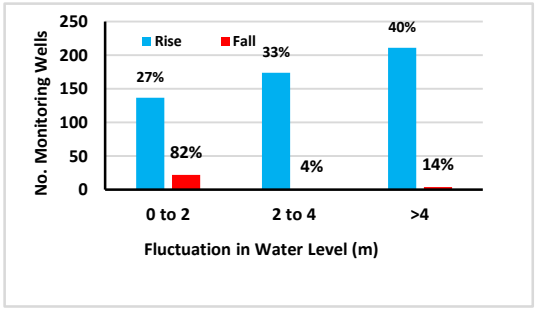

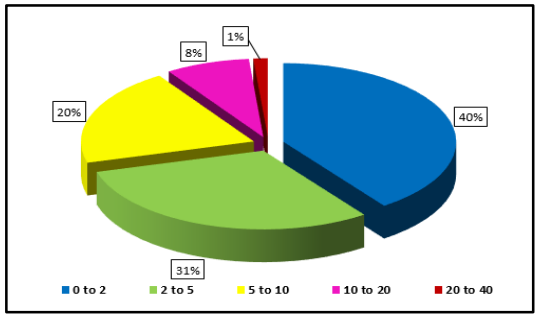

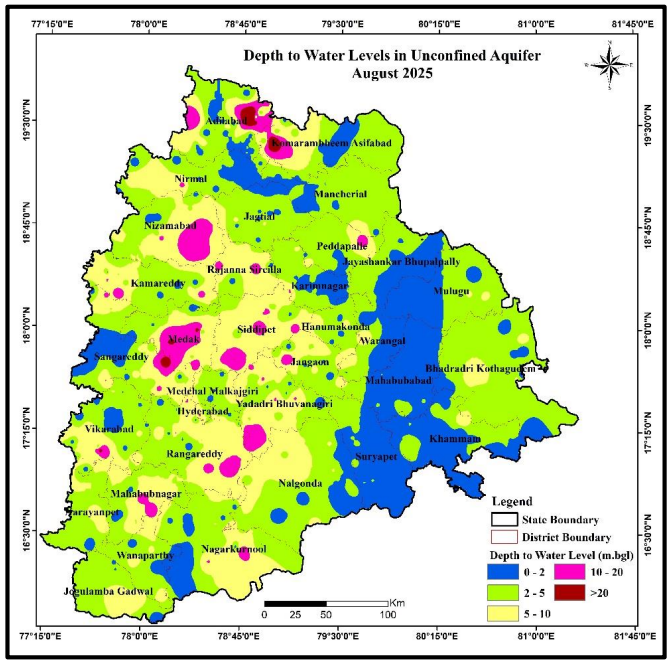

GROUND WATER LEVEL BULLETIN

August 2025

TELANGANA STATE

ABSTRACT

Highlighting Ground water level Scenario during August 2025 and its seasonal, annual, and decadal comparison.

CGWB, SOUTHERN REGION, HYDERABAD

1.0 INTRODUCTION

Ground Water Level 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, evapotranspiration etc., whereas anthropogenic influences include pumpage 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 1271 observation wells called **National Hydrograph Network Stations (NHNS)**, as on 31.08.2025, located in Telangana State is being monitored.

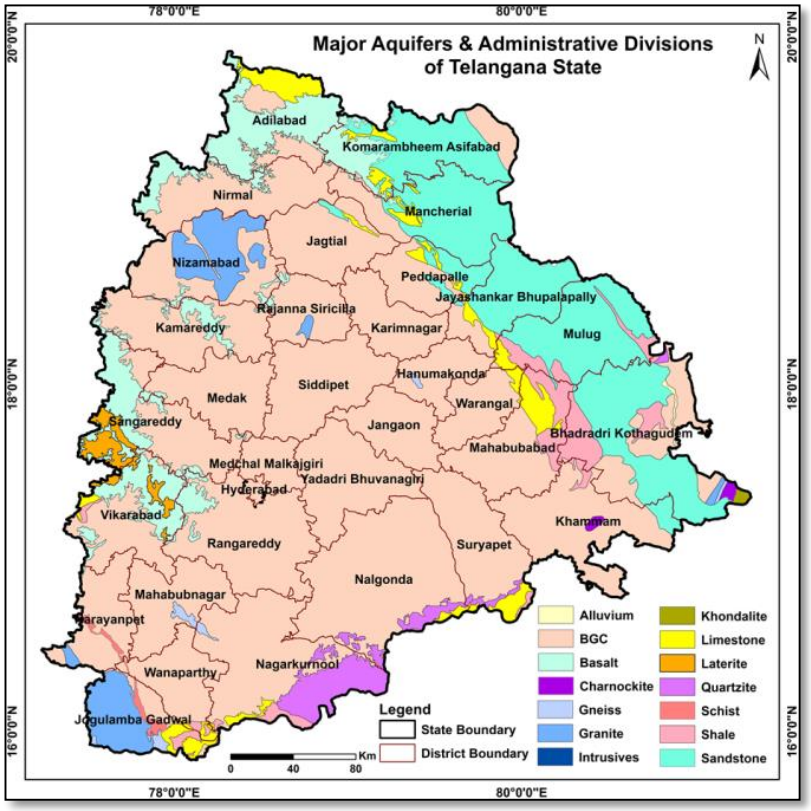

Figure-1: Map showing major aquifers and administrative divisions of Telangana State

2.0 STUDY AREA

Telangana State is the 29th State (Act, 2014) formed in India covering geographical area of 1,12,077 Km^2 (after transferring 107 villages from Khammam district to residual Andhra Pradesh). It lies between North latitude 15° 48' and 19° 54'and East Longitude 77° 12' and 81° 50'. The state is bordered by Maharashtra state in the north, Karnataka state in the west, Andhra Pradesh state in the south and east and Chhattisgarh state in the north-east. Administratively, the State comprises of 33 districts and governed by 620 revenue mandals (blocks/tehsils) with 10,434 revenue villages. The largest district is Bhadradri Kothagudem whereas Hyderabad is the smallest district. The total population of the state is ~3.5 crores with sex ratio of 988 (2011 census), of which 61 % lives in rural area and 39 % in urban area. The density of population is 312 per sq. km. The decadal population growth is ~13.6 % (2001 to 2011 census).

Physiographically, Telangana state is occupied by western Pediplains except a fringe of Eastern Ghats in the northeastern part of Khammam district. The Pediplains depict rolling topography with flat to undulating tracts. The state extends largely between elevations of 150 to 600 mamsl except at places where it is overlain by basaltic lava flows, the elevation of which ranges from 600 to 900 m amsl.

The state is underlain by diverse rock types of different geological ages from Pre-Cambrian to Recent. Nearly 81 % of the state area is underlain by crystalline rocks (consolidated formations) belonging to the Peninsular Gneissic Complex, Dharwar and Eastern Ghats of Archaean to Middle Proterozoic age, Pakhal Group of rocks belonging to Middle to Upper Proterozoic age and Deccan Traps.

The remaining part of the state is underlain by semi consolidated sedimentary formations comprising Gondwana's, Tertiaries and Sub-Recent to Recent Unconsolidated Alluvium **(Fig.1).**

3.0 GROUND WATER LEVEL MONITORING

Central Ground Water Board, Southern Region, is monitoring changes in groundwater regime in Telangana 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 1271 which include 270 dug wells and 1001 piezometers. In August 2025, 1271 wells monitored (Water Level recorded for 239 Dug wells and 913 Piezometer), while 5 wells recorded dry and 114 wells could not be monitored due to various reasons like inaccessibility, filled up, installation of pump units, road damaged, gate locked etc. The number of operational wells after completion of August 2025 monitoring stands at 1271, which include 270 dug wells and 1001 Borewells **(Fig .2).** The district-wise breakup of the water level monitoring stations is given in **Table-1**.

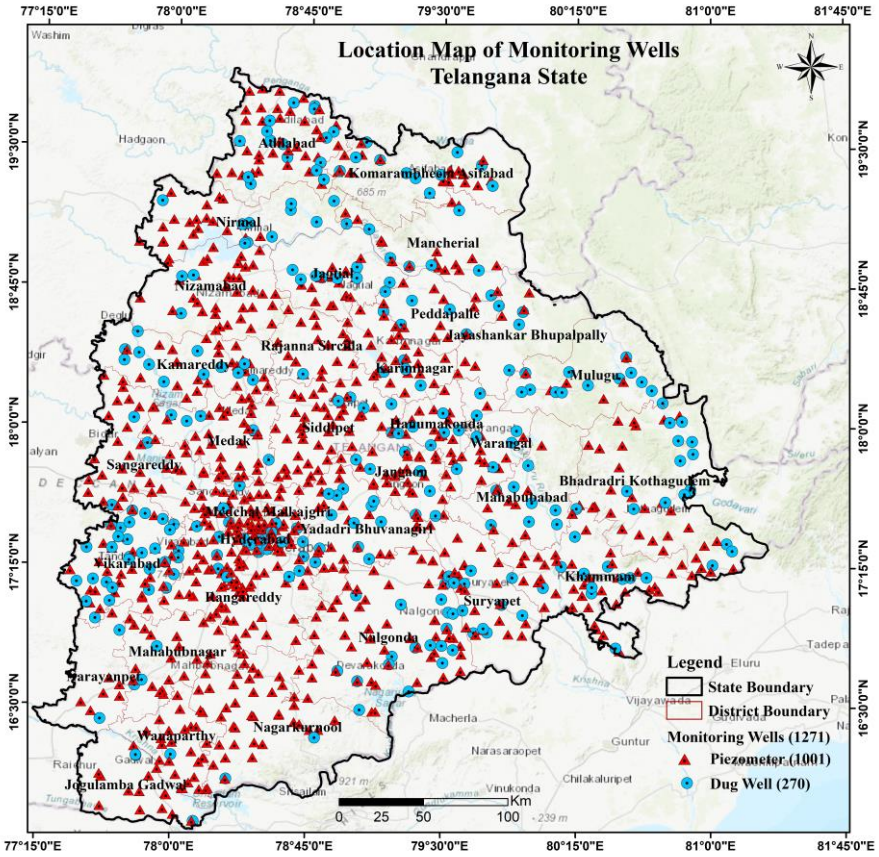

Figure- 2: Map showing locations of monitoring wells (GWMWS) in Telangana State

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

SR. No.	District	Number of Water Level Monitoring Stations					
		2022	2023	2024	2025		
		Total	Total	Total	DW	PZ	Total
1	Adilabad	**51**	55	55	16	39	55
2	Bhadradri Kothagudem	**73**	73	73	15	57	72
3	Hanamkonda	**18**	18	18	4	14	18
4	Hyderabad	**25**	28	28	8	20	28
5	Jagtial	**25**	24	24	8	16	24
6	Jangaon	**42**	42	42	9	33	42
7	Jayashankar Bhupalapally	**14**	14	14	3	11	14
8	Jogulamba Gadwal	**17**	17	17	3	14	17
9	Kamareddy	**25**	39	39	12	27	39
10	Karimnagar	**23**	26	26	5	21	26
11	Khammam	**68**	69	69	12	57	69
12	Komarambheem Asifabad	**39**	42	42	10	32	42
13	Mahabubabad	**21**	21	21	8	13	21
14	Mahabubnagar	**28**	26	26	3	23	26
15	Mancherial	**32**	33	33	9	23	32
16	Medak	**38**	38	38	5	33	38
17	Medchal Malkajgiri	**20**	39	39	3	36	39
18	Mulugu	**23**	21	21	13	7	20
19	Nagarkurnool	**46**	47	47	2	45	47
20	Nalgonda	**80**	81	81	17	64	81
21	Narayanpet	**12**	12	12	2	10	12
22	Nirmal	**34**	33	33	8	25	33
23	Nizamabad	**42**	42	42	5	37	42
24	Peddapalli	**18**	20	20	6	14	20
25	Rajanna Sircilla	**21**	21	21	1	20	21
26	Rangareddy	**73**	95	95	13	82	95
27	Sangareddy	**60**	65	65	5	56	61
28	Siddipet	**51**	53	53	5	48	53
29	Suryapet	**34**	34	34	11	23	34
30	Vikarabad	**66**	65	65	29	36	65
31	Wanaparthy	**25**	26	26	1	25	26
32	Warangal	**20**	20	20	7	13	20
33	Yadadri Bhuvanagiri	**43**	42	42	12	27	39
	Total	**1207**	**1281**	**1281**	**270**	**1001**	**1271**

4.0 RAIN FALL

The rainfall data collected and compiled from weekly and monthly weather reports from Telangana State Development Society (TSDPS) were used to analyze the rainfall for the period June 2025 – August 2025. **Table-2** gives the district-wise rainfall data for the period June-August 2024 & 2025, normal and the departure of June-August 2025 rainfall with other periods. Category was defined based on the departures from normal values: **Normal**: -19% to 19%; **Excess**: 20% to 59%; **L. Excess**: > 60%; **Deficit**: -20% to -59% **(Fig.3).**

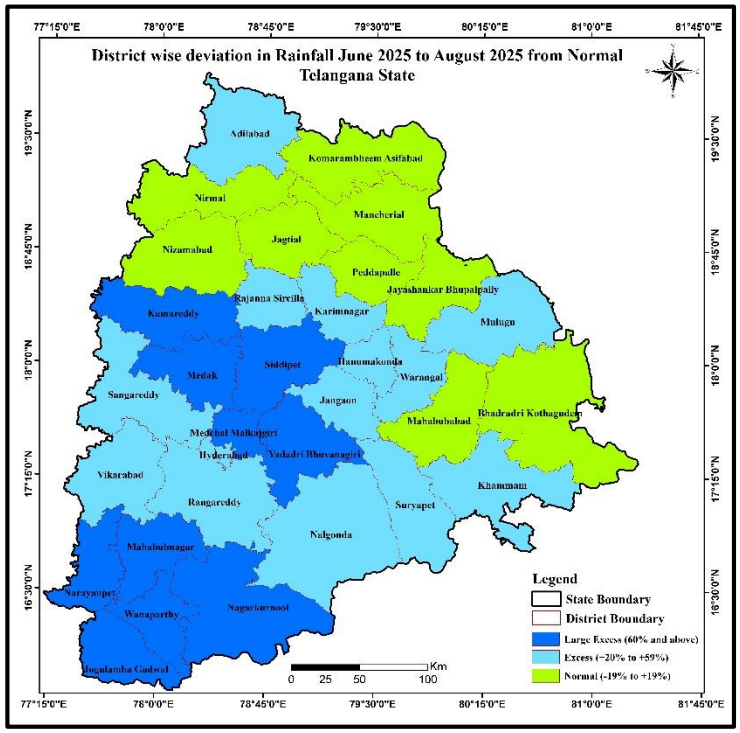

Figure-3: Rainfall deviation (June 2025 - August 2025) from normal rainfall

Table-2: District wise variability of rainfall in Telangana State (2025)

S. No.	District	Rainfall (June 2025-August 2025) (mm)	Rainfall (June 2024-August 2024) (mm)	Normal Rainfall (mm)	Departure from 2024 (%)	Departure from Normal (%)	Category
1	Adilabad	954.5	737.5	781.2	29%	22%	Excess
2	B. Kothagudem	919.1	925.7	770.4	-1%	19%	Normal
3	Hanumakonda	716.9	739.4	534.6	-3%	34%	Excess
4	Hyderabad	733.6	492.2	468.4	49%	57%	Excess
5	J. Bhupalpally	808.7	986.1	804.2	-18%	1%	Normal
6	Jagtial	724.4	854.2	644.9	-15%	12%	Normal
7	Jangaon	658.3	478.3	524.8	38%	25%	Excess
8	Jogulamba	532.2	506.3	322.4	5%	65%	L.Excess
9	Kamareddy	1020.6	575	615.6	78%	66%	L.Excess
10	Karimnagar	763.8	725.7	544.7	5%	40%	Excess
11	Khammam	819.6	694.8	616.4	18%	33%	Excess
12	Kumaram Bheem	945.2	907	806.2	4%	17%	Normal
13	M. Malkajgiri	669.7	490.2	394.5	37%	70%	L.Excess
14	Mahabubabad	817.3	807.8	691.3	1%	18%	Normal
15	Mahabubnagar	697.2	604.4	378.4	15%	84%	L.Excess
16	Mancherial	721.4	795	770.9	-9%	-6%	Normal
17	Medak	1026.9	510.3	620.5	101%	66%	L.Excess
18	Mulugu	1063.7	1265.5	803.6	-16%	32%	Excess
19	Nagarkurnool	674.2	553.4	346.7	22%	94%	L.Excess
20	Nalgonda	545.7	342.6	370.9	59%	47%	Excess
21	Narayanpet	668.9	664.3	339.8	1%	97%	L.Excess
22	Nirmal	838.0	769.5	723.4	9%	16%	Normal
23	Nizamabad	719.1	698.5	670.4	3%	7%	Normal
24	Peddapalle	703.3	868.1	702	-19%	0%	Normal
25	Rajanna Sircilla	680.9	649.8	545	5%	25%	Excess
26	Rangareddy	631.6	342.8	400.8	84%	58%	Excess
27	Sangareddy	782.5	405.4	541.9	93%	44%	Excess
28	Siddipet	788.0	506.9	478.5	55%	65%	L.Excess
29	Suryapet	671.8	512.9	468.3	31%	43%	Excess
30	Vikarabad	687.7	493.6	498.1	39%	38%	Excess
31	Wanaparthy	659.1	582.5	397.5	13%	66%	L.Excess
32	Warangal	888.3	670.1	733.4	33%	21%	Excess
33	Y. Bhuvanagiri	716.8	378.7	396.2	89%	81%	L.Excess
	State	**765.1**	**652.6**	**566.8**	**17%**	**35%**	**Excess**

Source: TSDPS. Legend: Large Excess (+60% or more), Excess (+20% to +59%), Normal (-19% to +19%), Deficient (-20% to -59%), Large Deficient (-60% to -99%) departure from normal.

5.0 GROUND WATER 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)

Analysis of depth to water level data of 598 wells in Unconfined Aquifer shows water levels vary between 0.01 m bgl (Sangareddy district) to 98.11 m bgl (Adilabad district). Water level of less than 2 m bgl is recorded in 40% of wells, between 2 and 5 m bgl in 31% of wells, between 5 and 10 m bgl in 20% of wells, between 10 and 20 m bgl in 8% of wells and > 20 mbgl in 1% of wells **(Fig. 4).**

Shallow water level of less than 2 m bgl is mainly observed in parts of Jayashankar, Mulugu, Sangareddy, Karimnagar, Warangal, Mahabubabad, Suryapet, Khammam, Nirmal, Mancherial districts covering an area of 20.2% of the State. Water levels of 2–5 mbgl, covering 49.8% of the area, are found mainly in parts of Bhadradri, Sangareddy, Vikrabad, Kamareddy, Jagitial, Mancherial, Peddapalle, Nalgonda, Nagarkurnool districts. 5 to 10 m bgl of water levels covering major part of State with an area of 25.9%, is mainly observed in parts of Central to North-western and parts of south-western districts. While only 3.8% of the State is covered by 10 – 20 m bgl water levels in Medak, Siddipet, Nizamabad, Adilabad, K Asifabad and as isolated patches in some districts. Deeper water levels exceeding 20 meters cover less than 1% of the area, found in small patches in K Asifabad, Sangareddy and Adilabad districts **(Fig. 5).**

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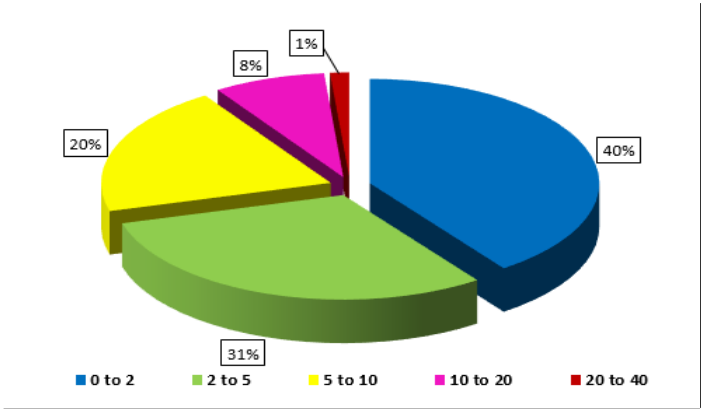

Figure-4: Percentage of wells in different water level ranges in unconfined aquifer.

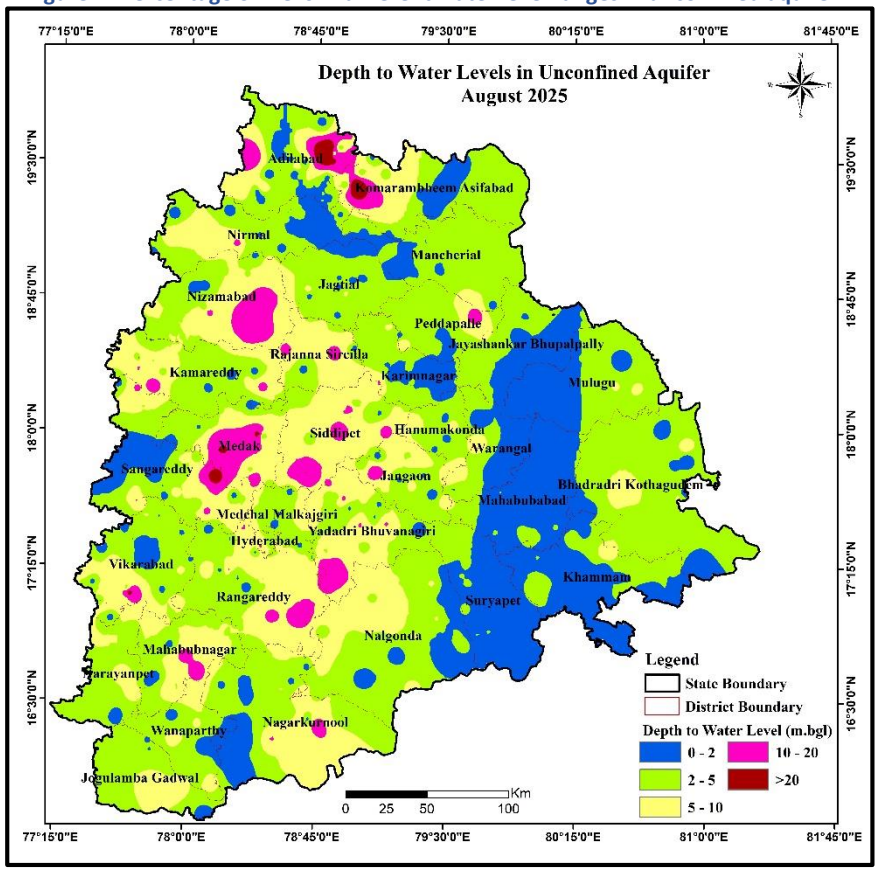

Figure-5: Depth to water level of unconfined aquifer during August 2025.

5.1.2 SEASONAL FLUCTUATION IN WATER LEVEL

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

Analysis of data of 549 wells shows that water level rise is recorded in 95% wells (522 wells), water level fall is recorded in 5% wells (27 wells).

Rise in Water Levels:

Out of 522 wells, water level rise of less than 2 m is recorded in 27% wells, 2 to 4 m in 33% wells and more than 4 m in 40% of the wells. Water level rise of less than 2 m is seen almost all districts especially in Nizamabad, Jagitial, Kamareddy, Peddapalle, Mancherial, J Bhupalpally, Suryapet, Khammam and Warangal districts of the state. Water level rise of 2 to 4 m is observed mainly in B Kothagudem, Mahabubabad, Mulugu, Mancherial, Jangaon, Narayanpet and Jogulamba Gadwal districts. Rise of more than 4 m is seen majorly in Rangareddy, Sangareddy, Medak, Vikarabad, Adilabad, Nirmal, Siddipet Jogulamba, Nalgonda and Kumarambheem districts.

Fall in Water Levels:

Out of 27 wells that have registered fall in water levels, 82% have recorded less than 2 m while 4% in the range of 2 to 4 m and remaining 14% wells registered water level fall of more than 4 m. Fall of less than 2 m is mainly observed in almost all the districts mainly in Jagitial, Nizamabad, and K Asifabad districts. Fall of 2 to 4 m is observed mainly in Kamareddy, K Asifabad and Siddipet districts. Fall of >4 m is mainly observed in Kamareddy, K Asifabad and Siddipet districts **(Fig. 6 &7).**

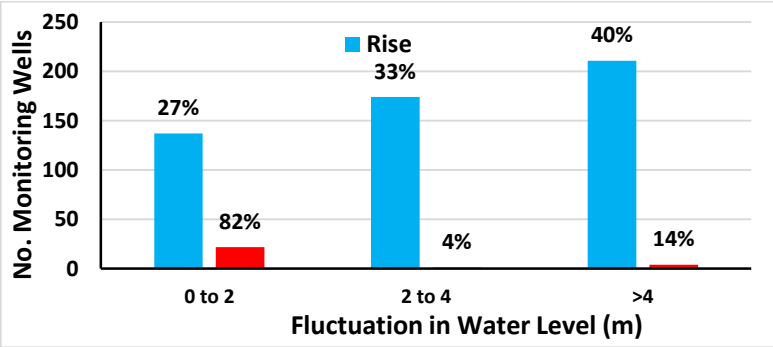

Figure-6: Seasonal water level fluctuation in unconfined aquifer (May 2025 to August 2025)

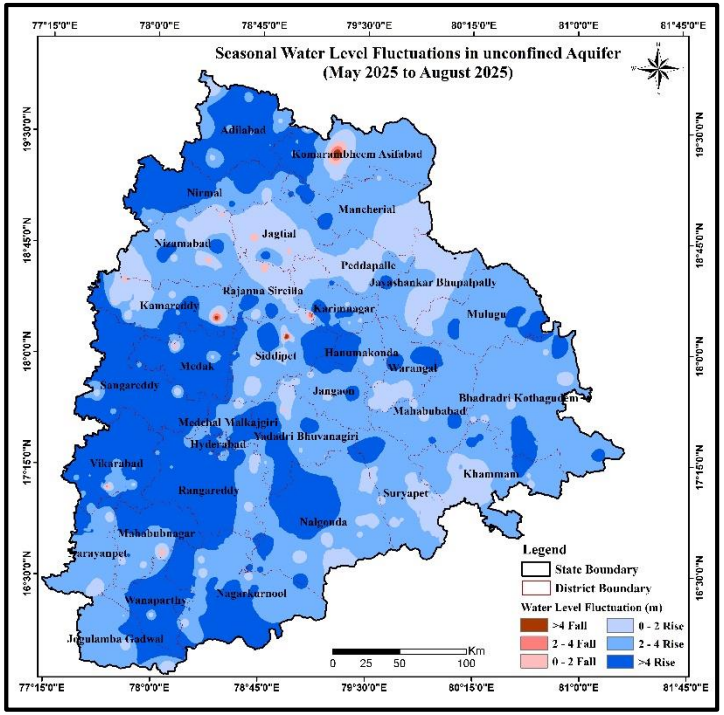

Figure-7: Seasonal water level fluctuation in unconfined aquifer (May 2025 to August 2025)

Seasonal Fluctuation of Water Level in Unconfined Aquifer (August 2025 with May 2024)

Analysis of data of 563 wells shows that water level rise is recorded in 96% wells (541 wells), water level fall is recorded in 4% wells (22 wells).

Rise in Water Levels:

Out of 541 wells, water level rise of less than 2 m is recorded in 13% wells, 2 to 4 m in 31% wells and more than 4 m in 56% of the wells. Water level rise of less than 2 m is seen in patches in many parts of the State mostly in Jangaon, Y Bhuvanagiri, Siddipet, Rajanna Sircilla, J Bhupalpally districts etc of the state. Water level rise of 2 to 4 m is observed mainly in Peddapalle, Jagtial, Nizamabad, B Kothagudem, Suryapet, Karimnagar, Rajanna Sircilla and Siddipet Districts. Rise of more than 4 m is seen in almost all districts throughout the State.

Fall in Water Levels:

Out of 22 wells that have registered fall in water levels, 59% have recorded less than 2 m while 9% in the range of 2 to 4 m and remaining 32% wells registered water level fall of more than 4 m. Fall of less than 2 m is mainly observed in Y Bhuvanagiri, Sangareddy, Kamareddy, Sircilla and Jangaon Districts. Fall of 2 to 4 m is observed mainly in Y Bhuvanagiri, Sangareddy, Kamareddy and Jangaon Districts. Fall of >4 m is mainly observed in Y Bhuvanagiri, Kamareddy and Jangaon Districts **(Fig. 8 & 9)**.

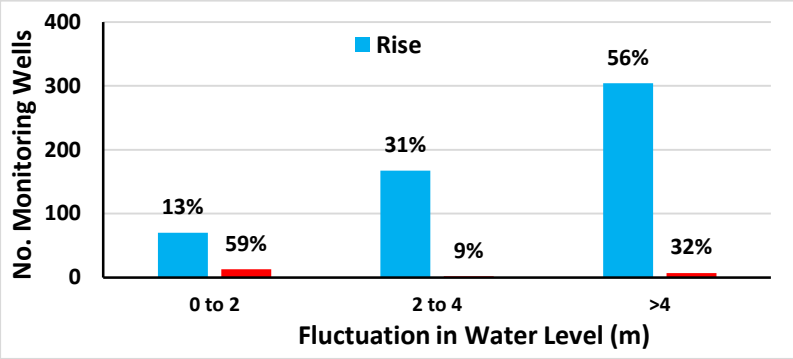

Figure-8: Percentage of wells showing rise and fall in WL in unconfined aquifer (May 2024 to August 2025)

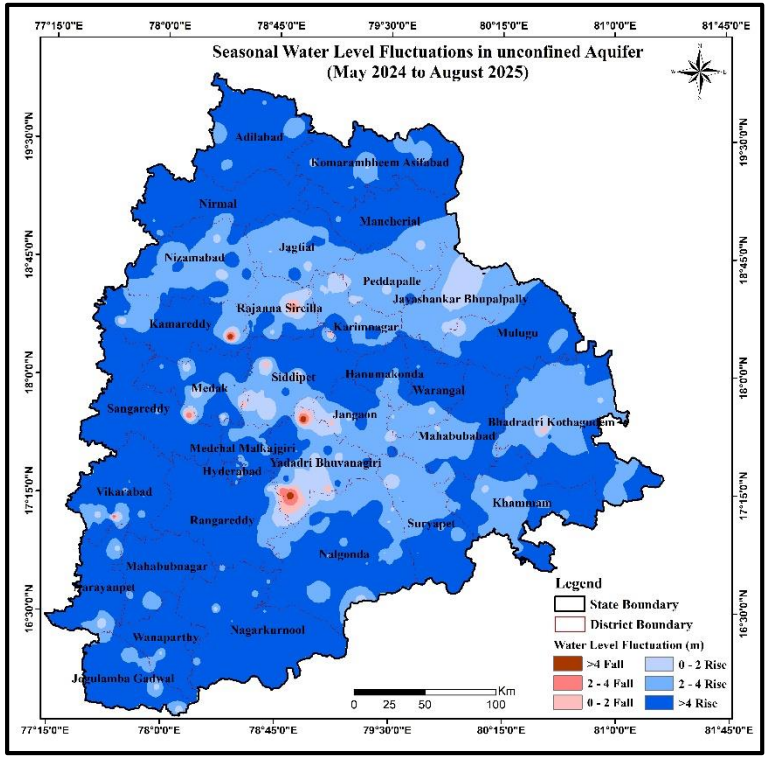

Figure-9: Water level fluctuation in unconfined aquifer (August 2025 with May 2024)

5.1.2 ANNUAL FLUCTUATION IN WATER LEVEL

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

Analysis of data of 593 wells shows that water level rise is recorded in 83% wells (492 wells), water level fall is recorded in 17% wells (101 wells).

Rise in Water Levels:

Out of 492 wells, water level rise of less than 2 m is recorded in 53% wells,2 to 4 m in 25% wells and more than 4 m in 22% of the wells. Water level rise of less than 2 m is seen in almost all of districts of the state mainly from North-eastern to South-eastern parts. Water level rise of 2 to 4 m is observed mainly in Siddipet, Medak, Nalgonda, Nagarkurnool, Mahabubnagar, Vikarabad districts etc. Rise of more than 4 m is seen majorly in Rangareddy, Medchal, Sangareddy, Kamareddy, Nagarkurnool, Y Bhuvanagiri and Nalgonda districts **(Fig. 10 &11).**

Fall in Water Levels:

Out of 101 wells that have registered fall in water levels, 72% have recorded less than 2 m while 15% in the range of 2 to 4 m and remaining 13% wells registered water level fall of more than 4 m. Fall of less than 2 m is mainly observed in parts of Mulugu, J Bhupalpally, Peddapalle, Nizamabad, Nirmal, Jagtial and Rajanna Sircilla districts. Fall of 2 to 4 m is observed mainly in Nizamabad, Nirmal and K Asifabad districts. Fall of >4 m is mainly observed in Sangareddy, Nirmal and K Asifabad districts

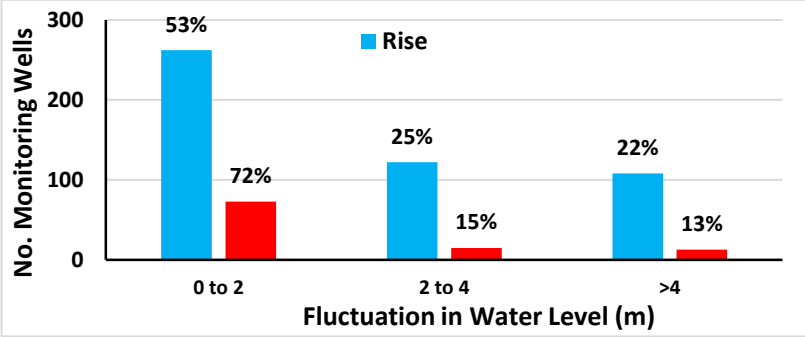

Figure-10: Percentage of wells showing rise and fall in WL in unconfined aquifer (August 2024 to August 2025)

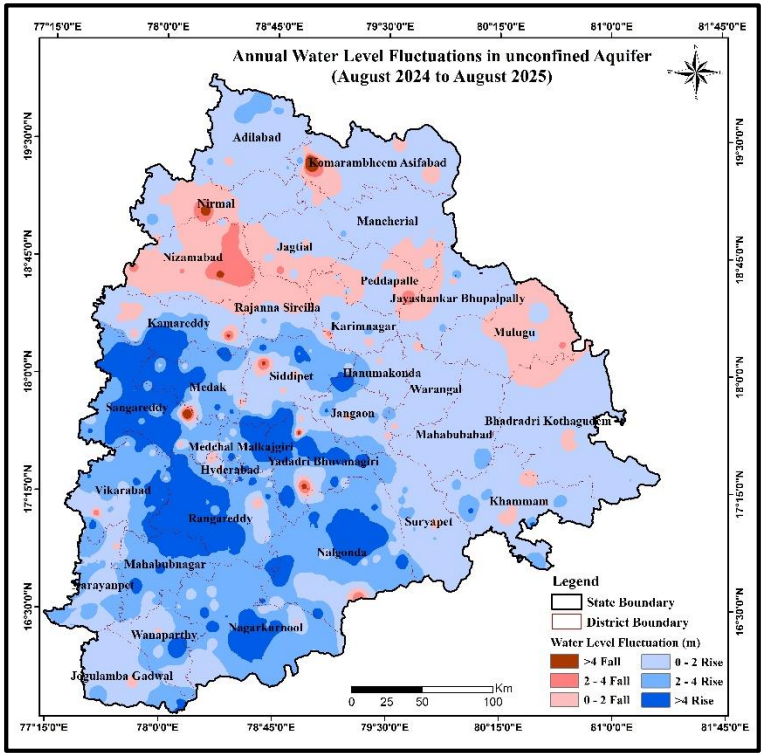

Figure-11: Annual water level fluctuation in unconfined aquifer (August 2024 to August 2025)

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

Analysis of data of 578 wells shows that water level rise is recorded in 64% wells (371 wells) and water level fall is recorded in 36% wells (207 wells).

Rise in Water Levels:

Out of 371 wells, water level rise of less than 2 m is recorded in 67% wells,2 to 4 m in 23 % wells and more than 4 m in 10 % of the wells. Water level rise of less than 2 m is seen throughout the state in almost all districts. Water level rise of 2 to 4 m is mainly observed in Sangareddy, Vikarabad, Mahabubnagar, Wanaparthy, Nagarkurnool, Nalgonda and Suryapet districts. Water level rise of more than 4 m is significantly observed in parts of Sangareddy, Mahabubnagar, Wanaparthy, Siddipet, Nagarkurnool and J Gadwal districts.

Fall in Water Levels:

Out of the 207 wells that have registered fall in water levels, 65% have recorded less than 2 m while 17% in the range of 2 to 4 m and remaining 18% wells registered water level fall of more than 4 m. Fall of less than 2 m is widespread across the State mainly in North eastern, South western and Central parts. Fall of 2 to 4 m, recorded in Nizamabad, Nirmal, Rajanna Sircilla, Siddipet, Kamareddy and Y Bhuvanagiri districts. Fall beyond 4m is recorded mainly in parts of Yadadri, Rangareddy, Jangaon, Nizamabad, Adilabad districts **(Fig. 12 &13).**

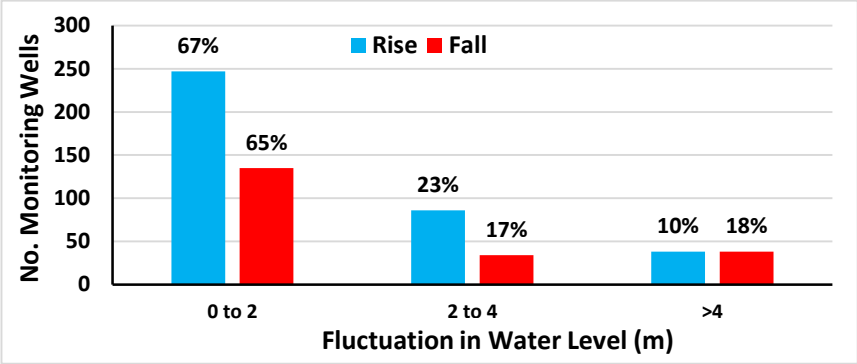

Figure-12: Percentage of wells showing rise and fall in WL in unconfined Aquifer (August 2023 to August 2025)

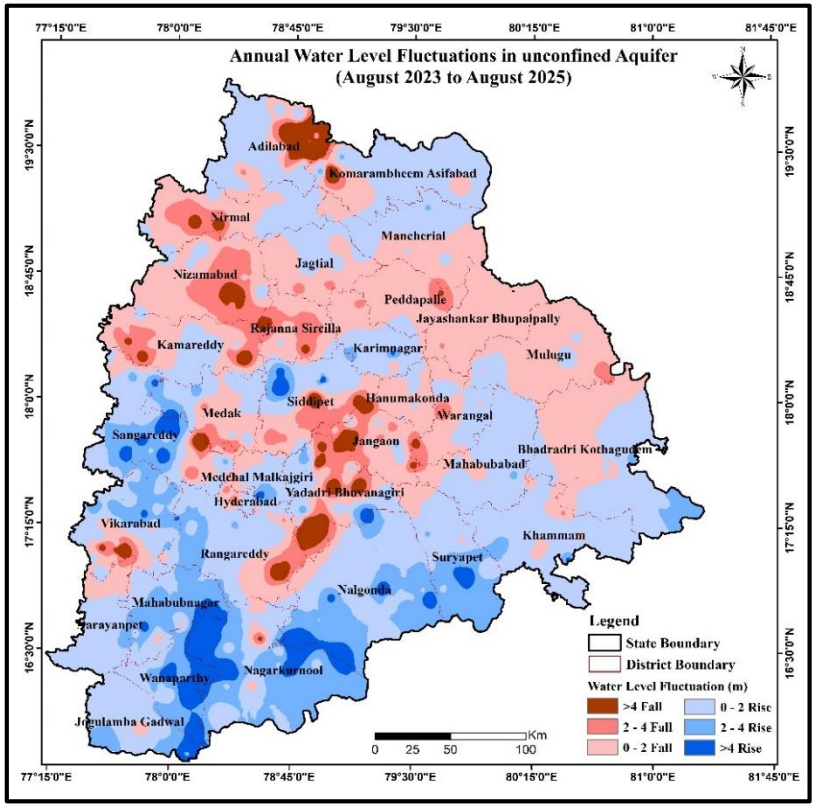

Figure-13: Annual water level fluctuation in unconfined Aquifer (August 2023 to August 2025)

5.1.4 DECADAL FLUCTUATION IN WATER LEVEL

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

Analysis of data of 529 wells shows that water level rise is recorded in 75% wells (395 wells), water level fall is recorded in 25% wells (134 wells).

Rise in Water Levels:

Out of 395 wells, water level rise of less than 2 m is recorded in 50 % wells, 2 to 4 m in 27% wells and more than 4 m in 23% of the wells. Water level rise of less than 2 m is seen in all of the districts of the State. Water level rise of 2 to 4 m is mainly observed in Karimnagar, Siddipet, Suryapet, Y Bhuvanagiri, Kamareddy and Hanumakonda districts etc. Water level rise ofmore than 4 m is significantly observed in parts of Sangareddy, Medak, Rangareddy, Mahabubnagar, Nagarkurnool, Wanaparthy and Nagarkurnool districts.

Fall in Water Levels:

Out of the 134 wells that have registered fall in water levels, 63 % have recorded less than 2 m while 19% in the range of 2 to 4 m and remaining 18% wells registered water level fall of more than 4 m. Fall of less than 2 m is recorded in North-eastern to eastern parts of the State and in Rajanna Sircilla, Siddipet and Rangareddy District. Fall of 2 to 4 m is observed in Rajanna Sircilla, Medak, Rangareddy and Medchal Malkajgiri districts. Fall beyond 4m recorded mainly in parts Rajanna Sircilla, Medak, Rangareddy and Medchal Malkajgiri and Vikarabad districts **(Fig. 14 &15).**

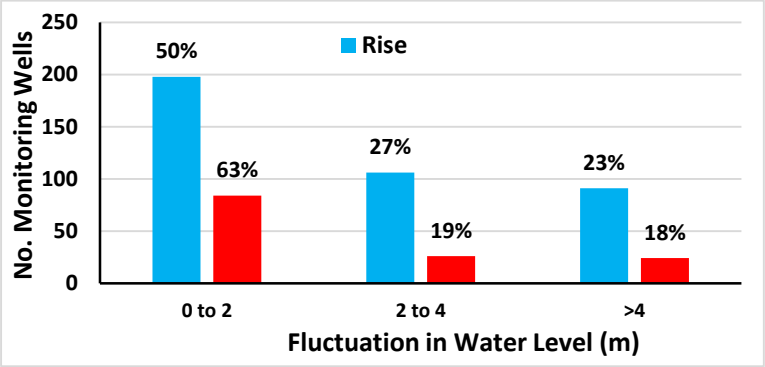

Figure-14: Percentage of wells showing rise and fall in WL in unconfined Aquifer(Decadal Mean to August 2025)

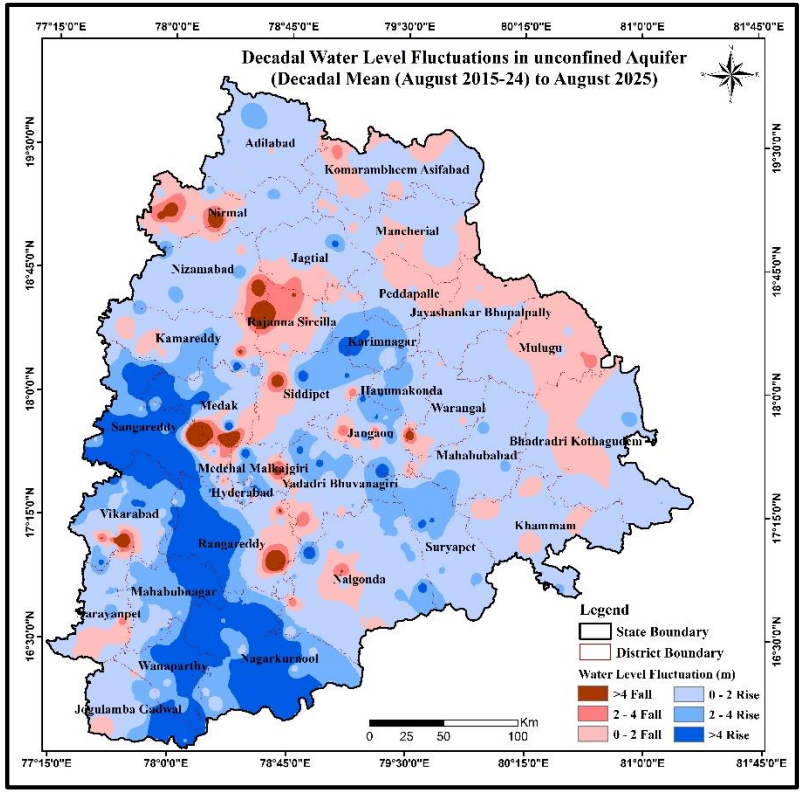

Figure-15: Decadal water level fluctuation in unconfined Aquifer (Decadal Mean to August 2025)

6.0 SUMMARY

As a component of the National Ground Water Monitoring Programme, the CGWB, SR, Hyderabad 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 2025, the Southern Region of the Central Ground Water Board supervises 270 dug wells and 1001 piezometers. This comprehensive report aims to portray the variations in the state's groundwater conditions across different aquifers.

During August 2025, roughly 96% of the state's territory exhibited a water depth of up to 10 meters below the ground level in unconfined aquifers, Areas with deeper water levels exceeding 20 meters accounted for 0.3% of the state's territory in unconfined aquifers mainly in Adilabad, K Asifabad, Medak and Sangareddy districts

The groundwater level in Telangana State during August 2025 has been improved compared to 2024, resulting in a 17% departure from normal rainfall levels for the same period in the previous year, classifying the region as experiencing excess rainfall. This significant excess in rainfall has further contributed to the rise of groundwater levels in August 2025.

Comparative analysis of August 2025 with previous years August 2023 and August 2024 indicates that about 64% and 83% of unconfined wells recorded rise in water levels. In contrast, the 2025 pre-monsoon rainfall triggered further recharge, resulting a rise in about 75% of wells in the long-term unconfined aquifers. Similarly, August 2025 with May 2024 and May 2025, water level monitoring showed that 95% to 96% of unconfined wells recorded a rise, reinforcing the overall positive groundwater trend in the state.

7.0 RECOMMENDATIONS

Analysis of groundwater scenario of Telangana state reveals that the dynamics of groundwater is highly related with the variation in rainfall. Hence the following recommendations are submitted:

- To sustain Monsoon Recharge, efforts must be made to harvest rainwater through check dams, percolation tanks at sites highlighted in Artificial Recharge Master Plan. And also protect and enhance natural recharge zones identified in District Recharge Plan to retain monsoon benefits.
- Promote efficient micro-irrigation techniques like drip and sprinkler irrigation methods to reduce groundwater extraction and encourage farmers to grow less water-intensive crops. Adopt crop diversification to shift from high-water-consuming crops (paddy, sugarcane) to drought-resistant crops.
- In deep water level zones (>20m), enforce strict regulations on dependency on borewell by implementing incentives for sustainable practices. In Urban areas, dependency on deeper aquifers has to curb by improving surface water supply for domestic use. Promote the reuse of treated water for non-potable purposes to lessen groundwater exploitation.
- Promote afforestation in depleted regions to improve soil moisture retention and groundwater recharge. Select native tree species with deep root systems to enhance percolation and groundwater sustainability.
- Escalate Community Awareness programs to educate farmers and industries on water-efficient practices. Establish community water conservation groups to encourage participatory groundwater management.