDL	38	376	73	47	8	2
268	Dewas	Dewas	Dewas	DW	22.974	76.068	7.48	1290	0	362	199	10	25	0.38	BDL	30	525	59	91	46	1.2
269	Dewas	Khategaon	Dhayali	DW	22.546	76.800	7.53	1185	0	374	37	150	54	0.75	BDL	25	223	50	24	165	1.1
270	Dewas	Kannod	Kannod	DW	22.664	76.751	7.32	1177	0	344	157	10	50	0.42	BDL	32	406	67	58	75	1.9
271	Dewas	Kannod	Kantaphor	BW	22.576	76.566	7.5	790	0	236	105	13	16	0.35	BDL	20	302	71	30	35	1.7
272	Dewas	Bagli	Karnawad	DW	22.730	76.229	7.54	630	0	223	50	8	40	0.34	BDL	48	178	51	12	55	4.5
273	Dewas	Kannod	Kusumania	DW	22.768	76.760	7.3	565	0	151	87	5	19	1.62	BDL	35	149	46	8	58	1.6
274	Dewas	Bagli	Matmore New	DW	22.717	76.379	7.32	504	0	199	35	8	20	0.55	BDL	24	213	40	28	15	1.5
275	Dewas	Bagli	Nevri	DW	22.858	76.250	7.49	846	0	320	65	4	55	0.81	BDL	25	376	46	64	18	2
276	Dewas	Khategaon	Pipilianankar	DW	22.586	77.001	7.34	1530	0	652	37	75	52	0.82	BDL	46	272	75	20	220	1.4
277	Dewas	Bagli	Pipri	DW	22.399	76.278	7.98	1375	0	380	204	18	54	1	BDL	26	549	38	111	48	20
278	Dewas	Bagli	Punjabura	DW	22.546	76.370	7.41	1090	0	296	149	20	70	0.36	BDL	43	411	73	55	44	25
279	Dewas	Kannod	Satwas New	DW	22.534	76.682	7.86	1020	0	278	124	18	93	0.66	BDL	50	371	65	51	32	50
280	Dewas	Bagli	Udainagardw	DW	22.538	76.204	7.42	1325	0	411	97	75	82	1.05	BDL	38	292	57	36	165	3.8
281	Dhar	Sardarpur	Amjhira	DW	22.556	75.123	7.98	2057	0	493	348	76	21	0.55	0.21	30	425	94	46	218	91.4
282	Dhar	Badnawar	Badnawar New	DW	23.019	75.246	8.08	944	0	304	95	46	23	1.10	0.11	25	155	26	22	143	1.1
283	Dhar	Bagh	Bagh New	BW	22.363	74.796	7.79	768	0	256	73	40	19	1.32	0.14	18	170	42	16	95	4.2
284	Dhar	Sardarpur	Dasai	HP	22.722	75.132	7.43	1456	0	371	138	94	126	0.55	0.25	46	445	94	51	121	9.8
285	Dhar	Kukshi	Dehari	DW	22.288	74.916	7.76	1037	0	298	133	53	17	1.34	0.16	29	230	48	27	127	8.9
286	Dhar	Dharamपुरi	Dhamnodb	TW	22.214	75.473	7.98	1045	0	310	105	34	78	0.88	BDL	33	255	44	35	119	2.1
287	Dhar	Dhar	Dhar	DW	22.591	75.318	7.88	640	0	256	45	23	18	1.10	BDL	34	205	54	17	51	0.9
288	Dhar	Dharamपुरi	Dharamपुरi I	DW	22.153	75.347	7.92	1284	0	408	148	38	27	0.98	BDL	29	320	68	36	129	15.1
289	Dhar	Kukshi	Dhulsar	DW	22.205	74.869	7.64	802	0	256	95	29	13	1.19	0.25	42	165	38	17	103	3.4
290	Dhar	Gandhwani	Gandhwani	DW	22.336	75.005	7.82	1134	0	359	103	64	48	1.39	0.18	45	325	86	27	108	2.6
291	Dhar	Dharamपुरi	Gujri I	DW	22.321	75.500	7.79	816	0	262	88	19	46	1.43	0.17	37	240	62	21	75	1.9
292	Dhar	Sardarpur	Julana	DW	22.781	74.989	8.11	439	0	146	28	28	29	0.44	0.20	31	145	28	18	32	1.7
293	Dhar	Badnawar	Kanwan New	DW	22.870	75.258	7.57	1286	0	256	180	64	92	0.98	0.14	28	195	56	13	195	3.4
294	Dhar	Kukshi	Kukshi I	TW	22.204	74.755	7.98	1854	0	517	183	57	182	1.02	0.16	23	480	48	88	201	1.7
295	Dhar	Tirla	Lunera	HP	22.460	75.420	7.86	612	0	213	38	35	39	0.75	0.28	36	135	32	13	75	4.8
296	Dhar	Manawar	Manawar	DW	22.235	75.094	7.76	912	0	262	73	58	80	0.69	0.13	38	255	66	22	91	1.2
297	Dhar	Nalchha	Mandu	DW	22.347	75.398	7.87	583	0	170	48	42	33	0.65	BDL	42	145	26	19	62	1.7
298	Dhar	Kukshi	Palasi	DW	22.228	74.661	8.06	736	0	237	70	34	29	0.79	0.14	29	180	48	15	81	2.1
299	Dhar	Nisarpur	Pipalya	DW	22.134	74.875	7.98	1254	0	322	153	41	83	1.10	BDL	41	225	50	24	172	1.2
300	Dhar	Sardarpur	Rajod	DW	22.954	75.067	7.75	881	0	268	73	36	75	0.87	0.15	26	260	86	11	80	1.4
301	Dhar	Sardarpur	Sardarpur	DW	22.668	74.974	7.51	675	0	170	78	42	41	0.59	0.10	44	175	40	18	73	0.9
302	Dhar	Manawar	Singhana	DW	22.188	74.969	7.54	1604	0	499	163	71	67	0.88	0.18	51	365	76	43	183	25.4
303	Dhar	Bagh	Tanda	DW	22.505	74.855	7.88	623	0	237	48	18	25	0.49	0.21	33	210	44	24	45	1.1
304	Dhar	Umarban	Tawlai	DW	22.161	75.242	8.09	1093	0	335	103	69	37	1.42	0.19	29	290	64	32	113	1.4
305	Dhar	Gandhwani	Zeerabad	DW	22.398	75.070	7.92	875	0	256	83	42	45	0.59	0.17	41	245	78	12	81	0.9
306	Dindori	Amarpur	Amarpur I	HP	22.786	80.989	8.01	345	0	170	10	3	5	0.63	BDL	22	25	6	2	65	0.4
307	Dindori	Bajag	Bijhauri	HP	22.939	81.563	7.43	760	0	328	65	5	14	0.34	BDL	32	335	108	16	19	0.6

S. No.	District	Block	Location	Source	Lat.	Long.	pH at 25°C	EC µS/cm at	mg/l												
									CO3	HCO3	Cl	SO4	NO3	F	PO4	SiO2	TH	Ca	Mg	Na	K
308	Dindori	Dindori	Dindori	DW	22.933	81.092	7.61	405	0	194	12	2	10	0.65	BDL	29	135	42	7	27	0.8
309	Dindori	Mehadwani	Harra	HP	22.875	80.792	7.35	370	0	176	10	12	6	1.62	BDL	25	155	46	10	12	0.7
310	Dindori	Karanjiya	Karanjiya	DW	22.711	81.621	7.47	495	0	237	17	8	13	0.2	0.012	33	235	56	23	4	1
311	Dindori	Shahpura	Katangil	DW	23.126	80.626	7.34	560	0	261	27	10	10	1.57	BDL	32	255	76	16	10	0.9
312	Dindori	Bajag	Sagar Tola	DW	22.828	81.292	7.19	1035	0	304	132	20	50	0.25	BDL	30	360	82	38	65	2.4
313	Dindori	Dindori	Salaiya	DW	22.910	80.947	7.32	525	0	237	27	30	12	0.98	0.01	31	215	60	16	30	1.4
314	Dindori	Dindori	Shahpur	DW	23.021	81.006	7.27	335	0	134	12	30	6	1.3	BDL	40	140	42	9	11	1.2
315	Dindori	Shahpura	Shahpura Depot	DW	23.183	80.695	7.3	545	0	194	45	20	27	0.6	0.015	33	245	66	19	10	1.9
316	Dindori	Shahpura	Shahpura 2	DW	NA	NA	7.38	705	0	292	32	35	13	0.48	BDL	27	295	46	44	23	0.8
317	Dindori	Shahpura	Vikrampur 1	DW	NA	NA	7.42	675	0	304	25	20	24	1.55	BDL	30	275	54	34	25	1.8
318	Guna	Bamori	Akoda	HP	24.865	77.190	7.76	435	0	201	23	6	8	0.16	BDL	32	153	40	13	27	1.9
319	Guna	Raghogarh	Amlia	DW	24.212	77.197	7.94	1090	0	511	60	10	19	0.60	BDL	26	356	38	64	84	1.0
320	Guna	Aron	Aron	DW	24.438	77.378	7.61	672	0	298	40	8	16	0.16	BDL	39	267	59	29	30	0.7
321	Guna	Bamori	Bamori New	DW	24.853	77.139	8.11	460	0	189	30	11	20	0.23	BDL	58	193	50	17	15	1.3
322	Guna	Bamori	Berkheri	DW	24.628	77.184	7.70	670	0	268	38	12	44	0.22	BDL	22	139	50	4	88	1.5
323	Guna	Chachaura	Binaganj	DW	24.188	77.032	7.54	1100	0	280	203	8	15	0.06	BDL	44	485	119	46	28	1.4
324	Guna	Raghogarh	Gunjari	DW	23.911	77.264	7.64	740	0	335	35	7	35	0.22	BDL	33	277	55	34	40	1.7
325	Guna	Guna	Jaitadongar	DW	24.531	77.336	7.49	682	0	298	48	5	15	0.75	BDL	27	218	28	36	55	1.9
326	Guna	Raghogarh	Janjali	DW	24.362	77.121	8.15	1820	0	596	253	20	3	0.36	BDL	44	312	42	51	272	3.3
327	Guna	Raghogarh	Khairai	DW	24.419	77.278	7.38	368	0	146	33	8	4	0.02	BDL	42	163	44	13	8	0.7
328	Guna	Chachaura	Khatkiya	DW	24.330	77.103	7.71	750	0	298	65	10	14	0.32	BDL	41	292	55	37	36	1.1
329	Guna	Raghogarh	Maksudangarh	HP	24.061	77.258	7.92	600	0	292	25	5	18	0.35	BDL	26	228	42	30	32	0.9
330	Guna	Guna	Pagara	HP	24.654	77.436	7.62	850	0	444	23	12	8	0.27	BDL	32	272	38	43	68	1.6
331	Guna	Chachaura	Penchi	DW	24.136	77.010	7.61	1300	0	280	250	25	35	0.10	BDL	31	540	95	73	48	1.2
332	Guna	Raghogarh	Pipaliya	DW	24.309	77.159	7.92	790	0	420	20	11	3	0.34	BDL	29	238	32	39	70	1.9
333	Guna	Aron	Rampur-I	DW	24.308	77.448	8.19	1075	0	402	130	6	2	0.25	BDL	33	262	46	36	118	9.2
334	Guna	Bamori	Rampur-Ii	DW	24.771	77.168	8.08	505	0	225	33	10	7	0.17	BDL	25	188	36	24	27	3.2
335	Guna	Guna	Singwasa	BW	24.650	77.364	7.98	809	0	140	70	132	40	0.02	BDL	24	312	51	45	38	3.1
336	Guna	Bamori	Suhaya New	HP	24.691	77.124	7.64	615	0	274	23	10	38	0.23	BDL	32	228	22	42	35	1.2
337	Gwalior	Morar	Aarauli	HP	26.160	78.455	7.86	1146	0	279	127	12	160	0.05	BDL	32	431	105	41	57	2.3
338	Gwalior	Ghatigaon	Aron	BW	25.952	77.931	7.61	723	0	225	45	8	98	0.25	BDL	23	267	91	10	35	3.2
339	Gwalior	Bhitarwar	Bajna	HP	25.843	77.952	7.29	702	0	194	87	19	40	0.07	0.1	28	198	61	11	65	1.2
340	Gwalior	Morar	Bajrang Colony Dabka	HP	26.154	78.433	7.93	888	0	261	130	12	18	0.05	BDL	26	262	63	25	76	2.6
341	Gwalior	Morar	Behat	BW	26.174	78.543	7.76	265	0	91	17	8	11	0.06	BDL	19	94	18	12	10	3.2
342	Gwalior	Ghatigaon	Charai Shyampur	DW	25.975	77.831	7.53	1109	0	261	180	14	80	0.15	BDL	21	297	89	18	113	1.9
343	Gwalior	Bhitarwar	Dongarpur	HP	25.822	77.964	7.67	2415	0	456	390	22	285	0.27	BDL	24	861	267	47	152	1.8
344	Gwalior	Ghatigaon	Ghantigaon	BW	26.050	77.933	7.95	565	0	188	52	14	22	0.35	0.1	26	168	46	13	46	2.1
345	Gwalior	Bhitarwar	Harsibandh	DW	25.762	77.929	7.87	489	0	243	20	10	3	0.06	BDL	33	198	42	23	17	1.4
346	Gwalior	Dabra	Kariyawati	HP	25.819	78.180	7.67	1012	0	444	77	12	9	0.42	BDL	35	297	81	23	85	1.6
347	Gwalior	Dabra	Makoda	HP	26.036	78.256	7.62	689	0	158	115	14	20	0.31	BDL	42	203	63	11	56	2.1
348	Gwalior	Morar	Manpura	HP	26.164	78.355	7.32	788	0	383	32	12	12	0.31	0.1	19	208	61	13	78	3.5
349	Gwalior	Dabra	Masoorpur New	BW	25.830	78.244	7.63	1279	0	352	237	8	9	0.95	BDL	26	233	53	24	182	1.5
350	Gwalior	Morar	Mohanpur	HP	26.208	78.249	7.81	792	0	340	52	14	12	0.42	BDL	28	233	51	25	65	1.6
351	Gwalior	Ghatigaon	Mohna	DW	25.897	77.777	7.52	2112	0	267	497	25	47	0.62	BDL	13	574	168	37	212	2.7

S. No.	District	Block	Location	Source	Lat.	Long.	pH at 25°C	EC µS/cm at	mg/l												
									CO3	HCO3	Cl	SO4	NO3	F	PO4	SiO2	TH	Ca	Mg	Na	K
352	Gwalior	Ghatigaon	Nayagaon2	BW	26.118	78.021	7.73	765	0	340	55	9	23	0.54	0.2	24	243	71	16	56	8.1
353	Gwalior	Ghatigaon	Panihar	BW	26.106	78.027	7.62	512	0	249	20	14	7	0.05	BDL	22	203	63	11	17	2.1
354	Gwalior	Dabra	Tekanpur	HP	25.985	78.284	7.89	2168	0	516	390	55	6	0.86	BDL	26	426	97	45	291	2.5
355	Harda	Timarni	Chhidgaon	DW	22.394	77.298	7.62	585	0	255	17	22	28	0.05	BDL	22	227	71	12	23	2.3
356	Harda	Khirkiya	Chhipawad	HP	22.155	76.877	7.92	812	0	324	72	12	21	1.21	BDL	15	258	83	12	65	3.1
357	Harda	Khirkiya	Chhuri Khal	Dw	22.034	76.940	7.82	1056	0	442	70	8	36	0.56	0.1	19	268	85	14	112	2.8
358	Harda	Harda	Handia	HP	22.484	76.981	7.62	1187	0	380	77	12	134	0.43	BDL	26	394	113	27	82	1.9
359	Harda	Harda	Hardadw	DW	22.346	77.088	7.92	898	0	361	92	8	7	0.32	BDL	32	338	87	29	45	1.7
360	Harda	Khirkiya	Mandla	DW	22.219	76.947	7.69	1576	0	529	162	52	24	0.42	0.1	18	242	73	15	244	2.5
361	Harda	Harda	Masangaon	DW	22.291	77.003	7.72	945	0	405	65	12	25	0.65	BDL	27	263	79	16	87	3.5
362	Harda	Timarni	Mohanpur1	HP	22.255	77.230	7.69	1026	0	355	100	14	82	0.48	0.2	31	318	85	26	85	1.9
363	Harda	Khirkiya	Morgarhi	HP	22.008	76.944	7.12	842	0	311	50	8	84	0.36	BDL	26	273	77	20	60	1.1
364	Harda	Khirkiya	Sonpura Colony	DW	22.078	76.916	7.52	1095	0	517	57	26	43	0.05	BDL	34	424	113	34	53	0.9
365	Harda	Timarni	Temagaon	DW	22.298	77.321	7.65	1189	0	380	155	24	89	0.18	0.2	32	354	123	11	107	1.5
366	Harda	Timarni	Timarni	DW	22.374	77.223	7.55	865	0	342	72	16	42	0.22	BDL	29	273	79	18	65	1.6
367	Hoshangabad	Babai	Babaidw	HP	22.700	77.939	7.53	1038	0	411	82	11	50	0.27	0.08	33	338	48	53	69	18.6
368	Hoshangabad	Babai	Bagratawadw	HP	22.629	77.993	7.97	727	0	342	27	15	22	0.25	0.12	41	293	42	45	28	3.2
369	Hoshangabad	Babai	Baharpur	HP	22.736	78.074	7.64	696	0	349	17	9	21	0.46	0.06	26	242	36	37	44	3.7
370	Hoshangabad	Seoni Malwa	Bhilatdeo	DW	22.491	77.528	7.02	575	0	243	32	18	20	0.48	0.10	37	141	20	22	62	4.0
371	Hoshangabad	Hoshangabad	Dolariadw	HP	22.626	77.639	7.73	894	0	454	22	12	10	0.20	0.05	39	313	32	57	57	3.4
372	Hoshangabad	Kesla	Gurra New	HP	22.630	77.918	8.08	621	0	317	12	10	13	0.37	0.05	44	217	36	31	39	2.7
373	Hoshangabad	Kesla	Kesla	DW	22.478	77.840	7.67	739	0	330	35	21	15	0.28	0.13	40	273	57	32	37	8.3
374	Hoshangabad	Pipariya	Matkuli	DW	22.592	78.458	7.62	684	0	342	17	14	3	0.62	0.11	29	242	40	34	42	2.0
375	Hoshangabad	Hoshangabad	Nimsadia	HP	22.708	77.806	7.75	700	0	299	32	11	44	0.26	0.08	36	237	34	37	48	3.6
376	Hoshangabad	Pipariya	Pachmarhi	DW	22.477	78.439	6.99	667	0	224	75	8	33	0.22	0.07	42	172	44	15	61	18.6
377	Hoshangabad	Kesla	Pathrautadw	HP	22.576	77.796	7.59	1219	0	367	145	13	86	0.30	0.14	47	505	83	72	43	3.4
378	Hoshangabad	Hoshangabad	Raisalpur	HP	22.669	77.758	8.08	829	0	405	25	17	16	0.44	0.13	51	308	85	23	45	2.5
379	Hoshangabad	Pipariya	Sandia	BW	22.913	78.355	7.84	934	0	355	52	22	66	0.30	0.08	48	333	53	49	57	2.8
380	Hoshangabad	Hoshangabad	Sanwalkhera	HP	22.650	77.677	7.78	795	0	386	17	12	20	0.17	0.12	50	207	42	25	84	1.9
381	Hoshangabad	Sohagpur	Semri Harchand	BW	22.689	78.092	7.59	703	0	311	37	14	22	0.39	0.20	27	242	63	21	46	2.0
382	Hoshangabad	Seoni Malwa	Seonimalwa	HP	22.448	77.466	7.73	1085	0	423	102	19	24	0.37	0.14	36	298	53	41	108	2.7
383	Hoshangabad	Sohagpur	Sohagpur	BW	22.694	78.189	8.01	900	0	405	35	25	27	0.37	0.08	31	354	65	47	39	5.9
384	Hoshangabad	Kesla	Sonkhera	DW	22.617	77.834	7.97	1750	0	654	210	9	19	0.28	0.27	46	510	111	57	125	68.1
385	Hoshangabad	Kesla	Suktawa	DW	22.408	77.843	7.62	1690	0	349	252	15	201	0.21	0.36	52	551	162	36	116	26.6
386	Indore	Depalpur	Depalpur	HP	22.843	75.539	7.73	1409	0	395	148	81	76	0.64	0.21	30	305	58	39	178	1.9
387	Indore	Indore	Dudhiya	DW	22.676	75.946	7.94	505	0	189	38	25	13	0.76	0.11	25	160	34	18	41	1.3
388	Indore	Mhow	Mhow	DW	22.549	75.762	7.82	899	0	341	63	38	25	0.98	0.14	18	235	50	27	95	1.7
389	Indore	Nandpura	Nandpura	DW	22.522	75.912	7.99	1170	0	292	135	94	43	1.47	0.25	46	275	56	33	141	2.4
390	Indore	Rangwasa	Rangwasa	DW	22.732	75.574	7.85	883	0	259	73	62	55	1.34	0.16	29	235	48	28	92	1.2
391	Jabalpur	Jabalpur	Barela	DW	23.282	80.369	7.72	580	0	298	10	14	11	0.39	0.02	35	235	26	41	20	8
392	Jabalpur	Jabalpur	Bargi I	DW	22.989	79.874	7.64	785	0	407	10	12	20	0.81	BDL	31	305	54	41	35	4.5
393	Jabalpur	Shahpura	Bheraghat New	DW	23.144	79.803	7.58	768	0	377	30	9	12	0.64	BDL	29	285	44	43	40	4
394	Jabalpur	Kundam	Ghughara	HP	23.282	80.369	7.25	750	0	328	47	10	25	0.45	BDL	45	300	66	33	29	8.3
395	Jabalpur	Sihora	Kachupura	HP	23.399	80.065	7.45	415	0	176	17	4	27	0.37	BDL	43	125	38	7	28	9

S. No.	District	Block	Location	Source	Lat.	Long.	pH at 25°C	EC µS/cm at	mg/l												
									CO3	HCO3	Cl	SO4	NO3	F	PO4	SiO2	TH	Ca	Mg	Na	K
396	Jabalpur	Majhauri	Majholi	HP	23.489	79.936	7.55	1000	0	273	102	24	94	0.43	BDL	49	350	76	39	60	6.3
397	Jabalpur	Jabalpur	Manegaon1	DW	23.078	79.913	7.56	980	0	425	62	6	33	0.81	0.01	33	325	42	53	65	8.7
398	Jabalpur	Patan	Nunsar	HP	23.233	79.802	7.21	878	0	249	97	58	13	0.45	BDL	40	365	78	41	25	8.2
399	Jabalpur	Jabalpur	Padaria	DW	23.207	80.158	7.32	565	0	286	20	6	9	0.3	BDL	54	210	46	23	26	7.9
400	Jabalpur	Panagar	Rehepura	HP	23.300	80.033	7.35	736	0	164	12	165	7	0.67	BDL	35	260	38	40	31	8.4
401	Jabalpur	Shahpura	Shahpura	HP	23.139	79.674	7.36	555	0	255	27	5	12	0.47	0.18	27	170	48	12	37	10.2
402	Jabalpur	Sihora	Sihora1	HP	23.486	80.269	7.52	670	0	249	52	20	48	0.37	0.02	46	280	56	34	25	10.2
403	Jhabua	Petlawad	Bamania	DW	23.089	74.761	7.90	680	0	189	85	38	12	0.69	0.10	25	130	28	15	92	4.1
404	Jhabua	Petlawad	Karwar	DW	23.101	74.870	7.85	1129	0	347	105	49	65	0.57	0.18	48	265	64	26	131	2.7
405	Jhabua	Meghnagar	Meghnagar New	DW	22.905	74.542	7.92	1207	0	402	128	53	15	0.98	BDL	55	290	74	26	140	3.3
406	Jhabua	Petlawad	Petlabad	DW	23.005	74.799	7.94	734	0	213	70	41	40	1.04	0.11	34	195	30	29	76	1.6
407	Jhabua	Jhabua	Pitol	DW	22.785	74.466	7.59	1056	0	310	105	47	69	0.88	0.24	55	210	52	19	143	1.1
408	Jhabua	Ranapur	Ranapur	HP	22.639	74.523	7.52	999	0	298	120	36	24	0.79	0.14	31	195	24	33	134	1.8
409	Jhabua	Petlawad	Sarangi	HP	23.052	74.908	8.02	1266	0	432	90	59	72	0.54	0.15	33	335	86	29	129	2.2
410	Jhabua	Thandla	Thandla1	HP	23.008	74.579	7.89	1165	0	353	80	68	94	0.7	0.10	44	325	76	33	112	1.5
411	Jhabua	Ranapur	Tikadimoti	DW	22.694	74.542	7.94	562	0	164	28	48	49	0.87	0.21	29	165	28	23	48	0.9
412	Katni	Badwara	Badwara	DW	23.749	80.577	7.85	855	0	275	75	42	23	0.75	BDL	42	275	62	29	62	8.5
413	Katni	Vijay Raghavgarh	Barchheka	DW	23.851	80.557	7.55	385	0	134	35	7	20	0.25	BDL	14	145	26	19	16	6.6
414	Katni	Vijay Raghavgarh	Barhi	DW	23.902	80.811	7.39	1105	0	494	42	12	70	0.66	0.15	39	425	50	73	55	5
415	Katni	Badwara	Basadi	DW	23.827	80.622	7.84	1055	0	195	150	78	32	0.14	BDL	12	360	72	44	65	6.9
416	Katni	Katni	Katni1	DW	23.831	80.399	7.7	620	0	214	65	12	12	0.53	BDL	28	270	40	41	12	5.9
417	Katni	Badwara	Kewlari	DW	23.797	80.830	7.45	1100	0	244	140	40	75	0.44	BDL	40	285	48	40	98	32
418	Katni	Badwara	Khitoli	DW	23.711	80.832	7.85	585	0	207	42	22	35	0.35	BDL	22	200	62	11	35	10
419	Katni	Katni	Lakhpateri	HP	23.708	80.317	7.8	570	0	177	45	25	42	0.25	0.18	39	150	24	22	45	22
420	Katni	Katni	Majhgawan1	DW	23.822	80.499	7.59	367	0	153	22	8	18	0.18	BDL	15	140	38	11	12	10.5
421	Katni	Vijay Raghavgarh	Piparia2	DW	23.862	80.699	7.25	833	0	183	85	55	65	0.36	BDL	45	200	32	29	75	36.5
422	Katni	Dhimarkheda	Siloni	HP	23.345	80.361	7.3	1030	0	354	70	40	53	0.78	BDL	40	360	80	39	62	11.8
423	Katni	Dhimarkheda	Sleemanabad	HP	23.612	80.286	7.55	805	0	262	90	20	26	0.35	0.18	39	325	64	40	28	8
424	Katni	Vijay Raghavgarh	Ubra	HP	23.936	80.815	7.85	825	0	275	70	35	18	0.95	BDL	34	250	58	26	63	10.1
425	Katni	Dhimarkheda	Umariapan	HP	23.522	80.292	7.47	645	0	153	120	30	25	0.66	0.13	39	250	80	12	42	8.9
426	Khandwa	Pandhana	Balwara1	BW	21.700	76.516	7.56	850	0	292	82	24	36	0.25	0.08	33	208	73	6	96	1.9
427	Khandwa	Punasa	Bangarda	DW	22.145	76.462	8.02	333	0	140	15	11	11	0.18	0.05	21	114	30	10	21	1.4
428	Khandwa	Harsud	Bedia	DW	21.970	76.744	7.85	511	0	182	35	17	35	0.22	0.10	36	198	51	17	23	1.4
429	Khandwa	Pandhana	Borgaon Buzurg	HP	21.609	76.325	7.70	920	0	389	37	19	69	0.29	0.14	41	371	61	53	37	1.7
430	Khandwa	Harsud	Bori Saray	HP	22.006	76.817	7.60	1279	0	261	200	21	119	0.42	0.13	45	376	123	17	115	4.9
431	Khandwa	Harsud	Chanera	DW	21.962	76.698	7.97	1169	0	310	155	25	81	0.24	0.08	39	460	103	49	53	2.3
432	Khandwa	Chhegaon Makhan	Chhegaonmakhan	DW	21.832	76.218	7.83	594	0	152	82	14	40	0.40	0.06	42	173	48	13	55	1.3
433	Khandwa	Harsud	Dagad Khedi	HP	22.082	76.833	7.58	520	0	243	15	12	25	0.35	0.10	34	183	55	11	32	1.4
434	Khandwa	Chhegaon Makhan	Deshgaon New	BW	21.902	76.179	7.62	576	0	146	80	25	34	0.32	0.05	37	158	50	8	58	3.0
435	Khandwa	Chhegaon Makhan	Dhangaon	DW	22.088	76.118	8.04	1353	0	462	115	14	111	0.28	0.14	49	441	111	40	85	33.2
436	Khandwa	Punasa	Gujar Khedi	HP	22.197	76.301	8.22	782	36	279	75	16	6	1.55	0.06	29	74	18	7	144	3.8
437	Khandwa	Pandhana	Gurhi	DW	21.639	76.574	7.47	1590	0	267	222	29	194	0.14	0.19	52	693	158	72	40	3.7
438	Khandwa	Khandwa	Jawar	DW	21.930	76.448	7.82	740	0	299	42	9	47	0.28	0.08	45	323	77	32	18	1.9
439	Khandwa	Khandwa	Kahlari	HP	21.983	76.464	8.10	505	0	181	50	13	12	0.71	0.21	36	121	44	2	56	1.7

S. No.	District	Block	Location	Source	Lat.	Long.	pH at 25°C	EC µS/cm at	mg/l												
									CO3	HCO3	Cl	SO4	NO3	F	PO4	SiO2	TH	Ca	Mg	Na	K
440	Khandwa	Khalwa	Kalamkalan	DW	21.863	76.709	7.26	1410	0	436	135	19	127	0.22	0.19	44	571	129	60	54	7.0
441	Khandwa	Punasa	Karoli	DW	22.142	76.206	8.01	545	0	255	15	21	12	0.48	0.14	50	207	53	18	26	1.5
442	Khandwa	Punasa	Kelwa Kalan	DW	22.174	76.267	7.82	1128	0	473	47	17	66	0.49	0.16	36	460	57	77	42	2.3
443	Khandwa	Khalwa	Khalwa I	DW	21.805	76.746	7.52	1211	0	367	135	12	85	0.21	0.14	31	500	129	43	37	11.0
444	Khandwa	Khalwa	Khedi New	DW	21.868	76.566	7.66	620	0	261	35	14	27	0.28	0.05	40	237	57	23	30	1.7
445	Khandwa	Pandhana	Kusumbia	DW	21.671	76.175	7.96	1124	0	255	152	23	122	0.19	0.05	44	359	69	45	71	32.0
446	Khandwa	Punasa	Mundi	HP	22.063	76.492	7.87	335	0	149	15	10	5	0.20	0.05	26	126	32	11	15	2.3
447	Khandwa	Chhegaon Makhan	Pandhana	DW	21.699	76.227	7.30	1700	0	268	275	26	185	0.18	0.24	56	727	202	54	49	2.5
448	Khandwa	Chhegaon Makhan	Roshiya	BW	21.956	76.156	8.04	780	0	299	62	14	38	0.33	0.06	37	273	89	12	50	2.2
449	Khandwa	Khandwa	Rudhy Bhata	DW	21.833	76.467	8.13	633	0	249	50	16	19	0.22	0.08	35	258	57	28	23	2.3
450	Khandwa	Punasa	Thapana	BW	22.222	76.087	7.93	1380	0	498	135	28	7	0.98	0.25	40	268	36	43	187	3.6
451	Khandwa	Punasa	Udaipur	HP	22.226	76.403	7.81	1450	0	317	202	30	150	0.47	0.22	46	338	95	25	174	4.0
452	Khargone	Barwaha	Amba	DW	22.041	75.944	7.63	970	0	393	45	30	72	0.99	BDL	30	391	77	48	40	3.8
453	Khargone	Maheshwar	Baddiya	TB	22.233	75.943	7.3	2020	0	303	400	20	200	0.85	BDL	34	827	226	64	82	2.3
454	Khargone	Barwaha	Balwara	DW	22.394	75.975	8.03	1500	0	575	140	14	65	1.24	BDL	20	564	89	83	85	0.2
455	Khargone	Bhikangaon	Bamnala New	DW	21.825	75.853	7.71	1040	0	309	117	20	87	0.9	BDL	22	490	93	63	12	1
456	Khargone	Barwaha	Barwah	BW	22.254	76.035	7.7	830	0	357	52	18	26	0.96	BDL	35	351	40	61	25	5.2
457	Khargone	Bhikangaon	Bhikangaon I	TW	21.862	75.955	7.53	825	0	230	110	5	73	0.8	BDL	29	361	65	48	22	2
458	Khargone	Bhagwanpura	Bhulwani	DW	21.546	75.465	7.99	980	0	418	40	6	100	1	BDL	32	421	61	65	30	1.8
459	Khargone	Bhikangaon	Daudwa	DW	22.020	76.137	7.36	1290	0	424	145	8	94	0.92	0.02	35	574	101	78	30	2.5
460	Khargone	Bhagwanpura	Dhulkot	HP	21.611	75.552	7.76	900	0	351	65	6	71	0.88	0.09	30	371	63	52	32	5.2
461	Khargone	Gogawan	Divalgaon	DW	21.829	75.744	7.88	797	0	145	130	7	95	0.91	BDL	18	198	73	4	90	2.3
462	Khargone	Bhagwanpura	Ghatti	DW	21.720	75.668	7.63	780	0	327	37	10	44	0.86	BDL	22	347	46	57	18	1.5
463	Khargone	Gogawan	Gogaon	TW	21.918	75.743	7.42	1495	0	345	235	10	127	0.83	0.04	24	525	46	100	100	2.7
464	Khargone	Kasrawad	Kasrawad I	DW	22.127	75.606	7.66	1540	0	478	182	17	112	0.84	BDL	24	520	79	78	112	2.3
465	Khargone	Khargone	Khargone	DW	21.826	75.614	8.05	1125	0	418	95	12	70	0.83	BDL	45	431	65	65	58	2.1
466	Khargone	Maheshwar	Maheshwar	DW	22.178	75.587	7.76	1390	0	442	127	10	160	0.94	BDL	40	475	44	89	100	1.8
467	Khargone	Maheshwar	Piptyabuzrug	DW	22.235	75.861	7.82	1675	0	496	205	18	129	0.89	BDL	40	495	77	73	155	4
468	Khargone	Barwaha	Sanawad New	DW	22.173	75.071	7.97	940	0	357	77	10	59	0.78	BDL	22	356	55	53	50	2.3
469	Khargone	Kasrawad	Sawda	DW	22.026	75.628	8.04	805	0	321	50	8	63	0.86	BDL	25	361	59	52	18	1.2
470	Khargone	Segaon	Segaon	DW	21.859	75.325	8.11	710	0	260	70	10	32	0.85	BDL	35	287	46	42	30	1
471	Khargone	Khargone	Un	DW	21.822	75.453	7.45	1385	0	502	165	12	37	0.8	BDL	42	505	51	91	85	1.2
472	Mandla	Nainpur	Anjania	DW	22.494	80.509	7.08	638	0	140	122	8	1	0.10	0.09	22	165	52	9	65	4.5
473	Mandla	Narayanganj	Babaliya	DW	22.883	80.414	7.33	982	0	231	82	58	104	0.25	0.12	35	405	90	44	35	3.0
474	Mandla	Nainpur	Bamhni New	DW	22.476	80.368	7.43	775	0	310	57	11	31	0.14	0.16	33	275	62	29	48	1.5
475	Mandla	Bichhiya	Bichhia I	DW	22.452	80.700	7.56	991	0	346	115	14	16	0.50	0.08	29	355	50	56	60	1.3
476	Mandla	Mohgaon	Chabi	DW	22.825	80.700	7.26	595	0	267	17	19	23	0.11	0.09	25	250	56	27	17	2.0
477	Mandla	Mandla	Devgaon	DW	22.739	80.525	7.42	879	0	346	57	33	20	0.13	0.14	42	380	60	56	23	1.7
478	Mandla	Nainpur	Dithori	HP	22.519	80.199	7.21	685	0	243	57	10	49	0.11	0.05	29	285	54	36	22	5.5
479	Mandla	Ghughri	Ghughri	HP	22.678	80.690	7.24	403	0	182	12	11	9	0.04	0.06	18	160	40	15	15	2.1
480	Mandla	Mandla	Gwari	DW	22.713	80.342	7.25	789	0	322	40	40	25	0.09	0.08	34	295	56	38	36	11.0
481	Mandla	Mohgaon	Indira	HP	22.761	80.597	7.54	583	0	310	15	13	2	0.20	0.09	38	250	62	23	11	14.2
482	Mandla	Bijadandi	Kalpi	HP	22.919	80.197	7.29	970	0	358	77	25	33	0.07	0.27	41	425	108	38	22	6.4
483	Mandla	Mandla	Khari	DW	22.793	80.411	7.11	392	0	158	17	20	16	0.05	0.09	49	160	44	12	9	7.6

S. No.	District	Block	Location	Source	Lat.	Long.	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	SiO2	TH	Ca	Mg	Na	K
							at 25°C	µS/cm at	mg/l												
484	Mandla	Narayananj	Kudomali New	DW	22.879	80.213	7.52	1007	0	523	25	9	18	0.09	0.08	55	390	94	38	47	2.3
485	Mandla	Mandla	Mahania Patpara	DW	22.685	80.477	7.52	746	0	322	35	43	7	0.25	0.12	43	320	90	23	17	6.5
486	Mandla	Mandla	Mandla1	DW	22.600	80.369	7.57	1513	0	358	265	54	2	0.16	0.29	29	505	60	86	111	1.8
487	Mandla	Narayananj	Mangalganj	DW	22.750	80.311	7.33	498	0	231	12	12	5	0.15	0.09	40	175	42	17	29	3.0
488	Mandla	Niwas	Manikpur	HP	23.092	80.500	8.40	380	36	49	42	41	1	1.18	0.08	20	20	6	1	70	7.7
489	Mandla	Mawai	Motinala	DW	22.345	80.903	7.23	829	0	158	145	19	35	0.40	0.09	34	325	70	36	37	1.2
490	Mandla	Nainpur	Nainpur	TW	22.428	80.110	7.44	510	0	243	17	21	3	0.28	0.09	27	200	44	22	21	2.4
491	Mandla	Niwas	Niwas	DW	23.039	80.442	7.33	451	0	213	15	12	2	0.22	0.06	46	110	38	4	49	1.1
492	Mandla	Mandla	Padmi Choraha	DW	22.550	80.410	7.59	640	0	310	17	18	4	0.20	0.09	36	255	56	28	24	4.9
493	Mandla	Mandla	Pathiri Patpara	DW	22.608	80.471	7.32	628	0	292	20	24	7	0.11	0.18	42	260	72	19	18	5.6
494	Mandla	Mandla	Ramnagar1	DW	22.614	80.521	7.28	668	0	219	57	20	53	0.08	0.08	39	290	72	27	19	2.7
495	Mandla	Nainpur	Rampuri New	DW	22.409	80.264	7.47	715	0	346	25	11	11	0.16	0.10	43	285	60	33	28	5.6
496	Mandla	Mandla	Rehgaon	DW	22.749	80.577	7.63	700	0	286	40	29	14	0.05	0.34	35	285	66	29	22	8.4
497	Mandla	Bichhiya	Sijhora	DW	22.426	80.777	7.30	551	0	170	55	31	17	0.17	0.08	47	195	54	15	33	1.9
498	Mandla	Nainpur	Subhariya	DW	22.526	80.271	7.36	650	0	267	60	15	2	0.25	0.16	26	255	54	29	28	5.1
499	Mandla	Nainpur	Surajpura	DW	22.521	80.138	7.84	310	0	134	15	12	1	0.85	0.09	18	40	12	2	45	5.3
500	Mandsaur	Bhanpura	Babulda	DW	24.474	75.688	7.56	1540	0	398	203	29	104	0.02	0.21	45	655	126	83	50	4.3
501	Mandsaur	Bhanpura	Badodiya	BW	24.599	75.689	7.97	525	0	184	32	20	45	0.29	0.02	23	150	44	10	46	4.6
502	Mandsaur	Garoth	Barkheranayak	DW	24.219	75.522	7.23	1700	0	361	280	20	140	0.02	0.01	43	795	228	55	20	2.3
503	Mandsaur	Mandsaur	Basakheda	HP	24.032	75.198	7.82	990	0	318	104	26	70	0.03	BDL	36	400	98	38	40	8.4
504	Mandsaur	Bhanpura	Bhanpura	DW	24.512	75.749	8.12	1355	0	429	195	10	20	0.23	0.01	29	370	64	51	135	9
505	Mandsaur	Mandsaur	Botalganj	DW	24.148	75.029	7.46	1105	0	337	146	18	60	0.1	BDL	30	490	120	46	25	5
506	Mandsaur	Mandsaur	Chirmoliya	DW	24.022	75.257	7.82	1160	0	331	134	40	85	0.18	BDL	49	430	82	55	65	5.3
507	Mandsaur	Mandsaur	Daloda1	DW	23.925	75.099	7.86	975	0	325	82	43	65	0.25	0.21	32	340	38	60	65	2
508	Mandsaur	Garoth	Dharmarajeswar	DW	24.193	75.500	7.87	1000	0	435	67	18	22	0.02	BDL	35	280	100	7	93	10
509	Mandsaur	Bhanpura	Dudhkheri	DW	24.431	75.685	8.12	790	0	374	30	15	15	0.03	BDL	20	290	48	41	44	5.4
510	Mandsaur	Garoth	Garoth	DW	24.325	75.652	7.46	1185	0	306	198	20	23	0.3	BDL	25	440	94	50	65	6.7
511	Mandsaur	Mandsaur	Kachnera	HP	23.864	75.103	7.99	1500	0	692	92	14	35	0.36	0.024	43	325	36	57	190	5.6
512	Mandsaur	Sitamau	Khejriya	HP	24.050	75.490	7.43	985	0	325	119	32	48	0.24	BDL	33	340	66	43	82	10
513	Mandsaur	Malhargarh	Malhargarh	BW	24.278	74.991	7.68	1320	0	429	156	38	55	0.46	BDL	45	435	40	81	100	5.3
514	Mandsaur	Mandsaur	Mandsaur	HP	24.053	75.053	7.61	1300	1	488	124	25	53	0.53	BDL	43	460	38	89	85	2.6
515	Mandsaur	Sitamau	Manpura	HP	23.884	75.026	7.33	1155	2	281	148	35	120	0.16	BDL	36	505	104	60	35	5.5
516	Mandsaur	Malhargarh	Narayanagarh	DW	24.267	75.054	7.59	2285	3	506	376	39	135	0.02	BDL	32	955	130	153	80	6.5
517	Mandsaur	Mandsaur	Nayakhera	DW	24.014	75.083	7.98	2070	4	171	547	43	57	0.65	BDL	38	625	116	81	180	12
518	Mandsaur	Malhargarh	Pipaliya	DW	24.196	75.008	7.75	915	5	323	69	45	50	0.05	0.02	36	360	40	63	40	7.5
519	Mandsaur	Bhanpura	Sandhara	DW	24.561	75.868	7.42	785	6	287	96	5	5	0.24	BDL	42	275	36	45	46	10.2
520	Mandsaur	Garoth	Shamgarh1	DW	24.191	75.640	7.3	1450	7	268	247	25	154	0.16	0.01	29	670	134	81	25	7.8
521	Mandsaur	Sitamau	Sitamau	BW	24.013	75.349	7.46	1390	8	433	168	45	55	0.15	BDL	39	510	46	96	80	6.7
522	Mandsaur	Sitamau	Surjani	HP	24.025	75.445	7.98	1320	9	323	252	12	19	0.16	BDL	35	325	34	58	150	4.3
523	Mandsaur	Sitamau	Suwasara	BW	24.077	75.643	8.12	645	10	98	124	25	26	1.75	BDL	43	45	14	2	120	9.8
524	Morena	Porsa	Aurethi	HP	26.678	78.380	7.71	1025	0	526	37	8	8	0.27	0.05	22	275	34	46	104	0.4
525	Morena	Porsa	Bareha	HP	26.747	78.238	7.51	793	0	399	20	7	30	0.31	0.08	28	320	56	44	32	0.2
526	Morena	Porsa	Dimni New	BW	26.615	78.145	7.80	1048	0	539	32	11	6	0.56	0.10	34	345	44	57	78	0.3
527	Morena	Joura	Huseinpur	DW	26.405	77.603	8.01	1888	0	805	95	33	47	1.60	0.05	18	190	16	36	340	0.9

S. No.	District	Block	Location	Source	Lat.	Long.	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	SiO2	TH	Ca	Mg	Na	K
							at 25°C	μS/cm at	mg/l												
528	Morena	Joura	Jafrabad	BW	26.431	77.877	8.05	1181	0	563	47	14	28	0.52	0.08	26	455	60	74	56	0.5
529	Morena	Kailaras	Kailaras	BW	26.299	77.609	7.98	1615	0	762	67	19	5	0.56	0.13	38	295	24	57	232	0.3
530	Morena	Morena	Khera Mewda New	DW	26.563	78.090	7.55	1834	0	654	195	24	19	0.22	0.14	42	605	66	107	139	0.6
531	Morena	Sabalgarh	Mangrol	DW	26.223	77.352	7.25	1908	0	303	367	20	148	0.41	0.09	48	800	172	90	66	0.5
532	Morena	Morena	Morena	BW	26.487	77.981	8.03	1096	0	484	60	9	40	0.55	0.17	37	420	54	69	55	0.4
533	Morena	Pahadgarh	Pahargarh	DW	26.200	77.639	8.08	2324	0	508	375	15	224	0.23	0.21	49	575	170	36	256	16.9
534	Morena	Porsa	Porsa	HP	26.671	78.369	7.96	973	0	442	47	17	27	0.30	0.18	29	270	40	41	96	0.6
535	Morena	Sabalgarh	Ranipura	DW	26.206	77.335	7.54	1288	0	418	152	23	51	0.62	0.08	22	535	78	83	45	0.3
536	Morena	Sabalgarh	Tentra	BW	26.177	77.305	7.75	649	0	297	30	19	11	0.46	0.05	24	240	46	30	35	1.0
537	Morena	Kailaras	Tonga Gaon	BW	26.255	77.438	7.69	561	0	278	10	8	7	0.48	0.08	20	225	50	24	22	0.8
538	Narsinghpur	Narsinghpur	Bachai	DW	22.874	79.306	7.77	1759	0	790	136	14	11	0.67	0.07	49	575	132	60	70	111.0
539	Narsinghpur	Kareli	Betli	DW	23.083	79.030	7.69	1465	0	551	134	22	14	0.14	0.08	52	495	122	46	91	24.0
540	Narsinghpur	Narsinghpur	Bhainsa	DW	22.848	79.224	8.06	945	0	453	15	18	21	0.41	0.12	44	245	40	35	98	2.8
541	Narsinghpur	Narsinghpur	Dangidhana	BW	22.910	79.274	7.98	847	0	416	17	13	8	0.35	0.08	36	240	50	28	78	1.6
542	Narsinghpur	Saikheda(Gadarwra)	Deoribadwani	DW	22.917	78.682	7.80	1636	0	766	104	14	10	0.22	0.13	51	485	82	68	86	106.0
543	Narsinghpur	Chawarpatha	Dobhi	HP	23.115	78.925	7.60	1282	0	478	92	11	96	0.09	0.05	39	470	82	64	71	5.2
544	Narsinghpur	Chawarpatha	Gundrai(li)	DW	23.177	79.032	8.00	1279	0	631	54	15	8	1.09	0.08	50	435	72	62	87	4.0
545	Narsinghpur	Gotegaon	Jhoteswar	DW	22.948	79.558	7.39	779	0	410	20	8	8	0.35	0.09	38	265	82	15	53	1.9
546	Narsinghpur	Narsinghpur	Karakbel New	DW	22.991	79.338	7.86	632	0	337	15	9	5	0.32	0.16	47	200	50	18	49	1.8
547	Narsinghpur	Kareli	Kareli Basti	DW	22.911	79.068	7.75	1001	0	392	49	13	55	0.24	0.08	40	300	50	43	87	2.5
548	Narsinghpur	Chawarpatha	Koudiya	DW	22.946	78.816	7.73	1125	0	484	49	32	10	0.34	0.21	31	405	52	67	67	2.1
549	Narsinghpur	Gotegaon	Manegaon2	HP	22.986	79.399	8.01	1337	0	606	74	18	13	0.18	0.09	46	565	76	91	42	1.7
550	Narsinghpur	Narsinghpur	Nandwara	DW	22.959	79.176	7.70	1115	0	563	35	13	19	0.53	0.18	41	410	56	66	62	2.2
551	Narsinghpur	Narsinghpur	Ramkhiria	DW	23.101	79.163	7.84	700	0	343	15	12	15	0.38	0.08	29	235	64	18	49	2.0
552	Narsinghpur	Saikheda(Gadarwra)	Salichauka	DW	22.831	78.667	7.81	968	0	410	67	17	13	0.10	0.14	43	330	92	24	62	10.5
553	Narsinghpur	Narsinghpur	Sundernagar	BW	22.838	79.234	7.66	1053	0	465	59	19	24	1.26	0.08	55	385	52	62	59	2.3
554	Narsinghpur	Chawarpatha	Tendukhera	DW	23.175	78.871	7.67	776	0	282	74	14	38	0.28	0.19	37	300	72	29	37	2.2
555	Neemuch	Manasa	Barlai	DW	24.424	75.320	8.12	1150	0	598	35	18	13	1.68	BDL	27	165	16	30	168	34
556	Neemuch	Manasa	Besla	DW	24.554	75.457	7.88	770	0	232	89	20	52	0.59	BDL	22	280	68	27	45	2
557	Neemuch	Manasa	Bhadanadw	DW	24.561	75.369	8.4	875	18	67	96	75	130	0.41	0.018	33	315	78	29	37	32
558	Neemuch	Manasa	Chachor	HP	24.372	75.357	7.58	1355	0	153	287	100	43	0.92	0.02	30	495	92	64	76	12
559	Neemuch	Jawad	Dadoli	DW	24.674	75.041	7.63	1000	0	281	136	54	7	0.74	BDL	28	375	84	40	54	2.5
560	Neemuch	Neemuch	Girdola	HP	24.462	74.932	7.62	1985	0	397	309	60	175	1.02	BDL	23	870	114	142	52	3
561	Neemuch	Manasa	Gota Pipliya	DW	24.480	75.223	7.47	1130	0	342	106	22	129	1	BDL	31	355	46	58	94	1.1
562	Neemuch	Manasa	Jamalpara	DW	24.487	75.464	8.29	1270	12	110	124	95	87	0.87	BDL	25	225	30	36	110	5
563	Neemuch	Jawad	Jat	HP	24.848	74.938	8.37	1300	12	397	181	25	13	0.24	BDL	33	560	36	114	30	18
564	Neemuch	Neemuch	Kacholi	DW	24.363	74.941	7.61	1240	0	232	205	55	75	0.43	BDL	42	530	172	24	38	1.2
565	Neemuch	Manasa	Kukreshwar	BW	24.480	75.268	7.51	1620	0	561	191	25	60	0.76	0.012	49	460	64	73	90	120
566	Neemuch	Manasa	Kundaliya	HP	24.467	75.331	7.58	3350	0	366	592	350	105	0.39	BDL	34	1380	226	198	125	3.4
567	Neemuch	Jawad	Lalpura	HP	24.614	74.926	7.5	1320	0	458	180	25	20	1.56	BDL	32	425	24	89	120	1.5
568	Neemuch	Manasa	Manasa	HP	24.471	75.144	7.85	2670	0	653	317	36	315	0.81	BDL	35	900	174	113	195	1.2
569	Neemuch	Jawad	Morban1	HP	24.622	75.000	7.79	1650	0	592	120	75	95	1.12	BDL	40	490	26	103	150	6
570	Neemuch	Neemuch	Neemuch	DW	24.454	74.874	8.39	1210	18	268	202	30	20	0.75	BDL	32	335	34	61	98	43
571	Neemuch	Jawad	Patan1	BW	24.907	75.211	7.51	1110	0	378	75	65	26	0.38	BDL	25	460	30	94	35	7.3

S. No.	District	Block	Location	Source	Lat.	Long.	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	SiO2	TH	Ca	Mg	Na	K
							at 25°C	µS/cm at													
572	Neemuch	Manasa	Rampura	DW	24.462	75.441	7.52	974	0	329	90	72	14	0.93	BDL	34	320	34	57	75	1.3
573	Neemuch	Jawad	Ratangarh	HP	24.811	75.109	7.5	1360	0	329	200	25	120	0.77	BDL	33	380	24	78	135	5
574	Neemuch	Neemuch	Savan	HP	24.452	75.063	7.8	1190	0	85	320	25	29	0.78	BDL	31	380	104	29	95	4
575	Neemuch	Neemuch	Semali Chandrawat	DW	24.548	74.936	8.25	2125	18	519	387	18	16	1.47	BDL	46	340	24	68	321	12.3
576	Neemuch	Jawad	Singoli	HP	24.968	75.288	7.42	1850	0	378	352	22	95	0.57	BDL	23	590	30	125	150	4.5
577	Panna	Ajaigarh	Ajaigarh	HP	24.909	80.266	7.6	1070	0	290	137	12	90	1.20	BDL	60	505	83	72	12	1
578	Panna	Panna	Akola	DW	24.631	80.140	8.0	318	0	73	42	8	31	0.74	BDL	15	99	28	7	23	5.6
579	Panna	Gunnor	Amanganj	TW	29.416	80.261	7.5	2190	0	242	47	750	12	1.00	BDL	20	901	251	130	85	4.2
580	Panna	Panna	Badagaon	TW	24.626	80.345	7.8	300	0	18	17	80	26	0.64	BDL	17	124	16	20	10	1.8
581	Panna	Panna	Bahera	DW	24.663	80.253	8.1	285	0	61	20	30	35	0.63	BDL	20	124	20	18	8	0.8
582	Panna	Ajaigarh	Banahari Kalan	DW	24.855	80.182	7.7	790	0	315	50	21	39	0.97	BDL	12	347	36	63	20	1.5
583	Panna	Ajaigarh	Bariyarpur	HP	24.851	80.098	7.6	1034	0	224	117	10	115	1.11	BDL	25	391	113	26	28	7.5
584	Panna	Panna	Barrachh	DW	24.548	80.171	8.0	365	0	169	12	15	9	0.98	BDL	22	158	51	7	10	0.5
585	Panna	Shahnagar	Dharampura	HP	24.125	80.260	7.5	780	0	327	67	10	15	0.77	BDL	28	277	50	37	50	0.7
586	Panna	Pawai	Hathkuri	HP	24.243	80.070	7.6	620	18	254	40	8	20	0.91	BDL	21	282	53	36	10	1.2
587	Panna	Pawai	Kharmora	DW	24.122	80.261	8.5	682	0	212	85	20	6	0.92	BDL	25	198	38	25	55	5.3
588	Panna	Shahnagar	Kuankheda	HP	23.901	79.923	8.0	1010	0	381	117	10	5	0.96	BDL	19	173	26	18	150	1.7
589	Panna	Panna	Madla	DW	24.737	80.014	7.3	560	0	121	57	38	61	0.74	BDL	50	230	74	11	20	2
590	Panna	Pawai	Mohendra	HP	24.190	79.958	7.8	1040	0	315	217	17	39	0.93	BDL	23	540	84	80	35	1.4
591	Panna	Ajaigarh	Pandepurwa	HP	24.843	80.267	8.1	650	0	333	17	10	17	1.34	BDL	40	275	26	51	20	4
592	Panna	Panna	Panna I	TW	24.705	80.187	7.69	1010	0	242	162	25	25	0.93	BDL	21	380	86	40	45	5.1
593	Panna	Pawai	Powai	DW	24.266	80.162	8.11	1415	0	393	147	85	80	1.16	BDL	28	670	90	124	15	1.8
594	Panna	Shahnagar	Raipura	DW	23.903	79.959	9.07	412	24	91	52	17	18	0.78	BDL	28	180	42	18	10	2.9
595	Panna	Shahnagar	Saharan	DW	24.079	79.948	8.14	500	0	236	17	10	18	1.04	BDL	27	195	50	17	24	0.85
596	Panna	Gunnor	Salleha	DW	24.413	80.400	8.06	550	0	145	77	8	34	0.80	BDL	35	110	24	12	68	10.4
597	Panna	Pawai	Semaria I	HP	24.267	79.880	7.76	1090	0	254	142	60	71	0.83	BDL	24	495	70	95	20	2.9
598	Panna	Ajaigarh	Sinhai	DW	24.904	80.209	8.11	583	0	212	47	23	19	1.00	BDL	54	260	40	39	12	2.5
599	Panna	Shahnagar	Takhori	DW	23.989	79.948	10.47	240	24	12	27	38	9	0.93	BDL	15	100	20	12	7	2
600	Panna	Panna	Tara	DW	24.518	80.081	10.47	268	36	73	12	12	8	1.07	BDL	24	95	24	9	15	0.8
601	Raisen	Bareli	Bari	DW	23.031	78.083	7.98	677	0	279	52	5	9	0.65	BDL	22	282	63	30	19	0.1
602	Raisen	Obaidullaganj	Barkheda	DW	22.917	77.651	7.28	1455	0	492	183	12	15	0.60	0.1	29	520	164	26	83	2.1
603	Raisen	Begamganj	Begumganj	DW	23.607	78.349	7.41	1389	0	389	176	6	75	0.30	BDL	36	540	149	41	57	0.4
604	Raisen	Obaidullaganj	Chiklod	DW	23.106	77.723	7.65	896	0	334	94	9	20	0.35	BDL	24	351	105	22	36	0.9
605	Raisen	Obaidullaganj	Dam Dongri	DW	23.099	77.838	7.71	712	0	316	22	5	25	0.30	0.2	42	307	91	19	13	0.2
606	Raisen	Gairatganj	Dehgaon	DW	23.319	78.091	7.47	1546	0	407	233	11	86	0.25	BDL	19	653	180	49	42	1.0
607	Raisen	Silwani	Dhangwan	HP	23.221	78.478	7.89	756	0	97	148	42	7	1.00	BDL	36	144	32	16	94	1.9
608	Raisen	Gairatganj	Gairatganj	DW	23.408	78.226	7.72	1498	0	352	297	4	10	0.35	BDL	27	386	85	42	156	1.4
609	Raisen	Gairatganj	Garhi	DW	23.394	78.142	7.32	1095	0	358	92	14	78	0.30	BDL	34	396	101	35	58	1.2
610	Raisen	Obaidullaganj	Goharganj	DW	23.026	77.679	7.41	568	0	176	57	12	27	0.20	BDL	46	188	32	26	33	1.6
611	Raisen	Obaidullaganj	Hathi Palan	DW	23.076	77.753	7.73	742	0	286	47	21	27	0.55	BDL	41	203	42	24	66	2.1
612	Raisen	Sanchi	Khadera	HP	23.304	77.946	7.61	643	0	310	25	4	4	0.35	0.1	22	243	51	28	24	3.6
613	Raisen	Sanchi	Kharwai	HP	23.267	77.663	7.23	589	0	243	37	14	15	0.20	BDL	27	252	61	24	9	2.0
614	Raisen	Udaipura	Khiria	HP	23.092	78.483	7.42	796	0	279	74	12	12	0.60	BDL	23	302	57	39	34	1.9
615	Raisen	Obaidullaganj	Maindwa	DW	23.122	77.546	7.73	365	0	140	7	15	19	0.10	BDL	34	104	22	12	27	1.6



S. No.	District	Block	Location	Source	Lat.	Long.	pH at 25°C	EC µS/cm at	mg/l												
									CO3	HCO3	Cl	SO4	NO3	F	PO4	SiO2	TH	Ca	Mg	Na	K
616	Raisen	Begamganj	Padahjir	DW	23.573	78.404	7.21	643	0	231	67	5	7	0.30	BDL	32	203	63	11	40	7.4
617	Raisen	Begamganj	Paloha	DW	23.532	78.296	7.43	1093	0	371	82	13	138	0.30	BDL	41	460	129	34	29	1.6
618	Raisen	Sanchi	Raisen	DW	23.336	77.783	7.77	1013	0	431	45	35	25	0.25	BDL	21	421	125	26	34	3.7
619	Raisen	Sanchi	Salamatpurchoraha	DW	23.453	77.698	7.77	1056	0	316	139	16	19	0.40	BDL	22	252	69	19	112	2.3
620	Raisen	Sanchi	Sanchi	DW	23.487	77.741	7.62	888	0	334	57	44	12	0.45	BDL	19	337	91	26	32	7.0
621	Raisen	Silwani	Siarmau	DW	23.401	78.550	7.69	998	0	371	139	10	13	0.20	0.1	26	356	101	25	58	1.1
622	Raisen	Silwani	Silwani	DW	23.300	78.440	7.42	945	0	401	67	14	18	0.25	BDL	29	381	111	25	36	2.0
623	Raisen	Begamganj	Sultanganj	DW	23.503	78.555	7.32	1012	0	292	119	22	77	0.10	BDL	31	203	63	11	135	1.6
624	Raisen	Obaidullaganj	Sultanpur	DW	23.136	77.932	7.67	623	0	243	40	18	13	0.30	BDL	24	262	81	14	15	2.4
625	Raisen	Obaidullaganj	Tamot	DW	23.007	77.639	7.32	1188	0	395	136	16	16	0.25	BDL	32	426	117	33	69	1.5
626	Raisen	Udaipura	Udaipura	DW	23.075	78.513	7.46	945	0	316	126	5	43	0.20	BDL	42	312	91	20	64	1.6
627	Rajgarh	Biaora	Baiheda	DW	23.836	76.95	8.04	848	0	358	49	22	19	0.91	0.09	29	223	26	39	88	1.9
628	Rajgarh	Sarangpur	Bamangaon	TW	23.883	76.619	7.75	964	0	292	116	32	29	0.23	0.10	36	252	44	35	101	2.1
629	Rajgarh	Biaora	Bapchi	DW	24.006	76.943	7.88	697	0	225	69	19	33	0.63	0.11	29	163	32	20	79	3.3
630	Rajgarh	Biaora	Barkheda	DW	23.942	76.955	7.52	656	0	200	64	35	27	0.17	0.09	37	193	50	17	59	2.5
631	Rajgarh	Rajgarh	Bawari	DW	23.986	76.816	7.5	728	0	194	94	23	34	0.46	0.14	28	218	42	28	62	3.1
632	Rajgarh	Narsinghgarh	Bhagaribungalow	HP	23.799	76.985	7.76	1131	0	340	126	53	41	0.50	0.16	42	342	73	39	99	1.9
633	Rajgarh	Biaora	Biaora	NA	NA	7.69	1201	0	389	121	44	43	0.47	0.13	25	267	63	26	145	2.4	
634	Rajgarh	Jirapur	Chhapihera	TW	23.897	76.453	7.15	1101	0	310	114	55	78	0.29	0.16	42	287	38	47	117	1.9
635	Rajgarh	Narsinghgarh	Ganayari	HP	23.691	77.008	7.45	763	0	188	72	47	69	0.13	0.11	25	213	46	24	72	1.1
636	Rajgarh	Narsinghgarh	Gandhigram	DW	23.674	77.069	7.64	1264	0	298	141	94	71	0.45	0.14	38	285	62	32	152	4.4
637	Rajgarh	Khilchipur	Khilchipur	TW	24.043	76.579	7.62	685	0	176	64	73	21	0.29	0.17	41	165	40	16	76	3.2
638	Rajgarh	Jirapur	Machalpur	DW	24.13	76.314	7.55	1166	0	334	101	60	99	0.32	0.15	26	320	78	30	118	2.9
639	Rajgarh	Narsinghgarh	Mandawar	DW	23.703	76.883	7.65	1125	0	267	171	54	19	0.43	0.09	19	195	44	21	166	3.2
640	Rajgarh	Narsinghgarh	Pilukhedi	DW	23.491	77.06	7.78	1089	0	346	114	36	37	0.66	0.12	37	305	62	36	104	4.3
641	Rajgarh	Sarangpur	Sandavta	DW	23.834	76.526	7.53	648	0	176	67	31	44	0.35	0.11	28	175	34	22	65	1.9
642	Rajgarh	Sarangpur	Sarangpur	DW	23.569	76.472	7.44	1308	0	389	144	47	65	0.28	0.14	39	370	106	26	119	5.1
643	Rajgarh	Sarangpur	Udhankheri	DW	23.664	76.629	7.79	889	0	243	97	56	28	0.69	0.13	26	205	36	28	104	1.8
644	Rajgarh	Jirapur	Zirapur	DW	24.016	76.378	7.71	1677	0	492	186	62	89	0.16	0.16	42	445	76	62	175	4.2
645	Ratlam	Alot	Alot	DW	23.758	75.530	7.92	965	0	140	158	45	51	0.20	BDL	23	380	104	29	38	1.5
646	Ratlam	Bajna	Bajna	HP	23.309	74.638	7.96	1089	0	390	72	15	54	0.20	BDL	26	355	82	36	78	1.0
647	Ratlam	Piploda	Barkheda	BW	23.625	75.031	7.59	2745	0	275	646	85	48	0.20	BDL	28	795	224	57	258	1.8
648	Ratlam	Ratlam	Dhamnod	BW	23.440	74.978	7.36	989	0	159	158	54	30	0.10	0.1	35	300	68	32	79	2.8
649	Ratlam	Ratlam	Dharad	BW	23.250	75.108	7.81	881	0	262	109	22	24	0.25	BDL	29	160	38	16	128	1.1
650	Ratlam	Jaora	Dhodhar	DW	23.775	75.109	7.78	1214	0	519	52	42	3	0.20	BDL	44	325	86	27	122	1.7
651	Ratlam	Alot	Gul Balod	BW	23.749	75.475	7.99	1546	0	421	213	45	37	0.35	0.3	19	325	70	36	199	2.0
652	Ratlam	Jaora	Jaora	HP	23.633	75.122	7.36	1867	0	384	304	35	107	0.10	BDL	41	710	250	21	96	1.1
653	Ratlam	Alot	Kharwa Kalan	HP	23.615	75.478	7.82	1710	0	512	200	25	52	0.30	BDL	37	515	152	33	142	2.9
654	Ratlam	Alot	Malakhera	BW	23.697	75.449	7.92	1826	0	128	445	32	37	0.45	BDL	43	470	112	46	187	4.5
655	Ratlam	Ratlam	Mewasa	BW	23.497	75.067	7.62	1102	0	390	99	15	47	0.30	BDL	26	360	102	26	80	1.9
656	Ratlam	Jaora	Mindli	BW	23.690	75.292	7.96	1365	0	543	77	44	70	0.10	BDL	22	540	162	33	55	2.0
657	Ratlam	Ratlam	Mundri	DW	23.201	75.021	7.91	1013	0	366	84	10	39	0.20	BDL	34	325	106	15	73	1.6
658	Ratlam	Ratlam	Namli	BW	23.455	75.066	7.82	1723	0	506	210	22	41	0.15	BDL	28	680	204	41	72	3.9
659	Ratlam	Bajna	Rajapur	DW	23.341	74.730	7.51	912	0	397	32	8	10	0.05	BDL	22	350	86	33	27	1.7

S. No.	District	Block	Location	Source	Lat.	Long.	pH at 25°C	EC µS/cm at	mg/l												
									CO3	HCO3	Cl	SO4	NO3	F	PO4	SiO2	TH	Ca	Mg	Na	K
660	Ratlam	Jaora	Ramnagar	HP	23.537	75.255	7.65	1185	0	159	225	15	56	0.15	0.1	45	455	162	12	45	2.2
661	Ratlam	Piploda	Rankoda	DW	23.613	74.964	8.03	1245	0	421	161	6	45	0.35	BDL	52	195	42	22	185	3.1
662	Ratlam	Bajna	Raoti	HP	23.227	74.842	8.12	1423	0	433	144	44	77	0.05	BDL	37	545	150	41	62	4.6
663	Ratlam	Ratlam	Ratlam	DW	23.331	75.045	7.62	1745	0	525	243	24	11	0.15	BDL	23	605	184	35	109	3.9
664	Ratlam	Ratlam	Rattagarhkhera	DW	23.139	75.216	7.97	989	0	244	134	14	78	1.65	BDL	41	300	46	45	86	1.2
665	Ratlam	Sailana	Sailana	BW	23.457	74.933	7.82	1546	0	293	290	28	48	0.25	BDL	26	380	102	30	174	3.1
666	Ratlam	Sailana	Saser	DW	23.400	74.887	7.96	998	0	336	87	10	93	0.05	BDL	32	375	84	40	49	2.1
667	Ratlam	Ratlam	Sejawata	BW	23.377	75.060	7.36	2345	0	397	475	22	86	0.40	0.2	36	910	304	36	112	4.1
668	Ratlam	Sailana	Shivgarh	BW	23.349	74.862	7.46	845	0	214	119	29	10	0.60	BDL	29	90	18	11	142	1.8
669	Ratlam	Jaora	Sindurkiya	HP	23.666	75.235	7.63	1365	0	500	116	9	61	0.20	BDL	35	505	156	28	70	2.1
670	Ratlam	Piploda	Sohangarh	DW	23.580	75.080	7.43	1142	0	397	57	32	73	0.05	BDL	41	465	112	45	37	1.7
671	Ratlam	Alot	Tal	BW	23.722	75.383	7.86	2594	0	372	527	14	125	0.05	0.2	23	935	272	62	150	2.5
672	Ratlam	Jaora	Ukediya	DW	23.585	75.180	7.62	2685	0	366	567	16	251	0.25	0.2	42	765	252	33	248	6.5
673	Rewa	Rewa	Amilki	DW	24.432	81.309	7.39	1279	0	375	237	22	22	0.48	BDL	32	580	150	50	52	1.2
674	Rewa	Gangeo	Baikunthpur1	HP	24.729	81.407	7.23	676	0	363	40	18	5	0.61	BDL	18	380	104	29	16	2.3
675	Rewa	Sirmour	Bara	TW	24.821	80.093	7.52	568	0	339	30	27	5	0.60	BDL	16	270	72	22	43	3.2
676	Rewa	Jawa	Barduhawan	HP	27.944	81.396	7.63	573	0	363	15	8	6	0.52	BDL	19	230	62	18	48	2.6
677	Rewa	Jawa	Dabhoura	HP	25.115	81.307	7.27	906	0	315	132	22	100	0.34	BDL	22	385	104	30	82	1.8
678	Rewa	Mauganj	Deotalav	HP	24.679	81.724	7.57	529	0	430	22	24	2	0.53	0.1	26	310	102	13	52	1.1
679	Rewa	Gangeo	Gangeo	HP	24.725	81.600	7.89	910	0	405	142	12	6	0.55	BDL	23	450	130	30	50	1.6
680	Rewa	Gangeo	Garh	HP	24.817	81.650	7.92	1157	0	254	215	25	41	0.54	BDL	19	500	138	38	59	2.4
681	Rewa	Hanumana	Hanumana	DW	24.778	82.093	7.32	781	0	236	120	14	45	0.35	BDL	42	285	72	26	64	1.9
682	Rewa	Jawa	Jawa1	TW	24.963	81.492	7.62	892	0	303	125	12	98	0.48	BDL	24	470	152	22	20	3.8
683	Rewa	Rewa	Kanauji	HP	24.473	81.380	7.53	630	0	393	27	42	4	0.80	BDL	31	300	84	22	49	4.2
684	Rewa	Teonthar	Katra	HP	24.897	81.673	7.67	1256	0	472	175	25	51	0.35	BDL	29	445	98	49	125	2.1
685	Rewa	Mauganj	Khatkhari	TW	24.708	81.999	7.61	373	0	169	45	9	23	0.16	0.1	27	155	42	12	43	1.6
686	Rewa	Teonthar	Kuthla	HP	24.964	81.606	7.87	526	0	309	27	14	26	0.42	BDL	24	250	64	22	45	1.9
687	Rewa	Hanumana	Madha	TW	24.741	82.046	7.62	420	0	188	47	16	17	0.12	BDL	26	225	72	11	14	2.4
688	Rewa	Gangeo	Mangawan	HP	24.679	81.552	7.82	724	0	436	102	34	8	0.35	BDL	34	475	118	44	53	2.1
689	Rewa	Mauganj	Pahadi	DW	24.747	81.884	7.92	1603	0	242	427	12	51	0.27	BDL	27	580	172	36	114	1.7
690	Rewa	Hanumana	Pratapganj	DW	24.710	82.110	7.32	601	0	182	82	24	35	0.16	BDL	16	270	72	22	26	1.9
691	Rewa	Rewa	Reethi	HP	24.522	81.385	7.23	2071	0	944	222	42	4	0.38	BDL	36	780	292	12	156	2.3
692	Rewa	Rewa	Sagra	HP	24.611	81.362	7.62	1632	0	617	80	32	9	0.30	BDL	41	610	204	24	42	2.5
693	Rewa	Sirmour	Semaria2	HP	24.796	81.151	7.32	1478	0	321	187	15	179	0.54	BDL	29	540	112	63	72	1.6
694	Rewa	Jawa	Senhuda	DW	25.013	81.370	7.62	739	0	369	35	34	12	0.91	BDL	35	310	86	23	45	1.9
695	Rewa	Sirmour	Sirmaur1	HP	24.834	81.364	7.32	981	0	454	180	18	75	0.43	0.1	19	410	72	56	154	2.3
696	Rewa	Teonthar	Sohagi	HP	24.981	81.690	7.35	678	0	309	15	16	34	0.81	BDL	26	320	112	10	14	2.5
697	Rewa	Gangeo	Tikura	HP	24.674	81.689	7.63	752	0	363	52	9	21	0.62	BDL	23	375	118	19	19	3.2
698	Sagar	Malthon	Bamhori Lal	DW	24.246	78.433	6.98	2052	0	480	377	128	54	0.20	0.5	33	865	204	86	58	37.2
699	Sagar	Banda	Banda	DW	24.046	78.967	7.51	1245	0	371	127	72	106	0.05	0.2	30	340	98	23	118	23.2
700	Sagar	Malthon	Bandri	DW	24.042	78.640	7.68	1627	0	456	197	102	71	0.20	3.2	37	480	122	43	109	73.5
701	Sagar	Jaisinagar	Baroda	DW	23.715	78.706	7.46	1302	0	401	165	66	5	0.10	0.2	56	495	120	47	69	2.2
702	Sagar	Malthon	Barodia	DW	24.216	78.583	7.71	1288	0	480	112	74	54	0.05	BDL	77	550	184	22	29	31.2
703	Sagar	Banda	Behrol	DW	24.050	78.746	7.32	865	0	292	62	52	48	0.05	BDL	26	330	98	21	49	1.6

S. No.	District	Block	Location	Source	Lat.	Long.	pH at 25°C	EC µS/cm at	mg/l												
									CO3	HCO3	Cl	SO4	NO3	F	PO4	SiO2	TH	Ca	Mg	Na	K
704	Sagar	Jaisinagar	Bhapel	DW	23.806	78.638	7.68	989	0	304	97	34	59	0.30	0.2	30	355	86	34	62	1.2
705	Sagar	Banda	Dalpatpur	DW	24.134	79.017	7.57	1145	0	450	122	22	17	0.20	BDL	65	460	132	32	44	1.5
706	Sagar	Deori	Deorikhas	DW	23.386	79.016	7.13	1307	0	401	177	34	53	0.30	BDL	43	505	144	35	64	1.1
707	Sagar	Rehli	Garhakota	DW	23.784	79.129	7.51	1503	0	450	90	145	146	0.10	0.1	21	550	176	27	88	1.2
708	Sagar	Shahgarh	Hirapur	DW	24.366	79.211	7.58	865	0	255	52	48	77	0.15	BDL	18	305	60	38	51	1.1
709	Sagar	Rahatgarh	Hurra	DW	23.728	78.405	7.42	1265	0	346	162	16	61	0.10	BDL	77	395	60	60	102	1.1
710	Sagar	Rahatgarh	Jaruakhera	DW	23.973	78.482	7.32	1465	0	407	205	32	21	0.05	BDL	43	565	142	51	73	1.1
711	Sagar	Kesli	Kesli	Given	23.421	78.806	7.62	1233	0	322	87	38	252	0.30	0.2	55	310	66	35	138	1.2
712	Sagar	Sagar	Khajuria	DW	23.940	78.686	7.74	2842	0	322	780	46	28	0.15	BDL	49	1155	312	91	111	5.9
713	Sagar	Malthon	Khimlasa	DW	24.201	78.363	7.61	1575	0	492	140	126	27	0.45	BDL	31	505	168	21	132	1.2
714	Sagar	Khurai	Khurai	DW	24.039	78.333	7.93	1189	0	377	170	18	36	0.50	BDL	39	395	52	64	87	1.3
715	Sagar	Malthon	Naktapur	DW	24.276	78.549	7.43	965	0	298	115	44	35	0.25	0.1	19	360	44	61	52	1.5
716	Sagar	Rahatgarh	Naryawali	Given	23.906	78.593	7.26	1021	0	419	35	39	38	0.20	BDL	37	295	64	33	92	1.6
717	Sagar	Kesli	Nayanagar	DW	23.484	78.896	7.62	1032	0	492	15	10	109	0.10	BDL	40	310	44	49	82	1.1
718	Sagar	Rehli	Parsiya	Given	23.792	79.071	7.31	987	0	310	37	29	175	0.25	BDL	19	235	32	38	112	1.2
719	Sagar	Sagar	Parsoria	DW	23.854	78.936	7.69	1812	0	249	375	110	6	0.05	BDL	43	820	198	79	36	1.3
720	Sagar	Rahatgarh	Rahatgarh	DW	23.788	78.418	7.56	1021	0	352	115	52	18	0.10	0.3	56	395	90	41	42	2.1
721	Sagar	Rehli	Rehli	DW	23.641	79.065	7.18	689	0	304	45	14	9	0.30	BDL	24	310	62	38	9	1.8
722	Sagar	Shahgarh	Rurawan	DW	24.182	79.025	7.51	612	0	225	27	12	26	0.05	BDL	21	130	24	17	65	1.9
723	Sagar	Sagar	Sagar	DW	23.833	78.833	7.67	1022	0	413	65	46	8	0.20	BDL	39	320	62	40	91	2.1
724	Sagar	Jaisinagar	Sarkhed	DW	23.736	78.589	7.42	1188	0	310	152	26	52	0.35	0.1	62	485	100	57	46	1.5
725	Sagar	Shahgarh	Shahgarh I	DW	24.320	79.119	7.92	912	0	377	27	82	5	0.30	BDL	28	255	60	26	83	2.1
726	Sagar	Jaisinagar	Sihora	DW	23.798	78.561	7.42	892	0	419	47	21	2	0.15	0.1	47	295	80	23	65	3.2
727	Sagar	Deori	Silarpur	DW	23.504	78.952	7.62	844	0	352	52	18	28	0.10	BDL	58	410	80	51	8	1.8
728	Sagar	Jaisinagar	Surkhi	Given	Given	Given	7.31	1056	0	188	127	66	169	0.20	0.2	27	445	100	47	27	2.2
729	Satna	Amarpatan	Amarpatan I	TW	24.314	80.976	7.29	1738	0	323	302	56	34	0.64	0.45	45	695	174	63	70	2.6
730	Satna	Maihar	Amdara	HP	24.104	80.576	7.41	1227	0	342	142	33	61	0.32	0.12	41	435	118	34	75	2.4
731	Satna	Majhgawan	Babupur	HP	25.004	80.800	7.63	696	0	372	10	12	9	0.24	0.08	36	320	66	38	9	2.6
732	Satna	Sohawal	Barakalan	HP	24.671	80.787	7.20	1915	0	433	375	14	7	0.46	0.23	51	800	224	58	63	3.8
733	Satna	Nagod	Barethia	HP	24.576	80.684	7.63	979	0	403	55	28	18	0.92	0.09	39	390	78	47	41	3.7
734	Satna	Maihar	Bhdanpur New	HP	24.166	80.821	7.36	855	0	281	62	33	46	0.46	0.05	36	350	94	28	19	22.1
735	Satna	Unchehara	Bhatanwara New	HP	24.492	80.858	7.35	1104	0	268	140	61	17	0.32	0.11	44	450	124	34	42	1.7
736	Satna	Majhgawan	Birsinghpur	HP	24.798	80.970	7.96	881	0	366	50	21	4	0.64	0.08	29	375	80	43	25	3.5
737	Satna	Majhgawan	Chitrakoot	HP	25.067	80.817	7.62	1151	0	415	125	16	27	0.29	0.05	36	380	78	45	84	2.2
738	Satna	Rampur Baghelan	Chorhata	HP	24.388	80.917	7.79	714	0	146	130	26	15	0.33	0.07	42	305	82	24	21	2.1
739	Satna	Majhgawan	Chowraha	DW	24.978	80.798	8.53	649	36	110	67	59	25	0.21	0.05	37	215	38	29	36	20.0
740	Satna	Nagod	Dureha	DW	24.451	80.461	8.42	497	48	128	42	4	11	0.81	0.08	27	125	22	17	52	3.9
741	Satna	Maihar	Ghunwara	TW	24.147	80.632	7.76	578	0	275	12	18	7	0.64	0.09	32	180	42	18	45	3.8
742	Satna	Ramnagar	Gorsari	HP	24.238	81.035	7.52	529	0	262	15	12	3	0.70	0.16	37	230	68	15	12	2.3
743	Satna	Ramnagar	Govindpur	TW	24.230	81.183	7.56	644	0	275	37	17	10	0.95	0.05	29	260	66	23	22	5.4
744	Satna	Majhgawan	Jaitwara	HP	24.740	80.867	7.76	1034	0	439	62	14	25	0.55	0.09	45	385	80	45	56	2.0
745	Satna	Nagod	Jaso	HP	24.499	80.504	7.72	894	0	390	45	21	11	0.80	0.09	39	335	54	49	47	1.9
746	Satna	Sohawal	Jhali	HP	24.732	80.686	8.00	1320	0	610	72	13	8	1.09	0.23	40	450	54	77	91	1.8
747	Satna	Maihar	Jhukehi	TW	24.004	80.426	7.46	1221	0	329	197	17	9	0.63	0.09	46	395	92	40	93	2.1

S. No.	District	Block	Location	Source	Lat.	Long.	pH at 25°C	EC µS/cm at	mg/l												
									CO3	HCO3	Cl	SO4	NO3	F	PO4	SiO2	TH	Ca	Mg	Na	K
748	Satna	Ramnagar	Jowa	HP	24.157	80.938	7.85	703	0	256	35	54	4	1.15	0.08	33	285	64	30	24	7.3
749	Satna	Amarpatan	Kakra	HP	24.353	81.039	7.70	945	0	214	167	32	12	0.85	0.08	36	405	96	40	27	1.7
750	Satna	Amarpatan	Kemar	TW	24.487	81.195	7.62	852	0	244	120	25	5	0.52	0.08	43	335	86	29	37	3.1
751	Satna	Rampur Baghelan	Kotar	DW	24.699	80.995	7.48	1791	0	366	220	66	157	1.01	0.32	48	640	180	46	112	1.5
752	Satna	Sohawal	Kothi	DW	24.747	80.777	8.43	715	36	256	35	18	9	0.75	0.09	25	235	22	44	53	1.4
753	Satna	Maihar	Kusendi	HP	24.171	80.677	7.69	975	0	342	82	35	16	0.47	0.07	34	235	56	23	111	3.7
754	Satna	Maihar	Maihar New	HP	24.260	80.761	7.32	1550	0	354	230	83	25	0.59	0.08	46	590	112	75	74	12.2
755	Satna	Majhgawan	Majhagawa	DW	24.911	80.813	7.69	905	0	299	67	29	52	0.83	0.14	44	360	56	54	36	5.8
756	Satna	Amarpatan	Mauhari Katra	TW	24.444	81.118	7.40	1221	0	232	177	55	77	0.25	0.11	39	455	94	54	64	5.6
757	Satna	Amarpatan	Mukundpur	DW	24.423	81.247	7.82	732	0	256	82	25	5	0.57	0.18	28	305	62	36	24	2.1
758	Satna	Majhgawan	Nakaila	HP	25.018	80.686	7.50	568	0	214	42	18	24	0.59	0.22	30	225	72	11	23	1.3
759	Satna	Maihar	Naraura	HP	24.277	80.841	7.48	605	0	188	57	29	9	0.50	0.08	44	257	67	22	16	2.8
760	Satna	Unchehara	Pahari	HP	24.392	80.547	7.31	655	0	133	75	24	89	0.11	0.05	49	267	67	24	22	3.6
761	Satna	Majhgawan	Paldeo	HP	25.110	80.783	7.53	1415	0	369	185	17	111	0.33	0.27	52	540	81	82	64	13.9
762	Satna	Unchehara	Paras Maniya	DW	24.350	80.616	7.76	560	0	175	47	11	36	0.29	0.15	28	208	65	11	29	2.1
763	Satna	Rampur Baghelan	Rampur I	HP	24.511	81.056	7.46	1030	0	218	182	30	6	0.41	0.08	36	401	85	46	44	2.9
764	Satna	Maihar	Rivara	HP	24.126	80.868	7.49	759	0	266	42	46	30	0.61	0.08	41	342	71	40	13	3.2
765	Satna	Maihar	Sabhaganj	DW	24.035	80.456	7.89	475	0	157	42	19	14	0.47	0.08	35	163	34	19	27	7.8
766	Satna	Ramnagar	Sagauni New	HP	24.264	81.203	7.76	458	0	212	15	8	4	0.46	0.09	33	183	53	12	17	2.1
767	Satna	Nagod	Singhpur	DW	24.702	80.582	7.34	652	0	303	27	10	6	0.15	0.07	42	287	67	29	13	3.3
768	Satna	Unchehara	Uchehara	DW	24.362	80.781	7.87	856	0	290	70	54	14	0.49	0.17	49	257	42	37	72	2.8
769	Sehore	Ichhawar	Amlaha	DW	23.118	76.903	7.62	1102	0	392	122	8	33	0.94	BDL	14	376	103	29	78	1.6
770	Sehore	Ashta	Ashta	DW	23.023	76.716	7.43	2105	0	612	280	15	104	0.45	BDL	16	599	168	43	208	2.1
771	Sehore	Budni	Bayan	DW	22.734	77.556	7.72	745	0	306	22	24	56	0.55	0.1	23	332	101	19	13	0.6
772	Sehore	Sehore	Bhandeli	DW	23.124	77.261	7.37	387	0	171	17	5	11	0.10	BDL	25	163	42	14	7	1.0
773	Sehore	Ichhawar	Bordi	DW	22.973	77.086	7.47	1542	0	429	210	12	62	0.10	BDL	14	624	170	48	49	3.1
774	Sehore	Budni	Budhni	DW	22.791	77.683	7.55	1482	0	606	107	14	80	0.40	BDL	28	574	170	36	71	1.2
775	Sehore	Sehore	Chandbar	DW	23.318	77.047	7.42	1522	0	153	397	55	24	0.45	0.1	35	173	46	14	260	1.4
776	Sehore	Sehore	Heerapur	DW	23.143	77.173	7.54	1810	0	496	270	21	41	0.60	BDL	26	431	111	37	206	5.6
777	Sehore	Ichhawar	Ichhawar	DW	23.032	77.019	7.94	1685	0	759	52	65	82	0.35	0.1	38	648	222	23	75	1.9
778	Sehore	Sehore	Jattakheda	DW	23.153	76.963	7.35	1445	0	355	247	22	17	0.45	BDL	54	337	103	19	158	0.9
779	Sehore	Ichhawar	Kankad Kheda	HP	23.101	77.036	7.51	1204	0	135	277	16	56	1.85	BDL	22	243	63	20	152	1.0
780	Sehore	Ashta	Khachrod	DW	22.872	76.718	7.29	1411	0	514	37	56	110	0.55	BDL	29	505	164	23	78	2.1
781	Sehore	Sehore	Khajuria Kalan	DW	23.361	77.073	7.41	1055	0	521	37	12	52	0.35	0.1	27	366	101	28	62	0.2
782	Sehore	Nasrullaganj	Larkui New	DW	22.817	77.209	7.32	1089	0	521	35	8	63	1.45	BDL	23	351	91	30	82	0.9
783	Sehore	Budni	Malibayan	DW	22.751	77.454	7.58	1489	0	741	67	10	21	0.60	BDL	32	292	101	10	189	1.2
784	Sehore	Ichhawar	Nadan	DW	22.897	77.122	7.31	977	0	374	50	25	69	0.25	0.1	26	436	129	28	20	0.9
785	Sehore	Budni	Neelkachar	TW	22.722	77.501	7.86	1510	0	263	350	42	21	0.45	BDL	38	406	105	35	157	0.6
786	Sehore	Nasrullaganj	Rala	DW	22.690	77.314	7.21	2050	0	741	212	56	81	0.40	BDL	26	743	236	37	104	21.1
787	Sehore	Sehore	Sehore I	DW	23.162	77.056	7.43	808	0	159	132	15	45	0.20	BDL	31	351	103	23	20	1.2
788	Seoni	Seoni	Amagarh	DW	22.012	79.613	7.59	335	0	98	32	17	26	0.14	0.12	10	120	24	15	20	0.8
789	Seoni	Barghat	Ari	DW	21.947	79.712	7.43	1176	0	360	153	25	19	0.78	0.10	30	370	74	45	91	2.9
790	Seoni	Seoni	Bamandehi	DW	22.046	79.580	7.67	245	0	85	22	6	12	0.65	0.09	36	80	18	9	17	0.7
791	Seoni	Seoni	Bamhodi	DW	22.064	79.658	7.70	581	0	189	67	14	17	0.92	0.08	31	170	32	22	52	1.3

S. No.	District	Block	Location	Source	Lat.	Long.	pH at 25°C	EC µS/cm at	CO3	HCO3	Cl	SO4	NO3	F	PO4	SiO2	TH	Ca	Mg	Na	K
									mg/l												
792	Seoni	Keolari	Banjali	HP	22.306	79.999	7.55	475	0	177	45	8	10	0.89	0.11	32	145	24	21	40	0.9
793	Seoni	Lakhnadon	Banjari	DW	22.818	79.758	7.80	758	0	250	62	25	47	0.34	0.15	33	265	63	26	48	1.1
794	Seoni	Barghat	Borghat	DW	22.033	79.747	7.76	888	0	293	84	31	33	0.77	0.06	25	275	50	36	71	3.9
795	Seoni	Chhapara	Chhapara	DW	22.394	79.546	7.61	841	0	360	54	24	12	0.56	0.09	26	310	56	41	48	2.4
796	Seoni	Seoni	Chunatola	HP	22.147	79.668	7.58	439	0	165	27	19	15	0.73	0.12	53	120	24	15	42	1.8
797	Seoni	Lakhnadon	Dargada	DW	22.929	79.638	7.63	837	0	287	79	28	28	0.28	0.08	28	260	73	19	69	1.6
798	Seoni	Dhanaura	Dhanaura	DW	22.529	79.838	7.84	1209	0	378	131	42	39	0.72	0.16	32	345	50	54	110	9.6
799	Seoni	Keolari	Dhangada	DW	22.321	79.861	7.93	925	0	281	101	46	17	1.32	0.09	21	170	31	22	129	1.8
800	Seoni	Barghat	Dharamkuan	DW	21.875	79.762	7.75	456	0	153	45	17	10	0.98	0.17	39	110	22	13	50	1.4
801	Seoni	Lakhnadon	Dhuma	DW	22.750	79.723	7.70	832	0	336	54	25	21	0.44	0.15	46	240	48	29	77	1.0
802	Seoni	Lakhnadon	Gaurabibi	DW	22.702	79.513	7.68	540	0	165	47	31	28	0.63	0.20	32	175	36	21	41	1.5
803	Seoni	Ghansaur	Ghansor I	DW	22.654	79.953	7.88	1028	0	329	79	46	57	0.52	0.17	48	380	58	57	56	1.3
804	Seoni	Lakhnadon	Gharghatia	DW	22.673	79.790	7.75	552	0	189	40	21	31	0.39	0.16	38	115	22	15	69	1.4
805	Seoni	Chhapara	Ghunai	DW	22.441	79.565	7.76	608	0	201	54	18	28	0.74	0.11	31	195	36	26	47	1.1
806	Seoni	Ghansaur	Gorakhpur	DW	22.743	79.914	7.78	743	0	244	72	23	33	0.38	0.17	39	310	54	43	25	0.7
807	Seoni	Barghat	Kalyanpur	DW	21.961	79.812	7.54	599	0	165	62	19	38	0.54	0.13	51	160	30	21	58	1.6
808	Seoni	Seoni	Kaniwara	DW	22.212	79.740	7.47	1717	0	439	220	78	49	1.08	0.14	31	445	66	68	183	2.5
809	Seoni	Barghat	Kauria	DW	22.017	79.843	7.63	914	0	262	92	42	52	0.57	0.19	35	325	68	38	55	3.7
810	Seoni	Keolari	Keolari	DW	22.371	79.911	7.91	655	0	275	37	19	15	0.46	0.21	39	245	24	45	34	1.9
811	Seoni	Dhanaura	Khamaria	DW	22.599	79.791	7.83	527	0	146	69	21	13	0.67	0.08	29	120	18	18	63	1.5
812	Seoni	Dhanaura	Kudari	DW	22.408	79.813	7.78	742	0	293	52	15	31	0.52	0.14	31	255	56	28	49	0.8
813	Seoni	Ghansaur	Kudopar	DW	22.638	80.035	7.67	574	0	195	45	29	12	0.41	0.09	48	205	62	12	33	1.2
814	Seoni	Lakhnadon	Lakhnadon I	DW	22.599	79.613	7.84	1100	0	299	116	54	65	0.78	0.15	26	340	78	35	92	2.1
815	Seoni	Lakhnadon	Madai	DW	22.540	79.595	7.75	592	0	226	35	25	18	0.29	0.21	38	175	30	24	52	0.9
816	Seoni	Lakhnadon	Makarjhir	DW	22.691	79.683	7.64	386	0	140	30	12	18	0.33	0.16	42	125	20	18	27	1.1
817	Seoni	Ghansaur	Masurbhanwari	DW	22.638	80.144	7.89	827	0	287	77	23	31	0.56	0.18	16	225	44	28	84	1.3
818	Seoni	Dhanaura	Mehta	DW	22.631	79.866	7.67	1589	0	476	146	68	101	0.42	0.22	38	555	146	46	103	1.9
819	Seoni	Lakhnadon	Nagan Deori	DW	22.818	79.666	7.91	834	0	238	92	36	42	0.48	0.14	37	255	50	32	72	2.1
820	Seoni	Seoni	Palari	DW	22.308	79.809	7.72	691	0	256	54	21	27	1.11	0.16	48	240	62	21	46	1.4
821	Seoni	Keolari	Pandiachhappara	DW	22.126	80.002	7.54	665	0	171	77	42	34	1.24	0.11	28	145	28	18	84	1.8
822	Seoni	Seoni	Pipardahi	DW	22.051	79.413	7.78	558	0	220	30	16	29	0.48	0.12	32	205	56	16	31	1.2
823	Seoni	Seoni	Rahiwara	DW	22.220	79.536	7.62	533	0	171	42	20	41	0.54	0.09	25	185	30	27	35	1.4
824	Seoni	Lakhnadon	Sahasna	DW	22.606	79.728	7.64	321	0	110	25	13	18	0.27	0.08	39	120	26	13	15	0.6
825	Seoni	Seoni	Seoni I	DW	22.094	79.547	7.88	935	0	348	72	29	39	0.38	0.13	28	325	82	29	62	0.7
826	Seoni	Keolari	Ugli	DW	22.258	80.063	7.73	650	0	220	59	28	18	0.45	0.11	42	210	48	22	45	9.4
827	Shahdol	Jiysingh Nagar	Amjhor	DW	23.667	81.546	7.36	617	0	165	77	12	47	0.11	0.11	12	165	42	15	61	5.7
828	Shahdol	Burhar	Bandhua Tola	DW	23.432	81.689	7.39	580	0	189	67	21	9	0.14	0.12	14	205	38	27	38	0.6
829	Shahdol	Jiysingh Nagar	Bansukli	HP	23.787	81.616	7.88	363	0	116	37	17	11	0.33	0.04	23	115	26	12	29	1.3
830	Shahdol	Beohari	Beohari	HP	24.013	81.380	7.54	820	0	342	60	11	19	0.17	0.05	48	245	48	30	72	3.8
831	Shahdol	Burhar	Bhikhampur	DW	23.441	81.673	7.46	760	0	275	80	15	20	0.24	0.06	10	240	38	35	59	6.9
832	Shahdol	Jiysingh Nagar	Bhurka	DW	23.714	81.376	7.04	527	0	201	47	13	8	0.49	0.07	28	175	34	22	37	1.9
833	Shahdol	Burhar	Burhar	HP	23.249	81.492	7.69	813	0	232	107	35	17	1.01	0.06	13	210	64	12	82	11.7
834	Shahdol	Jiysingh Nagar	Daraudi	HP	23.693	81.494	7.21	280	0	92	22	9	21	0.15	BDL	31	90	10	16	21	1.7
835	Shahdol	Burhar	Girwah	DW	23.257	81.696	7.67	506	0	195	27	18	27	0.30	BDL	23	185	36	23	27	2.0

S. No.	District	Block	Location	Source	Lat.	Long.	pH at 25°C	EC µS/cm at	mg/l												
									CO3	HCO3	Cl	SO4	NO3	F	PO4	SiO2	TH	Ca	Mg	Na	K
836	Shahdol	Gohparu	Gohparu	HP	23.491	81.409	7.21	815	0	268	70	33	44	0.15	BDL	29	265	44	38	62	1.8
837	Shahdol	Jiysingh Nagar	Jaisinghnagar1	HP	23.678	81.397	7.58	659	0	92	80	36	111	0.39	BDL	34	155	38	15	75	5.2
838	Shahdol	Jiysingh Nagar	Kanadi (Khurd)	HP	23.756	81.361	7.58	589	0	146	62	49	24	0.23	0.21	22	135	26	17	67	3.9
839	Shahdol	Sohagpur	Kanchanpur	DW	23.261	81.462	7.56	796	0	311	55	19	20	0.28	BDL	34	220	50	23	76	3.7
840	Shahdol	Jiysingh Nagar	Karki	DW	23.808	81.388	7.01	629	0	195	50	27	43	0.13	0.09	32	115	16	18	69	32.5
841	Shahdol	Burhar	Khamhidol	DW	23.369	81.732	7.29	1198	0	372	147	15	51	0.17	BDL	17	330	74	35	115	7.6
842	Shahdol	Burhar	Kotri	DW	23.459	81.711	7.38	639	0	214	57	18	33	0.28	BDL	3	170	36	19	49	29.5
843	Shahdol	Jiysingh Nagar	Kubara	DW	23.698	81.469	7.67	397	0	146	27	9	19	0.17	BDL	20	105	22	12	38	2.3
844	Shahdol	Burhar	Marjad	DW	23.271	81.587	7.49	973	0	299	107	33	37	0.20	0.04	13	265	58	29	96	7.5
845	Shahdol	Sohagpur	Nipaniya	DW	23.389	81.373	7.47	592	0	201	52	19	28	0.23	0.08	16	190	28	29	45	4.1
846	Shahdol	Beohari	Pasgari	DW	24.098	81.431	7.75	740	0	250	70	23	38	0.19	0.25	22	165	42	15	89	6.9
847	Shahdol	Jiysingh Nagar	Sanousi	DW	23.949	81.458	7.39	598	0	201	42	29	36	0.90	0.06	22	220	50	23	26	11.8
848	Shahdol	Gohparu	Sarsi	DW	23.581	81.401	7.43	434	0	153	35	13	25	0.38	0.38	30	145	26	19	29	3.7
849	Shahdol	Sohagpur	Shahdol	DW	23.299	81.360	7.24	590	0	220	47	23	13	0.41	0.52	22	160	38	16	59	2.6
850	Shahdol	Jiysingh Nagar	Sidi	DW	23.692	81.665	7.46	1030	0	311	102	39	55	0.90	0.10	19	290	56	36	97	6.1
851	Shahdol	Sohagpur	Singhpur1	HP	23.211	81.418	7.54	869	0	287	82	31	43	0.20	0.54	13	225	62	17	89	8.3
852	Shahdol	Jiysingh Nagar	Tihki	DW	23.928	81.367	7.60	645	0	177	90	18	19	0.55	0.06	12	245	56	26	31	3.5
853	Shahdol	Jiysingh Nagar	Umarkhohi	HP	23.854	81.497	7.14	623	0	201	62	23	32	0.45	0.14	31	180	38	21	57	2.1
854	Shajapur	Shujalpur	Akodia	BW	23.382	76.599	7.55	1315	0	484	105	75	11	0.43	0.01	42	420	20	90	102	3.2
855	Shajapur	Kalapipal	Arandia	DW	23.208	76.739	7.33	2245	0	303	455	125	75	0.66	0.018	39	910	246	72	108	2.5
856	Shajapur	Moman Badodia	Chouma	DW	23.649	76.225	7.2	1590	0	539	197	10	73	0.65	BDL	44	705	122	97	40	2
857	Shajapur	Kalapipal	Kalapipal	BW	23.334	76.833	7.51	1195	0	393	125	15	77	0.15	BDL	41	500	90	67	41	3.8
858	Shajapur	Shajapur	Majhania	DW	23.448	76.321	7.64	1050	0	284	90	68	61	0.14	BDL	40	435	96	47	35	1.5
859	Shajapur	Shajapur	Makshi New	BW	23.253	76.148	7.71	1026	0	266	107	72	60	0.74	BDL	52	240	38	35	120	2
860	Shajapur	Moman Badodia	Moman Badodia	DW	23.606	76.341	7.37	2030	0	605	285	12	100	0.38	0.015	40	805	136	113	95	1.8
861	Shajapur	Kalapipal	Nandni	DW	23.318	76.938	7.57	780	0	351	20	8	47	0.51	0.01	38	320	48	49	30	2.1
862	Shajapur	Shajapur	Narayangaon	DW	23.478	76.256	7.68	765	0	284	50	40	40	0.2	BDL	29	295	40	47	38	2
863	Shajapur	Shajapur	Panwadi	DW	23.504	76.404	7.6	1762	0	448	245	72	63	0.39	BDL	33	500	50	91	165	2.2
864	Shajapur	Moman Badodia	Salsalai	DW	23.464	76.538	7.56	1520	0	424	195	62	70	0.28	BDL	34	680	140	80	35	2.5
865	Shajapur	Shajapur	Shajapur	DW	23.421	76.276	7.8	1172	0	399	105	70	10	0.69	BDL	39	510	126	47	32	2.8
866	Shajapur	Shujalpur	Shujalpur	DW	23.406	76.709	7.77	720	0	175	105	10	56	0.82	0.018	46	300	58	38	25	3.5
867	Shajapur	Shajapur	Tilawat Govind	DW	23.310	76.333	7.59	1350	0	309	215	35	72	1.03	BDL	33	485	140	33	80	2.6
868	Shajapur		Khamlai	DW	23.154	76.875	7.39	736	0	236	60	35	30	0.27	BDL	28	330	32	61	15	1.5
869	Shajapur		Morta Kawadi	BW	NA	NA	7.5	945	0	405	67	6	43	0.4	BDL	24	410	40	75	32	1.3
870	Shajapur		Pagrawat Kalan	DW	23.160	76.551	7.4	1043	0	393	95	7	62	0.23	BDL	38	390	42	69	58	0.8
871	Shajapur		Simrol	DW	23.333	76.490	7.22	985	0	121	217	12	43	1.09	BDL	29	190	38	23	135	1.1
872	Sheopur	Sheopur	Baroda New	DW	25.491	76.656	7.62	1155	0	375	115	34	19	0.98	0.05	33	361	59	52	94	0.2
873	Sheopur	Sheopur	Bhagwara	BW	25.673	76.615	7.66	1424	0	430	145	41	64	0.61	0.10	24	465	111	46	108	0.6
874	Sheopur	Vijaypur	Dhobni	DW	25.832	77.580	7.89	1664	0	339	297	24	86	0.47	0.08	39	391	141	10	199	2.9
875	Sheopur	Sheopur	Doti	HP	25.671	76.599	7.80	766	0	327	32	39	15	0.61	0.09	25	213	42	26	75	0.4
876	Sheopur	Sheopur	Filojpura	HP	25.585	76.665	7.62	1979	0	442	245	44	223	0.64	0.13	41	500	69	79	220	1.0
877	Sheopur	Vijaypur	Garhi I	HP	26.120	77.306	7.51	928	0	339	92	18	35	0.40	0.09	30	416	103	39	19	0.3
878	Sheopur	Vijaypur	Ghaswani	HP	25.892	77.506	7.35	1347	0	230	245	36	48	0.23	0.17	27	465	135	31	94	0.8
879	Sheopur	Karahal	Goras	DW	25.534	76.945	7.79	574	0	236	35	12	9	0.12	0.16	29	208	50	20	32	1.6

S. No.	District	Block	Location	Source	Lat.	Long.	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	SiO2	TH	Ca	Mg	Na	K
							at 25°C	µS/cm at	mg/l												
880	Sheopur	Vijaypur	Harkui	BW	26.159	77.179	7.33	1012	0	290	97	15	89	0.13	0.05	33	396	97	37	47	0.4
881	Sheopur	Karahal	Kalmi	BW	25.581	76.879	7.48	1097	0	345	107	9	94	0.12	0.08	27	312	71	33	95	13.5
882	Sheopur	Karahal	Karahal	HP	25.493	77.057	7.88	804	0	260	60	20	63	0.22	0.14	35	277	89	13	54	1.0
883	Sheopur	Karahal	Kunorh	DW	25.529	77.199	7.76	1110	0	381	102	25	28	0.40	0.13	29	282	48	40	121	0.8
884	Sheopur	Karahal	Nonpura	DW	25.522	77.131	7.49	1122	0	484	82	10	8	0.30	0.08	34	361	55	54	86	1.4
885	Sheopur	Vijaypur	Panchoncolony	HP	26.135	77.124	7.32	2056	0	375	262	24	281	0.48	0.15	45	658	107	95	165	0.3
886	Sheopur	Sheopur	Pandola	HP	25.546	76.644	8.05	1150	0	484	67	17	59	0.80	0.18	36	411	69	58	71	1.0
887	Sheopur	Karahal	Piprani New	BW	25.633	76.953	8.03	628	0	303	22	13	7	0.20	0.05	25	248	63	22	27	0.5
888	Sheopur	Vijaypur	Pura	BW	25.953	76.991	7.26	1022	0	254	97	19	162	0.18	0.08	35	455	127	34	20	0.6
889	Sheopur	Sheopur	Rajpura	BW	25.710	76.681	7.78	805	0	357	32	11	27	0.39	0.17	28	297	73	28	45	0.4
890	Sheopur	Vijaypur	Shyampur	DW	26.081	77.034	7.96	1540	0	502	202	9	60	0.32	0.11	36	495	133	40	114	12.3
891	Sheopur	Vijaypur	Vijaypurcolony	BW	26.057	77.364	7.79	1460	0	375	220	49	5	0.53	0.08	40	282	50	39	201	1.2
892	Shivpuri	Khaniyadhana	Achhroni New	HP	24.992	78.231	7.64	817	0	212	70	34	103	0.37	BDL	38	223	55	20	81	1.5
893	Shivpuri	Pohri	Ainpura	DW	25.647	77.410	7.51	1606	0	399	127	98	196	0.63	BDL	27	426	77	57	170	1.9
894	Shivpuri	Karera	Awasa	DW	25.473	78.351	8.00	590	0	169	50	27	55	1.09	BDL	29	163	42	14	58	1.4
895	Shivpuri	Badarwas	Badarwas	HP	24.975	77.568	7.45	1517	0	454	132	53	132	0.38	0.10	31	386	67	53	166	2.3
896	Shivpuri	Khaniyadhana	Bamorkalan New	HP	24.886	78.151	7.71	578	0	169	55	39	23	0.74	BDL	34	149	32	17	62	1.2
897	Shivpuri	Narwar	Behgwan	DW	25.629	78.103	7.44	756	0	206	70	34	74	1.20	0.15	42	173	44	16	91	2.1
898	Shivpuri	Shivpuri	Bhagora	HP	25.418	77.760	7.71	443	0	139	37	27	19	0.51	BDL	51	119	18	18	45	1.7
899	Shivpuri	Pichhore	Bhonti	HP	25.320	78.100	8.03	834	0	266	72	21	71	0.43	0.11	28	208	55	17	94	1.6
900	Shivpuri	Shivpuri	Chorpura	HP	25.727	77.736	7.73	644	0	194	65	32	32	0.46	BDL	34	153	30	19	75	2.4
901	Shivpuri	Pichhore	Dhola	HP	25.283	78.130	8.06	1025	0	345	95	64	11	1.11	0.22	22	233	51	25	124	2.8
902	Shivpuri	Badarwas	Ganeshkhara	HP	25.087	77.793	7.93	916	0	236	77	42	115	0.29	0.09	37	248	69	18	93	3.2
903	Shivpuri	Pohri	Gobardhan	DW	25.790	77.534	7.79	629	0	206	67	23	13	0.68	BDL	15	129	26	16	79	2.5
904	Shivpuri	Karera	Karera	DW	25.454	78.136	7.67	862	0	248	72	37	91	1.04	BDL	19	208	34	30	101	1.7
905	Shivpuri	Karera	Languri	DW	25.484	78.123	7.85	543	0	163	45	19	58	1.03	0.08	24	153	24	23	52	1.9
906	Shivpuri	Narwar	Mangroni	HP	25.696	77.933	7.66	775	0	248	67	31	45	0.70	BDL	31	213	50	22	75	2.1
907	Shivpuri	Kolaras	Manipura New	DW	25.213	77.606	7.55	616	0	200	47	21	49	0.38	BDL	46	178	36	22	56	1.4
908	Shivpuri	Khaniyadhana	Masoori	DW	25.100	77.930	7.79	670	0	188	52	38	65	0.12	0.10	33	193	42	22	63	1.8
909	Shivpuri	Narwar	Narwar	HP	25.651	77.833	7.58	1151	0	333	95	42	127	0.39	BDL	24	327	55	46	112	1.6
910	Shivpuri	Shivpuri	Patera	DW	25.610	77.736	7.97	754	0	248	80	23	24	0.55	BDL	18	173	34	22	90	2.1
911	Shivpuri	Pichhore	Pichhore	HP	25.179	78.191	7.44	1866	0	454	240	80	114	0.49	0.15	44	480	135	35	201	2.5
912	Shivpuri	Pohri	Pohari	DW	25.541	77.365	7.70	961	0	315	77	35	76	0.21	BDL	19	272	42	41	92	1.9
913	Shivpuri	Karera	Sarsod	HP	25.423	78.051	7.47	840	0	224	57	41	118	0.42	0.07	35	238	36	36	79	2.1
914	Shivpuri	Shivpuri	Satanwara	DW	25.544	77.731	7.49	1487	0	418	210	58	19	0.39	BDL	27	356	55	53	172	2.7
915	Shivpuri	Narwar	Sehore	HP	25.665	78.106	7.45	3371	0	890	287	141	296	0.32	BDL	22	718	111	107	319	127.5
916	Shivpuri	Pichhore	Semri	HP	25.182	78.112	7.57	721	0	212	52	52	51	0.55	BDL	29	208	46	23	67	2.1
917	Shivpuri	Karera	Sikandara	DW	25.472	78.365	7.70	482	0	151	35	18	42	0.54	0.09	25	139	22	20	43	1.2
918	Shivpuri	Shivpuri	Sirsod	BW	25.486	77.510	7.80	673	0	236	50	29	37	0.59	BDL	36	183	30	26	68	2.1
919	Shivpuri	Karera	Sirsod Chouraha	DW	25.422	78.051	7.49	945	0	260	77	38	108	0.58	0.11	47	228	44	29	108	1.7
920	Shivpuri	Khaniyadhana	Sitapur	HP	25.133	78.207	7.55	678	0	169	55	31	96	1.02	0.07	23	188	38	23	66	1.4
921	Shivpuri	Shivpuri	Survaya	DW	25.413	77.835	7.86	373	0	97	45	15	22	0.46	BDL	44	64	10	10	53	1.8
922	Shivpuri	Karera	Toda Kareaa	DW	25.453	78.185	7.68	657	0	206	60	22	50	0.31	BDL	23	193	24	33	60	1.3
923	Sidhi	Rampur Naikin	Baghwar	DW	24.331	81.379	7.95	450	0	213	22	8	2	1.02	BDL	32	153	42	12	31	0.5

S. No.	District	Block	Location	Source	Lat.	Long.	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	SiO2	TH	Ca	Mg	Na	K
							at 25°C	μS/cm at	mg/l												
924	Sidhi	Sidhi	Baghwari	HP	24.353	81.826	7.70	565	0	279	15	10	10	0.35	BDL	25	178	44	17	46	0.2
925	Sidhi	Sihawal	Bahari	DW	24.447	82.171	8.20	252	0	61	15	38	7	0.20	BDL	28	35	10	2	38	0.7
926	Sidhi	Sidhi	Barambaba	HP	24.275	81.902	7.98	350	0	164	15	12	2	0.15	BDL	36	168	46	13	2	0.4
927	Sidhi	Majhauri	Bastua	DW	23.987	81.709	7.87	535	0	207	30	10	49	0.24	BDL	41	198	53	16	30	0.6
928	Sidhi	Majhauri	Chhuhi	HP	24.186	81.656	7.96	520	0	207	45	6	18	0.15	BDL	32	139	22	20	55	0.9
929	Sidhi	Sidhi	Chilheri Kalan	TW	24.458	81.792	7.45	420	0	194	22	8	6	0.42	BDL	21	153	28	20	25	0.4
930	Sidhi	Rampur Naikin	Chouphal	TW	24.289	81.788	8.00	555	0	225	15	42	20	0.12	BDL	18	183	42	19	40	2.5
931	Sidhi	Rampur Naikin	Chourhat	DW	24.425	81.673	7.97	610	0	219	70	10	13	0.32	BDL	10	178	38	20	56	1.2
932	Sidhi	Majhauri	Jogipahari	HP	24.116	81.750	7.94	435	0	152	30	18	25	0.38	BDL	17	139	34	13	34	0.8
933	Sidhi	Rampur Naikin	Khamh	DW	24.238	81.738	7.49	315	0	85	27	25	18	0.97	BDL	40	104	18	14	22	0.3
934	Sidhi	Sidhi	Kuchwahi	DW	24.406	81.977	8.10	370	0	164	22	5	7	0.52	BDL	20	139	28	17	20	0.4
935	Sidhi	Majhauri	Mahua Gaon	DW	24.047	81.947	7.78	520	0	231	27	10	15	0.11	BDL	15	188	48	17	32	0.6
936	Sidhi	Majhauri	Majhauri	HP	24.120	81.630	7.66	985	0	310	115	26	35	0.21	BDL	25	282	77	22	93	1.7
937	Sidhi	Majhauri	Majhgawan	HP	24.101	81.819	7.59	540	0	225	35	18	6	0.30	BDL	18	168	46	13	45	1.1
938	Sidhi	Sihawal	Padariya	TW	24.432	82.099	7.48	275	0	97	20	12	10	0.22	BDL	24	89	20	10	19	0.6
939	Sidhi	Majhauri	Parsilli	DW	24.147	81.488	7.79	650	0	334	25	10	3	0.21	BDL	28	213	38	29	50	1.4
940	Sidhi	Sidhi	Patpara	DW	24.485	81.890	7.73	675	0	328	27	9	13	0.17	BDL	29	213	42	26	55	1.3
941	Sidhi	Rampur Naikin	Rampur2	HP	24.343	81.481	7.42	760	0	237	85	42	11	0.36	BDL	24	203	44	23	78	1.7
942	Sidhi	Majhauri	Semariha	DW	24.133	81.552	8.11	559	0	188	55	28	3	0.20	BDL	26	203	24	35	32	0.9
943	Sidhi	Sidhi	Sidhi	HP	24.403	81.888	7.65	900	0	255	120	41	13	0.22	BDL	32	277	53	35	78	0.6
944	Sidhi	Majhauri	Tikri	TW	24.162	81.863	8.19	415	0	152	40	14	8	1.02	BDL	33	139	32	14	30	1.2
945	Singrauli	Deosar	Banjari	DW	24.088	81.930	7.24	765	0	213	102	12	27	0.12	0.1	23	252	63	23	52	2.2
946	Singrauli	Deosar	Bargawan	HP	24.196	82.456	7.63	987	0	425	77	8	12	0.97	BDL	32	282	71	25	85	1.8
947	Singrauli	Deosar	Bharra	DW	24.383	82.260	8.02	322	0	106	30	14	16	0.05	BDL	27	81	12	12	34	0.8
948	Singrauli	Deosar	Bharseda	DW	24.078	81.963	8.08	445	0	149	35	22	8	0.05	BDL	19	187	42	20	11	1.5
949	Singrauli	Deosar	Chamari Dol	DW	24.001	82.106	7.92	532	0	181	57	10	28	0.34	0.2	35	162	38	16	42	2.4
950	Singrauli	Waidhan	Chaura	DW	24.011	82.472	7.47	965	0	317	155	5	22	0.42	BDL	26	202	42	23	124	1.9
951	Singrauli	Deosar	Deosar1	HP	24.319	82.304	7.89	687	0	280	47	12	26	0.56	BDL	31	217	73	9	52	2.6
952	Singrauli	Waidhan	Gaderiya	HP	24.156	82.486	7.62	512	0	156	60	5	28	0.42	BDL	42	197	42	22	22	2.2
953	Singrauli	Waidhan	Jamgadi	HP	24.040	82.318	7.96	543	0	218	40	8	26	0.32	BDL	37	172	46	14	42	2.4
954	Singrauli	Waidhan	Jattha Tola	DW	24.047	82.256	7.86	423	0	137	35	7	31	0.62	BDL	24	111	24	12	38	3.1
955	Singrauli	Waidhan	Kachani	HP	24.082	82.592	7.96	1289	0	93	352	48	5	1.01	0.1	29	303	85	22	152	3.5
956	Singrauli	Deosar	Karthua	DW	24.395	82.244	7.82	742	0	87	127	5	105	0.25	BDL	33	177	53	11	81	2.9
957	Singrauli	Deosar	Kohara Khoh	DW	24.268	82.343	7.23	466	0	162	35	10	26	0.62	BDL	32	162	38	16	26	1.9
958	Singrauli	Waidhan	Koyal Khunth	HP	23.946	82.485	7.68	788	0	205	100	14	68	0.38	BDL	19	273	73	22	48	1.5
959	Singrauli	Waidhan	Mara	DW	23.897	82.503	7.35	1142	0	380	132	22	49	0.43	BDL	24	399	103	34	72	2.1
960	Singrauli	Deosar	Papal Khera	HP	24.120	81.934	7.42	698	0	305	27	14	43	0.42	BDL	28	207	65	11	58	2.2
961	Singrauli	Deosar	Parasi	DW	24.040	82.041	7.33	712	0	237	47	12	66	0.38	0.1	35	197	63	10	62	4.9
962	Singrauli	Waidhan	Parsauna New	DW	24.089	82.558	7.34	545	0	224	32	8	39	0.52	BDL	36	172	53	10	38	3.2
963	Singrauli	Deosar	Sarai	TW	24.040	82.204	7.62	723	0	255	70	11	44	0.35	0.1	23	237	65	18	52	3.5
964	Tikamgarh	Baldeogarh	Baldeogarh	DW	24.756	79.050	7.68	860	0	304	77	32	25	0.86	BDL	26	360	112	19	25	6
965	Tikamgarh	Tikamgarh	Baragaon	DW	24.572	79.022	7.75	770	0	279	55	23	65	0.43	BDL	21	325	114	10	27	0.8
966	Tikamgarh	Jatara	Bawri	DW	24.920	78.839	7.7	445	0	200	22	10	12	0.32	BDL	36	190	58	11	14	1
967	Tikamgarh	Prithvipur	Birorakhet	DW	25.115	78.792	7.74	1270	0	365	162	34	83	0.35	BDL	23	595	216	13	17	1.5



S. No.	District	Block	Location	Source	Lat.	Long.	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	SiO2	TH	Ca	Mg	Na	K
							at 25°C	μS/cm at	mg/l												
968	Tikamgarh	Jatara	Digaura	DW	24.971	78.839	7.38	1480	0	279	287	35	79	0.45	BDL	21	535	148	40	93	0.5
969	Tikamgarh	Jatara	Jatara	DW	25.003	79.048	7.99	490	0	182	15	30	50	0.4	BDL	22	185	64	6	25	3.2
970	Tikamgarh	Tikamgarh	Majna	DW	24.836	78.997	7.63	1410	0	304	205	40	110	0.53	BDL	43	605	138	63	45	1.3
971	Tikamgarh	Baldeogarh	Manikpur	DW	24.848	79.171	7.56	670	0	261	25	21	74	0.35	BDL	39	260	74	18	32	2.8
972	Tikamgarh	Tikamgarh	Mawai	DW	24.794	78.928	7.43	395	0	61	32	45	56	1.05	BDL	37	150	22	23	20	1.4
973	Tikamgarh	Prithvipur	Nengawan	DW	25.255	78.673	7.4	1025	0	243	130	40	87	1.13	BDL	45	385	100	33	55	2.9
974	Tikamgarh	Niwari	Niwari New	DW	25.345	78.801	7.27	1100	0	279	137	37	87	0.53	BDL	41	430	146	16	53	1
975	Tikamgarh	Niwari	Orchha	DW	25.349	78.641	7.64	1125	0	328	100	48	94	1.03	BDL	45	510	106	60	20	2
976	Tikamgarh	Prithvipur	Prithipur	DW	25.206	78.754	7.68	1030	0	322	145	10	30	1.64	BDL	21	340	78	35	76	1.3
977	Tikamgarh	Tikamgarh	Tikamgarh	DW	24.744	78.838	7.34	1625	0	286	345	34	23	0.75	BDL	43	765	134	105	20	2.3
978	Ujjain	Ghatia	Bachhukhera	BW	23.312	75.791	7.96	1612	0	207	227	22	321	0.90	0.3	36	280	52	36	212	2.3
979	Ujjain	Ujjain	Chakrawada Grid	DW	23.257	75.708	7.62	1423	0	348	177	28	108	0.40	BDL	42	555	158	39	64	1.1
980	Ujjain	Badnagar	Chhoti Ghadsod	HP	23.108	75.452	7.75	1145	0	275	130	45	104	0.20	BDL	19	325	86	27	102	3.2
981	Ujjain	Ujjain	Dabla Rehware	HP	23.252	75.814	7.46	942	0	250	140	15	13	1.10	0.1	27	265	84	13	81	2.9
982	Ujjain	Tarana	Dablahardu	BW	23.495	75.895	7.49	2879	0	708	547	44	65	0.20	BDL	35	1010	306	60	184	2.1
983	Ujjain	Mahidpur	Ghosla	DW	23.439	75.876	8.03	2445	0	397	535	16	78	0.15	BDL	41	745	244	33	209	1.4
984	Ujjain	Tarana	Kaiytha	DW	23.233	76.018	7.69	3565	0	537	810	29	147	0.25	BDL	26	1450	486	57	139	2.5
985	Ujjain	Badnagar	Kharotia	HP	23.163	75.630	7.78	2042	0	647	215	44	53	0.35	0.2	29	660	224	24	152	1.8
986	Ujjain	Mahidpur	Mahidpurroad	DW	23.567	75.508	7.44	3046	0	372	887	35	55	0.95	BDL	32	1195	378	61	145	3.5
987	Ujjain	Tarana	Makdon	DW	23.504	76.069	7.81	947	0	250	150	22	30	0.05	BDL	39	355	106	22	50	2.2
988	Ujjain	Ujjain	Naikhedi	HP	23.204	75.675	8.01	1042	0	421	52	36	85	0.60	BDL	43	440	108	41	27	5.2
989	Ujjain	Ujjain	Narwar	BW	23.080	75.902	7.68	1123	0	372	62	65	73	0.05	BDL	29	325	112	11	102	1.9
990	Ujjain	Ghatia	Nazarpur	BW	23.352	75.853	7.84	1089	0	256	120	55	55	0.90	0.4	27	215	52	21	138	2.6
991	Ujjain	Ujjain	Palkhanda	HP	23.041	75.946	7.76	2512	0	299	615	15	74	0.25	BDL	34	690	198	47	242	1.1
992	Ujjain	Ujjain	Patpala	DW	23.198	75.866	7.65	912	0	281	77	45	21	0.10	BDL	36	310	92	19	54	1.3
993	Ujjain	Ghatia	Ruie	BW	23.286	75.652	7.76	1312	0	378	170	18	90	0.25	BDL	33	535	156	35	42	1.8
994	Ujjain	Tarana	Rupakhedi	HP	23.475	75.971	7.87	2085	0	610	255	24	93	0.50	0.1	29	465	164	13	256	2.3
995	Ujjain	Khachrod	Unhel	DW	23.338	75.549	7.82	2112	0	415	355	15	117	0.10	BDL	27	885	292	38	65	2.2
996	Ujjain	Ujjain	Vijayganj Mandi	HP	23.219	75.952	7.74	1456	0	311	232	14	87	0.40	BDL	35	440	112	39	123	1.6
997	Umaria	Karkeli	Bichua	OW	23.466	80.747	7.56	920	0	444	22	16	14	0.38	BDL	37	320	104	15	55	2.6
998	Umaria	Pali	Birsinghpur I	HP	23.367	81.040	7.22	675	0	122	60	95	65	0.23	BDL	22	290	82	21	30	2.3
999	Umaria	Manpur	Ohamokhar	OW	23.630	80.922	7.37	624	0	279	15	15	31	0.25	BDL	35	210	66	11	43	2.8
1000	Umaria	Pali	Ghungthuti New	HP	23.349	81.190	7.49	572	0	273	15	13	16	0.33	BDL	32	235	62	19	22	1.7
1001	Umaria	Karkeli	Karkeli New	OW	23.464	80.906	7.32	283	0	55	22	21	42	0.27	BDL	37	90	28	5	22	1.7
1002	Umaria	Manpur	Mahroi	OW	23.955	80.926	7.47	855	0	298	90	33	22	1.34	BDL	29	120	20	17	145	2.2
1003	Umaria	Manpur	ManpurNew	OW	23.760	81.117	7.34	275	0	49	15	28	38	0.37	BDL	34	75	26	2	23	1.1
1004	Umaria	Karkeli	Nigahari	HP	23.409	80.683	7.84	720	0	219	67	50	15	1.98	BDL	33	95	32	4	118	1.3
1005	Umaria	Karkeli	Nowrozabad	HP	23.393	80.983	7.14	345	0	49	35	37	42	0.41	BDL	29	95	30	5	32	1.8
1006	Umaria	Bandhavgarh	Parasi	HP	23.664	80.944	7.22	276	0	49	15	32	21	0.12	BDL	20	60	16	5	25	0.9
1007	Umaria	Manpur	Pataur	OW	23.774	81.036	7.34	860	0	316	77	23	21	0.41	BDL	34	360	120	15	34	1.3
1008	Umaria	Bandhavgarh	Tala	OW	23.721	81.021	7.75	672	0	200	35	30	75	0.24	BDL	30	230	50	26	37	2.1
1009	Umaria	Bandhavgarh	Umaria	OW	23.525	80.839	7.32	500	0	207	17	20	18	0.54	BDL	31	200	60	12	20	2.2
1010	Umaria	Pali	Amiliya	OW	23.322	81.298	7.23	365	0	164	7	18	12	0.31	BDL	38	135	44	6	18	1.6
1011	Umaria	Manpur	Panpatha	OW	23.869	81.005	7.24	844	0	261	67	32	55	0.38	BDL	27	290	90	16	54	2.5

S. No.	District	Block	Location	Source	Lat.	Long.	pH at 25°C	EC µS/cm at	mg/l												
									CO3	HCO3	Cl	SO4	NO3	F	PO4	SiO2	TH	Ca	Mg	Na	K
1012	Vidisha	Gyaraspur	Atari Khejda	DW	23.615	78.028	7.58	964	0	346	82	30	37	0.27	0.09	39	290	42	45	85	1.2
1013	Vidisha	Vidisha	Bagri	DW	23.568	77.765	7.43	889	0	298	105	17	11	0.30	BDL	21	225	56	21	96	2.3
1014	Vidisha	Basoda	Bagrodcrossing	HP	23.733	78.176	7.93	1053	0	431	87	11	22	0.54	BDL	55	270	66	26	114	1.8
1015	Vidisha	Vidisha	Bamuriya	DW	23.613	77.763	7.74	890	0	298	77	33	43	0.33	0.08	78	295	48	43	65	1.5
1016	Vidisha	Basoda	Bareth	DW	23.913	78.00	7.76	985	0	401	67	25	24	0.62	BDL	41	310	62	38	81	2.2
1017	Vidisha	Vidisha	Bilari	DW	23.578	77.70	7.48	1931	0	620	190	63	88	0.37	0.14	20	485	96	60	213	4.9
1018	Vidisha	Sironj	Dehri Jagir	DW	24.041	77.786	7.53	1391	0	504	122	43	49	0.22	BDL	31	370	74	45	147	1.8
1019	Vidisha	Sironj	Deopur	DW	24.155	77.621	7.49	828	0	292	55	27	63	0.12	BDL	33	275	58	32	61	1.2
1020	Vidisha	Basoda	Ganjbasoda 1	DW	23.863	77.924	7.51	1358	0	516	132	31	11	0.46	0.20	29	255	70	19	190	2.6
1021	Vidisha	Basoda	Ghatera	DW	23.807	78.124	7.47	1064	0	310	97	40	101	0.07	BDL	51	395	116	26	53	11.1
1022	Vidisha	Gyaraspur	Gyaraspur 1	BW	23.667	78.114	6.93	1551	0	529	137	57	80	0.18	BDL	38	490	122	45	127	2.8
1023	Vidisha	Vidisha	Hirnai	DW	23.568	77.95	7.76	1024	0	419	85	16	15	0.43	0.15	24	360	70	45	67	2.5
1024	Vidisha	Vidisha	Imaliya	DW	23.576	77.781	6.78	730	0	279	57	29	8	0.12	BDL	21	290	58	35	31	1.9
1025	Vidisha	Kurwai	Kurwai 1	DW	24.125	78.043	7.60	1250	0	377	122	63	73	0.36	BDL	22	455	106	46	75	2.2
1026	Vidisha	Basoda	Malkapur	DW	23.979	77.851	7.23	1106	0	310	137	49	49	0.67	0.04	43	275	56	33	123	5.2
1027	Vidisha	Neteran	Mohanpura	DW	23.796	77.531	7.33	804	0	256	85	29	36	0.33	BDL	49	195	42	22	93	1.4
1028	Vidisha	Basoda	Mudra	DW	23.777	78.186	7.66	589	0	207	37	20	51	0.45	BDL	36	215	44	26	32	1.5
1029	Vidisha	Neteran	Nateran	DW	23.762	77.775	7.53	1914	0	592	215	96	41	0.40	0.60	18	420	70	60	241	6.5
1030	Vidisha	Sironj	Patharia	DW	24.115	77.819	7.21	1374	0	317	137	104	125	0.31	BDL	23	440	88	54	110	2.0
1031	Vidisha	Vidisha	Pattan	DW	23.725	77.657	7.58	533	0	177	45	31	17	0.40	BDL	38	205	30	32	25	1.6
1032	Vidisha	Neteran	Rasulli	HP	23.811	77.542	7.20	593	0	195	52	22	39	0.20	0.13	27	190	48	17	47	1.3
1033	Vidisha	Vidisha	Salaiya	HP	23.608	77.576	7.43	1278	0	275	122	69	186	0.21	BDL	52	330	66	40	138	1.3
1034	Vidisha	Sironj	Sironj 1	DW	24.099	77.689	7.51	994	0	305	107	42	32	0.12	BDL	24	290	42	45	88	6.8
1035	Vidisha	Lateri	Tajpura	DW	24.062	77.293	6.96	394	0	134	30	21	13	0.16	0.21	54	130	18	21	27	1.5
1036	Vidisha	Neteran	Tinsiyai	DW	23.772	77.609	7.92	821	0	238	107	36	21	0.56	BDL	49	215	56	18	86	4.4
1037	Vidisha	Basoda	Udaipur	DW	23.901	78.055	7.50	1037	0	281	90	55	109	0.10	1.00	31	355	44	60	71	3.1
1038	Vidisha	Vidisha	Vidisha	DW	23.526	77.824	7.15	1094	0	348	117	62	10	0.27	BDL	33	340	74	38	87	9.5

**Central Ground Water Board**  
**North Central Region**  
**GOVERNMENT OF INDIA**  
**MINISTRY OF JAL SHAKTI**  
**DEPARTMENT OF WATER RESOURCES, RIVER DEVELOPMENT AND**  
**GANGA REJUVENATION**

**June 2021**