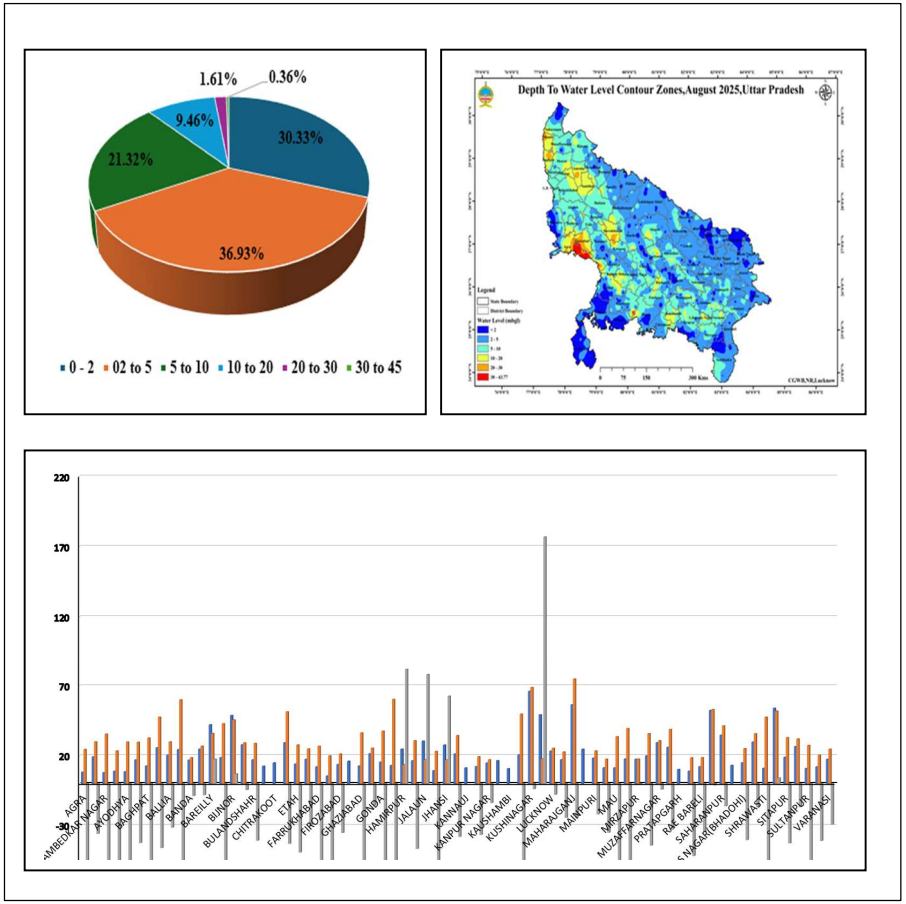

GROUND WATER LEVEL BULLETIN
UTTAR PRADESH
AUGUST 2025

ABSTRACT

Ground water level Scenario during August – 2025 highlighting the finding, status of ground water level in different aquifer and its seasonal, annual and decadal comparison.

CGWB, NORTHERN REGION LUCKNOW

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

Groundwater level is 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 Groundwater Board. A network of 1535 observation wells called National Hydrograph Network Stations (NHNS), as on 31.08.2025, located all over the State is being monitored.

2.0. STUDYAREA

The State of Uttar Pradesh forms a part of vast Gangetic Alluvial Plain covering an area of 2,40,928 Sq. Km. and lies between North latitude $23^0$52'12" & $30^0$24'30" and East longitude $77^0$05'38" & $84^0$38'30". It is bounded by Uttarakhand on the NW, Nepal on the NE, Bihar on the East, Madhya Pradesh in the South, and Haryana, Delhi & Rajasthan in the West as shown in figure 1.

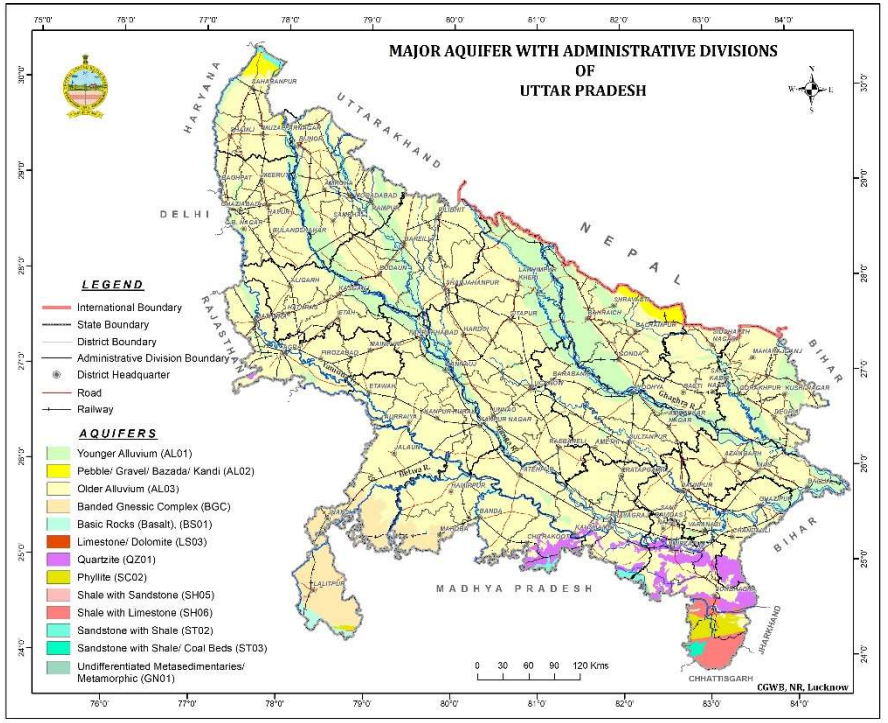

Figure-1: Map showing major aquifers and administrative divisions of UP

The state is covered with rich fertile soil and underlain by a large thickness of alluvium making it one of the richest ground water repositories of the world. Ground water is a major source of fresh water on earth. It is the most dependable source of water, comparatively free

from the vagaries of nature, easily accessible, available at the point of use and economical. Hence it is being developed indiscriminately and the ground water reservoir is stressed. The State being the most populous in the country, with a population density of 829 persons per sq. km (based on the 2011 Census) and a high rate of population growth (20%), its demand for water is soaring. Also due to industrialization, urbanization and modern farming practices, its quality is also at stake.

demand for water is soaring. Also due to industrialization, urbanization and modern farming practices its quality is also at stake.

The food production in Uttar Pradesh is commensurate with the self-sufficiency of the country. One of the major contributors for this sufficiency is irrigation. To meet this high irrigational requirement, water resources are being increasingly developed. Ground water contributes to about 71 % of the irrigation needs of the State. The indiscriminate development of ground water has resulted in depletion of groundwater storage and lowering of water level in certain areas on one hand. On other hand the surface water development in shallow water level has resulted in water logging and soil salinization. The geology and structure of the formations existing in an area are controlled by occurrence and movement of ground water. The geomorphic conditions also have a great impact on ground water scenario. The larger part of the State is under lain by fluvial sediments laid down in the fore deep between Plateau region in south and Himalayas in north during the Quaternary period by the Indus-Ganga system of drainage over the Precambrian topography existing during geological past. The southern part of the State has entirely different geological conditions, being underlain by Precambrian formations under a thin alluvial cover. Broadly, the State can be divided into two hydrogeological units.

1. Unconsolidated zone.
2. Consolidated, hard rock zone.

The hydrogeological conditions of the above two units widely differ and are discussed subsequently in brief.

Unconsolidated Zone:

This unit covers nearly 85% of the State area. The unconsolidated formations comprising the area have been deposited through mighty rivers originating from the great Himalayan Mountains. These sediments are the mixture of pebble, gravel, sand, silt, clay and kankar. The sediments are generally coarser in the north and gradually become finer in southeast ward along downstream of the drainage which is a typical feature of fluvial deposits. This zone consists of mainly two parts, the Terai and the Alluvial Plain. However, the foot hill zone is very small part of Bhaber belt and lies in the northern parts of Bijnor and Saharanpur districts. The Terai is a narrow-disconnected belt along the northwestern fringe of the State. The Alluvial Plain occupies the area south of Terai

and can further be divided into two sub units - Younger Alluvium and Older Alluvium.

The younger alluvium occurs mostly along the present-day flood plain area. The continuous shifting of the drainage network with time caused reworking of their earlier deposits giving rise to the younger alluvium. The older alluvium occupying comparatively high area covers major part of the Plain. A typical characteristic of older alluvium is formation of kankar within itself due to leaching of calcium carbonate under favourable climatic conditions. The kankar occasionally forms pans restricting downward movement of water.

The thickness of alluvial sediments is variable and generally goes up-to 500m. below which occur the semi-consolidated Upper Siwalik formations. The Shallower basement occurs in isolated areas which are known as “Basement highs." This unconsolidated zone is porous and permeable with primary intergranular porosity and has good ground water potential. The sub- surface correlation of formations in the state has shown presence of several aquifers down to a depth of 750 m below the ground. These aquifers mainly encountered in Central Ganga Plain have been grouped on the basis of lithological characters as well as based on interpretation of electrical logs of Boreholes drilled and are as follows:

1. First aquifer 0.0 – 150.00 mbgl
2. Second aquifer 160.00 – 210.00 mbgl
3. Third aquifer 250.00 – 360.00 mbgl
4. Forth deep aquifer 380.00 – 600.00 mbgl

The upper part of the first aquifer down to 50 mbgl is the main source of drinking water through hand pumps and dug wells and is unconfined in nature. The first aquifer as a whole which is under unconfined to semi-confined conditions, it is the most potential aquifer group which is the main source of groundwater in the State extensively exploited through private as well as Government tube wells to meet the drinking water and irrigation needs. The deeper aquifers are confined in nature being exploited to a very limited extent. The yield of the second aquifer is limited while the third aquifer is potential. The shallow and phreatic aquifers are under heavy stress.

Consolidated Zone:

The Bundelkhand Vindhyan plateau region is underlain by a variety of Precambrian formations, mostly granite and granite gneisses, Vindhyan sandstone, limestone & shale, under a thin a alluvial cover or without alluvial cover. As such these formations are hard and compact and devoid of any primary porosity. The ground water in these formations occurs in the secondary porosity of these formations. The secondary porosity has developed due to cracks and fractures which are open at the surface and tighten at depth. The ground water occurs under unconfined or water level conditions in these formations.

The alluvial sediments of moderate depth along the river course sand in valleys form potential ground water repositories. The weathered mantle over the entire until so forms potential aquifers. These aquifers are being monitored mostly through open wells over the area.

3.0. GROUNDWATER LEVEL MONITORING

Central Ground Water Board, Northern Region, is monitoring changes in groundwater regime in Uttar Pradesh State on quarterly basis continuously. This is facilitated by a network of monitoring stations in the State located in diverse hydrogeological and geomorphic units. The number of operational wells till August 2025 was 1535 which include 1082 dug wells and 453 piezometers shown in **figure 2**. The district-wise breakup of the water level monitoring stations is given in **Table-1**.

Table-1: District-wise distribution of water level monitoring station

S No	Districts	Number of Water Level Monitoring Stations		Total
		August, 2025		
		Dug wells	Piezometers	
1	Agra	7	12	19
2	Aligarh	9	4	13
3	Ambedkar Nagar	9	16	25
4	Amethi	36	2	38
5	Amroha	0	9	9
6	Auraiya	8	2	10
7	Ayodhya	12	5	17
8	Azamgarh	22	10	32
9	Baghpat	2	8	10
10	Bahraich	22	16	38
11	Ballia	20	3	23
12	Balrampur	19	9	28
13	Banda	11	18	29
14	Bara Banki	52	4	56
15	Bareilly	12	4	16
16	Basti	16	3	19
17	Bhadohi	7	0	7
18	Bijnor	7	13	20
19	Budaun	0	9	9
20	Bulandshahr	2	14	16
21	Chandauli	15	3	18
22	Chitrakoot	10	14	24
23	Deoria	32	1	33
24	Etah	2	4	6
25	Etawah	10	2	12
26	Farrukhabad	1	4	5
27	Fatehpur	12	14	26
28	Firozabad	0	5	5

S No	Districts	Number of Water Level Monitoring Stations		Total
		August, 2025		
		Dug wells	Piezometers	
29	Gautam Buddha Nagar	0	8	8
30	Ghaziabad	1	3	4
31	Ghazipur	22	11	33
32	Gonda	25	5	30
33	Gorakhpur	17	15	32
34	Hamirpur	13	11	24
35	Hapur	0	4	4
36	Hardoi	17	6	23
37	Hathras	4	4	8
38	Jalaun	34	5	39
39	Jaunpur	29	8	37
40	Jhansi	20	2	22
41	Kannauj	10	2	12
42	Kanpur Dehat	13	1	14
43	Kanpur Nagar	20	1	21
44	Kasganj	4	11	15
45	Kaushambi	10	2	12
46	Kheri	26	5	31
47	Kushinagar	29	0	29
48	Lalitpur	19	4	23
49	Lucknow	16	15	31
50	Maharajganj	14	1	15

S No	Districts	Number of Water Level Monitoring Stations		Total
		August, 2025		
		Dug wells	Piezometers	
51	Mahoba	15	6	21
52	Mainpuri	3	5	8
53	Mathura	19	3	22
54	Mau	13	3	16
55	Meerut	2	12	14
56	Mirzapur	26	0	26
57	Moradabad	5	6	11
58	Muzaffarnagar	2	11	13
59	Pilibhit	10	3	13
60	Pratapgarh	29	2	31
61	Prayagraj	38	0	38
62	Rae Bareli	30	5	35
63	Rampur	4	6	10
64	Saharanpur	7	11	18
65	Sambhal	0	12	12
66	Sant Kabir Nagar	10	1	11
67	Shahjahanpur	3	0	3
68	Shamli	0	4	4
69	Shrawasti	13	6	19
70	Siddharthnagar	16	10	26
71	Sitapur	42	5	47
72	Sonbhadra	22	0	22
73	Sultanpur	34	3	37

S No	Districts	Number of Water Level Monitoring Stations		Total
		August, 2025		
		Dug wells	Piezometers	
74	Unnao	29	5	34
75	Varanasi	12	2	14
Grand Total		**1082**	**453**	**1535**

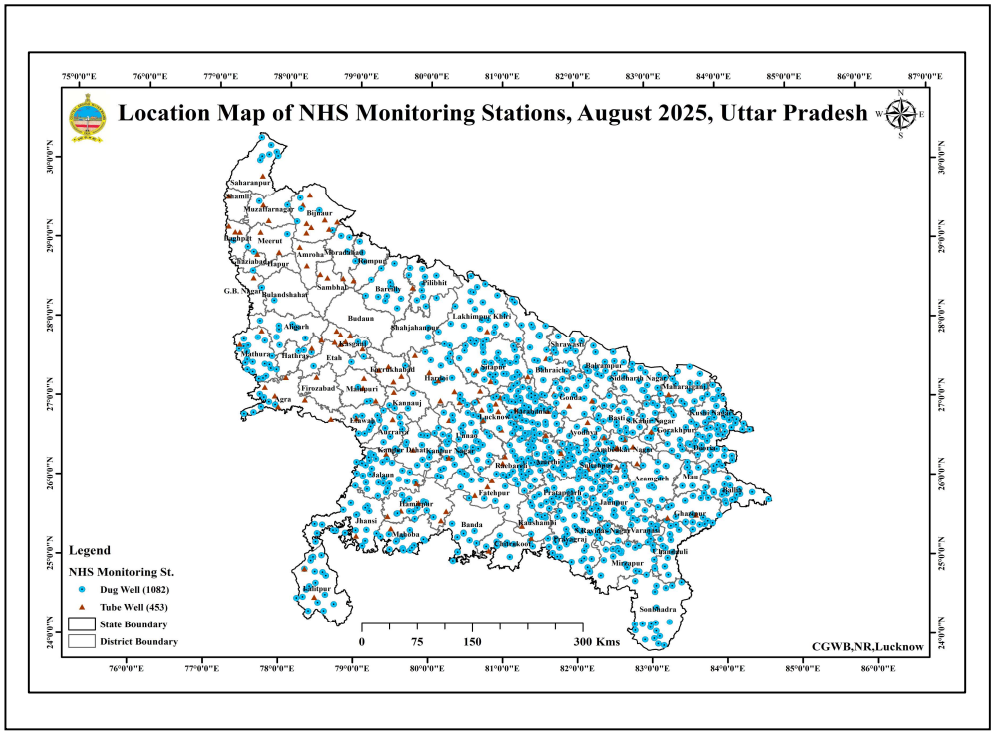

Figure-2: Map showing monitoring wells during August 2025

4.0. RAINFALL

The district wise monthly grided rainfall data collected from Indian Meteorological Department. Table-2 gives the district wise deviation (%) has been calculated from actual rainfall of 2024 and 2025 with the normal rainfall.

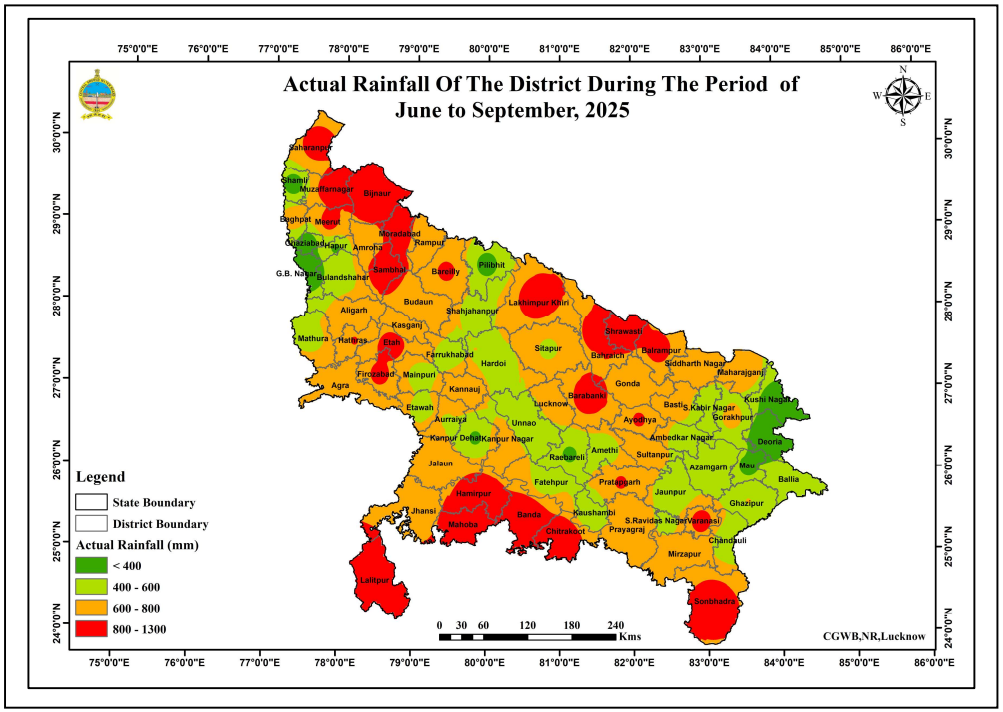

Figure-3: Actual Rainfall of the district during the period of June-September 2025

Table-2: District wise variability of rainfall (June to September 2025) in Uttar Pradesh

S No	District Name	Total Normal Rainfall	Total Actual Rainfall 2024	Deviation %	Total Actual Rainfall 2025	Deviation %	% Deviation 2025 to 2024
1	**Agra**	530.3	841.2	58.63	682.6	28.72	-23.23
2	**Aligarh**	590.3	498.2	-15.60	686.4	16.28	27.42
3	**Ambedkar Nagar**	853.8	896.8	5.04	541.8	-36.54	-65.52
4	**Amethi**	674.7	363.4	-46.14	503.1	-25.43	27.77
5	**Amroha**	809.6	538.5	-33.49	668.2	-17.47	19.41
6	**Auraiya**	516	1090	111.24	596.5	15.60	-82.73
7	**Ayodhya**	851.4	811.4	-4.70	825.4	-3.05	1.70
8	**Azamgarh**	854.3	786.3	-7.96	493.5	-42.23	-59.33
9	**Budaun**	672.7	887	31.86	623.8	-7.27	-42.19
10	**Baghpat**	499.5	470.7	-5.77	692.3	38.60	32.01
11	**Bahraich**	986.7	1164.3	18.00	829.7	-15.91	-40.33
12	**Ballia**	718.7	602.2	-16.21	556.2	-22.61	-8.27
13	**Balrampur**	793	1247.6	57.33	836.4	5.47	-49.16
14	**Banda**	767.1	871.1	13.56	1072.8	39.85	18.80
15	**Barabanki**	826	838.5	1.51	965.6	16.90	13.16
16	**Bareilly**	791	969.6	22.58	847.9	7.19	-14.35
17	**Basti**	827.9	1276.4	54.17	634.2	-23.40	-101.26
18	**Bhadohi**	809.3	488.5	-39.64	548.1	-32.27	10.87
19	**Bijnor**	904.9	861	-4.85	1315.7	45.40	34.56

S No	District Name	Total Normal Rainfall	Total Actual Rainfall 2024	Deviation %	Total Actual Rainfall 2025	Deviation %	% Deviation 2025 to 2024
20	**Bulandshahar**	534.1	614.3	15.02	530.1	-0.75	-15.88
21	**Chandauli**	711.9	372	-47.75	434.5	-38.97	14.38
22	**Chitrakoot**	785.8	972.1	23.71	1060.2	34.92	8.31
23	**Deoria**	781.4	446.3	-42.88	97.2	-87.56	-359.16
24	**Etah**	505.4	1050.8	107.91	880.8	74.28	-19.30
25	**Etawah**	562.5	630.9	12.16	575.6	2.33	-9.61
26	**Farrukhabad**	727.9	645.9	-11.27	540	-25.81	-19.61
27	**Fatehpur**	699	342.1	-51.06	487.5	-30.26	29.83
28	**Firozabad**	580.5	1027.8	77.05	842.9	45.20	-21.94
29	**G.B. Nagar**	454.7	120	-73.61	205.2	-54.87	41.52
30	**Ghaziabad**	457.9	334.1	-27.04	217.9	-52.41	-53.33
31	**Ghazipur**	790.1	827.4	4.72	603	-23.68	-37.21
32	**Gonda**	863.1	822.8	-4.67	737.9	-14.51	-11.51
33	**Gorakhpur**	1252.1	1194.6	-4.59	684.5	-45.33	-74.52
34	**Hamirpur**	708	988	39.55	1069.6	51.07	7.63
35	**Hapur**	673.4	469	-30.35	364.3	-45.90	-28.74
36	**Hardoi**	667.1	602	-9.76	540.6	-18.96	-11.36
37	**Hathras**	549	905.2	64.88	807	46.99	-12.17
38	**Jalaun**	642.7	859.4	33.72	686	6.74	-25.28
39	**Jaunpur**	729.7	359	-50.80	397.1	-45.58	9.59
40	**Jhansi**	721.5	696.2	-3.51	663	-8.11	-5.01
41	**Kannauj**	668.8	900.3	34.61	778.1	16.34	-15.70
42	**Kanpur City**	623.2	509.4	-18.26	715	14.73	28.76

S No	District Name	Total Normal Rainfall	Total Actual Rainfall 2024	Deviation %	Total Actual Rainfall 2025	Deviation %	% Deviation 2025 to 2024
43	**Kanpur Dehat**	577.1	431.5	-25.23	344	-40.39	-25.44
44	**Kasganj**	666.6	1035.4	55.33	780.7	17.12	-32.62
45	**Kaushambi**	552.1	458.4	-16.97	404.1	-26.81	-13.44
46	**Lakhimpur Kheri**	922	952.9	3.35	974.3	5.67	2.20
47	**Kushi Nagar**	750.7	372.9	-50.33	261	-65.23	-42.87
48	**Lalitpur**	805.1	1060.1	31.67	1179.5	46.50	10.12
49	**Lucknow**	683.2	696.7	1.98	661.8	-3.13	-5.27
50	**Maharajganj**	987.1	1267.8	28.44	771.8	-21.81	-64.27
51	**Mahoba**	597.9	571	-4.50	874.3	46.23	34.69
52	**Mainpuri**	655.5	737.9	12.57	524.1	-20.05	-40.79
53	**Mathura**	488.5	490.3	0.37	574	17.50	14.58
54	**Mau**	790.7	460.4	-41.77	363	-54.09	-26.83
55	**Meerut**	647.7	596.5	-7.90	930	43.58	35.86
56	**Mirzapur**	886.2	589.1	-33.53	732	-17.40	19.52
57	**Moradabad**	872.9	1090.1	24.88	887.2	1.64	-22.87
58	**Muzaffarnagar**	664.1	621.9	-6.35	929.6	39.98	33.10
59	**Pilibhit**	841.9	472.8	-43.84	313.2	-62.80	-50.96
60	**Pratapgarh**	775.3	885.6	14.23	834.4	7.62	-6.14
61	**Prayagraj**	730.2	581.5	-20.36	724.7	-0.75	19.76
62	**Rae Bareilly**	429.6	275.5	-35.87	349.5	-18.65	21.17

S No	District Name	Total Normal Rainfall	Total Actual Rainfall 2024	Deviation %	Total Actual Rainfall 2025	Deviation %	% Deviation 2025 to 2024
63	**Rampur**	728.3	789.1	8.35	632.6	-13.14	-24.74
64	**Saharanpur**	756.8	502.8	-33.56	868.6	14.77	42.11
65	**Sambhal**	658.4	768.1	16.66	1055.3	60.28	27.22
66	**S.Kabir Nagar**	1008.7	1069.8	6.06	462	-54.20	-131.56
67	**Shahjahanpur**	762.5	623.5	-18.23	543.4	-28.73	-14.74
68	**Shamli**	535.2	131.8	-75.37	282	-47.31	53.26
69	**Shrawasti**	1083.5	952.6	-12.08	849	-21.64	-12.20
70	**Siddharth Nagar**	1037.9	1089	4.92	682.3	-34.26	-59.61
71	**Sitapur**	837.5	547.4	-34.64	566.3	-32.38	3.34
72	**Sonbhadra**	873.3	1046.9	19.88	986.7	12.99	-6.10
73	**Sultanpur**	819.3	953.4	16.37	675.1	-17.60	-41.22
74	**Unnao**	658.3	408.7	-37.92	467.8	-28.94	12.63
75	**Varanasi**	812.1	769.5	-5.25	929.9	14.51	17.25
	Average	**731.51**	**730.90**	**-0.33**	**673.78**	**-6.71**	**-15.81**

The Average actual and normal rainfall in (mm) for the month from June 2025 to September 2025 comes to be 673.78 mm and 731.51 mm respectively. From the Map of deviation % in rainfall from normal June 2025 to September 2025, it is inferred that most of the regions in the UP fall in the category of normal. This shows that most of the region of UP receives the moderate to heavy rainfall. Average % deviation in august 2025 w.r.t. august 2024 is -15.81 %. There is no drastic change in the rainfall pattern in august 2025 as compared to previous year.

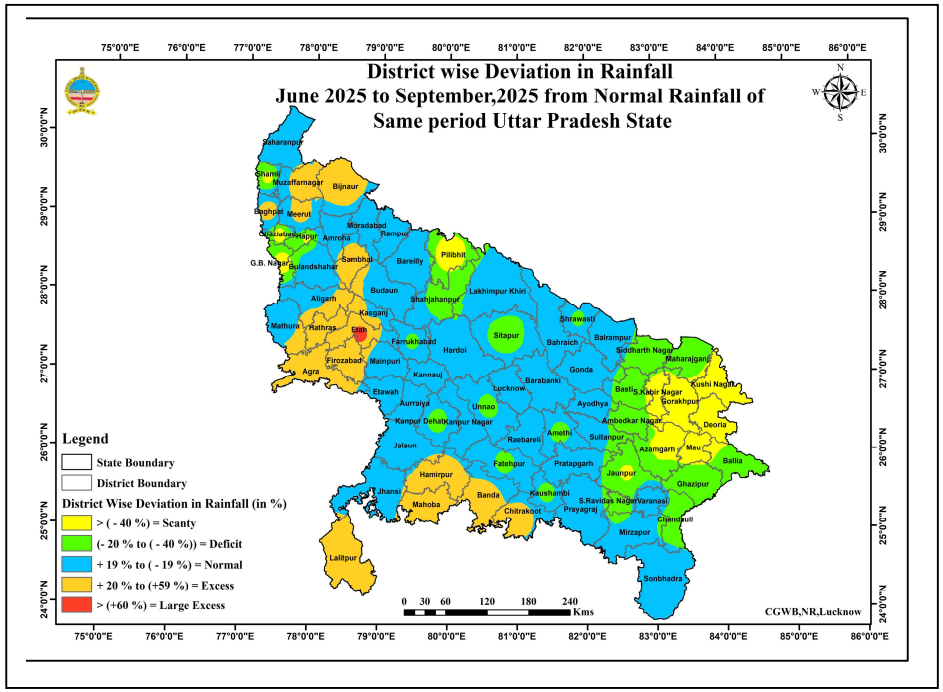

Figure-4: District wise deviation % in Rainfall during the period of June-September,2025

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 1121 wells is used for the analysis. It shows that water levels vary between 0.01mbgl (Balrampur district) to 43.77 mbgl (Agra District). Water level of less than 2 mbgl is recorded in 340 wells (30.33%), between 2 to 5 mbgl in 414 wells (36.93%), between 5 to 10 mbgl in 239 wells (21.32%), between 10 to 20 mbgl in 106 wells (9.46%), between 20-30 mbgl in 18 wells (1.61%) and water level between 30-45 mbgl is registered in 4 wells (0.36%). Percentage of wells shown in Figure No- 6 for unconfined aquifers and Map of Depth to Water level of Unconfined Aquifers is shown in Figure – 5. Shallow water level of less than 2 mbgl is seen in isolated patches in parts of Mathura, Mainpuri, Auraiya, Jalaun, Jhansi, Lalitpur, Hamirpur, Mahoba, Banda, Prayagraj, Fatehpur, Amethi, Ayodhaya, Raibareilli, Chandauli, Maharajganj, Basti, Balrampur, Siddharathnagar, Ballia, Deoria, Bahraich, Shrawasti, Sitapur, Pilibhit, Lakhimpur Khiri, Hardoi, Unnao, Mainpuri, Rampur, Moradabad, Muzzafarnagar and Saharanpur districts of UP. Water level of 2 to 5 mbgl is majorly observed in Terai and Bundelkhand region of UP also, seen in the parts of Moradabad, Rampur, Bareilly, Sitapur, Hardoi, Lucknow, Raibareilli, Amethi, Gonda, Basti, Sant Kabir Nagar, Gorakhpur, Deoria, Mau, Ballia Ghazipur, Prayagraj, Jaunpur, Sultanpur, Amethi, Raebareli, Barabanki, Unnao, Kanpur Nagar, Kannauj, Auraiya, Etawah, Mainpuri, Chandauli, Sonbhadra, Mirzapur and isolated patches are seen in the parts of Aligarh, Hathras, Bulandshahr, Ghaziabad, Muzaffarnagar, Bijnore and Meerut districts of Uttar Pradesh State.

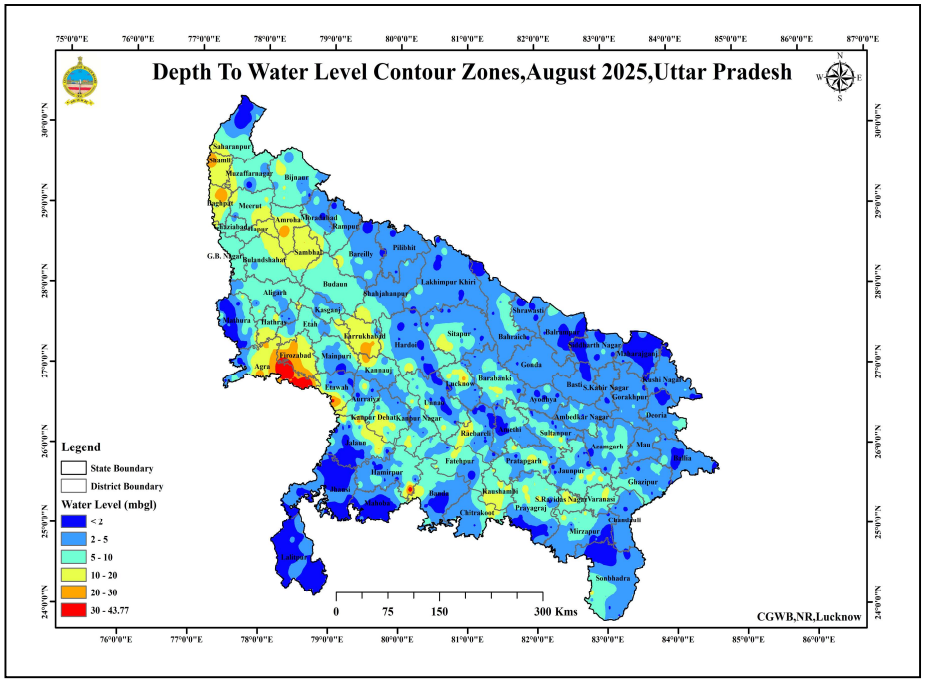

Figure-5: Depth to water level of Unconfined Aquifer during August 2025

Depth to water level of 5 to 10 mbgl is observed in the Westren parts of

UP along with Shahjahanpur, Hardoi, Sitapur, Lucknow, Barabanki, Raebareli, Amethi, Ayodhya, Pratapgarh, Sultanpur, Ambedkar Nagar, Prayagraj, Jaunpur, Azamgarh, Ghazipur, Mirzapur, Varanasi, Unnao, Kanpur Nagar, Kanpur Dehat, Banda, Hamirpur, Auraiya, Kannauj, Etawah, Mainpuri, Kasganj, Etah, Aligarh, Hathras and Mathura districts and isolated parts of Lakhimpur Kheri, Gonda, Siddharath nagar, Deoria, Mau , Balrampur , Jalaun districts of UP.

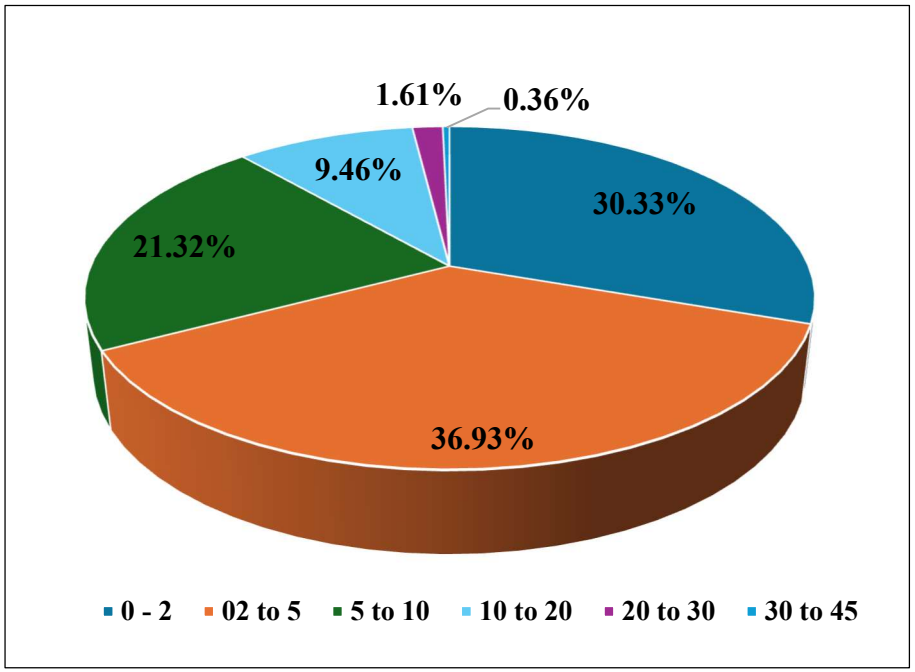

Figure-6 Percentage of wells in different water level ranges in Unconfined Aquifer

Water level of 10 to 20 mbgl and are observed in parts of Saharanpur, Shamli, Baghpat, Ghaziabad, Muzaffarnagar, Bijnor, Meerut, Hapur, Amroha, Sambhal, Bulandshahr, Budaun, Shahjahanpur, Farrukhabad, Kannauj, Etah, Hathras, Agra, Firozabad, Etawah, Kanpur Nagar, Jalaun, Hamirpur, Sitapur, Banda, Fatehpur, Raebareli, Lucknow, Kaushambhi, Chitrakoot, Pratapgarh, Prayagraj, Mirzapur, Varanasi, Barabanki, Sultanpur and Jaunpur districts of UP. Deeper water levels of more than 20 mbgl ar mainly observed in the parts of Baghpat, Shamli, Amroha, Sambhal, Agra, Firozabad, Farrukabad, Etawah, Lucknow and Hamirpur districts of UP,

5.1.2 SEASONAL FLUCTUATION IN WATER LEVEL

Seasonal Fluctuation of Water Level in Unconfined Aquifer (May 2025 to August 2025)

Rise in Water Levels:

Out of 831 wells, water level rise of less than 2m is recorded in 357 wells (42.96%), 2 to 4m in 330 wells (39.71%) and more than 4m in 67 wells (8.06%) as shown in Figure-7. Water level rise of less than 2m are observed in Westren parts and Terai Region of UP along with parts in Hardoi, Sitapur, Unnnao, Lucknow, Barabanki, Ayodhya, Ambedkar Nagar, Sultanpur, Azamgarh, Mau, Deoria Districts of UP and rise 2 – 4m is mostly observed in Bundelkhand Region and South-Eastrren part of UP along with isolated patches of Aligarh, Bijnore, Bareilly, Pilibhit,

Lakhimpur Kheri, Gonda, Shrawasti, Sant Kabir Nagar, Maharajganj, Kushi Nagar, Deoria and Mau districts of UP. Rise of more than 4m is significantly observed in isolated patches of Saharanpur, Firozabad, Etawah, Hamirpur, Jalaun, Mahoba, Jhansi, Banda, Prayagraj, Mirzapur, Chandauli, Ballia, Amethi, Ayodhya and Barabanki districts of UP.

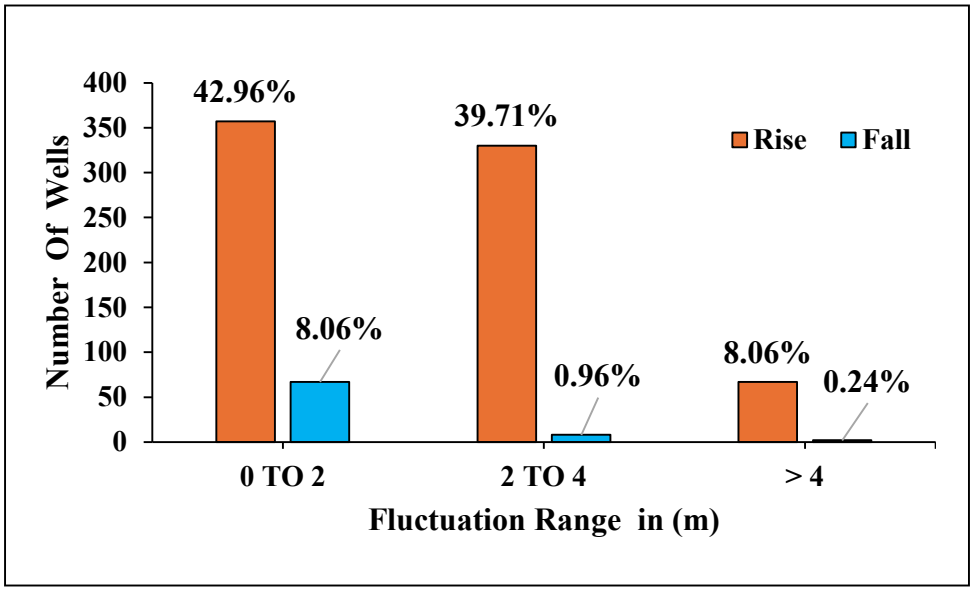

Figure-7: Percentage of wells showing rise and fall in WL in Unconfined Aquifer (May 2025 w.r.t. August 2025)

Fall in Water Levels:

Out of 831 wells that have registered fall in water levels, 67 wells (8.06%) have recorded less than 2m while 8 wells (0.96%) in the range of 2 to 4m and remaining 2 wells (0.24%) registered water level fall of more than 4m. Fall of less than 2m is mainly observed in isolated patches of Meerut, Sambhal, Moradabad, Farrukhabad, Kasganj, Sitapur, Lucknow, Barabanki, Fatehpur, Rai Bareilly, Hamirpur, Banda and Sonbhadra districts of UP. Fall of 2 to 4m is observed mainly in the isolated patches of Moradabad, Farrukhabad, Kasganj, Sitapur, Lucknow, Barabanki, Fatehpur, and Sonbhadra region. Fall greater than 4m is seen in isolated patches of district Banda and Lucknow. Map showing seasonal water level fluctuation (May 2025 w.r.t. August 2025) is shown in Figure-8

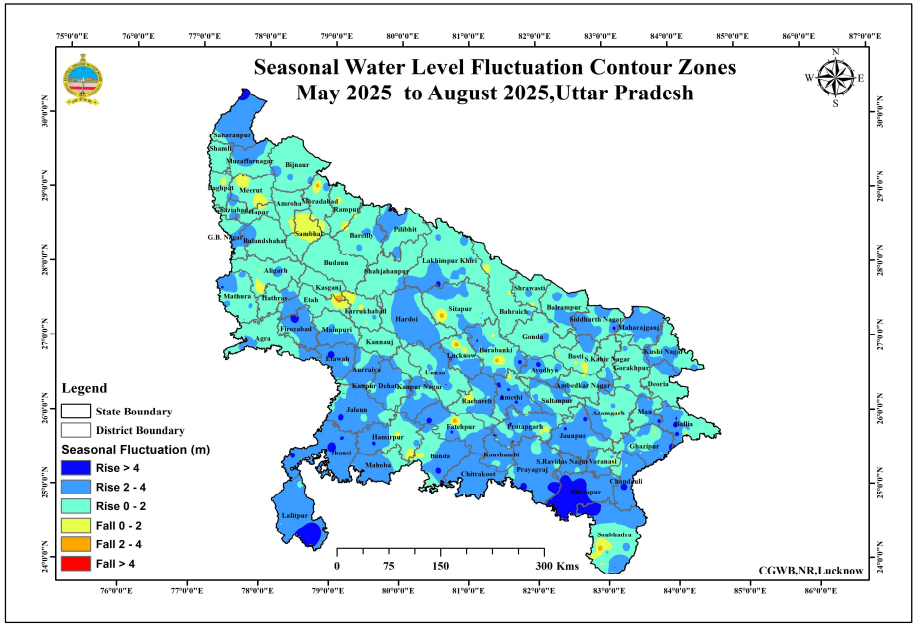

Figure-8: Seasonal water level fluctuation in Unconfined Aquifer (May 2025 to August 2025)

5.1.3 ANNUAL FLUCTUATION IN WATER LEVEL

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

Rise in Water Levels: Out of 627 wells analyzed, it is observed that, the rise in water level of less than 2m is recorded in 248 wells (39.55%), 2 to 4 in 38 wells (6.06%). Water level rise of less than 2m is seen in parts of Moradabad, Rampur, Bareilly, Firozabad, Mainpuri, Etawah, Auraiya, Kannauj, Farrukhabad, Kanpur Dehat, Kanpur Nagar, Jhansi, Hamirpur, Jalaun, Mahoba, Lalitpur, Lakhimpur Kheri, Shahjahanpur, Hardoi, Lucknow, Barabanki, Gonda, Siddharth Nagar, Balrampur, Basti, Kushinagar, Ballia, Ghazipur, Chandauli, Prayagraj, Fatehpur, Chitrakoot districts of UP. Water level rise of 2 to 4 m is observed in isolated patches of Aligarh, Saharanpur, Unnao, Kanpur Nagar, Kaushambi, Jaunpur, Sant Ravidas nagar, Varanasi, Prayagraj and Mirzapur districts of UP.

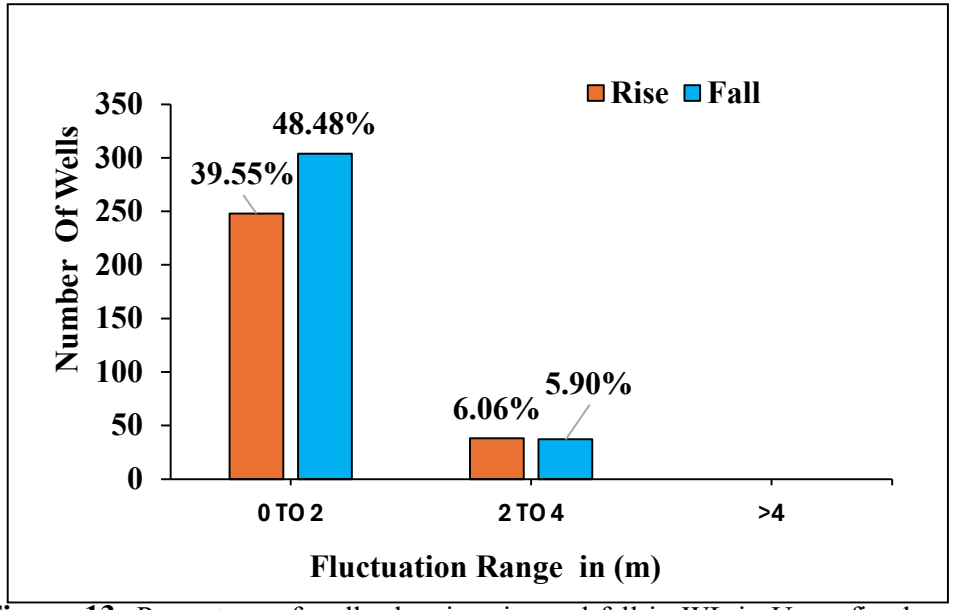

Figure-13: Percentage of wells showing rise and fall in WL in Unconfined Aquifer (August 2024 w.r.t. August 2025)

Fall in Water Levels: Out of 627 wells analyzed, 304 wells nearly 48% recorded water level of less than 2m fall, while 37 wells (5.9%) are in the range of 2 to 4m. Fall of less than 2m is mainly observed in Tarai and Eastern Part of districts in UP like Pilhibhit,Khiri,Sidhdhartha Nagar,Maharjganj,Gorakhpur,Deoria,Mau Azamgarh and parts of districts in Jalaun, Jhansi, Lalitpur, Chitrakoot, Sonbhadra etc.

Fall of 2 to 4 m is observed mainly in isolated patches of Sitapur,Shrawasti,Gonda,Sidhdartha Nagar,Jaunpur,Mirzapur,Sonbhadra and Lalitpur.Percentage of wells

showing rise and fall in WL for Unconfined Aquifer (Aug2024 to Aug2025) in Figure –13 and Map of annual water level fluctuation in Unconfined Aquifer (Aug 2024 -2025) is shown in Figure- 14.

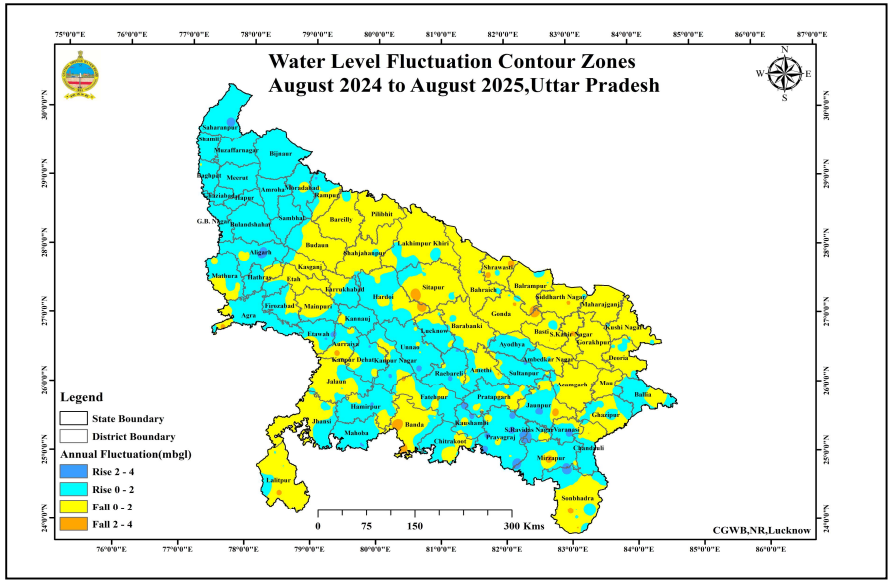

Figure-14: Annual water level fluctuation in Unconfined Aquifer (August 2024 -25)

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

Rise in Water Levels: Out of 523 wells analyzed, it is observed that, the rise in water level of less than 2m is recorded in 229 wells (43.79%), 2 to 4 in 55 wells (10.52%). Water level rise of less than 2m is seen in major parts of Uttar Pradesh especially in Northern, North Western and South Eastern districts. Water level rise of 2 to 4 m is observed mainly in isolated patches of Saharanpur, Firozabad, Jalaun, Chitrakoot, Prayagraj. Jaunpur ,Pratapgarh, Mirzapur, Chandauli and Sonbhadra districts of UP.

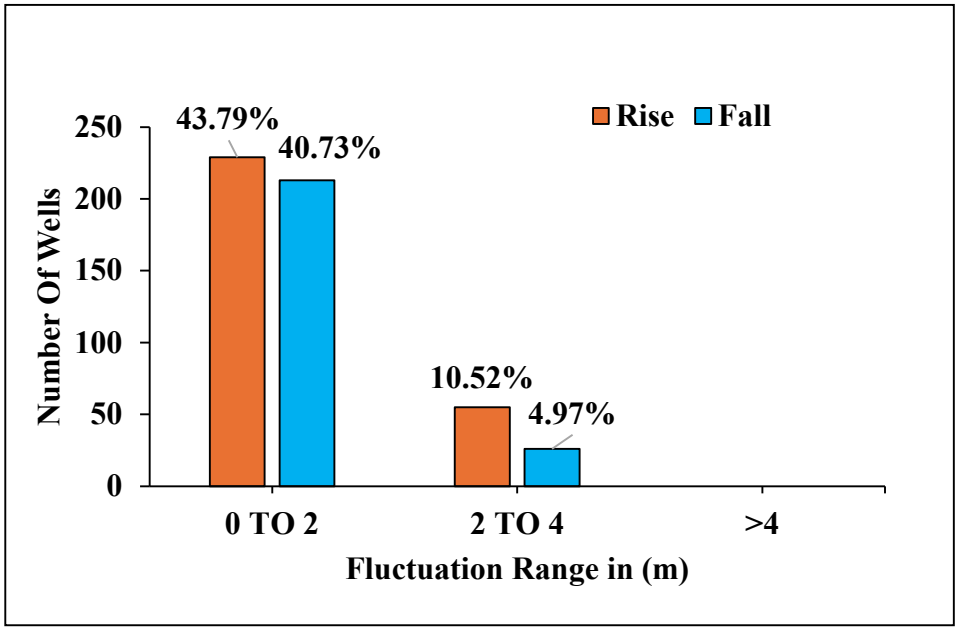

Figure-15: Percentage of wells showing rise and fall in WL in Unconfined Aquifer (August 2023 w.r.t. August 2025)

Fall in Water Levels: Out of 523 wells analyzed, fall in water level of less than 2m is recorded in 213 wells (40.73%), 2 to 4 in 26 wells (4.97%). Fall of less than 2m is mainly observed in patches of LakhimpurKhiri,Amroha,Moradabad,Rampur,Shrawasti,Bahraich,Balrampur,Gonda,Basti,Sant Kabir Nagar,Gorakhpur,Deoria,Ambedkar

Nagar,Ayodhya and Azamgarh districts in UP.

Fall of 2 to 4 m is observed mainly in isolated patches of Shrawasti,Hardoi,Barabanki,Gonda,Sidhdhartha Nagar,Sant Kabir Nagar,Gorakhpur and Ambedkar Nagar districts. Percentage of wells showing rise and fall in WL for Unconfined Aquifer (Aug2023 to Aug2025) in Figure –15 and Map of annual water level fluctuation in Unconfined aquifer (Aug 2023 -2025) is shown in Figure- 16.

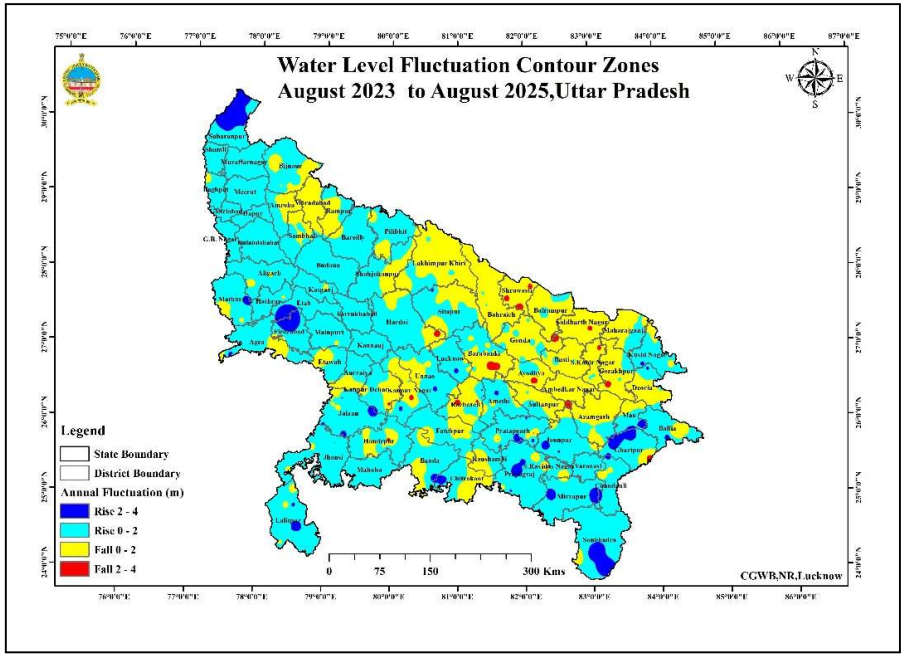

Figure-16: Annual water level fluctuation in Unconfined Aquifer

(August 2023 -25)

5.1.4 DECADAL FLUCTUATION IN WATER LEVEL

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

Rise in Water Levels:

Out of 345 analyzed wells, the rise in water level of less than 2m is recorded in 162 wells (46.96%), 2 to 4 m in 40 wells (11.59 %) Water level rise of less than 2m is seen majorly in western parts of and North Western parts of Uttar Pradesh regions and the parts of Gonda,Ayodhya,Amethi,Sultanpur,Pratapgarh,Jaunpur,Ghazipur,Prayagraj,Mirzapur and Sonbhadra. Water level rise of 2 to 4 m is observed mainly in isolated patches of Kanpur Dehat, Jalaun ,Hamirpur, Jhansi, Mahoba ,Lalitpur, Chitrakoot and Fatehpur districts of UP.

Fall in Water Levels:

Out of the 345 analyzed wells, 127 wells (36.81%) of the area shows, fall in water levels of less than 2m while 16 wells (4.64%) in the range of 2 to 4m and remaining 14 wells (2.5%) registered water level fall of more than 4m. Fall of less than 2 m is observed in major parts of Eastern Uttar Pradesh such as Balrampur,Shrawasti, Ghazipur, Kushi Nagar, Maharajganj, Pratapgarah, Amethi, Rae barielly, Ballia, Jaunpur, Deoria, Ayodhya , Central parts of Uttar Pradesh such as Hardoi, Sitapur, Lakhimpur Kheri, Lucknow, Barabanki, Unnao and Gonda. Fall of 2 to

4m is observed in isolated patches of Sidhdhartha Nagar, Prtatapgarh,Azamgarh,Sant Ravidas Nagar and Shrawasti districts of UP. Map of Decadal Water level fluctuation from (August 2015- 2024) with respect to August 2025 is shown in the Figure – 17 and percentage of wells showing rise and fall in WL for Unconfined Aquifer (Decadal fluctuation (2015-2024) w.r.t. August 2025) is shown in Figure-18

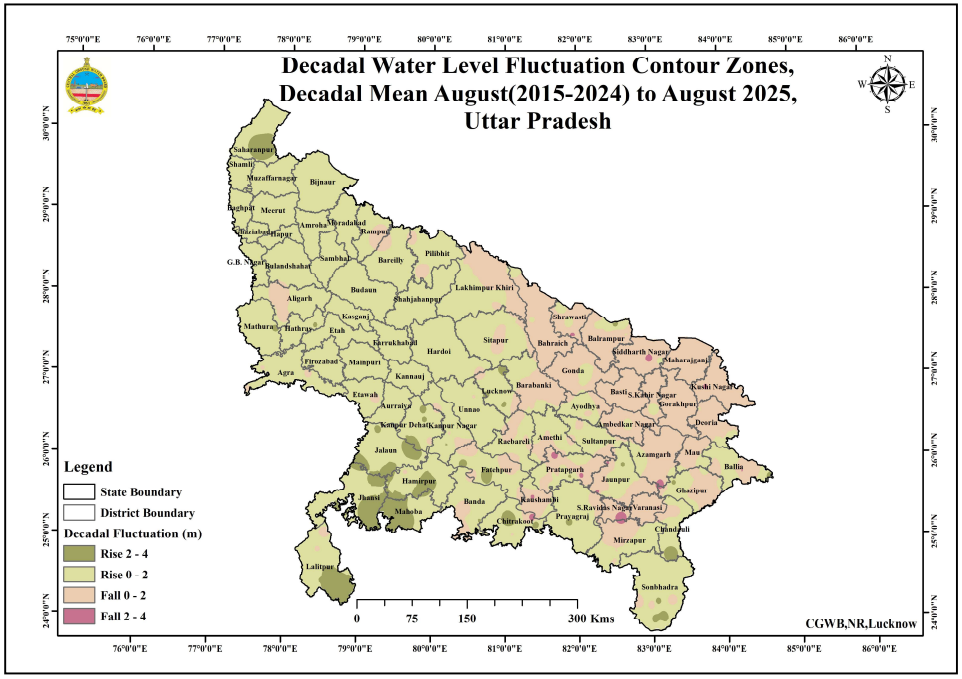

Figure-17: Decadal Water level Contour Zones, Decadal Mean August (2015-2024) w.r.t. August 2025)

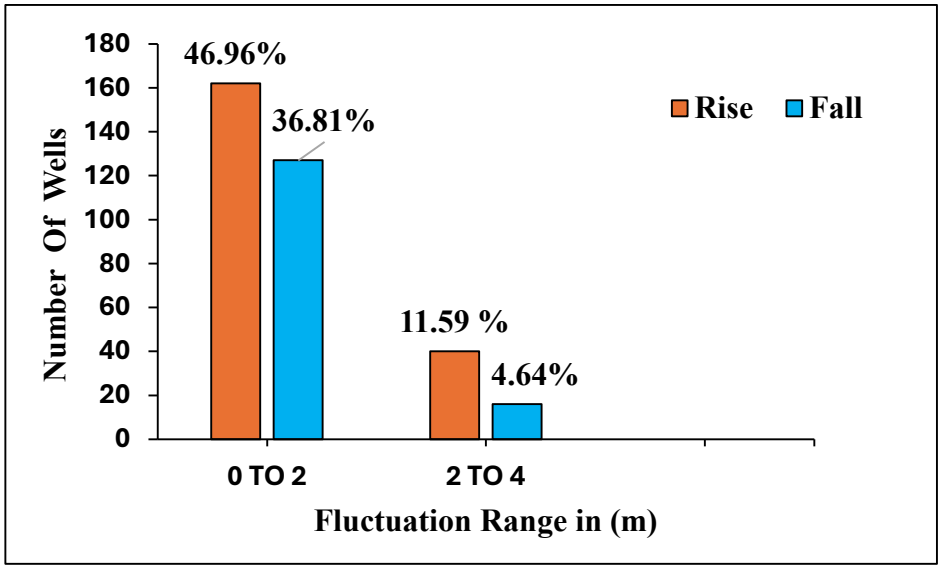

Figure-18: Percentage of wells showing rise and fall in WL in Unconfined Aquifer (Decadal Fluctuation (2015-2024) w.r.t. August 2025)

6.0. SUMMARY

As a component of the National Ground Water Monitoring Programme, the CGWB, NR, Lucknow conducts monitoring of the ground water conditions on a quarterly basis: in January, pre-monsoon May, August, and post-monsoon November. Additionally, a yearly assessment of ground water quality is performed in May. As of August 31, 2025, the Northern Region-Central Ground Water Board supervises 1082 dug wells and 453 piezometers. This comprehensive effort aims to portray the variations in the states ground water conditions across different aquifers. In August 2025, around 88% of the state's area exhibited a depth to water level within 10 meters below ground level for unconfined aquifers.

The ground water level in Uttar Pradesh during August 2025 has been significantly influenced by rainfall patterns from June 2024 to August 2024. This period witnessed a departure of 30.92% from the normal, classifying most of the region in the category of normal rainfall. This has result in rise in the water level in many districts of UP. Districts of UP like Bareilly, Balrampur, Siddharath nagar, Basti, Gonda, Bahraich, Shrawasti, Maharajganj receives actual rainfall greater than 600mm. Seasonal fluctuation comparison with November-2023 to August-2024 has shown rise in about 64% area of the State in Unconfined and 58% area in Confined Aquifer. This comparison with May 2025 to August-2025 has shown rise in about 90% of the area in Unconfined Aquifer. Annual water level comparison with August 2024 to August 2025 has shown rise in about 46 % area of the State in Unconfined Aquifer. Annual water level comparison with previous year August-2023 to August-2025 has shown rise in about 54 % of the area of the state in unconfined aquifer because of normal to moderate rainfall in 2025. Around 58% of the area experienced rise of water level in decadal mean water level fluctuation of August, 2015-2024, with respect to August,2025, in unconfined aquifer.

7.0. RECOMMENDATIONS

- 54% of the well are showing fall in Groundwater in comparison with previous year mainly in Bareilly,Pilibhit,Shrawasti,Sitapur,Baharaich,Gonda,Barabanki, Gonda,Basti, Sant Kabir Nagar, Gorakhpur, Deoria, Azamgarh, Mau, Ghazipur, Sonbhadra, Mirzapur, Banda ,Etah ,Kasganj, Budaun, Shahjahnpur, Farukhkhabad, Mainpuri,Mathura,Aligarh,Moradabad districts.
- State Government are suggested to adopt more water conservation measures to augment Groundwater water in the area. Rain water harvesting and artificial recharge techniques, depending on the feasibility of Artificial Recharge Structure, may be introduced at

a larger scale to minimize the problem of declining water level and depletion of GW resource.

- Demand side measure such as sprinkler, drip irrigation and Enhancement in cultivation of low water requiring crops and a small modification of the prevailing cropping pattern is recommendable as per its suitability for the area, needs to be promoted in the district like Bareilly,Pilibhit,Shrawasti,Sitapur,Baharaich,Gonda,Barabanki ,Gonda,Basti, Sant Kabir Nagar, Gorakhpur, Deoria, Azamgarh, Mau, Ghazipur, Sonbhadra, Mirzapur, Banda ,Etah ,Kasganj, Budaun, Shahjahnpur, Farukhkhabad, Mainpuri,Mathura,Aligarh,Moradabad districts.

- Areas with deeper Groundwater levels showing declining trend in last ten year such as parts of Shamli, Muzaffarnagar, Aligarh, Sambhal, Lucknow, Barabanki, Raibarelly , Amethi, Prayagraj , Kaushambi, Chitrakoot and Jaunpur districts etc. need Overall increase in cultivation area of mustard, vegetables and wheat may be recommended as an alternative option as these crops are suitable for the local climate and soil type and need a lesser irrigation water column in the range of 0.40 to 0.45 m.