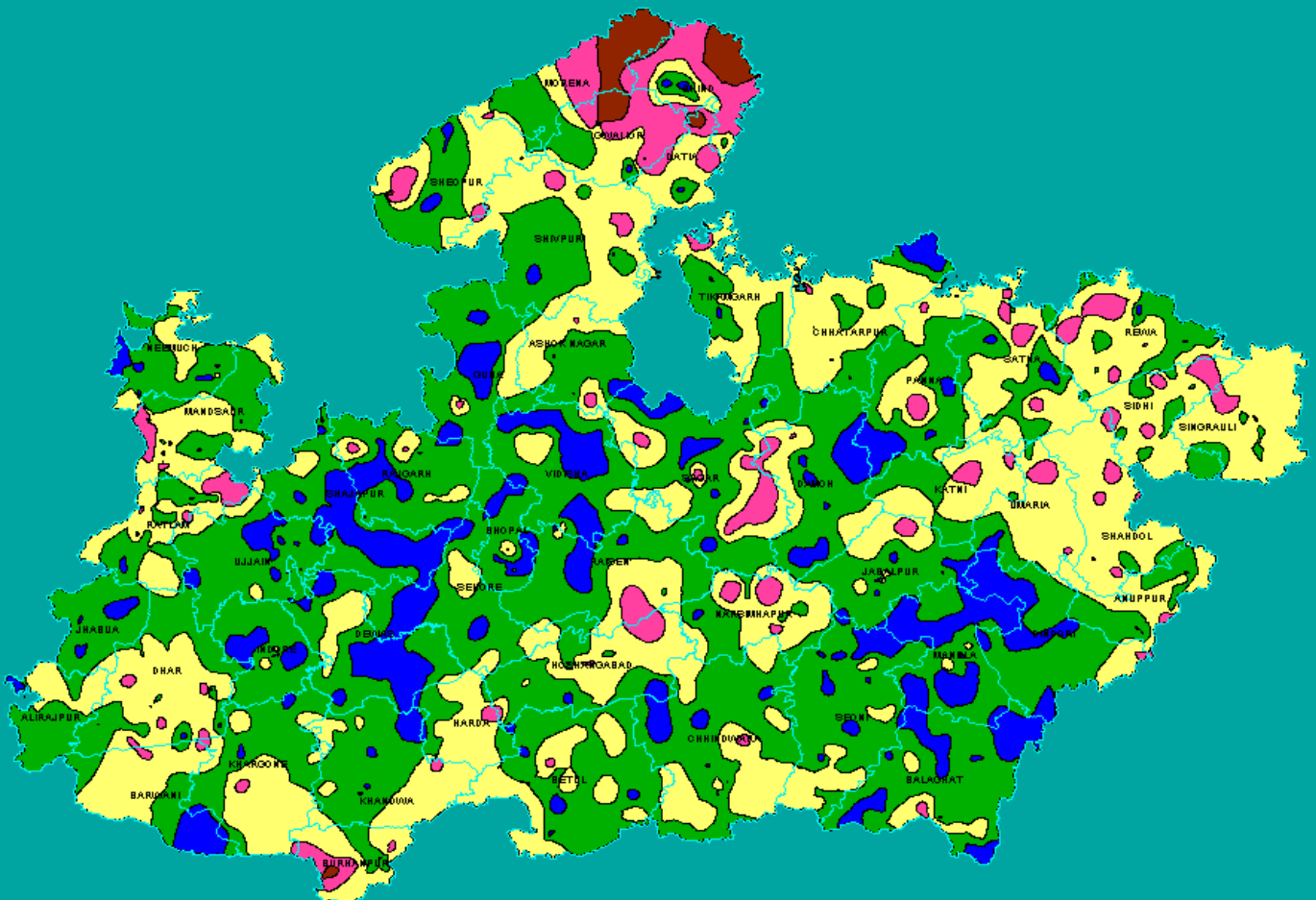




# Ground Water Year Book - Madhya Pradesh (2015-16)



**Central Ground Water Board**  
North Central Region  
Ministry of Water Resources, River Development and Ganga Rejuvenation  
Government of India

November 2016



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(2015-16)**

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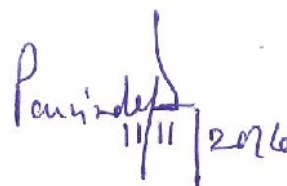
**November 2016**

## 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 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 water year 2015-16 by the officers of Central Ground Water Board in the State of Madhya Pradesh. Presently there are 1482 as on 31.03.2015 and 1487 as on 31.03.2016, Ground Water monitoring Wells under this programme in entire Madhya Pradesh.

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. Water samples are also collected for selected stations for every year in May for analysis of heavy metals. 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 water year 2015-16. During this water year, the existing network stations were monitored during May 2015, August 2015, November 2015 and January 2016.

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. Preparation of this report has been an arduous task which has been successfully completed by *Shri R. M. Verma, Scientist D (Hydrogeology) and Shri Tej Singh, Assistant Chemist*. 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.



(Parvinder Singh)  
Regional Director

## **EXECUTIVE SUMMARY**

Central Ground Water Board, North Central Region, monitors ground water levels in entire State of Madhya Pradesh through 1487 Ground Water Monitoring Wells, four times in a hydrological 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 levels 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 water year 2015-16.

Total geographical area of Madhya Pradesh State is 3,08,252 km<sup>2</sup>, which comprises fifty one 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 as six major rivers originate from the State namely 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, Sone sub basin), Narmada basin, Godavari basin, Tapti basin, Mahi basin and Mahanadi basin.

Central Ground Water Board, North Central Region has set up a network of monitoring wells spread over the State in different hydrogeological conditions, consisting of 1161 Dugwells and 326 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, when concentrations of different chemical constituents are expected to be highest.

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%. Recent unconsolidated alluvial sediments occupy about 14.4% of total geographical area.

Monsoon rainfall is the sole source of natural recharge to ground water regime and rainfall pattern has an important impact on groundwater levels 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, August being the rainiest month.

Monsoon rainfall within  $\pm 19\%$  of the normal monsoon rainfall is considered normal. Monsoon rainfall above 19% of the normal monsoon rainfall is considered excess and monsoon rainfall less than -19%

and more than -59% of the normal monsoon rainfall is considered deficit and if the monsoon rainfall is lesser than -59% of the normal monsoon rainfall, it is considered scanty.

The normal rainfall of the Madhya Pradesh State is 938 mm. About 829 mm rainfall as an average of state rainfall was received during 2015 monsoon period. About 10.0% less rainfall has occurred during the year with respect to normal rainfall. The percent departures of the monsoon rainfall from the normal rainfall worked out, which shows that all most entire state has received less rainfall than normal rainfall except in Khandwa, Betul, Chhindwara, Indore, Rajgarh, Shajapur, Ratlam, Mandsaur and part of Dhar districts. Shajapur rain gauge station has received the highest rainfall of 1473.1 mm and Bhind rain gauge station has received the least rainfall of 399.9 mm. North, north-east, central and south-eastern parts of the state have received deficit rainfall. Shajapur, Dewas, Ujjain, Ratlam, Indore and Rajgarh rain gauge has received excess rainfall. Anuppur rain gauge station has received highest deficit rainfall in the state.

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 during May 2015 ranged from 1.05 to 49.57 metres below ground level (mbgl) in Madhya Pradesh. About 1.47% percent of the wells in the State recorded a water level up to 2 m bgl, 14.70% between 2-5 m bgl, 46.29% between 5-10 m bgl, 32.11% between 10-20 m bgl, 4.48% between 20-40 m bgl and 0.96% in more than 40 m bgl. Depth to water levels 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. Depth to Water levels ranges from 0.30m bgl to 35.97 m bgl in Madhya Pradesh state. Depth to water level during November 2015 ranged from 0.30 m bgl to 35.97 m bgl in Madhya Pradesh. 6.42% percent of the wells in the State recorded a water level up to 2 m bgl, 32.92% between 2-5 m bgl, 40.37% between 5-10 m bgl, 17.93% between 10-20 m bgl, and 2.36% between 20-40 m bgl and there is no well comes under more than 40 m bgl. Water levels between 5-10 m bgl are most prominent over the entire state.

Ground water is a dynamic system. The ground water level or head is subject to change both due to natural and man made causes. The water level data of May 2015 was compared with that of November 2015. Comparison of November 2015 water levels with that of May 2015 shows that there is a rise in the ground water level in about 84.54% of the wells due to monsoon recharge and 15.46% of wells show decline in water level. Rise in the order of 0-2 m is seen in about 37.33% of wells in the state. 26.47% of wells show a rise in the order of 2-4 m. 20.74% wells recorded a rise of water level by more than 4 m. About 13.05% of the wells show a decline in water level up to 2 m, 1.81% of the wells show a decline in water level between 2 to 4 m and 0.60% of the wells shows decline more than 4 m. Such a rise is a natural phenomenon in the hydrological cycle since the monsoon rainfall recharges the ground water regime.

Long term behaviour of water levels 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 groundwater levels were influenced by monsoon rainfall received in the area during the year 2015. The ground water levels of May 2015 were compared with the 10 years May (2005-2014) average ground water levels to decipher the long-term changes in the ground water regime. It is observed that about 58.76% of the wells show rise and about 41.24% wells show decline

in water levels in the state. The rise in water level is in the order of 0-2 m in 38.33% of the wells, 2-4 m in 12.52% of the wells and more than 4 m in about 7.91% of the wells. The decline in water levels in the order of 0-2 m is about 29.65% of the wells, between 2-4 m in 6.61% of the wells and more than 4 m in 4.99% of the wells.

Ground water levels trend map of pre-monsoon period (May 2006 to May 2015) in Madhya Pradesh state shows that there is a general rising trend up to (0.10 m/year) of ground water levels during the past decade in the almost all the districts of the State. The rising trend at higher rate (0.10 to 0.2 m/year) is found in sporadic patches of smaller areal extent in Dewas, Sheopur, Gwalior, Panna, Satna and Shajapur district. The rising trend more than 0.20 m/year has been observed in Sheopur, Dewas districts of the State. Declining trend at a rate up to (-0.10 m/year) is observed in patches mainly in central and southern parts of the state. The declining trend at higher rate (-0.10 to -0.20 m/year) has been observed only at few districts, namely, Chhindwara, and Narsinghpur districts. About 33.6 % of monitoring wells are showing declining water levels trend while 66.4 % monitoring wells are showing rising ground water level trend.

Ground water levels trend map of post-monsoon period (Nov 2006 to Nov 2015) in Madhya Pradesh state Map shows that there is a general rising trend up to 0.10 m/year of ground water levels during the past decade in all most all the districts of the State. Rising trend at a rate 0.10 to 0.20 m/year is observed only in small patches in Shivpuri, Gwalior, Ujjain and Rewa districts. The rising trend at rate more than 0.20 m/year) is found only in Gwalior. The declining trend up to 0.10 m/year has been observed in patches mainly in Southern and central parts of state. The declining trend at rate (-0.10 to -.20 m/year) is found in patches mainly in Morena, Sheopur, Narsinghpur and Betul districts. Declining water levels trend more than (-0.20 m/year) has been observed only in Narsinghgarh and Sheopur districts. About 36.8 % of monitoring wells are showing declining water levels trend while 63.2 % monitoring wells are showing rising ground water level trend.

1050 number of ground water samples were collected from the ground water monitoring wells during May 2014 in entire Madhya Pradesh State. The analyses of ground water samples indicate that ground water in state of Madhya Pradesh state is generally good. In most 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  $25^\circ\text{C}$  (1.52%) has been recorded specially in Ashoknagar, Bhind, Damoh, Datia, Dewas, Gwalior, Khargone, Mandla, Neemuch, Sehore, Shajapur, Shivpuri and Ujjain districts.

Fluoride concentration more than permissible limit i.e. 1.5 mg/l is observed in Agar Malwa, Anuppur, Betul, Chhindwara, Katni, Mandla, Narsinghpur, Sehore, Seoni, Shahdol, Shajapur, Ujjain And Umaria districts. The maximum fluoride concentration has been observed at Rehgaon (3.85mg/l), Mandla district. In Madhya Pradesh, 91.71% wells have been recorded fluoride concentration within the desirable limit of 1.0 mg/l where as 1.81% wells show fluoride concentration more than the maximum permissible limit of 1.5 mg/l.

The analyses of ground water samples indicate that 66.48% wells have nitrate concentration within the permissible limit of 45mg/l, while 33.52% wells have nitrate concentration above permissible limit. Nitrate concentration more than permissible limits have been observed in Agar Malwa, Alirajpur, Anuppur, Ashoknagar, Balaghat, Barwani, Betul, Bhind, Bhopal, Burhanpur, Chhatarpur, Chhindwara, Damoh, Datia, Dewas, Dhar, Guna, 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 and Vidisha districts. Very high Nitrate concentration more than 500 mg/l has been observed at Sirsod Chouraha (765 mg/l), Shivpuri district observation wells.

Total Hardness in ground water samples ranges between 20 to 1805 mg/l. Most of the waters are calcium bicarbonate type attributing to temporary hardness of water. The analyses reveal that 7.05% of wells show hardness more than the permissible limit of 600 mg/l. In general the ground water is good for drinking purposes and suitable for irrigation.

# **GROUND WATER YEAR BOOK - MADHYA PRADESH (2015- 16)**

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# GROUND WATER YEAR BOOK - MADHYA PRADESH (2015- 16)

## 1. INTRODUCTION

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. 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 51 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, 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 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 annuals, 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 Central Ground Water Board, based at Bhopal, monitor the ground water wells spread all over the state. As on start of the year i.e. 31-03-2015, the number of ground water monitoring well is 1482 which includes 1134 dugwells and 348 piezometers. During the year some new additional dug wells were established. Few of the exiting dugwells and Piezometers were declared as abandoned. At the close of the Year i.e 31-03-2016, the number of ground water monitoring well is 1487 which includes 1161 dugwells and 326 piezometers. District-Wise Distribution of Ground Water Monitoring Wells in Madhya Pradesh 2015-16 is given in Table 1. The locations of these stations are shown in Figure 1. All stations 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 previous year, premonsoon period and previous seasons of the same hydrological year and decadal mean (10 years of average) of the same season.



**Table 1 District-Wise Distribution of Ground Water Monitoring Wells in Madhya Pradesh State (2015-16)**

S No.	District	No of monitoring stations As on 31-03-2015			No of monitoring stations As on 31-03-2016		
		DW	PZ	Total	DW	PZ	Total
1	Agar Malwa	13	3	16	13	3	16
2	Alirajpur	11	2	13	12	2	14
3	Anuppur	16	5	21	17	5	22
4	Ashok Nagar	12	5	17	18	5	23
5	Balaghat	42	8	50	42	6	48
6	Barwani	9	2	11	9	2	11
7	Betul	28	6	34	27	5	32
8	Bhind	17	1	18	18	1	19
9	Bhopal	22	4	26	23	4	27
10	Burhanpur	14	0	14	14	0	14
11	Chhatarpur	32	7	39	32	7	39
12	Chhindwara	39	11	50	38	11	49
13	Damoh	21	7	28	21	6	27
14	Datia	10	0	10	10	0	10
15	Dewas	20	11	31	20	9	29
16	Dhar	25	19	44	26	19	45
17	Dindori	14	2	16	14	2	16
18	Guna	21	5	26	23	5	28
19	Gwalior	19	4	23	18	4	22
20	Harda	12	2	14	12	2	14
21	Hoshangabad	18	0	18	19	0	19
22	Indore	23	28	51	22	26	48
23	Jabalpur	36	7	43	34	7	41
24	Jhabua	10	5	15	10	3	13
25	Katni	16	1	17	16	1	17
26	Khandwa	27	1	28	30	1	31
27	Khargone	21	7	28	21	6	27
28	Mandla	32	2	34	31	2	33
29	Mandsaur	24	25	49	24	25	49
30	Morena	13	0	13	14	0	14
31	Narsinghpur	15	4	19	17	4	21
32	Neemuch	23	14	37	24	13	37
33	Panna	25	4	29	26	4	30
34	Raisen	26	6	32	28	5	33
35	Rajgarh	19	13	32	19	13	32
36	Ratlam	25	22	47	26	22	48
37	Rewa	29	7	36	30	7	37
38	Sagar	37	9	46	36	9	45
39	Satna	45	7	52	47	7	54
40	Sehore	17	10	27	17	9	26
41	Seoni	45	3	48	45	3	48
42	Shahdol	21	3	24	20	3	23
43	Shajapur	14	5	19	14	4	18
44	Sheopur	19	2	21	18	2	20
45	Shivpuri	31	6	37	30	6	36
46	Sidhi	27	7	34	28	6	34

S No.	District	No of monitoring stations As on 31-03-2015			No of monitoring stations As on 31-03-2016		
		DW	PZ	Total	DW	PZ	Total
47	Singrauli	16	4	20	17	4	21
48	Tikamgarh	18	7	25	20	7	27
49	Ujjain	26	26	52	30	22	52
50	Umaria	14	3	17	14	2	16
51	Vidisha	25	6	31	27	5	32
	<b>State Total</b>	<b>1134</b>	<b>348</b>	<b>1482</b>	<b>1161</b>	<b>326</b>	<b>1487</b>

## 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 as six major rivers originate from the State- 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 Tapti 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 river



Sone falls directly into Ganga. Narmada, Tapti 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 Tapti (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, 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 Orissa 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 2 and Hydrogeological map of Madhya Pradesh State has been given in Fig 2A and Fig 2B.

#### **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 Denwas 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 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 being up to 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 shallow well 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.

Fig 2A

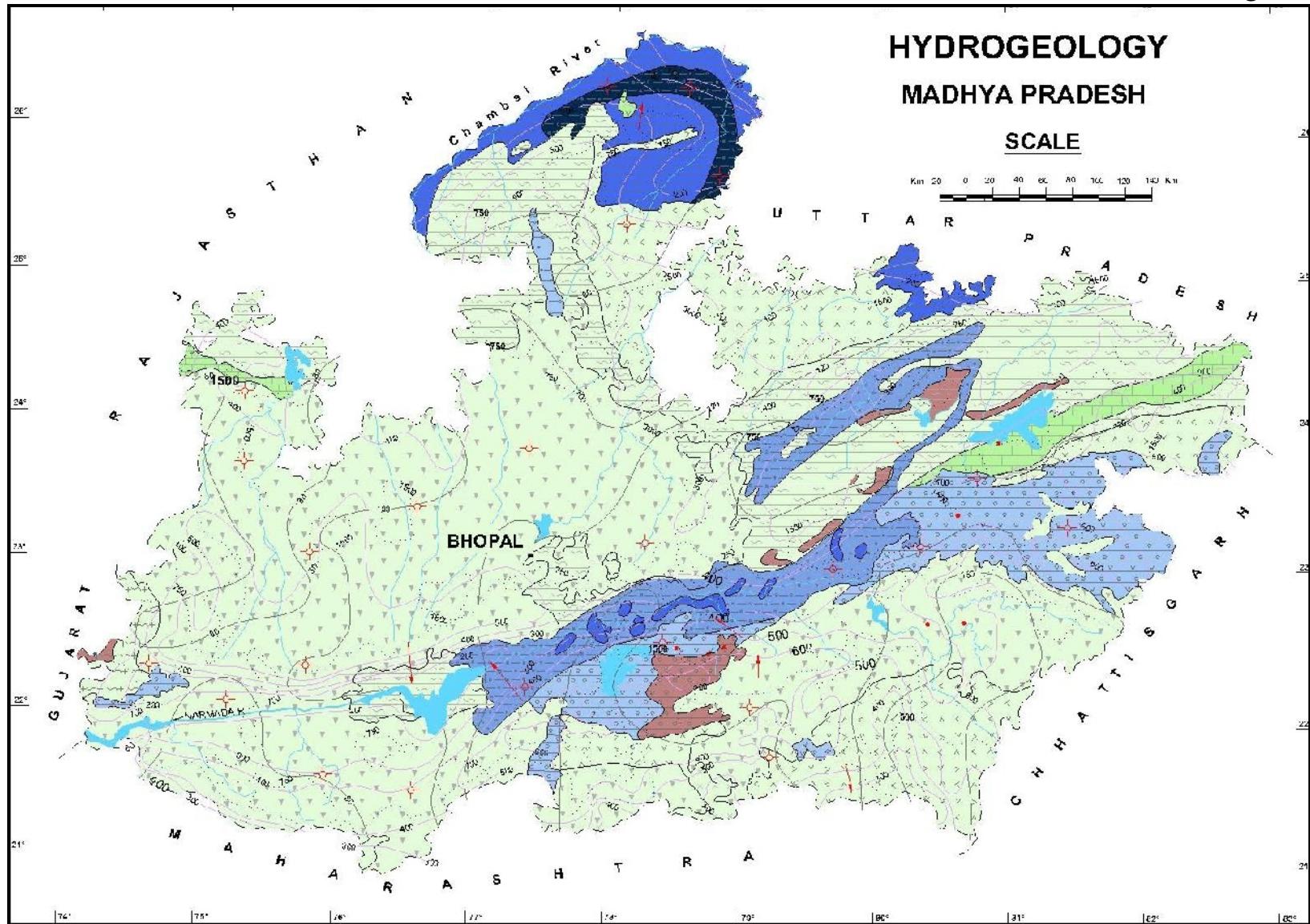
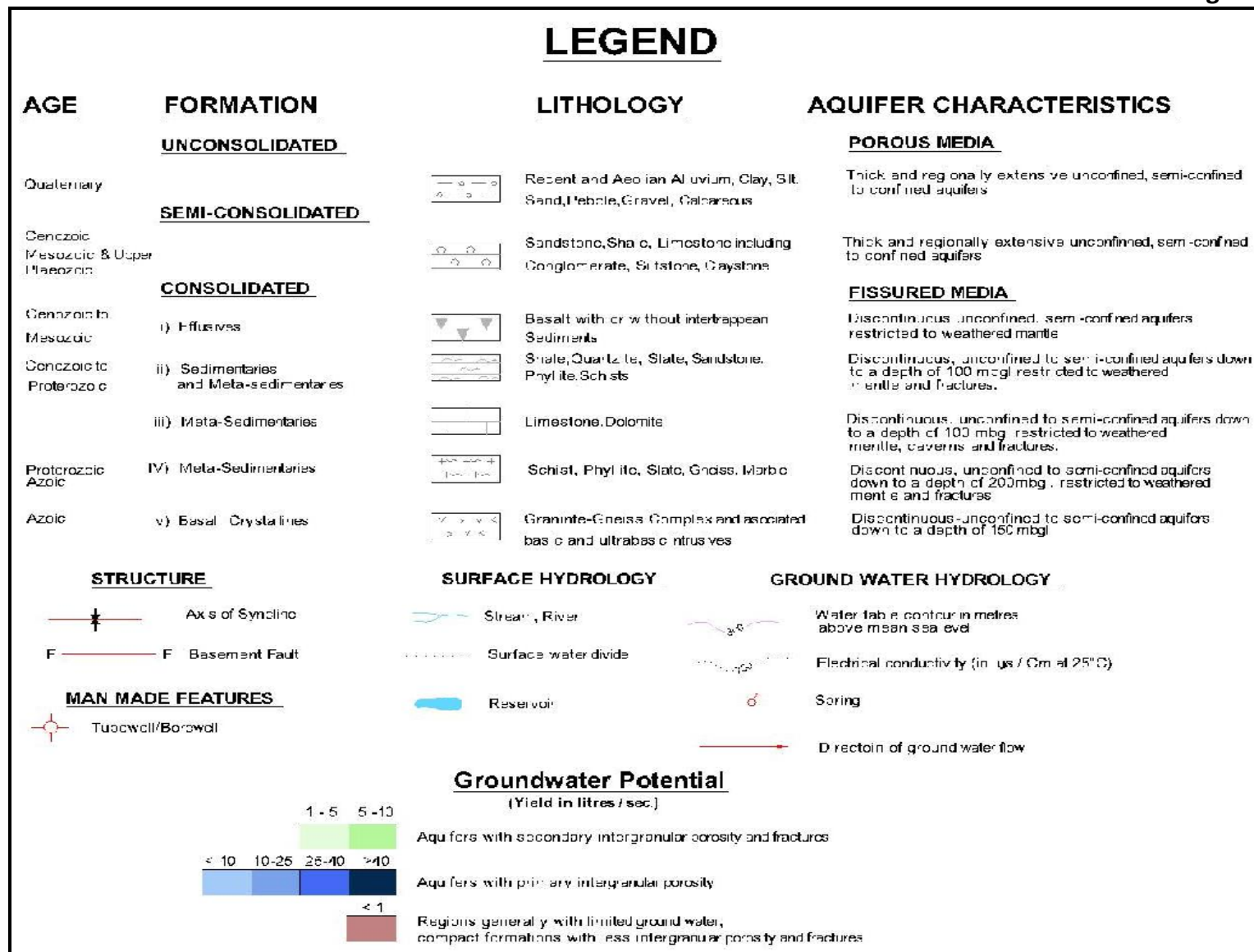


Fig 2B



**Table 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.
Creataceous 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.

Geological Age	Group	Rock Formation	Surface Exposure Area (Approx.)	Occurrence and Hydrogeological Characters.
Palaeozoic to Cretaceous	<u>Gondwana super Group.</u> 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)	<u>Vindhyan Super Group.</u> Bhandar, Rewa, Kaimur and Semri Groups. Mahakoshal (Cuddaph) Super Group 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, Mandasaur 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	<u>Older Metamorphics</u> Sausar, Sakoli and Chilpi Groups. & Bundelkhand 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 RAINFALL DISTRIBUTION DURING THE YEAR 2015

Monsoon 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 (November 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 2015 to 30<sup>th</sup> September 2015 (monsoon period) of 50 rain gauge stations located in Madhya Pradesh State, collected from IMD website is given in Table 3. The isohyetal map of monsoon rainfall 2015, prepared on the basis of this data is given in Fig 3. Monsoon rainfall within  $\pm 19\%$  of the normal monsoon rainfall is considered as normal rainfall. Monsoon rainfall above 19% of the normal monsoon rainfall is considered excess rainfall. Monsoon rainfall less than -19% and more than -59% of the normal monsoon rainfall is considered deficit and if the monsoon 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 938 mm. About 829 mm rainfall as an average of state rainfall was received during 2015 monsoon period. About 10.0% less rainfall has occurred during the year with respect to normal rainfall. The percent departures of the monsoon rainfall from the normal rainfall worked out, which shows that all most entire state has received less rainfall than normal rainfall except in Khandwa, Betul, Chhindwara, Indore, Rajgarh, Shajapur, Ratlam, Mandasaur and part of Dhar districts. Shajapur rain gauge station has received the highest rainfall of 1473.1 mm and Bhind rain gauge station has received the least rainfall of 399.9 mm. North, north-east, central and south-eastern parts of the state have received deficit rainfall. Shajapur, Dewas, Ujjain, Ratlam, Indore and Rajgarh rain gauge has received excess rainfall. Anuppur rain gauge station has received highest deficit rainfall in the state. The percent monsoon rainfall departure from normal rainfall of Madhya Pradesh State for the year 2015 is presented in Fig 4.



**Table 3 Rainfall in Madhya Pradesh**

Sr. No.	Name of Station	Normal rainfall Monsoon (1 <sup>st</sup> June- 30 <sup>th</sup> Sept)	Actual rainfall (01.06.2015 to 30.09.2015)	Departure% wrt Monsoon Rainfall-2015
1	Alirajpur	799	818.8	2%
2	Anuppur	1174.8	630.6	-46%
3	Ashok Nagar	865.1	739.8	-14%
4	Balaghat	1334.6	888.6	-33%
5	Barwani	635.4	595.2	-6%
6	Betul	918.5	927.4	1%
7	Bhind	685.5	399.9	-42%
8	Bhopal	998.6	998.4	0%
9	Burhanpur	784.2	691.6	-12%
10	Chhatarpur	985	620.6	-37%
11	Chhindwara	882.8	930.1	5%
12	Damoh	1071	726.8	-32%
13	Datia	775.8	536.8	-31%
14	Dewas	949.8	1143.7	20%
15	Dhar	826.8	955	16%
16	Dindori	1205.9	1082.4	-10%
17	Guna	943	1078.4	14%
18	Gwalior	790.6	645.4	-18%
19	Harda	1042.3	954.6	-8%
20	Hoshangabad	1289.1	1142.4	-11%
21	Indore	839.7	1193.2	42%
22	Jabalpur	1090.3	822.2	-25%
23	Jhabua	745.3	714.9	-4%
24	Katni	1051.3	578.9	-45%
25	Khandwa	850.8	945.1	11%
26	Khargone	758.5	730.5	-4%
27	Mandla	1245.8	951.4	-24%
28	Mandsaur	780	843.4	8%
29	Morena	708.2	423.4	-40%
30	Narsinghpur	1067.1	839.4	-21%
31	Neemuch	747.4	704	-6%
32	Panna	1072.1	589.9	-45%
33	Raisen	1114.8	1092.5	-2%
34	Rajgarh	890.2	1449.1	63%
35	Ratlam	871.3	1170.2	34%
36	Rewa	971.7	610.2	-37%
37	Sagar	1088.1	640.7	-41%

Sr. No.	Name of Station	Normal rainfall Monsoon (1 <sup>st</sup> June- 30 <sup>th</sup> Sept)	Actual rainfall (01.06.2015 to 30.09.2015)	Departure% wrt Monsoon Rainfall-2015
38	Satna	953.2	823.6	-14%
39	Sehore	1067.5	1080.8	1%
40	Seoni	1038.4	786.4	-24%
41	Shahdol	994.7	575.6	-42%
42	Shajapur	873.9	1473.1	69%
43	Sheopur	727.4	431.5	-41%
44	Shivpuri	779.8	639.1	-18%
45	Sidhi	1016.4	574.8	-43%
46	Singrauli	832.3	576.7	-31%
47	Tikamgarh	853.2	540	-37%
48	Ujjain	833.7	1405.2	69%
49	Umaria	1093.9	847.1	-23%
50	Vidisha	1005	892.1	-11%

Source:www.imd.gov.in

Fig 3

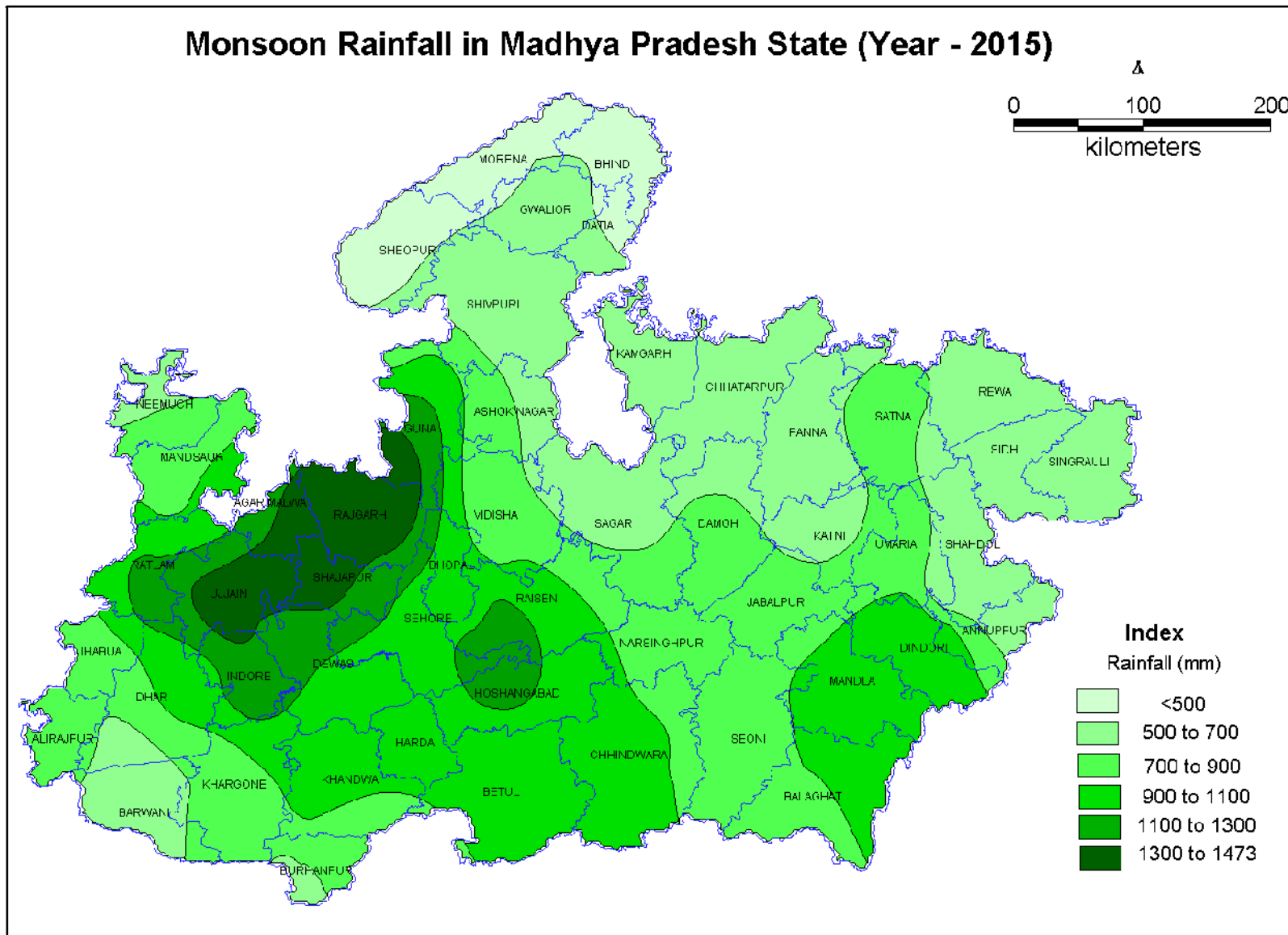
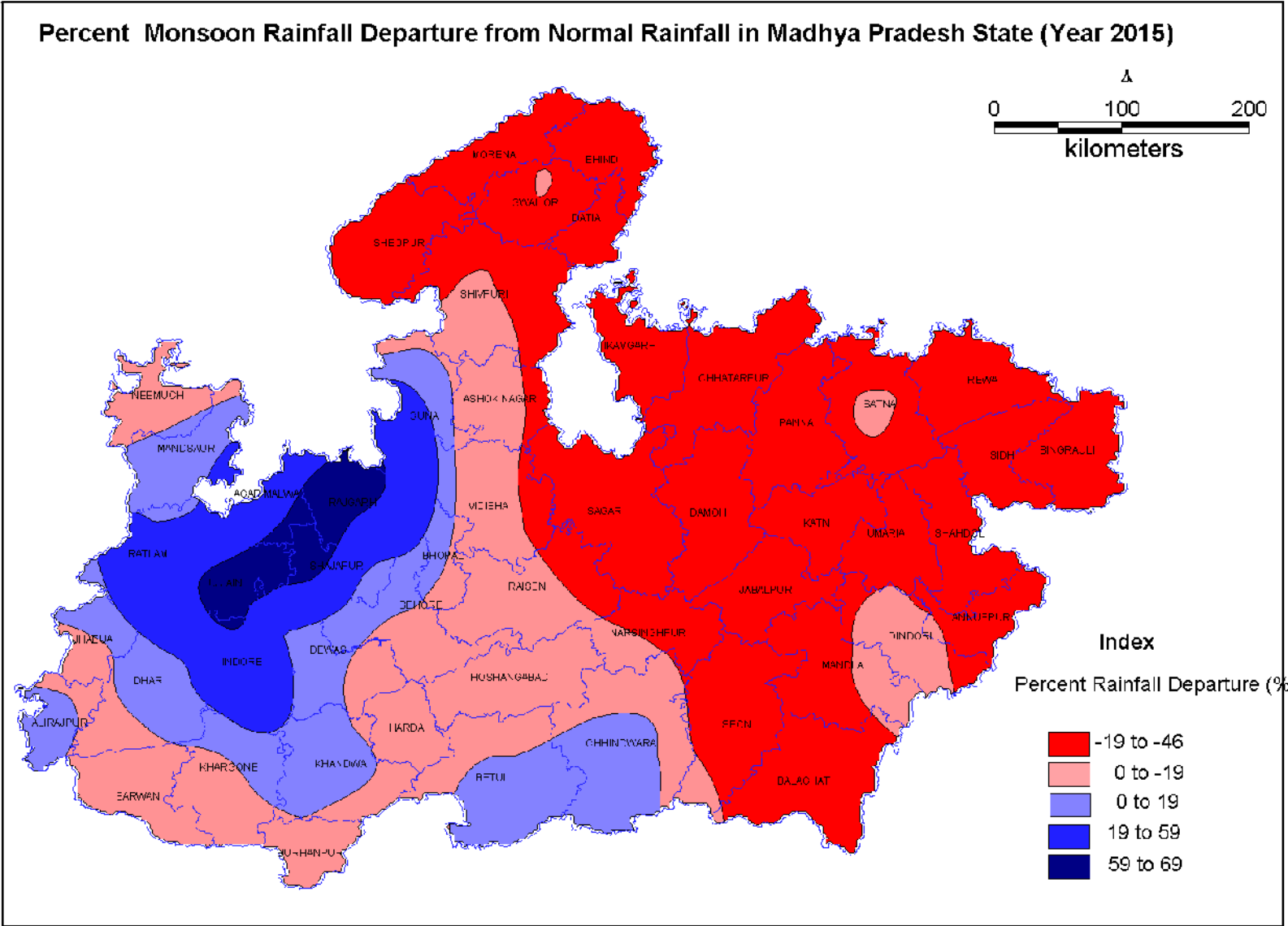


Fig 4



## **2.1 DEPTH TO WATER LEVELS**

During this water year, the existing monitoring wells were monitored four times, i.e., during May 2015, August 2015, November 2015 and January 2016. 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 levels during different monitoring seasons is as follows:

### **DEPTH TO WATER LEVEL MAY 2015**

Depth to Water levels ranges from 1.05 to 49.57 m bgl in Madhya Pradesh. Very shallow water levels up to 2 m bgl are very few and seen only in part of Chhindwara, Hoshangabad and Damoh district of the state. Only 1.47% of wells in Madhya Pradesh State fall in this category. About 14.70% 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 levels ranging 5-10 m bgl is prominently spreading all parts of the State. About 46.29% of wells fall under this category. Deeper ground water levels ranging 10-20 m bgl are seen mostly in Northern and western parts of the state and in isolated patches in many parts of the state. About 32.11% of wells in the State fall in this category. Ground water levels of 20-40 m bgl are found in about 4.48% of the wells and occur mainly in few parts of north and west districts of the state. Depth to water level more than 40 m bgl is very few and has been recorded in Bhind. About 0.96% of wells fall under this category.

### **DEPTH TO WATER LEVEL AUGUST 2015**

Depth to Water levels ranges from ground level to 32.45 m bgl in Madhya Pradesh state. Very shallow water levels up to 2 m bgl are seen in almost entire state except north, in Bhind Morena and Gwalior and in north eastern part in Rewa, Sidhi, Singrauli Shahdol and Satna districts. About 20.42% of monitoring wells recorded water level less than 2 m bgl category. About 40.46% 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 levels ranging 5-10 m bgl is noticed prominently in northern, north eastern western parts of the state. About 29.06% 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 northern, western and north eastern and central parts of the state. About 8.87% of wells in the state fall in this category. Ground water levels of more than 20 m are found in about 1.19% of the wells and are seen in Bhind, Morena, Gwalior and Burhanpur districts.

### **DEPTH TO WATER LEVEL NOVEMBER 2015**

Depth to Water levels ranges from 0.30m bgl to 35.97 m bgl in Madhya Pradesh state. Very shallow water levels up to 2 m bgl are seen mainly in Morena, Dewas, Chhindwara, Panna, Damoh, Mandla, Dindori, Balaghat and Seoni districts. About 6.42% of monitoring wells recorded water level less than 2 m bgl category. About 32.92% 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 levels ranging 5-10 m bgl is noticed prominently in northern, north eastern western parts of the state. About 40.37% 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 northern, western and north eastern and central parts of the state. About 17.93% of wells in the state fall in this category. Ground water levels of more than 20 m are found in about 2.36% of the wells and are seen in Bhind, Morena, Gwalior, Datia, Ratlam Chhindwara and Burhanpur districts.

### **DEPTH TO WATER LEVEL JANUARY 2016**

Depth to Water levels ranges from 0.57 m bgl to 39.40 m bgl in Madhya Pradesh state. Very shallow water levels up to 2 m bgl are seen mainly in Hoshangabad, Panna, Damoh, Mandla, Dindori, Vidisha, and Rajgarh districts. About 2.81 % of monitoring wells recorded water level less than 2 m bgl category. About 19.62 % of monitoring wells spreading all over Madhya Pradesh state has recorded a water level in the depth range of 2-5 m bgl especially in Mandla, Dindori, Balaghat, and Damoh and in many districts of the state. Depth to water levels ranging 5-10 m bgl is noticed in entire parts of the state. About 43.60% 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 northern, western and north eastern and central parts of the state. About 28.72% of wells in the state fall in this category. Ground water levels of more than 20 m bgl are found in about 5.26% of the wells and are seen in Bhind, Morena, Gwalior, Datia, Ratlam, Ujjain, Indore, Chhindwara and Burhanpur districts.

Depth to ground water level at a glance is shown in Fig 5. The depth to water level maps of different period has been depicted in Fig (6 to 9). The district wise frequency distribution of wells under different water level/fluctuation ranges for different monitoring period is given in Annexures (I to IV).

### DEPTH TO WATER LEVEL AT A GLANCE

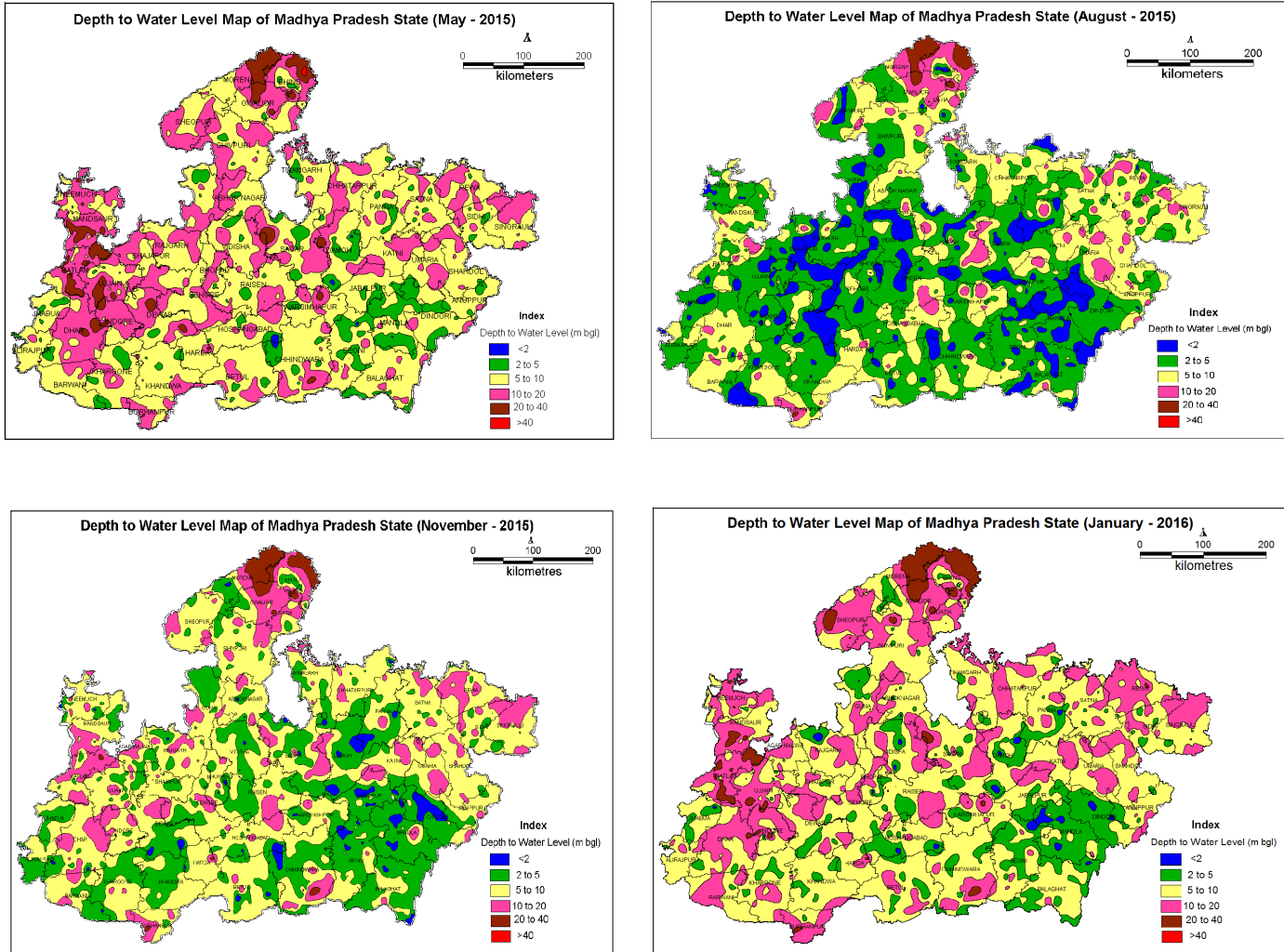


Fig 6

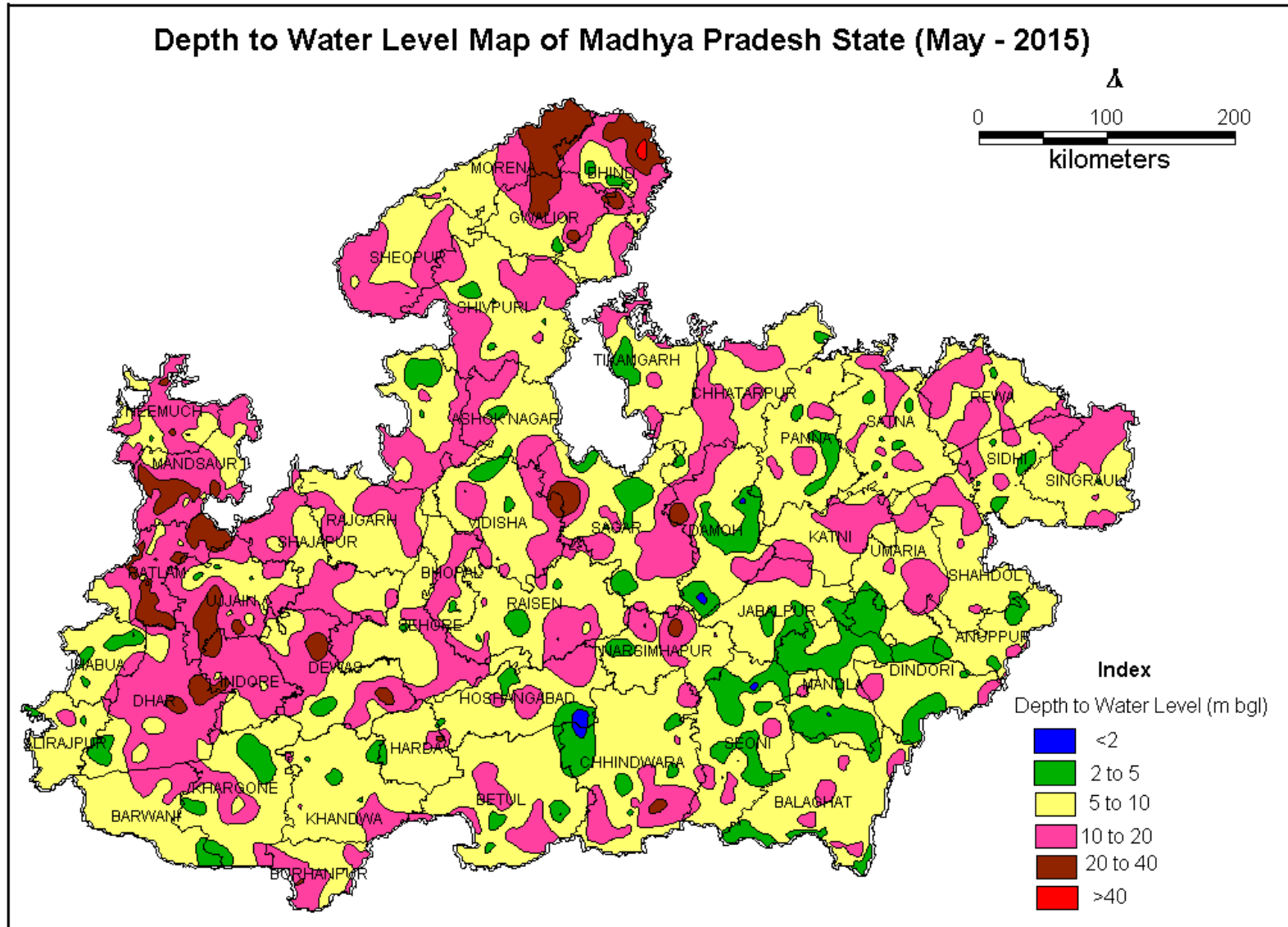




Fig 7

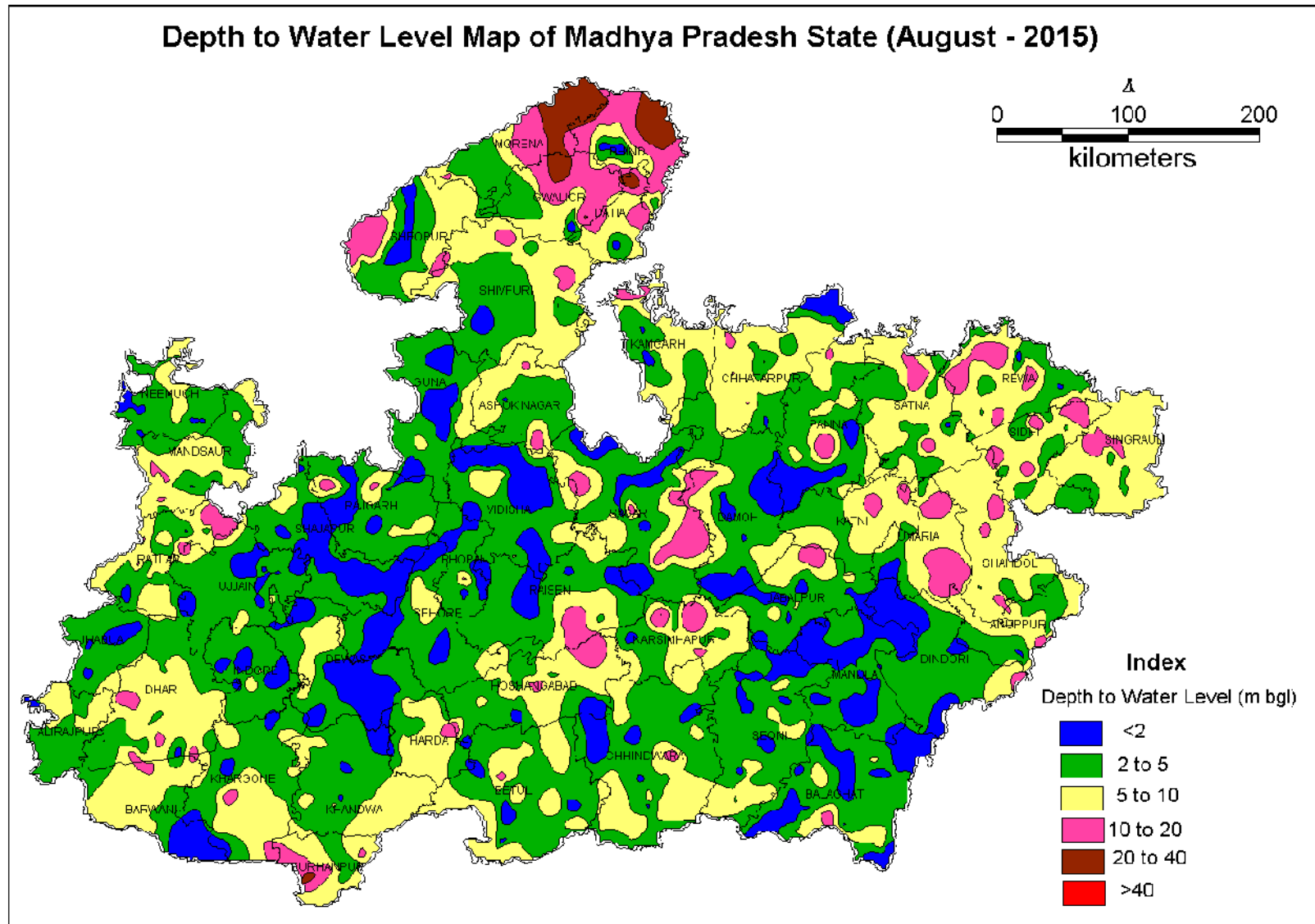


Fig 8

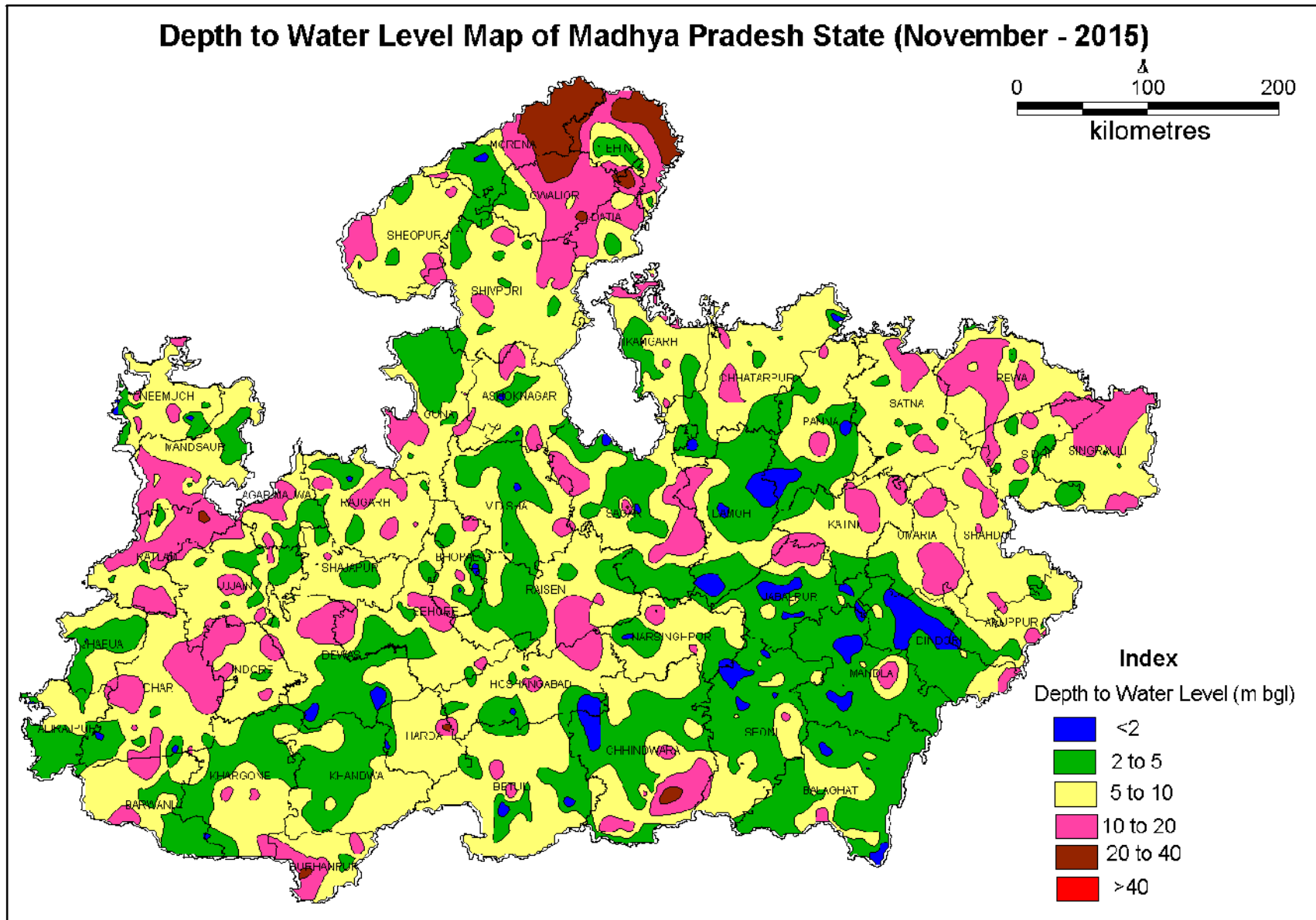
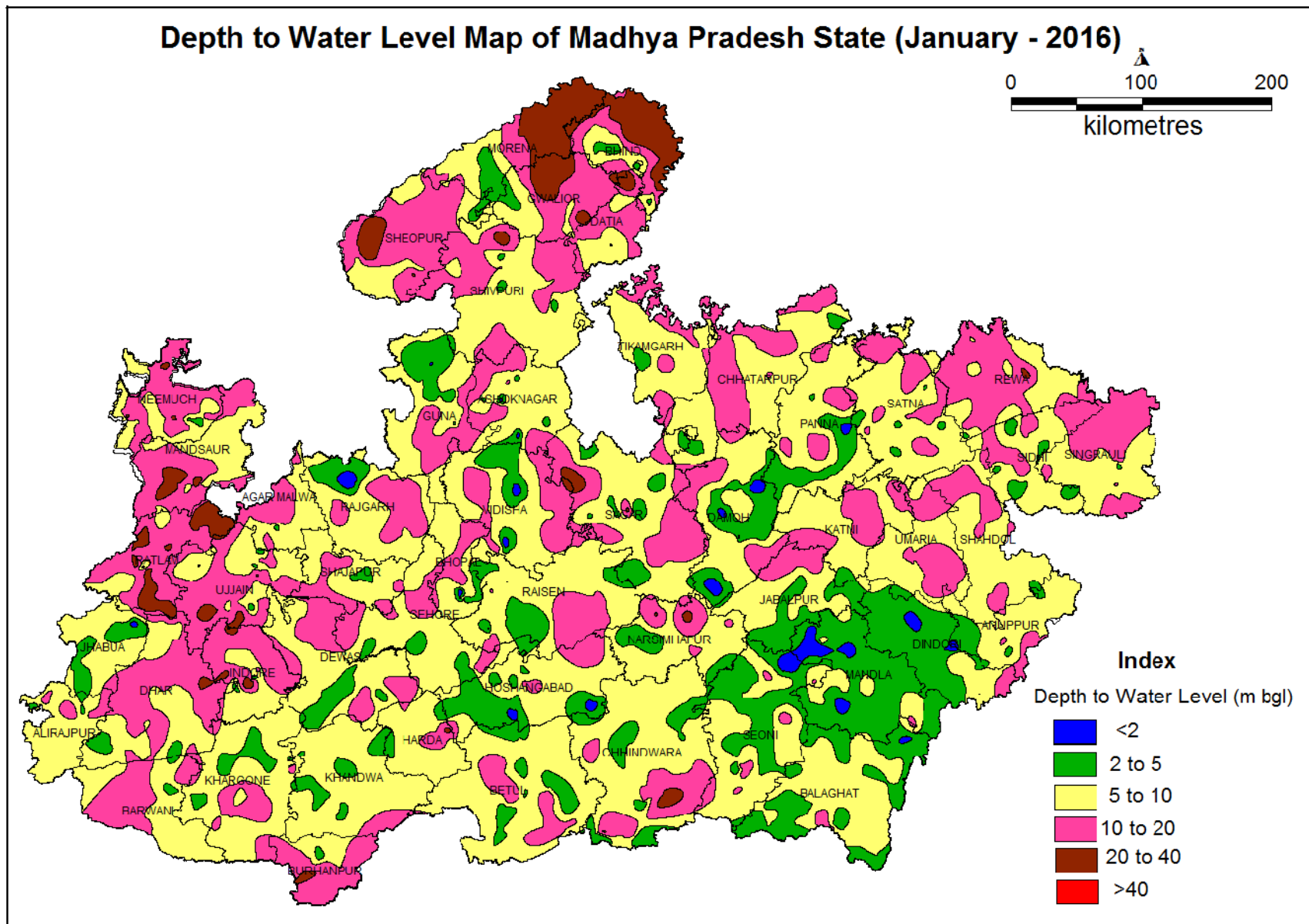


Fig 9



## **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.

### **2.2a ANNUAL WATER LEVEL FLUCTUATIONS**

#### **WATER LEVEL FLUCTUATION MAY 2014 TO MAY 2015**

The ground water levels of monitoring wells during May 2015 were compared with those of May 2014 to decipher the changes that took place in the ground water regime. In Madhya Pradesh, 29.85% of the wells show a rise and the rest 70.15% wells show a decline in water levels. About 22.25% of the wells show a rise in water level up to 2 m spreading in sporadic patches in all part of the state. 3.80% of the wells show a rise in water level between 2 to 4 m and the same no. of wells i.e., 3.80% of the wells shows rise more than 4 m. The rises in water in the range Of 2-4 m and more than 4 m are few and mainly seen in the patches of Chhindwara, Bhind and Satna. About 47.19% of the wells show a decline in water level up to 2 m in almost all district of the state. 12.43% of the wells show a decline in water level between 2 to 4 m and occur in sporadic patches of the state. About 10.53% of the wells shows decline more than 4 m, under this category fall in water level is less and seen mostly in western and north- central parts of state. In general this year there is a decline of water level in the state as compared to last year.

#### **WATER LEVEL FLUCTUATION AUGUST 2014 TO AUGUST 2015**

About 37.40% of wells show rise and 62.60% decline in water levels in August 2015 compared to those in August 2014. About 26.54% of wells in Madhya Pradesh state, show rise in water levels up to 2 m and seen mainly in Rajgarh, Shajapur, Ujjain, Dhar, Indore, Vidisha, Guna and Ashoknagar districts. Rise of 2-4 m has occurred in 7.17% of wells mostly in Rajgarh, Shajapur, Dhar, and Indore and in many districts of the state. About 3.70% of wells spread in Rajgarh, Shajapur, Ujjain, Indore, Bhind and Morena districts of state show rise in water levels more than 4 m.

Ground water levels decline is recorded in about 60.60% of the wells, mostly spread in entire state except in Malwa region. Decline in water levels up to 2 m are seen in about 44.65% of wells, and are spread in entire state except in Malwa region. Decline in water level between 2-4 m is observed in 11.73% of wells spread in central, northern south and eastern parts of the state. Decline in water in more than 4 m is observed by 6.22% monitoring wells spread in Barwani, Narsinghpur,

Hoshangabad, and in many districts of the state.

### **WATER LEVEL FLUCTUATION NOVEMBER 2014 TO NOVEMBER 2015**

About 38.19% of wells show rise and 61.81% decline in water levels in November 2015 compared to those in November 2014. About 27.90% of wells in Madhya Pradesh state, show rise in water levels up to 2 m and seen mainly in Rajgarh, Shajapur, Ujjain, Dhar, Indore, Vidisha, Guna and Ashoknagar, Morena, Sheopur, Gwalior and southeast parts of the state districts. Rise of 2-4 m has occurred in 6.63% of wells mostly in Rajgarh, Shajapur, Dhar, Dewas, Damoh Chhatarpur and northern districts of the state. About 3.66% of wells spread in Ujjain, Dewas, Indore, Vidisha, Shivpuri, Bhind, Morena and Sheopur districts of state show rise in water levels more than 4 m.

Ground water levels decline is recorded in about 61.81% of the wells, mostly spread in entire state except in Malwa region. Decline in water levels up to 2 m are seen in about 42.79% of wells, and are spread in entire state except in Malwa region. Decline in water level between 2-4 m is observed in 12.94% of wells spread in central, northern south and eastern parts of the state. Decline in water in more than 4 m is observed by 6.08% monitoring wells spread in Barwani, Dhar, Indore, Satna, Rewa, Bhind, Morena, Shivpuri, and Gwalior and in many districts of the state.

### **WATER LEVEL FLUCTUATION JANUARY 2015 TO JANUARY 2016**

About 25.83% of wells show rise and 74.17% decline in water levels in January 2016 compared to those in January 2015. About 18.84% of wells in Madhya Pradesh state, show rise in water levels up to 2 m and seen mainly in Rajgarh, Shajapur, Ujjain, Dhar, Indore, Vidisha, Guna and Ashoknagar, Morena, Sheopur, Gwalior and southeast parts of the state districts. Rise of 2-4 m has occurred in 3.74% of wells mostly in Rajgarh, Shajapur, Dhar, Dewas, Damoh Chhatarpur and northern districts of the state. About 3.26% of wells spread in Ujjain, Dewas, Indore, Vidisha, Shivpuri, Bhind, Morena and Sheopur districts of state show rise in water levels more than 4 m.

Ground water levels decline is recorded in about 74.17% of the wells, mostly spread in entire state. Decline in water levels up to 2 m are seen in about 43.08% of wells, and are spread in entire state. Decline in water level between 2-4 m is observed in 18.12% of wells spread in central, northern south and eastern parts of the state. Decline in water in more than 4 m is observed by 12.96% monitoring wells spread in Barwani, Dhar, Indore, Satna, Rewa, Bhind, Morena, Shivpuri, Mandsaur, Neemuch, Ujjain, Gwalior and in many districts of the state.

Annual water level fluctuation at a glance is shown in Fig 10. The annual water level fluctuation maps of different period have been depicted in Fig (11 to 14). The district wise annual water level fluctuation and frequency distribution of wells in different ranges is given in Annexures (V to VIII).

Fig 10

### ANNUAL WATER LEVEL FLUCTUATION AT A GLANCE

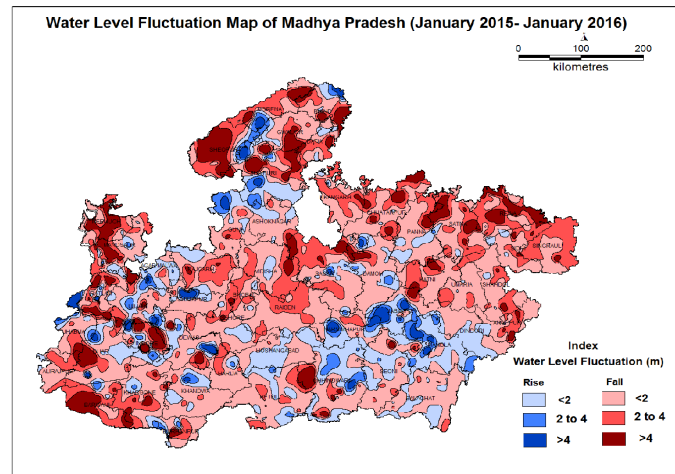
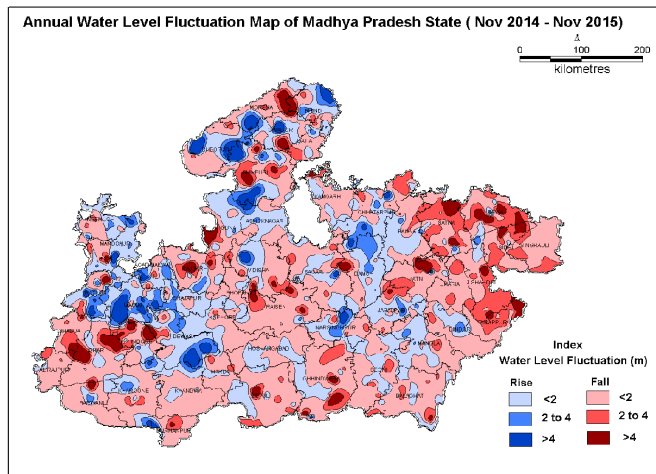
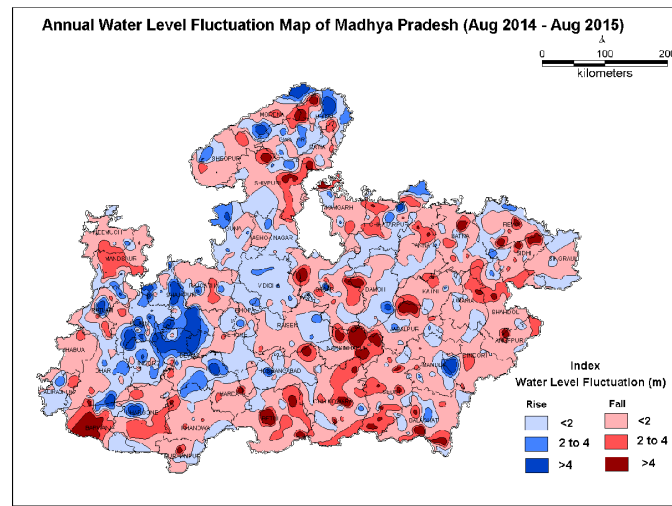
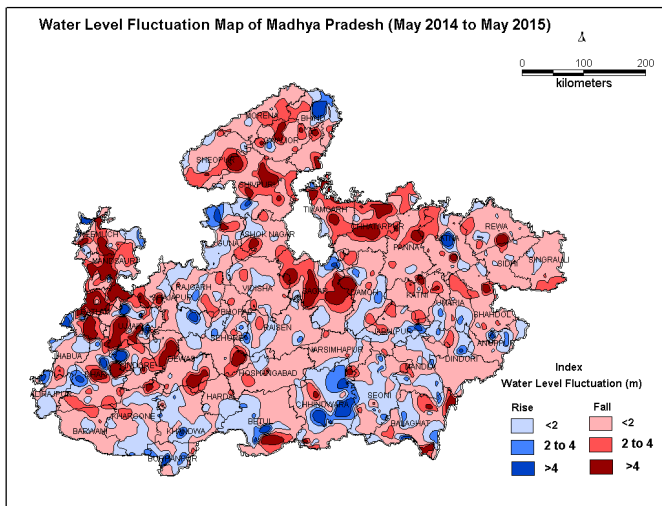


Fig 11

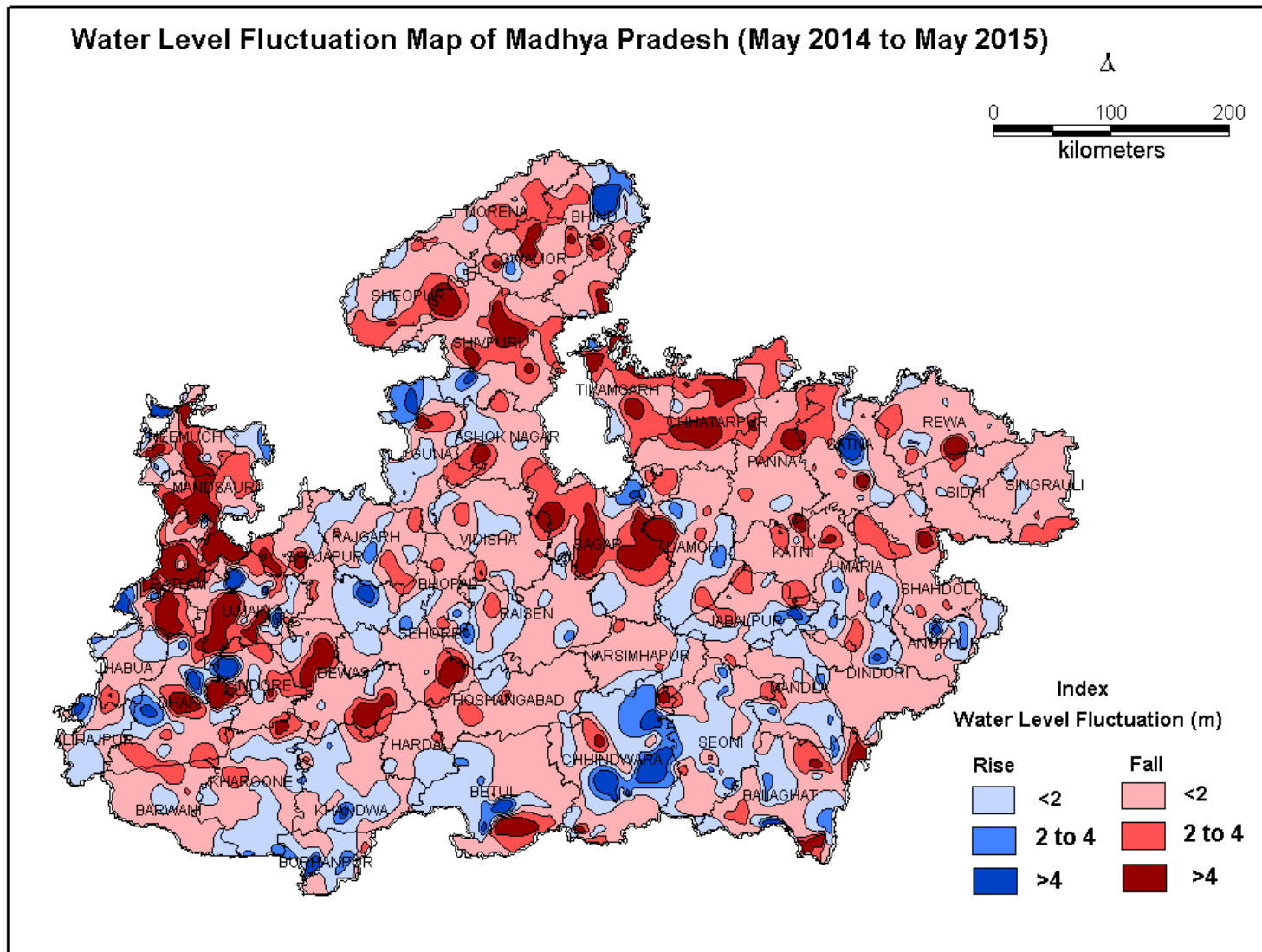




Fig 12

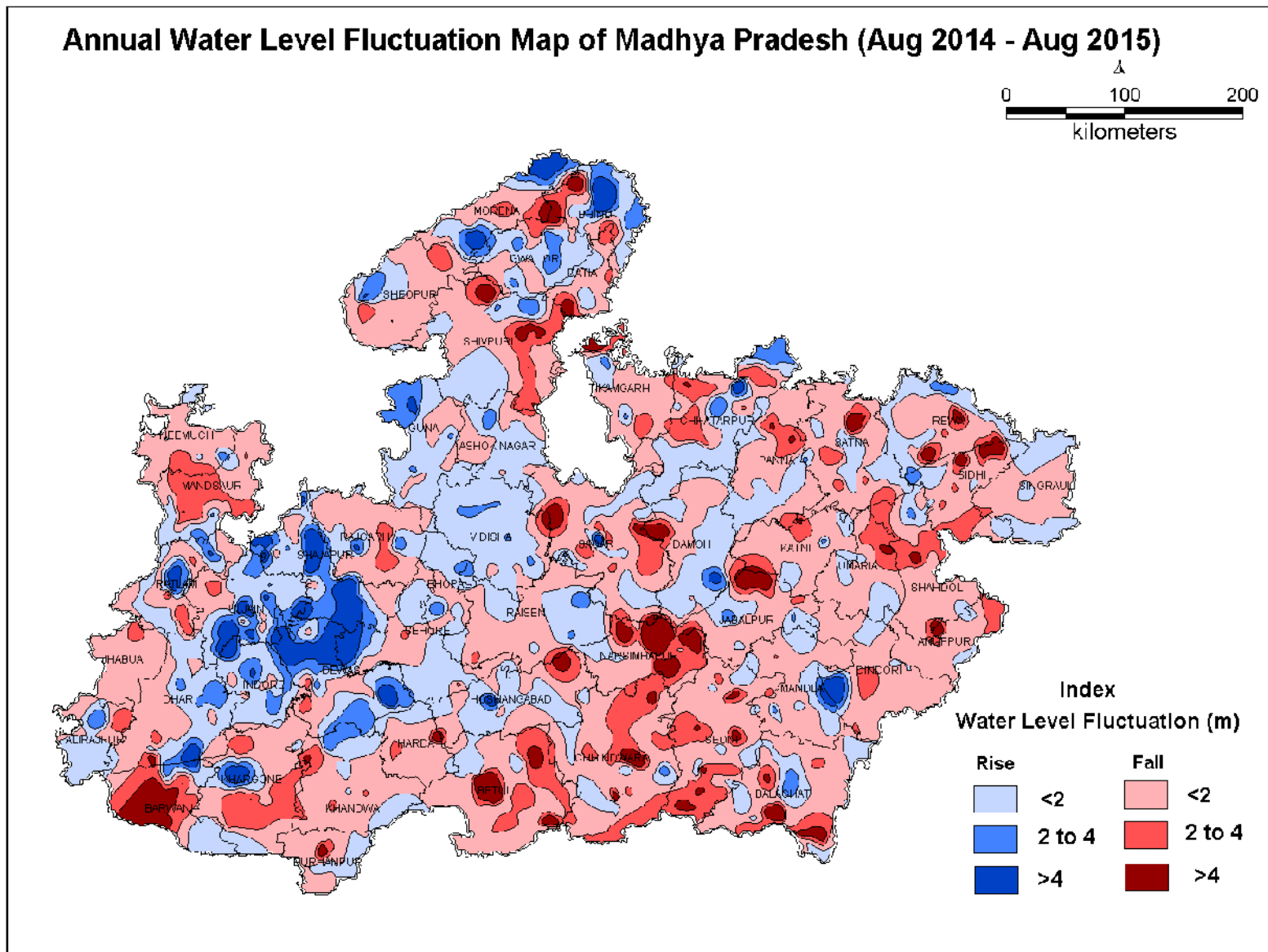


Fig 13

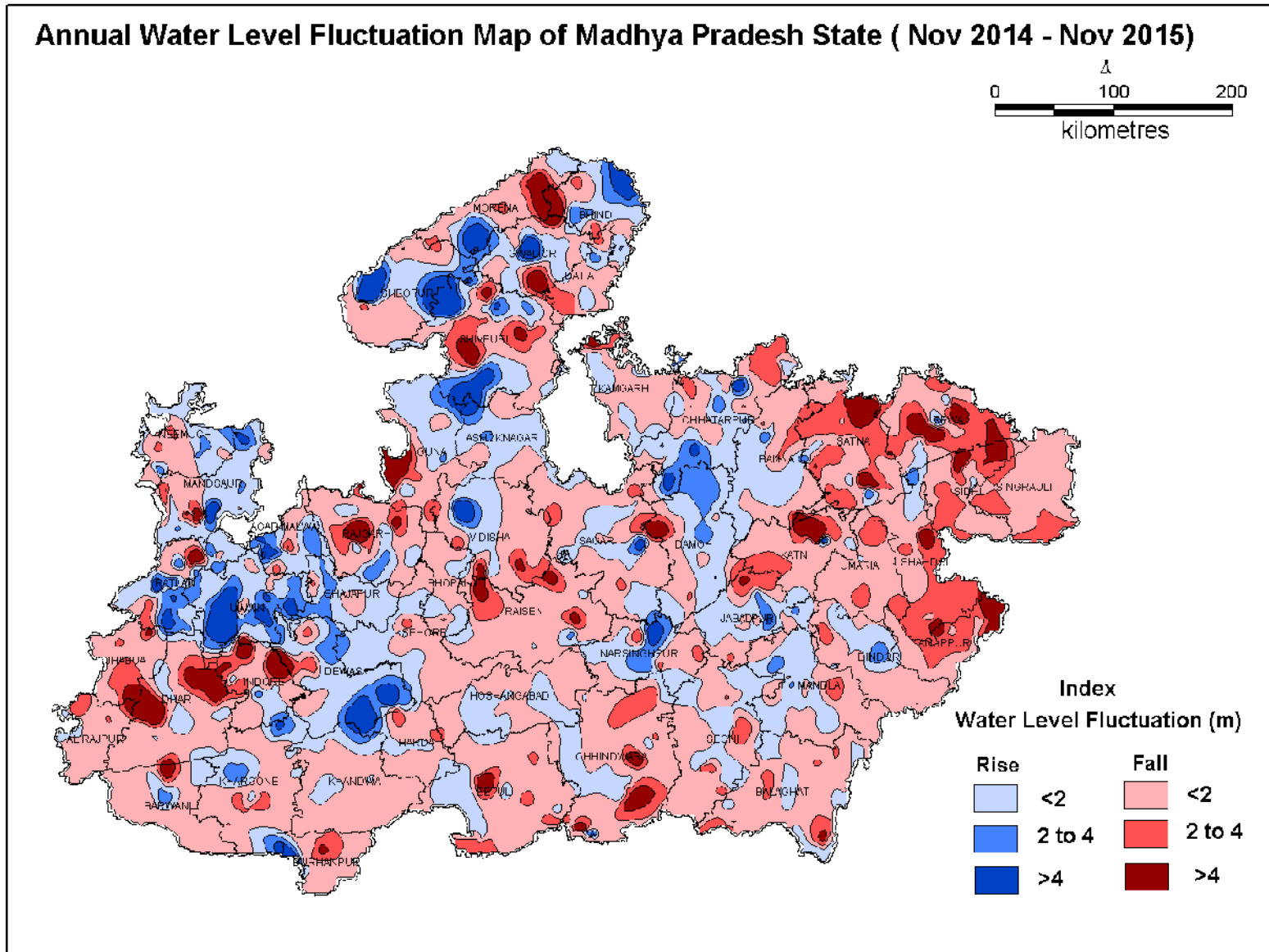
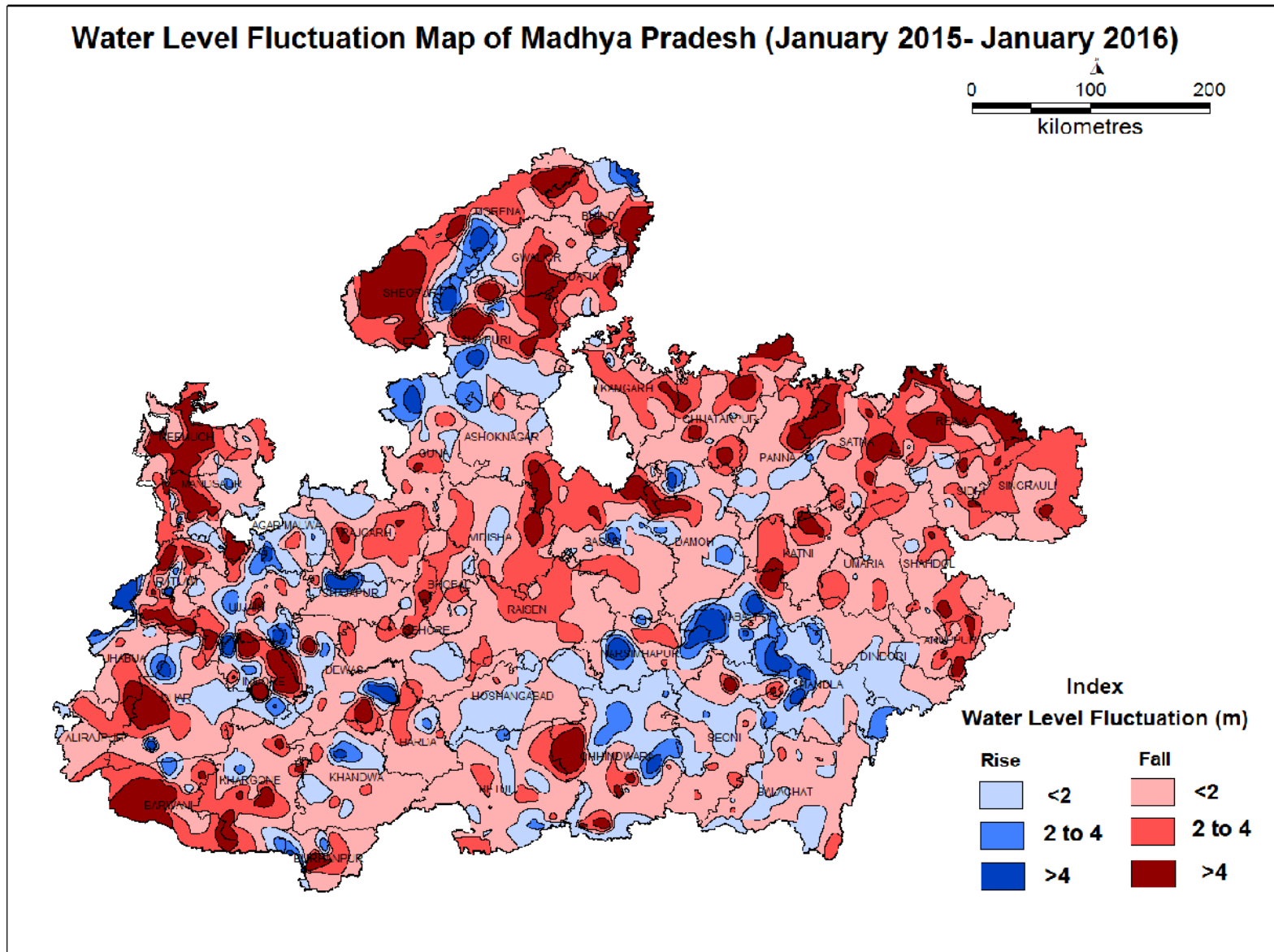


Fig 14



## **2.2b SEASONAL WATER LEVEL FLUCTUATIONS**

### **WATER LEVEL FLUCTUATION MAY 2015 TO AUGUST 2015**

Water levels have shown a general rise in 94.70% 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 24.89% of wells and are seen in Tikamgarh, Chhatarpur, Sidhi, Singrauli, Shahdol and in patches in some of the districts of the state. About 27.0% of the wells have shown a rise of 2-4 m and are seen in entire state except in patches in districts of Malwa region of the state. Significant rise of >4 m is found in 42.81% of wells, in districts of Malwa region and north western parts of the state

About 4.61% of the wells in Madhya Pradesh state show a marginal decline in water level up to 2 m and 0.38% wells more than 2 m. The Marginal decline in water level is mainly due to pumping wells and is observed mainly in Bhind Morena, Datia, Tikamgarh, Chhatarpur and Shahdol districts of the state.

### **WATER LEVEL FLUCTUATION MAY 2015 TO NOVEMBER 2015**

Water levels have shown a general rise in 84.54% 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 37.33% of wells and are seen in Tikamgarh, Chhatarpur, Sidhi, Singrauli, Shahdol and in patches in some of the districts of the state. About 26.47% of the wells have shown a rise of 2-4 m and are seen in entire state except in patches in districts of Malwa region of the state. Significant rise of >4 m is found in 20.74% of wells, in districts of Malwa region and many districts of the state

About 13.05% of the wells in Madhya Pradesh state show a marginal decline in water level up to 2 m and 2.41% wells more than 2 m. The Marginal decline in water level is mainly due to pumping wells and is observed mainly in Bhind Morena, Datia, Rewa, and Anuppur districts of the state.

### **WATER LEVEL FLUCTUATION MAY 2015 TO JANUARY 2016**

Water levels have shown a general rise in 61.02% 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 40.99% of wells and are seen in Tikamgarh, Chhatarpur, Sidhi, Singrauli, Shahdol and in Malwa region and in patches in many of the districts of the state. About 11.71% of the wells have shown a rise of 2-4 m and are seen in

entire state. Significant rise of >4 m is found in 8.32% of wells, in districts of Malwa region and many districts of the state.

About 27.81% of the wells in Madhya Pradesh state show a marginal decline in water level up to 2 m and 11.17% wells more than 2 m. The Marginal decline in water level is mainly due to pumping wells and is observed mainly in Bhind Morena, Datia, Gwalior, and Shivpuri and in patches in many districts of the state.

Seasonal water level fluctuations at a glance are shown in Fig 15. The seasonal water level fluctuation maps of different period have been depicted in Fig (16 to 18). The district wise seasonal water level fluctuation and frequency distribution of wells in different ranges is given in Annexures (IX to XI).

Fig 15

### SEASONAL WATER LEVEL FLUCTUATION AT A GLANCE

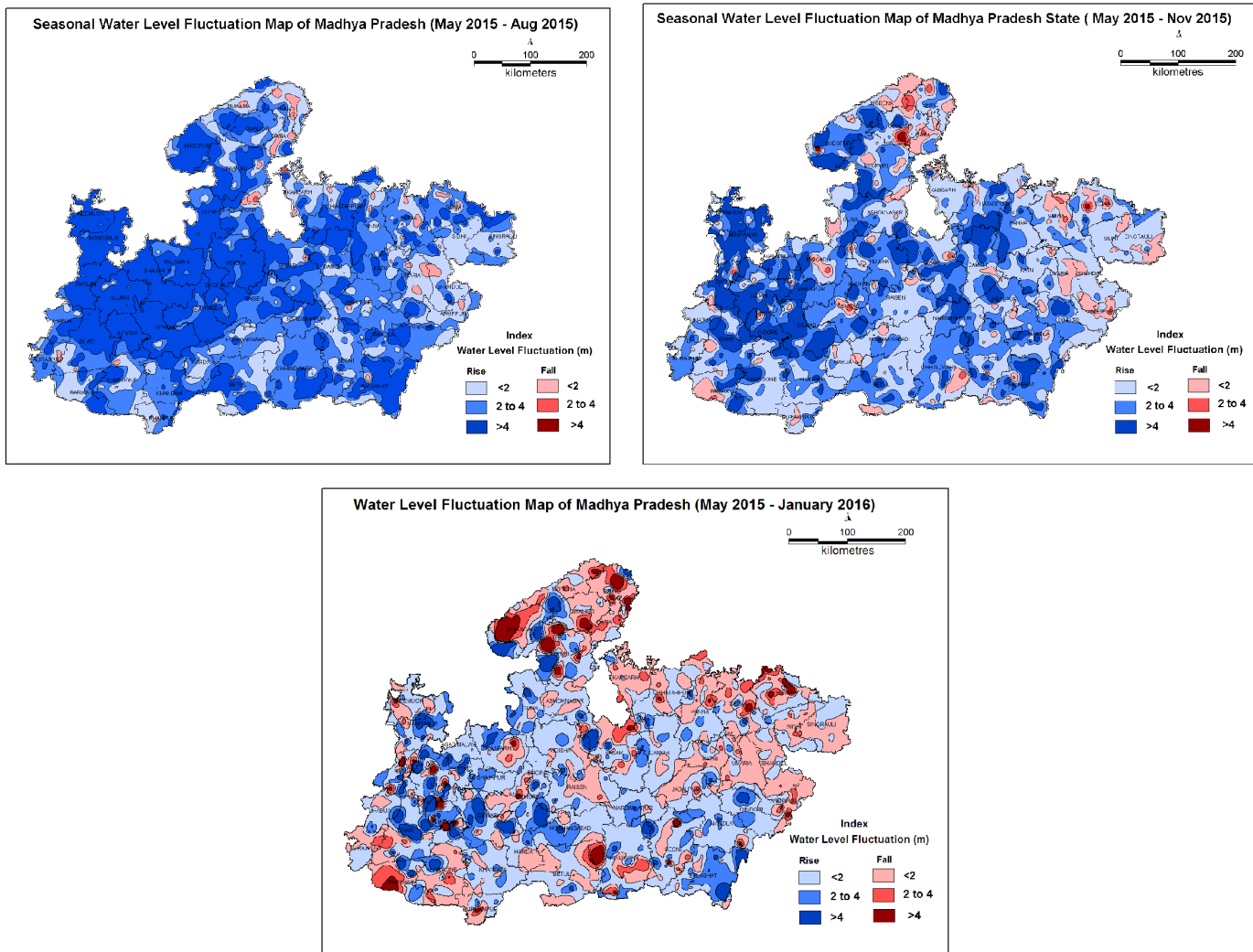


Fig 16

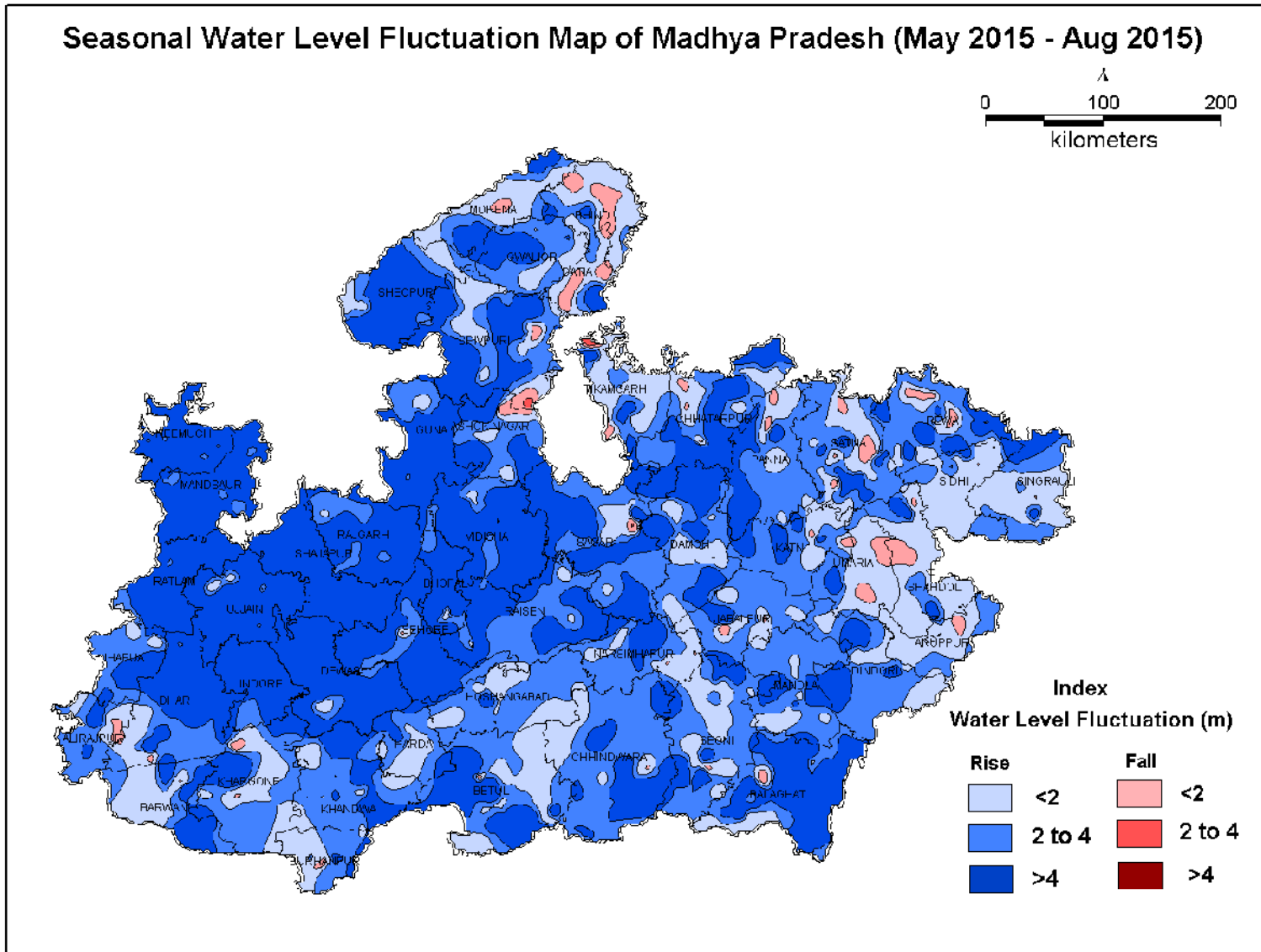


Fig 17

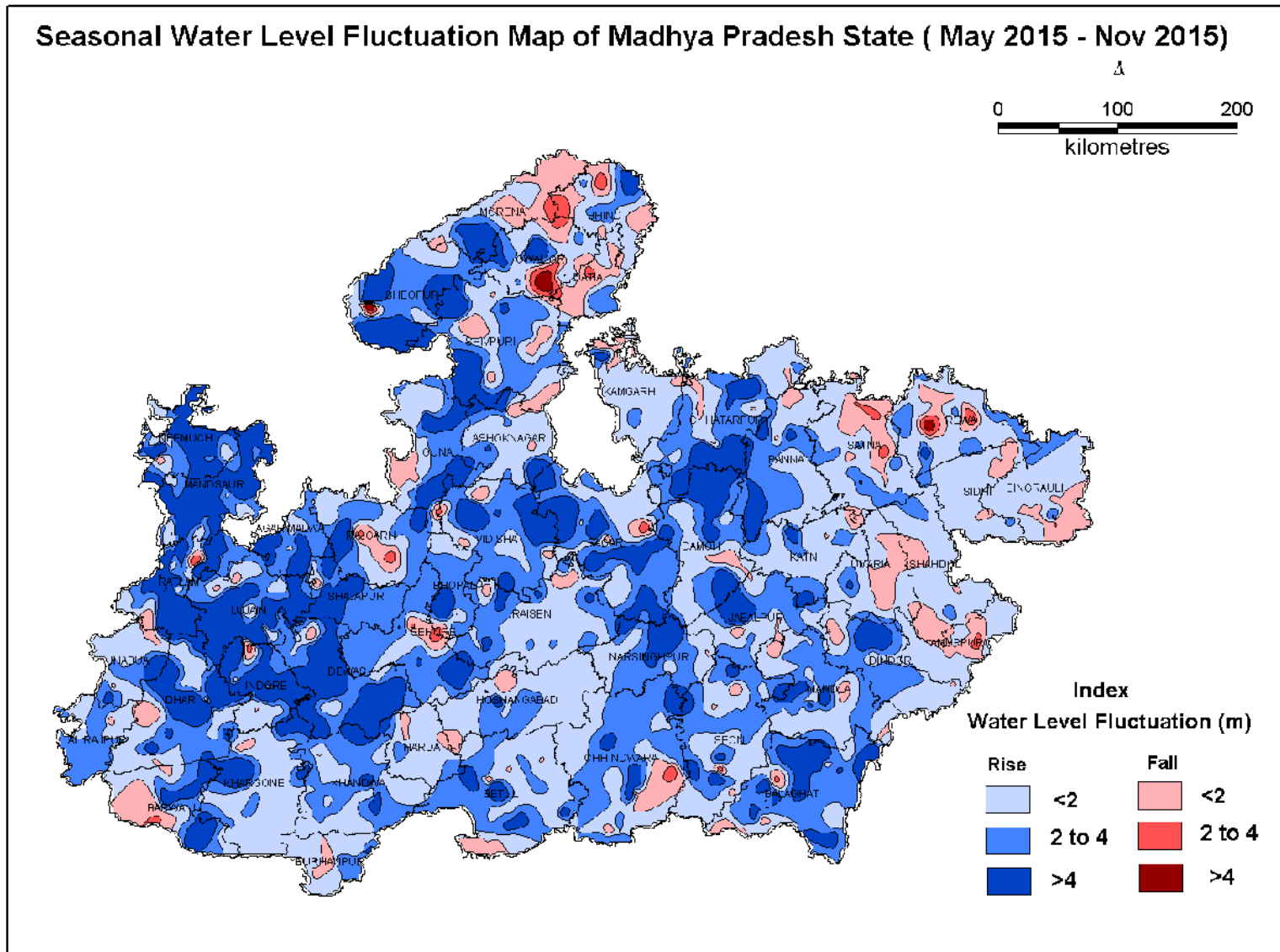
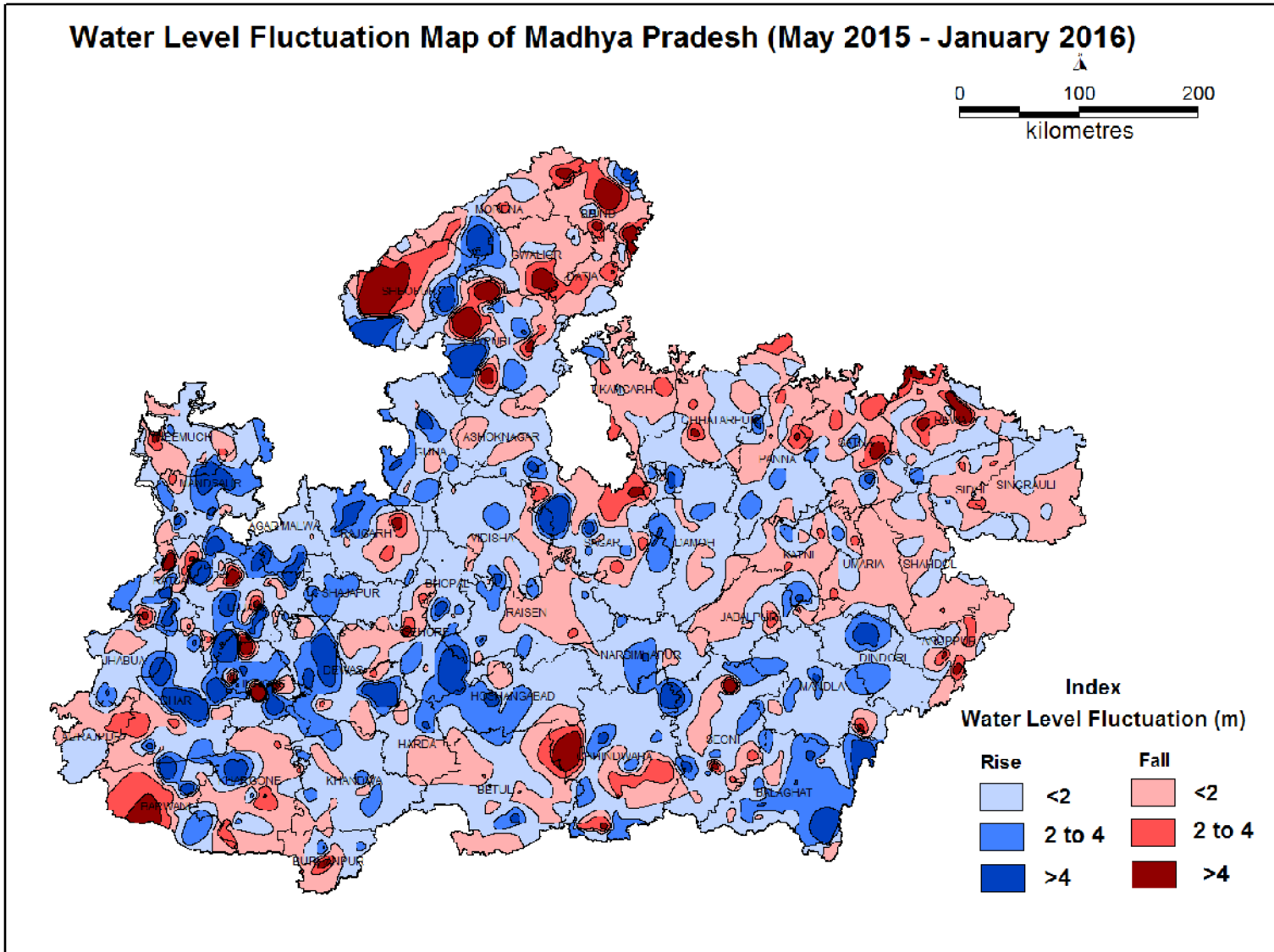




Fig 18



## **2.2c 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.

### **WATER LEVEL FLUCTUATIONS DECADAL MEAN (MAY 2005-2014) TO MAY 2015**

The ground water levels of May 2015 were compared with the 10 years May (2005-2014) average ground water levels to decipher the long-term changes in the ground water regime. It is observed that about 58.76% of the wells show rise and about 41.24% of wells show decline in water levels in the state. The rise in water level is in the order of 0-2 m in 38.33% of the wells, 2-4 m in 12.52% of the wells and more than 4 m in about 7.91% of the wells. The decline in water levels in the order of 0-2 m is about 29.65% of the wells, between 2-4 m in 6.61% of the wells and more than 4 m in 4.99% of the wells. Fall in water level more than 2 m are seen in sporadic patches only owing to pumping. In general by comparing mean of water level of previous 10 year and current year water level, it is inferred that there is a rise in water level in most parts of the state except north western parts of the state.

### **WATER LEVEL FLUCTUATION DECADAL MEAN (AUGUST 2005-2014) TO AUGUST 2015**

There is a rise in the water levels in about 38.15% of wells and fall in 61.85% wells. About 27.43% of wells spreading all over the north, north western parts and in many districts in patches shows a rise in water level up to 2 m. About 7.15% of the wells show a rise in the order of 2- 4 m and is spread in north and north western part of the state. Rise in water level of more than 4 m is found in about 3.57% of the wells and are seen in Bhind, Morena, Rajgarh, Shajapur, Ujjain, and dewas districts of the state.

Water level decline up to 2 m is recorded in about 42.50% of wells spread in south western and north eastern and eastern parts of the state. About 11.13% of the wells show a decline in the order of 2-4 m and 6.22% in the order of more than 4m, mostly spread in patches in many districts of the state especially in south, central, northern, and eastern parts of state.

### **WATER LEVEL FLUCTUATION MEAN (NOVEMBER 2005-2014) TO NOVEMBER 2015**

There is a rise in the water levels in about 34.78% of wells and fall in 65.22% wells. About 28.32% of wells spreading all over the north, north western parts and in many districts in patches shows a rise in water level up to 2 m. About 4.48% of the wells show a rise in the order of 2- 4 m and is spread in north and north western part of the state. Rise in water level of more than 4 m is found in about 1.97% of the wells and are seen in Bhind, Morena, Sheopur, Ujjain, Narsinghpur and Dewas districts of the state.

Water level decline up to 2 m is recorded in about 42.67% of wells spread in south western and north eastern and eastern parts of the state. About 15.03% of the wells show a decline in the order of 2-4 m and 7.52% in the order of more than 4m, mostly spread in patches in many districts of the state especially in south, central, northern, and eastern parts of state.

### **WATER LEVEL FLUCTUATION MEAN (JANUARY 2006-2015) TO JANUARY 2016**

There is a rise in the water levels in about 28.98% of wells and decline in 71.02% wells. About 22.21% of wells spread in patches show a rise in water level up to 2 m. About 4.92% of the wells show a rise in the order of 2- 4 m and is spread in north and north western part of the state. Rise in water level of more than 4 m is found in about 1.84% of the wells and are seen in Bhind, Morena, Guna, Dhar and in patches in many districts of the state.

In general there is decline water level in entire state. Water level decline up to 2 m is recorded in about 39.66% of wells spread in entire parts of the state. About 19.29% of the wells show a decline in the order of 2-4 m and 12.07% in the order of more than 4m, mostly spread in patches in many districts of the state especially in south, central, northern, and eastern parts of state.

Decadal water level fluctuations at a glance are shown in Fig 19. The decadal water level fluctuation maps of different period have been depicted in Fig (20 to 23). The district wise decadal water level fluctuation and frequency distribution of wells in different ranges is given in Annexures (XII to XV).

Fig 19

### DECADAL WATER LEVEL FLUCTUATION AT A GLANCE

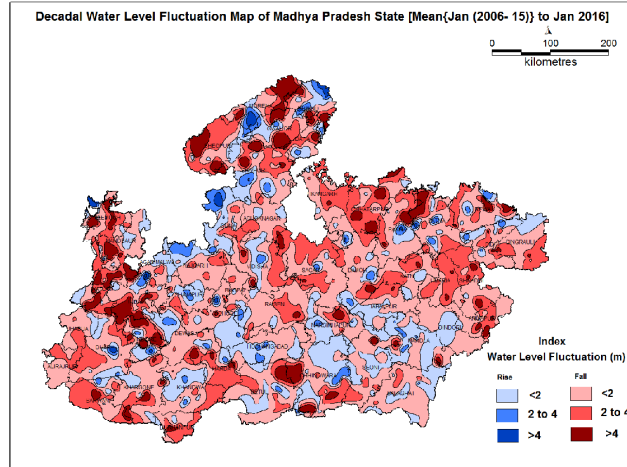
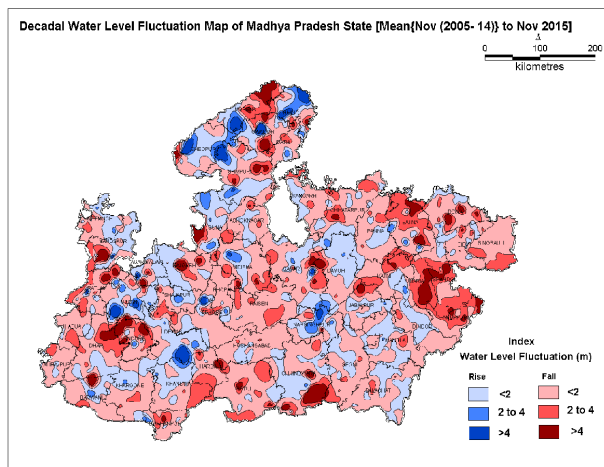
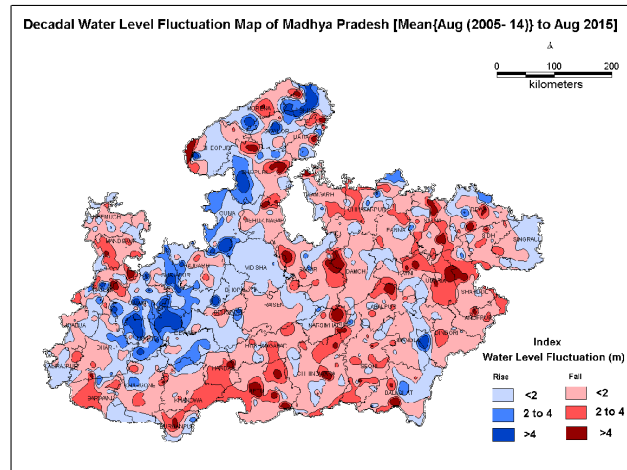
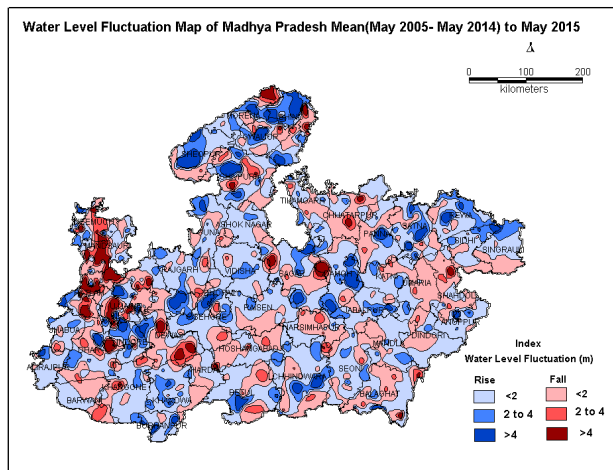


Fig 20

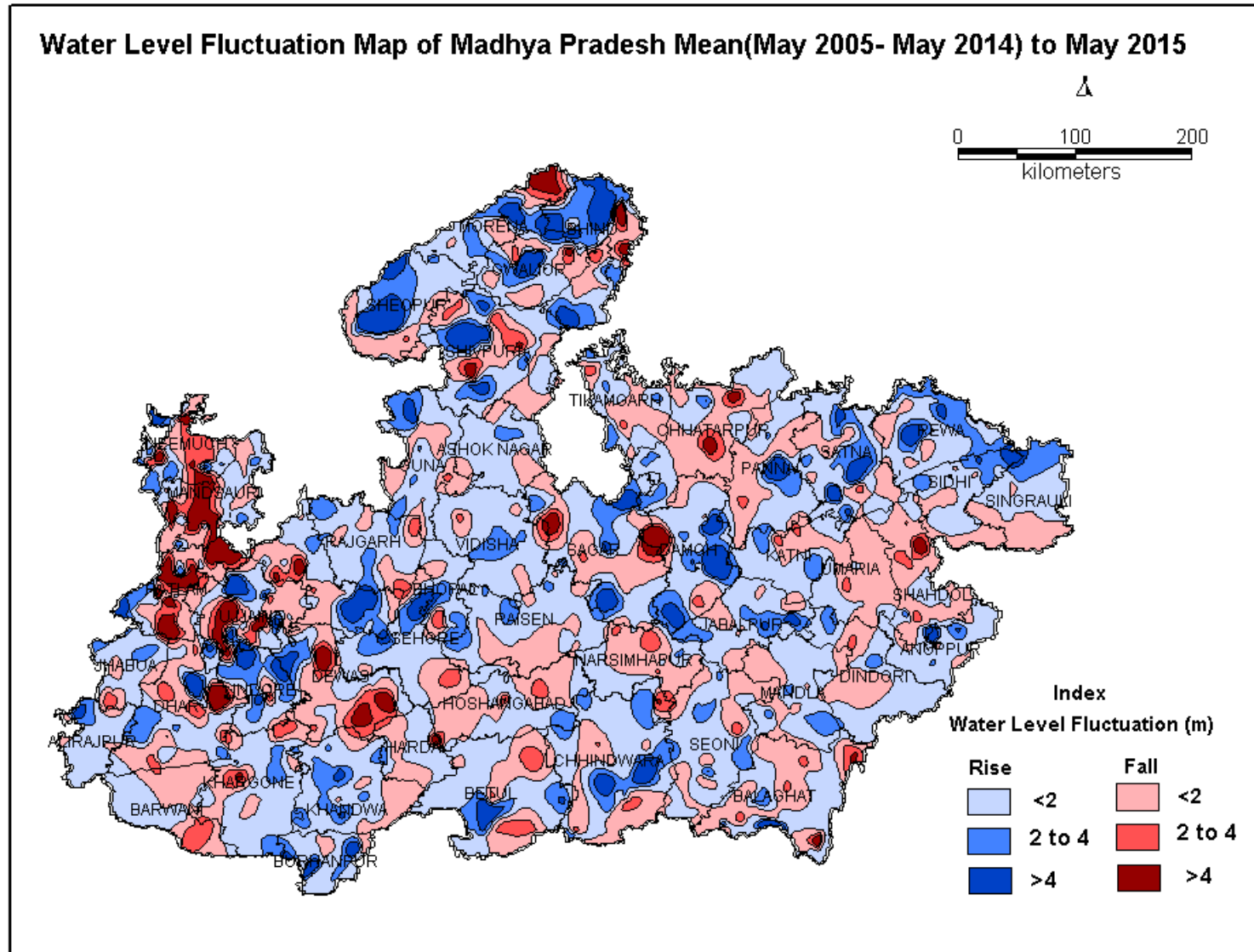


Fig 21

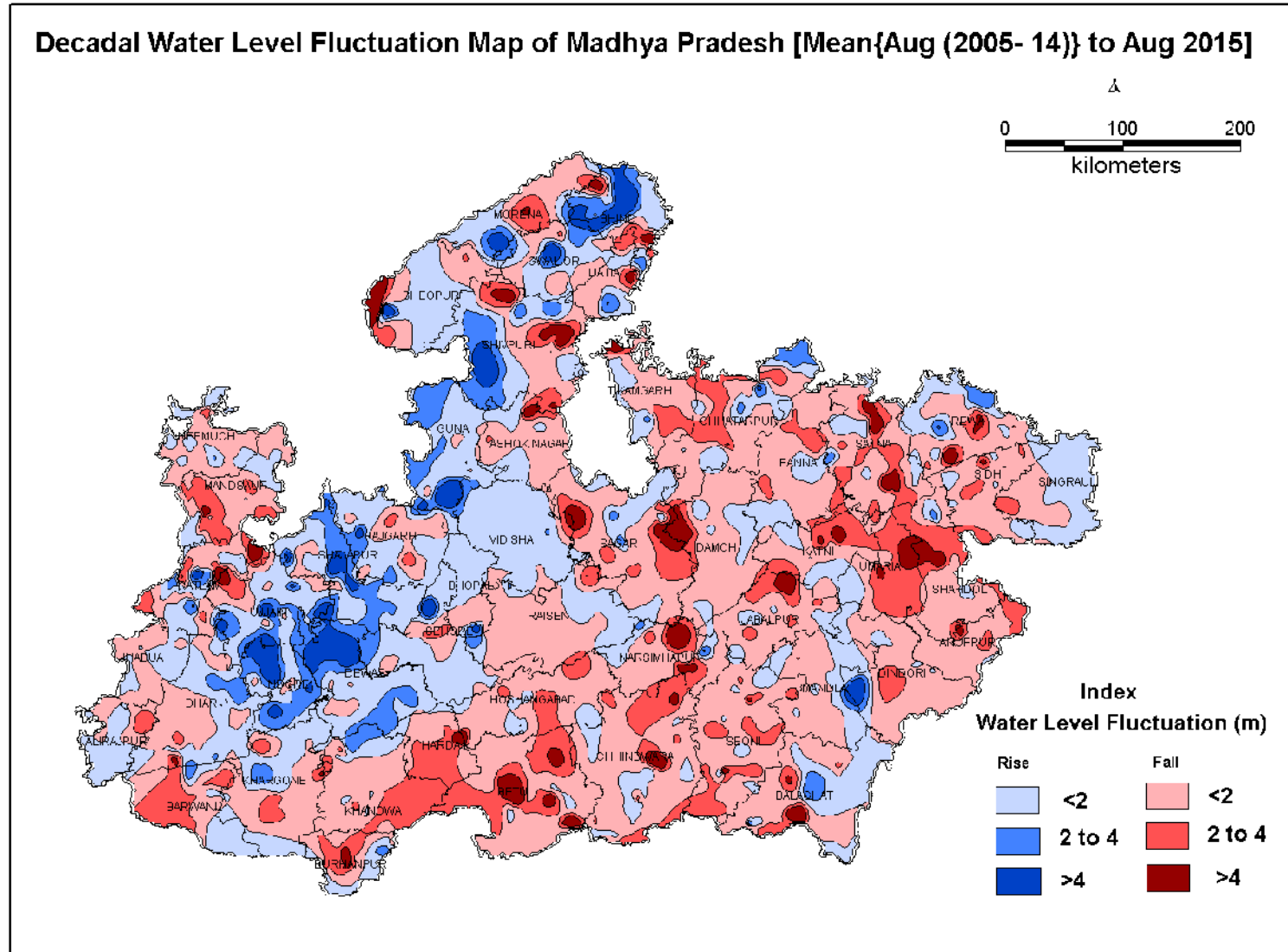


Fig 22

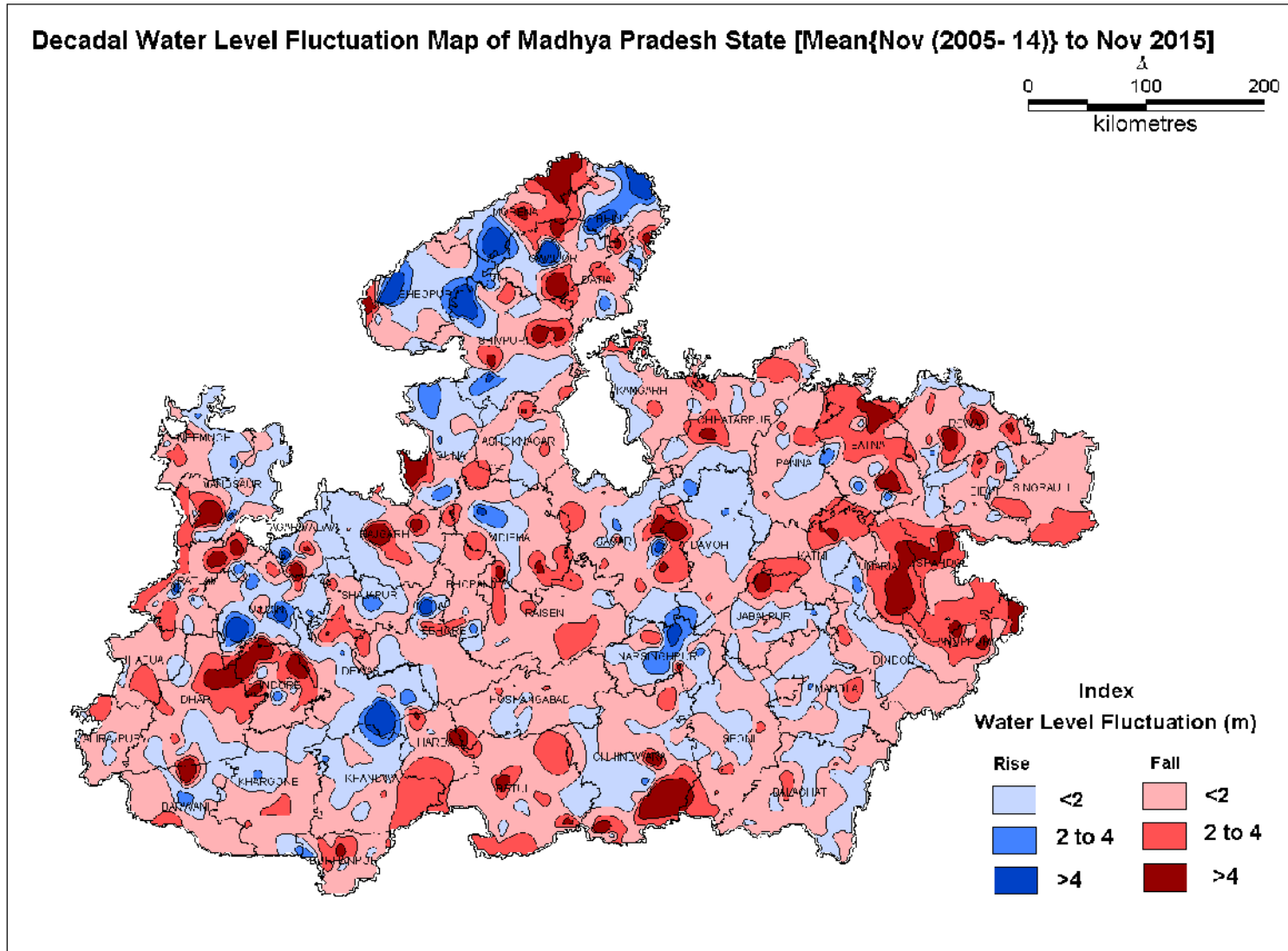
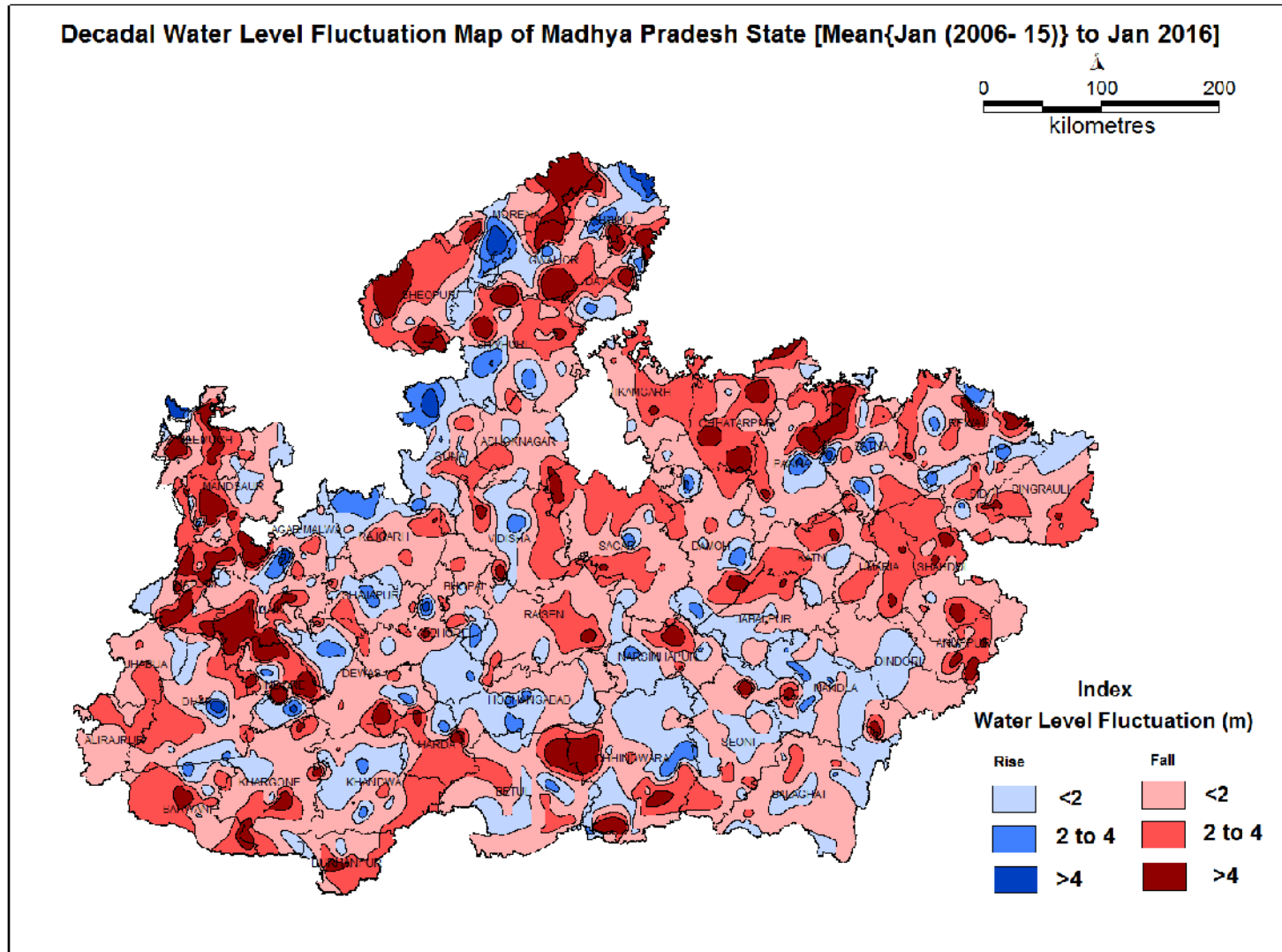




Fig 23





## **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 net work stations for the past one decade 2006-15 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 2006-15.

### **GROUND WATER LEVELS TREND PRE MONSOON (May 2006 to May 2015)**

Ground water levels trend map of pre-monsoon period (May 2006 to May 2015) in Madhya Pradesh state has been depicted in **Fig 24**. The Map shows that there is a general rising trend up to (0.10 m/year) of ground water levels during the past decade in the almost all the districts of the State. The rising trend at higher rate (0.10 to 0.2 m/year) is found in sporadic patches of smaller areal extent in Dewas, Sheopur, Gwalior, Panna, Satna and Shajapur district. The rising trend more than 0.20 m/year has been observed in Sheopur, Dewas districts of the State. Declining trend at a rate up to (-0.10 m/year) is observed in patches mainly in central and southern parts of the state. The declining trend at higher rate (-0.10 to -0.20 m/year) has been observed only at few districts, namely, Chhindwara, and Narsinghpur districts. 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. About 33.6 % of monitoring wells are showing declining water levels trend while 66.4 % monitoring wells are showing rising ground water level trend.

### **GROUND WATER LEVELS TREND POST MONSOON (Nov 2006 to Nov 2015)**

Ground water levels trend map of post-monsoon period (Nov 2006 to Nov 2015) in Madhya Pradesh state has been depicted in **Fig 25**. The Map shows that there is a general rising trend up to 0.10 m/year of ground water levels during the past decade in all most all the districts of the State. Rising trend at a rate 0.10 to 0.20 m/year is observed only in small patches in Shivpuri, Gwalior, Ujjain and Rewa districts. The rising trend at rate more than 0.20 m/year) is found only in Gwalior. The declining trend up to 0.10 m/year has been observed in patches mainly in Southern and central parts of state. The declining trend at rate (-0.10 to -.20 m/year) is found in patches mainly in Morena, Sheopur, Narsinghpur and Betul districts. Declining water levels trend more than (-0.20 m/year) has been observed only in Narsinghgarh and Sheopur 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. About 36.8 % of monitoring wells are showing declining water levels trend while 63.2 % monitoring wells are showing rising ground water level trend.

Fig 24

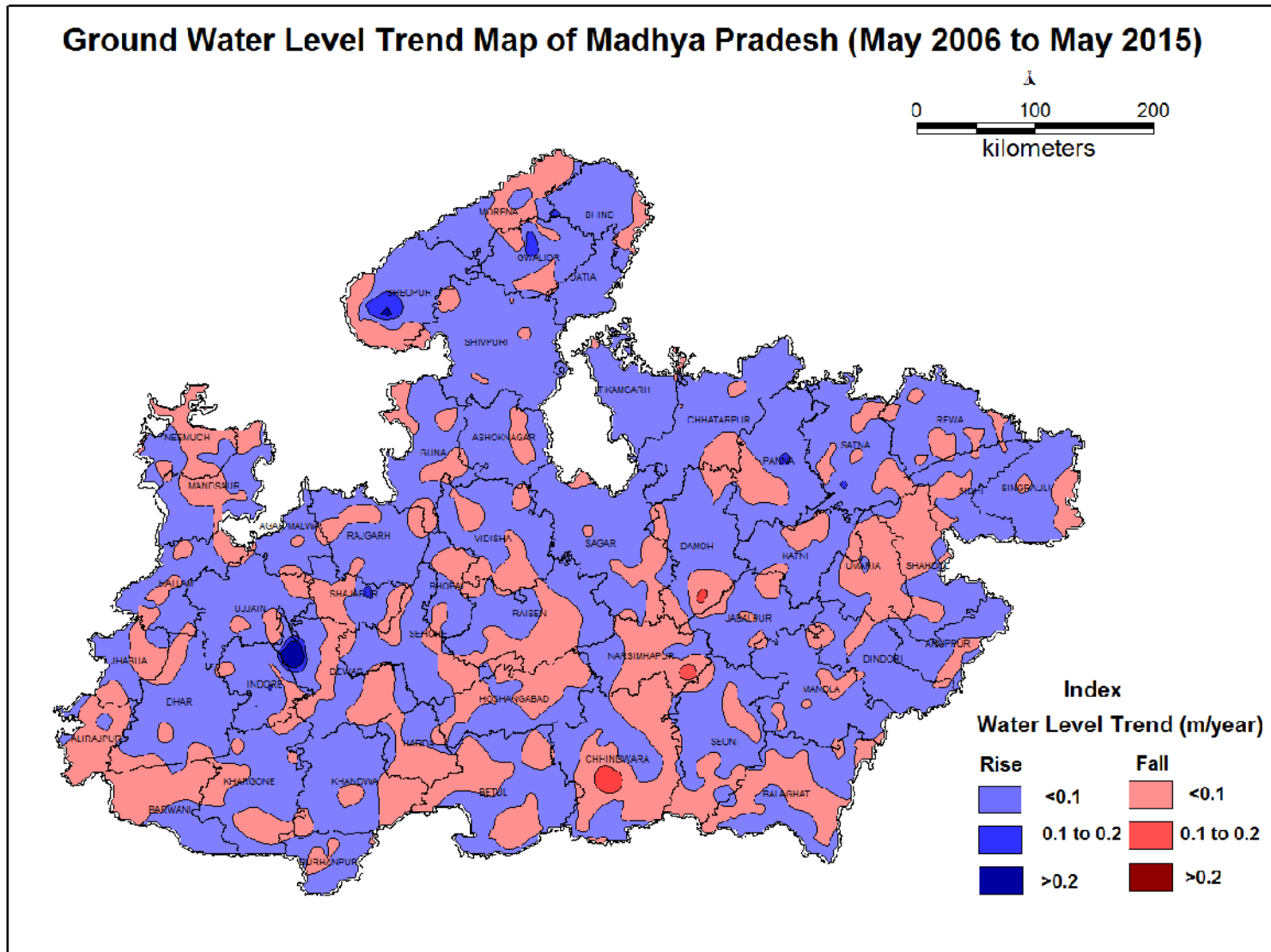
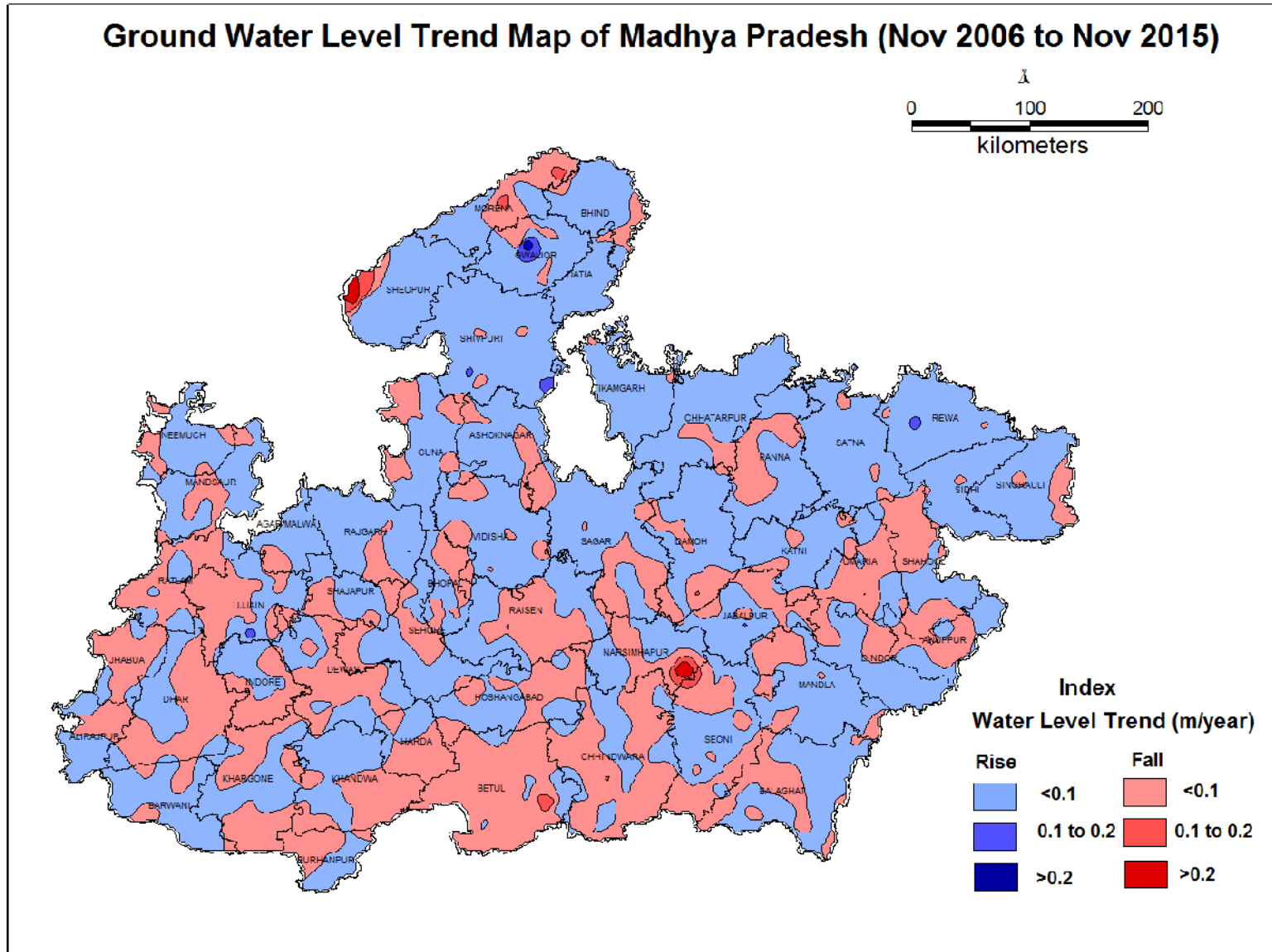


Fig 25



### 3. HYDROCHEMISTRY OF GROUND WATER (2014-15)

Water samples were collected from 1050 Ground Water Monitoring Wells during May 2014 and monitored for chemical quality of ground water (phreatic aquifer) and their location is given in Fig 26. Detailed analysis of the chemical samples was carried out for 15 parameters. 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 65.24% 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-4 shows that 86.86% wells fall in the range of 0-1500  $\mu\text{S}/\text{cm}$  at 25°C and only 1.52% wells have electrical conductivity more than 3000  $\mu\text{S}/\text{cm}$  at 25°C.

**Table 4 Frequency distribution of electrical conductivity in phreatic aquifer range**

Range ( $\mu\text{S}/\text{cm}$ at 25°C)	No. of Samples	%
0-1500	912	86.86
1501-3000	122	11.62
>3001	16	1.52

The distribution of major ions indicates that in Madhya Pradesh in ground water with low to medium salinity (EC  $\leq$  1000  $\mu\text{S}/\text{cm}$ ) 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. Generally the ground water in Madhya Pradesh is alkaline earth bicarbonate type. The list of samples having electrical conductivity more than 3000  $\mu\text{s}/\text{cm}$  at 25<sup>0</sup>C is given in Table 5 and distribution of Electrical Conductivity in Madhya Pradesh is given in the Fig 27.

**Table 5: Locations showing electrical conductivity above 3000  $\mu\text{s}/\text{cm}$  at 25<sup>0</sup>C.**

S. No.	District	Block	Location	Latitude	Longitude	EC ( $\mu\text{s}/\text{cm}$ at 25 <sup>0</sup> C)
1	ASHOKNAGAR	MUNGAOLI	Bahadurpur	24.342	77.969	3313
2	BHIND	RON	Balaji	26.296	78.980	3336
3	BHIND	GOHAD	Bhagathar	26.344	78.492	3108
4	BHIND	MEHGAON	Chirole	26.355	78.634	4211
5	BHIND	GOHAD	Mau	26.270	78.667	4132
6	DAMOH	DAMOH	Abhana	23.705	79.503	3160
7	DATIA	DATIA	Imaliya	25.694	78.581	3570
8	DEWAS	DEWAS	Bhesuni	23.233	75.993	3960
9	GWALIOR	GHATIGAON	Mohna	25.897	77.777	3154
10	KHARGONE	MAHESHWAR	Baddiya	22.234	75.698	3276
11	MANDLA	MANDLA	Bamhni New	22.476	80.368	3550
12	NEEMUCH	NEEMUCH	Girdola	24.462	74.932	4045
13	SEHORE	ASHTA	Ashta	23.023	76.716	3062
14	SHAJAPUR	SHUJALPUR	Akodia	23.382	76.599	3050
15	SHIVPURI	KARERA	Sirsod Chouraha	25.422	78.051	3123
16	UJJAIN	TARANA	Kaiytha	23.233	76.018	4085

Fig 26

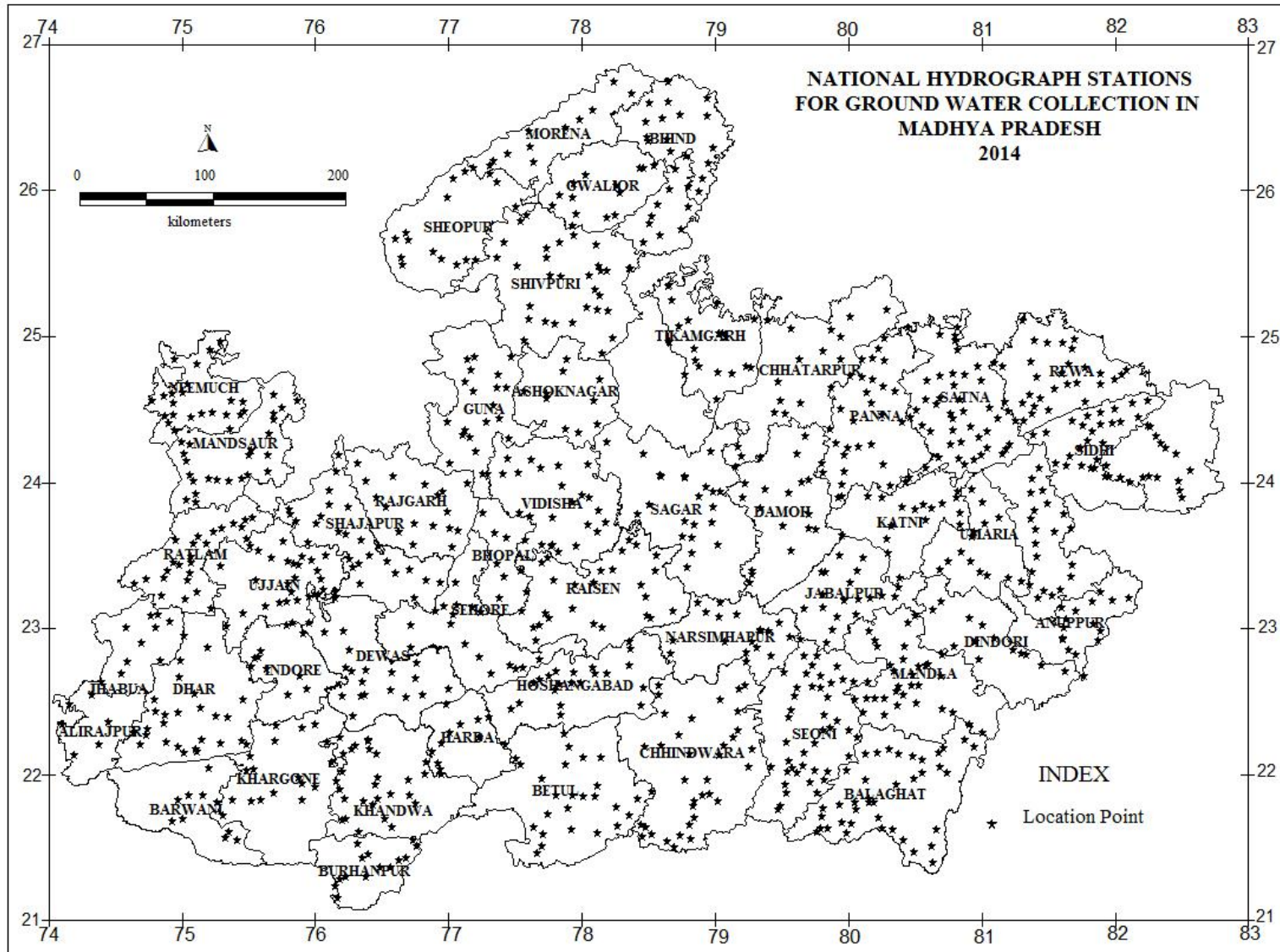
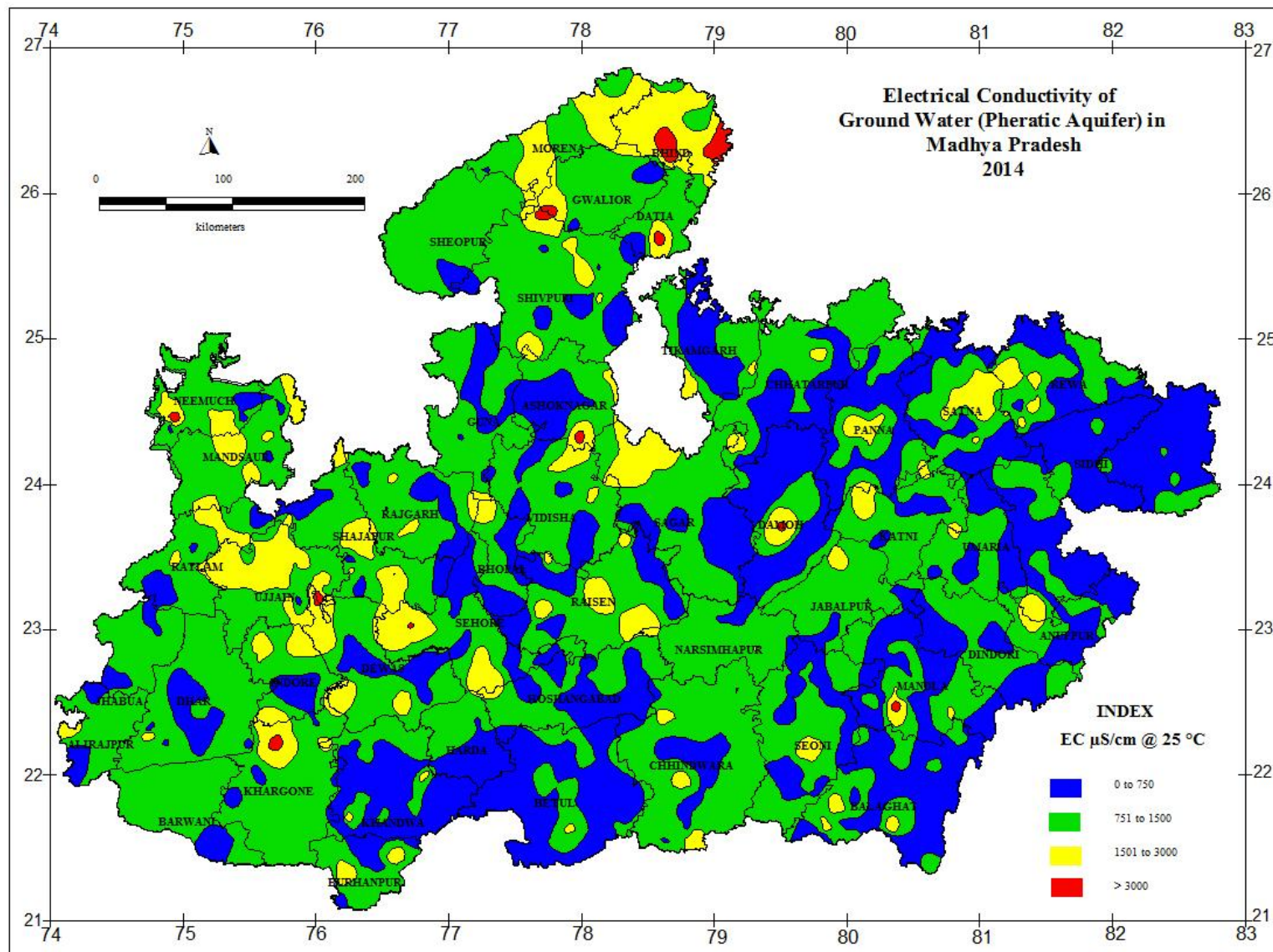




Fig 27





### 3.2 FLUORIDE

Generally 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; 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 Madhya Pradesh fluoride rich water in shallow aquifer occurs in Agar Malwa, Anuppur, Betul, Chhindwara, Katni, Mandla, Narsinghpur, Sehore, Seoni, Shahdol, Shajapur, Ujjain And Umaria districts. The distribution of fluoride in the State is shown in Fig 28. 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 Rehgaon (3.85mg/l) Mandla district.

**Table 6 Frequency Distribution of Fluoride in Phreatic Aquifer**

Range mg/l	No. of Samples	%
0-1	963	91.71
1-1.5	68	6.48
>1.5	19	1.81

The frequency distribution of Fluoride is give in the Table 6 shows that in 91.71% wells Fluoride concentration is within the desirable limit of 1.0 mg/l where as 1.81% 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 7.

**Table 7 Locations showing fluoride exceeding 1.5 mg/l in ground water**

S. No.	District	Block	Location	Latitude	Longitude	F ( more than 1.50 mg/l)
1	AGAR MALWA	BADOD	Matkotra	23.739	75.853	1.84
2	AGAR MALWA	NALKHEDA	Nalkhera	23.836	76.244	1.75
3	ANUPPUR	PUSHPARAJGARH	Amarkantak	22.674	81.761	2.21
4	BETUL	BETUL	Khedi	21.857	77.803	1.64
5	BETUL	PRABHAT PATTAN	Pattan	21.651	78.266	1.52
6	CHHINDWARA	CHAURAI	Chaurai1	22.054	79.251	1.62
7	CHHINDWARA	PARASIA	Sonapipri	22.143	78.803	1.55
8	KATNI	VIJAYRAGHAVGARH	Ubra	23.936	80.814	2.61
9	MANDLA	GHUGHARI	Ghughri	22.678	80.690	2.77
10	MANDLA	MOHGAON	Rehgaon	22.749	80.577	3.85
11	NARSINGHPUR	NARSINGHPUR	Sundernagar	22.838	79.234	1.53

12	SEHORE	SEHORE	Jattakheda	23.153	76.963	1.64
13	SEONI	CHHAPARA	Chhapara	22.394	79.546	2.38
14	SEONI	GHANSAUR	Masurbhanwari	22.638	80.144	2.18
15	SEONI	KURAI	Piparia1	21.783	79.488	2.06
16	SHAH DOL	GOHPARU	Gohparu	23.491	81.409	2.85
17	SHAJAPUR	MOHAN BARODIYA	Choma	23.649	76.225	1.73
18	UJJAIN	GHATIA	Nazarpur	23.345	75.849	1.57
19	UMARIA	KARKELI	*Karkeli	23.465	80.910	3.14

### 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 man. 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 Fig 29. Perusal of frequency distribution of Nitrate in ground water reveals that 66.48% (698 nos.) wells have nitrate concentration within the permissible limit of 45mg/l while 33.52% (352 nos.) well water contain nitrate in excess of 45 mg/l (Table 8).

**Table 8 Frequency distribution of Nitrate in shallow aquifer**

Range mg/l	No. of Samples	%
0-45	698	66.48
>45-100	222	21.14
>100	130	12.38

In Madhya Pradesh, nitrate concentration in shallow aquifer occurs in Agar Malwa, Alirajpur, Anuppur, Ashoknagar, Balaghat, Barwani, Betul, Bhind, Bhopal, Burhanpur, Chhatarpur, Chhindwara, Damoh, Datia, Dewas, Dhar, Guna, 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 and Vidisha districts. The distribution of nitrate

concentration in the State is shown in Fig 29.

Very high Nitrate concentration of 500 mg/l was found in the ground water sample from Sirsod Chouraha, Shivpuri district (765 mg/l). The locations having more than 45 mg/l nitrate in ground water of Madhya Pradesh are shown in Table 9.

**Fig 28**

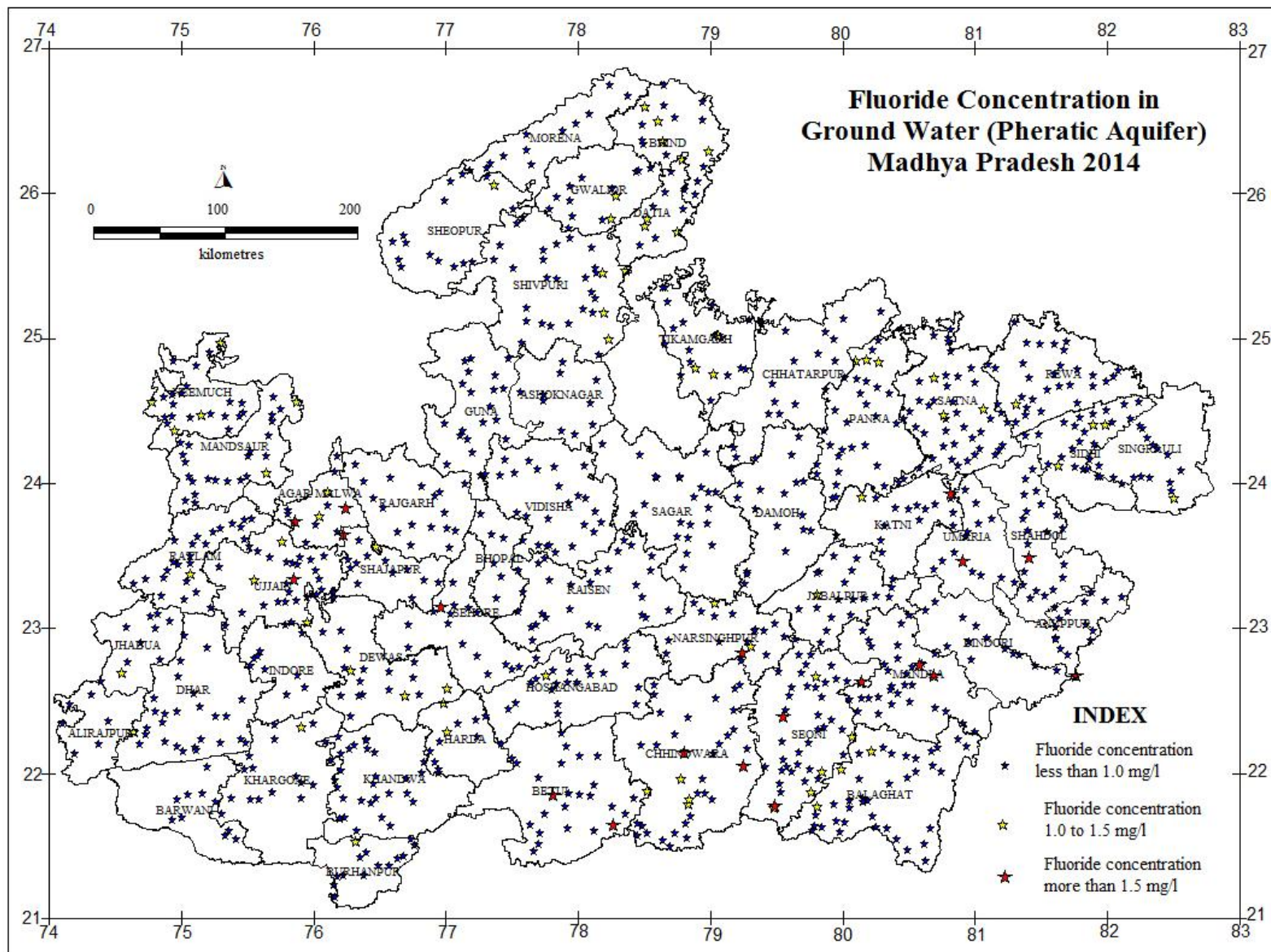
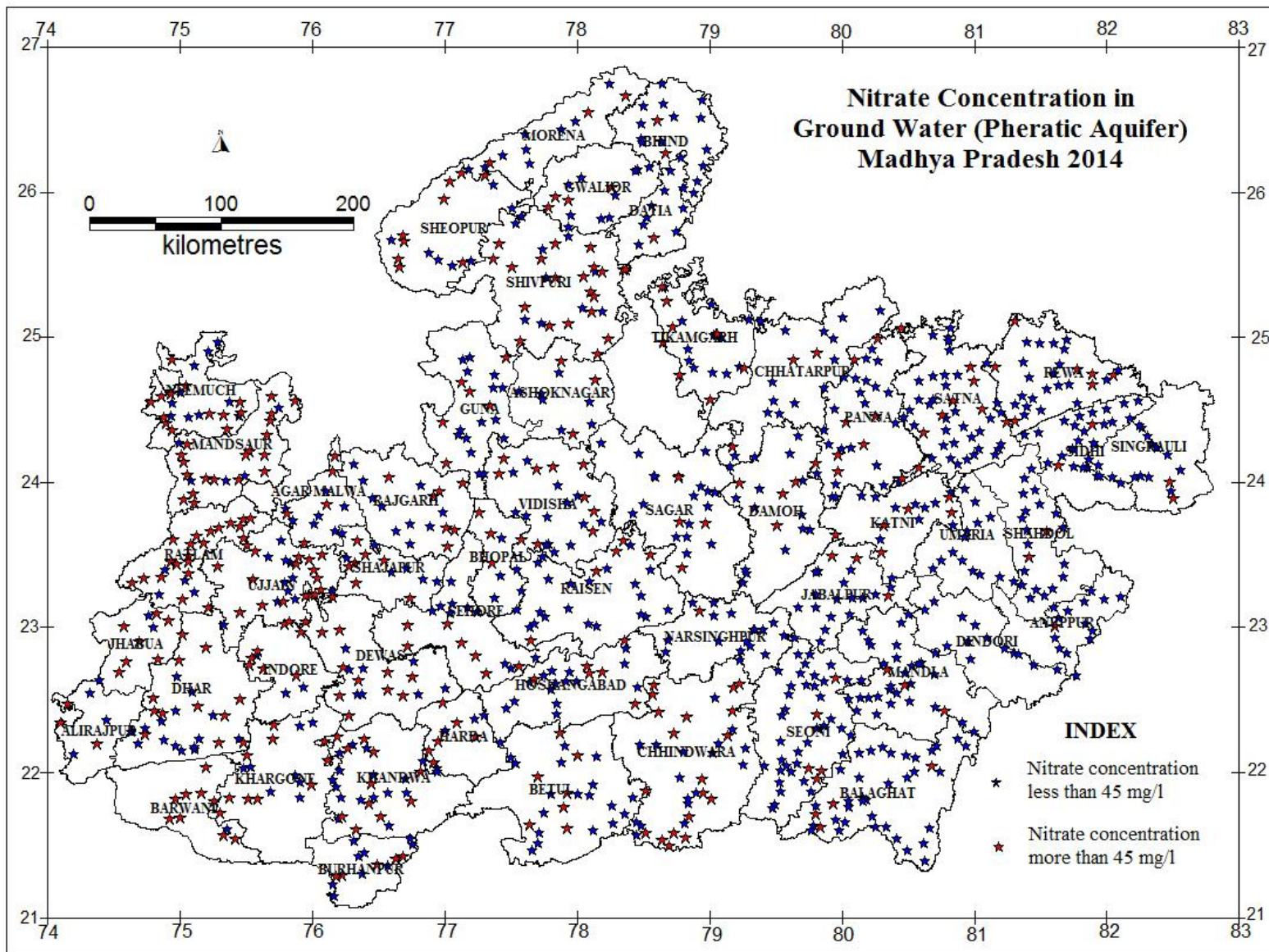




Fig 29



**Table 9 Locations showing nitrate more than 45 mg/l in ground water**

S. No.	District	Block	Location	Latitude	Longitude	NO <sub>3</sub> (more than 45 mg/l)
1	AGAR MALWA	NALKHEDA	Amla	23.853	76.104	93
2	AGAR MALWA	BADOD	Barod	23.788	75.806	93
3	AGAR MALWA	SUSNER	Guradibangla	24.080	76.155	133
4	AGAR MALWA	SUSNER	Soyat	24.188	76.174	139
5	AGAR MALWA	AGAR	Tanodiya	23.589	75.941	79
6	ALIRAJPUR	KATTHIWARA	Kathiwarra	22.481	74.150	161
7	ALIRAJPUR	KATTHIWARA	Khattali	22.348	74.101	185
8	ALIRAJPUR	ALIRAJPUR	Kukshi1	22.204	74.372	110
9	ANUPPUR	JAITHARI	Kerar	23.010	81.610	100
10	ASHOKNAGAR	MUNGAOLI	Bahadurpur	24.342	77.969	447
11	ASHOKNAGAR	CHANDERI	Chanderi	24.712	78.136	147
12	ASHOKNAGAR	ISAGARH	Isagarh	24.842	77.880	72
13	BALAGHAT	KATANGI	Katedhara	21.714	79.797	81
14	BALAGHAT	WARASEONI	Kochwahi	21.790	79.929	73
15	BALAGHAT	KHAIRLANJI	Miragpur	21.631	79.839	209
16	BALAGHAT	BIRSA	Mohagaon	22.052	80.681	86
17	BARWANI	THIKRI	Amba	22.043	75.196	161
18	BARWANI	RAJPUR	Balsamund	21.809	75.259	115
19	BARWANI	RAJPUR	Bhikangaon1	21.862	75.156	165
20	BARWANI	SENDHWA	Bhulwani	21.548	75.415	75
21	BARWANI	SENDHWA	Chhachariya	21.569	75.324	117
22	BARWANI	NIWALI	Niwali1	21.683	74.923	60
23	BARWANI	RAJPUR	Palsud	21.823	74.965	84
24	BARWANI	RAJPUR	Segaon	21.857	75.046	107
25	BARWANI	NIWALI	Sendhwa	21.694	75.003	63
26	BETUL	ATHNER	Athner	21.621	77.921	79
27	BETUL	BETUL	Betul	21.860	77.927	91
28	BETUL	BHAINSDEHI	Bhainsdehi	21.644	77.637	57
29	BETUL	SHAHPUR	Bhonra	22.278	77.870	59
30	BETUL	MULTAI	Ghatpiparia	21.882	78.519	200
31	BETUL	GHODA DONGRI	Ghoradongri	22.121	78.005	96
32	BETUL	CHICHOLI	Jogli	21.975	77.701	135
33	BETUL	BETUL	Kolgaon	21.769	77.894	61
34	BHIND	GOHAD	Mau	26.270	78.667	280
35	BHIND	MEHGAON	Mehgaon	26.498	78.601	100
36	BHOPAL	BERASIA	Gunga	23.449	77.360	75
37	BHOPAL	BERASIA	Nagirabad	23.794	77.256	147
38	BHOPAL	BERASIA	Ramgarha	23.654	77.347	61
39	BURHANPUR	BURHANPUR	Bahadurpur	21.288	76.179	136
40	BURHANPUR	BURHANPUR	Burhanpur	21.298	76.223	110
41	BURHANPUR	KHAKNAR	Karkheda	21.366	76.486	55
42	BURHANPUR	KHAKNAR	Manjrod kalan	21.413	76.628	303

43	BURHANPUR	KHAKNAR	Pipalpani	21.430	76.679	89
44	CHHATARPUR	BUXWAHA	Buxwaha	24.249	79.171	110
45	CHHATARPUR	RAJNAGAR	Chhatarpur	24.900	79.808	165
46	CHHATARPUR	CHHATARPUR	Khajuraho	24.850	79.631	60
47	CHHINDWARA	AMARWARA	Banjari	22.260	79.132	63
48	CHHINDWARA	SAUSAR	Borgaon1	21.559	78.816	83
49	CHHINDWARA	TAMIA	Chhindi	22.388	78.824	86
50	CHHINDWARA	PANDHURNA	Chincholiwad	21.500	78.693	50
51	CHHINDWARA	TAMIA	Delakhari	22.421	78.618	86
52	CHHINDWARA	MOHKHED	Goni	21.821	79.013	50
53	CHHINDWARA	HARRAI	HarraiDW	22.613	79.221	82
54	CHHINDWARA	TAMIA	Lahgudna	22.272	78.724	75
55	CHHINDWARA	MOHKHED	Linga rly.stn.	21.963	78.938	75
56	CHHINDWARA	TAMIA	Mahaljhir	22.609	78.574	83
57	CHHINDWARA	PANDHURNA	Pandurna	21.589	78.518	103
58	CHHINDWARA	SAUSAR	Piplanarayanwar	21.588	78.731	78
59	CHHINDWARA	PANDHURNA	Rajna	21.540	78.639	84
60	CHHINDWARA	SAUSAR	Ramakona New	21.702	78.843	60
61	CHHINDWARA	TAMIA	Renikhera	22.544	78.573	68
62	CHHINDWARA	MOHKHED	Sarangbheri	21.867	78.953	95
63	CHHINDWARA	HARRAI	Sathiya	22.590	79.179	46
64	CHHINDWARA	HARRAI	Surla	22.433	79.172	103
65	DAMOH	DAMOH	Abhana	23.705	79.503	154
66	DAMOH	PATERA	Bangaon	24.006	79.651	54
67	DAMOH	DAMOH	Palar	23.929	79.553	47
68	DAMOH	PATHARIA	Patera2	23.997	79.222	52
69	DATIA	DATIA	Imaliya	25.694	78.581	364
70	DEWAS	TONKKHURD	Alari	23.213	76.151	151
71	DEWAS	BAGLI	Bagli1	22.639	76.347	49
72	DEWAS	DEWAS	Bhesuni	23.233	75.993	176
73	DEWAS	SONKUTCH	Bhonrasa	22.988	76.207	126
74	DEWAS	KANNOD	Bijawad	22.699	76.572	54
75	DEWAS	DEWAS	Dewas	22.974	76.068	377
76	DEWAS	KANNOD	Kannod	22.664	76.751	49
77	DEWAS	KANNOD	Kantaphor	22.576	76.566	119
78	DEWAS	BAGLI	Karnawad	22.730	76.229	136
79	DEWAS	BAGLI	Pipri	22.399	76.278	188
80	DEWAS	KANNOD	Satwas New	22.534	76.682	128
81	DEWAS	BAGLI	Udainagar	22.538	76.204	417
82	DHAR	BAGH	Ambua	22.430	74.804	89
83	DHAR	NALCHHA	Balwara	22.394	75.342	85
84	DHAR	UMARVAN	Dhamnodb	22.214	75.289	98
85	DHAR	DHARAMPURI	Dhargaon	22.209	75.481	93
86	DHAR	BAGH	Jobat New	22.413	74.870	74
87	DHAR	SARDARPUR	Julana	22.781	74.989	106
88	DHAR	BADNAWAR	Kanwan New	22.870	75.191	78

89	DHAR	GANDHWANI	Lunera	22.460	75.137	56
90	DHAR	NALCHHA	Nandpura	22.514	75.452	48
91	DHAR	KUKSHI	Nanpur	22.271	74.732	205
92	DHAR	SARDARPUR	Rajod	22.954	75.017	113
93	DHAR	BAGH	Salampura	22.518	74.793	94
94	GUNA	CHACHAURA	BarodDW	24.418	76.988	47
95	GUNA	BAMORI	Berkheri	24.628	77.184	80
96	GUNA	GUNA	Jaitadongar	24.531	77.336	65
97	GUNA	GUNA	Myana	24.865	77.466	50
98	GUNA	CHACHAURA	Penchi	24.136	77.010	83
99	GUNA	BAMORI	Suhaya New	24.691	77.124	55
100	GWALIOR	GHATIGAON	Aron	25.952	77.931	90
101	GWALIOR	GHATIGAON	Charai Shyampur	25.975	77.831	58
102	GWALIOR	DABRA	Makoda	26.036	78.256	160
103	GWALIOR	GHATIGAON	Mohna	25.897	77.777	111
104	HARDA	KHIRKIYA	Chhipawad	22.155	76.877	96
105	HARDA	HARDA	Handia	22.484	76.981	62
106	HARDA	HARDA	Harda	22.346	77.088	136
107	HARDA	KHIRKIYA	Mandla	22.219	76.947	113
108	HARDA	TIMARNI	Mohanpur	22.255	77.230	49
109	HARDA	KHIRKIYA	Sonpura Colony	22.077	76.916	51
110	HOSHANGABAD	BABAI	Bagratawa	22.736	78.074	71
111	HOSHANGABAD	PIPARIYA	Pachmarhi	22.477	78.439	95
112	HOSHANGABAD	PIPARIYA	Sandia	22.913	78.355	135
113	HOSHANGABAD	HOSHANGABAD	Sanwalkhera	22.650	77.677	46
114	HOSHANGABAD	SHOHAGPUR	Semri	22.689	78.092	71
115	HOSHANGABAD	SHOHAGPUR	Sohagpur	22.694	78.189	75
116	INDORE	SAWER	Chayan	23.025	75.787	95
117	INDORE	DEPALPUR	Dasai	22.722	75.632	106
118	INDORE	DEPALPUR	Depalpur	22.843	75.589	158
119	INDORE	INDORE	Dudhiya	22.676	75.879	79
120	INDORE	DEPALPUR	Hatod	22.796	75.543	55
121	INDORE	DEPALPUR	Rangwasa	22.744	75.520	93
122	INDORE	SAWER	Sanwer	22.971	75.911	105
123	JABALPUR	KUNDAM	Kundam	23.219	80.346	54
124	JABALPUR	MAJHOLI	Majholi	23.499	79.927	101
125	JABALPUR	SIHORA	Sihora1	23.483	80.108	52
126	JHABUA	JHABUA	Jhabua1	22.771	74.590	64
127	JHABUA	PETLAWAD	Karwar	23.101	74.820	65
128	JHABUA	MEGHNAGAR	Meghnagar New	22.905	74.692	95
129	JHABUA	RAMA	Pitol	22.785	74.832	105
130	JHABUA	PETLAWAD	Sarang	23.052	74.908	67
131	JHABUA	THANDLA	Thandla1	23.008	74.579	67
132	JHABUA	RANAPUR	Tikadimoti	22.694	74.542	65
133	KATNI	BADWARA	Barhi	23.902	80.811	50
134	KATNI	BADWARA	Kewlari	23.797	80.830	53



135	KATNI	RITHI	Lakhapateri	23.708	80.317	58
136	KATNI	BADWARA	Majhgawan1	23.822	80.499	58
137	KATNI	BAHORIBAND	Rehli	23.641	79.949	77
138	KATNI	DHIMAR KHEDA	Umariapan	23.522	80.292	94
139	KHANDWA	PANDHANA	Balwara	21.700	76.516	82
140	KHANDWA	PUNASA	Bangarda	22.144	76.461	78
141	KHANDWA	PUNASA	Barwah	22.254	76.185	100
142	KHANDWA	PANDHANA	Borgaon Buzurg	21.609	76.325	60
143	KHANDWA	HARSUD	Borisaray	22.006	76.817	62
144	KHANDWA	PUNASA	Daulatpur	22.232	76.391	90
145	KHANDWA	CHHEGAON MAKHAN	Dhangaon	22.088	76.118	136
146	KHANDWA	KHANDWA	Jaswadi	21.794	76.428	63
147	KHANDWA	KHANDWA	Jawar	21.930	76.448	62
148	KHANDWA	PUNASA	Kelwakalan	22.174	76.267	49
149	KHANDWA	KHALWA	Khalwa	21.805	76.746	79
150	KHANDWA	CHHEGAON MAKHAN	Pandhana	21.699	76.227	182
151	KHANDWA	PUNASA	Thapna	22.222	76.087	152
152	KHARGONE	MAHESHWAR	Baddiya	22.234	75.698	195
153	KHARGONE	KHARGONE	Bamnala New	21.825	75.586	115
154	KHARGONE	SEGAON	Divalgaon	21.829	75.376	75
155	KHARGONE	MAHESHWAR	Gandhwani	22.336	75.705	145
156	KHARGONE	BHAGWANPURA	Ghatti	21.723	75.301	175
157	KHARGONE	BHIKANGAON	Gogaon	21.918	75.994	55
158	KHARGONE	KASRAWAD	Kasrawad1	22.124	75.508	110
159	KHARGONE	KHARGONE	Un	21.821	75.517	114
160	MANDLA	MANDLA	Gwari	22.713	80.342	62
161	MANDLA	MANDLA	Pathiri patpara	22.608	80.471	67
162	MANDLA	BICHHIYA	Sijhora	22.426	80.777	53
163	MANDSAUR	BHANPURA	Babulda	24.474	75.688	167
164	MANDSAUR	BHANPURA	Badodiya	24.599	75.689	65
165	MANDSAUR	GAROTH	Barkheranayak	24.219	75.522	177
166	MANDSAUR	MANDSAUR	Basakheda	24.032	75.198	82
167	MANDSAUR	MANDSAUR	Botalganj	24.148	75.029	83
168	MANDSAUR	MANDSAUR	Chirmoliya	24.022	75.257	193
169	MANDSAUR	MANDSAUR	Daloda1	23.925	75.099	89
170	MANDSAUR	GAROTH	Dharmarajeswar	24.193	75.500	181
171	MANDSAUR	BHANPURA	Dudhkheri	24.431	75.685	158
172	MANDSAUR	GAROTH	Garoth1	24.333	75.655	86
173	MANDSAUR	MANDSAUR	Kachnera	23.864	75.103	70
174	MANDSAUR	MANDSAUR	MANDSAUR	24.053	75.053	51
175	MANDSAUR	MANDSAUR	Manpura	23.884	75.026	173
176	MANDSAUR	MALHARGARH	Narayangarh	24.267	75.054	95
177	MANDSAUR	MALHARGARH	Pipaliya	24.196	75.008	139
178	MANDSAUR	BHANPURA	Sandhara	24.561	75.868	78

179	MANDSAUR	GAROTH	Shamgarh1	24.191	75.640	48
180	MANDSAUR	SITAMAU	Surjani	24.025	75.445	68
181	MANDSAUR	SITAMAU	Suwasara	24.077	75.643	118
182	MORENA	MORENA	Khera mewda	26.551	78.080	137
183	MORENA	PORSA	Porsa	26.671	78.369	137
184	MORENA	SABALGARH	Ranipura	26.206	77.335	70
185	NARSINGHPUR	CHAWARPATHA	Dobhi	23.115	78.925	157
186	NEEMUCH	MANASA	Besla	24.554	75.457	121
187	NEEMUCH	MANASA	Chachor	24.372	75.357	143
188	NEEMUCH	JAWAD	Dadoli	24.674	75.041	239
189	NEEMUCH	MANASA	Gota pipliya	24.480	75.223	154
190	NEEMUCH	MANASA	Jamalpura	24.487	75.464	97
191	NEEMUCH	NEEMUCH	Jamuniakalan	24.411	74.896	46
192	NEEMUCH	JAWAD	Jat	24.848	74.938	55
193	NEEMUCH	JAWAD	Jawad	24.594	74.862	128
194	NEEMUCH	NEEMUCH	Kacholi	24.363	74.941	85
195	NEEMUCH	MANASA	Kundaliya	24.467	75.331	221
196	NEEMUCH	JAWAD	Lalpura	24.614	74.926	124
197	NEEMUCH	NEEMUCH	Nayagaon2	24.561	74.776	151
198	NEEMUCH	NEEMUCH	Neemuch	24.454	74.874	72
199	PANNA	AJAIGARH	Ajaigarh	24.990	80.268	82
200	PANNA	GUNNOR	Amanganj	24.421	80.034	63
201	PANNA	AJAIGARH	Bariyarpur	24.849	80.095	121
202	PANNA	AJAIGARH	Chandla	25.067	80.444	74
203	PANNA	SHAHNAGAR	Dalpatpur	24.134	79.800	51
204	PANNA	GUNNOR	Gunaur	24.463	80.251	67
205	PANNA	PAWAI	Mohendra	24.191	79.966	61
206	PANNA	PAWAI	Powai	24.265	80.165	86
207	PANNA	SHAHNAGAR	Saharan	24.081	79.965	102
208	RAISEN	GOHAGANJ	Barkheda	22.917	77.651	70
209	RAISEN	BEGAMGANJ	Begumganj	23.607	78.349	218
210	RAISEN	GAIRATGANJ	Garhi	23.394	78.142	54
211	RAISEN	BEGAMGANJ	Paloha	23.532	78.296	163
212	RAISEN	BEGAMGANJ	Sultanganj	23.503	78.555	75
213	RAJGARH	BIAORA	Barkheda	23.942	76.955	59
214	RAJGARH	BIAORA	Biora	23.913	76.917	71
215	RAJGARH	NARSINGHGARH	Gandhigram	23.674	77.069	62
216	RAJGARH	NARSINGHGARH	Ganyari	23.691	77.008	125
217	RAJGARH	KHILCHIPUR	Khilchipur	24.043	76.579	80
218	RAJGARH	NARSINGHGARH	Mana	23.561	77.022	47
219	RAJGARH	BIAORA	Suthaliya New	23.996	77.138	84
220	RATLAM	ALOT	Alot	23.758	75.530	58
221	RATLAM	BAJNA	Bajna	23.309	74.638	54
222	RATLAM	RATLAM	Dhannod	23.440	74.978	120
223	RATLAM	ALOT	Gul Balod	23.749	75.475	62
224	RATLAM	JAORA	Jaora	23.633	75.122	80

225	RATLAM	ALOT	Kharwa Kalan	23.615	75.478	77
226	RATLAM	ALOT	Malakhera	23.697	75.449	82
227	RATLAM	RATLAM	Mewasa	23.497	75.067	66
228	RATLAM	JAORA	Mindli	23.690	75.292	158
229	RATLAM	RATLAM	Mundri	23.201	75.021	146
230	RATLAM	RATLAM	Namli	23.455	75.066	138
231	RATLAM	PIPLODA	Piploda	23.607	74.947	99
232	RATLAM	BAJNA	Rajapur	23.341	74.730	87
233	RATLAM	RATLAM	Rattagarhkhera	23.139	75.216	93
234	RATLAM	SAILANA	Sailana	23.457	74.933	87
235	RATLAM	RATLAM	Sejawata	23.377	75.060	94
236	RATLAM	SAILANA	Shivgarh1	23.349	74.862	57
237	RATLAM	JAORA	Sindurkiya	23.666	75.235	70
238	RATLAM	PIPLODA	Sohangarh	23.580	75.080	72
239	RATLAM	ALOT	Tal	23.722	75.383	66
240	RATLAM	JAORA	Ukediya	23.585	75.180	113
241	REWA	REWA	Amilki	24.425	81.308	72
242	REWA	JAWA	Dabhoura	25.114	81.302	67
243	REWA	HANUMANA	Madha	24.741	82.046	95
244	REWA	MAUGANJ	Mauganj1	24.675	81.889	112
245	REWA	NAIGARHI	Naigarhi1	24.787	81.775	77
246	REWA	HANUMANA	Pahadi	24.750	81.886	59
247	REWA	SIRMOUR	Semaria2	24.796	81.152	309
248	SAGAR	REHLI	Hurra	23.728	78.972	72
249	SAGAR	KESLI	Kesli	23.421	78.789	66
250	SAGAR	BANDA	Khurai	24.039	78.767	52
251	SAGAR	JAISINAGAR	Sarkhedhi	23.736	78.772	93
252	SATNA	MAIIHAR	Amdara	24.104	80.576	197
253	SATNA	MAJHGAWAN	Birsinghpur	24.798	80.970	127
254	SATNA	RAMPUR- BAGHELAN	Kotar	24.699	80.995	151
255	SATNA	AMARPATAN	Mukundpur	24.423	81.247	50
256	SATNA	UNCHEHARA	Paras maniya	24.350	80.616	90
257	SATNA	UNCHEHARA	Pondipithourabd	24.472	80.759	87
258	SATNA	RAMPUR- BAGHELAN	Rampur1	24.511	81.056	126
259	SATNA	MAIIHAR	Sabhaganj	24.035	80.456	48
260	SATNA	SOHAWAL	Satna	24.568	80.832	76
261	SEHORE	ASHTA	Ashta	23.023	76.716	305
262	SEHORE	BUDNI	Bhaya	22.734	77.556	64
263	SEHORE	ICHHAWAR	Ichhawar	23.032	77.019	67
264	SEHORE	ASHTA	Khachrod	22.872	76.718	55
265	SEHORE	NASRULLAGANJ	Larkui	22.808	77.232	79
266	SEHORE	ICHHAWAR	Nadan	22.897	77.122	52
267	SEHORE	NASRULLAGANJ	Rala	22.690	77.314	193
268	SEONI	BARGHAT	Borghat	22.033	79.747	63

269	SEONI	GHANSAUR	Ghansor1	22.654	79.953	59
270	SEONI	BARGHAT	Kalyanpur	21.961	79.812	50
271	SEONI	BARGHAT	Kauria	22.017	79.843	63
272	SEONI	DHANORA	Kudari	22.408	79.813	52
273	SHAH DOL	JASINGHNAGAR	Amjhor	23.667	81.546	50
274	SHAH DOL	GOHPARU	Gohparu	23.491	81.409	48
275	SHAJAPUR	KALAPIPAL	Arandia	23.208	76.739	62
276	SHAJAPUR	SHAJAPUR	Majhania	23.448	76.321	101
277	SHAJAPUR	MOHAN BARODIYA	Mohan Barodia	23.606	76.341	252
278	SHAJAPUR	SHAJAPUR	Panwadi	23.504	76.404	87
279	SHAJAPUR	MOHAN BARODIYA	Satsalai	23.464	76.538	55
280	SHAJAPUR	SHAJAPUR	Shajapur	23.421	76.276	83
281	SHAJAPUR	SHAJAPUR	Tilawad Govind	23.310	76.333	69
282	SHEOPUR	SHEOPUR	Baroda New	25.491	76.656	75
283	SHEOPUR	VIJAYPUR	Garhi1	26.120	77.306	53
284	SHEOPUR	KARAHAL	Nonpura	25.522	77.131	90
285	SHEOPUR	VIJAYPUR	Panchoncolony	26.135	77.124	172
286	SHEOPUR	SHEOPUR	Pandula	25.546	76.644	85
287	SHEOPUR	VIJAYPUR	Pura	25.953	76.991	200
288	SHEOPUR	SHEOPUR	Rajpura	25.710	76.681	120
289	SHEOPUR	SHEOPUR	Sheopur	25.664	76.696	105
290	SHEOPUR	VIJAYPUR	Shyampur	26.081	77.034	105
291	SHIVPURI	KHANIYADHANA	Achhroni New	24.992	78.231	53
292	SHIVPURI	POHARI	Ainpura	25.647	77.410	70
293	SHIVPURI	KARERA	Awass	25.473	78.351	100
294	SHIVPURI	BADARWAS	Badarwas	24.975	77.568	85
295	SHIVPURI	KHANIYADHANA	Bamorkalan New	24.886	78.151	380
296	SHIVPURI	NARWAR	Behgwan	25.629	78.103	154
297	SHIVPURI	PICHHORE	Bhonti	25.320	78.100	85
298	SHIVPURI	PICHHORE	Dhola	25.283	78.130	150
299	SHIVPURI	BADARWAS	Ganeshkhhera	25.087	77.793	150
300	SHIVPURI	KARERA	Languri	25.484	78.123	90
301	SHIVPURI	KOLARAS	Manipura New	25.213	77.606	96
302	SHIVPURI	KHANIYADHANA	Masoori	25.100	77.930	160
303	SHIVPURI	NARWAR	Narwar	25.651	77.833	250
304	SHIVPURI	POHARI	Pohari	25.541	77.365	100
305	SHIVPURI	KARERA	Sarsod	25.423	78.051	100
306	SHIVPURI	SHIVPURI	Satanwara	25.544	77.731	85
307	SHIVPURI	PICHHORE	Semri	25.182	78.112	100
308	SHIVPURI	KARERA	Sikandara	25.472	78.365	125
309	SHIVPURI	SHIVPURI	Sirsod	25.486	77.510	52
310	SHIVPURI	KARERA	Sirsod Chouraha	25.422	78.051	765
311	SHIVPURI	SHIVPURI	Survaya	25.413	77.835	95
312	SHIVPURI	KARERA	Toda Karea	25.453	78.185	125

313	SIDHI	MAJHOLI	Majhauri	24.120	81.630	56
314	SIDHI	SIDHI	Sidhi	24.403	81.888	86
315	SINGRAULI	WAIDHAN	Chaura	24.011	82.472	56
316	SINGRAULI	WAIDHAN	Mara	23.897	82.503	75
317	TIKAMGARH	TIKAMGARH	Baragaon	24.572	79.005	123
318	TIKAMGARH	JATARA	Digaura	24.966	78.651	85
319	TIKAMGARH	BALDEOGARH	Ganj	24.792	79.262	136
320	TIKAMGARH	JATARA	Ladhaura	25.072	78.723	76
321	TIKAMGARH	PRITHVIPUR	Nengawan	25.255	78.673	170
322	TIKAMGARH	NIWARI	Orchha	25.349	78.641	148
323	TIKAMGARH	JATARA	Palera	25.024	79.054	94
324	TIKAMGARH	TIKAMGARH	Tikamgarh	24.744	78.771	56
325	UJJAIN	BADNAGAR	Chhoti Ghadsod	23.108	75.453	124
326	UJJAIN	TARANA	Dablahardu	23.493	75.895	172
327	UJJAIN	MAHIDPUR	Delchi buzurg	23.533	75.571	126
328	UJJAIN	GHATIA	Ghosla	23.439	75.876	107
329	UJJAIN	TARANA	Kaiytha	23.233	76.018	179
330	UJJAIN	KHCHROD	Khachrod1	23.426	75.283	105
331	UJJAIN	TARANA	Khakri Sultan	23.399	76.013	134
332	UJJAIN	UJJAIN	Kharotia	23.157	75.624	91
333	UJJAIN	MAHIDPUR	Mahidpurroad	23.567	75.508	57
334	UJJAIN	TARANA	Makdon	23.502	76.072	71
335	UJJAIN	UJJAIN	Palkhanda	23.041	75.948	51
336	UJJAIN	UJJAIN	Panth piplai	23.044	75.828	110
337	UJJAIN	TARANA	Rupakhedi	23.473	75.971	88
338	UJJAIN	TARANA	Sumra Kheda	23.267	76.062	90
339	UJJAIN	TARANA	Tarana	23.341	76.040	187
340	UJJAIN	UJJAIN	Ujjain Nagar Palika	23.186	75.782	225
341	UJJAIN	KHCHROD	Unhel	23.336	75.549	139
342	UJJAIN	UJJAIN	Vijayganj Mandi	23.222	75.951	123
343	VIDISHA	LATERI	Anandpur	24.167	77.443	54
344	VIDISHA	VIDISHA	Bilari	23.578	77.698	58
345	VIDISHA	BASODA	Ghatera	23.807	78.124	78
346	VIDISHA	GYARASPUR	Gyaraspur1	23.667	78.114	54
347	VIDISHA	KURWAI	Kurwai1	24.125	78.043	58
348	VIDISHA	LATERI	Lateri 1	24.061	77.407	106
349	VIDISHA	SIRONJ	Patharia	24.115	77.819	70
350	VIDISHA	VIDISHA	Salaiya	23.608	77.576	133
351	VIDISHA	SIRONJ	Sironj1	24.099	77.689	178
352	VIDISHA	BASODA	Udaipur	23.901	78.055	119

### 3.4 TOTAL HARDNESS

Hardness is mainly caused by the presence of Calcium and Magnesium Bicarbonate, Sulphate and Chloride ions. As per Indian standard IS:10500 (Drinking water), the highest desirable limit of total hardness is 200 mg/l and maximum permissible limit is 600 mg/l. Total Hardness in the shallow ground water in Madhya Pradesh ranges between 20 to 1805 mg/l (1805 mg/l in Girdola, Neemuch 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 10 Frequency distribution of Total Hardness in shallow aquifer**

Range mg/l	No. of Samples	%
0-200	251	23.90
>200-600	725	69.05
>600	74	7.05

The study of Total Hardness in ground water reveals that 74 nos. (7.05%) of well waters contain hardness more than the maximum permissible limit of 600mg/l and 725 nos. (69.05%) of well waters has total hardness above the maximum desirable limit of 200 mg/l but below the maximum permissible limit of 600 mg/l (Table 10). The locations having Total Hardness more than 600 mg/l in ground water of Madhya Pradesh are shown in Table 11.

**Table 11 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	925
2	ALIRAJPUR	KATTHIWARA	Khattali	22.348	74.101	910
3	ASHOKNAGAR	MUNGAOLI	Bahadurpur	24.342	77.969	1630
4	BALAGHAT	KIRNAPUR	Kirnapur	21.626	80.329	715
5	BALAGHAT	WARASEONI	Kochwahi	21.790	79.929	650
6	BALAGHAT	KHAIRLANJI	Miragpur	21.631	79.839	630
7	BHIND	GOHAD	Mau	26.270	78.667	860
8	BHOPAL	BERASIA	Nagirabad	23.794	77.256	930
9	BURHANPUR	BURHANPUR	Bahadurpur	21.288	76.179	610
10	BURHANPUR	BURHANPUR	Burhanpur	21.298	76.223	660
11	BURHANPUR	KHAKNAR	Manjrod kalan	21.413	76.628	1105
12	CHHATARPUR	BUXWAHA	Buxwaha	24.249	79.171	705
13	CHHATARPUR	RAJNAGAR	Chhatarpur	24.900	79.808	625
14	CHHINDWARA	TAMIA	Delakhari	22.421	78.618	615
15	CHHINDWARA	MOHKHED	Saonri1	21.965	78.770	605
16	DAMOH	DAMOH	Abhana	23.705	79.503	675

17	DATIA	DATIA	Imaliya	25.694	78.581	925
18	DEWAS	DEWAS	Bhesuni	23.233	75.993	1325
19	DEWAS	DEWAS	Dewas	22.974	76.068	870
20	DEWAS	BAGLI	Udainagar	22.538	76.204	1085
21	DHAR	KUKSHI	Nanpur	22.271	74.732	955
22	GWALIOR	GHATIGAON	Mohna	25.897	77.777	710
23	HOSHANGABAD	PIPARIYA	Sandia	22.913	78.355	630
24	INDORE	SAWER	Sanwer	22.971	75.911	865
25	JABALPUR	MAJHOLI	Majholi	23.499	79.927	620
26	KATNI	BADWARA	Barhi	23.902	80.811	725
27	KHANDWA	HARSUD	Borisaray	22.006	76.817	815
28	KHANDWA	CHHEGAON MAKHAN	Pandhana	21.699	76.227	785
29	KHARGONE	MAHESHWAR	Baddiya	22.234	75.698	1465
30	KHARGONE	MAHESHWAR	Gandhwani	22.336	75.705	795
31	KHARGONE	BHIKANGAON	Gogaon	21.918	75.994	630
32	MANDLA	MANDLA	Bamhni New	22.476	80.368	900
33	MANDLA	MANDLA	Mandla1	22.600	80.369	955
34	MANDSAUR	GAROTH	Dharmarajeswar	24.193	75.500	610
35	MANDSAUR	GAROTH	Garoth1	24.333	75.655	680
36	MANDSAUR	SITAMAU	Khejriya	24.050	75.490	890
37	MORENA	MORENA	Khera mewda	26.551	78.080	735
38	NARSINGHPUR	NARSINGHPUR	Bachai	22.874	79.306	680
39	NARSINGHPUR	CHAWARPATHA	Gundrai(ii)	23.177	79.032	625
40	NEEMUCH	MANASA	Chachor	24.372	75.357	895
41	NEEMUCH	NEEMUCH	Girdola	24.462	74.932	1805
42	NEEMUCH	MANASA	Kundaliya	24.467	75.331	1000
43	NEEMUCH	NEEMUCH	Neemuch	24.454	74.874	755
44	PANNA	GUNNOR	Amanganj	24.421	80.034	795
45	PANNA	GUNNOR	Gunaur	24.463	80.251	650
46	RAISEN	BEGAMGANJ	Begumganj	23.607	78.349	810
47	RAISEN	GOHAGANJ	Chiklod	23.106	77.723	695
48	RAISEN	GAIRATGANJ	Dehgaon	23.319	78.091	920
49	RAJGARH	NARSINGHGARH	Pachore	23.718	76.738	665
50	REWA	REWA	Amilki	24.425	81.308	890
51	REWA	SIRMOUR	Baikunthpur1	24.728	81.409	735
52	REWA	RAMPUR KARCHULIYAN	Raipur	24.578	81.437	710
53	REWA	REWA	Reethi	24.522	81.390	1200
54	REWA	SIRMOUR	Semaria2	24.796	81.152	790
55	SAGAR	MALTHON	Khimlasa	24.201	78.463	1005
56	SATNA	MAIIHAR	Amdara	24.104	80.576	645
57	SATNA	RAMPUR- BAGHELAN	Kotar	24.699	80.995	800
58	SATNA	RAMPUR- BAGHELAN	Rampur1	24.511	81.056	1060

59	SEHORE	ASHTA	Ashta	23.023	76.716	995
60	SEHORE	ICHHAWAR	Ichhawar	23.032	77.019	615
61	SEHORE	NASRULLAGANJ	Larkui	22.808	77.232	790
62	SEHORE	NASRULLAGANJ	Rala	22.690	77.314	735
63	SEONI	SEONI	Chunatola	22.147	79.668	715
64	SEONI	SEONI	Kaniwara	22.212	79.740	725
65	SHAJAPUR	SHUJALPUR	Akodia	23.382	76.599	810
66	SHAJAPUR	MOHAN BARODIYA	Mohan Barodia	23.606	76.341	845
67	SHIVPURI	BADARWAS	Badarwas	24.975	77.568	730
68	SHIVPURI	NARWAR	Mangroni	25.696	77.933	610
69	SHIVPURI	KARERA	Sirsod Chouraha	25.422	78.051	1135
70	TIKAMGARH	TIKAMGARH	Tikamgarh	24.744	78.771	800
71	UJJAIN	TARANA	Dablahardu	23.493	75.895	605
72	UJJAIN	TARANA	Kaiytha	23.233	76.018	1580
73	UJJAIN	UJJAIN	Ujjain Nagar Palika	23.186	75.782	810
74	VIDISHA	SIRONJ	Patharia	24.115	77.819	715

### 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.

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

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

**Table 12 Quality of Water on the basis of SAR values**

S.No.	Range of SAR	No. of Sample	% of Samples	Quality of Water
1.	<10	1042	99.24	Low Sodium hazard good quality
2.	10-18	7	0.67	Medium Sodium hazard medium quality
3.	18-26	1	0.10	High Sodium hazard bad quality
4.	>26	0	0.00	Very High Sodium hazard very bad quality



Table 12 shows that the quality of water samples as per SAR is good as 99.24% 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.

$$\text{RSC} = (\text{CO}_3^{--} + \text{HCO}_3^-) - (\text{Ca}^{++} + \text{Mg}^{++})$$

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 13.

**Table 13 Number of wells falling in different RSC ranges**

S.No.	RSC Range in meq/l	No. of wells	% of wells	Suitability
1.	< 1.25	943	89.81	Suitable
2.	1.25 – 2.5	49	4.67	Marginally suitable
3.	>2.5	58	5.52	Unsuitable

Nearly 94.48% of dug well waters of Madhya Pradesh were found to have RSC values below 2.5meq/l, which infers that the water is free from alkalinity hazards. However 5.52% (58 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 14 Table showing maximum and minimum values and values exceeding desirable and permissible limit for drinking use of different parameters**

	pH	TH	Ca	Mg	Na	K	CO <sub>3</sub>	HCO <sub>3</sub>	Cl	SO <sub>4</sub>	NO <sub>3</sub>	F	E	
		ppm (mg/l)											μS/ cm at 25 <sup>o</sup> C	
Range of values (Max.)	10.03	1805	472	368	700	400	144	1505	1177	1009	765	3.85	Maximum	4211
Range of values (Min.)	6.85	20	6	1	2	0	0	18	7	0	1	0	Minimum	120
IS:10500 drinking water (maximum desirable limit)	6.5-8.5	200	75	30				Bicarbonate alkalinity 200	250	200	45	1	Range of EC	% of samples
IS: 10500 drinking water (maximum permissible limit)	6.5-8.5	600	200	100				600	1000	400	45	1.5	1-1500	86.86%
% samples exceeding maximum desirable limit	6.2%	69.05	19.52	57.62				67.43	9.43	3.14	33.52	6.48	1501-3000	11.62%
% samples exceeding maximum permissible limit	6.2%	7.05	1.91	4.86				2.95	0.10	0.57	33.52	1.81	>3000	1.52%

**District-wise Depth to water Level and Distribution of Percentage of Wells for the Period of May-2015**

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											
					0-2		2-5		5-10		10-20		20-40		> 40	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
1	Agar Malwa	15	2.84	18.66	0	0.00	1	6.67	2	13.33	12	80.00	0	0.00	0	0.00
2	Alirajpur	12	3.51	10.83	0	0.00	3	25.00	8	66.67	1	8.33	0	0.00	0	0.00
3	Anuppur	19	3.72	15.86	0	0.00	5	26.32	10	52.63	4	21.05	0	0.00	0	0.00
4	Ashok Nagar	16	1.90	22.60	1	6.25	1	6.25	8	50.00	5	31.25	1	6.25	0	0.00
5	Balaghat	43	1.61	16.59	1	2.33	8	18.60	27	62.79	7	16.28	0	0.00	0	0.00
6	Barwani	9	5.37	18.39	0	0.00	0	0.00	6	66.67	3	33.33	0	0.00	0	0.00
7	Betul	31	1.90	19.80	1	3.23	3	9.68	16	51.61	11	35.48	0	0.00	0	0.00
8	Bhind	18	3.50	49.00	0	0.00	4	22.22	4	22.22	7	38.89	2	11.11	1	5.56
9	Bhopal	24	1.25	16.80	2	8.33	6	25.00	9	37.50	7	29.17	0	0.00	0	0.00
10	Burhanpur	17	4.40	22.35	0	0.00	1	5.88	6	35.29	8	47.06	2	11.76	0	0.00
11	Chhatarpur	39	2.70	17.95	0	0.00	2	5.13	19	48.72	18	46.15	0	0.00	0	0.00
12	Chhindwara	42	2.70	26.30	0	0.00	6	14.29	24	57.14	9	21.43	3	7.14	0	0.00
13	Damoh	23	1.52	25.00	3	13.04	7	30.43	8	34.78	4	17.39	1	4.35	0	0.00
14	Datia	10	4.50	30.90	0	0.00	2	20.00	5	50.00	2	20.00	1	10.00	0	0.00
15	Dewas	26	2.76	29.94	0	0.00	2	7.69	11	42.31	11	42.31	2	7.69	0	0.00
16	Dhar	40	2.26	34.76	0	0.00	4	10.00	13	32.50	19	47.50	4	10.00	0	0.00
17	Dindori	16	1.40	10.00	1	6.25	8	50.00	7	43.75	0	0.00	0	0.00	0	0.00
18	Guna	23	2.75	20.20	0	0.00	3	13.04	10	43.48	9	39.13	1	4.35	0	0.00
19	Gwalior	23	2.90	29.82	0	0.00	2	8.70	8	34.78	8	34.78	5	21.74	0	0.00
20	Harda	14	1.05	22.56	1	7.14	3	21.43	6	42.86	3	21.43	1	7.14	0	0.00
21	Hoshangabad	19	1.24	15.55	1	5.26	3	15.79	11	57.89	4	21.05	0	0.00	0	0.00
22	Indore	41	1.32	49.57	1	2.44	0	0.00	13	31.71	25	60.98	1	2.44	1	2.44
23	Jabalpur	38	1.11	16.70	4	10.53	15	39.47	16	42.11	3	7.89	0	0.00	0	0.00
24	Jhabua	12	1.85	10.71	1	8.33	4	33.33	6	50.00	1	8.33	0	0.00	0	0.00
25	Katni	17	3.90	17.67	0	0.00	1	5.88	7	41.18	9	52.94	0	0.00	0	0.00
26	Khandwa	31	3.85	11.92	0	0.00	5	16.13	22	70.97	4	12.90	0	0.00	0	0.00

**District-wise Depth to water Level and Distribution of Percentage of Wells for the Period of May-2015**

**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											
					0-2		2-5		5-10		10-20		20-40		> 40	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
27	Khargone	24	2.59	12.69	0	0.00	7	29.17	9	37.50	8	33.33	0	0.00	0	0.00
28	Mandla	34	1.89	13.00	1	2.94	16	47.06	15	44.12	2	5.88	0	0.00	0	0.00
29	Mandsaur	42	4.53	49.40	0	0.00	2	4.76	13	30.95	17	40.48	6	14.29	4	9.52
30	Morena	14	4.00	30.40	0	0.00	1	7.14	5	35.71	3	21.43	5	35.71	0	0.00
31	Narsinghpur	17	2.77	23.00	0	51.43	2	11.76	9	52.94	4	23.53	2	11.76	0	0.00
32	Neemuch	34	4.22	25.36	0	0.00	4	11.76	14	41.18	13	38.24	3	8.82	0	0.00
33	Panna	26	2.53	20.17	0	0.00	4	15.38	15	57.69	6	23.08	1	3.85	0	0.00
34	Raisen	30	3.75	20.10	0	0.00	4	13.33	17	56.67	8	26.67	1	3.33	0	0.00
35	Rajgarh	26	4.91	15.80	0	0.00	2	7.69	12	46.15	11	42.31	0	0.00	0	0.00
36	Ratlam	44	4.75	47.26	0	0.00	1	2.27	9	20.45	20	45.45	8	18.18	6	13.64
37	Rewa	36	2.80	18.80	0	0.00	2	5.56	20	55.56	14	38.89	0	0.00	0	0.00
38	Sagar	40	3.16	36.52	0	0.00	7	17.50	17	42.50	14	35.00	2	5.00	0	0.00
39	Satna	52	2.35	30.80	0	0.00	7	13.46	31	59.62	13	25.00	1	1.92	0	0.00
40	Sehore	23	3.04	16.16	0	0.00	1	4.35	11	47.83	11	47.83	0	0.00	0	0.00
41	Seoni	48	1.12	23.90	2	4.17	15	31.25	23	47.92	7	14.58	1	2.08	0	0.00
42	Shahdol	22	5.63	16.10	0	0.00	0	0.00	16	72.73	6	27.27	0	0.00	0	0.00
43	Shajapur	17	5.37	14.24	0	0.00	0	0.00	10	58.82	7	41.18	0	0.00	0	0.00
44	Sheopur	19	4.82	25.45	0	0.00	1	5.26	9	47.37	7	36.84	2	10.53	0	0.00
45	Shivpuri	30	3.90	17.70	0	0.00	5	16.67	12	40.00	13	43.33	0	0.00	0	0.00
46	Sidhi	33	3.45	18.35	0	0.00	6	18.18	16	48.48	11	33.33	0	0.00	0	0.00
47	Singrauli	20	3.83	16.87	0	0.00	2	10.00	10	50.00	8	40.00	0	0.00	0	0.00
48	Tikamgarh	22	2.48	12.92	0	0.00	2	9.09	14	63.64	7	31.82	0	0.00	0	0.00
49	Ujjain	45	3.95	47.22	0	0.00	4	8.89	17	37.78	20	44.44	3	6.67	1	2.22
50	Umaria	15	4.90	25.22	0	0.00	1	6.67	10	66.67	3	20.00	1	6.67	0	0.00
51	Vidisha	30	2.95	20.15	0	0.00	5	16.67	14	46.67	10	33.33	1	3.33	0	0.00
	<b>Total</b>	<b>1361</b>	<b>1.05</b>	<b>49.57</b>	<b>20</b>	<b>1.47</b>	<b>200</b>	<b>14.70</b>	<b>630</b>	<b>46.29</b>	<b>437</b>	<b>32.11</b>	<b>61</b>	<b>4.48</b>	<b>13</b>	<b>0.96</b>

**District-wise Depth to water Level and Distribution of Percentage of Wells for the Period of August-2015**

**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	%	No	%
1	Agar Malwa	16	0.14	6.40	5	31.25	9	56.25	2	12.50	0	0.00	0	0.00	0	0.00
2	Alirajpur	11	0.87	8.22	1	9.09	6	54.55	4	36.36	0	0.00	0	0.00	0	0.00
3	Anuppur	19	1.20	13.87	3	15.79	6	31.58	7	36.84	3	15.79	0	0.00	0	0.00
4	Ashok Nagar	16	1.78	13.20	3	18.75	8	50.00	3	18.75	2	12.50	0	0.00	0	0.00
5	Balaghat	42	0.20	12.10	19	45.24	14	33.33	7	16.67	2	4.76	0	0.00	0	0.00
6	Barwani	9	0.53	10.42	1	11.11	3	33.33	4	44.44	1	11.11	0	0.00	0	0.00
7	Betul	30	0.42	13.53	6	20.00	14	46.67	9	30.00	1	3.33	0	0.00	0	0.00
8	Bhind	17	0.62	32.45	2	11.76	3	17.65	3	17.65	7	41.18	2	11.76	0	0.00
9	Bhopal	24	0.35	10.50	10	41.67	12	50.00	1	4.17	1	4.17	0	0.00	0	0.00
10	Burhanpur	17	1.66	32.35	1	5.88	2	11.76	7	41.18	6	35.29	1	5.88	0	0.00
11	Chhatarpur	38	0.28	10.55	4	10.53	9	23.68	22	57.89	3	7.89	0	0.00	0	0.00
12	Chhindwara	42	0.55	13.10	6	14.29	17	40.48	18	42.86	1	2.38	0	0.00	0	0.00
13	Damoh	23	0.03	10.25	10	43.48	10	43.48	2	8.70	1	4.35	0	0.00	0	0.00
14	Datia	10	1.33	28.33	1	10.00	0	0.00	7	70.00	1	10.00	1	10.00	0	0.00
15	Dewas	25	0.01	9.64	12	48.00	8	32.00	5	20.00	0	0.00	0	0.00	0	0.00
16	Dhar	40	1.12	15.83	7	17.50	17	42.50	10	25.00	6	15.00	0	0.00	0	0.00
17	Dindori	15	0.34	9.89	5	33.33	9	60.00	1	6.67	0	0.00	0	0.00	0	0.00
18	Guna	23	0.29	13.58	8	34.78	12	52.17	2	8.70	1	4.35	0	0.00	0	0.00
19	Gwalior	22	0.43	27.06	2	9.09	6	27.27	5	22.73	6	27.27	3	13.64	0	0.00
20	Harda	14	0.44	19.52	2	14.29	6	42.86	4	28.57	2	14.29	0	0.00	0	0.00
21	Hoshangabad	19	0.49	13.47	3	15.79	7	36.84	6	31.58	3	15.79	0	0.00	0	0.00
22	Indore	40	0.01	9.02	11	27.50	22	55.00	7	17.50	0	0.00	0	0.00	0	0.00
23	Jabalpur	38	0.72	12.82	8	21.05	20	52.63	8	21.05	2	5.26	0	0.00	0	0.00
24	Jhabua	12	0.62	4.52	5	41.67	7	58.33	0	0.00	0	0.00	0	0.00	0	0.00
25	Katni	17	2.72	13.43	0	0.00	6	35.29	7	41.18	4	23.53	0	0.00	0	0.00
26	Khandwa	30	1.50	7.50	3	10.00	19	63.33	8	26.67	0	0.00	0	0.00	0	0.00

**District-wise Depth to water Level and Distribution of Percentage of Wells for the Period of August-2015**

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	%	No	%
27	Khargone	23	0.42	11.64	4	17.39	9	39.13	9	39.13	1	4.35	0	0.00	0	0.00
28	Mandla	34	0.22	8.67	16	47.06	17	50.00	1	2.94	0	0.00	0	0.00	0	0.00
29	Mandsaur	42	1.40	21.62	4	9.52	21	50.00	13	30.95	3	7.14	1	2.38	0	0.00
30	Morena	11	2.42	30.20	0	0.00	6	54.55	0	0.00	2	18.18	3	27.27	0	0.00
31	Narsinghpur	17	1.62	20.40	1	51.43	6	35.29	7	41.18	2	11.76	1	5.88	0	0.00
32	Neemuch	33	0.30	8.65	8	24.24	17	51.52	8	24.24	0	0.00	0	0.00	0	0.00
33	Panna	27	0.40	17.60	5	18.52	9	33.33	11	40.74	2	7.41	0	0.00	0	0.00
34	Raisen	30	0.38	13.95	5	16.67	18	60.00	6	20.00	1	3.33	0	0.00	0	0.00
35	Rajgarh	26	0.67	12.73	9	34.62	11	42.31	4	15.38	2	7.69	0	0.00	0	0.00
36	Ratlam	42	0.87	18.46	5	11.90	16	38.10	14	33.33	7	16.67	0	0.00	0	0.00
37	Rewa	35	0.40	17.95	3	8.57	13	37.14	13	37.14	6	17.14	0	0.00	0	0.00
38	Sagar	41	0.62	15.82	10	24.39	13	31.71	9	21.95	9	21.95	0	0.00	0	0.00
39	Satna	52	0.55	20.92	3	5.77	17	32.69	26	50.00	5	9.62	1	1.92	0	0.00
40	Sehore	21	0.78	9.92	4	19.05	10	47.62	7	33.33	0	0.00	0	0.00	0	0.00
41	Seoni	45	0.01	9.22	12	26.67	20	44.44	13	28.89	0	0.00	0	0.00	0	0.00
42	Shahdol	22	2.30	15.32	0	0.00	2	9.09	16	72.73	4	18.18	0	0.00	0	0.00
43	Shajapur	17	0.12	2.95	11	64.71	6	35.29	0	0.00	0	0.00	0	0.00	0	0.00
44	Sheopur	17	0.35	25.53	4	23.53	4	23.53	5	29.41	3	17.65	1	5.88	0	0.00
45	Shivpuri	29	1.55	15.10	2	6.90	11	37.93	13	44.83	3	10.34	0	0.00	0	0.00
46	Sidhi	33	2.30	17.15	0	0.00	10	30.30	15	45.45	8	24.24	0	0.00	0	0.00
47	Singrauli	20	2.40	16.37	0	0.00	8	40.00	7	35.00	5	25.00	0	0.00	0	0.00
48	Tikamgarh	25	1.37	20.60	2	8.00	8	32.00	13	52.00	1	4.00	1	4.00	0	0.00
49	Ujjain	45	0.20	6.46	12	26.67	28	62.22	5	11.11	0	0.00	0	0.00	0	0.00
50	Umaria	15	1.50	27.20	2	13.33	1	6.67	9	60.00	2	13.33	1	6.67	0	0.00
51	Vidisha	31	0.28	9.24	14	45.16	10	32.26	7	22.58	0	0.00	0	0.00	0	0.00
	<b>Total</b>	<b>1342</b>	<b>0.01</b>	<b>32.45</b>	<b>274</b>	<b>20.42</b>	<b>543</b>	<b>40.46</b>	<b>390</b>	<b>29.06</b>	<b>119</b>	<b>8.87</b>	<b>16</b>	<b>1.19</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 -2015**

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	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
1	Agar Malwa	16	1.31	12.96	1	6.25	4	25.00	7	43.75	4	25.00	0	0.00	0	0.00
2	Alirajpur	12	1.75	9.34	2	16.67	3	25.00	7	58.33	0	0.00	0	0.00	0	0.00
3	Anuppur	19	2.43	15.86	0	0.00	7	36.84	9	47.37	3	15.79	0	0.00	0	0.00
4	Ashok Nagar	16	1.00	13.10	2	12.50	3	18.75	7	43.75	4	25.00	0	0.00	0	0.00
5	Balaghat	43	1.30	11.68	3	6.98	29	67.44	9	20.93	2	4.65	0	0.00	0	0.00
6	Barwani	9	2.25	18.72	0	0.00	4	44.44	3	33.33	2	22.22	0	0.00	0	0.00
7	Betul	31	0.86	13.80	2	6.45	11	35.48	15	48.39	3	9.68	0	0.00	0	0.00
8	Bhind	17	1.85	29.10	1	5.88	3	17.65	3	17.65	5	29.41	5	29.41	0	0.00
9	Bhopal	24	0.88	12.80	3	12.50	12	50.00	7	29.17	2	8.33	0	0.00	0	0.00
10	Burhanpur	17	2.45	32.35	0	0.00	1	5.88	8	47.06	7	41.18	1	5.88	0	0.00
11	Chhatarpur	38	0.40	13.22	2	5.26	8	21.05	22	57.89	6	15.79	0	0.00	0	0.00
12	Chhindwara	43	1.67	27.30	1	2.33	17	39.53	18	41.86	5	11.63	2	4.65	0	0.00
13	Damoh	22	0.87	10.25	5	22.73	13	59.09	2	9.09	2	9.09	0	0.00	0	0.00
14	Datia	10	1.99	30.90	1	10.00	1	10.00	4	40.00	3	30.00	1	10.00	0	0.00
15	Dewas	25	0.30	13.22	3	12.00	9	36.00	11	44.00	2	8.00	0	0.00	0	0.00
16	Dhar	41	1.57	15.18	2	4.88	11	26.83	15	36.59	13	31.71	0	0.00	0	0.00
17	Dindori	16	0.40	10.08	7	43.75	4	25.00	4	25.00	1	6.25	0	0.00	0	0.00
18	Guna	24	1.98	19.65	1	4.17	10	41.67	8	33.33	5	20.83	0	0.00	0	0.00
19	Gwalior	21	3.50	29.00	0	0.00	4	19.05	6	28.57	7	33.33	4	19.05	0	0.00
20	Harda	14	0.50	23.40	1	7.14	3	21.43	7	50.00	2	14.29	1	7.14	0	0.00
21	Hoshangabad	19	0.70	14.77	2	10.53	4	21.05	10	52.63	3	15.79	0	0.00	0	0.00
22	Indore	41	1.54	15.57	1	2.44	10	24.39	17	41.46	13	31.71	0	0.00	0	0.00
23	Jabalpur	36	0.54	13.42	9	25.00	19	52.78	5	13.89	3	8.33	0	0.00	0	0.00
24	Jhabua	12	1.75	9.51	1	8.33	7	58.33	4	33.33	0	0.00	0	0.00	0	0.00
25	Katni	17	3.85	16.23	0	0.00	5	29.41	5	29.41	7	41.18	0	0.00	0	0.00
26	Khandwa	31	2.35	9.32	0	0.00	16	51.61	15	48.39	0	0.00	0	0.00	0	0.00

**District-wise Depth to water Level and Distribution of Percentage of Wells for the Period of November -2015**

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	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
27	Khargone	24	1.91	11.25	1	4.17	12	50.00	9	37.50	2	8.33	0	0.00	0	0.00
28	Mandla	34	0.80	13.70	8	23.53	23	67.65	2	5.88	1	2.94	0	0.00	0	0.00
29	Mandsaur	42	1.97	35.97	1	2.38	15	35.71	13	30.95	10	23.81	3	7.14	0	0.00
30	Morena	14	1.34	30.71	1	7.14	4	28.57	1	7.14	2	14.29	6	42.86	0	0.00
31	Narsinghpur	16	1.84	20.40	1	51.43	4	25.00	9	56.25	1	6.25	1	6.25	0	0.00
32	Neemuch	33	1.16	14.96	3	9.09	10	30.30	13	39.39	7	21.21	0	0.00	0	0.00
33	Panna	27	1.30	16.76	3	11.11	6	22.22	16	59.26	2	7.41	0	0.00	0	0.00
34	Raisen	30	2.13	18.00	0	0.00	12	40.00	16	53.33	2	6.67	0	0.00	0	0.00
35	Rajgarh	26	1.81	13.47	1	3.85	8	30.77	10	38.46	7	26.92	0	0.00	0	0.00
36	Ratlam	43	2.80	24.77	0	0.00	7	16.28	11	25.58	23	53.49	2	4.65	0	0.00
37	Rewa	36	1.60	20.20	1	2.78	3	8.33	21	58.33	10	27.78	1	2.78	0	0.00
38	Sagar	41	1.44	22.12	2	4.88	17	41.46	12	29.27	9	21.95	1	2.44	0	0.00
39	Satna	52	0.45	27.03	1	1.92	10	19.23	33	63.46	7	13.46	1	1.92	0	0.00
40	Sehore	21	2.13	17.16	0	0.00	8	38.10	8	38.10	5	23.81	0	0.00	0	0.00
41	Seoni	48	0.49	20.22	8	16.67	20	41.67	17	35.42	2	4.17	1	2.08	0	0.00
42	Shahdol	21	5.47	13.20	0	0.00	0	0.00	16	76.19	5	23.81	0	0.00	0	0.00
43	Shajapur	18	1.17	10.74	1	5.56	6	33.33	10	55.56	1	5.56	0	0.00	0	0.00
44	Sheopur	19	2.71	25.90	0	0.00	5	26.32	8	42.11	5	26.32	1	5.26	0	0.00
45	Shivpuri	29	2.43	14.85	0	0.00	7	24.14	16	55.17	6	20.69	0	0.00	0	0.00
46	Sidhi	33	3.00	18.58	0	0.00	7	21.21	15	45.45	11	33.33	0	0.00	0	0.00
47	Singrauli	20	3.90	15.88	0	0.00	3	15.00	11	55.00	6	30.00	0	0.00	0	0.00
48	Tikamgarh	24	1.94	17.92	1	4.17	6	25.00	12	50.00	5	20.83	0	0.00	0	0.00
49	Ujjain	45	2.00	15.90	1	2.22	20	44.44	18	40.00	6	13.33	0	0.00	0	0.00
50	Umaria	15	3.90	28.90	0	0.00	2	13.33	10	66.67	2	13.33	1	6.67	0	0.00
51	Vidisha	30	1.65	12.22	3	10.00	13	43.33	12	40.00	2	6.67	0	0.00	0	0.00
	<b>Total</b>	<b>1355</b>	<b>0.30</b>	<b>35.97</b>	<b>87</b>	<b>6.42</b>	<b>446</b>	<b>32.92</b>	<b>547</b>	<b>40.37</b>	<b>243</b>	<b>17.93</b>	<b>32</b>	<b>2.36</b>	<b>0</b>	<b>0.00</b>



**District-wise Depth to water Level and Distribution of Percentage of Wells for the Period of January -2016**

**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	2.00	17.75	1	6.25	1	6.25	8	50.00	6	37.50	0	0.00	0	0.00
2	Alirajpur	13	3.88	11.73	0	0.00	2	15.38	8	61.54	3	23.08	0	0.00	0	0.00
3	Anuppur	16	3.28	15.86	0	0.00	4	25.00	9	56.25	3	18.75	0	0.00	0	0.00
4	Ashok Nagar	22	1.45	17.87	2	9.09	4	18.18	9	40.91	7	31.82	0	0.00	0	0.00
5	Balaghat	41	1.68	11.86	1	2.44	20	48.78	18	43.90	2	4.88	0	0.00	0	0.00
6	Barwani	9	2.98	13.78	0	0.00	1	11.11	4	44.44	4	44.44	0	0.00	0	0.00
7	Betul	29	2.11	19.08	0	0.00	8	27.59	14	48.28	7	24.14	0	0.00	0	0.00
8	Bhind	18	3.77	34.45	0	0.00	3	16.67	3	16.67	5	27.78	7	38.89	0	0.00
9	Bhopal	24	0.62	15.50	2	8.33	9	37.50	9	37.50	4	16.67	0	0.00	0	0.00
10	Burhanpur	14	2.97	32.35	0	0.00	1	7.14	3	21.43	8	57.14	2	14.29	0	0.00
11	Chhatarpur	39	2.35	21.00	0	0.00	3	7.69	19	48.72	15	38.46	2	5.13	0	0.00
12	Chhindwara	42	2.72	34.30	0	0.00	10	23.81	21	50.00	9	21.43	2	4.76	0	0.00
13	Damoh	23	0.66	17.67	4	17.39	8	34.78	7	30.43	4	17.39	0	0.00	0	0.00
14	Datia	10	4.32	33.00	0	0.00	2	20.00	2	20.00	5	50.00	1	10.00	0	0.00
15	Dewas	25	3.37	14.47	0	0.00	6	24.00	14	56.00	5	20.00	0	0.00	0	0.00
16	Dhar	41	2.58	20.77	0	0.00	7	17.07	14	34.15	19	46.34	1	2.44	0	0.00
17	Dindori	16	1.35	10.18	3	18.75	9	56.25	3	18.75	1	6.25	0	0.00	0	0.00
18	Guna	25	1.95	16.70	1	4.00	5	20.00	11	44.00	8	32.00	0	0.00	0	0.00
19	Gwalior	22	3.25	30.90	0	0.00	2	9.09	7	31.82	8	36.36	5	22.73	0	0.00
20	Harda	14	0.57	21.22	1	7.14	3	21.43	6	42.86	3	21.43	1	7.14	0	0.00
21	Hoshangabad	19	1.35	13.63	2	10.53	6	31.58	8	42.11	3	15.79	0	0.00	0	0.00
22	Indore	42	2.32	27.76	0	0.00	4	9.52	18	42.86	17	40.48	3	7.14	0	0.00
23	Jabalpur	35	1.62	16.80	4	11.43	16	45.71	12	34.29	3	8.57	0	0.00	0	0.00
24	Jhabua	11	1.65	11.54	1	9.09	6	54.55	3	27.27	1	9.09	0	0.00	0	0.00
25	Katni	17	4.50	17.56	0	0.00	2	11.76	7	41.18	8	47.06	0	0.00	0	0.00
26	Khandwa	31	3.47	9.43	0	0.00	7	22.58	24	77.42	0	0.00	0	0.00	0	0.00

**District-wise Depth to water Level and Distribution of Percentage of Wells for the Period of January -2016**

**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	%
27	Khargone	24	3.33	15.10	0	0.00	5	20.83	13	54.17	6	25.00	0	0.00	0	0.00
28	Mandla	33	0.63	11.39	6	18.18	19	57.58	7	21.21	1	3.03	0	0.00	0	0.00
29	Mandsaur	42	4.30	39.40	0	0.00	3	7.14	18	42.86	13	30.95	8	19.05	0	0.00
30	Morena	14	2.65	39.40	0	0.00	2	14.29	4	28.57	2	14.29	6	42.86	0	0.00
31	Narsinghpur	17	2.77	21.20	0	51.43	2	11.76	10	58.82	3	17.65	2	11.76	0	0.00
32	Neemuch	32	3.45	24.15	0	0.00	4	12.50	10	31.25	15	46.88	3	9.38	0	0.00
33	Panna	27	1.61	16.84	1	3.70	4	14.81	16	59.26	6	22.22	0	0.00	0	0.00
34	Raisen	31	1.90	19.98	1	3.23	7	22.58	15	48.39	8	25.81	0	0.00	0	0.00
35	Rajgarh	26	0.85	19.60	1	3.85	2	7.69	12	46.15	11	42.31	0	0.00	0	0.00
36	Ratlam	44	3.85	39.40	0	0.00	2	4.55	7	15.91	23	52.27	12	27.27	0	0.00
37	Rewa	35	4.38	29.60	0	0.00	2	5.71	12	34.29	20	57.14	1	2.86	0	0.00
38	Sagar	40	2.01	22.52	0	0.00	9	22.50	16	40.00	13	32.50	2	5.00	0	0.00
39	Satna	49	2.31	21.79	0	0.00	8	16.33	29	59.18	11	22.45	1	2.04	0	0.00
40	Sehore	21	2.45	18.66	0	0.00	4	19.05	9	42.86	8	38.10	0	0.00	0	0.00
41	Seoni	48	0.98	22.50	4	8.33	16	33.33	20	41.67	7	14.58	1	2.08	0	0.00
42	Shahdol	21	5.97	15.16	0	0.00	0	0.00	14	66.67	7	33.33	0	0.00	0	0.00
43	Shajapur	17	4.45	12.50	0	0.00	3	17.65	9	52.94	5	29.41	0	0.00	0	0.00
44	Sheopur	18	4.47	29.40	0	0.00	1	5.56	8	44.44	5	27.78	4	22.22	0	0.00
45	Shivpuri	30	3.04	24.42	0	0.00	3	10.00	15	50.00	11	36.67	1	3.33	0	0.00
46	Sidhi	32	3.43	18.35	0	0.00	6	18.75	14	43.75	12	37.50	0	0.00	0	0.00
47	Singrauli	20	4.11	17.12	0	0.00	2	10.00	10	50.00	8	40.00	0	0.00	0	0.00
48	Tikamgarh	24	3.22	13.63	0	0.00	1	4.17	16	66.67	7	29.17	0	0.00	0	0.00
49	Ujjain	46	2.91	39.40	0	0.00	6	13.04	19	41.30	16	34.78	5	10.87	0	0.00
50	Umari	15	6.00	24.97	0	0.00	0	0.00	11	73.33	3	20.00	1	6.67	0	0.00
51	Vidisha	31	1.15	19.80	3	9.68	5	16.13	14	45.16	9	29.03	0	0.00	0	0.00
	<b>Total</b>	<b>1351</b>	<b>0.57</b>	<b>39.40</b>	<b>38</b>	<b>2.81</b>	<b>265</b>	<b>19.62</b>	<b>589</b>	<b>43.60</b>	<b>388</b>	<b>28.72</b>	<b>71</b>	<b>5.26</b>	<b>0</b>	<b>0.00</b>

**District-Wise Annual Fluctuation & Frequency Distribution of Different Ranges from May 2014 to May 2015**

**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	15	0.06	1.12	0.44	6.06	3	20.00	0	0.00	0	0.00	7	46.67	2	13.33	3	20.00	3	20.00	12	80.00
2	Alirajpur	10	0.29	4.69	0.41	1.90	2	20.00	1	10.00	1	10.00	6	60.00	0	0.00	0	0.00	4	40.00	6	60.00
3	Anuppur	17	0.02	4.60	0.24	4.37	3	17.65	2	11.76	1	5.88	10	58.82	0	0.00	1	5.88	6	35.29	11	64.71
4	Ashok Nagar	12	0.20	0.85	0.18	5.70	3	25.00	0	0.00	0	0.00	6	50.00	1	8.33	2	16.67	3	25.00	9	75.00
5	Balaghat	39	0.52	10.06	0.25	7.18	6	15.38	3	7.69	2	5.13	19	48.72	5	12.82	4	10.26	11	28.21	28	71.79
6	Barwani	9	1.49	1.49	0.15	3.99	1	11.11	0	0.00	0	0.00	6	66.67	2	22.22	0	0.00	1	11.11	8	88.89
7	Betul	29	0.10	8.64	0.15	7.71	6	20.69	2	6.90	3	10.34	14	48.28	3	10.34	1	3.45	11	37.93	18	62.07
8	Bhind	17	0.10	16.10	0.10	3.40	3	17.65	1	5.88	1	5.88	8	47.06	4	23.53	0	0.00	5	29.41	12	70.59
9	Bhopal	22	0.05	3.30	0.01	3.03	7	31.82	1	4.55	0	0.00	12	54.55	2	9.09	0	0.00	8	36.36	14	63.64
10	Burhanpur	14	0.01	10.00	0.11	2.17	4	28.57	0	0.00	3	21.43	6	42.86	1	7.14	0	0.00	7	50.00	7	50.00
11	Chhatarpur	35	0.03	0.97	0.50	7.85	3	8.57	0	0.00	0	0.00	10	28.57	12	34.29	10	28.57	3	8.57	32	91.43
12	Chhindwara	41	0.05	8.80	0.02	14.50	14	34.15	3	7.32	7	17.07	10	24.39	4	9.76	3	7.32	24	58.54	17	41.46
13	Damoh	22	0.22	2.94	0.10	20.80	7	31.82	3	13.64	0	0.00	8	36.36	3	13.64	1	4.55	10	45.45	12	54.55
14	Datia	10	-	-	0.20	5.30	0	0.00	0	0.00	0	0.00	8	80.00	0	0.00	2	20.00	0	0.00	10	100.00
15	Dewas	26	0.04	2.59	0.02	9.17	5	19.23	1	3.85	0	0.00	13	50.00	1	3.85	6	23.08	6	23.08	20	76.92
16	Dhar	37	0.01	6.92	0.33	20.75	10	27.03	2	5.41	3	8.11	10	27.03	5	13.51	7	18.92	15	40.54	22	59.46
17	Dindori	16	0.15	5.02	0.01	3.50	1	6.25	0	0.00	2	12.50	12	75.00	1	6.25	0	0.00	3	18.75	13	81.25
18	Guna	20	0.05	5.09	0.03	5.58	6	30.00	1	5.00	1	5.00	8	40.00	3	15.00	1	5.00	8	40.00	12	60.00
19	Gwalior	19	3.20	3.20	0.10	8.00	0	0.00	1	5.26	0	0.00	11	57.89	3	15.79	4	21.05	1	5.26	18	94.74
20	Harda	13	0.99	0.99	0.05	2.98	1	7.69	0	0.00	0	0.00	11	84.62	1	7.69	0	0.00	1	7.69	12	92.31
21	Hoshangabad	16	0.07	1.65	0.20	4.45	2	12.50	0	0.00	0	0.00	12	75.00	1	6.25	1	6.25	2	12.50	14	87.50
22	Indore	40	0.20	18.18	0.02	14.00	7	17.50	1	2.50	3	7.50	15	37.50	7	17.50	7	17.50	11	27.50	29	72.50
23	Jabalpur	37	0.04	8.89	0.06	6.63	19	51.35	2	5.41	1	2.70	11	29.73	3	8.11	1	2.70	22	59.46	15	40.54
24	Jhabua	12	0.55	1.89	0.08	4.09	3	25.00	0	0.00	0	0.00	8	66.67	0	0.00	1	8.33	3	25.00	9	75.00
25	Katni	17	0.12	0.76	0.05	4.52	2	11.76	0	0.00	0	0.00	10	58.82	2	11.76	3	17.65	2	11.76	15	88.24
26	Khandwa	28	0.13	5.05	0.05	2.73	11	39.29	3	10.71	1	3.57	12	42.86	1	3.57	0	0.00	15	53.57	13	46.43

**District-Wise Annual Fluctuation & Frequency Distribution of Different Ranges from May 2014 to May 2015**

**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	%
27	Khargone	23	0.08	3.63	0.22	5.18	11	2.00	2	8.70	0	0.00	7	30.43	2	8.70	1	4.35	13	56.52	10	43.48
28	Mandla	33	0.02	7.09	0.05	2.36	12	36.36	2	6.06	1	3.03	17	51.52	1	3.03	0	0.00	15	45.45	18	54.55
29	Mandsaur	39	0.02	5.57	0.11	20.72	7	17.95	1	2.56	1	2.56	14	35.90	9	23.08	7	17.95	9	23.08	30	76.92
30	Morena	9	0.27	0.27	0.20	3.70	1	11.11	0	0.00	0	0.00	5	55.56	3	33.33	0	0.00	1	11.11	8	88.89
31	Narsinghpur	17	0.01	1.35	0.07	3.00	5	29.41	0	0.00	0	0.00	11	64.71	1	5.88	0	0.00	5	29.41	12	70.59
32	Neemuch	32	0.41	6.60	0.11	14.65	4	12.50	2	6.25	1	3.13	15	46.88	4	12.50	6	18.75	7	21.88	25	78.13
33	Panna	26	0.05	1.08	0.06	5.23	4	15.38	0	0.00	0	0.00	16	61.54	4	15.38	2	7.69	4	15.38	22	84.62
34	Raisen	28	0.15	4.70	0.08	3.80	8	28.57	1	3.57	1	3.57	17	60.71	1	3.57	0	0.00	10	35.71	18	64.29
35	Rajgarh	25	0.02	3.75	0.04	3.14	9	36.00	1	4.00	0	0.00	12	48.00	3	12.00	0	0.00	10	40.00	15	60.00
36	Ratlam	41	4.28	5.02	0.15	22.63	0	0.00	0	0.00	3	7.32	16	39.02	3	7.32	19	46.34	3	7.32	38	92.68
37	Rewa	32	0.01	2.10	0.03	5.68	8	25.00	2	6.25	0	0.00	20	62.50	1	3.13	1	3.13	10	31.25	22	68.75
38	Sagar	33	0.17	4.58	0.50	9.35	4	12.12	0	0.00	1	3.03	11	33.33	5	15.15	12	36.36	5	15.15	28	84.85
39	Satna	47	0.04	10.20	0.05	13.90	9	19.15	0	0.00	2	4.26	26	55.32	8	17.02	2	4.26	11	23.40	36	76.60
40	Sehore	21	0.01	7.40	0.05	5.18	7	33.33	0	0.00	1	4.76	12	57.14	0	0.00	1	4.76	8	38.10	13	61.90
41	Seoni	47	0.01	3.14	0.05	4.64	15	31.91	4	8.51	0	0.00	24	51.06	3	6.38	1	2.13	19	40.43	28	59.57
42	Shahdol	22	1.19	1.82	0.08	7.38	2	9.09	0	0.00	0	0.00	14	63.64	5	22.73	1	4.55	2	9.09	20	90.91
43	Shajapur	16	0.04	7.86	0.39	2.55	6	37.50	1	6.25	1	6.25	6	37.50	2	12.50	0	0.00	8	50.00	8	50.00
44	Sheopur	16	0.20	1.90	0.20	4.70	4	25.00	0	0.00	0	0.00	6	37.50	4	25.00	2	12.50	4	25.00	12	75.00
45	Shivpuri	29	0.30	6.10	0.10	8.00	3	10.34	0	0.00	1	3.45	13	44.83	5	17.24	7	24.14	4	13.79	25	86.21
46	Sidhi	29	0.02	0.30	0.05	3.20	7	24.14	0	0.00	0	0.00	20	68.97	2	6.90	0	0.00	7	24.14	22	75.86
47	Singrauli	18	0.15	0.95	0.05	2.34	5	27.78	0	0.00	0	0.00	11	61.11	2	11.11	0	0.00	5	27.78	13	72.22
48	Tikamgarh	22	1.79	4.54	0.52	8.40	1	4.55	2	9.09	1	4.55	7	31.82	7	31.82	4	18.18	4	18.18	18	81.82
49	Ujjain	43	0.14	11.65	0.02	23.34	10	23.26	1	2.33	4	9.30	13	30.23	8	18.60	7	16.28	15	34.88	28	65.12
50	Umaria	13	0.19	4.96	0.15	2.85	2	15.38	1	7.69	1	7.69	4	30.77	5	38.46	0	0.00	4	30.77	9	69.23
51	Vidisha	29	0.10	3.06	0.01	4.70	8	27.59	1	3.45	0	0.00	16	55.17	2	6.90	2	6.90	9	31.03	20	68.97
	<b>Total</b>	<b>1263</b>	<b>0.01</b>	<b>18.18</b>	<b>0.01</b>	<b>23.34</b>	<b>281</b>	<b>22.25</b>	<b>48</b>	<b>3.80</b>	<b>48</b>	<b>3.80</b>	<b>596</b>	<b>47.19</b>	<b>157</b>	<b>12.43</b>	<b>133</b>	<b>10.53</b>	<b>377</b>	<b>29.85</b>	<b>886</b>	<b>70.15</b>

**District-Wise Annual Fluctuation & Frequency Distribution of Different Ranges from August 2014 to August 2015**

**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		Rise		Fall					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%		
1	Agar Malwa	16	0.37	6.09	0.38	1.20	3	18.75	5	31.25	4	25.00	4	25.00	0	0.00	0	0.00	12	75.00	4	25.00				
2	Alirajpur	10	0.52	3.99	0.18	3.43	2	20.00	1	10.00	0	0.00	6	60.00	1	10.00	0	0.00	3	30.00	7	70.00				
3	Anuppur	18	0.04	1.99	0.16	7.33	4	22.22	0	0.00	0	0.00	11	61.11	2	11.11	1	5.56	4	22.22	14	77.78				
4	Ashok Nagar	15	0.20	3.10	0.10	1.85	5	33.33	1	6.67	0	0.00	9	60.00	0	0.00	0	0.00	6	40.00	9	60.00				
5	Balaghat	42	0.05	3.20	0.06	10.46	10	23.81	1	2.38	0	0.00	23	54.76	4	9.52	4	9.52	11	26.19	31	73.81				
6	Barwani	9	0.89	2.99	1.68	5.68	2	22.22	1	11.11	0	0.00	1	11.11	2	22.22	3	33.33	3	33.33	6	66.67				
7	Betul	28	0.16	1.38	0.12	13.53	5	17.86	0	0.00	0	0.00	15	53.57	4	14.29	4	14.29	5	17.86	23	82.14				
8	Bhind	16	0.34	10.50	0.20	6.42	5	31.25	3	18.75	1	6.25	5	31.25	0	0.00	2	12.50	9	56.25	7	43.75				
9	Bhopal	23	0.13	5.70	0.01	1.69	8	34.78	1	4.35	1	4.35	13	56.52	0	0.00	0	0.00	10	43.48	13	56.52				
10	Burhanpur	11	0.19	2.42	0.18	6.37	4	36.36	1	9.09	0	0.00	4	36.36	1	9.09	1	9.09	5	45.45	6	54.55				
11	Chhatarpur	36	0.17	8.05	0.50	4.86	12	33.33	2	5.56	1	2.78	10	27.78	9	25.00	2	5.56	15	41.67	21	58.33				
12	Chhindwara	42	0.05	2.80	0.09	10.40	8	19.05	1	2.38	0	0.00	17	40.48	12	28.57	4	9.52	9	21.43	33	78.57				
13	Damoh	21	0.03	4.79	0.05	6.44	12	57.14	0	0.00	1	4.76	7	33.33	0	0.00	1	4.76	13	61.90	8	38.10				
14	Datia	10	1.66	1.67	0.16	4.86	2	20.00	0	0.00	0	0.00	4	40.00	3	30.00	1	10.00	2	20.00	8	80.00				
15	Dewas	25	0.06	9.43	0.08	2.67	4	16.00	5	20.00	6	24.00	8	32.00	2	8.00	0	0.00	15	60.00	10	40.00				
16	Dhar	39	0.07	7.13	0.01	4.89	13	33.33	5	12.82	1	2.56	16	41.03	3	7.69	1	2.56	19	48.72	20	51.28				
17	Dindori	15	0.02	0.68	0.07	2.59	6	40.00	0	0.00	0	0.00	8	53.33	1	6.67	0	0.00	6	40.00	9	60.00				
18	Guna	22	0.01	4.66	0.16	0.89	13	59.09	2	9.09	1	4.55	6	27.27	0	0.00	0	0.00	16	72.73	6	27.27				
19	Gwalior	22	0.17	5.55	0.10	3.10	6	27.27	3	13.64	2	9.09	9	40.91	2	9.09	0	0.00	11	50.00	11	50.00				
20	Harda	13	3.60	3.60	0.08	6.12	0	0.00	1	7.69	0	0.00	9	69.23	2	15.38	1	7.69	1	7.69	12	92.31				
21	Hoshangabad	18	0.08	6.64	0.07	4.80	9	50.00	0	0.00	1	5.56	7	38.89	0	0.00	1	5.56	10	55.56	8	44.44				
22	Indore	38	0.03	9.02	0.15	4.21	11	28.95	7	18.42	3	7.89	14	36.84	1	2.63	2	5.26	21	55.26	17	44.74				
23	Jabalpur	36	0.09	2.89	0.04	5.49	7	19.44	2	5.56	0	0.00	22	61.11	2	5.56	3	8.33	9	25.00	27	75.00				
24	Jhabua	12	0.95	0.95	0.11	3.29	1	8.33	0	0.00	0	0.00	10	83.33	1	8.33	0	0.00	1	8.33	11	91.67				
25	Katni	17	0.55	3.47	0.28	2.84	4	23.53	2	11.76	0	0.00	9	52.94	2	11.76	0	0.00	6	35.29	11	64.71				
26	Khandwa	28	0.04	3.54	0.09	4.60	3	10.71	1	3.57	0	0.00	18	64.29	5	17.86	1	3.57	4	14.29	24	85.71				

**District-Wise Annual Fluctuation & Frequency Distribution of Different Ranges from August 2014 to August 2015**

**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		Rise		Fall					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%		
27	Khargone	23	0.02	7.17	0.04	4.05	5	2.00	0	0.00	1	4.35	10	43.48	5	21.74	2	8.70	6	26.09	17	73.91				
28	Mandla	33	0.03	8.48	0.06	2.45	11	33.33	2	6.06	1	3.03	16	48.48	3	9.09	0	0.00	14	42.42	19	57.58				
29	Mandsaur	41	0.05	3.04	0.15	4.24	7	17.07	2	4.88	0	0.00	21	51.22	8	19.51	3	7.32	9	21.95	32	78.05				
30	Morena	9	0.55	6.45	0.06	2.41	2	22.22	0	0.00	2	22.22	4	44.44	1	11.11	0	0.00	4	44.44	5	55.56				
31	Narsinghpur	17	0.03	0.21	0.04	13.25	2	11.76	0	0.00	0	0.00	4	23.53	5	29.41	6	35.29	2	11.76	15	88.24				
32	Neemuch	32	0.10	3.42	0.14	3.25	5	15.63	2	6.25	0	0.00	21	65.63	4	12.50	0	0.00	7	21.88	25	78.13				
33	Panna	26	0.03	1.50	0.20	4.31	9	34.62	0	0.00	0	0.00	12	46.15	3	11.54	2	7.69	9	34.62	17	65.38				
34	Raisen	30	0.12	2.60	0.02	2.42	10	33.33	2	6.67	0	0.00	17	56.67	1	3.33	0	0.00	12	40.00	18	60.00				
35	Rajgarh	25	0.03	4.62	0.07	3.57	2	8.00	1	4.00	1	4.00	17	68.00	4	16.00	0	0.00	4	16.00	21	84.00				
36	Ratlam	41	0.15	7.93	0.07	4.59	9	21.95	4	9.76	5	12.20	16	39.02	5	12.20	2	4.88	18	43.90	23	56.10				
37	Rewa	30	0.08	2.54	0.20	6.71	10	33.33	2	6.67	0	0.00	14	46.67	1	3.33	3	10.00	12	40.00	18	60.00				
38	Sagar	34	0.04	5.98	0.24	8.71	12	35.29	2	5.88	1	2.94	10	29.41	7	20.59	2	5.88	15	44.12	19	55.88				
39	Satna	47	0.02	2.60	0.07	8.80	13	27.66	1	2.13	0	0.00	24	51.06	4	8.51	5	10.64	14	29.79	33	70.21				
40	Sehore	19	0.47	8.15	0.12	3.24	7	36.84	1	5.26	1	5.26	8	42.11	2	10.53	0	0.00	9	47.37	10	52.63				
41	Seoni	44	0.04	1.65	0.17	6.38	9	20.45	0	0.00	0	0.00	17	38.64	11	25.00	7	15.91	9	20.45	35	79.55				
42	Shahdol	21	0.27	3.01	0.16	5.57	1	4.76	1	4.76	0	0.00	14	66.67	4	19.05	1	4.76	2	9.52	19	90.48				
43	Shajapur	17	0.21	7.85	0.10	0.50	5	29.41	5	29.41	4	23.53	3	17.65	0	0.00	0	0.00	14	82.35	3	17.65				
44	Sheopur	17	0.08	4.19	0.35	3.75	3	17.65	0	0.00	1	5.88	9	52.94	4	23.53	0	0.00	4	23.53	13	76.47				
45	Shivpuri	28	0.10	3.17	0.01	6.87	5	17.86	2	7.14	0	0.00	11	39.29	3	10.71	7	25.00	7	25.00	21	75.00				
46	Sidhi	30	0.08	3.20	0.05	7.10	5	16.67	2	6.67	0	0.00	13	43.33	6	20.00	4	13.33	7	23.33	23	76.67				
47	Singrauli	18	0.25	1.00	0.05	2.20	7	38.89	0	0.00	0	0.00	10	55.56	1	5.56	0	0.00	7	38.89	11	61.11				
48	Tikamgarh	22	0.51	3.73	0.12	15.20	2	9.09	2	9.09	0	0.00	13	59.09	3	13.64	2	9.09	4	18.18	18	81.82				
49	Ujjain	42	0.09	6.40	0.23	2.70	16	38.10	10	23.81	6	14.29	6	14.29	4	9.52	0	0.00	32	76.19	10	23.81				
50	Umariya	13	0.23	2.30	0.02	4.19	2	15.38	1	7.69	0	0.00	8	61.54	1	7.69	1	7.69	3	23.08	10	76.92				
51	Vidisha	29	0.05	4.19	0.09	0.59	19	65.52	4	13.79	2	6.90	4	13.79	0	0.00	0	0.00	25	86.21	4	13.79				
	<b>Total</b>	<b>1270</b>	<b>0.01</b>	<b>10.50</b>	<b>0.01</b>	<b>15.20</b>	<b>337</b>	<b>26.54</b>	<b>91</b>	<b>7.17</b>	<b>47</b>	<b>3.70</b>	<b>567</b>	<b>44.65</b>	<b>149</b>	<b>11.73</b>	<b>79</b>	<b>6.22</b>	<b>475</b>	<b>37.40</b>	<b>795</b>	<b>62.60</b>				

**District-Wise Annual Fluctuation & Frequency Distribution of Different Ranges from Nov 2014 to Nov 2015**

**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	16	0.12	6.50	0.27	4.21	3	18.75	2	12.50	4	25.00	5	31.25	1	6.25	1	6.25	9	56.25	7	43.75
2	Alirajpur	11	0.57	0.76	0.12	3.17	2	18.18	0	0.00	0	0.00	7	63.64	2	18.18	0	0.00	2	18.18	9	81.82
3	Anuppur	18	-	-	0.12	7.16	0	0.00	0	0.00	0	0.00	9	50.00	6	33.33	3	16.67	0	0.00	18	100.00
4	Ashok Nagar	14	0.06	2.61	0.21	1.67	6	42.86	1	7.14	0	0.00	7	50.00	0	0.00	0	0.00	7	50.00	7	50.00
5	Balaghat	41	0.04	3.90	0.04	4.66	11	26.83	1	2.44	0	0.00	23	56.10	5	12.20	1	2.44	12	29.27	29	70.73
6	Barwani	9	0.48	2.84	0.31	5.96	1	11.11	1	11.11	0	0.00	6	66.67	0	0.00	1	11.11	2	22.22	7	77.78
7	Betul	29	0.05	1.20	0.05	6.63	9	31.03	0	0.00	0	0.00	15	51.72	4	13.79	1	3.45	9	31.03	20	68.97
8	Bhind	15	0.14	9.80	0.20	8.20	3	20.00	4	26.67	2	13.33	3	20.00	2	13.33	1	6.67	9	60.00	6	40.00
9	Bhopal	23	0.07	4.12	0.05	2.25	8	34.78	0	0.00	1	4.35	13	56.52	1	4.35	0	0.00	9	39.13	14	60.87
10	Burhanpur	13	12.11	12.11	0.25	4.82	0	0.00	0	0.00	1	7.69	10	76.92	1	7.69	1	7.69	1	7.69	12	92.31
11	Chhatarpur	38	0.39	8.19	0.03	3.50	8	21.05	5	13.16	4	10.53	12	31.58	9	23.68	0	0.00	17	44.74	21	55.26
12	Chhindwara	42	0.05	5.46	0.04	17.82	13	30.95	1	2.38	1	2.38	16	38.10	8	19.05	3	7.14	15	35.71	27	64.29
13	Damoh	21	0.09	2.88	0.10	6.12	10	47.62	4	19.05	0	0.00	5	23.81	1	4.76	1	4.76	14	66.67	7	33.33
14	Datia	10	1.81	2.67	0.27	2.99	1	10.00	1	10.00	0	0.00	6	60.00	2	20.00	0	0.00	2	20.00	8	80.00
15	Dewas	25	0.44	10.01	0.02	3.22	13	52.00	4	16.00	2	8.00	4	16.00	2	8.00	0	0.00	19	76.00	6	24.00
16	Dhar	38	0.03	1.74	0.14	9.69	12	31.58	0	0.00	0	0.00	20	52.63	2	5.26	4	10.53	12	31.58	26	68.42
17	Dindori	16	0.05	3.99	0.01	3.49	4	25.00	2	12.50	0	0.00	9	56.25	1	6.25	0	0.00	6	37.50	10	62.50
18	Guna	22	0.04	2.92	0.10	7.56	10	45.45	2	9.09	0	0.00	5	22.73	3	13.64	2	9.09	12	54.55	10	45.45
19	Gwalior	17	0.31	10.83	0.01	6.30	5	29.41	0	0.00	2	11.76	8	47.06	1	5.88	1	5.88	7	41.18	10	58.82
20	Harda	13	0.08	1.45	0.20	6.22	2	15.38	0	0.00	0	0.00	9	69.23	0	0.00	2	15.38	2	15.38	11	84.62
21	Hoshangabad	19	0.29	1.90	0.22	1.95	7	36.84	0	0.00	0	0.00	12	63.16	0	0.00	0	0.00	7	36.84	12	63.16
22	Indore	39	0.05	2.72	0.25	12.30	9	23.08	1	2.56	0	0.00	19	48.72	6	15.38	4	10.26	10	25.64	29	74.36
23	Jabalpur	36	0.05	4.95	0.04	4.28	14	38.89	2	5.56	1	2.78	14	38.89	3	8.33	2	5.56	17	47.22	19	52.78
24	Jhabua	11	-	-	0.20	5.73	0	0.00	0	0.00	0	0.00	7	63.64	2	18.18	2	18.18	0	0.00	11	100.00
25	Katni	17	0.74	7.06	0.21	9.72	2	11.76	0	0.00	1	5.88	10	58.82	2	11.76	2	11.76	3	17.65	14	82.35
26	Khandwa	30	0.02	1.34	0.04	1.99	7	23.33	0	0.00	0	0.00	23	76.67	0	0.00	0	0.00	7	23.33	23	76.67

**District-Wise Annual Fluctuation & Frequency Distribution of Different Ranges from Nov 2014 to Nov 2015**

**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		Rise		Fall					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%		
27	Khargone	24	0.14	4.48	0.08	2.49	7	2.00	1	4.17	1	4.17	11	45.83	4	16.67	0	0.00	9	37.50	15	62.50				
28	Mandla	34	0.05	2.97	0.07	3.06	19	55.88	3	8.82	0	0.00	11	32.35	1	2.94	0	0.00	22	64.71	12	35.29				
29	Mandsaur	42	0.01	23.35	0.02	10.73	20	47.62	2	4.76	3	7.14	12	28.57	1	2.38	4	9.52	25	59.52	17	40.48				
30	Morena	12	0.10	5.80	0.17	7.50	3	25.00	1	8.33	1	8.33	3	25.00	3	25.00	1	8.33	5	41.67	7	58.33				
31	Narsinghpur	16	0.21	5.73	0.42	4.02	3	18.75	1	6.25	1	6.25	8	50.00	2	12.50	1	6.25	5	31.25	11	68.75				
32	Neemuch	31	0.01	3.68	0.22	2.71	14	45.16	3	9.68	0	0.00	10	32.26	4	12.90	0	0.00	17	54.84	14	45.16				
33	Panna	26	0.09	2.89	0.20	2.29	11	42.31	1	3.85	0	0.00	11	42.31	3	11.54	0	0.00	12	46.15	14	53.85				
34	Raisen	30	0.13	2.91	0.05	6.22	3	10.00	1	3.33	0	0.00	20	66.67	2	6.67	4	13.33	4	13.33	26	86.67				
35	Rajgarh	26	0.50	3.49	0.01	10.31	4	15.38	3	11.54	0	0.00	13	50.00	4	15.38	2	7.69	7	26.92	19	73.08				
36	Ratlam	40	0.05	25.55	0.44	6.43	14	35.00	8	20.00	6	15.00	7	17.50	2	5.00	3	7.50	28	70.00	12	30.00				
37	Rewa	32	0.10	2.85	0.60	12.69	3	9.38	1	3.13	0	0.00	12	37.50	9	28.13	7	21.88	4	12.50	28	87.50				
38	Sagar	40	0.06	5.48	0.09	8.59	14	35.00	2	5.00	1	2.50	18	45.00	4	10.00	1	2.50	17	42.50	23	57.50				
39	Satna	47	0.10	3.89	0.24	16.11	5	10.64	2	4.26	0	0.00	19	40.43	13	27.66	8	17.02	7	14.89	40	85.11				
40	Sehore	19	0.02	2.15	0.12	6.02	8	42.11	1	5.26	0	0.00	9	47.37	0	0.00	1	5.26	9	47.37	10	52.63				
41	Seoni	47	0.03	2.93	0.19	9.31	19	40.43	1	2.13	0	0.00	20	42.55	6	12.77	1	2.13	20	42.55	27	57.45				
42	Shahdol	21	0.40	0.75	0.15	7.92	2	9.52	0	0.00	0	0.00	7	33.33	11	52.38	1	4.76	2	9.52	19	90.48				
43	Shajapur	17	0.04	3.63	0.60	2.44	9	52.94	5	29.41	0	0.00	2	11.76	1	5.88	0	0.00	14	82.35	3	17.65				
44	Sheopur	18	0.44	11.67	0.04	3.64	1	5.56	1	5.56	2	11.11	10	55.56	4	22.22	0	0.00	4	22.22	14	77.78				
45	Shivpuri	29	0.07	13.96	0.04	8.44	7	24.14	1	3.45	4	13.79	9	31.03	5	17.24	3	10.34	12	41.38	17	58.62				
46	Sidhi	28	0.14	3.76	0.05	9.10	2	7.14	1	3.57	0	0.00	12	42.86	7	25.00	6	21.43	3	10.71	25	89.29				
47	Singrauli	17	0.10	0.10	0.15	3.89	1	5.88	0	0.00	0	0.00	9	52.94	7	41.18	0	0.00	1	5.88	16	94.12				
48	Tikamgarh	21	0.26	1.95	0.12	10.77	5	23.81	0	0.00	0	0.00	12	57.14	3	14.29	1	4.76	5	23.81	16	76.19				
49	Ujjain	42	0.10	18.65	0.02	2.44	14	33.33	14	33.33	8	19.05	5	11.90	1	2.38	0	0.00	36	85.71	6	14.29				
50	Umariya	12	0.39	0.39	0.13	3.66	1	8.33	0	0.00	0	0.00	8	66.67	3	25.00	0	0.00	1	8.33	11	91.67				
51	Vidisha	29	0.03	8.87	0.02	5.85	9	31.03	1	3.45	1	3.45	14	48.28	2	6.90	2	6.90	11	37.93	18	62.07				
	<b>Total</b>	<b>1283</b>	<b>0.01</b>	<b>25.55</b>	<b>0.01</b>	<b>17.82</b>	<b>358</b>	<b>27.90</b>	<b>85</b>	<b>6.63</b>	<b>47</b>	<b>3.66</b>	<b>549</b>	<b>42.79</b>	<b>166</b>	<b>12.94</b>	<b>78</b>	<b>6.08</b>	<b>490</b>	<b>38.19</b>	<b>793</b>	<b>61.81</b>				



**District-Wise Annual Fluctuation & Frequency Distribution of Different Ranges from Jan 2015 to Jan 2016**

**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		Rise		Fall					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%		
1	Agar Malwa	16	0.28	6.50	0.20	3.26	5	31.25	4	25.00	1	6.25	3	18.75	3	18.75	0	0.00	10	62.50	6	37.50				
2	Alirajpur	11	1.48	1.48	0.91	2.99	1	9.09	0	0.00	0	0.00	5	45.45	5	45.45	0	0.00	1	9.09	10	90.91				
3	Anuppur	15	0.24	0.24	1.08	7.12	1	6.67	0	0.00	0	0.00	8	53.33	3	20.00	3	20.00	1	6.67	14	93.33				
4	Ashok Nagar	15	0.23	1.10	0.16	9.60	4	26.67	0	0.00	0	0.00	9	60.00	1	6.67	1	6.67	4	26.67	11	73.33				
5	Balaghat	40	0.01	1.46	0.05	2.80	19	47.50	0	0.00	0	0.00	17	42.50	4	10.00	0	0.00	19	47.50	21	52.50				
6	Barwani	9	1.01	3.74	0.95	6.21	1	11.11	1	11.11	0	0.00	3	33.33	1	11.11	3	33.33	2	22.22	7	77.78				
7	Betul	27	0.15	2.37	0.28	3.65	7	25.93	2	7.41	0	0.00	10	37.04	8	29.63	0	0.00	9	33.33	18	66.67				
8	Bhind	15	0.20	8.40	0.50	10.00	4	26.67	1	6.67	1	6.67	5	33.33	2	13.33	2	13.33	6	40.00	9	60.00				
9	Bhopal	23	0.01	1.25	0.01	3.55	4	17.39	0	0.00	0	0.00	15	65.22	4	17.39	0	0.00	4	17.39	19	82.61				
10	Burhanpur	9	0.28	8.18	1.55	13.55	1	11.11	1	11.11	1	11.11	2	22.22	2	22.22	2	22.22	3	33.33	6	66.67				
11	Chhatarpur	39	0.31	7.62	0.01	13.60	4	10.26	0	0.00	1	2.56	20	51.28	7	17.95	7	17.95	5	12.82	34	87.18				
12	Chhindwara	40	0.02	5.82	0.08	9.55	19	47.50	3	7.50	2	5.00	7	17.50	4	10.00	5	12.50	24	60.00	16	40.00				
13	Damoh	22	0.11	2.86	0.05	9.37	3	13.64	2	9.09	0	0.00	15	68.18	1	4.55	1	4.55	5	22.73	17	77.27				
14	Datia	10	0.13	1.20	0.30	5.60	2	20.00	0	0.00	0	0.00	4	40.00	2	20.00	2	20.00	2	20.00	8	80.00				
15	Dewas	24	0.10	9.86	0.13	7.94	7	29.17	2	8.33	2	8.33	9	37.50	2	8.33	2	8.33	11	45.83	13	54.17				
16	Dhar	35	0.03	6.03	0.04	12.01	11	31.43	0	0.00	2	5.71	16	45.71	4	11.43	2	5.71	13	37.14	22	62.86				
17	Dindori	16	0.06	1.03	0.05	1.35	6	37.50	0	0.00	0	0.00	10	62.50	0	0.00	0	0.00	6	37.50	10	62.50				
18	Guna	22	0.10	5.55	0.10	4.50	6	27.27	0	0.00	1	4.55	10	45.45	4	18.18	1	4.55	7	31.82	15	68.18				
19	Gwalior	16	2.14	6.19	0.42	9.70	0	0.00	1	6.25	1	6.25	7	43.75	3	18.75	4	25.00	2	12.50	14	87.50				
20	Harda	13	2.63	2.63	0.02	6.87	0	0.00	1	7.69	0	0.00	9	69.23	2	15.38	1	7.69	1	7.69	12	92.31				
21	Hoshangabad	18	0.51	2.00	0.18	2.09	8	44.44	0	0.00	0	0.00	9	50.00	1	5.56	0	0.00	8	44.44	10	55.56				
22	Indore	40	0.36	9.05	0.06	16.83	7	17.50	3	7.50	3	7.50	11	27.50	6	15.00	10	25.00	13	32.50	27	67.50				
23	Jabalpur	34	0.08	8.55	0.07	7.35	7	20.59	1	2.94	3	8.82	18	52.94	3	8.82	2	5.88	11	32.35	23	67.65				
24	Jhabua	11	1.47	1.47	0.04	6.32	1	9.09	0	0.00	0	0.00	8	72.73	1	9.09	1	9.09	1	9.09	10	90.91				
25	Katni	17	0.15	0.15	0.18	4.62	1	5.88	0	0.00	0	0.00	10	58.82	4	23.53	2	11.76	1	5.88	16	94.12				
26	Khandwa	28	0.06	5.00	0.36	3.91	8	28.57	0	0.00	1	3.57	16	57.14	3	10.71	0	0.00	9	32.14	19	67.86				

**District-Wise Annual Fluctuation & Frequency Distribution of Different Ranges from Jan 2015 to Jan 2016**

**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		Rise		Fall					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%				
27	Khargone	24	0.31	2.41	0.57	6.28	3	2.00	1	4.17	0	0.00	11	45.83	3	12.50	6	25.00	4	16.67	20	83.33				
28	Mandla	32	0.10	9.37	0.03	1.44	12	37.50	6	18.75	6	18.75	8	25.00	0	0.00	0	0.00	24	75.00	8	25.00				
29	Mandsaur	42	0.04	11.28	0.18	18.52	3	7.14	1	2.38	2	4.76	17	40.48	8	19.05	11	26.19	6	14.29	36	85.71				
30	Morena	11	2.35	5.00	0.20	17.00	0	0.00	1	9.09	1	9.09	3	27.27	3	27.27	3	27.27	2	18.18	9	81.82				
31	Narsinghpur	14	2.94	6.88	0.20	3.51	0	0.00	1	7.14	3	21.43	6	42.86	4	28.57	0	0.00	4	28.57	10	71.43				
32	Neemuch	30	0.08	0.62	0.08	12.57	3	10.00	0	0.00	0	0.00	10	33.33	6	20.00	11	36.67	3	10.00	27	90.00				
33	Panna	26	0.01	4.64	0.28	7.73	5	19.23	0	0.00	1	3.85	16	61.54	3	11.54	1	3.85	6	23.08	20	76.92				
34	Raisen	30	-	-	0.10	5.50	0	0.00	0	0.00	0	0.00	18	60.00	10	33.33	2	6.67	0	0.00	30	100.00				
35	Rajgarh	25	0.02	1.16	0.05	4.26	3	12.00	0	0.00	0	0.00	10	40.00	9	36.00	3	12.00	3	12.00	22	88.00				
36	Ratlam	41	0.10	10.98	0.07	11.00	6	14.63	3	7.32	2	4.88	11	26.83	7	17.07	12	29.27	11	26.83	30	73.17				
37	Rewa	31	0.14	0.27	0.38	21.55	2	6.45	0	0.00	0	0.00	8	25.81	9	29.03	12	38.71	2	6.45	29	93.55				
38	Sagar	40	0.20	5.05	0.13	6.50	5	12.50	1	2.50	1	2.50	18	45.00	11	27.50	4	10.00	7	17.50	33	82.50				
39	Satna	46	0.16	3.19	0.20	12.61	5	10.87	1	2.17	0	0.00	22	47.83	8	17.39	10	21.74	6	13.04	40	86.96				
40	Sehore	19	0.14	1.23	0.20	6.56	3	15.79	0	0.00	0	0.00	9	47.37	3	15.79	4	21.05	3	15.79	16	84.21				
41	Seoni	47	0.06	2.63	0.06	7.50	14	29.79	2	4.26	0	0.00	22	46.81	6	12.77	3	6.38	16	34.04	31	65.96				
42	Shahdol	21	0.27	1.27	0.75	5.75	2	9.52	0	0.00	0	0.00	11	52.38	6	28.57	2	9.52	2	9.52	19	90.48				
43	Shajapur	16	0.17	6.94	0.02	2.74	3	18.75	0	0.00	2	12.50	10	62.50	1	6.25	0	0.00	5	31.25	11	68.75				
44	Sheopur	17	0.45	2.78	0.50	19.30	1	5.88	1	5.88	0	0.00	3	17.65	6	35.29	6	35.29	2	11.76	15	88.24				
45	Shivpuri	28	0.08	6.10	0.10	12.50	5	17.86	4	14.29	2	7.14	6	21.43	3	10.71	8	28.57	11	39.29	17	60.71				
46	Sidhi	30	0.11	1.14	0.52	7.31	5	16.67	0	0.00	0	0.00	12	40.00	7	23.33	6	20.00	5	16.67	25	83.33				
47	Singrauli	19	0.03	0.51	0.50	6.28	2	10.53	0	0.00	0	0.00	10	52.63	6	31.58	1	5.26	2	10.53	17	89.47				
48	Tikamgarh	18	2.27	3.00	0.87	7.69	0	0.00	2	11.11	0	0.00	7	38.89	8	44.44	1	5.56	2	11.11	16	88.89				
49	Ujjain	42	0.27	5.75	0.13	6.61	12	28.57	1	2.38	2	4.76	17	40.48	8	19.05	2	4.76	15	35.71	27	64.29				
50	Umaria	15	0.12	0.57	0.75	4.13	2	13.33	0	0.00	0	0.00	8	53.33	4	26.67	1	6.67	2	13.33	13	86.67				
51	Vidisha	29	0.05	0.75	0.04	5.19	4	13.79	0	0.00	0	0.00	13	44.83	9	31.03	3	10.34	4	13.79	25	86.21				
	<b>Total</b>	<b>1258</b>	<b>0.01</b>	<b>11.28</b>	<b>0.01</b>	<b>21.55</b>	<b>237</b>	<b>18.84</b>	<b>47</b>	<b>3.74</b>	<b>41</b>	<b>3.26</b>	<b>542</b>	<b>43.08</b>	<b>228</b>	<b>18.12</b>	<b>163</b>	<b>12.96</b>	<b>325</b>	<b>25.83</b>	<b>933</b>	<b>74.17</b>				

District-Wise Seasonal Fluctuation & Frequency Distribution of Different Ranges from May 2015 to August 2015

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		Rise		Fall					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%				
1	Agar Malwa	15	2.70	14.81	-	-	0	0.00	1	6.67	14	93.33	0	0.00	0	0.00	0	0.00	15	100.00	0	0.00				
2	Alirajpur	11	0.18	5.84	0.15	0.57	3	27.27	4	36.36	2	18.18	2	18.18	0	0.00	0	0.00	9	81.82	2	18.18				
3	Anuppur	19	0.15	3.55	1.00	1.00	10	52.63	8	42.11	0	0.00	1	5.26	0	0.00	0	0.00	18	94.74	1	5.26				
4	Ashok Nagar	16	0.12	19.97	1.60	1.60	4	25.00	5	31.25	6	37.50	1	6.25	0	0.00	0	0.00	15	93.75	1	6.25				
5	Balaghat	41	0.09	11.50	1.44	1.44	5	12.20	13	31.71	22	53.66	1	2.44	0	0.00	0	0.00	40	97.56	1	2.44				
6	Barwani	9	1.09	9.73	0.19	0.19	2	22.22	1	11.11	5	55.56	1	11.11	0	0.00	0	0.00	8	88.89	1	11.11				
7	Betul	30	0.30	13.00	2.25	2.25	9	30.00	10	33.33	10	33.33	0	0.00	1	3.33	0	0.00	29	96.67	1	3.33				
8	Bhind	15	0.25	5.14	0.60	1.37	9	60.00	2	10.00	2	13.33	2	13.33	0	0.00	0	0.00	13	86.67	2	13.33				
9	Bhopal	24	0.05	13.40	-	-	7	29.17	4	16.67	13	54.17	0	0.00	0	0.00	0	0.00	24	100.00	0	0.00				
10	Burhanpur	16	0.68	7.00	0.01	0.35	6	37.50	5	31.25	3	18.75	2	12.50	0	0.00	0	0.00	14	87.50	2	12.50				
11	Chhatarpur	38	0.43	15.15	0.27	0.49	9	23.68	12	31.58	13	34.21	4	10.53	0	0.00	0	0.00	34	89.47	4	10.53				
12	Chhindwara	41	0.94	15.39	0.15	0.15	8	19.51	15	36.59	17	41.46	1	2.44	0	0.00	0	0.00	40	97.56	1	2.44				
13	Damoh	23	0.04	15.66	0.02	0.02	8	34.78	6	26.09	8	34.78	1	4.35	0	0.00	0	0.00	22	95.65	1	4.35				
14	Datia	10	2.46	6.47	0.06	1.97	0	0.00	3	30.00	1	10.00	6	60.00	0	0.00	0	0.00	4	40.00	6	60.00				
15	Dewas	25	0.40	28.33	-	-	2	8.00	2	8.00	21	84.00	0	0.00	0	0.00	0	0.00	25	100.00	0	0.00				
16	Dhar	39	0.29	25.19	0.53	0.53	8	20.51	7	17.95	23	58.97	1	2.56	0	0.00	0	0.00	38	97.44	1	2.56				
17	Dindori	15	0.11	6.33	-	-	7	46.67	4	26.67	4	26.67	0	0.00	0	0.00	0	0.00	15	100.00	0	0.00				
18	Guna	23	1.17	13.40	-	-	2	8.70	2	8.70	19	82.61	0	0.00	0	0.00	0	0.00	23	100.00	0	0.00				
19	Gwalior	22	0.03	10.40	-	-	7	31.82	7	31.82	8	36.36	0	0.00	0	0.00	0	0.00	22	100.00	0	0.00				
20	Harda	13	0.61	5.17	-	-	7	53.85	4	30.77	2	15.38	0	0.00	0	0.00	0	0.00	13	100.00	0	0.00				
21	Hoshangabad	19	0.58	6.64	-	-	11	57.89	7	36.84	1	5.26	0	0.00	0	0.00	0	0.00	19	100.00	0	0.00				
22	Indore	38	1.31	46.52	-	-	1	2.63	6	15.79	31	81.58	0	0.00	0	0.00	0	0.00	38	100.00	0	0.00				
23	Jabalpur	38	0.18	8.48	0.04	1.19	15	39.47	14	36.84	2	5.26	7	18.42	0	0.00	0	0.00	31	81.58	7	18.42				
24	Jhabua	12	0.10	6.27	-	-	2	16.67	7	58.33	3	25.00	0	0.00	0	0.00	0	0.00	12	100.00	0	0.00				
25	Katni	17	0.10	7.85	0.55	0.55	5	29.41	7	41.18	4	23.53	1	5.88	0	0.00	0	0.00	16	94.12	1	5.88				
26	Khandwa	30	0.38	6.28	-	-	7	23.33	14	46.67	9	30.00	0	0.00	0	0.00	0	0.00	30	100.00	0	0.00				

District-Wise Seasonal Fluctuation & Frequency Distribution of Different Ranges from May 2015 to August 2015

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		Rise		Fall					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%				
27	Khargone	23	0.67	10.27	0.12	1.34	9	2.00	8	34.78	4	17.39	2	8.70	0	0.00	0	0.00	21	91.30	2	8.70				
28	Mandla	34	0.83	10.79	-	-	8	23.53	19	55.88	7	20.59	0	0.00	0	0.00	0	0.00	34	100.00	0	0.00				
29	Mandsaur	41	1.10	42.20	-	-	1	2.44	10	24.39	30	73.17	0	0.00	0	0.00	0	0.00	41	100.00	0	0.00				
30	Morena	11	0.20	7.16	0.12	0.31	4	36.36	3	27.27	2	18.18	2	18.18	0	0.00	0	0.00	9	81.82	2	18.18				
31	Narsinghpur	16	1.25	8.78	0.10	0.20	3	18.75	5	31.25	5	31.25	3	18.75	0	0.00	0	0.00	13	81.25	3	18.75				
32	Neemuch	32	2.29	18.84	-	-	0	0.00	7	21.88	25	78.13	0	0.00	0	0.00	0	0.00	32	100.00	0	0.00				
33	Panna	27	0.16	7.41	1.16	1.40	6	22.22	7	25.93	12	44.44	2	7.41	0	0.00	0	0.00	25	92.59	2	7.41				
34	Raisen	30	0.81	9.05	-	-	4	13.33	11	36.67	15	50.00	0	0.00	0	0.00	0	0.00	30	100.00	0	0.00				
35	Rajgarh	26	1.67	14.13	-	-	2	7.69	8	30.77	16	61.54	0	0.00	0	0.00	0	0.00	26	100.00	0	0.00				
36	Ratlam	42	1.93	41.41	-	-	1	2.38	4	9.52	37	88.10	0	0.00	0	0.00	0	0.00	42	100.00	0	0.00				
37	Rewa	35	0.58	12.80	0.01	2.03	7	20.00	12	34.29	10	28.57	5	14.29	1	2.86	0	0.00	29	82.86	6	17.14				
38	Sagar	40	0.39	22.40	2.28	2.28	5	12.50	14	35.00	20	50.00	0	0.00	1	2.50	0	0.00	39	97.50	1	2.50				
39	Satna	51	0.10	9.88	0.25	5.05	20	39.22	16	31.37	11	21.57	1	1.96	0	0.00	3	5.88	47	92.16	4	7.84				
40	Sehore	21	2.25	11.20	0.54	0.54	0	0.00	8	38.10	12	57.14	1	4.76	0	0.00	0	0.00	20	95.24	1	4.76				
41	Seoni	45	0.19	8.50	0.73	0.73	15	33.33	19	42.22	10	22.22	1	2.22	0	0.00	0	0.00	44	97.78	1	2.22				
42	Shahdol	20	0.10	6.80	0.21	3.10	14	70.00	1	5.00	2	10.00	2	10.00	1	5.00	0	0.00	17	85.00	3	15.00				
43	Shajapur	17	4.32	12.69	-	-	0	0.00	0	0.00	17	100.00	0	0.00	0	0.00	0	0.00	17	100.00	0	0.00				
44	Sheopur	17	0.55	13.63	0.08	0.29	4	23.53	4	23.53	7	41.18	2	11.76	0	0.00	0	0.00	15	88.24	2	11.76				
45	Shivpuri	29	0.15	11.90	1.70	2.51	9	31.03	6	20.69	12	41.38	1	3.45	1	3.45	0	0.00	27	93.10	2	6.90				
46	Sidhi	33	0.30	5.43	0.05	0.51	25	75.76	1	3.03	4	12.12	3	9.09	0	0.00	0	0.00	30	90.91	3	9.09				
47	Singrauli	20	0.10	5.85	0.27	0.27	11	55.00	7	35.00	1	5.00	1	5.00	0	0.00	0	0.00	19	95.00	1	5.00				
48	Tikamgarh	24	0.24	8.34	1.15	7.68	13	54.17	5	20.83	4	16.67	1	4.17	0	0.00	1	4.17	22	91.67	2	8.33				
49	Ujjain	44	0.72	41.31	-	-	3	6.82	3	6.82	38	86.36	0	0.00	0	0.00	0	0.00	44	100.00	0	0.00				
50	Umaria	15	0.03	7.05	0.10	1.98	9	60.00	2	13.33	1	6.67	3	20.00	0	0.00	0	0.00	12	80.00	3	20.00				
51	Vidisha	30	0.34	12.00	-	-	2	6.67	7	23.33	21	70.00	0	0.00	0	0.00	0	0.00	30	100.00	0	0.00				
	<b>Total</b>	<b>1322</b>	<b>0.03</b>	<b>46.52</b>	<b>0.01</b>	<b>7.68</b>	<b>329</b>	<b>24.89</b>	<b>357</b>	<b>27.00</b>	<b>566</b>	<b>42.81</b>	<b>61</b>	<b>4.61</b>	<b>5</b>	<b>0.38</b>	<b>4</b>	<b>0.30</b>	<b>1252</b>	<b>94.70</b>	<b>70</b>	<b>5.30</b>				

District-Wise Seasonal Fluctuation & Frequency Distribution of Different Ranges from May 2015 to November 2015

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		Rise		Fall					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%				
1	Agar Malwa	15	0.67	8.31	-	-	5	33.33	4	26.67	6	40.00	0	0.00	0	0.00	0	0.00	15	100.00	0	0.00				
2	Alirajpur	12	0.47	3.61	1.05	1.05	5	41.67	6	50.00	0	0.00	1	8.33	0	0.00	0	0.00	11	91.67	1	8.33				
3	Anuppur	18	0.05	1.70	0.10	2.55	13	72.22	0	0.00	0	0.00	4	22.22	1	5.56	0	0.00	13	72.22	5	27.78				
4	Ashok Nagar	16	0.12	17.30	0.20	1.60	9	56.25	2	12.50	3	18.75	2	12.50	0	0.00	0	0.00	14	87.50	2	12.50				
5	Balaghat	42	0.32	9.55	0.40	2.40	8	19.05	18	42.86	13	30.95	2	4.76	1	2.38	0	0.00	39	92.86	3	7.14				
6	Barwani	9	0.32	9.66	0.33	2.07	1	11.11	2	22.22	4	44.44	1	11.11	1	11.11	0	0.00	7	77.78	2	22.22				
7	Betul	31	0.22	8.40	0.02	2.25	12	38.71	7	22.58	7	22.58	4	12.90	1	3.23	0	0.00	26	83.87	5	16.13				
8	Bhind	16	0.07	6.30	0.21	3.80	6	37.50	2	10.00	1	6.25	5	31.25	2	12.50	0	0.00	9	56.25	7	43.75				
9	Bhopal	24	0.03	10.32	0.10	0.10	9	37.50	10	41.67	4	16.67	1	4.17	0	0.00	0	0.00	23	95.83	1	4.17				
10	Burhanpur	16	0.53	4.22	0.01	1.62	8	50.00	3	18.75	1	6.25	4	25.00	0	0.00	0	0.00	12	75.00	4	25.00				
11	Chhatarpur	38	0.06	13.24	0.07	1.29	12	31.58	11	28.95	8	21.05	7	18.42	0	0.00	0	0.00	31	81.58	7	18.42				
12	Chhindwara	42	0.76	15.10	0.36	3.03	12	28.57	18	42.86	6	14.29	5	11.90	1	2.38	0	0.00	36	85.71	6	14.29				
13	Damoh	21	0.44	7.53	0.69	0.78	7	33.33	7	33.33	5	23.81	2	9.52	0	0.00	0	0.00	19	90.48	2	9.52				
14	Datia	9	0.77	3.32	0.15	2.37	2	22.22	2	22.22	0	0.00	4	44.44	1	11.11	0	0.00	4	44.44	5	55.56				
15	Dewas	25	0.29	22.61	1.17	1.17	4	16.00	6	24.00	14	56.00	1	4.00	0	0.00	0	0.00	24	96.00	1	4.00				
16	Dhar	40	0.07	22.52	0.18	1.24	16	40.00	8	20.00	11	27.50	5	12.50	0	0.00	0	0.00	35	87.50	5	12.50				
17	Dindori	16	0.39	6.30	0.08	1.59	8	50.00	4	25.00	2	12.50	2	12.50	0	0.00	0	0.00	14	87.50	2	12.50				
18	Guna	23	0.47	7.90	1.70	3.60	6	26.09	10	43.48	5	21.74	1	4.35	1	4.35	0	0.00	21	91.30	2	8.70				
19	Gwalior	20	0.09	9.93	0.19	5.80	7	35.00	3	15.00	4	20.00	3	15.00	2	10.00	1	5.00	14	70.00	6	30.00				
20	Harda	13	0.18	4.06	0.33	1.82	9	69.23	0	0.00	1	7.69	3	23.08	0	0.00	0	0.00	10	76.92	3	23.08				
21	Hoshangabad	19	0.08	5.45	0.20	1.65	14	73.68	2	10.53	1	5.26	2	10.53	0	0.00	0	0.00	17	89.47	2	10.53				
22	Indore	39	0.08	37.00	0.22	2.76	8	20.51	10	25.64	17	43.59	3	7.69	1	2.56	0	0.00	35	89.74	4	10.26				
23	Jabalpur	36	0.01	8.27	0.13	1.35	21	58.33	7	19.44	2	5.56	6	16.67	0	0.00	0	0.00	30	83.33	6	16.67				
24	Jhabua	12	0.26	4.44	0.25	0.72	5	41.67	3	25.00	1	8.33	3	25.00	0	0.00	0	0.00	9	75.00	3	25.00				
25	Katni	17	0.10	6.50	0.08	1.30	7	41.18	6	35.29	1	5.88	3	17.65	0	0.00	0	0.00	14	82.35	3	17.65				
26	Khandwa	30	0.43	5.18	0.20	0.20	12	40.00	15	50.00	2	6.67	1	3.33	0	0.00	0	0.00	29	96.67	1	3.33				

**District-Wise Seasonal Fluctuation & Frequency Distribution of Different Ranges from May 2015 to November 2015**

**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		Rise		Fall					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%				
27	Khargone	24	0.27	8.16	0.70	0.70	14	2.00	5	20.83	4	16.67	1	4.17	0	0.00	0	0.00	23	95.83	1	4.17				
28	Mandla	34	0.26	6.07	0.21	0.77	13	38.24	14	41.18	4	11.76	3	8.82	0	0.00	0	0.00	31	91.18	3	8.82				
29	Mandsaur	41	0.53	26.63	0.04	0.04	10	24.39	5	12.20	25	60.98	1	2.44	0	0.00	0	0.00	40	97.56	1	2.44				
30	Morena	14	0.23	6.00	0.10	1.00	4	28.57	1	7.14	2	14.29	7	50.00	0	0.00	0	0.00	7	50.00	7	50.00				
31	Narsinghpur	15	0.40	15.42	0.10	0.20	5	33.33	5	33.33	3	20.00	2	13.33	0	0.00	0	0.00	13	86.67	2	13.33				
32	Neemuch	32	0.47	17.01	0.37	1.31	10	31.25	5	15.63	15	46.88	2	6.25	0	0.00	0	0.00	30	93.75	2	6.25				
33	Panna	27	0.17	6.22	0.17	1.64	7	25.93	8	29.63	9	33.33	3	11.11	0	0.00	0	0.00	24	88.89	3	11.11				
34	Raisen	30	0.18	8.15	0.74	0.82	15	50.00	9	30.00	3	10.00	3	10.00	0	0.00	0	0.00	27	90.00	3	10.00				
35	Rajgarh	26	0.31	8.72	0.16	2.69	9	34.62	11	42.31	3	11.54	1	3.85	2	7.69	0	0.00	23	88.46	3	11.54				
36	Ratlam	41	0.10	43.15	0.15	3.86	8	19.51	10	24.39	18	43.90	3	7.32	2	4.88	0	0.00	36	87.80	5	12.20				
37	Rewa	35	0.10	5.70	0.01	11.16	16	45.71	6	17.14	1	2.86	10	28.57	0	0.00	2	5.71	23	65.71	12	34.29				
38	Sagar	40	0.10	21.60	0.16	3.18	13	32.50	12	30.00	12	30.00	2	5.00	1	2.50	0	0.00	37	92.50	3	7.50				
39	Satna	51	0.05	4.10	0.04	6.93	22	43.14	12	23.53	1	1.96	13	25.49	1	1.96	2	3.92	35	68.63	16	31.37				
40	Sehore	21	0.40	7.25	0.65	5.10	5	23.81	9	42.86	4	19.05	1	4.76	1	4.76	1	4.76	18	85.71	3	14.29				
41	Seoni	48	0.02	6.66	0.27	2.88	22	45.83	17	35.42	5	10.42	3	6.25	1	2.08	0	0.00	44	91.67	4	8.33				
42	Shahdol	21	0.08	3.40	0.05	0.47	12	57.14	2	9.52	0	0.00	7	33.33	0	0.00	0	0.00	14	66.67	7	33.33				
43	Shajapur	17	1.26	8.04	1.25	1.25	1	5.88	8	47.06	7	41.18	1	5.88	0	0.00	0	0.00	16	94.12	1	5.88				
44	Sheopur	18	0.06	11.56	0.45	6.20	6	33.33	5	27.78	4	22.22	2	11.11	0	0.00	1	5.56	15	83.33	3	16.67				
45	Shivpuri	29	0.06	13.96	0.10	1.96	5	17.24	11	37.93	5	17.24	8	27.59	0	0.00	0	0.00	21	72.41	8	27.59				
46	Sidhi	31	0.13	3.10	0.18	2.20	22	70.97	3	9.68	0	0.00	5	16.13	1	3.23	0	0.00	25	80.65	6	19.35				
47	Singrauli	20	0.22	4.22	0.05	3.20	10	50.00	2	10.00	1	5.00	6	30.00	1	5.00	0	0.00	13	65.00	7	35.00				
48	Tikamgarh	24	0.07	7.36	0.29	5.00	16	66.67	1	4.17	1	4.17	5	20.83	0	0.00	1	4.17	18	75.00	6	25.00				
49	Ujjain	44	0.07	32.85	0.26	1.00	11	25.00	12	27.27	19	43.18	2	4.55	0	0.00	0	0.00	42	95.45	2	4.55				
50	Umaria	14	0.03	4.55	0.05	3.68	8	57.14	0	0.00	1	7.14	4	28.57	1	7.14	0	0.00	9	64.29	5	35.71				
51	Vidisha	30	0.50	15.67	0.50	2.46	5	16.67	12	40.00	9	30.00	3	10.00	1	3.33	0	0.00	26	86.67	4	13.33				
	<b>Total</b>	<b>1326</b>	<b>0.01</b>	<b>43.15</b>	<b>0.01</b>	<b>11.16</b>	<b>495</b>	<b>37.33</b>	<b>351</b>	<b>26.47</b>	<b>275</b>	<b>20.74</b>	<b>173</b>	<b>13.05</b>	<b>24</b>	<b>1.81</b>	<b>8</b>	<b>0.60</b>	<b>1121</b>	<b>84.54</b>	<b>205</b>	<b>15.46</b>				

District-Wise Seasonal Fluctuation & Frequency Distribution of Different Ranges from May 2015 to January 2016

Annexure - XI

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		Rise		Fall					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%				
1	Agar Malwa	15	0.42	5.82	0.02	3.16	8	53.33	3	20.00	2	13.33	1	6.67	1	6.67	0	0.00	13	86.67	2	13.33				
2	Alirajpur	12	0.11	1.31	0.37	2.99	3	25.00	0	0.00	0	0.00	7	58.33	2	16.67	0	0.00	3	25.00	9	75.00				
3	Anuppur	15	0.33	1.74	0.32	5.25	7	46.67	0	0.00	0	0.00	4	26.67	2	13.33	2	13.33	7	46.67	8	53.33				
4	Ashok Nagar	15	0.10	7.70	0.20	1.60	8	53.33	1	6.67	1	6.67	5	33.33	0	0.00	0	0.00	10	66.67	5	33.33				
5	Balaghat	41	0.42	8.70	0.15	1.96	16	39.02	13	31.71	6	14.63	6	14.63	0	0.00	0	0.00	35	85.37	6	14.63				
6	Barwani	9	0.10	8.93	0.33	4.46	2	22.22	1	11.11	2	22.22	2	22.22	1	11.11	1	11.11	5	55.56	4	44.44				
7	Betul	29	0.04	5.23	0.21	2.25	12	41.38	4	13.79	1	3.45	10	34.48	2	6.90	0	0.00	17	58.62	12	41.38				
8	Bhind	17	0.30	4.90	0.20	11.10	2	11.76	1	10.00	1	5.88	7	41.18	3	17.65	3	17.65	4	23.53	13	76.47				
9	Bhopal	23	0.28	9.53	0.05	0.44	15	65.22	4	17.39	2	8.70	2	8.70	0	0.00	0	0.00	21	91.30	2	8.70				
10	Burhanpur	12	0.03	4.08	0.01	5.15	4	33.33	2	16.67	1	8.33	3	25.00	1	8.33	1	8.33	7	58.33	5	41.67				
11	Chhatarpur	37	0.10	6.77	0.04	7.16	17	45.95	0	0.00	1	2.70	14	37.84	3	8.11	2	5.41	18	48.65	19	51.35				
12	Chhindwara	41	0.23	15.35	0.48	8.00	16	39.02	9	21.95	3	7.32	5	12.20	4	9.76	4	9.76	28	68.29	13	31.71				
13	Damoh	23	0.04	4.06	0.12	0.97	14	60.87	2	8.70	1	4.35	6	26.09	0	0.00	0	0.00	17	73.91	6	26.09				
14	Datia	10	0.03	1.18	0.60	4.10	4	40.00	0	0.00	0	0.00	2	20.00	3	30.00	1	10.00	4	40.00	6	60.00				
15	Dewas	25	0.06	18.61	0.07	2.64	7	28.00	6	24.00	6	24.00	4	16.00	2	8.00	0	0.00	19	76.00	6	24.00				
16	Dhar	39	0.04	22.13	0.09	11.19	17	43.59	3	7.69	8	20.51	9	23.08	1	2.56	1	2.56	28	71.79	11	28.21				
17	Dindori	16	0.20	5.18	0.18	0.45	11	68.75	1	6.25	2	12.50	2	12.50	0	0.00	0	0.00	14	87.50	2	12.50				
18	Guna	23	0.45	7.65	0.10	1.58	11	47.83	5	21.74	2	8.70	5	21.74	0	0.00	0	0.00	18	78.26	5	21.74				
19	Gwalior	20	0.06	6.19	0.02	5.90	4	20.00	3	15.00	1	5.00	8	40.00	1	5.00	3	15.00	8	40.00	12	60.00				
20	Harda	13	0.20	4.43	0.83	2.70	10	76.92	0	0.00	1	7.69	1	7.69	1	7.69	0	0.00	11	84.62	2	15.38				
21	Hoshangabad	19	0.03	6.02	0.33	1.65	11	57.89	5	26.32	1	5.26	2	10.53	0	0.00	0	0.00	17	89.47	2	10.53				
22	Indore	40	0.66	31.34	0.30	16.74	11	27.50	6	15.00	13	32.50	5	12.50	0	0.00	5	12.50	30	75.00	10	25.00				
23	Jabalpur	34	0.01	2.26	0.02	4.16	17	50.00	1	2.94	0	0.00	13	38.24	2	5.88	1	2.94	18	52.94	16	47.06				
24	Jhabua	11	0.07	4.13	0.12	1.86	7	63.64	0	0.00	1	9.09	3	27.27	0	0.00	0	0.00	8	72.73	3	27.27				
25	Katni	17	0.11	4.00	0.05	2.54	5	29.41	3	17.65	0	0.00	7	41.18	2	11.76	0	0.00	8	47.06	9	52.94				
26	Khandwa	31	0.38	4.35	0.11	1.87	16	51.61	6	19.35	1	3.23	8	25.81	0	0.00	0	0.00	23	74.19	8	25.81				

**District-Wise Seasonal Fluctuation & Frequency Distribution of Different Ranges from May 2015 to January 2016**

**Annexure - XI**

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		Rise		Fall					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%				
27	Khargone	24	0.16	6.55	0.15	4.10	3	2.00	2	8.33	3	12.50	11	45.83	4	16.67	1	4.17	8	33.33	16	66.67				
28	Mandla	32	0.01	5.50	0.81	4.75	23	71.88	5	15.63	1	3.13	2	6.25	0	0.00	1	3.13	29	90.63	3	9.38				
29	Mandsaur	41	0.23	11.28	0.07	3.57	19	46.34	5	12.20	6	14.63	8	19.51	3	7.32	0	0.00	30	73.17	11	26.83				
30	Morena	13	0.40	5.50	0.10	9.00	3	23.08	1	7.69	1	7.69	5	38.46	2	15.38	1	7.69	5	38.46	8	61.54				
31	Narsinghpur	16	0.05	4.11	0.10	0.58	8	50.00	1	6.25	1	6.25	6	37.50	0	0.00	0	0.00	10	62.50	6	37.50				
32	Neemuch	31	0.06	7.38	0.09	6.42	11	35.48	2	6.45	2	6.45	10	32.26	4	12.90	2	6.45	15	48.39	16	51.61				
33	Panna	27	0.13	5.43	0.08	3.51	9	33.33	5	18.52	1	3.70	9	33.33	3	11.11	0	0.00	15	55.56	12	44.44				
34	Raisen	28	0.12	4.43	0.12	4.60	10	35.71	4	14.29	1	3.57	11	39.29	1	3.57	1	3.57	15	53.57	13	46.43				
35	Rajgarh	25	0.05	4.99	0.10	5.35	10	40.00	3	12.00	2	8.00	8	32.00	1	4.00	1	4.00	15	60.00	10	40.00				
36	Ratlam	43	0.03	22.06	0.08	12.50	13	30.23	6	13.95	9	20.93	7	16.28	4	9.30	4	9.30	28	65.12	15	34.88				
37	Rewa	32	0.03	3.41	0.01	16.38	10	31.25	1	3.13	0	0.00	11	34.38	6	18.75	4	12.50	11	34.38	21	65.63				
38	Sagar	40	0.03	14.00	0.05	4.53	16	40.00	2	5.00	4	10.00	13	32.50	4	10.00	1	2.50	22	55.00	18	45.00				
39	Satna	47	0.04	10.90	0.04	10.94	16	34.04	4	8.51	1	2.13	20	42.55	5	10.64	1	2.13	21	44.68	26	55.32				
40	Sehore	21	0.10	10.40	0.07	6.60	7	33.33	3	14.29	2	9.52	6	28.57	1	4.76	2	9.52	12	57.14	9	42.86				
41	Seoni	48	0.06	4.67	0.01	9.45	26	54.17	6	12.50	2	4.17	10	20.83	2	4.17	2	4.17	34	70.83	14	29.17				
42	Shahdol	21	0.27	2.26	0.02	2.94	4	19.05	2	9.52	0	0.00	13	61.90	2	9.52	0	0.00	6	28.57	15	71.43				
43	Shajapur	17	0.21	4.33	-	-	13	76.47	3	17.65	1	5.88	0	0.00	0	0.00	0	0.00	17	100.00	0	0.00				
44	Sheopur	16	0.05	6.49	0.45	15.60	4	25.00	1	6.25	2	12.50	3	18.75	2	12.50	4	25.00	7	43.75	9	56.25				
45	Shivpuri	30	0.05	10.45	0.35	11.40	10	33.33	3	10.00	4	13.33	7	23.33	2	6.67	4	13.33	17	56.67	13	43.33				
46	Sidhi	30	0.07	3.44	0.04	3.77	13	43.33	2	6.67	0	0.00	9	30.00	6	20.00	0	0.00	15	50.00	15	50.00				
47	Singrauli	20	0.01	2.31	0.09	2.20	5	25.00	1	5.00	0	0.00	13	65.00	1	5.00	0	0.00	6	30.00	14	70.00				
48	Tikamgarh	22	0.02	3.64	0.20	6.54	6	27.27	1	4.55	0	0.00	12	54.55	2	9.09	1	4.55	7	31.82	15	68.18				
49	Ujjain	44	0.08	10.38	0.42	7.70	21	47.73	5	11.36	7	15.91	7	15.91	2	4.55	2	4.55	33	75.00	11	25.00				
50	Umaria	15	0.25	1.07	0.05	2.30	3	20.00	0	0.00	0	0.00	11	73.33	1	6.67	0	0.00	3	20.00	12	80.00				
51	Vidisha	28	0.05	5.03	0.15	1.15	14	50.00	5	17.86	1	3.57	8	28.57	0	0.00	0	0.00	20	71.43	8	28.57				
	<b>Total</b>	<b>1298</b>	<b>0.01</b>	<b>31.34</b>	<b>0.01</b>	<b>16.74</b>	<b>532</b>	<b>40.99</b>	<b>152</b>	<b>11.71</b>	<b>108</b>	<b>8.32</b>	<b>361</b>	<b>27.81</b>	<b>89</b>	<b>6.86</b>	<b>56</b>	<b>4.31</b>	<b>792</b>	<b>61.02</b>	<b>506</b>	<b>38.98</b>				



District-Wise Decadal Water Level Fluctuation With Mean [May (2005 to 2014)] and May 2015

Annexure - XII

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		Rise		Fall					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%				
1	Agar Malwa	15	0.83	2.53	0.01	5.74	3	20.00	2	13.33	0	0.00	8	53.33	0	0.00	2	13.33	5	33.33	10	66.67				
2	Alirajpur	10	0.19	4.69	0.42	0.78	7	70.00	0	0.00	1	10.00	2	20.00	0	0.00	0	0.00	8	80.00	2	20.00				
3	Anuppur	18	0.09	4.80	0.33	1.26	11	61.11	1	5.56	2	11.11	4	22.22	0	0.00	0	0.00	14	77.78	4	22.22				
4	Ashok Nagar	14	0.33	3.01	0.54	2.94	8	57.14	3	21.43	0	0.00	2	14.29	1	7.14	0	0.00	11	78.57	3	21.43				
5	Balaghat	43	0.06	10.27	0.10	6.76	17	39.53	3	6.98	3	6.98	14	32.56	4	9.30	2	4.65	23	53.49	20	46.51				
6	Barwani	9	0.80	1.17	0.09	3.21	2	22.22	0	0.00	0	0.00	6	66.67	1	11.11	0	0.00	2	22.22	7	77.78				
7	Betul	29	0.34	8.22	0.26	2.91	14	48.28	2	6.90	4	13.79	5	17.24	4	13.79	0	0.00	20	68.97	9	31.03				
8	Bhind	18	0.43	16.22	0.65	8.85	1	5.56	8	44.44	5	27.78	2	11.11	0	0.00	2	11.11	14	77.78	4	22.22				
9	Bhopal	23	0.18	3.99	0.75	6.70	13	56.52	5	21.74	0	0.00	3	13.04	1	4.35	1	0.00	18	78.26	5	21.74				
10	Burhanpur	14	0.91	9.38	0.03	1.80	3	21.43	1	7.14	3	21.43	7	50.00	0	0.00	0	0.00	7	50.00	7	50.00				
11	Chhatarpur	36	0.09	4.05	0.13	6.56	12	33.33	4	11.11	1	2.78	16	44.44	1	2.78	2	5.56	17	47.22	19	52.78				
12	Chhindwara	42	0.21	8.80	0.21	11.70	15	35.71	10	23.81	3	7.14	9	21.43	3	7.14	2	4.76	28	66.67	14	33.33				
13	Damoh	22	0.08	9.78	0.33	13.36	11	50.00	2	9.09	4	18.18	3	13.64	1	4.55	1	4.55	17	77.27	5	22.73				
14	Datia	10	1.37	5.85	0.06	3.64	2	20.00	1	10.00	1	10.00	5	50.00	1	10.00	0	0.00	4	40.00	6	60.00				
15	Dewas	26	0.06	6.57	0.26	10.12	6	23.08	4	15.38	1	3.85	8	30.77	4	15.38	3	11.54	11	42.31	15	57.69				
16	Dhar	38	0.32	10.44	0.01	11.68	11	28.95	4	10.53	4	10.53	10	26.32	6	15.79	3	7.89	19	50.00	19	50.00				
17	Dindori	16	0.01	5.64	0.24	2.28	9	56.25	1	6.25	1	6.25	4	25.00	1	6.25	0	0.00	11	68.75	5	31.25				
18	Guna	22	0.05	5.09	0.04	2.64	7	31.82	5	22.73	1	4.55	8	36.36	1	4.55	0	0.00	13	59.09	9	40.91				
19	Gwalior	23	0.16	11.88	0.10	6.50	6	26.09	1	4.35	3	13.04	9	39.13	2	8.70	2	8.70	10	43.48	13	56.52				
20	Harda	14	0.33	4.37	0.13	6.35	6	42.86	0	0.00	1	7.14	4	28.57	2	14.29	1	7.14	7	50.00	7	50.00				
21	Hoshangabad	18	0.15	3.44	0.31	4.45	6	33.33	1	5.56	0	0.00	9	50.00	1	5.56	1	5.56	7	38.89	11	61.11				
22	Indore	40	0.11	8.69	0.19	14.00	11	27.50	4	10.00	7	17.50	11	27.50	3	7.50	4	10.00	22	55.00	18	45.00				
23	Jabalpur	37	0.05	8.89	0.02	6.63	16	43.24	4	10.81	3	8.11	12	32.43	1	2.70	1	2.70	23	62.16	14	37.84				
24	Jhabua	12	0.04	3.40	0.04	3.30	7	58.33	2	16.67	0	0.00	2	16.67	1	8.33	0	0.00	9	75.00	3	25.00				
25	Katni	17	0.16	4.01	0.02	2.70	5	29.41	1	5.88	1	5.88	8	47.06	2	11.76	0	0.00	7	41.18	10	58.82				
26	Khandwa	28	0.31	4.62	0.30	1.23	14	50.00	8	28.57	3	10.71	3	10.71	0	0.00	0	0.00	25	89.29	3	10.71				

**District-Wise Decadal Water Level Fluctuation With Mean [May (2005 to 2014)] and May 2015**

**Annexure - XII**

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		Rise		Fall					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%		
27	Khargone	24	0.03	3.20	0.22	4.51	15	62.50	3	12.50	0	0.00	4	16.67	1	4.17	1	4.17	18	75.00	6	25.00				
28	Mandla	34	0.07	4.40	0.03	1.94	18	52.94	5	14.71	1	2.94	10	29.41	0	0.00	0	0.00	24	70.59	10	29.41				
29	Mandsaur	40	0.06	4.33	0.01	23.36	11	27.50	3	7.50	2	5.00	16	40.00	4	10.00	4	10.00	16	40.00	24	60.00				
30	Morena	11	1.53	8.60	0.40	5.73	2	18.18	2	18.18	1	9.09	4	36.36	0	0.00	2	18.18	5	45.45	6	54.55				
31	Narsinghpur	17	0.16	2.59	0.33	3.38	6	35.29	1	5.88	0	0.00	7	41.18	3	17.65	0	0.00	7	41.18	10	58.82				
32	Neemuch	33	0.63	4.79	0.11	7.26	7	21.21	8	24.24	2	6.06	8	24.24	3	9.09	5	15.15	17	51.52	16	48.48				
33	Panna	26	0.05	8.60	0.16	3.36	9	34.62	2	7.69	1	3.85	12	46.15	2	7.69	0	0.00	12	46.15	14	53.85				
34	Raisen	29	0.06	4.85	0.20	1.88	15	51.72	3	10.34	1	3.45	10	34.48	0	0.00	0	0.00	19	65.52	10	34.48				
35	Rajgarh	25	0.11	4.04	0.19	2.94	14	56.00	5	20.00	1	4.00	3	12.00	2	8.00	0	0.00	20	80.00	5	20.00				
36	Ratlam	42	0.15	6.57	0.04	16.26	11	26.19	1	2.38	2	4.76	9	21.43	4	9.52	15	35.71	14	33.33	28	66.67				
37	Rewa	34	0.01	14.51	0.05	1.65	15	44.12	11	32.35	3	8.82	5	14.71	0	0.00	0	0.00	29	85.29	5	14.71				
38	Sagar	34	0.15	5.66	0.03	5.86	12	35.29	3	8.82	3	8.82	13	38.24	2	5.88	1	2.94	18	52.94	16	47.06				
39	Satna	48	0.15	19.89	0.05	6.18	17	35.42	8	16.67	5	10.42	15	31.25	2	4.17	1	2.08	30	62.50	18	37.50				
40	Sehore	21	0.04	8.07	0.12	2.49	9	42.86	1	4.76	4	19.05	6	28.57	1	4.76	0	0.00	14	66.67	7	33.33				
41	Seoni	48	0.17	4.14	0.11	3.77	23	47.92	6	12.50	1	2.08	15	31.25	3	6.25	0	0.00	30	62.50	18	37.50				
42	Shahdol	22	0.04	3.45	0.08	7.38	4	18.18	1	4.55	0	0.00	11	50.00	5	22.73	1	4.55	5	22.73	17	77.27				
43	Shajapur	16	0.09	12.64	0.05	2.40	5	31.25	3	18.75	2	12.50	5	31.25	1	6.25	0	0.00	10	62.50	6	37.50				
44	Sheopur	19	0.19	18.42	0.13	3.68	7	36.84	3	15.79	4	21.05	3	15.79	2	10.53	0	0.00	14	73.68	5	26.32				
45	Shivpuri	30	0.02	9.18	0.07	6.98	8	26.67	2	6.67	5	16.67	10	33.33	3	10.00	2	6.67	15	50.00	15	50.00				
46	Sidhi	30	0.22	5.69	0.03	1.77	13	43.33	4	13.33	4	13.33	9	30.00	0	0.00	0	0.00	21	70.00	9	30.00				
47	Singrauli	18	0.15	1.05	0.15	1.37	9	50.00	0	0.00	0	0.00	9	50.00	0	0.00	0	0.00	9	50.00	9	50.00				
48	Tikamgarh	22	0.07	4.35	0.20	2.74	8	36.36	3	13.64	2	9.09	7	31.82	2	9.09	0	0.00	13	59.09	9	40.91				
49	Ujjain	43	0.02	11.99	0.02	17.11	14	32.56	2	4.65	7	16.28	12	27.91	2	4.65	6	13.95	23	53.49	20	46.51				
50	Umariya	13	0.05	1.89	0.23	2.85	6	46.15	0	0.00	0	0.00	6	46.15	1	7.69	0	0.00	6	46.15	7	53.85				
51	Vidisha	29	0.10	2.86	0.08	2.41	18	62.07	6	20.69	0	0.00	3	10.34	2	6.90	0	0.00	24	82.76	5	17.24				
	<b>Total</b>	<b>1302</b>	<b>0</b>	<b>19.87</b>	<b>0.01</b>	<b>23.36</b>	<b>499</b>	<b>38.33</b>	<b>163</b>	<b>12.52</b>	<b>103</b>	<b>7.91</b>	<b>386</b>	<b>29.65</b>	<b>86</b>	<b>6.61</b>	<b>65</b>	<b>4.99</b>	<b>765</b>	<b>58.76</b>	<b>537</b>	<b>41.24</b>				

District-Wise Decadal Water Level Fluctuation With Mean [August (2005 to 2014)] and August 2015

Annexure - XIII

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		Rise		Fall					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%				
1	Agar Malwa	16	0.10	7.27	0.55	1.99	8	50.00	3	18.75	2	12.50	3	18.75	0	0.00	0	0.00	13	81.25	3	18.75				
2	Alirajpur	10	1.07	1.91	0.61	3.43	5	50.00	0	0.00	0	0.00	4	40.00	1	10.00	0	0.00	5	50.00	5	50.00				
3	Anuppur	18	0.46	0.46	0.01	5.55	1	5.56	0	0.00	0	0.00	14	77.78	2	11.11	1	5.56	1	5.56	17	94.44				
4	Ashok Nagar	15	0.21	1.47	0.22	5.59	5	33.33	0	0.00	0	0.00	8	53.33	1	6.67	1	6.67	5	33.33	10	66.67				
5	Balaghat	42	0.37	4.65	0.04	10.46	11	26.19	1	2.38	1	2.38	25	59.52	2	4.76	2	4.76	13	30.95	29	69.05				
6	Barwani	9	1.20	2.99	0.55	3.63	2	22.22	1	11.11	0	0.00	2	22.22	4	44.44	0	0.00	3	33.33	6	66.67				
7	Betul	28	0.20	0.32	0.08	9.44	3	10.71	0	0.00	0	0.00	14	50.00	6	21.43	5	17.86	3	10.71	25	89.29				
8	Bhind	17	0.17	8.92	1.01	6.37	7	41.18	2	11.76	5	29.41	1	5.88	0	0.00	2	11.76	14	82.35	3	17.65				
9	Bhopal	23	0.01	5.32	0.02	1.69	6	26.09	0	0.00	1	4.35	16	69.57	0	0.00	0	0.00	7	30.43	16	69.57				
10	Burhanpur	14	0.74	3.39	0.18	5.19	2	14.29	3	21.43	0	0.00	4	28.57	3	21.43	2	14.29	5	35.71	9	64.29				
11	Chhatarpur	36	0.03	4.70	0.11	4.29	6	16.67	2	5.56	1	2.78	15	41.67	11	30.56	1	2.78	9	25.00	27	75.00				
12	Chhindwara	42	0.15	3.09	0.02	10.68	14	33.33	1	2.38	0	0.00	15	35.71	10	23.81	2	4.76	15	35.71	27	64.29				
13	Damoh	21	0.07	1.08	0.06	6.61	7	33.33	0	0.00	0	0.00	13	61.90	0	0.00	1	4.76	7	33.33	14	66.67				
14	Datia	10	1.04	4.14	0.45	5.37	2	20.00	0	0.00	1	10.00	4	40.00	2	20.00	1	10.00	3	30.00	7	70.00				
15	Dewas	25	0.03	8.75	0.08	1.06	9	36.00	7	28.00	4	16.00	5	20.00	0	0.00	0	0.00	20	80.00	5	20.00				
16	Dhar	39	0.01	3.72	0.00	4.89	13	33.33	5	12.82	0	0.00	17	43.59	3	7.69	1	2.56	18	46.15	21	53.85				
17	Dindori	15	0.02	0.57	0.03	2.75	6	40.00	0	0.00	0	0.00	8	53.33	1	6.67	0	0.00	6	40.00	9	60.00				
18	Guna	22	0.16	7.39	0.02	0.80	8	36.36	7	31.82	2	9.09	5	22.73	0	0.00	0	0.00	17	77.27	5	22.73				
19	Gwalior	22	0.17	7.91	0.19	2.23	7	31.82	2	9.09	2	9.09	10	45.45	1	4.55	0	0.00	11	50.00	11	50.00				
20	Harda	14	0.06	3.34	0.24	8.21	1	7.14	1	7.14	0	0.00	6	42.86	3	21.43	3	21.43	2	14.29	12	85.71				
21	Hoshangabad	18	0.92	2.59	0.27	3.34	3	16.67	1	5.56	0	0.00	11	61.11	3	16.67	0	0.00	4	22.22	14	77.78				
22	Indore	38	0.01	11.07	0.08	4.63	9	23.68	6	15.79	8	21.05	12	31.58	1	2.63	2	5.26	23	60.53	15	39.47				
23	Jabalpur	37	0.09	2.00	0.04	7.24	8	21.62	0	0.00	0	0.00	22	59.46	4	10.81	3	8.11	8	21.62	29	78.38				
24	Jhabua	12	0.23	1.37	0.04	1.48	6	50.00	0	0.00	0	0.00	6	50.00	0	0.00	0	0.00	6	50.00	6	50.00				
25	Katni	17	0.58	0.65	0.02	7.56	2	11.76	0	0.00	0	0.00	9	52.94	4	23.53	2	11.76	2	11.76	15	88.24				
26	Khandwa	28	0.04	3.54	0.13	3.84	5	17.86	1	3.57	0	0.00	16	57.14	6	21.43	0	0.00	6	21.43	22	78.57				

**District-Wise Decadal Water Level Fluctuation With Mean [August (2005 to 2014)] and August 2015**

**Annexure - XIII**

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		Rise		Fall					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%		
27	Khargone	23	0.13	3.30	0.08	4.55	6	26.09	3	13.04	0	0.00	10	43.48	1	4.35	3	13.04	9	39.13	14	60.87				
28	Mandla	34	0.14	6.80	0.07	2.29	10	29.41	0	0.00	1	2.94	22	64.71	1	2.94	0	0.00	11	32.35	23	67.65				
29	Mandsaur	42	0.35	3.53	0.02	7.78	8	19.05	2	4.76	0	0.00	20	47.62	7	16.67	5	11.90	10	23.81	32	76.19				
30	Morena	9	0.65	5.35	0.31	4.16	4	44.44	0	0.00	1	11.11	3	33.33	0	0.00	1	11.11	5	55.56	4	44.44				
31	Narsinghpur	17	0.22	4.58	0.04	7.31	3	17.65	0	0.00	1	5.88	6	35.29	4	23.53	3	17.65	4	23.53	13	76.47				
32	Neemuch	32	0.18	2.34	0.12	3.99	13	40.63	1	3.13	0	0.00	16	50.00	2	6.25	0	0.00	14	43.75	18	56.25				
33	Panna	26	0.11	1.73	0.24	3.86	6	23.08	0	0.00	0	0.00	11	42.31	9	34.62	0	0.00	6	23.08	20	76.92				
34	Raisen	30	0.20	4.29	0.09	4.03	8	26.67	0	0.00	1	3.33	18	60.00	2	6.67	1	3.33	9	30.00	21	70.00				
35	Rajgarh	26	0.16	4.45	0.50	3.02	12	46.15	3	11.54	1	3.85	7	26.92	3	11.54	0	0.00	16	61.54	10	38.46				
36	Ratlam	41	0.13	10.37	0.06	7.07	9	21.95	7	17.07	2	4.88	14	34.15	4	9.76	5	12.20	18	43.90	23	56.10				
37	Rewa	33	0.13	7.20	0.08	6.94	9	27.27	1	3.03	1	3.03	15	45.45	4	12.12	3	9.09	11	33.33	22	66.67				
38	Sagar	35	0.03	2.96	0.21	5.85	9	25.71	2	5.71	0	0.00	13	37.14	6	17.14	5	14.29	11	31.43	24	68.57				
39	Satna	48	0.10	2.83	0.07	12.59	11	22.92	2	4.17	0	0.00	17	35.42	12	25.00	6	12.50	13	27.08	35	72.92				
40	Sehore	18	0.13	6.88	0.20	3.25	6	33.33	2	11.11	1	5.56	7	38.89	2	11.11	0	0.00	9	50.00	9	50.00				
41	Seoni	45	0.25	1.18	0.15	6.67	8	17.78	0	0.00	0	0.00	21	46.67	13	28.89	3	6.67	8	17.78	37	82.22				
42	Shahdol	22	0.40	3.01	0.19	9.71	1	4.55	1	4.55	0	0.00	12	54.55	4	18.18	4	18.18	2	9.09	20	90.91				
43	Shajapur	17	0.10	7.85	0.09	1.04	6	35.29	5	29.41	4	23.53	2	11.76	0	0.00	0	0.00	15	88.24	2	11.76				
44	Sheopur	17	0.06	7.50	0.34	15.29	9	52.94	0	0.00	1	5.88	3	17.65	3	17.65	1	5.88	10	58.82	7	41.18				
45	Shivpuri	29	0.08	5.10	0.04	9.00	5	17.24	5	17.24	1	3.45	9	31.03	3	10.34	6	20.69	11	37.93	18	62.07				
46	Sidhi	30	0.11	2.27	0.12	4.60	5	16.67	1	3.33	0	0.00	17	56.67	6	20.00	1	3.33	6	20.00	24	80.00				
47	Singrauli	18	0.01	1.00	0.05	3.39	5	27.78	0	0.00	0	0.00	11	61.11	2	11.11	0	0.00	5	27.78	13	72.22				
48	Tikamgarh	22	0.44	2.40	0.24	12.62	5	22.73	1	4.55	0	0.00	10	45.45	5	22.73	1	4.55	6	27.27	16	72.73				
49	Ujjain	42	0.04	6.40	0.21	4.47	14	33.33	11	26.19	4	9.52	9	21.43	3	7.14	1	2.38	29	69.05	13	30.95				
50	Umaria	13	0.47	1.09	0.23	5.81	2	15.38	0	0.00	0	0.00	4	30.77	5	38.46	2	15.38	2	15.38	11	84.62				
51	Vidisha	30	0.02	2.75	0.01	0.78	23	76.67	2	6.67	0	0.00	5	16.67	0	0.00	0	0.00	25	83.33	5	16.67				
	<b>Total</b>	<b>1287</b>	<b>0.01</b>	<b>11.07</b>	<b>0.01</b>	<b>15.29</b>	<b>353</b>	<b>27.43</b>	<b>92</b>	<b>7.15</b>	<b>46</b>	<b>3.57</b>	<b>547</b>	<b>42.50</b>	<b>169</b>	<b>13.13</b>	<b>80</b>	<b>6.22</b>	<b>491</b>	<b>38.15</b>	<b>796</b>	<b>61.85</b>				

District-Wise Decadal Water Level Fluctuation With Mean [November (2005 to 2014)] and November 2015

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		Rise		Fall					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%				
1	Agar Malwa	16	0.18	6.39	0.15	7.59	8	50.00	1	6.25	1	6.25	3	18.75	1	6.25	2	12.50	10	62.50	6	37.50				
2	Alirajpur	11	0.05	1.25	0.21	3.76	3	27.27	0	0.00	0	0.00	6	54.55	2	18.18	0	0.00	3	27.27	8	72.73				
3	Anuppur	18	-	-	0.42	6.48	0	0.00	0	0.00	0	0.00	9	50.00	5	27.78	4	22.22	0	0.00	18	100.00				
4	Ashok Nagar	15	0.26	1.73	0.22	4.33	6	40.00	0	0.00	0	0.00	6	40.00	2	13.33	1	6.67	6	40.00	9	60.00				
5	Balaghat	43	0.13	2.18	0.06	3.06	16	37.21	2	4.65	0	0.00	22	51.16	3	6.98	0	0.00	18	41.86	25	58.14				
6	Barwani	9	0.34	2.90	0.06	8.26	3	33.33	1	11.11	0	0.00	3	33.33	1	11.11	1	11.11	4	44.44	5	55.56				
7	Betul	30	0.11	1.34	0.05	6.67	7	23.33	0	0.00	0	0.00	15	50.00	6	20.00	2	6.67	7	23.33	23	76.67				
8	Bhind	17	0.48	9.61	0.39	5.03	4	23.53	3	17.65	4	23.53	2	11.76	3	17.65	1	5.88	11	64.71	6	35.29				
9	Bhopal	23	0.09	2.81	0.00	3.09	6	26.09	1	4.35	0	0.00	15	65.22	1	4.35	0	0.00	7	30.43	16	69.57				
10	Burhanpur	16	0.20	7.23	0.25	5.88	3	18.75	0	0.00	1	6.25	6	37.50	5	31.25	1	6.25	4	25.00	12	75.00				
11	Chhatarpur	38	0.27	2.59	0.18	6.31	10	26.32	2	5.26	0	0.00	16	42.11	8	21.05	2	5.26	12	31.58	26	68.42				
12	Chhindwara	43	0.12	5.33	0.13	20.87	11	25.58	2	4.65	1	2.33	20	46.51	6	13.95	3	6.98	14	32.56	29	67.44				
13	Damoh	21	0.20	2.20	0.02	5.70	9	42.86	1	4.76	0	0.00	9	42.86	1	4.76	1	4.76	10	47.62	11	52.38				
14	Datia	10	3.21	3.21	0.33	4.64	0	0.00	1	10.00	0	0.00	7	70.00	1	10.00	1	10.00	1	10.00	9	90.00				
15	Dewas	25	0.06	7.91	0.02	4.20	13	52.00	3	12.00	1	4.00	7	28.00	0	0.00	1	4.00	17	68.00	8	32.00				
16	Dhar	40	0.13	3.16	0.09	5.04	10	25.00	2	5.00	0	0.00	16	40.00	10	25.00	2	5.00	12	30.00	28	70.00				
17	Dindori	16	0.01	2.92	0.30	3.31	9	56.25	1	6.25	0	0.00	5	31.25	1	6.25	0	0.00	10	62.50	6	37.50				
18	Guna	22	0.05	3.49	0.10	6.73	9	40.91	3	13.64	0	0.00	6	27.27	2	9.09	2	9.09	12	54.55	10	45.45				
19	Gwalior	21	-	12.50	0.76	6.30	7	33.33	0	0.00	2	9.52	6	28.57	3	14.29	3	14.29	9	42.86	12	57.14				
20	Harda	14	0.13	0.83	0.10	11.62	3	21.43	0	0.00	0	0.00	8	57.14	0	0.00	3	21.43	3	21.43	11	78.57				
21	Hoshangabad	19	0.65	1.94	0.29	2.74	4	21.05	0	0.00	0	0.00	12	63.16	3	15.79	0	0.00	4	21.05	15	78.95				
22	Indore	41	0.07	3.56	0.17	7.79	8	19.51	1	2.44	0	0.00	15	36.59	11	26.83	6	14.63	9	21.95	32	78.05				
23	Jabalpur	36	0.01	2.79	0.01	5.66	11	30.56	1	2.78	0	0.00	19	52.78	3	8.33	2	5.56	12	33.33	24	66.67				
24	Jhabua	12	0.38	0.38	0.09	4.87	1	8.33	0	0.00	0	0.00	8	66.67	2	16.67	1	8.33	1	8.33	11	91.67				
25	Katni	17	0.15	1.34	0.17	6.19	3	17.65	0	0.00	0	0.00	7	41.18	5	29.41	2	11.76	3	17.65	14	82.35				
26	Khandwa	30	0.12	2.44	0.02	2.46	11	36.67	1	3.33	0	0.00	17	56.67	1	3.33	0	0.00	12	40.00	18	60.00				

**District-Wise Decadal Water Level Fluctuation With Mean [November (2005 to 2014)] and November 2015**

**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		Rise		Fall					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%		
27	Khargone	24	0.11	2.26	0.04	2.49	9	37.50	1	4.17	0	0.00	11	45.83	3	12.50	0	0.00	10	41.67	14	58.33				
28	Mandla	34	0.12	2.33	0.01	3.69	17	50.00	1	2.94	0	0.00	15	44.12	1	2.94	0	0.00	18	52.94	16	47.06				
29	Mandsaur	42	0.02	6.91	0.06	12.73	17	40.48	0	0.00	1	2.38	13	30.95	4	9.52	7	16.67	18	42.86	24	57.14				
30	Morena	14	0.29	5.74	0.05	7.50	3	21.43	1	7.14	1	7.14	4	28.57	1	7.14	4	28.57	5	35.71	9	64.29				
31	Narsinghpur	16	0.15	5.16	0.01	5.78	4	25.00	2	12.50	1	6.25	5	31.25	3	18.75	1	6.25	7	43.75	9	56.25				
32	Neemuch	32	0.04	5.24	0.04	2.93	13	40.63	4	12.50	1	3.13	8	25.00	6	18.75	0	0.00	18	56.25	14	43.75				
33	Panna	26	0.10	1.58	0.17	3.84	8	30.77	0	0.00	0	0.00	14	53.85	4	15.38	0	0.00	8	30.77	18	69.23				
34	Raisen	30	0.03	1.66	0.06	4.03	5	16.67	0	0.00	0	0.00	18	60.00	6	20.00	1	3.33	5	16.67	25	83.33				
35	Rajgarh	26	0.04	1.86	0.12	10.74	13	50.00	0	0.00	0	0.00	9	34.62	2	7.69	2	7.69	13	50.00	13	50.00				
36	Ratlam	41	0.33	15.70	0.01	8.08	6	14.63	2	4.88	1	2.44	20	48.78	5	12.20	7	17.07	9	21.95	32	78.05				
37	Rewa	34	0.05	2.38	0.35	9.30	7	20.59	1	2.94	0	0.00	13	38.24	10	29.41	3	8.82	8	23.53	26	76.47				
38	Sagar	41	0.38	5.48	0.03	6.04	11	26.83	1	2.44	1	2.44	18	43.90	7	17.07	3	7.32	13	31.71	28	68.29				
39	Satna	48	0.57	6.62	0.08	15.72	4	8.33	4	8.33	1	2.08	16	33.33	14	29.17	9	18.75	9	18.75	39	81.25				
40	Sehore	19	0.34	6.84	0.06	7.22	5	26.32	0	0.00	1	5.26	10	52.63	2	10.53	1	5.26	6	31.58	13	68.42				
41	Seoni	47	0.03	2.05	0.03	5.61	11	23.40	1	2.13	0	0.00	30	63.83	3	6.38	2	4.26	12	25.53	35	74.47				
42	Shahdol	21	0.40	1.01	0.36	7.92	2	9.52	0	0.00	0	0.00	7	33.33	8	38.10	4	19.05	2	9.52	19	90.48				
43	Shajapur	18	0.09	3.63	0.38	3.46	8	44.44	3	16.67	0	0.00	5	27.78	2	11.11	0	0.00	11	61.11	7	38.89				
44	Sheopur	19	0.24	7.52	0.17	7.70	5	26.32	2	10.53	1	5.26	10	52.63	0	0.00	1	5.26	8	42.11	11	57.89				
45	Shivpuri	29	0.08	7.83	0.13	8.83	8	27.59	1	3.45	2	6.90	9	31.03	5	17.24	4	13.79	11	37.93	18	62.07				
46	Sidhi	30	0.16	1.85	0.19	4.35	11	36.67	0	0.00	0	0.00	14	46.67	3	10.00	2	6.67	11	36.67	19	63.33				
47	Singrauli	17	-	-	0.15	3.89	0	0.00	0	0.00	0	0.00	9	52.94	8	47.06	0	0.00	0	0.00	17	100.00				
48	Tikamgarh	21	0.09	1.95	0.01	7.45	7	33.33	0	0.00	0	0.00	10	47.62	3	14.29	1	4.76	7	33.33	14	66.67				
49	Ujjain	43	0.08	10.57	0.14	5.40	18	41.86	7	16.28	4	9.30	9	20.93	4	9.30	1	2.33	29	67.44	14	32.56				
50	Umaria	13	3.48	3.48	0.08	9.38	0	0.00	1	7.69	0	0.00	4	30.77	6	46.15	2	15.38	1	7.69	12	92.31				
51	Vidisha	29	0.08	4.56	0.04	5.64	6	20.69	1	3.45	1	3.45	16	55.17	2	6.90	3	10.34	8	27.59	21	72.41				
	<b>Total</b>	<b>1317</b>	<b>0.01</b>	<b>15.7</b>	<b>0.01</b>	<b>20.87</b>	<b>373</b>	<b>28.32</b>	<b>59</b>	<b>4.48</b>	<b>26</b>	<b>1.97</b>	<b>562</b>	<b>42.67</b>	<b>198</b>	<b>15.03</b>	<b>99</b>	<b>7.52</b>	<b>458</b>	<b>34.78</b>	<b>859</b>	<b>65.22</b>				

District-Wise Decadal Water Level Fluctuation With Mean [January (2006 to 2015)] and January 2016

Annexure - XV

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		Rise		Fall					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%				
1	Agar Malwa	16	0.21	6.20	0.33	3.72	6	37.50	1	6.25	1	6.25	5	31.25	3	18.75	0	0.00	8	50.00	8	50.00				
2	Alirajpur	11	1.22	1.22	0.20	2.99	1	9.09	0	0.00	0	0.00	5	45.45	5	45.45	0	0.00	1	9.09	10	90.91				
3	Anuppur	15	0.28	0.28	0.48	7.03	1	6.67	0	0.00	0	0.00	7	46.67	4	26.67	3	20.00	1	6.67	14	93.33				
4	Ashok Nagar	16	0.02	1.73	0.03	8.18	5	31.25	0	0.00	0	0.00	8	50.00	2	12.50	1	6.25	5	31.25	11	68.75				
5	Balaghat	41	0.09	2.18	0.03	3.37	15	36.59	1	2.44	0	0.00	21	51.22	4	9.76	0	0.00	16	39.02	25	60.98				
6	Barwani	9	0.09	2.62	0.09	5.29	2	22.22	1	11.11	0	0.00	2	22.22	3	33.33	1	11.11	3	33.33	6	66.67				
7	Betul	27	0.03	2.93	0.23	5.13	9	33.33	1	3.70	0	0.00	11	40.74	5	18.52	1	3.70	10	37.04	17	62.96				
8	Bhind	18	-	8.23	-	15.31	5	27.78	3	16.67	3	16.67	2	11.11	2	11.11	3	16.67	11	61.11	7	38.89				
9	Bhopal	23	0.08	2.93	0.13	3.34	7	30.43	2	8.70	0	0.00	11	47.83	3	13.04	0	0.00	9	39.13	14	60.87				
10	Burhanpur	10	1.53	2.64	1.56	5.65	1	10.00	1	10.00	0	0.00	4	40.00	2	20.00	2	20.00	2	20.00	8	80.00				
11	Chhatarpur	39	0.21	5.02	0.06	12.03	4	10.26	0	0.00	1	2.56	13	33.33	16	41.03	5	12.82	5	12.82	34	87.18				
12	Chhindwara	42	0.01	4.45	0.09	22.26	18	42.86	2	4.76	1	2.38	11	26.19	6	14.29	4	9.52	21	50.00	21	50.00				
13	Damoh	22	0.10	3.04	0.28	4.76	6	27.27	1	4.55	0	0.00	8	36.36	5	22.73	2	9.09	7	31.82	15	68.18				
14	Datia	10	1.14	2.60	0.61	6.46	1	10.00	1	10.00	0	0.00	4	40.00	2	20.00	2	20.00	2	20.00	8	80.00				
15	Dewas	25	0.23	3.30	0.10	5.53	5	20.00	4	16.00	0	0.00	12	48.00	3	12.00	1	4.00	9	36.00	16	64.00				
16	Dhar	40	0.12	5.89	0.02	9.85	11	27.50	1	2.50	2	5.00	15	37.50	10	25.00	1	2.50	14	35.00	26	65.00				
17	Dindori	16	0.24	1.06	0.22	1.35	6	37.50	0	0.00	0	0.00	10	62.50	0	0.00	0	0.00	6	37.50	10	62.50				
18	Guna	23	0.03	5.53	0.10	3.48	10	43.48	2	8.70	1	4.35	4	17.39	6	26.09	0	0.00	13	56.52	10	43.48				
19	Gwalior	21	0.63	5.85	0.02	9.70	4	19.05	1	4.76	1	4.76	7	33.33	3	14.29	5	23.81	6	28.57	15	71.43				
20	Harda	14	0.21	2.73	0.14	8.26	3	21.43	1	7.14	0	0.00	5	35.71	2	14.29	3	21.43	4	28.57	10	71.43				
21	Hoshangabad	18	0.26	3.85	0.07	1.84	7	38.89	3	16.67	0	0.00	8	44.44	0	0.00	0	0.00	10	55.56	8	44.44				
22	Indore	40	0.16	4.45	0.27	15.57	9	22.50	2	5.00	2	5.00	10	25.00	7	17.50	10	25.00	13	32.50	27	67.50				
23	Jabalpur	34	0.06	2.95	0.09	7.46	10	29.41	1	2.94	0	0.00	17	50.00	3	8.82	3	8.82	11	32.35	23	67.65				
24	Jhabua	11	0.23	0.79	0.39	5.57	2	18.18	0	0.00	0	0.00	7	63.64	1	9.09	1	9.09	2	18.18	9	81.82				
25	Katni	17	0.61	0.81	0.12	5.37	3	17.65	0	0.00	0	0.00	7	41.18	4	23.53	3	17.65	3	17.65	14	82.35				
26	Khandwa	28	0.08	2.91	0.27	3.70	10	35.71	3	10.71	0	0.00	12	42.86	3	10.71	0	0.00	13	46.43	15	53.57				

**District-Wise Decadal Water Level Fluctuation With Mean [January (2006 to 2015)] and January 2016**

**Annexure - XV**

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		Rise		Fall					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%		
27	Khargone	24	0.12	2.26	0.12	7.13	4	16.67	1	4.17	0	0.00	12	50.00	1	4.17	6	25.00	5	20.83	19	79.17				
28	Mandla	33	0.12	4.05	0.04	6.90	14	42.42	5	15.15	1	3.03	12	36.36	0	0.00	1	3.03	20	60.61	13	39.39				
29	Mandsaur	42	0.11	11.28	0.06	20.64	7	16.67	0	0.00	2	4.76	15	35.71	8	19.05	10	23.81	9	21.43	33	78.57				
30	Morena	14	0.38	5.46	0.58	17.00	1	7.14	1	7.14	1	7.14	6	42.86	1	7.14	4	28.57	3	21.43	11	78.57				
31	Narsinghpur	17	1.32	2.48	0.10	5.82	1	5.88	2	11.76	0	0.00	8	47.06	4	23.53	2	11.76	3	17.65	14	82.35				
32	Neemuch	30	0.11	4.81	0.17	12.71	5	16.67	1	3.33	1	3.33	9	30.00	6	20.00	8	26.67	7	23.33	23	76.67				
33	Panna	26	0.20	4.30	0.59	8.53	5	19.23	0	0.00	1	3.85	12	46.15	4	15.38	4	15.38	6	23.08	20	76.92				
34	Raisen	30	0.37	1.95	0.09	5.08	6	20.00	0	0.00	0	0.00	15	50.00	7	23.33	2	6.67	6	20.00	24	80.00				
35	Rajgarh	25	0.96	3.49	0.22	4.03	3	12.00	2	8.00	0	0.00	15	60.00	4	16.00	1	4.00	5	20.00	20	80.00				
36	Ratlam	43	0.08	4.76	0.04	20.69	4	9.30	1	2.33	1	2.33	12	27.91	8	18.60	17	39.53	6	13.95	37	86.05				
37	Rewa	34	0.52	3.55	0.01	17.05	3	8.82	3	8.82	0	0.00	16	47.06	8	23.53	4	11.76	6	17.65	28	82.35				
38	Sagar	40	0.38	3.68	0.28	4.45	2	5.00	1	2.50	0	0.00	20	50.00	15	37.50	2	5.00	3	7.50	37	92.50				
39	Satna	47	0.01	12.48	0.42	5.69	8	17.02	3	6.38	2	4.26	17	36.17	10	21.28	7	14.89	13	27.66	34	72.34				
40	Sehore	19	0.09	4.84	-	5.83	5	26.32	1	5.26	1	5.26	6	31.58	5	26.32	1	5.26	7	36.84	12	63.16				
41	Seoni	48	0.12	2.38	0.01	8.56	14	29.17	1	2.08	0	0.00	24	50.00	6	12.50	3	6.25	15	31.25	33	68.75				
42	Shahdol	21	0.71	0.71	0.50	6.64	1	4.76	0	0.00	0	0.00	7	33.33	10	47.62	3	14.29	1	4.76	20	95.24				
43	Shajapur	17	0.01	2.57	0.11	3.00	7	41.18	2	11.76	0	0.00	5	29.41	3	17.65	0	0.00	9	52.94	8	47.06				
44	Sheopur	18	0.29	2.06	0.11	11.03	3	16.67	1	5.56	0	0.00	4	22.22	7	38.89	3	16.67	4	22.22	14	77.78				
45	Shivpuri	30	0.22	4.10	0.10	11.11	7	23.33	1	3.33	1	3.33	11	36.67	4	13.33	6	20.00	9	30.00	21	70.00				
46	Sidhi	30	0.34	3.83	0.08	6.39	8	26.67	4	13.33	0	0.00	11	36.67	3	10.00	4	13.33	12	40.00	18	60.00				
47	Singrauli	19	0.89	0.89	0.25	4.63	1	5.26	0	0.00	0	0.00	10	52.63	6	31.58	2	10.53	1	5.26	18	94.74				
48	Tikamgarh	20	0.09	0.75	0.23	6.12	3	15.00	0	0.00	0	0.00	8	40.00	7	35.00	2	10.00	3	15.00	17	85.00				
49	Ujjain	44	0.26	5.49	0.20	18.50	8	18.18	1	2.27	1	2.27	20	45.45	6	13.64	8	18.18	10	22.73	34	77.27				
50	Umaria	15	0.03	0.03	0.77	5.04	1	6.67	0	0.00	0	0.00	3	20.00	8	53.33	3	20.00	1	6.67	14	93.33				
51	Vidisha	29	0.03	3.03	0.14	6.38	7	24.14	1	3.45	0	0.00	12	41.38	6	20.69	3	10.34	8	27.59	21	72.41				
	<b>Total</b>	<b>1301</b>	<b>0.01</b>	<b>12.48</b>	<b>0.01</b>	<b>22.26</b>	<b>289</b>	<b>22.21</b>	<b>64</b>	<b>4.92</b>	<b>24</b>	<b>1.84</b>	<b>516</b>	<b>39.66</b>	<b>251</b>	<b>19.29</b>	<b>157</b>	<b>12.07</b>	<b>377</b>	<b>28.98</b>	<b>924</b>	<b>71.02</b>				



## Ground Water Quality Data of Madhya Pradesh State Year 2014

S. No.	District	Block	Location	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	TH	Ca	Mg	Na	K	SiO2
1	AGAR MALWA	AGAR	Agar New	7.62	994	0	250	188	23	0	0.20	BDL	430	56	71	30	0.2	38
2	AGAR MALWA	NALKHEDA	Amla	7.55	805	0	238	71	28	93	0.33	BDL	320	44	51	36	0.7	52
3	AGAR MALWA	BADOD	Barod	8.19	2098	36	378	390	73	93	0.43	BDL	925	168	123	52	2.2	34
4	AGAR MALWA	SUSNER	Guradibangla	8.17	1221	0	323	142	31	133	0.54	BDL	505	44	96	46	0.3	45
5	AGAR MALWA	BADOD	Jahagirpur	10.03	206	42	37	14	6	11	0.26	BDL	85	16	11	7	0.0	41
6	AGAR MALWA	AGAR	Kanad	8.29	790	24	305	46	22	43	0.47	BDL	285	40	45	49	0.8	38
7	AGAR MALWA	AGAR	Kashi Bardiya	8.59	1128	60	506	32	16	40	1.12	BDL	225	16	45	153	0.9	39
8	AGAR MALWA	BADOD	Matkotra	8.61	791	42	354	21	15	22	1.84	BDL	290	18	60	45	0.4	34
9	AGAR MALWA	NALKHEDA	Nalkhera	8.71	927	18	183	128	58	33	1.75	BDL	115	24	13	145	1.7	27
10	AGAR MALWA	SUSNER	Soyat	8.65	2110	78	525	241	94	139	0.47	BDL	485	102	56	257	2.1	45
11	AGAR MALWA	SUSNER	Susner	8.23	708	6	146	106	38	45	1.10	BDL	65	12	9	131	1.0	37
12	AGAR MALWA	AGAR	Tanodiya	7.97	1293	0	238	230	54	79	0.48	BDL	500	70	79	64	0.3	38
13	ALIRAJPUR	JOBAT	Bagh New	7.6	1218	0	439	117	52	37	0.98	0.007	415	58	66	88	2.2	47
14	ALIRAJPUR	BHAVRA	Bhabra New	8.12	600	0	262	46	2	22	0.84	0.008	185	38	22	52	2.3	38
15	ALIRAJPUR	JOBAT	Dehari	7.61	1095	0	311	156	40	38	1.12	0.018	320	54	45	104	1.2	47
16	ALIRAJPUR	KATTHIWARA	Kathiwarra	7.6	1265	0	311	142	45	161	0.36	0.005	395	76	50	108	2.1	38
17	ALIRAJPUR	KATTHIWARA	Khattali	7.4	2000	0	201	436	68	185	0.52	0.014	910	208	95	41	1.0	42
18	ALIRAJPUR	ALIRAJPUR	Kukshi1	7.79	892	0	275	71	31	110	0.52	0.045	315	66	36	60	0.8	31
19	ALIRAJPUR	SONDWA	Pipalya	8.09	375	0	189	14	2	14	0.29	0.014	155	42	12	14	2.5	40
20	ANUPPUR	PUSHPARAJGARH	Amarkantak	7.48	980	0	519	35	8	10	2.21	BDL	80	12	12	188	2.8	49
21	ANUPPUR	JAITHARI	Anuppur	7.19	820	0	366	43	20	35	0.42	BDL	255	46	34	70	1.1	25
22	ANUPPUR	PUSHPARAJGARH	Basaniha	7.26	575	0	244	53	10	3	0.58	BDL	205	32	30	37	2.1	22
23	ANUPPUR	PUSHPARAJGARH	Bhejari	7.25	575	0	195	71	25	1	0.16	BDL	230	34	35	25	2.0	32
24	ANUPPUR	JAITHARI	Deohara	7.63	640	0	220	50	50	23	0.07	BDL	300	30	55	10	1.1	58
25	ANUPPUR	JAITHARI	Dhangaon	7.11	360	0	183	18	5	1	0.22	BDL	150	20	24	14	0.6	12
26	ANUPPUR	ANUPPUR	Funga	7.12	850	0	366	82	5	1	0.77	BDL	280	38	45	65	3.2	44
27	ANUPPUR	JAITHARI	Jamudi	7.26	600	0	311	21	10	5	0.10	BDL	170	22	28	58	1.0	29
28	ANUPPUR	KOTMA	Jhriyatola	7.56	455	0	98	35	93	1	0.22	BDL	205	18	39	10	0.9	40
29	ANUPPUR	JAITHARI	Kerar	7.48	1125	0	458	28	64	100	0.20	BDL	415	52	69	68	0.9	20
30	ANUPPUR	KOTMA	Kotma	7.28	730	0	207	89	42	32	0.01	BDL	280	36	46	39	1.2	39
31	ANUPPUR	JAITHARI	Lapta	7.06	840	0	366	57	25	20	0.35	BDL	255	50	32	75	2.1	45
32	ANUPPUR	ANUPPUR	Muddhoba	7.22	505	0	140	14	110	5	0.56	BDL	100	18	13	70	2.1	25
33	ANUPPUR	PUSHPARAJGARH	Piparaha	7.71	605	0	281	21	40	1	0.21	BDL	250	46	33	24	1.5	36
34	ANUPPUR	PUSHPARAJGARH	Rajendra gram	7.23	350	0	140	21	28	3	0.17	BDL	125	12	23	22	2.5	52
35	ANUPPUR	JAITHARI	Venkat nagar	7.33	635	0	305	18	40	3	0.15	BDL	225	72	11	42	1.1	56
36	ASHOKNAGAR	ASHOKNAGAR	Ashoknagar	7.64	475	0	153	25	43	15	0.25	0.043	155	46	10	34	3.4	7
37	ASHOKNAGAR	MUNGAOLI	Bahadurpur	7.67	3313	0	415	521	90	447	0.17	0.027	1630	150	305	3	10.3	33
38	ASHOKNAGAR	CHANDERI	Chanderi	8.3	1467	60	464	103	15	147	0.15	0.663	420	116	32	87	93.0	45
39	ASHOKNAGAR	MUNGAOLI	Damdama	7.7	682	0	305	21	24	11	0.24	0.037	260	52	32	35	0.7	33
40	ASHOKNAGAR	ISAGARH	Dhakoni	7.5	691	0	299	32	22	6	0.18	0.016	270	56	32	32	0.4	55
41	ASHOKNAGAR	ISAGARH	Isagarh	7.44	869	0	311	64	7	72	0.11	0.027	325	72	35	44	8.2	39
42	ASHOKNAGAR	MUNGAOLI	Khalilpur	7.79	736	0	336	25	18	27	0.33	0.045	265	60	28	29	28.0	43
43	ASHOKNAGAR	MUNGAOLI	Mungaoli	7.62	1224	0	195	216	80	16	0.36	0.027	540	114	62	25	11.0	34
44	ASHOKNAGAR	ASHOKNAGAR	Sankat Mochan	8.05	650	0	311	25	3	18	0.57	0.011	220	28	36	46	1.1	19
45	ASHOKNAGAR	ASHOKNAGAR	Semrisahabad	7.93	643	0	342	14	2	13	0.32	0.003	210	34	30	49	1.1	23
46	BALAGHAT	WARASEONI	Amai	7.52	707	0	189	67	82	21	0.85	0.021	290	48	41	27	1.6	13
47	BALAGHAT	LANJI	Baghatola	7.77	856	0	366	11	105	2	0.06	0.001	385	76	47	19	1.9	26
48	BALAGHAT	PARASWADA	Bagholi	7.42	930	0	207	60	200	4	0.47	0.018	435	72	62	13	0.9	16
49	BALAGHAT	BAIHAR	Baihar1	7.22	574	0	189	82	15	5	0.31	0.003	205	40	26	36	1.3	17
50	BALAGHAT	BALAGHAT	Balaghat	7.81	370	0	61	50	58	6	0.28	0.011	170	28	24	6	1.1	19
51	BALAGHAT	BAIHAR	Bhaisanghat	7.17	580	0	183	14	110	8	0.21	0.010	245	38	36	20	1.6	23

S. No.	District	Block	Location	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	TH	Ca	Mg	Na	K	SiO2
52	BALAGHAT	KIRNAPUR	Bhanegaon	7.41	370	0	61	21	82	23	0.13	0.002	165	26	24	9	0.5	23
53	BALAGHAT	BIRSA	Birsa	7.32	465	0	116	18	105	5	0.20	0.024	210	36	29	10	0.8	21
54	BALAGHAT	KATANGI	Bonkatta	7.22	570	0	85	106	55	10	0.56	0.020	240	42	33	20	0.5	25
55	BALAGHAT	LANJI	Deverbeli	6.85	564	0	299	11	21	1	0.63	0.018	205	42	24	34	2.1	22
56	BALAGHAT	BALAGHAT	Garra	7.46	720	0	177	53	122	17	0.35	0.100	270	52	34	41	1.6	10
57	BALAGHAT	KATANGI	Garraghoda	7.34	750	0	305	39	65	4	0.87	0.019	300	60	36	33	1.8	10
58	BALAGHAT	BAIHAR	Jawaditula	7.24	830	0	183	71	160	1	0.38	0.023	315	72	33	46	1.5	24
59	BALAGHAT	LALBARRA	Kanjai	7.32	740	0	384	21	25	1	1.19	0.017	205	38	27	75	1.0	17
60	BALAGHAT	BALAGHAT	Kanki	7.37	1125	0	403	82	110	3	0.25	0.020	420	88	49	65	0.9	19
61	BALAGHAT	KATANGI	Katangi	7.33	900	0	329	92	25	30	1.16	0.025	200	38	26	115	1.2	9
62	BALAGHAT	KATANGI	Katedhara	7.32	1512	0	195	305	100	81	0.20	0.018	465	82	63	130	6.6	13
63	BALAGHAT	KHAIRLANJI	Khairlanji	7.24	832	0	329	78	25	15	0.87	0.022	350	50	55	29	2.9	22
64	BALAGHAT	PARASWADA	Khurmundi	7.12	745	0	323	57	21	8	0.57	0.009	340	62	45	14	1.1	12
65	BALAGHAT	KIRNAPUR	Kirnapur	7.41	1892	0	494	294	122	1	0.44	0.012	715	102	112	106	1.2	16
66	BALAGHAT	WARASEONI	Kochwahi	7.22	1925	0	366	362	95	73	0.57	0.140	650	62	120	144	2.1	12
67	BALAGHAT	BALAGHAT	Lamta1	7.2	471	0	140	82	5	1	0.37	0.021	210	22	38	12	1.2	30
68	BALAGHAT	PARASWADA	Laugur	7.13	520	0	220	50	8	1	0.30	0.015	230	42	30	11	2.4	17
69	BALAGHAT	BALAGHAT	Magardarta	6.86	885	0	281	135	14	13	0.42	0.020	405	68	57	17	1.7	45
70	BALAGHAT	KHAIRLANJI	Miragpur	7.03	1785	0	24	443	75	209	0.62	0.017	630	82	103	120	1.1	18
71	BALAGHAT	BIRSA	Mohagaon	7.28	1150	0	262	181	36	86	0.48	0.024	315	42	51	120	2.0	26
72	BALAGHAT	BAIHAR	Mukki	7.32	520	0	165	78	7	8	0.25	0.003	230	38	33	12	2.7	19
73	BALAGHAT	LANJI	Nandora	7.46	676	0	287	60	18	1	0.72	0.006	295	42	46	19	0.9	16
74	BALAGHAT	WARASEONI	Newargaon	7.31	575	0	275	35	10	3	0.94	0.012	260	44	36	11	2.9	24
75	BALAGHAT	LANJI	Paldongri	7.31	650	0	323	35	12	1	0.47	0.011	140	18	23	85	0.9	19
76	BALAGHAT	PARASWADA	Paraswara	7.25	445	0	195	28	3	24	0.37	0.019	90	16	12	60	2.8	22
77	BALAGHAT	BAIHAR	Parsatola	7.42	520	0	153	82	9	18	0.27	0.020	225	34	34	15	2.8	15
78	BALAGHAT	KIRNAPUR	Rajegaon	7.22	750	0	195	128	16	23	0.69	0.017	255	38	39	55	2.1	19
79	BALAGHAT	KHAIRLANJI	Rampalli	7.42	520	0	275	21	8	1	0.43	0.025	190	20	34	34	1.5	26
80	BALAGHAT	PARASWADA	Rangpatbaba	7.26	640	0	336	18	11	14	1.26	0.030	240	32	39	36	2.1	23
81	BALAGHAT	BALAGHAT	Saleteka New	7.24	515	0	195	50	16	13	0.35	0.028	215	30	34	17	2.6	23
82	BALAGHAT	BAIHAR	Samnapur	7.32	675	0	134	128	21	33	0.32	0.019	285	46	41	24	1.2	41
83	BALAGHAT	BAIHAR	Supkhar	7.41	396	0	146	43	2	19	0.27	0.020	170	16	32	12	0.2	24
84	BALAGHAT	WARASEONI	Waraseoni1	7.19	1120	0	293	195	45	2	0.33	0.016	525	86	75	15	0.8	30
85	BARWANI	THIKRI	Amba	7.56	1245	0	348	121	36	161	0.30	0.014	475	92	60	67	1.5	29
86	BARWANI	RAJPUR	Balsamund	7.25	920	0	281	82	42	115	0.23	0.002	420	80	54	30	0.6	29
87	BARWANI	RAJPUR	Bhikangaon1	7.51	1327	0	366	156	10	165	0.09	0.012	550	146	45	51	2.2	45
88	BARWANI	SENDHWA	Bhulwani	8.1	877	0	421	21	3	75	0.41	0.025	335	54	49	46	3.1	41
89	BARWANI	SENDHWA	Chhachariya	8.11	450	0	37	67	5	117	0.12	0.270	80	24	5	66	1.0	45
90	BARWANI	SENDHWA	Dhulkot	7.7	940	0	305	39	133	33	0.09	0.019	325	68	38	66	1.4	45
91	BARWANI	NIWALI	Niwali1	7.42	888	0	305	85	25	60	0.21	0.003	385	86	41	27	0.7	45
92	BARWANI	RAJPUR	Palsud	7.46	962	0	336	89	12	84	0.15	0.004	365	96	30	53	0.5	24
93	BARWANI	RAJPUR	Segaon	7.84	1055	0	311	92	54	107	0.13	0.014	450	60	73	35	2.1	42
94	BARWANI	NIWALI	Sendhwa	7.47	908	0	287	82	50	63	0.23	0.014	385	84	43	31	1.4	26
95	BETUL	AMLA	Amla	8.15	455	0	226	21	5	4	0.28	0.020	170	46	13	24	1.0	44
96	BETUL	ATHNER	Athner	7.92	1579	0	512	181	47	79	0.06	0.020	515	88	72	117	15.0	40
97	BETUL	BETUL	Betul	7.55	1347	0	189	223	121	91	0.42	0.020	420	110	35	114	2.0	30
98	BETUL	BHAINSDEHI	Bhainsdehi	7.95	455	0	128	39	17	57	0.21	0.070	165	32	21	27	1.0	37
99	BETUL	SHAHPUR	Bhonra	8.42	797	12	146	106	67	59	0.00	0.080	240	40	34	68	8.0	37
100	BETUL	CHICHOLI	Chirapatala	7.69	769	0	220	103	31	30	0.00	0.070	285	46	41	44	0.0	52
101	BETUL	MULTAI	Ghatpiparia	7.56	963	0	104	89	101	200	1.34	0.090	425	92	47	24	0.0	62
102	BETUL	GHODA DONGRI	Ghoradongri	7.78	852	0	220	82	46	96	0.55	0.070	325	58	44	44	1.0	32
103	BETUL	BHAINSDEHI	Gudagaon	8.76	287	24	116	11	10	1	0.80	0.050	80	20	7	28	0.0	28
104	BETUL	BHAINSDEHI	Jhallar	8.47	263	12	79	21	10	17	0.12	0.060	100	14	16	14	0.0	42

S. No.	District	Block	Location	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	TH	Ca	Mg	Na	K	SiO2
105	BETUL	CHICHOLI	Jogli	7.62	1036	0	207	113	73	135	0.52	0.050	350	30	67	72	7.0	25
106	BETUL	PRABHAT PATTAN	Junapani	8.38	581	30	256	21	21	1	0.06	0.050	175	38	19	52	1.0	47
107	BETUL	MULTAI	Kapasias	8.2	485	0	238	11	12	20	0.00	0.070	200	24	34	18	1.0	51
108	BETUL	BETUL	Khedi	8.81	696	48	262	50	20	0	1.64	0.080	95	22	10	115	1.0	37
109	BETUL	CHICHOLI	Khokharkheda	7.83	371	0	201	11	3	0	0.22	0.100	150	30	18	14	3.0	61
110	BETUL	BETUL	Kolgaon	7.86	1171	0	195	195	97	61	0.00	0.050	395	94	39	87	1.0	37
111	BETUL	BHAINSDEHI	Kotalkund	8.32	529	24	207	21	8	39	0.18	0.060	195	28	30	30	0.0	58
112	BETUL	PRABHAT PATTAN	Masod	7.89	496	0	238	14	10	27	0.30	0.040	215	42	27	15	0.0	33
113	BETUL	MULTAI	Multai	8.75	567	30	183	67	4	1	0.03	0.090	160	6	35	53	0.0	29
114	BETUL	GHODA DONGRI	Nimpani	7.54	499	0	244	25	13	1	0.35	0.070	170	30	23	32	7.0	39
115	BETUL	CHICHOLI	Pathakhera	7.96	290	0	122	28	4	0	0.91	0.080	40	12	2	44	7.0	41
116	BETUL	PRABHAT PATTAN	Pattan	9.01	783	6	43	191	76	0	1.52	0.080	75	20	6	144	1.0	32
117	BETUL	GHODA DONGRI	Sami	7.59	730	0	61	71	202	5	0.00	0.060	265	52	33	46	0.0	21
118	BETUL	BHAINSDEHI	SanwalMedha	7.35	581	0	323	14	5	0	0.32	0.080	225	32	35	30	0.0	65
119	BETUL	AMLA	Sasundra	7.67	411	0	214	11	6	6	0.00	0.070	160	38	16	14	8.0	43
120	BETUL	SHAHPUR	Shahpur	7.73	597	0	287	25	11	21	0.42	0.070	190	36	24	50	0.0	26
121	BETUL	BETUL	Thapa	7.78	274	0	140	7	10	0	0.19	0.060	120	30	11	7	1.0	50
122	BHIND	MIHONA	Alampur	7.37	1005	0	458	43	10	22	0.53	BDL	225	28	38	120	2.1	29
123	BHIND	ATER	Ater	7.87	1390	0	567	100	50	5	0.31	BDL	140	12	27	250	3.2	23
124	BHIND	RON	Balaji	8.26	3336	144	1501	124	100	22	1.33	0.120	165	6	36	700	1.5	17
125	BHIND	GOHAD	Bhagathar	7.26	3108	0	464	670	120	32	0.36	BDL	485	62	80	495	3.0	26
126	BHIND	GOHAD	Bhirkhari	7.77	1750	0	696	149	70	10	0.95	BDL	240	24	44	285	3.8	18
127	BHIND	MEHGAON	Chirole	8.13	4211	12	824	819	130	11	1.26	BDL	560	50	106	700	3.9	14
128	BHIND	MIHONA	Daboh	7.81	756	0	378	14	10	6	0.60	BDL	165	24	26	90	1.3	27
129	BHIND	MIHONA	Dewri	7.71	890	0	445	25	20	13	0.24	BDL	250	24	46	85	2.2	29
130	BHIND	MEHGAON	Gormi	8.19	2110	78	1037	43	30	3	1.12	BDL	215	10	46	375	3.8	18
131	BHIND	ATER	Kanuapura	7.93	1872	0	891	57	25	42	0.69	BDL	370	12	83	250	8.3	20
132	BHIND	GOHAD	Khader	7.82	1510	0	275	227	140	10	0.46	BDL	435	78	58	140	4.5	11
133	BHIND	MIHONA	Lahar	7.77	2502	0	525	418	120	27	0.62	BDL	375	12	84	400	2.7	20
134	BHIND	ATER	Lavan	7.79	1524	0	622	67	120	12	0.47	BDL	260	16	54	220	2.2	23
135	BHIND	GOHAD	Mau	7.59	4132	0	543	684	250	280	0.41	BDL	860	100	148	320	385.0	22
136	BHIND	MEHGAON	Mehgaon	7.76	2612	0	561	504	40	100	1.01	BDL	425	32	84	400	2.3	16
137	BHIND	BHIND	Nahrapura	7.97	1656	0	696	89	80	19	0.55	BDL	180	12	36	290	3.5	20
138	BHIND	BHIND	Umri	7.79	1003	0	470	18	40	9	0.24	BDL	260	28	46	100	5.0	24
139	BHOPAL	PHANDA	Balampurghati	7.87	279	0	85	28	13	8	0.11	0.089	110	30	9	12	1.2	8
140	BHOPAL	BERASIA	Berasia	7.45	561	0	250	25	12	30	0.26	0.051	230	62	18	22	0.4	50
141	BHOPAL	PHANDA	Bilkhiria	7.36	885	0	354	74	22	10	0.27	BDL	280	44	41	63	18.0	19
142	BHOPAL	PHANDA	Chichli	7.59	368	0	73	50	31	8	0.05	BDL	140	36	12	18	1.7	26
143	BHOPAL	BERASIA	Gunga	7.43	1027	0	348	85	33	75	0.16	0.018	430	116	34	34	5.6	55
144	BHOPAL	PHANDA	Islamnagar	7.79	1250	0	415	156	25	16	0.22	0.015	335	46	54	72	102.0	33
145	BHOPAL	BERASIA	Nagirabad	7.42	1885	0	238	408	43	147	0.25	0.065	930	192	109	3	1.4	40
146	BHOPAL	BERASIA	Ramgarha	7.5	752	0	238	67	28	61	0.31	0.027	305	96	16	31	0.6	76
147	BURHANPUR	KHAKNAR	Shekhpura	8.22	562	30	98	82	36	26	0.21	0.060	160	36	17	55	1.0	48
148	BURHANPUR	BURHANPUR	Bahadurpur	7.6	1716	0	232	301	125	136	0.00	0.100	610	158	52	111	3.0	52
149	BURHANPUR	BURHANPUR	Burhanpur	8.59	2320	54	549	394	17	110	0.89	0.100	660	174	55	224	8.0	44
150	BURHANPUR	BURHANPUR	Chandni	7.99	600	0	268	43	9	10	0.91	0.080	160	26	23	64	0.0	40
151	BURHANPUR	KHAKNAR	Dedtalai	7.49	728	0	268	89	2	9	0.50	0.090	150	48	7	94	1.0	34
152	BURHANPUR	BURHANPUR	Ichchapur	7.88	654	0	262	46	26	7	0.51	0.090	85	32	1	106	1.0	42
153	BURHANPUR	KHAKNAR	Karkheda	7.56	555	0	201	35	10	55	0.13	0.080	235	38	34	16	0.0	38
154	BURHANPUR	KHAKNAR	Khaknar	8.29	856	18	256	85	41	43	0.00	0.020	385	86	41	17	0.0	35
155	BURHANPUR	KHAKNAR	Manjrod kalan	7.4	2660	9	354	447	92	303	0.04	0.060	1105	222	134	99	1.0	44
156	BURHANPUR	BURHANPUR	Nachankheda	8.42	1005	48	397	60	15	37	0.25	0.070	285	18	58	95	3.0	40
157	BURHANPUR	KHAKNAR	Nepanagar	8.32	691	24	159	110	19	24	0.06	0.060	245	32	40	45	2.0	38

S. No.	District	Block	Location	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	TH	Ca	Mg	Na	K	SiO2
158	BURHANPUR	BURHANPUR	Oehnala	7.33	509	0	250	11	20	11	1.40	0.100	185	36	23	31	0.0	60
159	BURHANPUR	KHAKNAR	Pipalpani	8.27	1239	24	366	138	28	89	0.34	0.060	465	52	81	70	1.0	43
160	BURHANPUR	KHAKNAR	Sirpur	8.3	941	18	250	128	45	14	0.16	0.050	165	38	17	134	2.0	46
161	CHHATARPUR	BUXWAHA	Batiagarh1	8.05	780	0	281	35	75	39	0.72	0.015	280	54	35	50	1.2	42
162	CHHATARPUR	BIJAWAR	Bijawar	8.08	290	0	134	18	4	5	0.24	0.001	135	20	21	5	0.5	40
163	CHHATARPUR	BUXWAHA	Buxwaha	7.85	1750	0	250	269	192	110	0.19	0.000	705	198	51	78	1.0	34
164	CHHATARPUR	RAJNAGAR	Chhatarpur	7.9	1705	0	146	209	292	165	0.36	0.002	625	210	24	104	1.2	52
165	CHHATARPUR	BIJAWAR	Gulganj	8.82	330	12	92	25	35	10	0.45	0.014	95	20	11	32	0.4	52
166	CHHATARPUR	BIJAWAR	Hirapur	7.92	677	0	159	145	2	2	0.55	0.014	300	38	50	17	2.0	39
167	CHHATARPUR	BIJAWAR	Khair kalan	8.29	500	30	207	11	24	18	0.25	0.009	190	54	13	27	0.7	43
168	CHHATARPUR	CHHATARPUR	Khajuraho	8.11	1227	0	354	103	125	60	0.35	0.000	370	68	49	112	0.2	54
169	CHHATARPUR	LAUNDI	Laundi	8	1240	0	336	96	140	40	0.27	0.001	365	58	54	102	1.3	52
170	CHHATARPUR	RAJNAGAR	Manikpur	8.15	368	0	165	25	8	6	0.68	0.015	135	24	18	22	0.8	54
171	CHHATARPUR	RAJNAGAR	Niwari1	8.18	500	0	226	28	15	10	0.95	0.004	175	44	16	34	1.3	35
172	CHHATARPUR	NOWGAON	Nowgaon	8.04	850	0	153	124	90	38	0.44	0.018	390	88	41	16	0.3	63
173	CHHATARPUR	NOWGAON	Putaria	8.57	765	24	159	71	95	42	0.41	0.013	220	46	26	75	0.3	35
174	CHHATARPUR	BUXWAHA	Raipura	8.35	545	18	220	11	42	23	0.65	0.003	230	54	23	19	1.0	45
175	CHHATARPUR	BUXWAHA	Rurawan	8.11	280	0	49	46	25	11	0.44	0.018	85	20	9	25	0.5	50
176	CHHATARPUR	BIJAWAR	Sadwa	8.6	750	30	159	60	95	44	0.25	0.018	260	60	27	53	0.2	25
177	CHHATARPUR	GAURIHAR	Sarwai	8	1260	0	354	96	154	43	0.45	0.013	370	64	51	115	0.2	42
178	CHHATARPUR	BIJAWAR	Sendpa	8.19	790	0	384	14	26	40	0.56	0.009	240	38	35	71	0.1	54
179	CHHATARPUR	RAJNAGAR	Tatampur	8.51	400	18	122	11	40	39	0.46	0.004	120	32	10	38	1.0	64
180	CHHINDWARA	AMARWARA	Amarwara	7.61	1085	0	268	206	30	4	0.62	0.025	495	78	73	21	0.4	22
181	CHHINDWARA	PANDHURNA	Bangaon1	7.27	1150	0	555	57	26	18	0.63	0.020	490	102	57	38	0.8	22
182	CHHINDWARA	AMARWARA	Banjari	7.3	930	0	226	149	16	63	0.63	0.018	395	50	66	33	0.4	23
183	CHHINDWARA	SAUSAR	Borgaon1	7.75	1575	0	519	170	55	83	0.31	0.030	540	86	79	110	2.6	22
184	CHHINDWARA	CHAURAI	Chaurai1	7.82	1220	0	342	195	46	7	1.62	0.009	495	66	80	50	1.3	19
185	CHHINDWARA	TAMIA	Chhindi	7.72	1360	0	329	195	65	86	1.00	0.015	580	84	90	45	1.1	25
186	CHHINDWARA	PANDHURNA	Chinchkheda	7.21	1060	0	372	121	28	34	0.83	0.020	405	58	63	55	1.4	29
187	CHHINDWARA	PANDHURNA	Chincholiwad	7.82	1250	0	610	25	52	50	0.73	0.018	475	68	74	68	1.5	19
188	CHHINDWARA	JAMAI	Damua	7.35	1120	0	305	128	120	5	0.97	0.025	450	34	89	52	1.2	25
189	CHHINDWARA	TAMIA	Delakhari	7.41	1692	0	543	160	105	86	0.38	0.017	615	84	98	104	1.8	26
190	CHHINDWARA	MOHKHED	Goni	7.6	945	0	366	78	25	50	0.26	0.020	420	68	61	23	1.0	42
191	CHHINDWARA	HARRAI	HarraiDW	7.34	1490	0	403	163	115	82	0.09	0.019	595	72	101	68	2.6	29
192	CHHINDWARA	JAMAI	Jamai	7.23	570	0	262	35	12	8	0.17	0.023	265	32	45	9	2.1	23
193	CHHINDWARA	CHHINDWARA	Jamunia Ner	7.51	700	0	275	57	21	35	0.48	0.017	315	22	63	12	3.5	17
194	CHHINDWARA	HARRAI	Khapa	7.2	1250	0	592	32	65	37	0.46	0.020	440	56	73	85	1.1	14
195	CHHINDWARA	HARRAI	Kundali	7.22	800	0	366	25	32	44	0.32	0.070	350	54	52	23	1.7	22
196	CHHINDWARA	TAMIA	Lahgudna	7.25	760	0	250	71	18	75	0.48	0.960	315	50	46	29	2.5	29
197	CHHINDWARA	MOHKHED	Linga rly.stn.	7.06	600	0	79	117	10	75	0.27	0.060	210	22	38	39	2.8	29
198	CHHINDWARA	TAMIA	Mahaljhir	7.46	790	0	226	85	23	83	0.67	0.180	325	62	41	30	3.9	27
199	CHHINDWARA	PANDHURNA	Mohi	7.2	1000	0	342	128	31	15	0.67	0.080	425	72	60	33	2.0	25
200	CHHINDWARA	PANDHURNA	Pandurna	7.23	1075	0	281	131	42	103	0.89	0.070	440	78	60	44	1.8	16
201	CHHINDWARA	SAUSAR	Piplanarayanwar	7.41	1250	0	348	135	85	78	0.45	0.020	540	38	108	39	1.2	18
202	CHHINDWARA	PANDHURNA	Rajna	7.61	600	0	195	46	7	84	0.31	0.070	260	46	35	17	2.6	15
203	CHHINDWARA	SAUSAR	Ramakona New	7.17	1170	0	336	160	38	60	0.43	0.310	500	122	47	40	1.3	24
204	CHHINDWARA	CHAURAI	Ramgarh	7.27	1255	0	555	60	65	26	0.20	0.070	540	58	96	37	3.0	29
205	CHHINDWARA	TAMIA	Renikhera	7.12	625	0	92	121	11	68	0.22	0.040	235	32	38	36	1.1	25
206	CHHINDWARA	MOHKHED	Saonri1	8.06	1730	0	726	92	110	32	1.14	0.050	605	82	97	118	2.4	28
207	CHHINDWARA	MOHKHED	Sarangbheri	7.51	1000	0	336	71	45	95	0.49	0.040	455	72	67	22	0.5	25
208	CHHINDWARA	HARRAI	Sathiya	7.39	725	0	317	35	15	46	0.46	0.050	310	46	47	22	0.3	18
209	CHHINDWARA	SAUSAR	Sausar	7.49	483	0	85	99	2	39	0.34	0.020	180	18	33	28	1.3	21
210	CHHINDWARA	MOHKHED	Silwani1	7.24	500	0	262	21	1	10	1.32	0.040	140	16	24	50	3.2	24

S. No.	District	Block	Location	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	TH	Ca	Mg	Na	K	SiO2
211	CHHINDWARA	SAUSAR	Silwanighati	7.18	450	0	207	35	3	6	1.04	0.320	155	14	29	33	0.3	16
212	CHHINDWARA	AMARWARA	Singhori	7.21	545	0	268	21	4	23	0.24	0.330	220	24	39	25	1.5	16
213	CHHINDWARA	PARASIA	Sonapipri	7.17	400	0	122	67	1	6	1.55	0.100	150	20	24	23	1.1	19
214	CHHINDWARA	HARRAI	Surla	7.13	930	0	287	85	26	103	0.21	0.040	430	72	61	15	1.3	12
215	CHHINDWARA	MOHKHED	Tansara Mal	7.23	630	0	299	18	8	44	0.12	0.050	230	28	39	38	2.0	11
216	DAMOH	DAMOH	Abhana	8.35	3160	48	567	319	480	154	0.40	0.002	675	140	79	412	7.0	35
217	DAMOH	HATTA	Amodha	7.78	405	0	177	14	34	4	0.30	0.002	125	30	12	36	0.5	43
218	DAMOH	JABERA	Bamhori	8.58	310	6	61	21	48	24	0.54	0.017	85	24	6	32	1.0	42
219	DAMOH	PATERA	Bangaon	7.95	800	0	250	50	73	54	0.45	0.004	220	56	19	82	1.3	38
220	DAMOH	PATHARIA	Damoh2	7.98	275	0	55	18	48	21	0.89	0.000	110	22	13	12	1.4	32
221	DAMOH	TENDULHEDA	Dhangor	8.05	780	0	305	50	33	43	0.80	0.001	210	50	21	82	1.5	45
222	DAMOH	JABERA	Garhakota	7.61	875	0	201	60	158	29	0.58	0.000	400	100	36	18	0.5	47
223	DAMOH	BATIYAGARH	Hardua	7.62	500	0	226	25	5	28	0.47	0.012	240	62	21	4	0.7	54
224	DAMOH	PATHARIA	Hindoria	7.8	275	0	122	11	5	21	0.65	0.001	120	38	6	8	0.8	34
225	DAMOH	TENDULHEDA	Jabera1	7.62	460	0	244	7	3	30	0.40	0.002	225	50	24	5	1.2	37
226	DAMOH	JABERA	Nohta	8.02	200	0	61	14	14	18	0.41	0.000	80	18	9	9	0.4	36
227	DAMOH	DAMOH	Palar	7.84	800	0	366	39	6	47	0.28	0.003	250	32	41	68	1.2	43
228	DAMOH	PATHARIA	Patera2	9.32	870	30	37	167	98	52	0.40	0.001	100	14	16	153	1.8	45
229	DAMOH	PATHARIA	Piparia	9.08	250	6	55	35	5	25	0.85	0.013	80	16	10	21	0.4	64
230	DAMOH	PATERA	Prahlad pura	7.87	900	0	268	149	15	4	0.34	0.017	225	48	26	97	11.0	62
231	DAMOH	TENDULHEDA	Samnapur	9	560	60	128	71	15	12	0.47	0.005	150	24	22	60	0.2	54
232	DAMOH	HATTA	Shahgarh1	8	320	0	79	53	17	2	0.91	0.019	100	36	2	27	1.0	49
233	DAMOH	TENDULHEDA	Tendukheda2	7.78	375	0	171	25	6	8	0.50	0.003	150	32	17	17	0.6	54
234	DATIA	BHANDER	Bhander	7.78	795	0	348	39	20	15	1.21	BDL	235	36	35	70	0.5	34
235	DATIA	SEONDHA	Chhikau	8.21	1400	66	671	18	20	11	1.30	BDL	140	16	24	240	1.1	21
236	DATIA	DATIA	Datia	8.02	510	0	159	25	50	3	0.55	BDL	120	30	11	49	2.9	13
237	DATIA	DATIA	Imaliya	8.11	3570	0	818	461	120	364	0.17	0.900	925	252	72	150	400.0	48
238	DATIA	SEONDHA	Indergarh New	8.09	1150	0	604	25	20	9	0.63	0.100	275	28	50	130	2.9	29
239	DATIA	SEONDHA	Kasherua	8.21	2290	102	793	103	120	4	1.33	0.100	195	22	34	410	3.4	17
240	DATIA	BHANDER	Pandokhar	7.93	872	0	427	11	20	9	0.55	BDL	135	18	22	125	1.3	27
241	DATIA	DATIA	Ruduapura	7.87	1002	0	488	25	20	6	1.16	BDL	215	22	39	125	0.6	21
242	DATIA	SEONDHA	Seondha	8.14	1089	0	427	60	30	39	0.33	BDL	205	24	35	140	2.5	30
243	DATIA	SEONDHA	Tharet	8.13	1389	0	683	25	40	34	0.22	BDL	335	22	68	150	6.7	23
244	DEWAS	TONKKHURD	Alari	7.75	1480	0	262	223	78	151	0.59	0.060	515	84	74	100	0.9	33
245	DEWAS	BAGLI	Bagli1	7.76	1371	0	244	262	70	49	0.62	0.060	270	66	26	190	0.9	27
246	DEWAS	BAGLI	Bamohri	7.83	832	0	73	181	82	13	1.39	0.200	75	22	5	155	1.1	34
247	DEWAS	DEWAS	Bhesuni	7.46	3960	0	342	805	307	176	0.41	0.210	1325	268	159	254	1.1	28
248	DEWAS	BAGLI	Bhikupura	8.08	1028	0	287	160	46	3	0.31	0.050	315	62	39	87	6.1	54
249	DEWAS	SONKUTCH	Bhonrasa	8.7	797	36	183	57	33	126	0.30	0.070	320	60	41	34	1.6	46
250	DEWAS	KANNOD	Bijawad	8.7	745	54	201	53	40	54	0.82	0.060	245	64	21	58	0.7	54
251	DEWAS	DEWAS	Dewas	8.08	2099	0	244	298	115	377	0.20	0.060	870	186	98	81	1.2	41
252	DEWAS	KHATEGAON	Dhayali	7.78	523	0	262	18	10	8	0.72	0.050	200	18	38	26	0.9	24
253	DEWAS	KANNOD	Kannod	9.23	619	24	55	106	49	49	0.43	0.040	150	44	10	72	0.4	13
254	DEWAS	KANNOD	Kantaphor	8.37	1404	42	232	195	99	119	0.52	0.370	385	46	66	144	1.3	59
255	DEWAS	BAGLI	Karnawad	8.08	673	0	165	32	40	136	0.39	0.080	275	20	55	26	0.8	50
256	DEWAS	KANNOD	Kusumania	8.8	441	48	171	18	9	3	0.47	0.060	150	20	24	31	0.2	69
257	DEWAS	BAGLI	Matmore New	8.68	496	18	128	67	23	1	0.30	0.050	165	28	23	34	0.9	33
258	DEWAS	BAGLI	Nevri	8.36	536	30	232	25	12	4	0.49	0.060	195	8	43	33	0.2	42
259	DEWAS	KHATEGAON	Pipilianankar	8.84	1267	84	543	43	42	16	1.01	0.050	145	36	13	222	4.0	40
260	DEWAS	BAGLI	Pipri	9.5	848	30	67	89	59	188	0.52	0.040	205	16	40	81	28.9	15
261	DEWAS	BAGLI	Punjabura	9.22	934	72	268	103	28	13	0.14	0.040	210	20	39	85	55.5	24
262	DEWAS	KANNOD	Satwas New	8.71	1669	66	458	184	35	128	1.16	0.060	470	104	51	166	0.9	32
263	DEWAS	BAGLI	Udainagar	7.5	2850	0	226	489	200	417	0.45	0.050	1085	244	116	137	29.6	55

S. No.	District	Block	Location	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	TH	Ca	Mg	Na	K	SiO2
264	DHAR	KUKSHI	Alirajpur	8	667	0	232	71	29	17	0.71	0.021	225	44	28	50	0.2	44
265	DHAR	BAGH	Ambua	8.05	820	0	256	89	3	89	0.79	0.023	235	52	26	79	2.6	41
266	DHAR	SARDARPUR	Amjhira	7.56	677	0	329	32	5	23	0.25	0.002	280	54	35	26	1.9	38
267	DHAR	GANDHWANI	Badaguda	8.06	673	0	317	39	2	24	0.97	0.025	210	44	24	58	0.6	29
268	DHAR	NALCHHA	Balwara	7.73	875	0	378	39	4	85	0.53	0.014	325	54	46	50	3.2	42
269	DHAR	NISARPUR	Borkua	7.97	723	0	214	67	75	17	0.71	0.001	250	54	28	50	2.5	45
270	DHAR	BAGH	Chandpur	7.85	962	0	281	30	166	43	0.24	0.014	470	66	74	5	0.8	43
271	DHAR	UMARVAN	Dhamnod	7.5	1060	0	256	138	44	98	0.35	0.004	385	76	47	65	2.8	42
272	DHAR	MANAWAR	Dharamपुरi1	7.8	980	0	482	50	5	25	0.57	0.006	245	30	41	112	1.3	29
273	DHAR	DHARAMPURI	Dhargaon	7.96	488	0	183	11	4	93	0.18	0.025	160	42	13	37	3.0	34
274	DHAR	KUKSHI	Dhulsar	7.85	870	0	390	57	3	39	0.42	0.040	200	28	32	107	1.8	37
275	DHAR	BAGH	Jobat New	8.51	940	18	439	35	15	74	0.18	0.025	465	32	94	16	0.5	52
276	DHAR	SARDARPUR	Julana	7.57	795	0	214	67	40	106	0.39	0.040	275	84	16	55	2.3	27
277	DHAR	BADNAWAR	Kanwan New	7.59	1244	0	262	234	14	78	0.28	0.035	515	80	77	49	0.5	42
278	DHAR	GANDHWANI	Lunera	7.5	886	0	317	82	22	56	0.22	0.002	340	90	28	45	4.2	29
279	DHAR	MANAWAR	Maheshwar	8.05	613	0	189	21	85	41	0.18	0.014	160	40	15	67	1.0	36
280	DHAR	MANAWAR	Manawar1	7.9	481	0	232	25	5	13	0.52	0.009	175	34	22	29	2.1	38
281	DHAR	NALCHHA	Nandpura	7.55	1020	0	183	223	6	48	0.85	0.014	200	52	17	142	1.4	45
282	DHAR	KUKSHI	Nanpur	7.52	2360	0	201	440	220	205	0.72	0.014	955	204	108	102	2.3	52
283	DHAR	DHARAMPURI	Piplyabuzrug	7.94	855	0	415	39	4	35	0.33	0.043	355	76	40	33	0.6	42
284	DHAR	SARDARPUR	Rajod	7.63	802	0	214	67	38	113	0.21	0.003	270	82	16	58	4.0	38
285	DHAR	BAGH	Salampura	7.88	795	0	183	99	30	94	0.80	0.035	335	82	32	28	1.2	32
286	DHAR	SARDARPUR	Sardarpur	7.67	666	0	323	32	3	25	0.22	0.001	275	54	34	26	1.3	47
287	DHAR	MANAWAR	Singhana	8.06	977	0	464	50	12	32	0.59	0.015	240	24	44	112	4.0	44
288	DHAR	MANAWAR	Tawlai	7.9	512	0	207	35	13	28	0.47	0.014	190	46	18	29	2.5	41
289	DHAR	TIRLA	Zeerabad	8.12	600	0	275	32	9	26	0.39	0.025	245	38	36	23	4.0	39
290	DINDORI	AMARPUR	Amarpur1	7.23	970	0	189	78	205	10	0.98	BDL	405	68	57	37	2.1	18
291	DINDORI	BAJANG	Bijhauri	7.43	670	0	281	39	48	2	0.41	BDL	300	56	39	17	1.1	25
292	DINDORI	DINDORI	Dindori	7.22	574	0	226	57	175	29	0.19	BDL	390	62	57	36	1.3	18
293	DINDORI	BAJANG	Gadasarai	7.81	1470	0	281	309	58	20	0.70	0.02	560	108	71	80	2.1	19
294	DINDORI	KARANJIYA	Gorakhpur	7.41	610	0	275	28	38	1	0.40	BDL	285	46	41	9	0.8	23
295	DINDORI	MENHADWANI	Harra	7.35	593	0	220	18	85	2	0.17	BDL	275	38	44	10	1.0	36
296	DINDORI	KARANJIYA	Karanjiya	7.52	945	0	281	82	105	23	0.41	BDL	395	62	58	34	1.8	26
297	DINDORI	SHAHUPURA	Katangi1	7.26	610	0	226	14	95	1	0.21	BDL	260	40	39	21	1.1	11
298	DINDORI	BAJANG	Sagar Tola	7.36	890	0	336	74	62	1	0.02	BDL	390	58	60	25	1.1	18
299	DINDORI	AMARPUR	Salaiya	7.27	780	0	305	28	95	2	0.18	BDL	250	88	7	65	1.2	19
300	DINDORI	DINDORI	Shahpur	7.21	810	0	281	71	65	8	0.08	BDL	350	78	38	25	1.4	11
301	DINDORI	SHAHUPURA	Shahpura Depot	7.32	1120	0	293	106	150	15	0.04	0.01	410	58	64	65	5.4	36
302	DINDORI	DINDORI	Vikrampur1	7.24	832	0	329	46	80	1	0.14	BDL	375	50	61	19	1.9	42
303	GUNA	BAMORI	Akoda	7.75	517	0	226	25	8	24	0.08	BDL	210	54	18	19	2.2	22
304	GUNA	RAGHOGARH	Amlia	7.82	1286	0	512	99	25	29	0.20	BDL	470	58	79	73	9.0	41
305	GUNA	ARON	Aron	7.45	681	0	268	35	8	35	0.15	BDL	230	54	23	49	0.6	39
306	GUNA	BAMORI	Bamori	7.82	1194	0	512	92	8	30	0.51	0.281	395	70	54	77	24.0	29
307	GUNA	CHACHAURA	BarodDW	7.68	886	0	384	39	12	47	0.53	0.080	235	44	30	85	15.0	52
308	GUNA	BAMORI	Berkheri	7.59	725	0	244	43	20	80	0.12	0.060	275	60	30	35	6.0	46
309	GUNA	GUNA	Jaitadongar	7.99	909	0	378	50	12	65	0.85	0.071	295	34	51	63	15.0	33
310	GUNA	RAGHOGARH	Janjali	8.07	1233	0	635	39	10	17	0.31	0.062	355	12	79	118	1.5	47
311	GUNA	RAGHOGARH	Khairai	8.06	545	0	250	21	6	18	0.15	0.078	220	54	21	22	0.6	57
312	GUNA	CHACHAURA	Khatkiya	7.89	708	0	250	67	22	14	0.25	0.031	280	54	35	31	1.8	49
313	GUNA	RAGHOGARH	Maksudangarh	7.68	728	0	323	28	15	21	0.21	0.018	270	62	28	40	1.2	74
314	GUNA	GUNA	Myana	7.74	941	0	311	96	13	50	0.42	0.038	355	52	55	46	8.0	33
315	GUNA	GUNA	Pagara	7.79	742	0	378	18	3	6	0.23	0.036	240	26	43	52	11.0	39
316	GUNA	GUNA	Patai	7.89	999	0	403	82	36	4	0.30	0.245	380	114	23	48	9.6	39

S. No.	District	Block	Location	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	TH	Ca	Mg	Na	K	SiO2
317	GUNA	CHACHAURA	Penchi	7.82	1155	0	262	156	28	83	0.11	0.030	475	100	55	45	1.2	60
318	GUNA	RAGHOGARH	Pipaliya	7.87	1131	0	567	35	16	16	0.36	0.365	440	74	62	56	1.2	34
319	GUNA	ARON	Rampur-I	7.82	1149	0	506	71	25	11	0.28	0.117	305	48	45	111	18.0	31
320	GUNA	BAMORI	Rampur-II	8.28	477	12	195	32	7	1	0.20	0.032	165	42	15	25	11.1	19
321	GUNA	GUNA	Singwasa	7.94	828	0	311	60	36	4	0.43	0.025	265	42	39	59	13.0	35
322	GUNA	BAMORI	Suhaya New	7.86	670	0	244	28	17	55	0.19	0.042	240	58	23	39	3.7	41
323	GWALIOR	MORAR	Aarauli	8.01	633	0	281	18	20	14	0.52	BDL	220	60	17	35	3.1	20
324	GWALIOR	GHATIGAON	Aron	7.57	1300	0	561	57	20	90	0.62	BDL	330	90	26	140	1.9	14
325	GWALIOR	BHITARWAR	Bajna	7.62	790	0	323	25	50	18	0.37	BDL	225	60	18	70	1.3	44
326	GWALIOR	MORAR	Bajang Colony Dabka	7.59	634	0	256	43	50	3	0.15	BDL	225	48	26	50	1.2	14
327	GWALIOR	MORAR	Behat	7.36	264	0	92	18	20	14	0.16	BDL	85	20	9	20	5.6	15
328	GWALIOR	GHATIGAON	Charai Shyampur	7.29	1703	0	262	344	70	58	0.35	BDL	575	160	43	120	3.6	20
329	GWALIOR	GHATIGAON	Ghantigaon	7.57	792	0	226	64	60	30	0.37	BDL	215	52	21	70	1.8	28
330	GWALIOR	BHITARWAR	Harsibandh	7.89	512	0	220	7	20	5	0.23	BDL	160	50	9	30	0.9	29
331	GWALIOR	DABRA	Kariavati	7.89	1122	0	451	89	30	21	0.86	BDL	330	40	56	100	1.4	27
332	GWALIOR	DABRA	Makoda	7.72	1190	0	214	156	60	160	0.39	BDL	365	88	35	105	0.3	31
333	GWALIOR	DABRA	Masoorpur New	8.01	957	0	384	50	30	21	1.02	BDL	220	30	35	80	45.0	27
334	GWALIOR	GHATIGAON	Mohna	7.49	3154	0	262	780	120	111	0.61	BDL	710	160	75	385	7.6	16
335	GWALIOR	GHATIGAON	Panihar	7.77	899	0	360	39	60	9	0.62	BDL	230	40	32	90	1.2	25
336	GWALIOR	DABRA	Tekanpur	8.09	1205	0	537	25	50	32	1.27	BDL	115	16	18	210	1.6	23
337	HARDA	TIMARNI	Chhidgaon	8.53	994	60	378	60	31	21	0.31	0.070	185	14	36	142	1.0	41
338	HARDA	KHIRKIYA	Chhipawad	7.88	1285	0	378	142	51	96	0.05	0.080	260	26	47	138	63.0	36
339	HARDA	KHIRKIYA	Chhuri Khal	8.19	388	0	189	14	3	16	0.36	0.010	155	30	19	16	2.0	83
340	HARDA	HARDA	Handia	8.36	1480	60	506	103	77	62	1.28	0.020	330	86	28	189	0.0	40
341	HARDA	HARDA	Harda	7.81	1152	0	329	103	65	136	0.66	0.050	425	68	62	77	1.0	40
342	HARDA	KHIRKIYA	Mandla	7.76	997	0	214	106	75	113	0.32	0.040	375	64	52	55	1.0	42
343	HARDA	HARDA	Masangaon	8.91	1374	54	525	50	97	16	1.02	0.030	100	14	16	256	3.0	34
344	HARDA	TIMARNI	Mohanpur	8	687	0	293	35	9	49	0.00	0.050	260	44	36	36	1.0	41
345	HARDA	KHIRKIYA	Morgarhi	7.8	668	0	287	32	31	21	0.24	0.060	255	18	51	34	1.0	50
346	HARDA	KHIRKIYA	Sonpura Colony	7.9	619	0	232	21	42	51	0.53	0.070	220	40	29	39	1.0	42
347	HARDA	TIMARNI	Temagaon	9.09	720	72	281	25	28	18	0.25	0.010	270	50	35	45	1.0	37
348	HOSHANGABAD	BABAI	Babai	8.6	492	18	140	50	16	32	0.21	0.080	150	8	32	42	1.0	31
349	HOSHANGABAD	BABAI	Bagratawa	8.02	645	0	268	28	4	71	0.06	0.060	180	32	24	60	9.0	21
350	HOSHANGABAD	BABAI	Baharpur	7.91	612	0	317	18	1	19	0.32	0.070	145	36	13	72	1.0	13
351	HOSHANGABAD	SEONI MALWA	Bhilatdeo	8.2	771	0	348	57	13	5	0.34	0.060	190	24	32	89	1.0	26
352	HOSHANGABAD	HOSHANGABAD	Dolaria	8.29	366	12	165	25	0	1	0.57	0.090	120	12	22	27	2.0	16
353	HOSHANGABAD	PIPARIYA	Garhaghat	7.62	540	0	226	43	9	17	0.62	0.070	220	42	28	21	2.0	15
354	HOSHANGABAD	BABAI	Gurra	7.33	1069	0	79	35	379	29	0.07	0.070	415	114	32	53	4.0	22
355	HOSHANGABAD	KESALA	Kesla	7.62	544	0	177	64	22	11	0.22	0.070	175	20	30	37	9.0	22
356	HOSHANGABAD	PIPARIYA	Matkuli	8.2	353	12	159	21	3	0	0.76	0.060	145	16	26	13	1.0	26
357	HOSHANGABAD	HOSHANGABAD	Nimsadia	7.64	547	0	262	21	5	24	0.39	0.080	205	30	32	28	3.0	31
358	HOSHANGABAD	PIPARIYA	Pachmarhi	7.89	471	0	61	60	23	95	0.00	0.090	130	24	17	27	37.0	5
359	HOSHANGABAD	KESALA	Pathrauta	7.57	1075	0	397	110	16	45	0.40	0.090	480	42	91	24	1.0	22
360	HOSHANGABAD	PIPARIYA	Pipariya	7.55	693	0	268	64	17	18	0.06	0.090	270	60	29	32	3.0	16
361	HOSHANGABAD	HOSHANGABAD	Powerkheda	8.37	783	36	366	35	8	0	1.08	0.080	225	10	49	75	1.0	20
362	HOSHANGABAD	PIPARIYA	Sandia	7.45	1526	0	372	202	60	135	0.00	0.080	630	50	123	60	1.0	43
363	HOSHANGABAD	HOSHANGABAD	Sanwalkhera	7.41	1488	0	372	223	81	46	0.27	0.080	490	76	73	113	6.0	18
364	HOSHANGABAD	SHOHAGPUR	Semri	7.77	1038	0	305	106	47	71	0.31	0.080	270	36	44	69	67.0	22
365	HOSHANGABAD	SEONI MALWA	Seonimalwa	7.16	1096	0	482	92	17	5	0.00	0.110	205	46	22	108	85.0	44
366	HOSHANGABAD	SHOHAGPUR	Sohagpur	7.58	1109	0	342	113	50	75	0.28	0.090	370	44	63	81	5.0	24
367	HOSHANGABAD	HOSHANGABAD	Sonkheda	7.46	674	0	311	46	13	0	0.33	0.100	235	44	30	42	7.0	19
368	HOSHANGABAD	KESALA	Suktawa	6.99	876	0	146	138	111	2	0.00	0.090	280	74	23	68	4.0	15
369	HOSHANGABAD	BABAI	Timarni	7.9	843	0	299	85	34	26	0.11	0.050	370	72	46	23	1.0	28

S. No.	District	Block	Location	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	TH	Ca	Mg	Na	K	SiO2
370	INDORE	SAWER	Chayan	7.45	762	0	232	64	23	95	0.29	0.005	270	84	15	50	1.8	26
371	INDORE	DEPALPUR	Dasai	7.42	790	0	220	50	57	106	0.34	0.012	270	78	18	56	3.0	38
372	INDORE	DEPALPUR	Depalpur	7.79	1796	0	244	397	10	158	0.24	0.014	480	102	55	190	4.1	38
373	INDORE	MHOW	Dhar	7.4	500	0	275	21	12	20	0.26	0.005	80	16	10	93	2.1	46
374	INDORE	INDORE	Dudhiya	8.1	740	0	207	82	20	79	0.47	0.035	155	46	10	99	0.2	28
375	INDORE	DEPALPUR	Hatod	7.9	1310	0	195	220	135	55	0.05	0.035	505	142	36	68	1.8	52
376	INDORE	MHOW	Mhow	8.18	550	0	329	25	8	15	0.26	0.014	285	74	24	18	1.5	35
377	INDORE	DEPALPUR	Rangwasa	7.9	1120	0	122	202	96	93	0.27	0.020	230	76	10	150	3.1	43
378	INDORE	SAWER	Sanwer	7.65	2975	0	146	844	88	105	0.10	0.014	865	222	75	285	2.5	48
379	INDORE	DEPALPUR	Ushapura	8.19	1925	0	470	206	245	40	0.86	0.025	200	36	27	350	1.8	42
380	JABALPUR	PATAN	*Lohari	7.23	1264	0	531	96	58	1	0.24	BDL	290	42	45	155	2.4	19
381	JABALPUR	JABALPUR	*Sukri	7.52	752	0	293	21	100	1	0.13	BDL	345	56	50	12	2.7	19
382	JABALPUR	JABALPUR	Barela	7.39	1200	0	464	135	11	18	0.25	BDL	510	92	68	38	2.1	23
383	JABALPUR	JABALPUR	Bargi1	7.27	720	0	336	25	48	2	0.14	BDL	335	42	56	12	1.5	25
384	JABALPUR	SHAHPURA	Bheraghat New	7.45	1000	0	366	71	95	2	0.17	0.01	450	102	47	22	1.5	56
385	JABALPUR	KUNDAM	Bishanpura	7.36	875	0	384	67	25	2	0.21	BDL	315	60	40	55	2.8	15
386	JABALPUR	PATAN	Deorikhas	7.95	875	0	250	106	72	7	0.91	0.018	270	52	34	76	2.0	52
387	JABALPUR	KUNDAM	Ghughara	7.3	380	0	128	14	63	1	0.32	BDL	170	26	26	8	1.9	22
388	JABALPUR	PANAGAR	Jabalpur	7.51	1030	0	232	167	80	11	0.82	BDL	490	72	75	12	1.5	51
389	JABALPUR	SIHORA	Kachupura	7.63	1040	0	384	121	10	33	0.21	BDL	370	82	40	68	2.5	25
390	JABALPUR	KUNDAM	Kundam	7.56	1065	0	348	121	30	54	0.16	BDL	490	58	84	17	2.7	30
391	JABALPUR	MAJHOLI	Majholi	7.35	1950	0	549	209	140	101	0.12	0.03	620	62	113	158	5.1	12
392	JABALPUR	JABALPUR	Manegaon1	7.62	650	0	146	21	165	1	0.17	0.02	305	48	45	7	1.5	25
393	JABALPUR	PATAN	Nunsar	7.44	895	0	409	46	45	1	1.43	BDL	370	82	40	34	2.2	20
394	JABALPUR	KUNDAM	Padaria	7.36	740	0	305	43	58	1	0.05	BDL	335	58	46	15	2.0	26
395	JABALPUR	PANAGAR	Rehepura	7.46	1170	0	519	43	95	2	0.19	BDL	500	100	61	40	0.9	26
396	JABALPUR	SHAHPURA	Shahpura	7.36	1250	0	397	124	122	2	0.11	0.04	550	82	84	35	1.1	26
397	JABALPUR	SIHORA	Sihora1	7.36	800	0	293	71	18	52	0.17	BDL	325	40	55	31	1.0	16
398	JABALPUR	PANAGAR	Umariya	7.42	860	0	323	35	108	2	0.15	BDL	415	76	55	8	1.0	26
399	JHABUA	PETLAWAD	Bamania	8.16	550	0	140	78	26	28	0.51	0.014	90	32	2	84	1.8	38
400	JHABUA	JHABUA	Jhabua1	8.18	1184	0	470	106	5	64	0.10	0.015	415	124	26	80	2.3	45
401	JHABUA	PETLAWAD	Karwar	7.75	1050	0	329	117	35	65	0.45	0.024	420	110	35	47	1.8	41
402	JHABUA	MEGHNAGAR	Meghnagar New	7.8	1382	0	403	199	4	95	0.97	0.062	265	44	38	195	1.7	39
403	JHABUA	PETLAWAD	Petlabad	7.8	695	0	177	82	71	17	0.55	0.018	240	64	19	49	1.0	42
404	JHABUA	RAMA	Pitol	7.6	952	0	226	121	35	105	0.61	0.029	370	74	45	48	1.4	48
405	JHABUA	RANAPUR	Ranapur	7.78	617	0	281	32	18	18	0.62	0.015	230	52	24	36	0.4	38
406	JHABUA	PETLAWAD	Sarangi	7.92	1100	0	336	117	54	67	0.27	0.014	445	120	35	48	0.5	49
407	JHABUA	THANDLA	Thandla1	8.04	1260	0	427	156	6	67	0.35	0.014	440	128	29	86	3.0	47
408	JHABUA	RANAPUR	Tikadimoti	7.52	705	0	323	18	10	65	1.02	0.009	250	58	26	46	2.4	52
409	KATNI	BADWARA	Badwara	7.32	1260	0	281	255	21	21	0.07	0.03	390	66	55	110	1.2	62
410	KATNI	BADWARA	Barchheka	7.32	555	0	268	25	21	2	0.41	BDL	275	36	45	2	0.2	24
411	KATNI	BADWARA	Barhi	7.29	1520	0	329	152	225	50	0.32	BDL	725	96	118	14	0.8	29
412	KATNI	BADWARA	Basadi	7.26	305	0	122	14	30	1	0.03	BDL	130	18	21	10	0.6	22
413	KATNI	RITHI	Deogawan	7.17	900	0	232	156	32	6	0.41	BDL	430	38	81	8	1.0	23
414	KATNI	KATNI	Katni1	7.3	730	0	360	39	16	1	0.30	BDL	320	46	50	21	0.6	13
415	KATNI	BADWARA	Kewlari	7.85	750	0	250	71	25	53	0.18	BDL	320	56	44	24	1.8	21
416	KATNI	BADWARA	Khitoli	7.52	1600	0	580	181	45	29	0.14	BDL	600	66	106	90	1.3	28
417	KATNI	RITHI	Lakhapateri	7.41	800	0	256	89	15	58	0.05	BDL	250	16	51	68	1.1	25
418	KATNI	BADWARA	Majhgawan1	7.11	500	0	153	25	30	58	0.05	BDL	205	38	27	15	1.4	37
419	KATNI	BADWARA	Piparia2	7.22	510	0	183	50	24	11	0.10	BDL	235	8	52	8	0.5	19
420	KATNI	BAHORIBAND	Rehli	7.96	1032	0	384	96	3	77	0.54	0.014	350	32	66	75	1.8	54
421	KATNI	RITHI	Rithi	7.35	2200	0	336	514	65	29	1.09	BDL	580	34	120	235	2.8	30
422	KATNI	DHIMAR KHEDA	Siloni	7.32	1085	0	415	82	50	42	0.78	BDL	480	64	78	28	2.9	42



S. No.	District	Block	Location	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	TH	Ca	Mg	Na	K	SiO2
423	KATNI	BAHORIBAND	Sleemanabad	7.6	600	0	268	21	45	5	0.15	BDL	250	48	32	23	1.1	35
424	KATNI	VIJAYRAGHAVGARH	Ubra	7.34	1450	0	653	89	50	13	2.61	BDL	270	12	58	205	8.6	38
425	KATNI	DHIMAR KHEDA	Umariapan	7.23	1250	0	525	74	12	94	0.31	BDL	275	32	47	160	1.8	33
426	KHANDWA	PANDHANA	Balwara	7.12	825	0	146	124	47	82	0.00	0.090	235	58	22	80	1.0	39
427	KHANDWA	PUNASA	Bangarda	7.53	570	0	220	21	8	78	0.63	0.080	155	44	11	59	0.0	55
428	KHANDWA	PUNASA	Barwah	7.61	935	0	299	85	21	100	0.23	0.019	350	66	45	53	2.0	36
429	KHANDWA	PANDHANA	Borgaon Buzurg	7.23	656	0	244	39	19	60	0.33	0.080	280	56	34	20	1.0	53
430	KHANDWA	HARSUD	Borisaray	7.9	1752	0	415	298	56	62	0.01	0.110	815	202	75	25	1.0	42
431	KHANDWA	HARSUD	Chanera	8.12	481	0	214	14	19	25	0.26	0.080	155	36	16	36	1.0	53
432	KHANDWA	CHHEGAON MAKHAN	Chhegaonmakhan	7.11	445	0	153	53	2	23	0.52	0.090	175	38	19	21	1.0	49
433	KHANDWA	HARSUD	Dagadkhedi Rly. Stn.	7.42	538	0	214	14	37	39	0.26	0.080	225	52	23	20	0.0	53
434	KHANDWA	CHHEGAON MAKHAN	Daudwa	8.07	445	0	189	21	20	21	0.19	0.014	170	42	16	23	2.4	39
435	KHANDWA	PUNASA	Daulatpur	7.57	781	0	250	46	32	90	0.42	0.080	300	70	30	35	1.0	48
436	KHANDWA	CHHEGAON MAKHAN	Deshgaon	7.14	786	0	256	78	39	30	0.38	0.090	270	38	43	53	1.0	43
437	KHANDWA	CHHEGAON MAKHAN	Dhangaon	7.21	1041	0	293	92	12	136	0.19	0.080	265	40	40	64	69.0	40
438	KHANDWA	PANDHANA	Gudi	7.53	378	0	165	21	13	0	0.71	0.080	125	20	18	25	1.0	17
439	KHANDWA	PUNASA	Gujar Khedi	7.91	680	0	317	25	12	37	0.13	0.090	270	78	18	32	0.0	44
440	KHANDWA	KHANDWA	Jaswadi	7.94	510	0	140	50	18	63	0.95	0.090	185	30	27	32	0.0	41
441	KHANDWA	KHANDWA	Jawar	7.36	461	0	116	28	26	62	0.34	0.090	180	28	27	15	0.0	57
442	KHANDWA	KHANDWA	Kahlari	7.64	671	0	275	32	44	22	0.17	0.090	255	50	32	35	2.0	52
443	KHANDWA	KHALWA	Kalamkalan	7.42	700	0	256	78	13	19	0.07	0.090	260	56	29	40	2.0	46
444	KHANDWA	PUNASA	Karof	8.34	474	18	177	14	29	23	0.39	0.030	180	40	19	22	1.0	54
445	KHANDWA	PUNASA	Kelwakalan	7.39	665	0	232	39	39	49	0.34	0.040	255	66	22	31	3.0	57
446	KHANDWA	KHALWA	Khalwa	8.64	794	30	134	110	37	79	0.02	0.030	305	78	27	34	12.0	52
447	KHANDWA	KHANDWA	Khandwa	8.21	903	24	232	135	20	25	0.03	0.050	205	42	24	67	71.0	38
448	KHANDWA	KHALWA	Khedi New	7.23	642	0	226	57	34	22	0.29	0.070	225	46	27	43	1.0	40
449	KHANDWA	CHHEGAON MAKHAN	Kusumbiya	8.29	569	24	104	89	30	26	0.22	0.070	105	18	15	54	47.0	17
450	KHANDWA	PUNASA	Mundi	7.51	926	0	305	103	40	24	0.19	0.040	350	74	40	48	3.0	43
451	KHANDWA	CHHEGAON MAKHAN	Pandhana	7.56	1785	0	153	326	150	182	0.01	0.070	785	188	77	48	1.0	48
452	KHANDWA	CHHEGAON MAKHAN	Roshiya	7.62	570	0	207	57	22	12	0.47	0.050	160	56	5	57	0.0	46
453	KHANDWA	KHANDWA	Rudhy Bhata	8.35	700	18	171	124	10	8	0.31	0.070	245	28	43	42	8.0	45
454	KHANDWA	PUNASA	Sanawad New	7.98	1050	0	403	117	3	33	0.20	0.024	420	56	68	46	3.8	40
455	KHANDWA	PUNASA	Thapna	8.24	1720	18	329	248	96	152	0.67	0.060	440	104	44	191	4.0	55
456	KHARGONE	MAHESHWAR	Baddiya	7.32	3276	0	171	667	385	195	0.10	0.019	1465	354	141	78	3.2	34
457	KHARGONE	KHARGONE	Bamnala New	7.75	945	0	293	89	14	115	0.25	0.042	400	56	63	32	2.8	37
458	KHARGONE	BHIKANGAON	Baruphatak	7.78	796	0	409	21	14	23	0.78	0.018	285	80	21	52	0.7	32
459	KHARGONE	KASRAWAD	Borlai	7.64	635	0	329	18	16	6	0.64	0.002	165	40	16	69	1.5	24
460	KHARGONE	SEGAON	Divalgaon	7.92	589	0	128	89	4	75	0.30	0.024	230	42	30	29	1.5	38
461	KHARGONE	MAHESHWAR	Gandhwani	7.67	2520	0	482	351	242	145	0.01	0.015	795	146	105	213	1.8	42
462	KHARGONE	BHAGWANPURA	Ghatti	7.85	1065	0	232	128	20	175	0.15	0.032	360	108	22	78	2.1	43
463	KHARGONE	BHIKANGAON	Gogaon	7.59	1402	0	275	294	16	55	0.13	0.017	630	120	80	32	1.3	53
464	KHARGONE	BARWAHA	Gujri1	8.09	1090	0	262	206	27	13	1.19	0.014	140	40	10	185	2.1	38
465	KHARGONE	GOGAWAN	Julwania	7.61	840	0	421	18	42	8	0.57	0.010	225	40	30	89	1.4	38
466	KHARGONE	KASRAWAD	Kasrawad1	7.88	1143	0	293	89	113	110	0.25	0.003	400	62	60	78	2.0	37
467	KHARGONE	BHIKANGAON	Khargone	7.87	954	0	378	92	10	33	0.18	0.025	360	60	51	53	1.5	45
468	KHARGONE	BARWAHA	Mandu	8.04	725	0	366	28	5	22	0.10	0.025	310	70	33	23	3.1	42
469	KHARGONE	BHIKANGAON	Rajpur	7.9	800	0	220	113	28	38	0.36	0.025	235	66	17	75	1.0	42
470	KHARGONE	KASRAWAD	Sawda	7.92	990	0	317	85	76	45	0.18	0.026	410	60	63	39	0.6	39
471	KHARGONE	KHARGONE	Un	7.83	960	0	317	85	8	114	0.15	0.035	410	66	60	32	0.6	47
472	MANDLA	BICHHIYA	Anjania	7.56	470	0	128	57	45	2	0.16	BDL	205	26	34	12	2.5	27
473	MANDLA	NARAYANGANJ	Babaliya	7.58	800	0	250	74	70	24	0.07	BDL	305	62	36	45	1.1	34
474	MANDLA	MANDLA	Bamhni New	7.22	3550	0	671	734	150	7	0.08	0.20	900	118	147	400	2.7	42
475	MANDLA	BICHHIYA	Bichhia1	7.25	915	0	305	106	28	35	0.07	BDL	335	50	51	55	2.5	28

S. No.	District	Block	Location	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	TH	Ca	Mg	Na	K	SiO2
476	MANDLA	MOHGAON	Chabi	7.63	672	0	336	21	29	3	0.24	BDL	250	42	35	40	0.9	46
477	MANDLA	MANDLA	Devgaon	7.16	900	0	378	71	10	37	0.04	BDL	365	66	49	39	2.4	39
478	MANDLA	NAINPUR	Dithori	7.46	945	0	415	74	23	2	0.07	BDL	275	62	29	88	3.9	27
479	MANDLA	GHUGHARI	Ghughri	7.28	500	0	232	35	10	1	2.77	BDL	85	16	11	75	1.8	16
480	MANDLA	MANDLA	Gwari	7.22	920	0	336	71	31	62	0.03	BDL	325	72	35	60	2.0	35
481	MANDLA	MOHGAON	Indira	7.52	750	0	311	50	48	1	0.04	BDL	330	60	44	21	0.5	25
482	MANDLA	BIJADANDI	Kalpi	7.44	702	0	275	35	65	9	0.10	BDL	330	78	33	10	1.8	25
483	MANDLA	BIJADANDI	Khamher Kheda	7.52	770	0	281	35	85	20	0.52	BDL	300	58	38	39	1.0	26
484	MANDLA	MANDLA	Khari	7.58	610	0	244	21	55	22	0.14	BDL	265	46	36	17	2.8	25
485	MANDLA	NARAYANGANJ	Kudomali New	7.26	720	0	342	28	38	1	0.16	BDL	255	52	30	47	1.3	34
486	MANDLA	MANDLA	Mahania patpara	7.77	735	0	360	18	45	1	0.19	BDL	275	42	41	40	2.4	41
487	MANDLA	MANDLA	Mahrajpur	7.92	625	0	244	131	70	2	0.18	BDL	425	92	47	16	1.0	25
488	MANDLA	MANDLA	Mandla1	7.89	2500	0	500	507	110	21	0.06	BDL	955	82	182	135	2.4	28
489	MANDLA	NARAYANGANJ	Mangalganj	7.51	740	0	311	46	45	6	0.08	BDL	320	72	34	23	0.4	35
490	MANDLA	MAWAI	Mangli	7.28	670	0	275	28	65	3	0.08	BDL	285	50	39	22	1.8	16
491	MANDLA	NIWAS	Manikpur	7.29	480	0	195	35	28	4	0.09	BDL	215	50	22	12	0.5	18
492	MANDLA	MAWAI	Motinala	7.21	624	0	67	71	125	34	0.05	BDL	210	24	36	46	1.4	24
493	MANDLA	NAINPUR	Nainpur	7.39	620	0	177	46	95	1	0.11	BDL	290	58	35	8	1.1	30
494	MANDLA	NIWAS	Niwas	7.25	570	0	195	21	90	1	0.06	BDL	260	36	41	9	2.6	24
495	MANDLA	MANDLA	Padmi choraha	7.28	840	0	390	46	33	1	0.37	BDL	370	38	67	22	0.3	18
496	MANDLA	MANDLA	Pathiri patpara	7.21	1320	0	275	53	295	67	0.04	0.05	600	84	95	26	1.4	16
497	MANDLA	NAINPUR	Pindrai	7.27	595	0	275	18	45	1	0.37	BDL	275	50	36	10	1.6	14
498	MANDLA	MANDLA	Ramnagar1	7.54	845	0	372	71	16	2	0.18	BDL	360	72	44	28	1.4	23
499	MANDLA	NAINPUR	Rampuri New	7.23	690	0	323	21	47	1	0.12	BDL	325	52	47	8	1.8	11
500	MANDLA	MOHGAON	Rehgaon	7.06	665	0	317	46	5	2	3.85	BDL	70	10	11	118	3.8	19
501	MANDLA	BICHHIYA	Sijhora	7.77	1610	0	177	372	85	53	0.51	0.03	585	84	91	100	2.2	14
502	MANDLA	MANDLA	Subhariya	7.48	580	0	275	21	32	4	0.54	BDL	230	36	34	28	0.3	18
503	MANDLA	NAINPUR	Surajpura	7.43	800	0	348	21	80	2	0.48	BDL	370	46	62	15	0.5	35
504	MANDSAUR	BHANPURA	Babulda	7.85	1465	0	183	195	142	167	0.37	BDL	515	86	73	72	32.5	40
505	MANDSAUR	BHANPURA	Badodiya	7.56	745	0	214	32	75	65	0.63	BDL	245	44	33	43	14.0	16
506	MANDSAUR	GAROTH	Barkheranayak	7.65	1365	0	171	223	38	177	0.10	BDL	565	118	66	43	2.0	35
507	MANDSAUR	MANDSAUR	Basakheda	7.89	898	0	207	89	51	82	0.19	BDL	360	62	50	33	3.0	36
508	MANDSAUR	BHANPURA	Bhanpura	7.65	460	0	207	28	5	5	0.53	BDL	155	34	17	28	5.0	17
509	MANDSAUR	MANDSAUR	Botalganj	8.32	1056	18	311	71	66	83	0.87	BDL	240	36	36	124	2.0	51
510	MANDSAUR	MANDSAUR	Chirmoliya	7.85	1360	0	195	181	55	193	0.19	BDL	485	80	69	64	21.0	44
511	MANDSAUR	MANDSAUR	Daloda1	7.98	850	0	262	71	28	89	0.39	BDL	295	46	44	55	2.0	48
512	MANDSAUR	GAROTH	Dharmarajeswar	7.84	1442	0	183	227	62	181	0.02	BDL	610	118	77	44	1.0	37
513	MANDSAUR	BHANPURA	Dudhkheri	7.77	980	0	207	106	15	158	0.29	BDL	425	76	57	24	1.0	49
514	MANDSAUR	GAROTH	Garoth1	7.45	1598	0	207	319	87	86	0.39	BDL	680	94	108	51	2.0	45
515	MANDSAUR	MANDSAUR	Kachnera	7.85	1842	0	549	181	134	70	0.38	BDL	235	12	50	307	1.0	44
516	MANDSAUR	SITAMAU	Khejriya	8.22	1993	6	153	507	72	45	0.03	BDL	890	244	68	29	5.0	33
517	MANDSAUR	MALHARGARH	Malhargarh	8.32	915	18	323	74	35	19	0.72	BDL	225	30	36	99	3.0	17
518	MANDSAUR	MANDSAUR	MANDSAUR	8.41	1085	24	342	82	54	51	0.57	BDL	315	24	62	74	34.0	49
519	MANDSAUR	MANDSAUR	Manpura	7.56	912	0	140	92	49	173	0.14	BDL	400	84	46	20	5.0	46
520	MANDSAUR	MALHARGARH	Narayangarh	7.88	820	0	134	135	8	95	0.22	BDL	300	28	56	40	2.0	47
521	MANDSAUR	MANDSAUR	Nayakhera	7.85	1470	0	220	227	148	38	0.31	BDL	390	44	68	138	6.0	18
522	MANDSAUR	MALHARGARH	Pipaliya	7.89	989	0	201	117	42	139	0.36	BDL	420	44	75	31	1.0	46
523	MANDSAUR	BHANPURA	Sandhara	8.41	2098	72	696	121	144	78	1.26	BDL	440	16	97	269	4.0	35
524	MANDSAUR	GAROTH	Shamgarh1	7.45	555	0	171	53	13	48	0.34	BDL	210	44	24	27	1.0	13
525	MANDSAUR	SITAMAU	Sitamau	8.54	1399	30	360	170	65	38	0.86	BDL	165	16	30	234	2.0	14
526	MANDSAUR	SITAMAU	Surjani	7.99	1320	0	244	220	85	68	0.33	BDL	360	68	46	135	5.0	32
527	MANDSAUR	SITAMAU	Suwasara	7.85	1270	0	122	252	52	118	1.03	BDL	275	46	39	162	1.0	34
528	MORENA	PORSA	Bareha	8.07	1111	0	567	21	20	7	0.64	BDL	340	20	71	90	3.3	23

S. No.	District	Block	Location	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	TH	Ca	Mg	Na	K	SiO2
529	MORENA	PAHADGARH	Huseinpur	8.21	1744	0	818	74	50	35	0.85	BDL	310	10	69	250	3.5	23
530	MORENA	JOURA	Jafrabad	8	1172	0	543	57	20	19	0.60	BDL	390	28	78	80	3.6	25
531	MORENA	KAILARAS	Kailaras	7.97	1690	0	793	89	20	8	0.62	BDL	265	6	61	260	10.1	23
532	MORENA	MORENA	Khera mewda	8.04	2100	66	671	177	40	137	0.52	BDL	735	36	157	125	3.6	19
533	MORENA	MORENA	Morena	8.27	1080	90	397	21	40	17	0.44	BDL	295	20	60	100	2.9	22
534	MORENA	PAHADGARH	Pahargarh	8.36	2013	0	952	103	25	10	0.92	BDL	165	8	35	370	3.9	19
535	MORENA	PORSA	Porsa	8.07	1588	0	549	99	50	137	0.38	BDL	420	18	91	155	2.9	25
536	MORENA	SABALGARH	Ranipura	7.96	1277	0	378	128	50	70	0.47	BDL	445	12	101	75	3.5	23
537	MORENA	SABALGARH	Tentra	7.82	631	0	244	25	50	8	0.42	BDL	180	30	26	57	5.5	18
538	MORENA	SABALGARH	Tonga Gaon	7.76	830	0	305	64	50	28	0.83	BDL	285	46	41	63	4.3	17
539	NARSINGHPUR	NARSINGHPUR	Bachai	7.06	1545	0	586	117	103	26	1.10	0.080	680	58	130	41	3.8	19
540	NARSINGHPUR	GATEGAON	Bauchhar	7.69	708	0	403	14	5	1	0.39	0.120	330	38	57	12	0.2	14
541	NARSINGHPUR	KARELI	Betli	7.48	705	0	299	57	4	31	0.13	0.140	335	36	60	8	0.3	17
542	NARSINGHPUR	NARSINGHPUR	Dangidhana	7.43	1000	0	482	35	41	18	0.44	0.100	360	46	60	65	0.5	21
543	NARSINGHPUR	GADARWARA	Deoribadwani	7.48	1300	0	628	25	68	35	0.46	0.060	450	52	78	90	2.8	14
544	NARSINGHPUR	CHAWARPATHA	Dobhi	7.17	1110	0	177	145	75	157	0.15	0.700	515	62	88	19	0.9	19
545	NARSINGHPUR	GATEGAON	Gotegaon	7.61	1280	0	451	124	70	24	0.36	0.170	455	34	90	83	4.2	15
546	NARSINGHPUR	CHAWARPATHA	Gundrai(ii)	7.39	1430	0	610	53	126	10	1.32	0.800	625	104	89	42	2.1	16
547	NARSINGHPUR	GATEGAON	Jhoteswar	7.14	740	0	329	43	19	30	0.64	0.060	290	52	39	36	0.3	11
548	NARSINGHPUR	GATEGAON	Karakbel New	7.27	1085	0	329	121	64	43	0.25	0.070	415	50	71	56	4.3	10
549	NARSINGHPUR	KARELI	Kareli Basti	7.26	1040	0	476	39	60	16	0.16	0.090	440	72	63	37	2.1	25
550	NARSINGHPUR	GATEGAON	Manegaon2	7.65	1175	0	519	53	55	29	0.35	0.070	450	78	62	60	3.6	29
551	NARSINGHPUR	GATEGAON	Mugwani1	7.22	940	0	427	32	55	24	0.28	0.090	420	42	77	23	1.1	15
552	NARSINGHPUR	KARELI	Ramkhiria	7.38	690	0	287	21	75	1	0.27	0.080	305	22	61	17	2.1	16
553	NARSINGHPUR	BABAI (CHICHLI)	Salichauka	7.75	1400	0	494	117	95	29	0.68	0.080	585	104	79	49	3.2	35
554	NARSINGHPUR	NARSINGHPUR	Sundernagar	7.82	1220	0	512	60	75	32	1.53	0.070	540	92	75	31	1.9	21
555	NARSINGHPUR	CHAWARPATHA	Tendukhera	7.72	970	0	500	18	25	27	0.89	0.070	375	50	61	50	1.1	19
556	NEEMUCH	MANASA	Besla	8.12	645	0	183	21	22	121	0.57	BDL	150	46	9	70	3.0	12
557	NEEMUCH	MANASA	BhadanaDW	8.05	774	0	153	103	43	42	0.29	BDL	330	74	35	14	0.0	17
558	NEEMUCH	MANASA	Chachor	7.95	2015	0	146	482	42	143	0.11	BDL	895	170	114	29	2.0	15
559	NEEMUCH	JAWAD	Dadoli	8.02	1200	0	153	121	92	239	0.32	BDL	500	96	63	45	1.0	15
560	NEEMUCH	NEEMUCH	Girdola	8.1	4045	0	55	1177	202	44	0.39	BDL	1805	306	253	98	3.0	33
561	NEEMUCH	MANASA	Gota pipliya	8.35	1611	72	238	167	152	154	0.58	BDL	510	56	90	132	1.0	39
562	NEEMUCH	MANASA	Jamalpara	7.77	800	0	195	82	15	97	0.48	BDL	265	52	33	50	1.0	20
563	NEEMUCH	NEEMUCH	Jamuniakalan	7.85	660	0	165	78	35	46	0.48	BDL	240	52	27	38	1.0	19
564	NEEMUCH	JAWAD	Jat	8.04	1186	0	214	174	112	55	0.54	BDL	385	56	60	79	20.0	17
565	NEEMUCH	JAWAD	Jawad	8.11	1624	0	232	294	68	128	0.39	BDL	510	64	85	127	11.0	22
566	NEEMUCH	NEEMUCH	Kacholi	7.88	900	0	207	96	55	85	1.06	BDL	340	58	47	47	0.0	32
567	NEEMUCH	MANASA	Kundaliya	8.02	2515	0	134	514	185	221	0.48	BDL	1000	190	128	110	3.0	38
568	NEEMUCH	JAWAD	Lalpura	8.34	1305	18	464	64	41	124	0.01	BDL	460	24	97	85	1.0	20
569	NEEMUCH	MANASA	Manasa	8.45	1285	30	390	113	62	28	1.09	BDL	185	16	35	190	4.0	19
570	NEEMUCH	JAWAD	Morban1	8.35	877	12	299	35	99	9	0.89	BDL	305	30	56	52	0.0	33
571	NEEMUCH	NEEMUCH	Nayagaon2	8.65	1050	42	311	50	18	151	1.03	BDL	290	58	35	88	19.0	15
572	NEEMUCH	NEEMUCH	Neemuch	8.45	2805	24	336	574	166	72	0.60	BDL	755	68	142	278	5.0	13
573	NEEMUCH	JAWAD	Patan1	8.51	977	24	232	60	162	13	0.52	BDL	280	28	51	88	8.0	26
574	NEEMUCH	MANASA	Rampura	7.65	622	0	220	53	25	27	0.12	BDL	215	40	28	42	1.0	20
575	NEEMUCH	JAWAD	Ratangarh	7.85	1262	0	214	174	150	28	0.68	BDL	450	70	67	71	14.0	14
576	NEEMUCH	NEEMUCH	Savan	7.99	745	0	238	64	54	6	0.45	BDL	240	54	26	51	2.0	11
577	NEEMUCH	NEEMUCH	Semali Chandrawat	8.02	1785	0	622	213	32	45	0.62	BDL	435	70	63	200	10.0	31
578	NEEMUCH	JAWAD	Singoli	7.89	1385	0	214	230	150	6	1.25	BDL	325	56	45	145	22.0	18
579	PANNA	AJAIGARH	Ajaigarh	7.52	982	0	256	92	45	82	0.70	0.043	410	84	49	36	0.5	43
580	PANNA	PANNA	Akola	8.04	255	0	122	11	4	1	0.11	0.028	75	20	6	11	20.0	15
581	PANNA	GUNNOR	Amanganj	7.54	1879	0	238	135	400	63	0.55	0.039	795	178	85	60	6.0	24

S. No.	District	Block	Location	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	TH	Ca	Mg	Na	K	SiO2
582	PANNA	PANNA	Backchur	7.83	422	0	214	14	10	3	0.36	0.027	185	50	15	8	4.5	28
583	PANNA	PANNA	Badagaon	9.98	161	12	18	21	7	13	0.05	0.012	45	10	5	11	6.0	9
584	PANNA	PANNA	Bahera	7.73	206	0	73	14	9	10	0.28	0.036	65	16	6	9	11.5	8
585	PANNA	AJAIGARH	Banahari Kalan	7.68	617	0	305	18	11	25	1.14	0.038	250	44	34	26	0.3	65
586	PANNA	AJAIGARH	Bariyarpur	7.69	999	0	268	89	45	121	1.35	0.030	320	58	43	79	3.2	33
587	PANNA	PANNA	Barrachh	8.09	266	6	116	14	6	1	0.94	0.032	90	16	12	18	0.8	24
588	PANNA	AJAIGARH	Chandla	8.08	1200	0	323	113	110	74	0.85	0.018	385	48	64	98	1.4	43
589	PANNA	SHAHNAGAR	Dalpatpur	8.76	705	24	31	138	62	51	0.39	0.015	185	36	23	75	3.0	45
590	PANNA	SHAHNAGAR	Dharampura	7.79	435	0	183	35	12	8	0.37	0.032	165	46	12	21	0.4	16
591	PANNA	PAWAI	Gaisabad	7.5	1150	0	366	167	12	34	0.45	0.003	510	142	38	29	1.5	34
592	PANNA	GUNNOR	Ghuara	7.86	750	0	214	46	110	25	0.57	0.020	275	74	22	46	1.0	50
593	PANNA	GUNNOR	Gunaur	7.34	1597	0	140	394	13	67	0.08	0.036	650	140	73	66	1.7	19
594	PANNA	PAWAI	Hathkuri	7.90	675	0	366	18	7	1	0.43	0.073	125	20	18	94	4.0	18
595	PANNA	PAWAI	Kharmora	8.40	529	24	214	25	24	1	0.45	0.079	115	6	24	64	5.0	18
596	PANNA	SHAHNAGAR	Kuankheda	8.58	652	24	189	89	11	1	0.21	0.101	140	22	21	81	4.8	64
597	PANNA	PANNA	Madla	9.69	461	72	122	25	11	13	0.14	1.487	90	28	5	56	12.0	15
598	PANNA	SHAHNAGAR	Majhgawa	7.63	450	0	183	25	18	26	0.35	0.002	200	46	21	11	0.8	42
599	PANNA	PAWAI	Mohendra	7.80	1135	0	207	223	24	61	0.55	0.070	400	70	55	75	0.7	23
600	PANNA	AJAIGARH	Pandepurwa	8.13	922	30	409	32	16	32	1.46	0.074	255	22	49	93	0.5	64
601	PANNA	PANNA	Panna1	7.92	993	24	268	124	38	39	0.80	0.021	245	44	33	109	9.0	21
602	PANNA	PAWAI	Powai	8.07	1511	60	519	121	30	86	0.48	0.026	490	20	107	114	11.0	35
603	PANNA	SHAHNAGAR	Raipura	8.20	662	24	299	28	9	1	0.59	0.102	105	26	10	92	17.0	17
604	PANNA	SHAHNAGAR	Saharan	8.19	679	18	244	18	5	102	0.31	0.122	135	34	12	89	6.0	11
605	PANNA	GUNNOR	Salleha	8.38	654	36	268	43	12	5	0.49	0.075	170	30	23	58	25.0	29
606	PANNA	PAWAI	Semaria1	7.98	543	0	256	21	8	11	0.25	0.050	200	48	19	31	0.8	14
607	PANNA	AJAIGARH	Sinhai	7.93	595	0	299	25	6	17	0.63	0.062	225	38	32	31	0.4	75
608	PANNA	SHAHNAGAR	Takhori	8.30	592	12	146	103	5	3	0.19	0.063	105	16	16	84	6.4	19
609	RAISEN	BARAILY	Bari	7.95	1091	0	458	85	18	6	0.56	0.228	415	58	66	57	1.1	41
610	RAISEN	GOHAGANJ	Barkheda	7.9	1075	0	342	103	41	70	0.60	0.053	390	74	50	62	6.4	30
611	RAISEN	BEGAMGANJ	Begumganj	7.87	1805	0	146	333	49	218	0.26	0.011	810	214	67	34	9.8	57
612	RAISEN	GOHAGANJ	Chiklod	7.73	2101	0	323	404	144	38	0.41	0.017	695	192	52	135	45.0	19
613	RAISEN	GAIRATGANJ	Dehgaon	7.58	2093	0	628	340	6	13	0.19	0.443	920	204	100	48	14.4	40
614	RAISEN	UDAIPURA	Deori	7.9	600	0	281	28	7	5	0.23	0.141	220	56	19	33	3.4	65
615	RAISEN	SILWANI	Dhangwan	8.04	1388	0	696	50	18	19	0.46	4.313	530	88	75	66	13.5	68
616	RAISEN	GAIRATGANJ	Gairatganj	7.74	790	0	146	138	41	14	0.43	0.049	230	54	23	73	1.4	23
617	RAISEN	GAIRATGANJ	Garhi	7.5	778	0	226	74	45	54	0.33	0.035	325	68	38	25	2.8	51
618	RAISEN	GOHAGANJ	Goharganj	7.97	611	0	226	53	15	16	0.14	0.048	205	58	15	38	9.7	15
619	RAISEN	BARAILY	Harsili	8.59	1421	144	561	74	4	5	0.41	0.987	360	34	67	145	25.0	31
620	RAISEN	GOHAGANJ	Hathi palan	7.97	667	0	226	64	15	25	0.48	0.048	190	38	23	63	1.1	37
621	RAISEN	RAISEN	Khadera	7.73	695	0	317	39	5	4	0.33	0.040	280	36	46	24	9.9	21
622	RAISEN	UDAIPURA	Khiria	8.25	1828	84	641	124	79	27	0.69	0.054	150	16	27	340	15.0	20
623	RAISEN	GOHAGANJ	Maindwa	7.5	358	0	55	64	15	18	0.05	0.035	90	24	7	38	4.1	9
624	RAISEN	BEGAMGANJ	Padahjir	7.64	568	0	201	39	10	37	0.30	0.037	210	44	24	32	0.7	53
625	RAISEN	BEGAMGANJ	Paloha	7.53	1350	0	201	184	77	163	0.18	0.040	570	124	63	44	2.4	57
626	RAISEN	RAISEN	Raisen	7.98	609	0	232	43	20	18	0.14	0.642	205	60	13	36	12.0	8
627	RAISEN	RAISEN	Salamatpurchoraha	8.61	499	30	134	53	15	3	0.24	0.059	120	20	17	51	12.0	22
628	RAISEN	RAISEN	Sanchi	8.1	2044	36	732	220	51	20	0.05	1.270	595	148	55	131	106.0	50
629	RAISEN	SILWANI	Siarmau	7.89	595	0	268	28	8	20	0.56	0.053	190	36	24	43	7.0	42
630	RAISEN	SILWANI	Silwani	7.83	781	0	336	43	4	26	0.51	0.055	305	34	54	37	1.1	53
631	RAISEN	BEGAMGANJ	Sultanganj	7.69	755	0	177	96	25	75	0.11	0.045	320	92	22	24	1.4	19
632	RAISEN	GOHAGANJ	Sultanpur	7.46	786	0	195	124	28	6	0.51	0.053	285	48	40	43	7.0	13
633	RAISEN	GOHAGANJ	Tamot	8.04	969	0	287	110	73	5	0.47	0.218	240	28	41	106	7.6	21
634	RAISEN	UDAIPURA	Udaipura	7.95	1811	0	720	181	8	12	0.32	1.500	520	46	98	157	29.0	38

S. No.	District	Block	Location	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	TH	Ca	Mg	Na	K	SiO2
635	RAJGARH	BIAORA	Barkheda	9.01	571	66	177	18	7	59	0.67	0.060	210	34	30	32	0.6	42
636	RAJGARH	RAJGARH	Bawari	8.21	411	0	183	18	14	15	0.24	0.050	175	42	17	12	0.3	40
637	RAJGARH	NARSINGGARH	BhagariBunglow	7.62	570	0	262	35	8	21	0.33	0.040	235	56	23	25	0.5	45
638	RAJGARH	BIAORA	Biora	8.06	751	0	262	57	16	71	0.41	0.040	295	52	40	34	0.3	35
639	RAJGARH	JIRAPUR	Chhapihera	8.91	1110	18	43	170	253	2	0.66	0.080	320	96	19	107	3.1	41
640	RAJGARH	NARSINGGARH	Gandhigram	7.54	645	0	232	39	25	62	0.34	BDL	290	52	39	14	0.4	64
641	RAJGARH	NARSINGGARH	Ganyari	7.55	1356	0	287	181	83	125	0.29	BDL	550	116	63	45	24.0	43
642	RAJGARH	KHILCHIPUR	Khilchipur	7.61	1543	0	201	280	138	80	0.35	BDL	510	102	62	118	2.5	34
643	RAJGARH	JIRAPUR	Machalpur	9.15	581	36	116	82	34	17	0.28	BDL	170	26	26	50	8.4	35
644	RAJGARH	NARSINGGARH	Mana	8.4	579	24	232	18	13	47	0.50	BDL	205	32	30	37	1.6	43
645	RAJGARH	NARSINGGARH	Mandawar	7.65	1099	0	336	188	8	2	0.37	BDL	425	78	56	55	4.0	43
646	RAJGARH	NARSINGGARH	Pachore	7.59	1562	0	214	298	143	39	0.11	BDL	665	114	92	51	0.6	37
647	RAJGARH	SARANGPUR	Sandavata	7.94	743	0	366	14	19	38	0.53	BDL	245	42	34	57	1.2	41
648	RAJGARH	SARANGPUR	Sarangpur	8.61	1138	6	98	255	83	44	1.34	BDL	150	32	17	191	1.3	21
649	RAJGARH	BIAORA	Suthaliya New	7.7	1458	0	360	209	63	84	0.44	BDL	600	116	75	56	2.1	29
650	RAJGARH	NARSINGGARH	Talen	7.82	1291	0	451	163	15	28	0.62	BDL	445	46	80	89	0.5	26
651	RAJGARH	SARANGPUR	Udankheri	8.36	1515	24	195	351	77	1	0.41	BDL	515	68	84	107	6.7	37
652	RAJGARH	JIRAPUR	Zirapur	8.75	720	24	207	85	27	25	0.25	BDL	290	62	33	31	0.4	31
653	RATLAM	ALOT	Alot	8.11	595	0	128	57	42	58	0.49	BDL	225	44	28	22	3.0	40
654	RATLAM	BAJNA	Bajna	8.05	898	0	275	78	46	54	0.24	BDL	250	66	21	83	1.0	42
655	RATLAM	RATLAM	Dhannod	7.95	1199	0	201	152	112	120	0.56	BDL	275	54	34	137	17.0	40
656	RATLAM	RATLAM	Dharad	7.85	765	0	177	85	59	41	0.38	BDL	100	22	11	116	10.0	32
657	RATLAM	ALOT	Gul Balod	8.21	1099	6	305	156	18	62	0.57	BDL	290	22	57	113	10.0	39
658	RATLAM	JAORA	Jaora	8.05	1272	0	220	199	95	80	0.65	BDL	450	70	67	80	1.0	48
659	RATLAM	ALOT	Kharwa Kalan	7.85	1902	0	226	337	185	77	0.32	BDL	340	54	50	275	3.0	42
660	RATLAM	ALOT	Malakhera	7.95	975	0	268	78	77	82	0.37	BDL	305	32	55	78	1.8	41
661	RATLAM	RATLAM	Mewasa	7.48	806	0	207	78	46	66	0.41	BDL	215	30	34	79	5.0	44
662	RATLAM	JAORA	Mindli	8.25	1845	6	159	340	150	158	0.43	BDL	590	36	122	141	2.0	37
663	RATLAM	RATLAM	Mundri	8.32	785	12	189	46	22	146	0.31	BDL	305	20	62	30	3.0	42
664	RATLAM	RATLAM	Namli	8.35	1535	12	153	298	65	138	0.25	BDL	280	30	50	211	1.0	39
665	RATLAM	PIPLODA	Piploda	8.42	1292	18	214	220	22	99	0.62	BDL	400	24	83	99	0.3	31
666	RATLAM	BAJNA	Rajapur	7.65	542	0	153	28	18	87	0.43	BDL	235	40	33	11	0.3	53
667	RATLAM	BAJNA	Raoti1	7.88	589	12	214	18	30	40	0.22	BDL	240	44	32	16	0.2	45
668	RATLAM	RATLAM	Ratlam	8.25	1199	12	220	206	68	33	0.24	BDL	380	20	80	93	1.5	35
669	RATLAM	RATLAM	Rattagarhkhera	8.35	840	12	153	99	42	93	0.50	BDL	210	64	12	86	0.9	31
670	RATLAM	SAILANA	Sailana	8.45	2198	18	165	496	148	87	0.56	BDL	535	20	118	250	2.0	32
671	RATLAM	SAILANA	Saser	8.38	855	18	214	92	65	33	0.80	BDL	190	52	15	105	0.4	53
672	RATLAM	RATLAM	Sejawata	7.88	1388	0	183	277	48	94	1.12	BDL	325	36	57	159	2.0	40
673	RATLAM	SAILANA	Shivgarh1	7.85	605	0	201	25	41	57	0.87	BDL	120	12	22	79	3.0	40
674	RATLAM	JAORA	Sindurkiya	8.45	1345	30	415	138	50	70	0.87	BDL	530	28	112	65	0.5	45
675	RATLAM	PIPLODA	Sohangarh	7.85	645	0	189	25	52	72	0.43	BDL	275	42	41	17	0.3	39
676	RATLAM	ALOT	Tal	8.54	1002	30	336	60	50	66	0.42	BDL	235	28	40	125	0.6	40
677	RATLAM	JAORA	Ukediya	8.52	977	30	226	110	22	113	0.67	BDL	290	36	49	90	2.0	47
678	REWA	REWA	Amilki	7.56	2072	0	128	323	349	72	0.23	0.064	890	248	66	64	1.5	22
679	REWA	SIRMOUR	Baikunthpur1	7.60	1731	0	134	124	486	14	0.48	0.049	735	188	64	55	6.4	14
680	REWA	SIRMOUR	Bara	7.93	499	0	232	14	47	1	0.51	0.031	180	52	12	32	1.3	13
681	REWA	JAWA	Barduhawan	8.14	671	18	354	11	3	4	0.14	0.063	120	16	19	91	12.0	25
682	REWA	REWA	Chhijwar	7.76	980	0	159	67	206	7	0.21	0.057	390	92	39	48	2.5	17
683	REWA	JAWA	Dabhoura	7.60	608	0	104	67	48	67	0.25	0.073	185	56	11	48	8.9	7
684	REWA	MAUGANJ	Deotalav	7.93	667	0	281	57	15	18	0.08	0.005	235	28	40	38	4.0	15
685	REWA	GANGEV	Gangeo	7.86	772	0	226	110	24	27	0.39	0.009	290	50	40	41	3.0	19
686	REWA	GANGEV	Garh	7.95	1054	0	171	28	304	1	0.06	0.007	380	90	38	58	12.0	13
687	REWA	RAMPUR KARCHULIYAN	Gurh	7.82	878	0	207	110	77	23	0.10	0.012	290	68	29	66	1.8	26

S. No.	District	Block	Location	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	TH	Ca	Mg	Na	K	SiO2
688	REWA	HANUMANA	Hanumana	7.96	947	0	268	135	42	26	0.12	BDL	225	42	29	91	39.0	14
689	REWA	JAWA	Jawa1	8.01	563	0	281	25	3	10	0.23	0.014	210	28	34	30	3.1	27
690	REWA	REWA	Kanauji	7.94	897	0	207	21	218	1	0.35	0.018	330	66	40	51	4.6	17
691	REWA	TEONTHAR	Katra	8.33	333	12	171	7	9	1	0.67	BDL	120	20	17	19	0.6	15
692	REWA	HANUMANA	Khatkhari	8.25	428	6	134	46	12	12	0.19	0.004	135	24	18	33	3.0	20
693	REWA	TEONTHAR	Kuthla	8.12	660	12	293	25	20	5	0.35	0.026	200	30	30	55	5.7	35
694	REWA	HANUMANA	Madha	7.65	1084	0	165	191	26	95	0.19	0.003	425	110	36	45	11.8	14
695	REWA	GANGEV	Mangawan	8.03	518	0	244	32	6	8	0.28	0.018	195	36	26	27	3.0	20
696	REWA	MAUGANJ	Mauganj1	7.85	1322	0	262	206	57	112	0.47	0.009	330	62	43	131	32.0	12
697	REWA	NAIGARHI	Naigarhi1	7.86	740	0	153	96	30	77	0.26	0.010	275	72	23	39	4.5	16
698	REWA	HANUMANA	Pahadi	7.76	1117	0	159	209	69	59	0.23	0.026	365	84	38	85	3.9	23
699	REWA	RAMPUR KARCHULIYAN	Raipur	7.67	1591	0	122	25	636	8	0.25	0.018	710	210	45	31	4.1	18
700	REWA	REWA	Reethi	7.54	2601	0	116	28	1009	3	0.35	0.021	1200	472	5	36	9.8	15
701	REWA	REWA	Rewa	7.94	525	0	201	21	55	5	1.26	0.014	190	44	19	31	1.3	15
702	REWA	RAMPUR KARCHULIYAN	Sagra	7.91	830	0	195	60	158	5	0.21	0.030	330	62	43	35	4.7	21
703	REWA	SIRMOUR	Semaria2	7.63	2285	0	189	337	177	309	0.28	0.031	790	128	114	145	20.0	24
704	REWA	SIRMOUR	Sirmaur1	7.82	1044	0	189	156	142	24	0.08	0.024	330	80	32	80	8.2	16
705	REWA	MAUGANJ	Sitapur	8.46	495	12	146	43	40	34	0.09	0.025	140	28	17	29	31.0	12
706	REWA	TEONTHAR	Sohagi	8.33	881	24	409	43	14	14	0.24	0.037	340	14	74	38	11.7	21
707	REWA	GANGEV	Tikura	7.71	617	0	238	60	8	23	0.27	0.047	240	40	34	29	2.7	19
708	SAGAR	BANDA	Banda	7.51	940	0	244	160	23	25	0.29	0.014	370	88	36	45	1.3	37
709	SAGAR	MALTHON	Bandri	7.75	930	0	287	145	6	23	0.47	0.009	305	76	28	73	1.0	42
710	SAGAR	SAGAR	Baroda	7.85	960	0	281	149	31	12	0.40	0.003	275	52	35	95	0.4	36
711	SAGAR	SHAHNAGAR	Barodia	7.9	830	0	305	92	32	2	0.76	0.003	275	60	30	60	8.0	38
712	SAGAR	MALTHON	Behrol	7.93	1000	0	281	142	66	1	0.38	0.002	220	50	23	125	10.0	39
713	SAGAR	KESLI	Gourjhamar	7.95	1145	0	268	213	42	9	0.92	0.009	235	40	33	153	3.0	51
714	SAGAR	REHLI	Hurra	7.77	550	18	49	96	25	72	0.37	0.010	235	38	34	18	0.4	62
715	SAGAR	SAGAR	Jaisingh nagar	7.98	780	0	262	113	9	3	0.33	0.009	330	58	45	27	0.2	46
716	SAGAR	BANDA	Jaruakhera	8	790	0	268	67	45	40	0.30	0.008	325	58	44	31	2.0	52
717	SAGAR	KESLI	Kesli	7.43	980	0	262	124	45	66	0.72	0.001	450	118	38	18	0.8	55
718	SAGAR	BANDA	Khajuria	7.78	890	0	275	142	15	2	0.39	0.015	245	46	32	87	8.0	47
719	SAGAR	MALTHON	Khimlasa	7.45	2620	0	329	454	350	43	0.35	0.012	1005	168	142	135	9.0	42
720	SAGAR	BANDA	Khurai	7.62	1220	0	293	184	65	52	0.20	0.005	400	90	43	96	1.0	57
721	SAGAR	BANDA	Manjla	7.86	920	0	275	149	20	3	0.40	0.017	255	52	30	92	4.0	49
722	SAGAR	BINA	Naktapur	7.58	770	0	342	67	8	2	0.43	0.020	250	50	30	60	4.0	51
723	SAGAR	SAGAR	Naryawali	7.75	1055	0	244	213	12	18	0.15	0.015	340	90	28	75	19.0	59
724	SAGAR	RAHATGARH	Parsoria	9.05	885	0	268	149	9	3	0.48	0.014	225	44	28	96	7.0	48
725	SAGAR	RAHATGARH	Rahatgarh	8.2	467	0	55	113	24	3	0.50	0.009	180	24	29	23	2.0	48
726	SAGAR	SAGAR	Sagar	8.2	300	0	85	46	10	5	0.26	0.002	95	12	16	24	1.9	48
727	SAGAR	JAISINAGAR	Sarkhedi	8.16	650	0	98	99	27	93	0.32	0.027	280	44	41	20	0.4	52
728	SAGAR	JAISINAGAR	Surkhi	7.38	805	0	220	43	135	27	0.29	0.012	285	64	30	53	1.7	47
729	SAGAR	REHLI	Tejgarh	7.85	580	0	140	106	16	10	0.39	0.013	250	80	12	18	1.0	34
730	SATNA	AMARPATAN	Amarpatan1	7.67	1670	0	189	241	324	16	0.53	0.048	505	106	58	143	9.3	16
731	SATNA	MAIIHAR	Amdara	7.57	1661	0	134	294	146	197	0.07	0.043	645	160	60	83	1.2	23
732	SATNA	MAJHGAWAN	Babupur	8.15	542	18	287	7	5	1	0.05	0.047	225	20	43	17	3.7	17
733	SATNA	SOHAWAL	Barakalan	7.85	1433	0	183	64	433	20	0.16	0.044	485	100	57	97	10.0	18
734	SATNA	NAGOD	Barethia	8.24	843	18	348	43	58	16	0.67	0.008	270	26	50	60	8.4	16
735	SATNA	MAIIHAR	Bhadanpur	8.29	333	6	146	21	4	3	0.13	BDL	110	36	5	24	0.7	4
736	SATNA	RAMPUR-BAGHELAN	Bhatanwara New	7.85	729	0	171	50	98	35	0.38	0.014	275	68	26	38	1.2	16
737	SATNA	MAJHGAWAN	Birsinghpur	7.76	1488	0	238	255	97	127	0.41	0.022	490	74	74	118	2.1	20
738	SATNA	MAJHGAWAN	Chitrakoot	8.11	607	12	281	46	10	27	0.29	0.035	210	34	30	46	1.8	21
739	SATNA	RAMPUR-BAGHELAN	Chorhata	8.05	421	0	146	18	94	2	0.29	0.020	185	54	12	17	1.0	13
740	SATNA	MAJHGAWAN	Chowraha	7.93	614	0	220	60	34	7	0.12	0.015	220	54	21	26	12.7	15

S. No.	District	Block	Location	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	TH	Ca	Mg	Na	K	SiO2
741	SATNA	RAMNAGAR	Devra	8.08	509	0	262	18	8	5	0.61	0.014	220	36	32	13	2.4	15
742	SATNA	NAGOD	Dureha	8.06	568	0	238	53	12	5	0.94	0.024	180	38	21	40	2.3	15
743	SATNA	UNCHEHARA	Gobrao Kalan	8.11	970	18	348	121	65	5	0.74	0.008	260	46	35	93	22.0	16
744	SATNA	AMARPATAN	Gorsari	8.13	348	6	201	18	10	4	0.56	0.027	155	34	17	14	3.9	6
745	SATNA	RAMNAGAR	Govindpur	8.01	527	0	256	14	8	22	0.94	0.031	200	36	27	23	8.0	19
746	SATNA	MAJHGAWAN	Jaitwara	7.96	977	0	281	113	70	40	0.24	0.022	275	40	43	91	2.6	24
747	SATNA	NAGOD	Jaso	8.45	1137	30	433	46	61	2	0.48	0.021	115	12	21	201	6.1	20
748	SATNA	SOHAWAL	Jhali	8.42	1269	36	567	82	26	1	1.05	0.027	345	12	77	125	3.0	16
749	SATNA	MAIIHAR	Jhukehi	8.10	1088	0	262	184	60	8	0.34	0.029	310	48	46	99	2.8	20
750	SATNA	RAMNAGAR	Jowa	8.05	572	0	226	35	19	33	0.44	0.029	250	48	32	9	9.9	17
751	SATNA	AMARPATAN	Kakra	7.91	823	0	183	53	120	31	0.33	0.026	280	62	30	55	4.7	17
752	SATNA	AMARPATAN	Kemar	7.72	1639	0	214	174	358	34	0.17	0.033	535	114	61	120	13.1	24
753	SATNA	RAMPUR-BAGHELAN	Kotar	7.69	2135	0	207	230	480	151	0.72	0.046	800	142	108	118	2.0	11
754	SATNA	SOHAWAL	Kothi	8.17	933	30	397	43	33	22	0.94	0.033	315	30	58	60	14.0	24
755	SATNA	MAIIHAR	Kusendi	8.20	841	18	293	99	59	13	0.22	0.027	160	26	23	119	3.5	17
756	SATNA	MAIIHAR	Maihar New	7.89	1179	0	207	145	222	4	0.17	0.026	355	72	43	105	10.3	16
757	SATNA	MAJHGAWAN	Majhagawa	7.35	530	0	189	50	3	43	0.59	BDL	190	38	23	33	0.9	35
758	SATNA	AMARPATAN	Mauhari katra	7.45	905	0	153	53	210	40	0.48	BDL	435	114	36	8	0.4	29
759	SATNA	AMARPATAN	Mukundpur	7.28	540	0	232	21	5	50	0.85	BDL	235	44	30	15	1.2	19
760	SATNA	NAGOD	Nagod	7.47	1075	0	171	57	270	40	0.76	BDL	515	148	35	10	0.8	27
761	SATNA	MAJHGAWAN	Nakaila	7.85	540	0	159	28	60	43	0.99	BDL	150	40	12	55	0.2	40
762	SATNA	MAIIHAR	Naraura	7.56	833	0	153	18	223	40	0.48	BDL	295	80	23	55	0.8	38
763	SATNA	UNCHEHARA	Pahari	7.61	548	0	140	53	53	34	0.72	BDL	225	54	22	22	0.4	39
764	SATNA	UNCHEHARA	Paras maniya	7.42	555	0	165	35	15	90	0.10	BDL	185	60	9	42	0.7	32
765	SATNA	NAGOD	Pathraundha	7.4	950	0	287	131	30	29	0.65	BDL	305	46	46	78	0.6	28
766	SATNA	UNCHEHARA	Pondipithourabd	7.92	1850	0	183	277	290	87	1.32	BDL	545	88	79	173	2.3	40
767	SATNA	RAMNAGAR	Ramnagar_Bamhnadi	7.8	750	0	366	28	10	29	0.76	BDL	135	18	22	110	0.9	27
768	SATNA	RAMPUR-BAGHELAN	Rampur1	6.98	2250	0	183	355	350	126	1.23	0.002	1060	402	13	28	2.8	32
769	SATNA	MAIIHAR	Rivara	7.84	638	0	122	46	117	39	0.23	BDL	190	22	33	59	0.4	35
770	SATNA	MAIIHAR	Sabhaganj	7.68	829	0	226	74	80	48	0.89	BDL	310	50	45	46	2.0	27
771	SATNA	AMARPATAN	Sagauni New	7.53	460	0	146	25	34	45	0.30	BDL	210	40	27	9	0.2	24
772	SATNA	SOHAWAL	Satna	7.45	2100	0	153	443	220	76	0.98	BDL	540	124	56	235	0.3	29
773	SATNA	SOHAWAL	Singhpur	7.82	360	0	159	11	12	27	0.03	BDL	140	40	10	18	0.9	35
774	SATNA	UNCHEHARA	Uchehara	7.9	730	0	275	50	52	20	0.23	BDL	190	34	26	80	1.2	40
775	SEHORE	ICHHAWAR	Amlaha	8.03	1101	0	378	103	58	39	0.97	BDL	350	60	49	91	0.6	29
776	SEHORE	ASHTA	Ashta	8.42	3062	30	354	493	260	305	0.26	BDL	995	212	113	240	9.1	34
777	SEHORE	BUDNI	Bhaya	8	840	0	287	82	16	64	0.36	BDL	325	70	36	42	1.5	22
778	SEHORE	SEHORE	Bilkisganj	8.28	855	0	238	106	46	38	0.63	BDL	295	70	29	58	1.9	31
779	SEHORE	BUDNI	Budhni	7.91	658	0	281	46	19	13	0.40	BDL	245	62	22	37	1.0	36
780	SEHORE	SEHORE	Chandbar	8.24	353	0	73	53	38	0	1.00	BDL	40	12	2	62	0.6	29
781	SEHORE	SEHORE	Herrapur	8.2	1243	0	439	142	29	35	0.48	BDL	255	46	34	166	2.2	16
782	SEHORE	ICHHAWAR	Ichhawar	7.56	1498	0	360	248	46	67	0.35	BDL	615	138	66	60	0.9	25
783	SEHORE	SEHORE	Jattakheda	7.8	1107	0	116	284	55	5	1.64	BDL	180	46	16	173	1.4	40
784	SEHORE	ICHHAWAR	Kakarkeda	8.17	469	0	232	14	14	11	0.61	BDL	210	34	30	11	0.4	50
785	SEHORE	ASHTA	Khachrod	8.09	1251	0	354	156	69	55	0.59	BDL	490	70	77	62	0.9	26
786	SEHORE	NASRULLAGANJ	Larkui	7.68	1792	0	250	369	102	79	0.40	BDL	790	156	97	47	1.8	50
787	SEHORE	BUDNI	Malibayan	8.39	759	54	305	43	22	0	0.52	BDL	155	16	28	100	4.1	26
788	SEHORE	BUDNI	Malibayan	8.28	455	18	207	14	6	13	0.44	BDL	200	44	22	10	0.1	52
789	SEHORE	ICHHAWAR	Nadan	8.57	531	18	122	53	32	52	0.31	BDL	220	34	33	20	1.2	59
790	SEHORE	BUDNI	Neelkachar	8.22	546	12	226	46	12	3	0.42	BDL	165	28	23	50	0.6	22
791	SEHORE	NASRULLAGANJ	Rala	8.23	1967	18	342	309	85	193	0.39	BDL	735	184	67	102	14.0	34
792	SEHORE	SEHORE	Sehore1	8.04	553	30	256	18	8	1	0.29	BDL	200	28	32	29	4.6	39
793	SEONI	BARGHAT	Amagarh	7.21	430	0	92	25	80	27	0.37	0.070	200	18	38	8	0.5	15

S. No.	District	Block	Location	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	TH	Ca	Mg	Na	K	SiO2
794	SEONI	BARGHAT	Ari	7.82	870	0	281	60	110	8	0.77	0.070	395	58	61	18	1.8	16
795	SEONI	SEONI	Bamandehi	7.35	440	0	159	7	75	1	0.19	0.200	200	30	30	8	0.7	19
796	SEONI	BARGHAT	Bamhodi	7.41	800	0	366	28	55	1	0.99	0.100	320	48	49	38	0.9	15
797	SEONI	KEOLARI	Banjali	7.6	515	0	244	18	29	1	0.73	0.160	210	40	27	22	1.0	16
798	SEONI	LAKHNADON	Banjari	7.34	500	0	244	18	15	10	0.36	0.100	225	42	29	10	0.9	17
799	SEONI	BARGHAT	Borghat	7.23	1440	0	366	195	90	63	0.71	0.090	510	98	64	97	3.6	19
800	SEONI	CHHAPARA	Chhapara	7.51	680	0	92	124	80	5	2.38	0.260	155	22	24	84	1.3	20
801	SEONI	SEONI	Chunatola	7.2	1750	0	37	468	170	11	1.00	0.090	715	118	102	78	2.5	25
802	SEONI	LAKHNADON	Dargada	7.22	715	0	250	53	64	12	0.32	0.080	260	44	36	45	0.5	29
803	SEONI	DHANORA	Dhanaura	7.25	625	0	268	18	42	31	0.27	0.090	295	32	52	9	1.1	25
804	SEONI	KEOLARI	Dhangada	7.06	1250	0	512	106	25	36	0.43	0.130	520	92	71	45	2.1	29
805	SEONI	BARGHAT	Dharamkuan	7.46	730	0	384	28	9	1	1.38	0.070	155	20	26	95	0.1	20
806	SEONI	LAKHNADON	Dhuma	7.2	915	0	317	50	110	16	0.28	0.090	405	58	63	23	1.3	29
807	SEONI	LAKHNADON	Gaurabibi	7.17	795	0	384	21	36	15	0.32	0.070	345	38	61	24	1.8	21
808	SEONI	GHANSAUR	Ghansor1	7.27	1050	0	226	106	130	59	0.16	0.640	425	70	61	45	2.1	28
809	SEONI	LAKHNADON	Gharghatia	7.12	310	0	85	57	5	4	1.07	0.080	115	16	18	18	1.2	29
810	SEONI	CHHAPARA	Ghunai	8.06	701	0	275	28	60	30	0.59	0.020	300	46	45	24	1.5	24
811	SEONI	GHANSAUR	Gorakhpur	7.51	1002	0	427	25	81	28	0.40	0.030	405	72	55	42	2.6	21
812	SEONI	BARGHAT	Kalyanpur	7.39	590	0	122	78	45	50	0.41	0.040	275	42	41	9	1.0	26
813	SEONI	SEONI	Kaniwara	7.49	1750	0	73	472	120	20	0.66	0.030	725	136	94	64	1.3	10
814	SEONI	BARGHAT	Kauria	7.24	861	0	305	78	15	63	1.22	0.040	315	46	49	53	2.6	13
815	SEONI	KEOLARI	Keolari DW	7.18	970	0	378	64	65	22	0.47	0.040	450	86	57	15	1.6	19
816	SEONI	DHANORA	Khamaria	7.21	750	0	275	21	85	33	0.43	1.240	330	58	45	15	2.6	12
817	SEONI	KURAI	Khawasa	7.17	650	0	256	21	65	23	1.06	0.020	290	56	36	13	1.9	25
818	SEONI	DHANORA	Kudari	7.13	1253	0	427	50	150	52	0.42	0.040	395	70	54	102	4.1	26
819	SEONI	GHANSAUR	Kuropar	7.23	901	0	397	43	40	25	0.25	0.030	365	72	45	37	1.1	12
820	SEONI	LAKHNADON	Lakhnadon1	7.06	299	0	153	7	10	4	0.28	0.030	135	14	24	6	0.5	21
821	SEONI	LAKHNADON	Madai	7.69	751	0	323	21	50	29	0.17	0.040	300	52	41	34	1.6	21
822	SEONI	LAKHNADON	Makarjhir	7.48	800	0	390	21	32	19	0.38	0.040	330	76	34	31	1.2	29
823	SEONI	GHANSAUR	Masurbhanwari	7.43	572	0	146	74	48	13	2.18	0.030	190	14	38	42	0.8	10
824	SEONI	GHANSAUR	Mehta	7.32	700	0	262	18	90	24	0.46	0.200	315	50	46	16	1.6	12
825	SEONI	LAKHNADON	Nagan Deori	7.46	450	0	153	11	80	3	0.25	0.100	205	28	33	8	0.8	18
826	SEONI	SEONI	Nandora	7.31	522	0	238	21	25	12	0.62	0.160	240	30	40	9	1.1	17
827	SEONI	SEONI	Palari	7.31	851	0	281	64	80	23	0.29	0.100	330	62	43	42	2.6	19
828	SEONI	KEOLARI	Pandiachhappara	7.25	572	0	262	18	35	7	0.61	0.090	260	58	28	10	1.0	12
829	SEONI	SEONI	Pipardahi	7.42	700	0	336	21	25	24	0.82	0.260	300	70	30	21	0.6	9
830	SEONI	KURAI	Piparia1	7.22	1236	0	226	199	140	8	2.06	0.090	470	78	67	65	3.4	18
831	SEONI	SEONI	Rahiwara	7.42	1180	0	232	248	50	1	0.58	0.080	425	58	68	72	10.2	25
832	SEONI	KURAI	Rukhar	7.26	643	0	311	25	29	1	0.39	0.090	285	54	36	16	0.3	12
833	SEONI	LAKHNADON	Sahasna	7.24	841	0	317	32	95	14	0.47	0.130	375	50	61	19	0.8	19
834	SEONI	SEONI	Seoni1	7.32	592	0	171	14	128	2	0.48	0.070	275	38	44	9	1.6	18
835	SEONI	KURAI	Suktara	7.41	692	0	171	103	48	14	0.03	0.090	340	56	49	4	0.2	26
836	SEONI	KEOLARI	Ugli	7.19	870	0	427	25	45	5	1.04	0.070	335	62	44	46	0.8	28
837	SHAHDOL	JAISINGHNAGAR	Amjhor	7.52	640	0	122	106	30	50	0.41	BDL	210	34	30	48	4.2	22
838	SHAHDOL	BURHAR	Bahgad	7.36	550	0	146	85	19	20	0.32	BDL	210	32	32	30	0.5	43
839	SHAHDOL	JAISINGHNAGAR	Bansukli	7.27	735	0	226	60	91	4	0.57	BDL	320	50	47	22	1.1	43
840	SHAHDOL	BEOHARI	Beohari	7.36	1000	0	415	74	55	2	0.51	BDL	350	52	54	68	3.0	46
841	SHAHDOL	BURHAR	Bhikhampur	7.28	425	0	134	60	15	2	0.18	BDL	150	22	23	27	2.0	45
842	SHAHDOL	BURHAR	Burhar	7.53	440	0	61	57	60	34	0.11	BDL	150	12	29	31	3.2	32
843	SHAHDOL	GOHPARU	Gohparu	7.25	940	0	275	135	15	48	2.85	BDL	390	30	77	36	1.7	45
844	SHAHDOL	JAISINGHNAGAR	Jaisinghnagar1	7.21	660	0	336	28	15	1	0.19	BDL	230	22	43	45	0.9	55
845	SHAHDOL	JAISINGHNAGAR	Kanadi (khurd)	7.23	440	0	73	32	98	18	0.48	BDL	180	24	29	17	3.6	52
846	SHAHDOL	SOHAGPUR	Kanchanpur	7.41	645	0	281	39	35	1	0.20	BDL	290	50	40	14	1.4	33



S. No.	District	Block	Location	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	TH	Ca	Mg	Na	K	SiO2
847	SHAHNOL	JAISINGHNAGAR	Karki	7.22	920	0	207	60	170	36	0.18	BDL	235	36	35	102	1.5	28
848	SHAHNOL	BURHAR	Marjad	7.46	1080	0	323	163	9	44	0.28	BDL	300	52	41	111	0.1	52
849	SHAHNOL	SOHAGPUR	Nipaniya	7.27	582	0	293	21	20	2	0.18	BDL	190	22	33	47	2.0	28
850	SHAHNOL	BEOHARI	Pasgari	7.37	770	0	317	25	72	18	0.03	BDL	285	70	27	45	2.1	32
851	SHAHNOL	JAISINGHNAGAR	Sanousi	7.29	810	0	348	46	45	13	0.26	BDL	355	62	49	23	1.0	22
852	SHAHNOL	GOHPARU	Sarsi	7.52	460	0	92	14	130	1	0.01	BDL	220	38	30	5	1.3	23
853	SHAHNOL	SOHAGPUR	Shahdol	7.24	720	0	262	35	87	4	0.20	BDL	345	46	56	6	1.6	36
854	SHAHNOL	JAISINGHNAGAR	Sidi	7.18	630	0	183	53	65	25	0.05	BDL	270	58	30	20	1.6	45
855	SHAHNOL	SOHAGPUR	Singhpur1	7.31	1860	0	372	426	35	1	0.09	0.05	440	70	64	225	2.6	55
856	SHAHNOL	JAISINGHNAGAR	Tihki	7.27	615	0	281	35	25	2	0.29	BDL	265	56	30	19	1.8	29
857	SHAHNOL	JAISINGHNAGAR	Umarkhohi	7.26	825	0	390	18	55	14	0.11	BDL	140	70	-9	122	5.6	11
858	SHAJAPUR	SHUJALPUR	Akodia	7.43	3050	0	933	394	141	26	0.63	1.810	810	196	78	294	30.0	43
859	SHAJAPUR	KALAPIPAL	Arandia	8.7	879	48	281	67	20	62	0.78	BDL	245	16	50	88	0.9	28
860	SHAJAPUR	MOMAN BADODIYA	Choma	7.61	2770	0	79	862	96	0	1.73	BDL	580	90	86	366	3.4	35
861	SHAJAPUR	KALAPIPAL	Kalapipal	8.24	1002	18	207	167	45	36	0.26	BDL	250	58	26	113	0.6	26
862	SHAJAPUR	SHAJAPUR	Majhania	7.88	872	0	262	71	35	101	0.42	BDL	370	54	57	29	1.2	42
863	SHAJAPUR	SHAJAPUR	Makshi	7.73	911	0	287	74	79	35	0.46	BDL	315	44	50	62	1.4	39
864	SHAJAPUR	MOMAN BADODIYA	Moman Badodia	7.76	2707	0	244	479	262	252	0.38	BDL	845	100	145	227	10.0	52
865	SHAJAPUR	KALAPIPAL	Nandni	9.51	333	42	92	18	6	24	0.52	BDL	95	10	17	30	0.8	16
866	SHAJAPUR	SHAJAPUR	NarayanGaon	8.56	582	36	220	28	20	21	0.83	BDL	175	22	29	52	0.3	30
867	SHAJAPUR	SHAJAPUR	Panwadi	8.38	1626	36	317	241	102	87	0.70	BDL	495	40	96	143	0.5	39
868	SHAJAPUR	MOMAN BADODIYA	Satsalai	8	1115	0	189	149	137	55	0.11	BDL	415	76	55	62	2.7	44
869	SHAJAPUR	SHAJAPUR	Shajapur	7.46	1594	0	226	298	114	83	0.24	BDL	560	124	61	106	0.9	44
870	SHAJAPUR	SHUJALPUR	Shujalpur	8.46	759	30	281	43	40	23	0.56	BDL	245	28	43	59	2.5	31
871	SHAJAPUR	SHAJAPUR	Tilawad Govind	9.51	682	6	73	131	30	69	0.05	BDL	275	88	13	28	0.8	11
872	SHEOPUR	SHEOPUR	Baroda New	7.84	1322	0	317	160	82	75	1.00	BDL	380	68	51	130	4.0	18
873	SHEOPUR	VIJAYPUR	Dhobni	7.82	2716	0	232	699	55	23	0.60	BDL	575	108	74	350	14.0	11
874	SHEOPUR	SHEOPUR	Doti	7.93	977	0	336	43	88	25	0.70	BDL	220	38	30	110	5.0	13
875	SHEOPUR	VIJAYPUR	Garhi1	7.9	811	0	305	46	24	53	0.45	BDL	285	54	36	50	4.0	21
876	SHEOPUR	VIJAYPUR	Ghaswani	7.92	1119	0	336	64	112	40	0.38	0.200	265	48	35	122	17.0	12
877	SHEOPUR	KARAHAL	Goras	8.12	698	0	281	18	46	16	0.32	BDL	240	56	24	35	16.0	17
878	SHEOPUR	VIJAYPUR	Harkui	8.07	833	0	232	71	64	13	0.46	BDL	305	66	34	42	6.0	17
879	SHEOPUR	KARAHAL	Kalmi	7.94	1087	0	372	57	72	20	1.00	BDL	335	78	34	35	80.0	13
880	SHEOPUR	KARAHAL	Karahal	8.12	484	0	165	18	18	32	0.42	BDL	125	40	6	40	5.6	13
881	SHEOPUR	KARAHAL	Kunorh	7.96	835	0	262	57	64	20	0.42	BDL	320	54	45	37	4.3	15
882	SHEOPUR	KARAHAL	Nonpura	7.91	1510	0	488	99	85	90	0.46	BDL	350	44	58	125	105.0	22
883	SHEOPUR	VIJAYPUR	Panchoncolony	8.22	1190	18	183	131	50	172	0.51	BDL	210	8	46	160	13.0	21
884	SHEOPUR	SHEOPUR	Pandula	8.09	1140	0	427	43	50	85	0.84	BDL	265	26	49	135	6.2	20
885	SHEOPUR	VIJAYPUR	Pura	7.84	1345	0	305	128	50	200	0.53	BDL	375	82	41	60	135.0	32
886	SHEOPUR	SHEOPUR	Rajpura	7.93	1170	0	256	85	100	120	0.44	BDL	320	32	58	110	10.3	18
887	SHEOPUR	SHEOPUR	Sheopur	7.89	894	0	238	74	25	105	0.29	BDL	285	64	30	56	10.0	16
888	SHEOPUR	VIJAYPUR	Shyampur	8.2	1289	42	317	78	90	105	0.32	BDL	380	106	28	56	92.0	30
889	SHEOPUR	VIJAYPUR	Vijaypurcolony	8.12	1298	0	317	220	14	45	1.10	BDL	270	44	39	144	32.0	17
890	SHIVPURI	KHANIYADHANA	Achhroni New	8.09	656	0	238	14	38	53	1.20	BDL	210	56	17	45	2.8	40
891	SHIVPURI	POHARI	Ainpura	8.09	1056	0	342	67	44	70	0.60	BDL	225	24	40	130	2.8	20
892	SHIVPURI	KARERA	Awasi	8.23	822	24	226	32	50	100	1.10	BDL	315	64	38	40	2.8	42
893	SHIVPURI	BADARWAS	Badarwas	7.97	1920	0	220	433	45	85	0.40	BDL	730	132	97	105	4.5	40
894	SHIVPURI	KHANIYADHANA	Bamorkalan New	7.83	1410	0	171	167	25	380	0.70	BDL	570	164	39	65	2.1	32
895	SHIVPURI	NARWAR	Behgwan	7.31	920	0	183	96	22	154	0.85	BDL	325	88	26	55	3.0	41
896	SHIVPURI	SHIVPURI	Bhagora	7.52	1025	0	293	60	120	20	0.20	BDL	260	48	34	50	100.0	33
897	SHIVPURI	PICHHORE	Bhonti	7.72	720	0	177	60	25	85	0.38	0.500	220	58	18	55	4.3	27
898	SHIVPURI	KOLARAS	Deherda choraha	8.11	1050	0	549	11	12	40	0.60	BDL	145	18	24	160	15.0	25
899	SHIVPURI	PICHHORE	Dhola	7.74	1724	0	244	241	145	150	0.10	BDL	560	146	47	120	25.0	21

S. No.	District	Block	Location	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	TH	Ca	Mg	Na	K	SiO2
900	SHIVPURI	BADARWAS	Ganeshkhera	7.62	1055	0	214	85	45	150	0.60	BDL	255	70	19	74	50.0	17
901	SHIVPURI	POHARI	Gobardhan	7.82	1100	0	323	46	140	25	0.68	BDL	380	34	72	60	13.0	12
902	SHIVPURI	KARERA	Karera	7.75	1120	0	195	241	15	25	0.88	BDL	190	72	2	160	14.0	33
903	SHIVPURI	BADARWAS	Khareh	7.7	375	0	153	11	8	40	0.23	BDL	115	36	6	30	4.2	18
904	SHIVPURI	KARERA	Languri	7.85	686	0	220	25	36	90	0.95	BDL	215	50	22	54	1.5	44
905	SHIVPURI	NARWAR	Mangroni	7.59	1610	0	220	294	150	30	0.50	0.800	610	158	52	80	9.0	37
906	SHIVPURI	KOLARAS	Manipura New	7.85	810	0	275	46	8	96	0.45	BDL	240	44	32	62	3.3	21
907	SHIVPURI	KHANIYADHANA	Masoori	7.78	888	0	183	78	30	160	0.30	BDL	315	94	19	40	18.3	21
908	SHIVPURI	NARWAR	Narwar	7.98	1490	0	183	195	40	250	0.40	BDL	525	158	32	80	4.5	55
909	SHIVPURI	SHIVPURI	Patera	7.78	685	0	244	32	50	35	0.82	BDL	190	42	21	55	15.6	16
910	SHIVPURI	KHANIYADHANA	Pichhore	7.89	610	0	195	25	62	25	1.20	BDL	190	38	23	45	5.6	10
911	SHIVPURI	POHARI	Pohari	7.85	1503	0	372	174	60	100	0.70	BDL	480	94	60	110	6.0	18
912	SHIVPURI	PICHHORE	Prithipur	8.08	400	0	122	64	7	2	0.59	0.013	95	26	7	48	0.2	50
913	SHIVPURI	KARERA	Sarsod	7.99	1056	0	299	74	50	100	1.00	0.700	315	62	39	70	33.4	35
914	SHIVPURI	SHIVPURI	Satanwara	8.02	1098	0	262	128	35	85	0.65	BDL	350	98	26	74	10.1	17
915	SHIVPURI	PICHHORE	Semri	7.87	908	0	244	67	55	100	0.85	BDL	270	56	32	76	2.7	36
916	SHIVPURI	KARERA	Sikandara	7.8	756	0	201	35	28	125	0.83	BDL	235	70	15	55	1.8	42
917	SHIVPURI	SHIVPURI	Sirsod	7.87	966	0	397	21	42	52	0.85	BDL	220	24	39	112	4.3	18
918	SHIVPURI	KARERA	Sirsod Chouraha	8.03	3123	0	104	415	140	765	0.90	BDL	1135	298	95	170	15.1	38
919	SHIVPURI	SHIVPURI	Survaya	7.68	780	0	305	21	15	95	0.35	BDL	285	82	19	42	9.5	15
920	SHIVPURI	KARERA	Toda Karea	7.92	838	0	214	53	36	125	1.20	BDL	245	62	22	74	4.2	35
921	SIDHI	SIHAWAL	Amiliya1	7.48	410	0	207	14	5	10	0.40	BDL	165	42	15	18	1.0	34
922	SIDHI	SIDHI	Badhaora	7.85	760	0	177	113	40	35	0.32	BDL	305	80	26	33	1.0	39
923	SIDHI	RAMPUR NAIKIN	Baghwar	7.45	485	0	207	35	4	21	0.37	BDL	230	60	19	5	0.6	28
924	SIDHI	SIDHI	Baghwari	7.48	400	0	214	7	5	8	0.12	BDL	170	38	18	13	0.4	32
925	SIDHI	SIHAWAL	Bahari	7.28	625	0	159	99	30	12	0.23	BDL	220	64	15	42	0.9	24
926	SIDHI	SIDHI	Barambaba	7.95	387	0	189	11	8	16	0.41	BDL	175	42	17	8	0.4	29
927	SIDHI	MAJHOLI	Chhuhi	7.42	440	0	159	53	3	12	0.35	BDL	175	42	17	20	1.2	42
928	SIDHI	SIDHI	Chilheri kalan	7.94	318	0	134	7	22	17	0.37	BDL	115	32	9	20	0.3	38
929	SIDHI	SIDHI	Chouphal	7.46	540	0	220	14	43	25	0.23	BDL	190	42	21	36	0.2	40
930	SIDHI	RAMPUR NAIKIN	Chourhat	7.53	498	0	195	50	6	13	0.16	BDL	200	46	21	22	0.3	28
931	SIDHI	KUSMI	Dhuandol	7.65	425	0	220	14	6	5	0.56	BDL	150	38	13	28	1.0	26
932	SIDHI	SIHAWAL	Hatwa	7.74	650	0	256	64	17	4	0.84	BDL	300	38	50	11	0.3	34
933	SIDHI	SIHAWAL	Jogikothar	7.84	510	0	220	46	5	4	0.69	BDL	195	48	18	27	0.9	27
934	SIDHI	MAJHOLI	Jogipahari	7.4	458	0	201	32	12	6	0.45	BDL	130	32	12	45	0.4	34
935	SIDHI	SIDHI	Khamh	7.8	395	0	201	18	4	3	0.34	BDL	175	36	21	10	0.2	32
936	SIDHI	SIHAWAL	Kuchwahi	7.49	385	0	195	18	5	2	1.20	BDL	160	46	11	14	1.2	34
937	SIDHI	MAJHOLI	Majhauri	7.38	1170	0	244	181	80	56	1.08	0.001	460	72	68	57	0.9	32
938	SIDHI	KUSMI	Majhgawan	7.52	775	0	159	110	75	29	0.97	BDL	275	76	21	51	0.7	33
939	SIDHI	SIDHI	Patpara	7.42	492	0	262	11	5	12	0.23	BDL	160	34	18	39	0.2	28
940	SIDHI	RAMPUR NAIKIN	Rampur2	7.24	565	0	238	57	4	4	0.05	BDL	170	44	15	50	3.0	34
941	SIDHI	MAJHOLI	Semariha	7.12	650	0	317	35	8	8	0.40	BDL	260	40	39	30	0.2	25
942	SIDHI	SIDHI	Sidhi	7.24	1495	0	281	128	255	86	1.32	BDL	360	78	40	177	1.2	39
943	SIDHI	SIHAWAL	Sihawal	7.14	405	0	201	21	5	6	0.20	BDL	190	38	23	7	0.2	42
944	SINGRAULI	DEOSAR	Bargawan	7.28	538	0	214	46	19	9	0.89	BDL	180	40	19	40	1.0	32
945	SINGRAULI	DEOSAR	Betaha Dand	7.84	935	0	458	57	7	6	0.94	BDL	230	24	41	109	0.5	29
946	SINGRAULI	DEOSAR	Bharra	7.45	410	0	220	7	5	12	0.32	BDL	165	34	19	18	0.8	27
947	SINGRAULI	DEOSAR	Chamari Dol	7.35	380	0	146	35	3	18	0.45	BDL	155	42	12	15	0.8	42
948	SINGRAULI	W Aidhan	Chaura	7.48	980	0	195	110	120	56	0.65	0.001	190	44	19	137	0.2	29
949	SINGRAULI	DEOSAR	Deosar1	7.47	555	0	195	64	18	7	0.78	BDL	205	58	15	32	0.9	38
950	SINGRAULI	W Aidhan	Jamgadi	7.18	120	0	49	11	3	2	0.45	BDL	45	6	7	7	0.1	21
951	SINGRAULI	W Aidhan	Jattha Tola	7.48	250	0	128	11	2	4	0.87	BDL	100	26	9	12	0.1	28
952	SINGRAULI	CHITRANGI	Karthua	7.35	780	0	92	160	60	25	0.64	BDL	320	78	30	32	0.1	40

S. No.	District	Block	Location	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	TH	Ca	Mg	Na	K	SiO2
953	SINGRAULI	DEOSAR	Kohara Khoh	7.47	297	0	116	18	25	2	0.54	BDL	115	30	10	15	0.4	25
954	SINGRAULI	W Aidhan	Koyal Khunth	7.58	468	0	165	43	27	12	0.10	BDL	190	50	16	20	0.2	28
955	SINGRAULI	DEOSAR	Mahua Gaon	7.55	532	0	146	50	43	37	0.34	BDL	230	58	21	16	0.5	29
956	SINGRAULI	W Aidhan	Mara	7.55	1005	0	153	156	85	75	1.32	BDL	360	90	33	65	0.9	28
957	SINGRAULI	DEOSAR	Papal Khera	7.38	985	0	403	11	105	43	0.54	BDL	170	14	33	148	0.2	41
958	SINGRAULI	DEOSAR	Parasi	7.48	500	0	244	32	2	3	0.10	BDL	205	54	17	20	0.8	39
959	SINGRAULI	W Aidhan	Parsauna New	7.7	490	0	226	35	5	2	0.13	BDL	200	50	18	20	0.2	32
960	SINGRAULI	DEOSAR	Sarai	7.36	605	0	159	82	35	25	0.23	BDL	230	60	19	33	0.5	26
961	SINGRAULI	DEOSAR	Tamsar	7.45	405	0	189	28	4	3	0.02	BDL	145	42	10	26	0.2	28
962	SINGRAULI	DEOSAR	Tikri	7.35	385	0	195	18	3	3	0.30	BDL	135	42	7	26	0.3	34
963	TIKAMGARH	BALDEOGARH	Baldeogarh	8.19	450	0	128	74	12	3	1.07	0.014	85	30	2	55	16.0	51
964	TIKAMGARH	PALERA	Bamori1	7.94	880	0	354	74	9	44	0.86	0.013	285	36	47	70	2.9	48
965	TIKAMGARH	TIKAMGARH	Baragaon	8.04	785	0	31	174	22	123	0.71	0.000	330	120	7	28	1.3	39
966	TIKAMGARH	JATARA	Bawri	8.62	245	12	67	35	5	2	0.38	0.003	90	16	12	15	0.2	45
967	TIKAMGARH	PRITHVIPUR	Birorakhet	8.06	270	0	79	35	12	8	0.96	0.019	100	24	10	16	0.3	52
968	TIKAMGARH	BALDEOGARH	Chandra nagar	9.5	520	78	140	46	12	3	0.54	0.008	140	18	23	55	0.7	35
969	TIKAMGARH	JATARA	Digaura	7.28	1090	0	214	195	25	85	0.50	0.014	390	96	36	68	5.5	65
970	TIKAMGARH	BALDEOGARH	Ganj	7.75	1630	0	220	191	245	136	0.42	0.019	550	132	54	122	0.2	49
971	TIKAMGARH	JATARA	Jatara	7.89	975	0	226	199	8	17	0.54	0.009	440	110	40	21	1.3	58
972	TIKAMGARH	PALERA	Kukrel	9.12	510	6	37	64	92	42	0.41	0.002	100	18	13	71	0.9	35
973	TIKAMGARH	JATARA	Ladhaura	8.12	782	0	171	121	18	76	0.99	0.010	265	54	32	56	3.0	48
974	TIKAMGARH	JATARA	Maharajpur	8.08	900	0	336	32	96	38	0.25	0.009	315	90	22	62	1.0	59
975	TIKAMGARH	TIKAMGARH	Majna	7.86	250	0	67	21	12	33	0.64	0.003	80	20	7	20	0.9	45
976	TIKAMGARH	JATARA	Mankari	9.17	650	60	214	28	42	24	0.35	0.020	210	16	41	54	0.7	42
977	TIKAMGARH	BALDEOGARH	Matgawan	7.89	600	0	183	71	25	30	0.62	0.002	275	76	21	12	0.4	56
978	TIKAMGARH	TIKAMGARH	Mawai	8.18	315	0	67	25	41	30	1.03	0.016	75	22	5	37	1.5	62
979	TIKAMGARH	PRITHVIPUR	Nengawan	8.2	1015	0	110	149	66	170	0.94	0.014	405	76	52	46	1.0	59
980	TIKAMGARH	NIWARI	Niwari	7.58	910	0	232	110	80	32	0.52	0.002	315	72	33	64	0.3	61
981	TIKAMGARH	NIWARI	Orchha	8.18	990	0	159	106	91	148	0.66	0.014	390	38	72	47	1.6	48
982	TIKAMGARH	JATARA	Palera	8.09	1160	0	85	238	95	94	1.42	0.001	385	82	44	89	1.0	38
983	TIKAMGARH	TIKAMGARH	Tikamgarh	7.67	2115	0	214	525	93	56	0.98	0.011	800	154	101	118	0.5	47
984	UJJAIN	GHATIA	Bachhukhera	7.95	1589	0	98	376	122	20	0.57	BDL	375	64	52	185	0.6	18
985	UJJAIN	BADNAGAR	Badnawar New	8	997	0	506	39	5	29	0.88	0.003	150	32	17	160	0.7	42
986	UJJAIN	MAHIDPUR	Bajnath	7.85	1612	0	49	450	78	15	1.38	BDL	340	84	32	200	3.0	25
987	UJJAIN	BADNAGAR	Chhoti Ghadsod	8.35	945	12	189	57	112	124	0.91	BDL	400	58	62	30	0.8	38
988	UJJAIN	UJJAIN	Dabla Rehwari	7.95	898	0	311	53	78	12	0.32	BDL	320	24	63	50	0.4	37
989	UJJAIN	TARANA	Dablahardu	8.45	1689	24	311	255	35	172	0.42	BDL	605	64	108	102	1.0	16
990	UJJAIN	MAHIDPUR	Delchi buzurg	7.95	1870	0	220	309	155	126	0.28	BDL	575	26	124	145	10.0	38
991	UJJAIN	GHATIA	Ghosla	8.11	1631	0	250	252	132	107	0.20	BDL	420	52	71	172	1.0	40
992	UJJAIN	TARANA	Kaiytha	8.52	4085	30	287	957	185	179	0.67	BDL	1580	26	368	185	3.0	41
993	UJJAIN	KHCHROD	Khachrod1	8.05	1895	0	195	337	162	105	0.46	BDL	425	50	73	222	7.0	42
994	UJJAIN	TARANA	Khakri Sultan	8.45	1450	30	262	184	100	134	0.34	BDL	600	30	128	55	0.0	40
995	UJJAIN	UJJAIN	Kharotia	8.06	1289	0	177	170	142	91	0.30	BDL	525	30	109	41	1.0	36
996	UJJAIN	MAHIDPUR	Khera khajuria	8.55	1856	48	378	255	140	20	0.21	BDL	590	22	130	142	6.0	44
997	UJJAIN	MAHIDPUR	Mahidpurroad	8.65	1023	54	220	89	98	57	0.59	BDL	280	40	44	102	0.0	30
998	UJJAIN	MAHIDPUR	Mahidpurtown	8.45	1724	42	305	248	140	44	0.57	BDL	440	18	96	179	2.0	33
999	UJJAIN	TARANA	Makdon	8.59	1204	42	336	74	75	71	0.22	BDL	185	24	30	170	1.0	36
1000	UJJAIN	UJJAIN	Mohanpura	8.45	1085	24	98	202	112	18	0.84	BDL	180	46	16	154	1.0	32
1001	UJJAIN	GHATIA	Nazarpur	8.02	822	0	134	131	55	44	1.57	0.030	205	56	16	84	2.0	42
1002	UJJAIN	UJJAIN	Palkhanda	8.48	2085	30	134	443	172	51	1.49	BDL	480	66	77	238	3.0	40
1003	UJJAIN	UJJAIN	Panth piplai	7.85	1856	0	140	426	99	110	0.54	BDL	590	58	108	122	49.0	47
1004	UJJAIN	UJJAIN	Patpala	7.68	595	0	189	39	35	10	0.35	BDL	210	50	21	19	6.0	26
1005	UJJAIN	MAHIDPUR	Raghvi	7.26	1411	0	55	383	85	5	0.09	BDL	150	52	5	248	5.0	21

S. No.	District	Block	Location	pH	EC	CO3	HCO3	Cl	SO4	NO3	F	PO4	TH	Ca	Mg	Na	K	SiO2
1006	UJJAIN	TARANA	Rupakhedi	7.89	1485	0	177	234	148	88	0.52	BDL	575	80	91	61	1.0	13
1007	UJJAIN	TARANA	Sumra Kheda	7.99	888	0	226	64	65	90	0.87	BDL	275	84	16	68	1.0	30
1008	UJJAIN	TARANA	Tarana	8.05	1845	0	61	372	150	187	0.65	BDL	560	146	47	151	6.0	40
1009	UJJAIN	UJJAIN	Ujjain Nagar Palika	8.12	2685	0	214	518	185	225	0.32	BDL	810	128	119	222	2.0	29
1010	UJJAIN	KHCHROD	Unhel	8.05	1598	0	195	287	74	139	1.06	BDL	570	92	83	87	1.0	44
1011	UJJAIN	UJJAIN	Vijayganj Mandi	8.54	1398	36	140	213	112	123	0.26	BDL	550	42	108	55	0.0	38
1012	UMARIA	PALI	*Ghunghutti	7.38	580	0	207	71	10	13	0.03	BDL	185	58	10	48	1.8	36
1013	UMARIA	KARKELI	*Karkeli	7.29	315	0	104	11	55	1	3.14	BDL	140	16	24	8	1.1	41
1014	UMARIA	PALI	Amiliya	7.42	662	0	134	89	75	22	0.18	BDL	165	22	27	76	0.8	35
1015	UMARIA	KARKELI	Bichua	7.16	940	0	329	124	10	18	0.16	BDL	410	14	91	27	0.5	23
1016	UMARIA	PALI	Birsinghpur1	7.52	1325	0	531	145	20	1	0.12	BDL	330	44	54	150	3.2	36
1017	UMARIA	MANPUR	Dhamokhar	7.69	751	0	268	28	50	16	0.12	BDL	245	32	40	34	1.6	49
1018	UMARIA	MANPUR	Mahroi	7.25	640	0	262	21	70	1	0.35	BDL	230	34	35	40	0.8	26
1019	UMARIA	MANPUR	Manpura1	7.32	800	0	372	43	30	9	0.07	BDL	335	62	44	30	1.5	22
1020	UMARIA	KARKELI	Nigahari	7.36	705	0	305	43	40	1	0.34	BDL	335	42	56	8	0.8	48
1021	UMARIA	KARKELI	Nowrozabad	7.31	630	0	201	67	25	36	0.50	BDL	285	50	39	13	1.0	19
1022	UMARIA	MANPUR	Panpatha	7.26	700	0	238	46	80	10	0.35	BDL	315	62	39	15	2.6	10
1023	UMARIA	MANPUR	Parasi	7.25	1325	0	519	135	35	14	0.32	0.02	400	76	51	120	1.1	8
1024	UMARIA	MANPUR	Tala	7.32	790	0	159	57	148	40	0.05	BDL	350	78	38	21	0.9	48
1025	UMARIA	KARKELI	Umaria	7.41	1400	0	512	128	75	36	0.57	0.02	435	58	71	122	3.4	34
1026	VIDISHA	LATERI	Anandpur	8.59	930	24	61	174	80	54	0.39	0.079	295	52	40	71	12.0	34
1027	VIDISHA	VIDISHA	Bagri	7.98	570	0	244	35	20	7	0.49	0.062	175	28	26	47	3.7	15
1028	VIDISHA	BASODA	Bagrodcrossing	7.41	817	0	354	39	10	21	0.36	0.067	225	46	27	78	6.3	49
1029	VIDISHA	BASODA	Bareth	7.99	938	0	360	74	31	11	0.58	0.730	325	70	36	62	2.5	36
1030	VIDISHA	VIDISHA	Bilari	8.1	880	12	146	156	22	58	0.23	0.058	290	52	39	61	8.9	31
1031	VIDISHA	SIRONJ	Deopur	7.92	595	0	238	39	20	5	0.26	0.056	175	32	23	54	1.1	28
1032	VIDISHA	BASODA	Ganjbasoda1	7.49	989	0	305	138	6	33	0.55	0.042	235	42	32	117	0.9	18
1033	VIDISHA	BASODA	Ghatera	8.25	1109	42	403	57	26	78	0.15	0.653	445	72	64	38	16.0	74
1034	VIDISHA	GYARASPUR	Gyaraspur1	7.72	757	0	232	74	23	54	0.30	0.050	310	72	32	20	16.6	39
1035	VIDISHA	VIDISHA	Hirnai	7.98	672	0	372	35	8	2	0.57	0.036	225	26	39	72	0.8	26
1036	VIDISHA	VIDISHA	Imaliya	7.85	1429	0	336	220	94	3	0.60	0.054	370	40	66	152	6.4	20
1037	VIDISHA	LATERI	Islam Nagar	7.97	701	0	360	18	2	3	0.37	0.116	215	30	34	58	4.9	20
1038	VIDISHA	KURWAI	Kurwai1	8.08	1404	0	214	252	105	58	0.34	0.035	440	70	64	114	6.0	25
1039	VIDISHA	LATERI	Lateri 1	7.71	1282	0	183	213	79	106	0.59	0.037	515	120	52	55	0.7	38
1040	VIDISHA	BASODA	Malkapur	7.81	604	0	250	18	18	26	0.70	0.036	205	40	26	44	0.7	35
1041	VIDISHA	NATERAN	Mohanpura	7.8	544	0	226	18	10	38	0.38	0.039	215	46	24	25	0.2	46
1042	VIDISHA	NATERAN	Nateran	8.73	1358	48	403	156	62	4	0.38	0.039	355	10	80	137	18.0	31
1043	VIDISHA	SIRONJ	Patharia	7.94	1627	0	226	284	136	70	0.23	0.032	715	122	100	41	3.2	48
1044	VIDISHA	BASODA	Rehpura	8.14	168	0	31	14	30	9	0.24	0.023	20	6	1	29	0.5	59
1045	VIDISHA	VIDISHA	Salaiya	7.77	953	0	226	74	55	133	0.23	0.046	410	96	41	29	0.1	84
1046	VIDISHA	SIRONJ	Sironj1	7.65	1427	0	262	149	107	178	0.16	0.043	475	82	66	98	15.0	39
1047	VIDISHA	LATERI	Tajpura	8.16	460	24	177	14	12	15	0.25	0.037	145	36	13	37	0.5	60
1048	VIDISHA	NATERAN	Tinsiyai	7.76	760	0	287	50	33	21	0.17	0.037	300	42	47	33	2.3	52
1049	VIDISHA	BASODA	Udaipur	8.41	1608	60	464	131	55	119	0.19	3.340	470	126	38	89	107.0	58
1050	VIDISHA	VIDISHA	Vidisha	7.79	1063	0	207	184	48	29	0.31	0.091	335	74	36	83	9.8	22

**Central Ground Water Board**  
**North Central Region**  
**Ministry of Water Resources, River Development and Ganga Rejuvenation**  
**Government of India**

**November 2016**