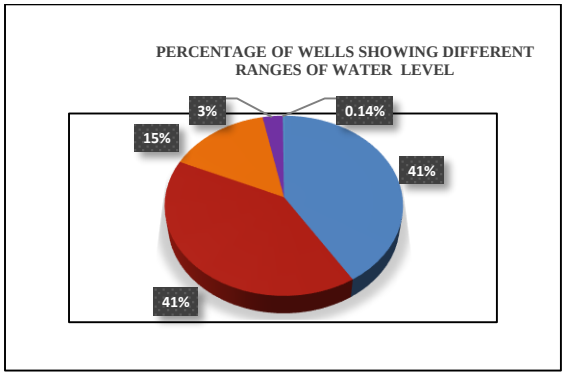

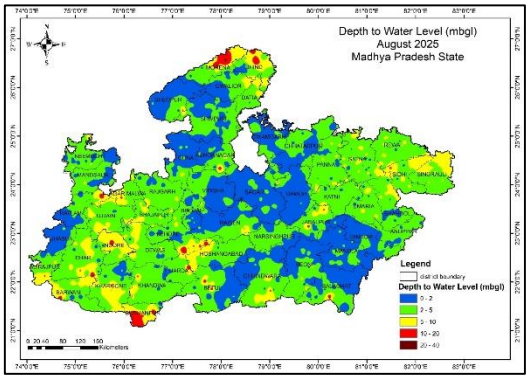

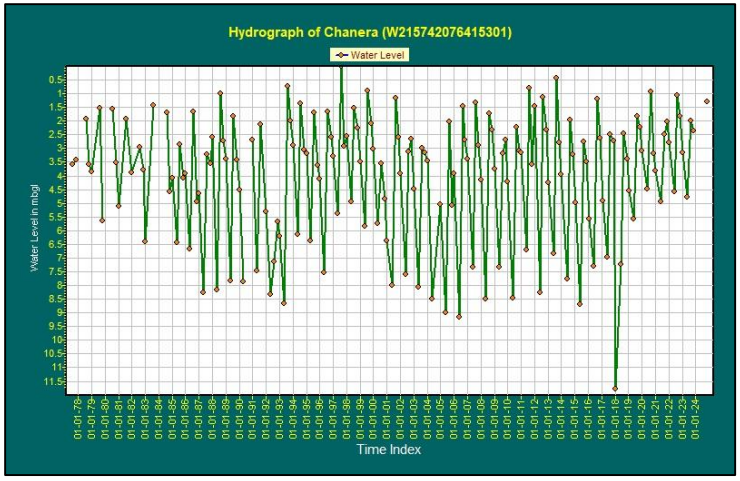

GROUND WATER LEVEL BULLETIN
AUGUST 2025
MADHYA PRADESH

ABSTRACT

Ground Water Level Scenario during August 2025 highlighting the findings, status of ground water level in different aquifers andits seasonal, annual and decadal comparison.

CGWB, NORTH CENTRAL REGION, BHOPAL, MADHYA PRADESH

1.0 INTRODUCTION

Groundwater bulletin is prepared by CGWB depicting changes in groundwater regime of the country through different seasons. It is an effort to obtain information on groundwater levels through representative monitoring wells. The important attributes of groundwater regime monitoring are groundwater level.

The natural conditions affecting the groundwater regime involve climatic parameters like rainfall, evapo-transpiration etc., whereas anthropogenic influences include pumping from the aquifer, recharge due to irrigation systems and other practices like waste disposal etc.

Groundwater levels are being measured by Central Ground Water Board four times a year during January, March/April/May, August and November. The regime monitoring started in the year 1969 by Central Ground Water Board. A network of **1853** observation wells called **National Hydrograph Network Stations (NHNS)**, located all over Madhya Pradesh is being monitored.

2.0 STUDY AREA

Madhya Pradesh is located in the central part of India and is a land-locked state, bordered on the west by Gujarat, on the northwest by Rajasthan, on the northeast by Uttar Pradesh, on the east by Chhattisgarh and on the south by Maharashtra State. It has a geographical area of 3,08,252 km^2 and is situated between north latitudes 21˚ 04' and 26˚ 54' and east longitudes 74° 00' and 82° 50'. There are 55 districts, 313 community development blocks and 4 urban areas in Madhya Pradesh.

The population of state as per census 2011 is 7, 25, 97, 565, population density of 236 persons per km^2 area. Out of total population, 75% lives in the villages and their main occupation are agriculture.The important urban areas in the state are Bhopal, Indore, Jabalpur, and Gwalior. Dhupgarh in Pachmarhi is the highest point in the state. MadhyaPradesh comprises several linguistically and culturally distinct regions, of which the major regions are

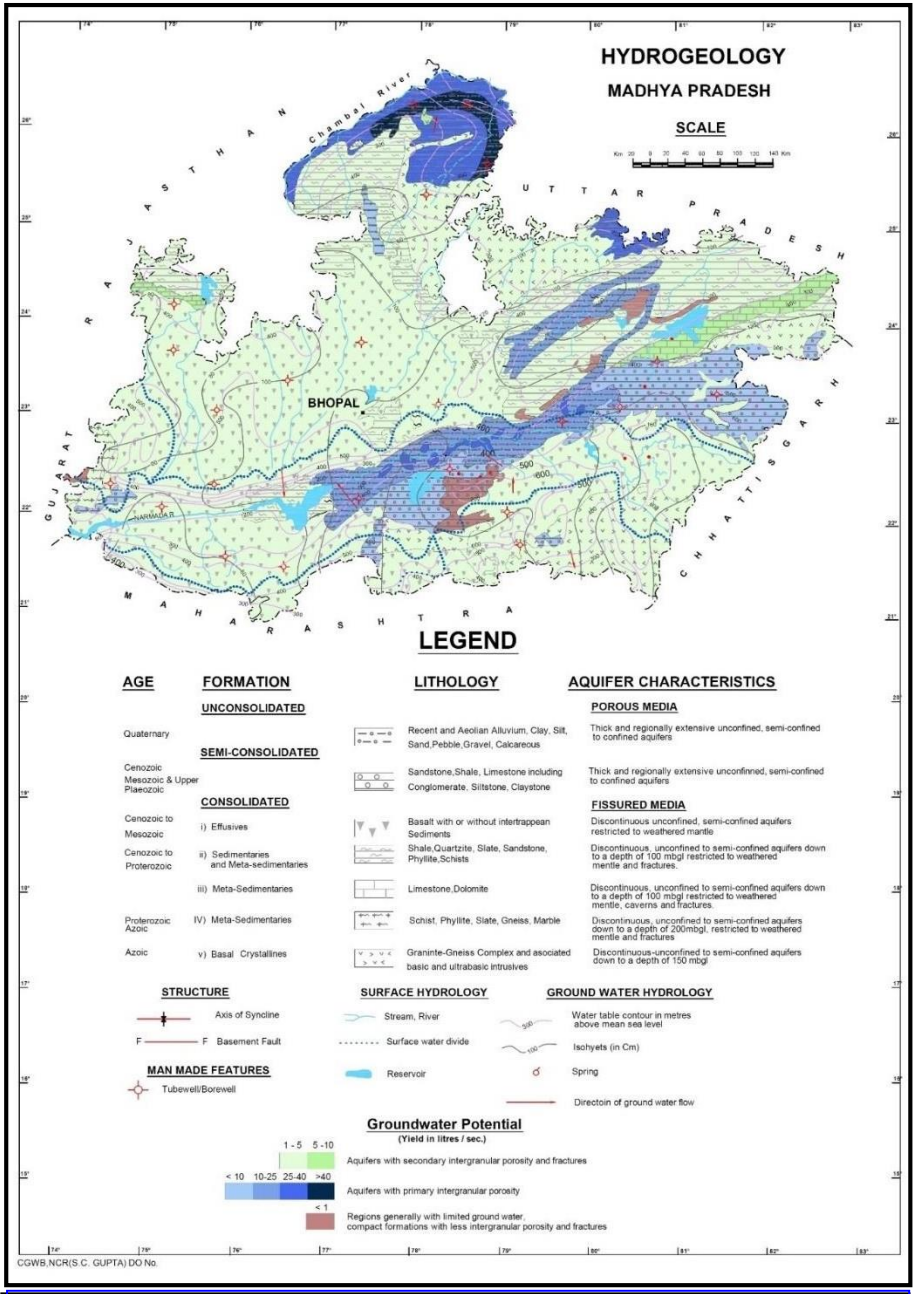

Figure-1: Map showing major aquifers and Hydrogeology of Madhya Pradesh

Malwa Plateau Region which 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. This region encompasses Gwalior, Sagar, Damoh, Panna, Chhatarpur and Tikamgarh Districts. **Chambal region** is located in the north-western parts of the state. 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 and **Central Vindhyan and Satpura Region** is occupying most parts of the central Narmada River valley. Hoshangabad, Harda and Narsimhapur Districts lies in this region.

3.0 GROUND WATER LEVEL MONITORING

The North Central Region office of CGWB, based at Bhopal, monitors the ground water wells spread all over the state. As on August 2025, **1853** monitoring wells are located in 55 districts of Madhya Pradesh including dug wells **(1378),** Observatory Wells & piezometers **(474).** Water samples are collected from these wells during November to identify groundwater quality issues ineach area. District-wise distribution of Ground Water Monitoring Wells in Madhya Pradesh during August 2025 is given in table 1.

monitoring wells are shown in **Figure 2**. All monitoring wells are monitored four times in a given hydrological year in the months of May (pre monsoon) (20th to 30th day), August (20th to 30th day), November (post monsoon) (1st to 10th day) and January (1st to 10th day). The long-term data generated during these monitoring seasons are important for computation, comparison and analysis of ground water utilization and its availability. The district-wise breakup is given in Table 1.

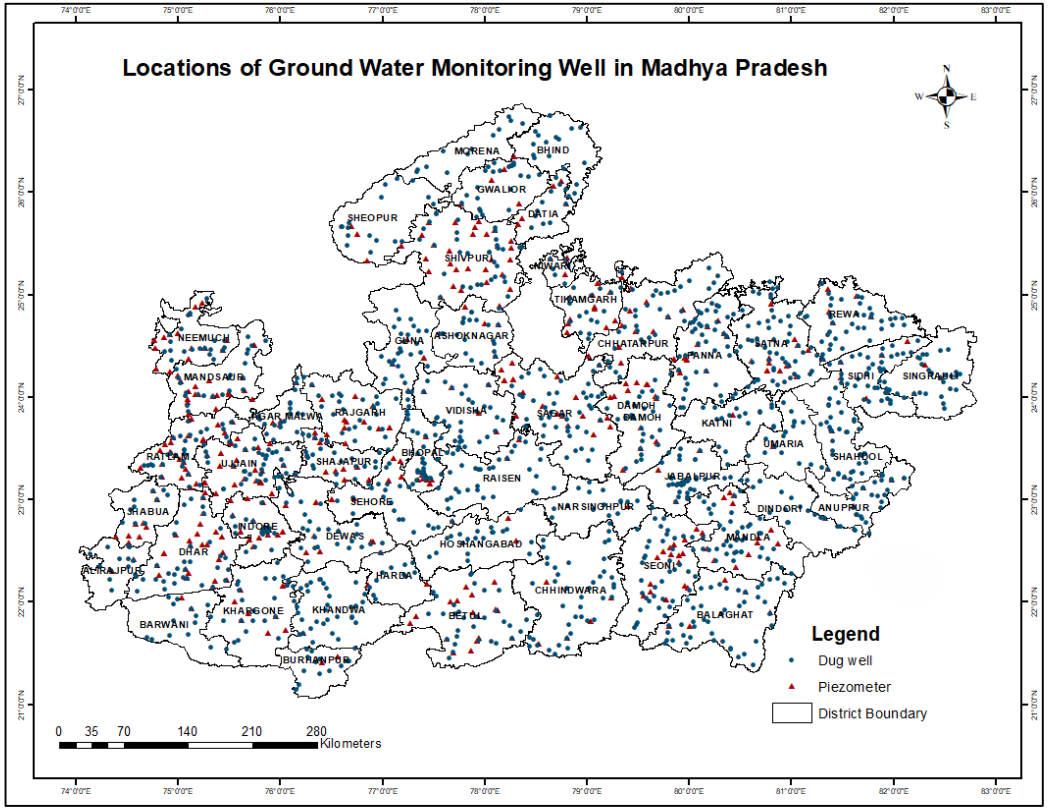

Figure- 2: Map showing locations of monitoring wells (NHNS) in Madhya Pradesh

Table-1: District-wise distribution of total NHS wells (unconfined and confined)

S.No.	District	Dug Well	PZ/ OW	Total Well
1	Agar Malwa	20	3	23
2	Alirajpur	14	2	16
3	Anuppur	24	4	28
4	Ashok Nagar	21	5	26
5	Balaghat	43	5	48
6	Barwani	13	2	15
7	Betul	34	18	52
8	Bhind	17	1	18
9	Bhopal	30	13	43
10	Burhanpur	13	2	15
11	Chhatarpur	33	17	50
12	Chhindwara	32	4	36
13	Damoh	26	15	41
14	Datia	11	5	16
15	Dewas	26	10	36
16	Dhar	32	29	61
17	Dindori	19	1	20
18	Guna	30	4	34
19	Gwalior	25	4	29
20	Harda	13	2	15
21	Indore	23	19	42
22	Jabalpur	36	5	41
23	Jhabua	10	9	19
24	Katni	16	1	17
25	Khandwa	34	1	35
26	Khargone	23	9	32
27	Maihar	19	7	26
28	MANDLA	39	13	52
29	Mandsaur	21	22	43
30	Mauganj	13	1	14
31	Morena	9		9
32	Narmadapuram	18		18
33	Narsimhapur	13	1	14
34	Neemuch	20	14	34
35	Niwari	5	5	10

S.No.	District	Dug Well	PZ/ OW	Total Well
36	Pandhurna	10	3	13
37	Panna	44	13	57
38	Raisen	34	3	37
39	Rajgarh	27	16	43
40	Ratlam	29	28	57
41	Rewa	28	5	33
42	Sagar	50	21	71
43	Satna	34	8	42
44	Sehore	25	8	33
45	Seoni	41	12	53
46	Shahdol	37	3	40
47	Shajapur	25	8	33
48	Sheopur	17	3	20
49	Shivpuri	36	32	68
50	Sidhi	38	6	44
51	Singrauli	30	3	33
52	Tikamgarh	16	14	30
53	Ujjain	35	29	65
54	Umaria	16	1	17
55	Vidisha	32	5	37
	Grand Total	1379	474	1853

4.0 RAIN FALL

The rainfall data is collected from the India Meteorological Department on a daily basis and on a monthly basis too. Rainfall data for the Years 2024 and 2023, and the percentage departure of rainfall from normal given in table 2. On the basis of the data of table 2, a rainfall map is prepared and given in the figure 3. Madhya Pradesh state received normal rainfall in 2024 as compared to 2023, 28 % more rainfall is seen in 2024 compared to rainfall of 2023. In the year 2024 highest rainfall (1586.93 mm) observed in Alirajpur District and lowest rainfall (815.6 mm) in Rewa District. Highest percentage rainfall departure from Year 2022 is observed in Sheopur District (90%) and lowest in Rewa District (-25%).

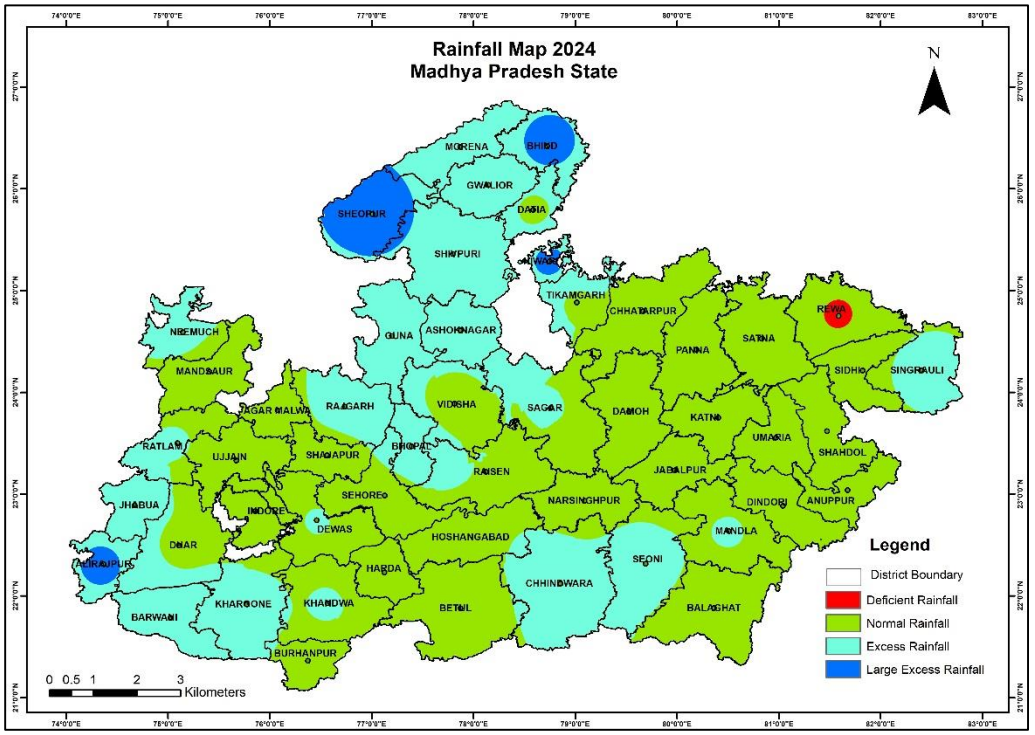

Figure- 3: Rainfall Map of Madhya Pradesh, 2024

Table-2: District wise variability of rainfall in Madhya Pradesh (2024)

Sr No	Name of the District	Rainfall 2023 (mm)	Rainfall 2024 (mm)	Normal Rainfall	Percentage Departure	Status 2024
1	AGAR-MALWA	889.8	1103.8	997.5	15%	Normal
2	ALIRAJPUR	987.9	1586.93	1239.4	71%	Large Excess
3	ANUPPUR	1155.8	1348.99	941.4	20%	Excess
4	ASHOKNAGAR	587	1138.75	1000.8	23%	Excess
5	BALAGHAT	1207.8	1335.68	1088.9	-4%	Normal
6	BARWANI	721.1	939.21	1183.2	30%	Excess
7	BETUL	1095.6	1217.82	1130.1	6%	Normal
8	BHIND	785.5	1178.89	941.5	72%	Large Excess
9	BHOPAL	1084.5	1457.9	1197.1	38%	Excess
10	BURHANPUR	679.7	966.233	1051.8	16%	Normal
11	CHHATARPUR	770.4	1103.47	775.6	6%	Normal
12	CHHINDWARA	1183.8	1545.04	1086.9	37%	Excess
13	DAMOH	827.3	1300.8	986.7	9%	Normal
14	DATIA	1111.7	904.05	1068.5	9%	Normal
15	DEWAS	922.3	1180.11	949.3	22%	Excess
16	DHAR	693.5	994.664	1018.1	14%	Normal
17	DINDORI	1177.8	1426.06	992.8	9%	Normal
18	GUNA	604.7	1251.2	1047.8	22%	Excess
19	GWALIOR	1177.4	1224.88	876.1	51%	Excess
20	HARDA	1283.3	1188.28	911.8	2%	Normal
21	INDORE	1123.2	939.933	1075.6	1%	Normal
22	JABALPUR	1094	1264.49	899.3	2%	Normal
23	JHABUA	914	1195.03	871.8	27%	Excess
24	KATNI	1012.7	1149.03	856.2	12%	Normal
25	KHANDWA	918.3	1053.98	669.4	22%	Excess
26	KHARGONE	702.2	1022.32	1038.1	31%	Excess
27	MANDLA	1178.7	1641.32	956.2	23%	Excess
28	MANDSAUR	640.2	935.836	737.3	5%	Normal
29	MORENA	1131.7	995.217	745.4	40%	Excess

Sr No	Name of the District	Rainfall 2023 (mm)	Rainfall 2024 (mm)	Normal Rainfall	Percentage Departure	Status 2024
30	NARMADAPURAM	735.4	1420.9	904.7	5%	Normal
31	NARSINGHPUR	1314.4	1247.2	818.8	10%	Normal
32	NEEMUCH	1129.5	1066.97	940.9	28%	Excess
33	NIWARI	1021	1433.17	721.5	70%	Large Excess
34	PANNA	980.4	1190.01	1078.8	0%	Normal
35	RAISEN	768.8	1401.12	868.1	20%	Excess
36	RAJGARH	1243	1347.5	884.2	40%	Excess
37	RATLAM	1045.7	1202.41	789.1	22%	Excess
38	REWA	698.9	815.683	719.3	-25%	Deficient
39	SAGAR	1006.8	1410.98	825.3	21%	Excess
40	SATNA	600	909.791	644.3	-13%	Normal
41	SEHORE	738.6	1265.91	1259.1	10%	Normal
42	SEONI	1282.5	1602.55	776.9	38%	Excess
43	SHAHDOL	961	1187.93	1084.6	7%	Normal
44	SHAJAPUR	677.5	996.46	893	2%	Normal
45	SHEOPUR	750.9	1373.18	914.5	90%	Large Excess
46	SHIVPURI	965.3	1309.49	1070.3	52%	Excess
47	SIDHI	715.4	1377.47	905.9	19%	Normal
48	SINGRAULI	722.9	1304.6	666.4	34%	Excess
49	TIKAMGARH	908.7	1161.7	787.3	16%	Normal
50	UJJAIN	899.4	898.967	884.4	-6%	Normal
51	UMARIA	963.7	1133.67	1023.3	-8%	Normal
52	VIDISHA	945.5	1221.79	949.5	11%	Normal

5.0 GROUNDWATER LEVEL SCENARIO (AUGUST 2025)

5.1 SHALLOW AQUIFER (UNCONFINED)

5.1.1 DEPTH TO WATER LEVEL

Depth to Water Level in Unconfined Aquifer (August 2025)

The depth to water level of 1390 wells is used for analysis. Analysis of depth to water level data shows water levels vary between 0 m bgl in some districts such as Alirajpur, Annuppur, Bhopal, Balaghat, Niwari, Vididha and some others to 21.8 m bgl in Morena district of Madhya Pradesh state (Fig.5). Very Shallow Water levels up to 2 m bgl is observed in about 41.08% of monitoring wells mainly in central, northern-western and south-western part in Vidisha, Sagar, Damoh, Mandla, Dindori, Balaghat, Guna and Sheopur district. Depth to water level ranging 2-5 m bgl is observed in about 40.65% of monitoring wells spreading all over the state and majorly in western and eastern part of the state. Depth to water levels ranging 5-10 m bgl is observed in about 15.11% of monitoring wells spreading prominently in the western part of the state as compared to the eastern part and is majorly found in Singrauli, Morena, Bhind, Indore, Burhanpur, Sidhi, Khargone and Dhar District of the state. Depth to water levels ranging 10- 20 m bgl is observed in about 3.02% of monitoring wells are seen mainly in Morena, Bhind, and Burhanpur Districts. Depth to water levels ranging 20- 40 m bgl is observed in about 0.14% of monitoring wells are seen in Morena and Sehore Districts.

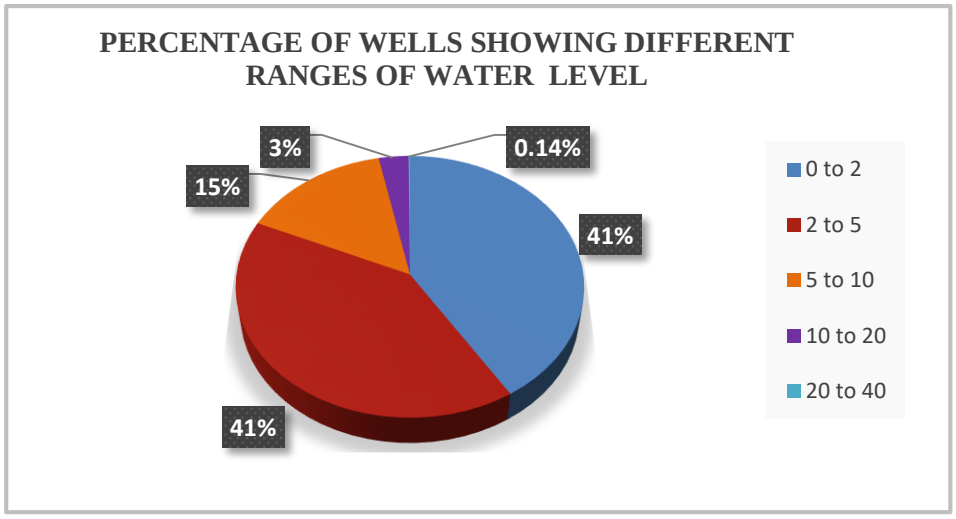

Figure-4: Pie Chart of Depth to water level of unconfined aquifer during Jan 2025.

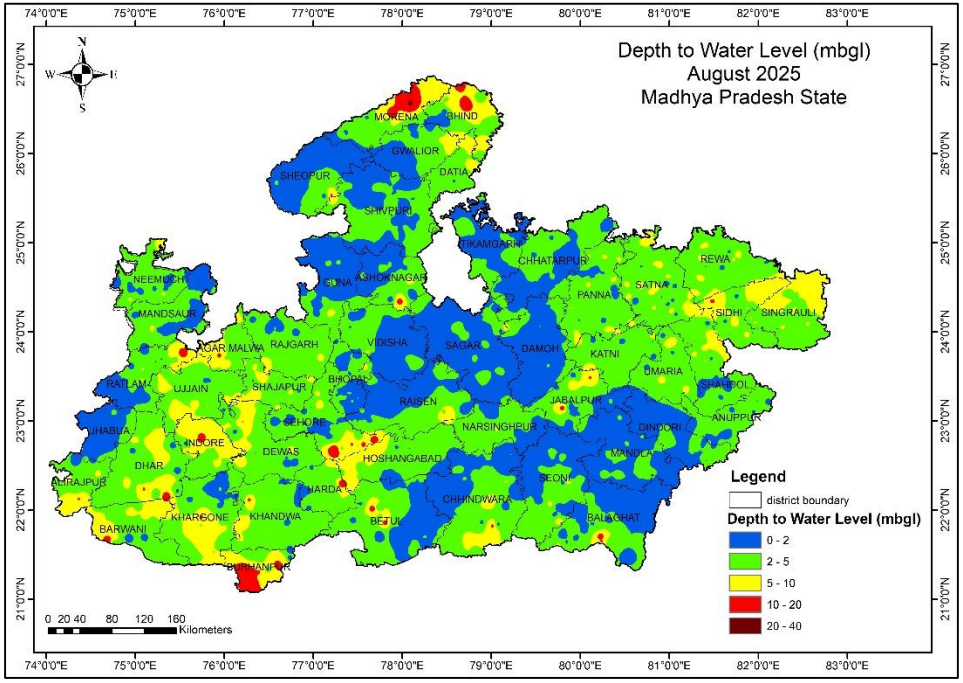

Figure-5: Depth to water level of unconfined aquifer during Jan 2025.

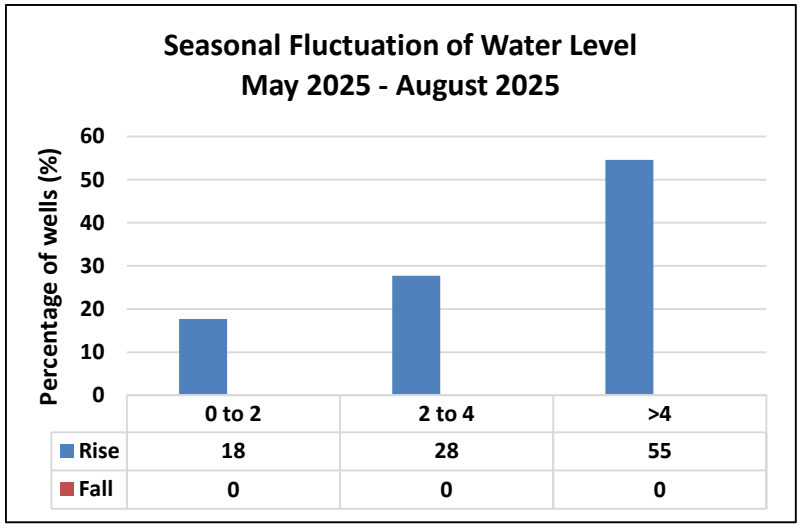

Figure-6: Percentage of wells showing rise and fall in WL in unconfined aquifer (May 2025 to August 2025)

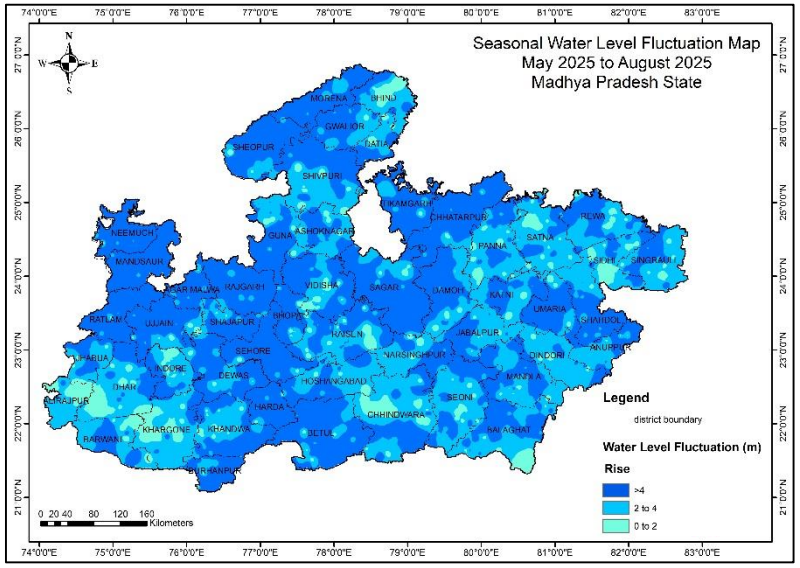

Figure-7: Seasonal water level fluctuation in unconfined Aquifer (May 2025 to August 2025)

5.1.2.1 SEASONAL FLUCTUATION IN WATER LEVEL IN UNCONFINED AQUIFER

Seasonal Fluctuation in Water Level
(May 2025 to August 2025)

The seasonal water level fluctuation map for the period of August 2025 with reference to May 2025 is presented in **(Fig–7)** for the Madhya Pradesh State. A total of 1292 wells were analyzed, all the wells that are analyzed show rise in water level for that minimum fluctuation in water level of 0.01 mbgl is seen in Satna district and maximum fluctuation in water level of 29.9 mbgl is seen in Sehore district of Madhya Pradesh.

Rise in Water Levels:

Out of the wells that have observed rise in water levels, 17.72 % wells recorded a rise of less than 2 m, 27.71 % wells recorded a rise of 2 to 4 m, and 54.57 % wells recorded a rise of more than 4 m. Water level rise of less than 2 m is observed mainly in monitoring wells of Chhindwara, Balaghat, Sidhi, Alirajpur, Dhar, Khargone, Satna and Barwani District. Water level rise of 2 to 4 m is observed mainly eastern side and south-western side in monitoring wells of Panna, Satna, Sidhi, Singrauli, Chhindwara, Dindori, Seoni, Dhar, Khargone, Shivpuri and Balaghat district. Rise of more than 4 m is observed mainly in monitoring wells of Neemuch, Mandsaur, Ratlam, Agar- Malwa, Rajgarh, Sehore, Chhatarpur, Tikamgarh, Sagar, Damoh, Sheopur, Morena, Ratlam, Betul, Harda, Umaria and Ujjain District.

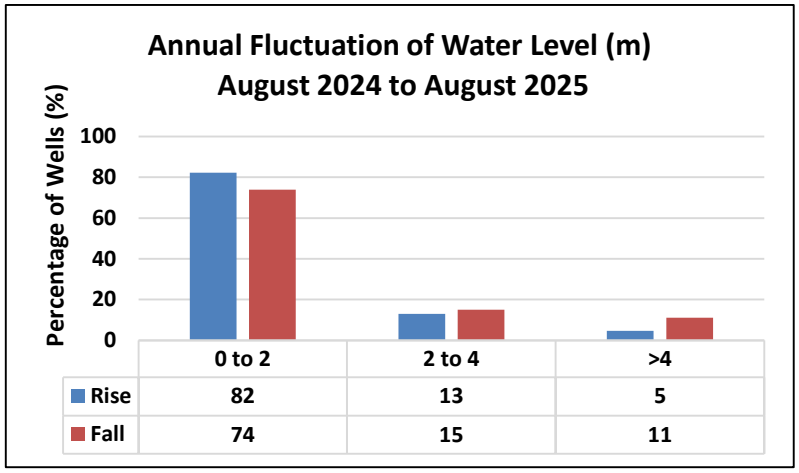

Figure-8: Percentage of wells showing rise and fall in WL in unconfined aquifer (August 2024 to August 2025)

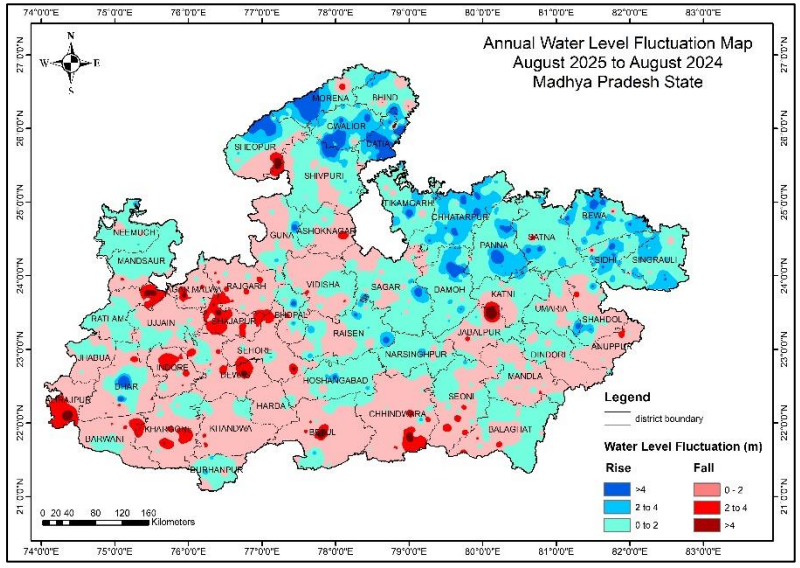

Figure-9: Annual water level fluctuation in unconfined Aquifer (August 2024 to August 2025)

5.1.2.1 ANNUAL FLUCTUATION IN WATER LEVEL IN UNCOFINED AQUIFER

Annual Fluctuation of Water Level in Unconfined Aquifer (August 2024 to August 2025)

The water level fluctuation map for the period August 2025 with reference to August 2024 is presented in **(Fig- 9)** for the Madhya Pradesh State. A total of 1351 wells were analyzed, out of which 48.19 % wells show rise in water level and 50.85 % wells show decline in water level and 0.96% of monitoring wells show no change in water level.

Rise in Water Levels:

Out of the 651 wells that have observed rise in water levels, 82.33 % wells recorded a rise of less than 2 m, 13.06 % wells recorded a rise of 2 to 4 m, and 4.61 % wells recorded a rise of more than 4 m. Water level rise of less than 2 m is observed mainly in eastern part of the state in monitoring wells of Mandsaur, Neemuch, Satna, Shivpuri, Sagar, Narsighpur, Damoh, Hoshangabad and Balaghat District. Water level rise of 2 to 4 m is observed mainly in north-eastern part of state in monitoring wells of Chhatarpur, Panna, Rewa, Sidhi, Singrauli, Damoh, Gwalior, Morena and Sheopur. Rise of more than 4 m is observed in the northern part of the state mainly in monitoring wells of Sheopur, Morena, Datia, Gwalior, Shivpuri, Dhar, Damoh and Panna District of Madhya Pradesh.

Fall in Water Levels:

Out of the 687 wells that have observed fall in water levels, 73.94 % wells recorded a fall of less than 2 m, 14.99 % wells recorded a fall of 2 to 4 m, and 11.06 % wells recorded a fall of more than 4 m. Water level fall of less than 2 m is observed mainly western and southern part of the state in monitoring wells of Khandwa, Harda, Betul, Chhindwara, Ujjain, Rajgarh, Sehore, Khargone, Seoni, Vidisha and Mandla District. Water level fall of 2 to 4 m is observed mainly in monitoring wells of Alirajpur, Ratlam, Shajapur, Indore, Dewas, Khargone and Chhindwara Distrcit. Fall of more than 4 m is observed mainly in monitoring wells of Sheopur, Alirajpur, Ratlam, Betul, Chhindwara. Jabalpur, Dewas and Sehore District of Madhya Pradesh.

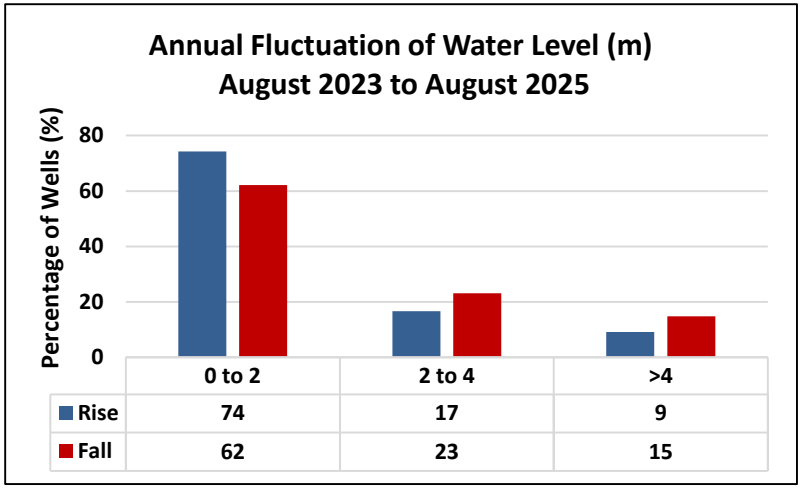

Figure-10: Percentage of wells showing rise and fall in WL in unconfined aquifer (August 2023 to August 2025)

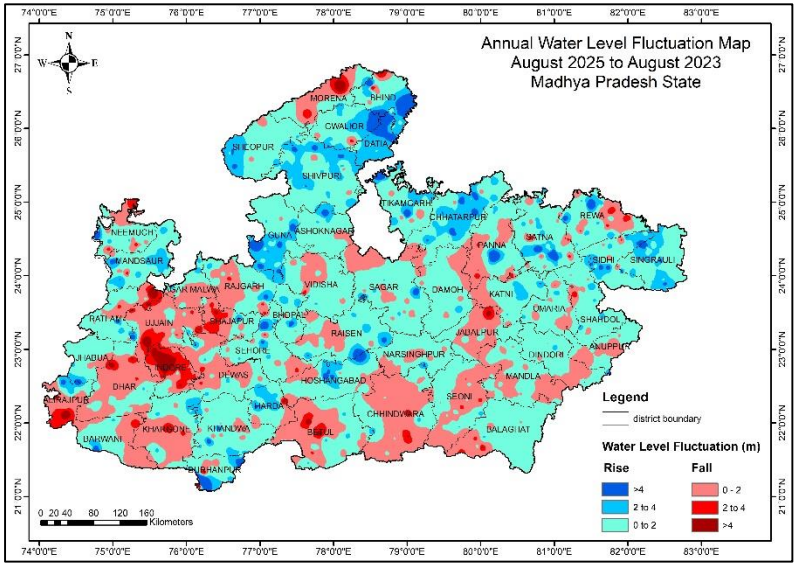

Figure-11 Annual water level fluctuation in unconfined Aquifer (August 2023 to August 2025)

5.1.2.1 ANNUAL FLUCTUATION IN WATER LEVEL

Annual Fluctuation of Water Level in Unconfined Aquifer (August 2023 to August 2025)

The water level fluctuation map for the period August 2025 with reference to August 2023 is presented in **(Fig-11)** for the Madhya Pradesh State. A total of 1161 wells were analyzed, out of which 38.76 % wells show rise in water level and 60.72 % wells show decline in water level and 0.52 % of monitoring wells show no change in water level.

Rise in Water Levels:

Out of the 450 wells that have observed rise in water levels, 74.22 % wells recorded a rise of less than 2 m, 16.67 % wells recorded a rise of 2 to 4 m, and 9.11 % wells recorded a rise of more than 4 m. Water level rise of less than 2 m is observed eastern part in comparison to the western part mainly in monitoring wells of Sheopur, Shivpuri, Ashoknagar, Sagar, Balaghat, Umaria, Shahdol, Sidhi and Damoh District, etc. Water level rise of 2 to 4 m is observed mainly in monitoring wells of Shivpuri, Datia, Chhatarpur, Tikamgarh, Satna, Singrauli, Guna and Mandsaur District. Rise of more than 4 m is observed mainly in monitoring wells of Gwalior, Bhind, Datia, Burhanpur, Panna and Guna District of Madhya Pradesh.

Fall in Water Levels:

Out of the 705 wells that have observed fall in water levels, 62.13 % wells recorded a fall of less than 2 m, 23.12 % wells recorded a fall of 2 to 4 m, and 14.75 % wells recorded a fall of more than 4 m. Water level fall of less than 2 m is observed mainly in western side of the state in monitoring wells of Dhar, Khargone, Ujjain, Barwani, Chhindwara, Betul, Seoni, Jabalpur and Morena District. Water level fall of 2 to 4 m is observed mainly in monitoring wells of Alirajpur, Indore, Ujjain, Rewa, Ratlam, Sehore, Morena and Betul District. Fall of more than 4 m is observed mainly in monitoring wells of Alirajpur, Indore, Ujjain, Ratlam, Morena, Betul and Jabalpur District of Madhya Pradesh.

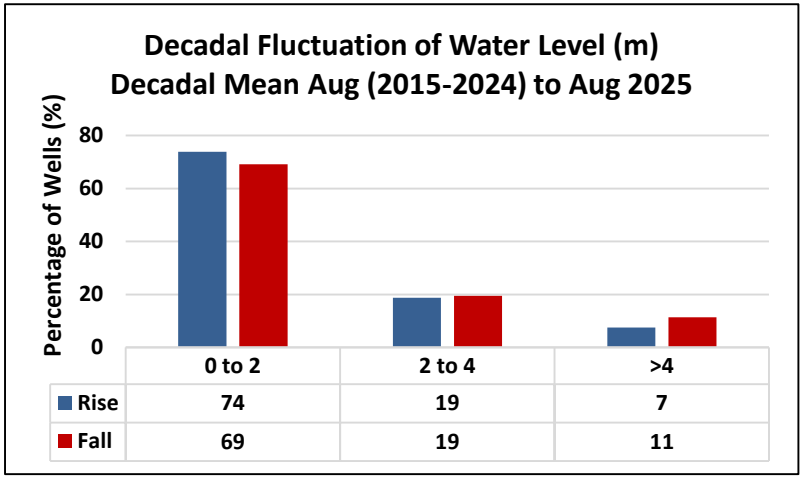

Figure-12: Percentage of wells showing rise and fall in WL in Unconfined Aquifer (Decadal Mean August (2015-2024) to August 2025)

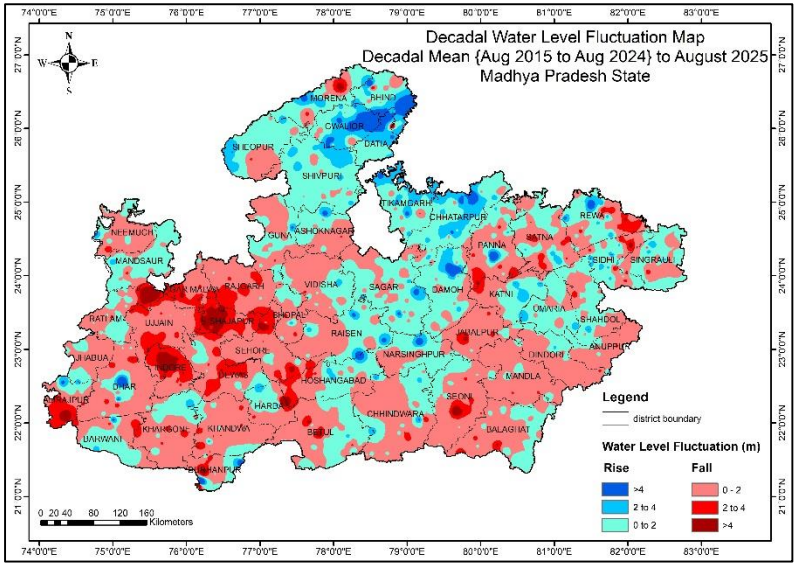

Figure-13: Annual water level fluctuation in unconfined Aquifer (Decadal Mean August (2015-2024) to August 2025)

5.1.2.1 DECADAL FLUCTUATION IN WATER LEVEL

Decadal Fluctuation of Water Level in Unconfined Aquifer {Decadal Mean August (2015- 2024) to August 2025}

The Decadal water level fluctuation map for the Decadal Mean (August 2015 to August 2024) to August 2025 is presented in **(Fig–13)** for the Madhya Pradesh State. A total of 1380 wells were analyzed, out of which 59.28 % wells show rise in water level and 40.65 % wells show decline in water level and 0.07 % of monitoring wells show no change in water level.

Rise in Water Levels:

Out of the 818 wells that have observed rise in water levels, 73.84 % wells recorded a rise of less than 2 m, 18.70 % wells recorded a rise of 2 to 4 m, and 7.46 % wells recorded a rise of more than 4 m. Water level rise of less than 2 m is observed mainly in monitoring wells of Sheopur, Shivpuri, Sagar, Raisen, Damoh, Narsinghpur, Umaria, Katni, Shahdol, Sidhi, Singrauli, Betul and Rewa District. Water level rise of 2 to 4 m is observed mainly in monitoring wells of Gwalior, Datia, Bhind, Shivpuri, Chhatarpur, and Damoh District. Rise of more than 4 m is observed in monitoring wells of Gwalior, Datia, Bhind, Dhar, Damoh, and Panna District of Madhya Pradesh.

Fall in Water Levels:

Out of the 561 wells that have observed fall in water levels, 69.16 % wells recorded a fall of less than 2 m, 19.43 % wells recorded a fall of 2 to 4 m, and 11.41 % wells recorded a fall of more than 4 m. Water level fall of less than 2 m is observed mainly in western part of state in monitoring wells of Mandla, Seoni, Jabalpur, Dindori, Balaghat, Khandwa, Khargone, Ujjain, Chhindwara and Dhar District. Water level fall of 2 to 4 m is observed mainly in monitoring wells of Alirajpur, Indore, Shajapur, Agar- Malwa, Hoshangabad and Seoni District. Fall of more than 4 m is observed mainly in monitoring wells of Indore, Shajapur, Alirajpur, Ratlam, Indore, Morena and Seoni District of Madhya Pradesh.

Summary:

- In unconfined aquifer, maximum wells are showing water level ranging between 0-2 mbgl. The water level > 20 mbgl is found in 0.14 % of wells of unconfined aquifer.

- In between August 2024 to August 2025 in unconfined aquifer, the rise in water level observed in 48.19% wells and fall in 50.85 % suggest good recharge in some areas in comparison to those areas where water level falls.

- In decadal data analysis of water level of August 2025 compared to average water level of 2015-2024, 59.28 % of wells, show water level rise while 40.65% wells show water level decline and 0.07 % wells show no change.

Recommendations:

- Depth to water levels ranging 10- 20 m bgl is observed in about 3.02% of monitoring wells and water level ranging 20- 40 m bgl is observed in about 0.14% of monitoring wells in unconfined aquifer. It is recommended to construct the recharge structures for ground water recharge. Further it is recommended for efficient use of ground water in agriculture, industrial and domestic purpose. Incorporating these recommendations will help maintain a balance between groundwater extraction and recharge, ensuring long-term sustainability of water resources in these districts.

- In decadal analysis of ground water level fluctuation, it is observed that districts which shows water level decline more than 70 % is Datia, Niwari, Tikamgarh, Tikamgarh, Chhatarpur, Gwalior, Mandsaur. In these districts ground water should be used in more efficient way. More artificial recharge structures should be constructed in these districts.

- In between August 2024 to August 2025 in unconfined aquifer, fall in 50.85 % observed therefore recommended for ground water recharge in these areas.