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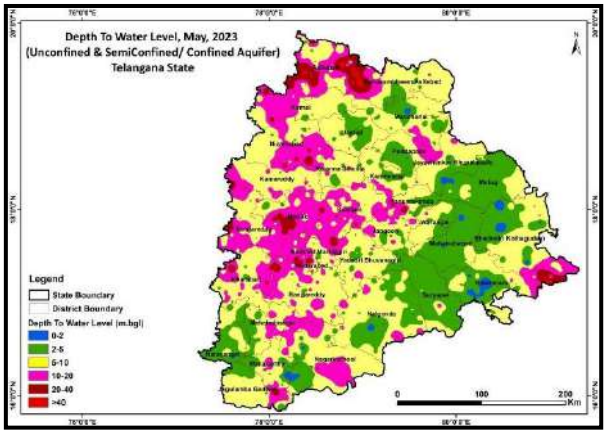
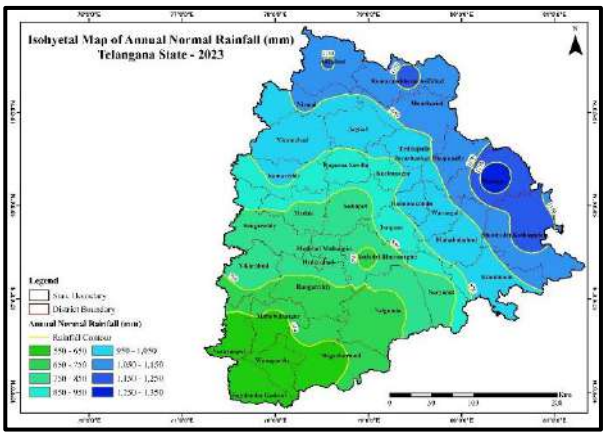
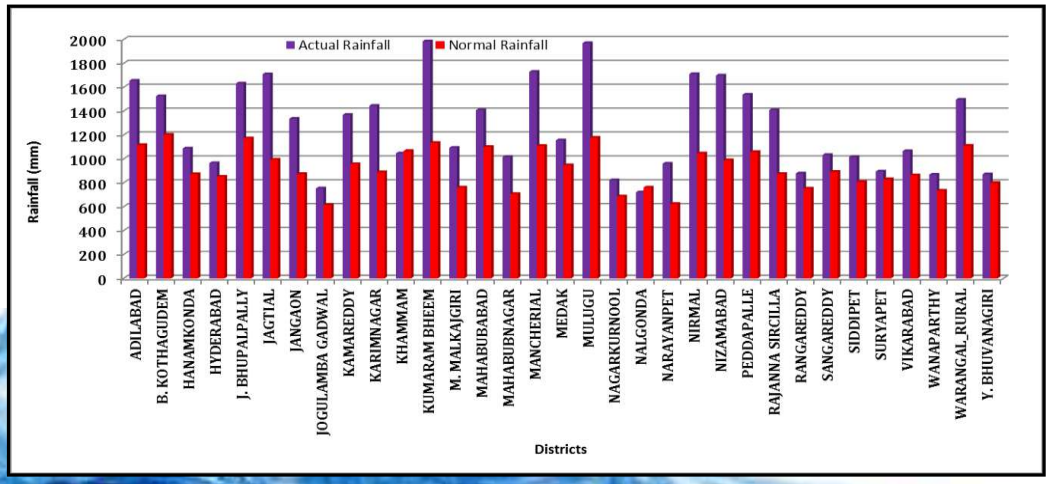
Central Ground Water Board

Ministry of Jal Shakti
Department of Water Resources,
River Development & Ganga Rejuvenation
Govt. of India

GROUND WATER YEAR BOOK
2023-24
TELANGANA STATE







Southern Region, Hyderabad
November, 2024

Government of India
Ministry of Jal Shakti
Department of Water Resources,
River Development & Ganga Rejuvenation
Central Ground Water Board

GROUND WATER YEAR BOOK
2023-24
TELANGANA STATE

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Southern Region, Hyderabad
November, 2024

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FOREWORD

The historical groundwater level monitoring data is useful in understanding changes in groundwater regime in time and space and for preparation of sustainable development plan for the state. Central Ground Water Board has been monitoring groundwater regime since 1969. As on 31-3-2024, a total no. of 1281 operational ground water monitoring wells (GWMS) (DW: 274, Pz: 1007) are in operation. These stations are being monitored four times a year viz. May, August, November and January to study the seasonal and long term changes.

The groundwater level monitoring carried out by Central Ground Water Board, Southern Region, Hyderabad during 2023-24 is compiled in the form of Ground Water Year Book. It outlines the ground water level behavior in the current year with reference to the corresponding periods of previous year and also with last decadal mean.

The sincere efforts made by Mr. Bijay Ketan Mohanta, Sc-C; Mr. M.S. Goutham, Sc-C, Dr. S.S. Vittala, Sc-C in preparation of the report under the supervision of Ms. Rani V.R., Sc-D are commendable.

It is hoped that the Ground Water Year Book will be quite useful as baseline information for planners, administrators and researchers involved in groundwater development and management in the state of Telangana.

Hyderabad
Dated: 18.10.2024

G. Krishnamurthy
(Regional Director)

EXECUTIVE SUMMARY

Telangana State covering 1.12 lakh sq.km lies between NL 15° 48´ and 19° 54´ and EL 77° 12´and 81° 50´ and is governed administratively by 33 new districts. The total population of the State is 3.5 crores with a decadal growth of 13.6%. The state is drained by Godavari and Krishna rivers and 60% of the area is covered by loamy soils. A major part of the state is underlain by gneissic complex while the balance area is underlain by structural fill of sedimentary formations and meta-sedimentary formations. During the year 2023, state received 36 % more rainfall (1231 mm) than normal rainfall. The SW monsoon (June-September) contributed 71% (874.46 mm), NE monsoon (Oct-Dec) contributed 3.5% (42.57 mm) winter (Jan-Feb) and summer contributed 25.5% (313.80 mm) of the rainfall. Annual rainfall in 2023 ranges from 593.4 mm (5 % above normal) in J. Gadwal district to 1820.5 mm(36 % above normal) in Mulugu.

As part of National ground water monitoring programme, Central Ground Water Board (CGWB) is carrying out ground water regime monitoring 4 times a year (January, May, August and November) and ground water quality 1 time (May). As on 31.03.2024, total of 1281 Ground Water Monitoring Wells are in existence while 99 observers are observing water levels on participatory mode. Ground Water Year Book is compiled based on integrateddata generated by CGWB and Ground Water Department, Govt. of Telangana in order to haverealistic ground water scenario. The Ground water levels data base help in groundwater assessment and management particularly in the context of large scale contemplated surface water command areas in the state. Aquifer- wise water level analysis shows that during pre- monsoon season, water levels are shallow in Sandstone, deep in Banded Gneiss and Basalt area.

During May 2023, deeper water levels of more than 20 m are observed in 3% (73) area in parts of Rangareddy, Vikarabad, Hyderabad, Sangareddy, Medak, Siddipet, Medchal Malkajgiri, Adilabad, Komarambheem Asifabad, Nizamabad and Nirmal districts. Shallow water level of less than 2 m bgl is noticed in 1% area (82 wells), mainly observed as isolated patches in Bhadradri Kothagudem, Khammam, Mulugu, Jayshankar Bhupalapally, Wanaparthy and Mancherial districts. During November, 2023, deeper water levels of more than 20 m are observed in 1% area as isolated patches in parts of Adilabad, K. Asifabad, Nirmal, B. Kothagudem, Ranga Reddy, Vikarabad, Medchal Malkajgiri and Nagarkurnool district. Shallow water level less than 2 m bgl is noticed in 1% of State area (115 wells), mainly observed in parts of Bhadradri Kothagudem, Khammam, Mulugu, and Mahabubabad district. Water level between 2 to 5 m bgl is noticed in 36 % of State area (441 wells), predominantly in eastern, north eastern and southwestern part of state i.e., in Suryapet, Khammam, Bhadradri Kothagudem, Mahabubabad, Warangal, Mulugu, Jayashankar Bhupalapally, Peddapalli, Karimnagar, Rajanna Sircilla, Jagtial, Mancherial, Narayanpet and Wanaparthy district. Water level between 5 to 10 m bgl observed in 48% of State area (398 wells), 10 to 20 m bgl in 13% of State area (189 wells) of the State area.

During May 2023, in confined/semiconfined aquifers deeper water levels of more than20 m is observed in 6% of State area in parts of Bhadradri Kothagudem, Vikarabad, Komarambheem Asifabad, Medak, Medchal Malkajgiri and Adilabad district. Shallow water levels of less than 2 m bgl is noticed in 1 % of State area observed in Warangal, Khammam, Mahabubabad, Nalgonda, Mahabubnagar, Nalgonda, Khammam and Nagarkurnool district. Water level between 2 to 5 m bgl is noticed in 20 % of State area predominantly in southern, south-eastern and northeastern

parts of State i.e., Yadadri Bhuvanagiri, Suryapet, Bhadradri Kothagudem, Mahabubabad, Warangal, Karimnagar, Peddapalle, Jagtial, Wanaparthy and Nagarkurnool district. Water level between 5 to 10 m bgl observed in 48% and 10 to 20 m bgl in 26 % of State area (in 42 wells). During November, 2023, deeper water level more than 20 m are observed is observed in 2% of State area as isolated patches in parts of Bhadradri Kothagudem, Vikarabad, Komarambheem Asifabad, Adilabad, Nirmal, Medak and Rangareddy district. Shallow water level of less than 2 m bgl is noticed in 1 % of State area (in 55 wells) mainly observed as isolated patches in parts of Bhadradri Kothagudem, Mahabubabad, Warangal, Mulug, Nalgonda, Khammam and Mahabubnagar districts. Water level between 2 to 5 m bgl is noticed in 25 % of State area (in 162 wells) predominantly in eastern, northeastern and southwestern parts of State i.e., Yadadri Bhuvanagiri, Suryapet, Khammam, Bhadradri Kothagudem, Mahabubabad, Warangal, Jangaon, Karimnagar, R. Sircilla, Peddapally, Jagtial, Narayanpet, J. Gadwal, Wanaparthy and Nagarkurnool district. Water level between 5 to 10 m bgl observed in 52% (191 wells) and 10 to 20 m bgl in 20 % of State area (in 117 wells).

Season water level fluctuation of May, 2023 vs November 2023 shows rise in water levels in 76% of the area. As the state received 36% excess rainfall, fall in water levels observed only at small isolated parts in the state.

Annual water level fluctuation of May, 2023 vs May, 2022 show rise in water levels in 70% of the area, where November, 2023 vs November, 2022 shows rise in water levels in 3% of the area. The northwestern and central districts show predominantly rise in water levels in comparison with last year.

A total 20 hydrographs long term data has been utilised for long term water level trend analysis. Out of 20 hydrograph 13 hydrographs show rising trend in both seasons, 5 wells show falling trend in both seasons and 1 wells show rising trend during pre-monsoon season and falling trend in post-monsoon season and 1 wells show falling trend during pre-monsoon and rising trend during post-monsoon season.

Long term water level trend map has been prepared based on level data from 2012-2023. During the pre-monsoon period, about 21% of the area recorded falling trend with majority of area in range of fall (0-2m/yr) is seen in parts of Adilabad, Nirmal, Nizamabad, Kamareddy, Sangareddy, Vikarabad, Mancherial, Peddapalle, Mulugu, Jayashankar Bhupalapally, Nagarkurnool, Mechal Malkajgiri, Siddipet and Bhadradri Kothagudem districts. During the post-monsoon period, about 11% of the area recorded falling trend in the range of 0-4.0 m/yr and 89% of the area rising trend in the range of 0-4.0 m/yr. Rise of 0-2 m/ yr is predominant throughout the state.

Officers/Officials engaged in NHS Monitoring for the year 2023-24 in Telangana

Sl.No.	Name	Designation
1	D. Mohanta	Scientist-D (Hydrogeology)
2	L.N. Damodara	Scientist-C (Hydrogeology)
3	Mrs. Monika	Scientist-C (Hydrogeology)
4	Md. Sarif Khan	Scientist-C (Hydrogeology)
5	Dr. S.S. Vittala	Scientist-C (Hydrogeology)
6	Dr. D. Anantha Rao	Asst. Hydrogeologist
7	Nilima Patra	Asst. Hydrogeologist
8	D.N. Ranganatha,	Chief Draughtsman
9	Shekar Singh Dhruw	Officer Surveyor
10	P. Srinivasa Rao	Chief Draughtsman
11	B. Sarath	Chief Draughtsman

GROUND WATER YEAR BOOK

(2023-2024)

TELANGANA STATE

1. INTRODUCTION

Central Ground Water Board entrusted with tasks of ground water development, assessment, augmentation, management and protection in the Country both in terms of quality and quantity. In order to arrive at proper parametric indices of evaluation and judicious development of ground water resources, the Board is monitoring National Hydrograph Stations (NHS) since 1969 through a network of wells (Dug wells and Piezometers). The monitoring provides inputs in understanding and studying the long term behaviour of ground water regime due to influence of rainfall and ground water extraction. A historical database on the ground water levels and water quality has been developed over a period of time since 1969.

The ground water regime monitoring mainly comprises measurement of depth to water levels and temperature, four times in a year viz., in the months of January (North-east monsoon), May (pre-monsoon), August (mid-monsoon) and November (post-monsoon) and collection of water samples during May every year, for chemical analysis. As on 31-03-2023, there were 1207 operational Ground Water Monitoring Wells (GWMS) (257 dug wells and 950 piezometers). During the year (2023-24), 16 Ground water monitoring wells (6 DW, 10 Pz) were abandoned and 90 (67 Pz, 23 DW) groundwater monitoring wells were established. As on 31-03-2024, the status of monitoring stations is 1281 wells, out of which, 274 are Dug wells and 1007 Piezometers **(Table 1.1)**. The dug wells tapping unconfined aquifers are mostly confined to village limits, which are used for domestic purpose. Some of these are community wells and the rest belongs to private individuals. The piezometers tapping unconfined and confined aquifers are constructed under various projects and exploration programmes by CGWB and are being monitored regularly four times a year. The location of network of monitoring wells is presented in the **Fig.1.1.**

Table: 1.1: Status of monitoring wells in Telangana State during the year 2023-24

Monitoring Period	**No. of well Established**	**No. of wells Abandoned**	**Total no.of wells**
May, 2023	45	0	1207
August, 2023	0	0	1252
November, 2023	0	13	1239
January, 2024	48	03	1281
Total no. of monitoring wells as on 31st March, 2024:			**1281**

1.1 Location and Extent

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 NL 15° 48' and 19° 54'and EL 77° 12' and 81° 50'.The state is bordered by Maharashtra in the north, Karnataka in the west, Andhra Pradesh in the south and east and Chattisgarh and Odisha states in the north-east.

Administratively, the State comprises of 33 districts and governed by 612 revenue mandals 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 growth in population is ~13.6 % (2001 to 2011 census).

The present ground water year book, 2023-24 depicts the ground water level scenarios in the state and describe the behaviour of water levels during the period. Additionally, the piezometer data of State Ground Water Department is also integrated with CGWB data in order to have holistic ground water scenario of the state.

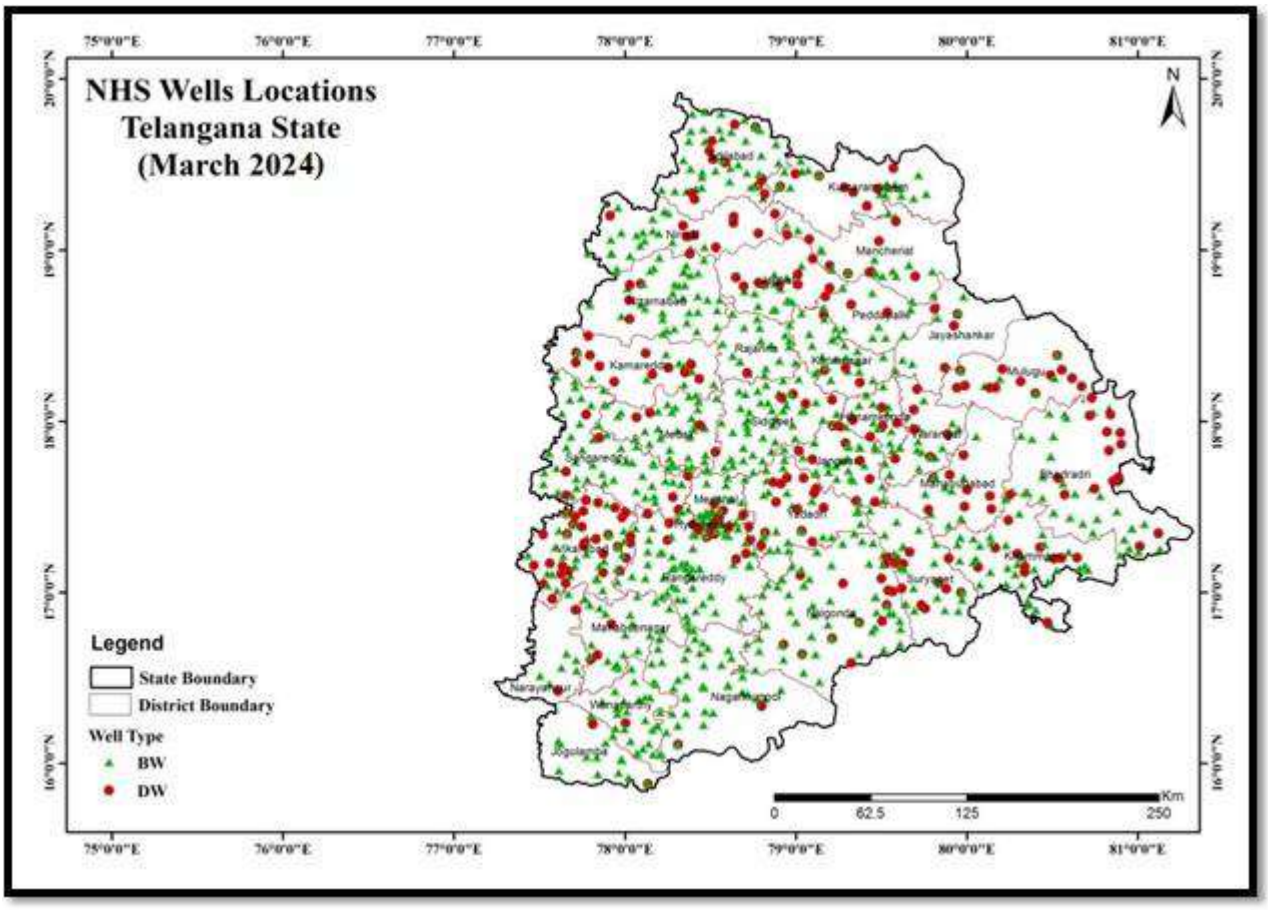


Fig.1.1: Location of GWMS in Telangana State (as on March, 2024).

2. PHYSIOGRAPHY, DRAINAGE AND SOILS

2.1 Physiography

Physiographically, Telanganastate 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.

2.2 Drainage

The state is drained by two major rivers namely, Godavari and Krishna and their tributaries before entering into Andhra Pradesh state and finally to Bay of Bengal. There are 2 major basins and 13 Sub Basins in the state.

The major river basins are Godavari Basin with 8 Sub-Sasins namely, Lower Godavari, Maneru, Manjira, Middle Godavari, Penganga, Pranhita, Sabari and Wardha and Krishna Basin with 5 Sub Basins namely, Lower Bhima, Lower Krishna, Munneru, Musi and Paleru (**Fig.2.1**). Apart from these, there are 2 other basins namely Tammileru and Yerrakalva lying between Godavari and Krishna covering very small area. The River Godavari with its tributaries viz., Pranahita, Pedda Vagu, Manjira, Maner, Kinnerasani, Sileru and Pamuleru drain whole of northern Telangana. The Tungabhadra, Musi, Paleru and Maneru rivers drain southern part of thestate.

The pattern of drainage is generally dendritic with wide valleys in western pediplain. Drainage of the Eastern Ghat is coarse and dendritic with steep and narrow valleys. Most of the smaller streams feed innumerable tanks.

2.3 Soils

The state has a wide variety of soils viz., red soil, lateritic soils and black cotton soils.~ 60 % of the state is occupied by red soils with loamy sub-soils covering entire Nalgonda district, a major part of Mahabubnagar, Waranagal, Karimnagar and Nizamabad districts. Black cotton soil commonly occurs in Adilabad and Nizamabad districts. Laterite soil occurs in western part of Ranga Reddy and Medak districts.

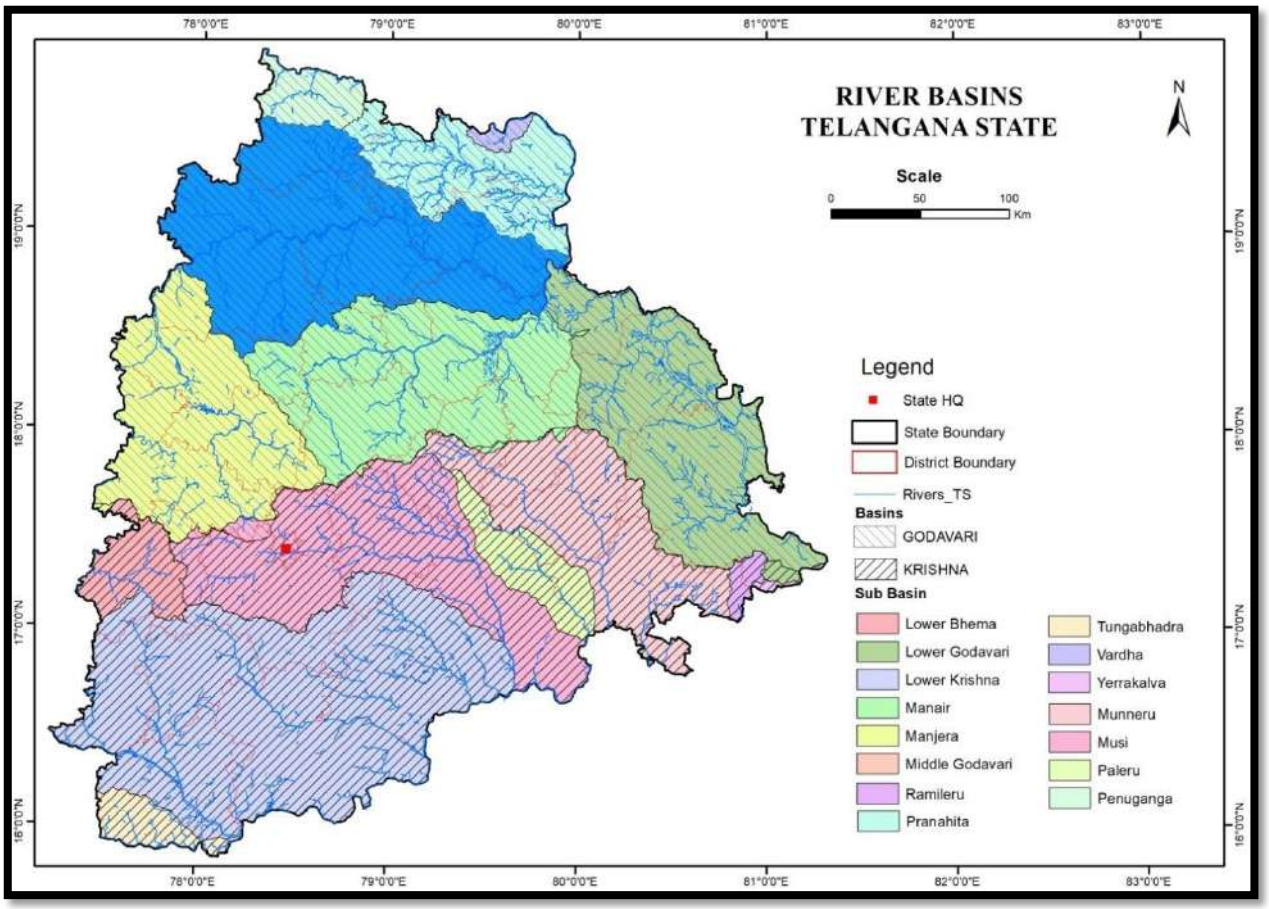


Fig.2.1: Drainage and River sub-basin map of Telangana state.

3. HYDROMETEOROLOGY

3.1 Climate

Telangana state is geographically located in semi-arid region and is characterized by hot and dry climate. Summer starts in the month of March and high temperature is observed during May with average temperature of 42° C. Monsoon starts in the month of June and lasts until September. As per Agricultural Department (Govt of Telangana), State can be divided into following four subzones.

- North Telangana Zone
- Southern Telangana Zone
- High Altitude and
- Tribal Zone

3.2 Rainfall Analysis, 2023

- District-wise monthly and annual rainfall of both normal and actual of the year 2023 is compiled from daily and weekly weather reports of India Meteorological Department (IMD) and is presented in **Table-3.1.** Isohyetal map for annual normal rainfall for 2023 is presented in **Fig 3.1**. District wise departure of annual rainfall 2023 from normal calculated and presented in **Fig. 3.2.** The salient features are given below:
- The normal annual rainfall of the state is 902.46 mm of which SW monsoon (June-September) contributes 81% (730.43 mm), NE monsoon (Oct-Dec) contributes 12.4% (111.89 mm), winter contributes 1.2% (11.45 mm) and summer contributes 5.4 % (48.68 mm) of the rainfall.
- During the year 2023, state received 36 % more rainfall (1231 mm) than normal rainfall. The seasonal distribution is as follows: SW monsoon (June-September) contributed 71% (874.46 mm), NE monsoon (Oct-Dec) contributed 3.5% (42.57 mm), winter (Jan-Feb) and summer contributed 25.5% (313.80 mm) of the rainfall.
- Annual rainfall in 2023 ranges from 593.4 mm (5 % above normal) in J. Gadwal district to 1820.5 mm (36% above normal) in Mulugu.

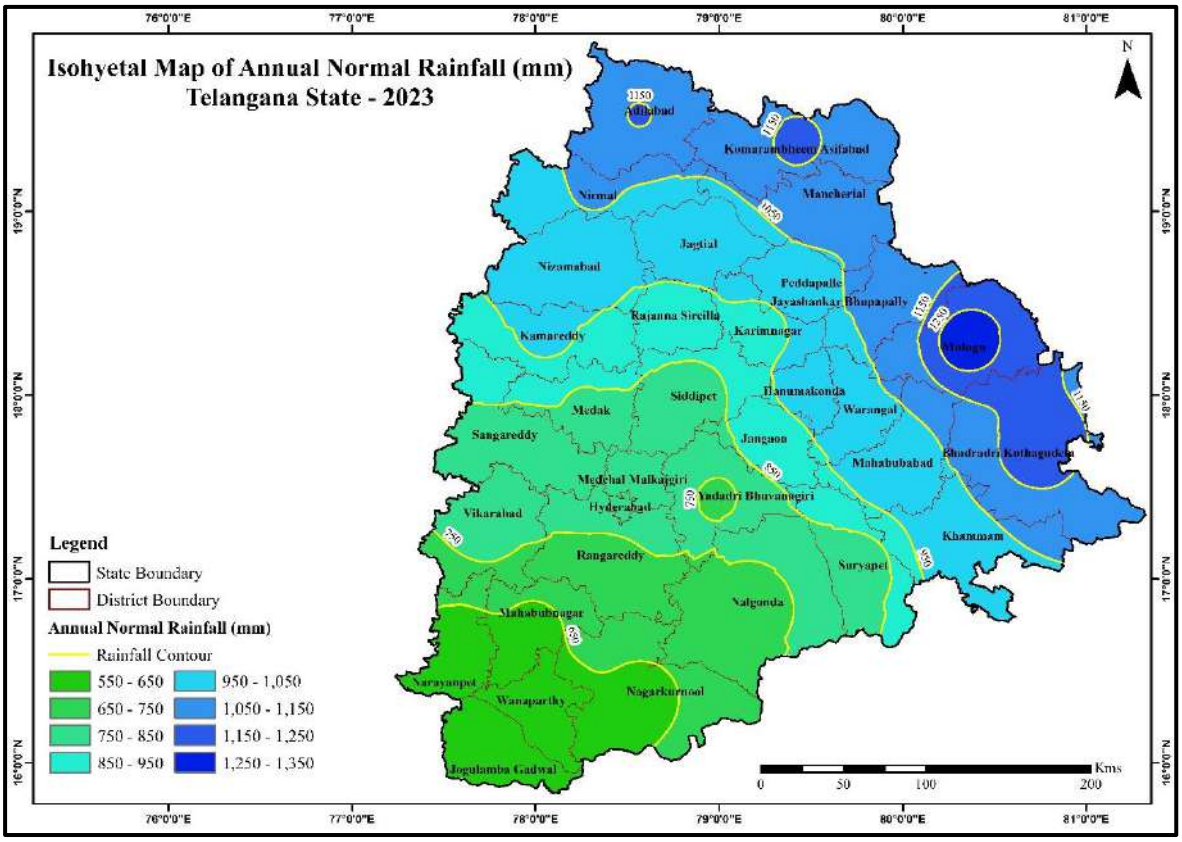


Fig.3.1: Isohyetal map of Telangana State (Normal annual rainfall in mm).

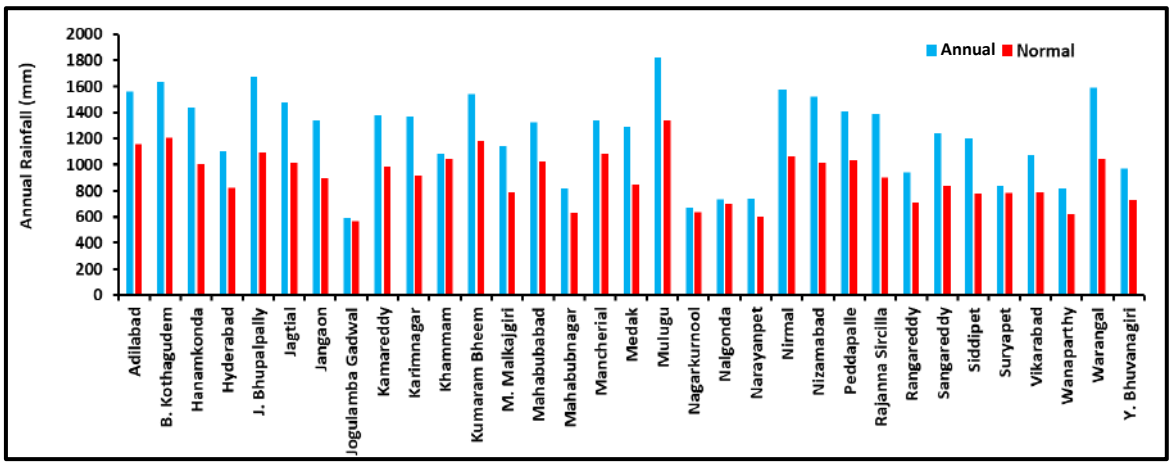


Fig.3.2: District-wise Departure of Annual (2023) rainfall from Normal

Table 3.1 Monthly Actual and Normal (2023) rainfall (mm) in Telangana

District	January		February		March		April		May		June	
	Actual	**Normal**	**Actual**	**Normal**	**Actual**	**Normal**	**Actual**	**Normal**	**Actual**	**Normal**	**Actual**	**Normal**
Adilabad	0	12	16.1	5.1	55.7	13	67.8	11.6	173.1	24.5	86.6	202.9
B. Kothagudem	0	10.7	94.8	9.6	43.5	10.8	79.1	21.2	205.6	60.1	79.7	164.4
Hanamkonda	0	6.8	53.8	5.6	56.7	11.5	94.2	12.3	191.4	30.2	41.6	146.9
Hyderabad	0	5.1	44.9	3.3	88.6	14.1	95.1	15.8	78.9	26.9	70.4	103.5
J. Bhupalpally	0	6.2	44.7	5.3	16.6	7	64.9	13.4	212.4	24	51.1	158.8
Jagtial	0	14	26.8	8.4	41.6	9.8	86.3	13.1	195.4	21.3	43.2	157.9
Jangaon	0	5.6	64.5	6.8	82.6	11.1	90.5	13.6	213.4	36.9	82.5	126.4
Jogulamba Gadwal	0	1.9	21.8	1.4	63.1	4.5	66.9	5.7	56.4	19.3	52.8	73.9
Kamareddy	0	8.9	35.4	2.3	63.4	7.5	83.7	10.3	187	23.2	61.5	144.8
Karimnagar	0	9.2	61.6	5.6	58.2	11.4	73.5	14.2	184.7	24.5	34.1	124.3
Khammam	0	7.5	58.3	5.7	18.2	6.3	72.8	14.9	117.1	60.3	47.7	124.6
KumaramBheem	0	11.6	22.8	7	43.8	7.1	67.3	14.1	220.6	21.8	108.2	185.3
M. Malkajgiri	0	8.4	50	2.8	78.8	9	75	14.9	145.2	25.5	80.6	107
Mahabubabad	0	7.2	84.8	7.9	47.2	12.4	62.3	14.4	193.5	44	76.9	141.6
Mahabubnagar	0	1.8	36.8	1.7	65.6	4.5	33.2	5.4	106.2	24.6	52.4	82.3
Mancherial	0	9.4	22.4	6.3	18.5	7.6	77.4	9.3	172.8	17.9	76.6	167
Medak	0	5.9	40.7	4	47.3	6.7	57.1	11.3	138.9	27	99.4	120.4
Mulugu	0	5.3	75.3	5.6	56.3	11.3	46.7	20	233.8	38.7	62.2	182.5
Nagarkurnool	0	1.2	14.1	1.4	55	4	57.6	6.4	98.8	26	67.1	76.2
Nalgonda	0	5.4	19.8	2	23.3	6.1	68.1	7.1	92.7	28.9	86.3	83.2
Narayanpet	0	1.8	20.1	2.9	57.1	2.4	31.4	5.6	80	16.4	72.2	80.8
Nirmal	0	11.4	13.1	6.1	50.6	8.9	42.6	6.5	174.6	20.1	82.2	177.5
Nizamabad	0	12	11.1	7	61.9	5.9	77	6.6	138.6	23.2	66.9	159.1
Peddapalle	0	10.8	50.6	8	19.5	8.4	75.7	11.8	186.4	18.3	42.4	161.8
RajannaSircilla	0	9	43.3	5.7	57	8.4	74.5	20.6	140.2	20.2	46.5	133.5
Rangareddy	0	3.2	37.3	2.9	60.9	5.7	59.3	14	126	28.4	82.8	94
Sangareddy	0	6	57.2	3.4	63.8	7.7	71.3	17.5	150.1	28.9	104.4	120
Siddipet	0	6.2	48.7	4.3	70.4	10.5	54.3	13.3	125.5	28.4	77.2	104.9
Suryapet	0	5.4	23.2	2.2	26.7	4.7	47.1	6.7	104.6	37	60.5	96.1
Vikarabad	0	3.4	47.7	2.4	60.8	5.7	51.3	12.5	91.9	33.2	96.5	108.3
Wanaparthy	0	0.7	29.3	2.4	70.3	4.7	83.6	6.4	93.6	21.5	50.7	75.8
Warangal	0	6.9	72.8	5.3	61.4	14.4	93.3	17.9	199.1	33.8	66.4	154.2
Y. Bhuvanagiri	0	4.8	43.6	1.9	63.8	9.1	73.3	10.6	137.2	20.4	83.7	99.4
State Mean	**0**	**6.84**	**42.04**	**4.62**	**52.98**	**8.25**	**68.31**	**12.09**	**150.48**	**28.35**	**69.49**	**128.46**

District	July		August		September		October		November		December		Annual		
	Actual	Normal	Actual	Normal	Actual	Normal	Actual	Normal	Actual	Normal	Actual	Normal	Actual	Normal	Departure
Adilabad	715.3	325.5	123.7	301.5	279.9	166.1	9.3	79	33	11.5	1.5	4	1562	1156.7	35%
B. Kothagudem	598.6	302.5	145.3	300.6	169.8	198	9.7	92.4	31.9	27.1	176.9	5.9	1634.9	1203.3	36%
Hanamkonda	723.1	269.2	50	235.4	194.4	173.4	4	85.7	16.5	22.8	12.3	4.3	1438	1004.1	43%
Hyderabad	347.5	175	45.9	183.7	305.6	153.2	0.3	111.2	19.6	24.9	3.9	4.8	1100.7	821.5	34%
J. Bhupalpally	807.3	317.8	133.2	291	311.7	172.3	10.4	76.8	10.4	16.3	13.3	4.3	1676	1093.2	53%
Jagtial	688.1	276.1	123.9	244.2	266.7	170.6	2.4	80.3	3.3	13.3	2.2	4.2	1479.9	1013.2	46%
Jangaon	595.5	219.5	35.3	188.2	144.5	165.3	4.9	89.2	16.5	23	9.9	4.1	1340.1	889.7	51%
Jogulamba Gadwal	207.3	116.2	32.8	119.6	71.2	114.8	0.3	86.2	18.6	20.2	2.2	2.2	593.4	565.9	5%
Kamareddy	547.2	250.8	103.3	257.8	273.2	165.3	7.6	90.8	20.6	17.9	0.9	3.9	1383.8	983.5	41%
Karimnagar	652.6	243.5	96.1	204.3	189.6	169	5.1	81.5	4.8	21.6	7.1	3.4	1367.4	912.5	50%
Khammam	416.4	249.6	65.1	249	145.8	183.7	7.4	109.1	25.8	27.9	109.5	5.9	1084.1	1044.5	4%
Kumaram Bheem	602.8	340.6	136.1	320.5	319.6	179.4	10.7	75.7	8.6	8.4	3.6	4.6	1544.1	1176.1	31%
M. Malkajgiri	395.7	169.3	51.9	176.9	241.9	145.4	0	101.4	17.6	24.7	5.5	3.6	1142.2	788.9	45%
Mahabubabad	578.8	251.2	42.5	247.2	143.2	179.2	11.5	93.6	31.4	21.6	51	4.8	1323.1	1025.1	29%
Mahabubnagar	283	144.5	29.5	130.7	192.3	128.9	3.6	84.7	12.6	15.9	0	2.9	815.2	627.9	30%
Mancherial	558.7	310.6	108.1	292.9	287.9	168	6.4	75.8	4.9	11.4	2.7	5.6	1336.4	1081.8	24%
Medak	523.2	215.8	62.3	203.6	293.2	146.3	0.7	81.5	28.1	16.7	2.2	3.7	1293.1	842.9	53%
Mulugu	779.3	383.1	173.4	368.2	303.6	212.3	4.3	87.4	25.3	18.2	60.3	6	1820.5	1338.6	36%
Nagarkurnool	167.7	128.8	26.5	122	151.9	137.6	12.4	100.8	5.9	25.5	9.9	3.2	666.9	633.1	5%
Nalgonda	154.3	128.9	59.7	139	166.5	156.3	5	104.1	33.7	31.3	22.5	3.9	731.9	696.2	5%
Narayanpet	275.9	143.2	40.1	125.4	144.5	121.9	10.2	78.6	6.5	14.7	0.2	4.1	738.2	597.8	23%
Nirmal	770.9	297.6	120.4	258.5	285.8	178.8	1.4	80.1	33.8	11.2	0.5	4.2	1575.9	1060.9	49%
Nizamabad	681.5	274.8	145.4	258	299.6	168.2	8.1	79	28.9	15.8	0.8	3.8	1519.8	1013.4	50%
Peddapalle	635.7	292.4	135.6	244.1	252.1	177.5	1.8	79.7	1.1	16.2	4.8	4.4	1405.7	1033.4	36%
RajannaSircilla	611.3	224.3	104.6	206.5	291.8	164.2	7.5	81.5	7.2	19.8	3.1	3.2	1387	896.9	55%
Rangareddy	307.7	146.6	34.4	146	207.6	143.8	1.2	101.6	18.4	23	3.5	3.6	939.1	712.8	32%
Sangareddy	438.1	194.2	34.1	190.4	281.7	156	2.6	91.3	33.1	18.7	1.8	3.7	1238.2	837.8	48%
Siddipet	531.9	187.1	39.8	172.3	229.5	141.9	2.2	81.2	10.3	21.2	7.7	3.5	1197.5	774.8	55%
Suryapet	288.7	178.8	44.8	176.1	155.1	154.7	4.3	95.5	34.4	21.1	45.9	3.4	835.3	781.7	7%
Vikarabad	435.4	181.4	21	177.1	250.6	156.8	3.9	85.9	16.9	16.2	0.4	2.7	1076.4	785.6	37%
Wanaparthy	282.1	143.9	36.7	129.8	151.1	126.4	2	88.3	14.4	17.5	1.8	2.4	815.6	619.8	32%
Warangal	781.3	273.3	74.9	252.2	178.6	174.9	10.9	83.6	19.7	21.9	28	6	1586.4	1044.4	52%
Y. Bhuvanagiri	336.3	150.2	54.6	142.5	133.3	153.3	5.8	103	29	25.3	8.1	2.9	968.7	723.4	34%
State Mean	**506.64**	**227.46**	**76.70**	**213.79**	**221.63**	**160.71**	**5.39**	**88.38**	**18.87**	**19.48**	**18.30**	**4.04**	**1230.83**	**902.47**	**36%**

3.2.1 May 2023

The rainfall data collected and compiled from weekly and monthly weather reports of India Meteorological Department has been used to analyze the rainfall for the period June, 2022- May, 2023. **Table-3.2** gives the district wise rainfall data for the period June, 2022- May, 2023 and June, 2021- May, 2022, normal for the same period and the departure from previous year (2022), normal and classification of rainfall. The departure values are used to prepare the graphs as shown in **Fig-3.3 to Fig-3.4.**

Table-3.2: Salient Features of Rainfall (June 2022 – May 2023) and it's Variability in Telangana State.

District	Rainfall (mm) (June, 2022- May, 2023)	Rainfall (mm) (June, 2021- May, 2022)	Normal Rainfall (mm)	Departure from 2022 (%)	Departure from Normal (%)	Rainfall Classification
Adilabad	1720.6	1785.4	1124.4	-4%	53%	Excess
B. Kothagudem	1644.7	1460.1	1200.2	13%	37%	Excess
Hanamkonda	1248	1289.7	889.3	-3%	40%	Excess
Hyderabad	1142.4	1032.5	851.5	11%	34%	Excess
J. Bhupalpally	1679.5	1238.5	1166.9	36%	44%	Excess
Jagtial	1766.9	1460.3	1010.2	21%	75%	Large Excess
Jangaon	1475.2	1246.7	885.1	18%	67%	Large Excess
Jogulamba	829.3	607.2	607.2	37%	37%	Excess
Kamareddy	1494.9	1515.3	975.5	-1%	53%	Excess
Karimnagar	1555.5	1445.1	888.8	8%	75%	Large Excess
Khammam	1178.3	1156.1	1047.4	2%	12%	Normal
Komaram Bheem	2027.1	1662.7	1145.7	22%	77%	Large Excess
M. Malkajgiri	1157	1075.9	757.5	8%	53%	Excess
Mahabubabad	1542.7	1631.3	1104.9	-5%	40%	Excess
Mahabubnagar	1057.4	880.8	708.2	20%	49%	Excess
Mancherial	1779.4	1145	1114.4	55%	60%	Large Excess
Medak	1234.8	1092.1	972.6	13%	27%	Excess
Mulugu	2082.7	1461.2	1183.9	43%	76%	Large Excess
Nagarkurnool	864.8	684.4	692.8	26%	25%	Excess
Nalgonda	735.2	895.4	767.9	-18%	-4%	Normal
Narayanpet	999.3	919.8	628.7	9%	59%	Excess
Nirmal	1767.6	1691.9	1049.1	4%	68%	Large Excess
Nizamabad	1804.3	1490.4	998.6	21%	81%	Large Excess
Peddapalle	1613.8	1153.6	1060.4	40%	52%	Excess
RajannaSircilla	1515.5	1578.1	883.4	-4%	72%	Large Excess
Rangareddy	970.2	883.9	772.5	10%	26%	Excess
Sangareddy	1158.2	964.1	894.7	20%	29%	Excess
Siddipet	1099.6	1269.9	813.1	-13%	35%	Excess
Suryapet	917	945.3	830.9	-3%	10%	Normal
Vikarabad	1099.2	1099.1	870.6	0%	26%	Excess
Wanaparthy	1009.8	735.6	749.9	37%	35%	Excess
Warangal	1588.2	1547.8	1116.3	3%	42%	Excess
Y. Bhuvanagiri	974.7	1248.3	805.1	-22%	21%	Excess
State	**1355.57**	**1221.02**	**926.29**	**11%**	**46%**	**Excess**

Source: India Meteorological Department, GOI+. 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.

3.2.1.1 Rainfall Departure of June, 2022 to May, 2023 from Normal

During the period June, 2022 to May, 2023, the state has received excess rainfall (30 % above normal). **Fig.3.3 & 3.4** gives the district wise departure of June, 2022 to May, 2023 rainfall from normal rainfall of the same period. It ranges from -4 % in Nalgonda to 81 % in Nizamabad district. Out of 33 districts, 9 districts received large excess rainfall, 21 districts received excess rainfall (+20% to +59% above normal) and remaining 3 districts received normal rainfall (-19% to +19%) during the period (**Table 3.2**).

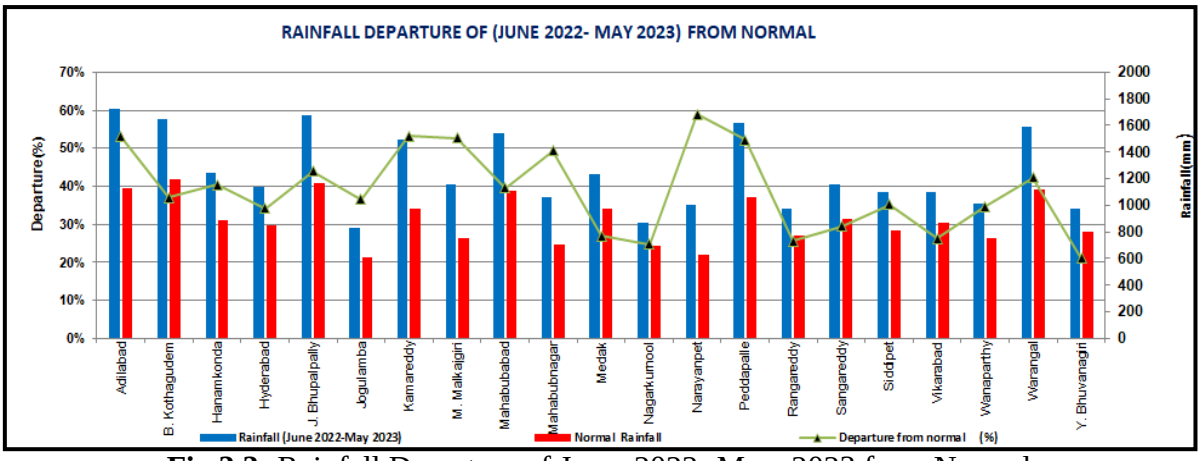


Fig.3.3: Rainfall Departure of June, 2022- May, 2023 from Normal

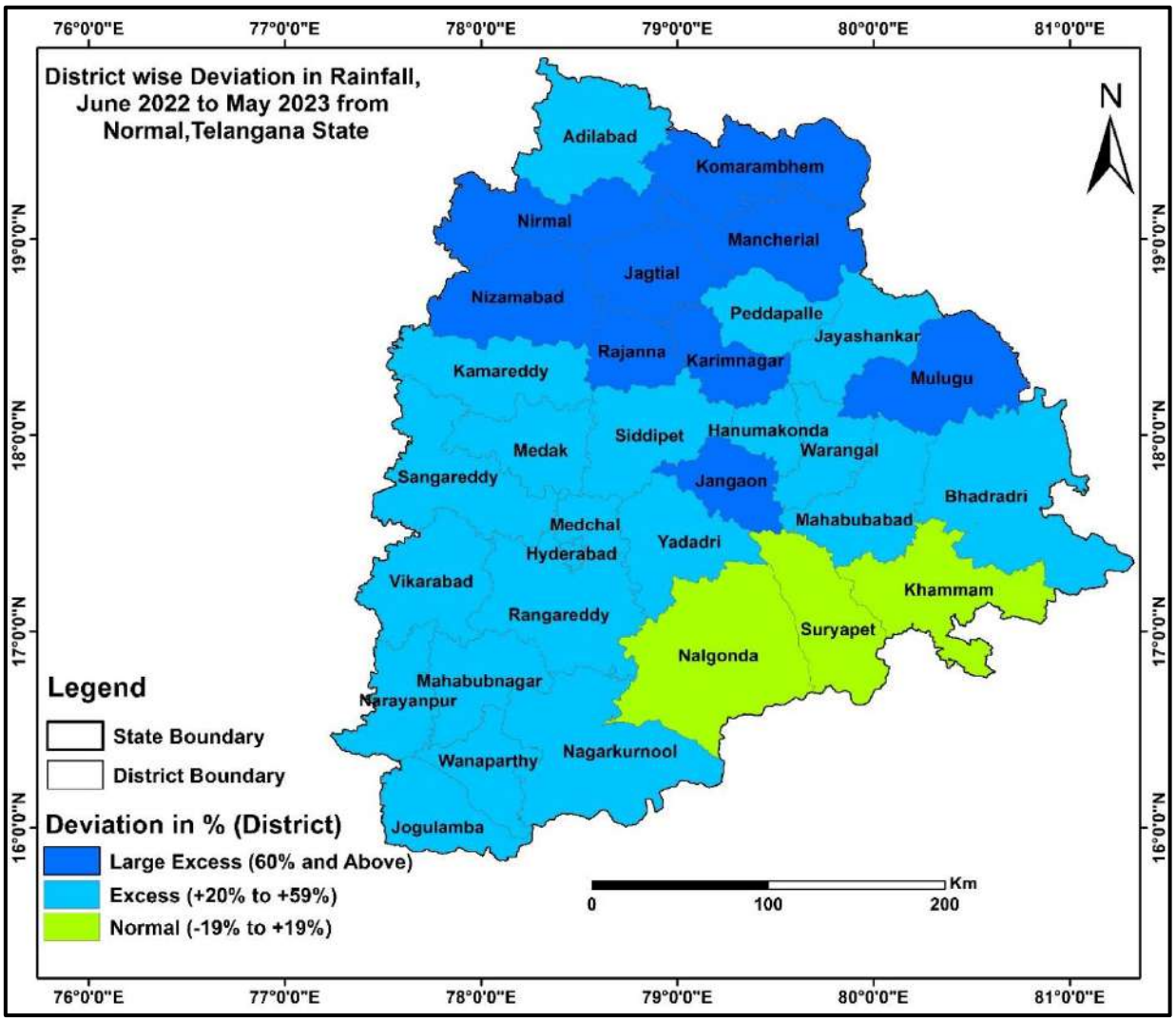


Fig. 3.4: Rainfall Deviation of June, 2022- May, 2023 from Normal

3.2.1.2 Rainfall Departure of June, 2022-May, 2023 from June, 2021- May, 2022:

State received 1356 mm of rainfall during the period June, 2022 to May, 2023, which is 11% more than the rainfall (1221 mm) received during 2021-22. **Fig.3.5 & 3.6** gives district wise departure of June, 2021 - May, 2023 from June, 2021 - May, 2022 rainfall. The departure in percentage ranges from -22 % in Y. Bhuvanagiri district to 55 % in Mancherial district.

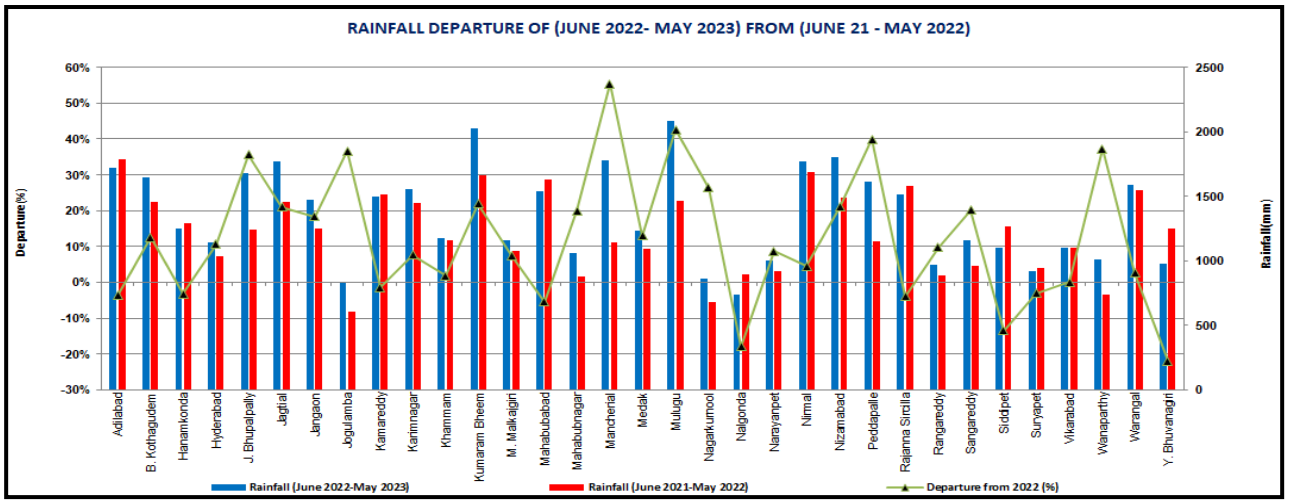


Fig.3.5: Rainfall Departure of June, 2022 - May, 2023 from June, 2021 - May, 2022

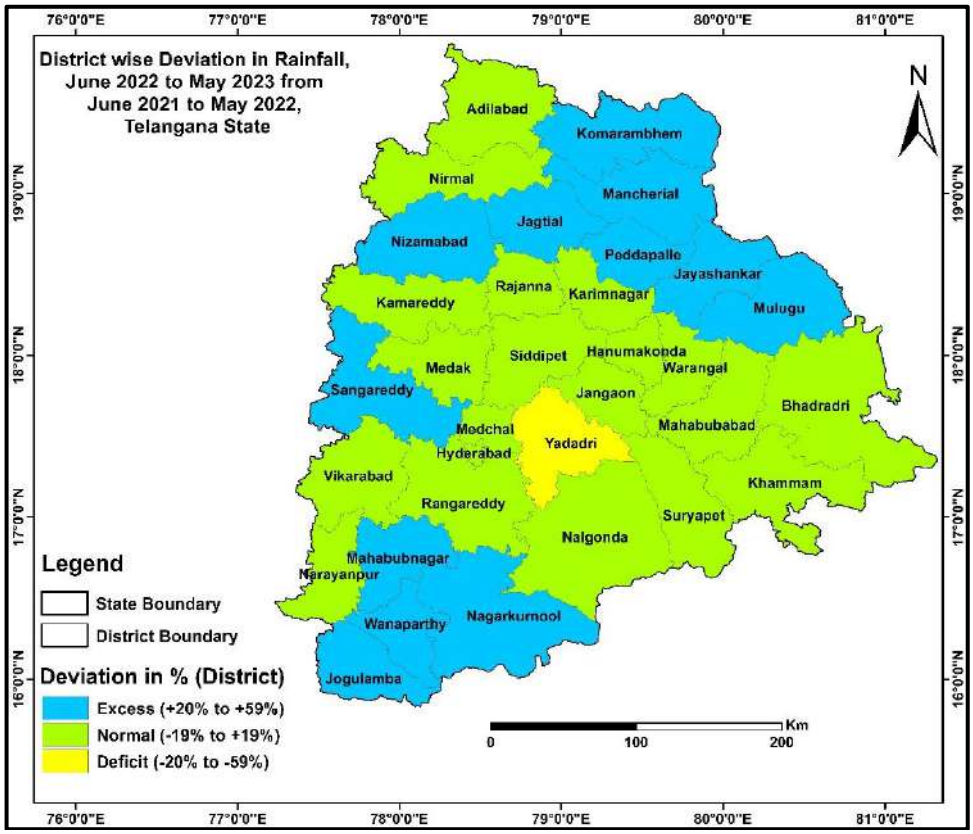


Fig.3.6: Rainfall deviation for June, 2022 - May, 2023 from June, 2021 - May, 2022

3.2.2 August, 2023

The rainfall data collected and compiled from weekly and monthly weather reports of India Meteorological Department has been used to analyze the rainfall for the period June, 2023- August 2023. **Table-3.3** gives the district wise rainfall data for the period June 2023 - August 2023 and June 2022 - August 2022, normal for the same period and the departure from normal and previous year (2022). The departure values are used to prepare the graphs and spatial maps as shown in **Fig-3.7** to **Fig-3.10. Table-3.3:** Salient Features of Rainfall (June 22 – August 23) and its Variability in Telangana State.

District	Rainfall (mm) (June, 2023- August, 2023)	Rainfall (mm) (June, 2022- August, 2022)	Normal Rainfall (mm) (June, 23- August,23)	Departure from 2022 (%)	Departure from Normal (%)	Rainfall Classification
Adilabad	851	1269	781	-33%	9%	Normal
B. Kothagudem	767	1028	770	-25%	0%	Normal
Hanamkonda	898	779	535	15%	68%	Large Excess
Hyderabad	434	548	468	-21%	-7%	Normal
J. Bhupalpally	1024	1216	804	-16%	27%	Excess
Jagtial	865	1271	645	-32%	34%	Excess
Jangaon	669	889	525	-25%	27%	Excess
Jogulamba Gadwal	323	403	322	-20%	0%	Normal
Kamareddy	745	921	616	-19%	21%	Excess
Karimnagar	777	1037	545	-25%	43%	Excess
Khammam	543	729	616	-26%	-12%	Normal
K. Asifabad	776	1456	806	-47%	-4%	Normal
M. Malkajgiri	537	657	395	-18%	36%	Excess
Mahabubabad	747	965	691	-23%	8%	Normal
Mahabubnagar	400	626	378	-36%	6%	Normal
Mancherial	776	1250	771	-38%	1%	Normal
Medak	664	764	621	-13%	7%	Normal
Mulugu	1022	1414	804	-28%	27%	Excess
Nagarkurnool	303	469	347	-35%	-13%	Normal
Nalgonda	200	370	371	-46%	-46%	Deficient
Narayanpet	431	605	340	-29%	27%	Excess
Nirmal	941	1320	723	-29%	30%	Excess
Nizamabad	896	1273	670	-30%	34%	Excess
Peddapalle	737	1142	702	-35%	5%	Normal
RajannaSircilla	786	917	545	-14%	44%	Excess
Rangareddy	370	535	401	-31%	-8%	Normal
Sangareddy	535	648	542	-17%	-1%	Normal
Siddipet	505	657	479	-23%	5%	Normal
Suryapet	388	551	468	-30%	-17%	Normal
Vikarabad	521	600	498	-13%	5%	Normal
Wanaparthy	363	503	398	-28%	-9%	Normal
Warangal	938	942	733	-0.49%	28%	Excess
Y. Bhuvanagiri	473	524	396	-10%	19%	Normal
State	**626**	**859**	**576**	**-27%**	**8%**	**Normal**

Source: India Meteorological Department, GO. 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.

3.2.2.1 Rainfall Departure of June 2023 to August 2023 from Normal

During the period June, 2023 to August, 2023, the state has received excess rainfall (8 % above normal). **Fig. 3.7 & 3.8** gives the district wise departure of June 2023 to August 2023 rainfall from normal rainfall of the same period. It ranges from -46% in Nalgonda to 68% in Hanumakonda district. Out of 33 districts, 1 district (Hanamkonda) received large excess rainfall (+60% or more), 12 districts received excess rainfall (+20% to +59% above normal), 19 districts received normal rainfall (-19% to +19%) and 1 district (Nalgonda) received deficient rainfall (-20% to -59% below normal) during the period (**Table 3.3**).

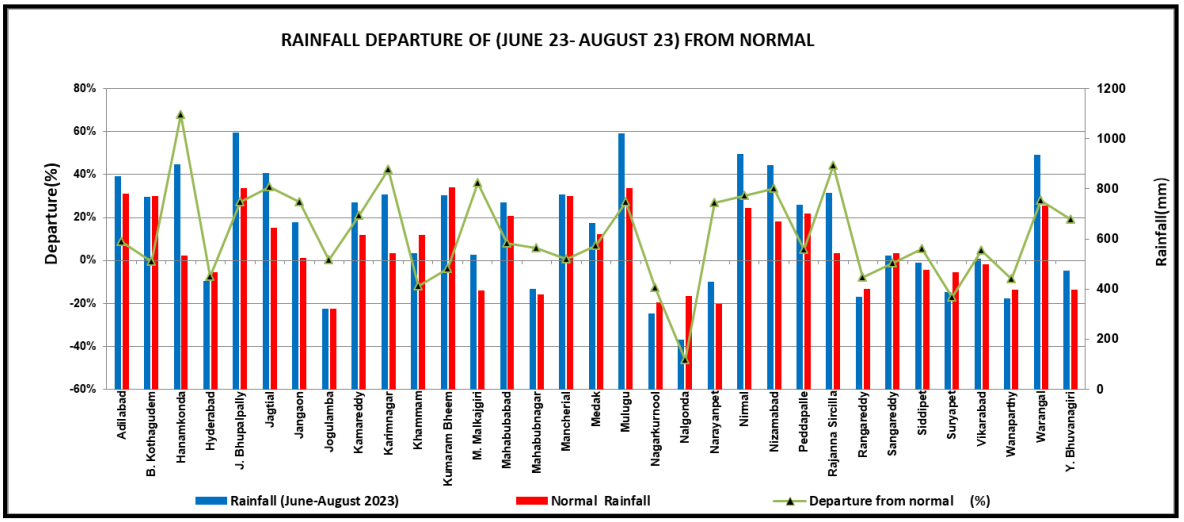


Fig.3.7: Rainfall Departure of June 2023- August 2023 from Normal

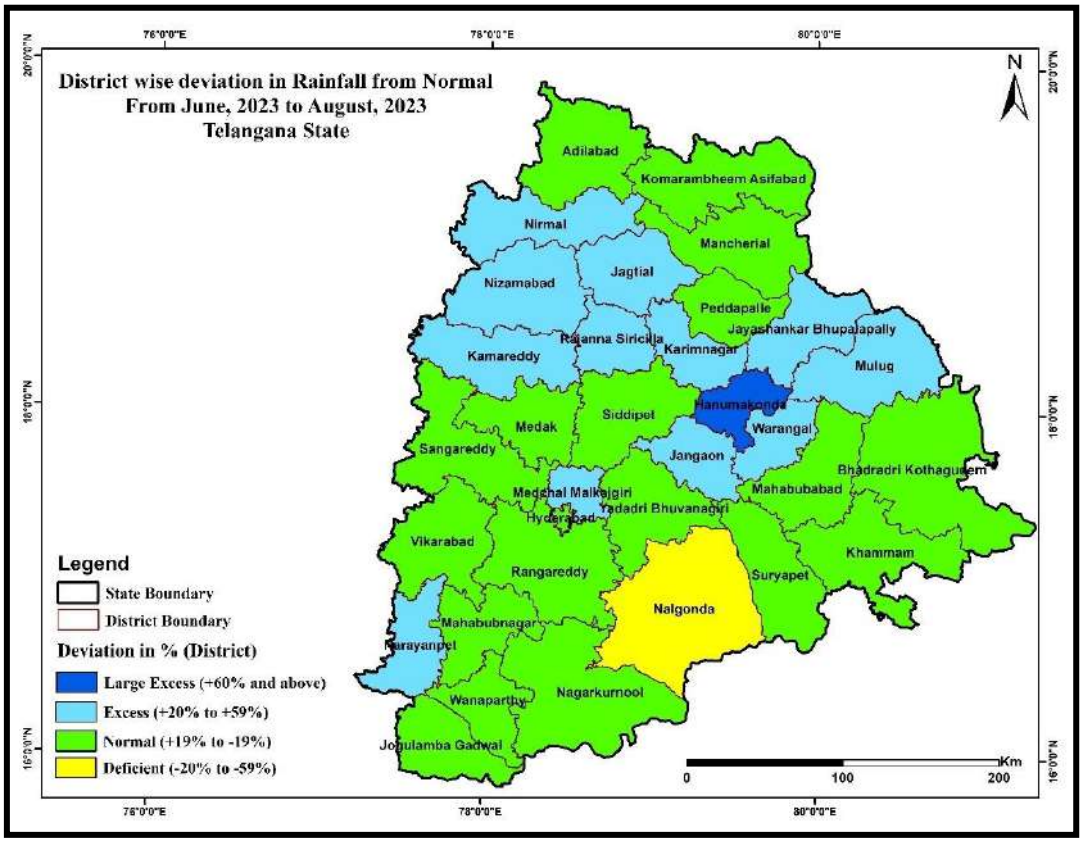


Fig.3.8: Rainfall deviation June 2023 – August 2023 from Normal

3.2.2.2 Rainfall Departure of June 2023 - August 2023 from June 2022 -August 2022:

State received 626 mm of rainfall during the period June 2023 to August 2023, which is 27% less than the rainfall (859 mm) received during the period June 2022 to August 2022. **Fig.3.9 & 3.10** gives district wise departure of June 2023 - August 2023 from June 2022 - August 2022 rainfall. The departure in percentage ranges from -47 % in Komaram Bheem Asifabad district to 15% in Hanumakonda district.

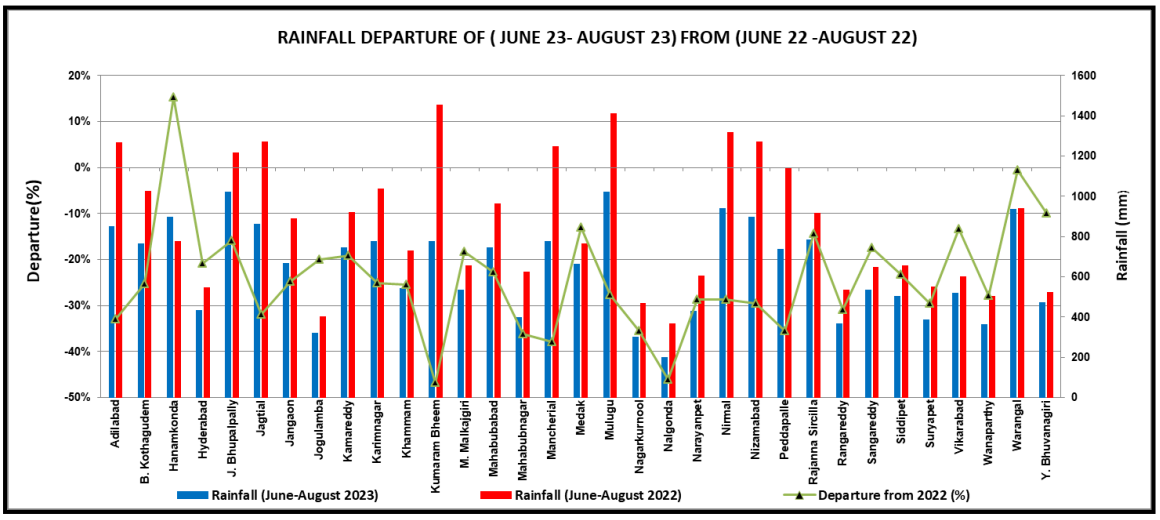


Fig.3.9: Rainfall Departure of June 2023 - August2023 from June 2022 - August2022

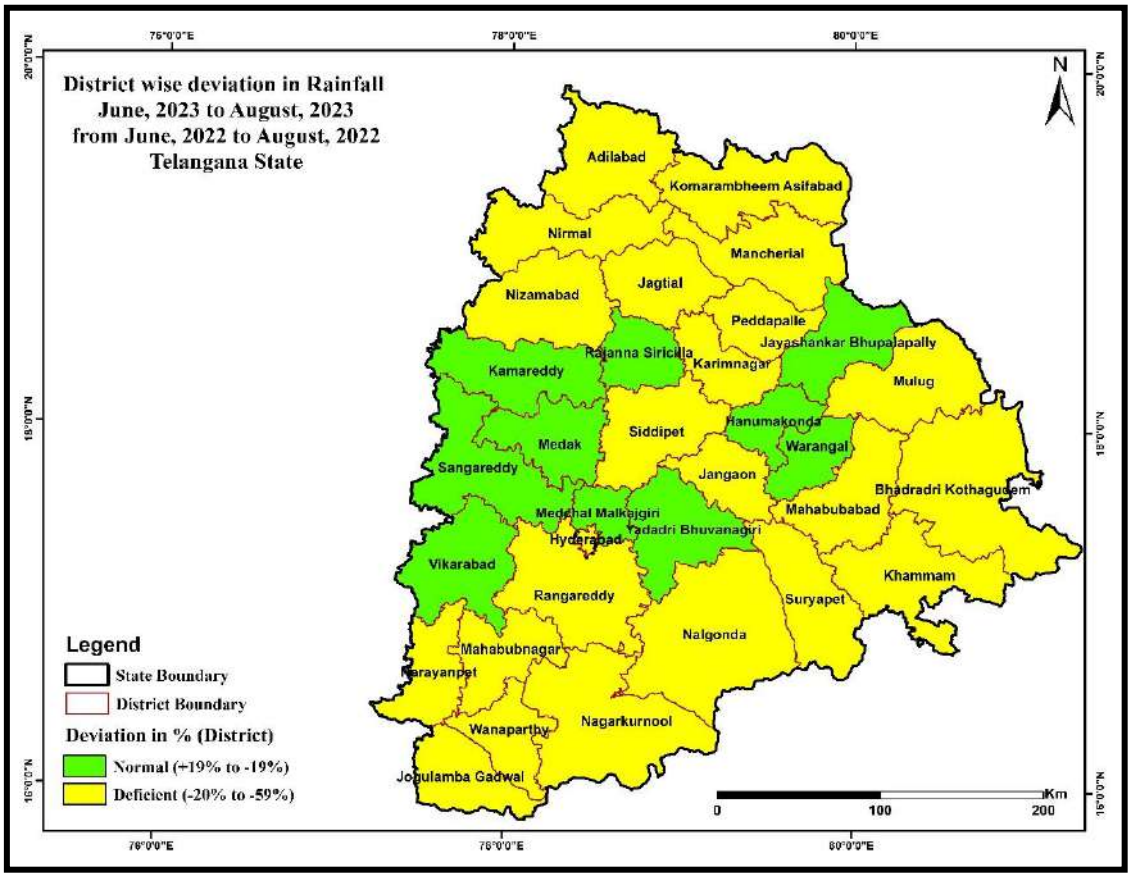


Fig.3.10: Rainfall deviation of June 2023 – August 2023 from June 2022 – August 2022

3.2.3 November 2023

The rainfall data collected and compiled from weekly and monthly weather reports of India Meteorological Department has been used to analyze the rainfall for the period June, 2023-October, 2023. **Table-3.4** gives the district wise rainfall data for the period June, 2023 - October, 2023 and June, 2022 - October, 2022, normal for the same period and the departure from normal and previous year (2022).

Table-3.4: Salient Features of Rainfall (June 23 – October 23) and its Variability in Telangana State.

District	Rainfall (mm) (June,2023-October,2023)	Rainfall (mm) (June,2022-October,2022)	Normal Rainfall (mm)	Departure from 2022(%)	Departure from Normal (%)	Rainfall Classification
Adilabad	1152.30	1581.60	1033.40	-27%	11.51%	Normal
B. Kothagudem	932.50	1431.90	1046.30	-35%	-10.88%	Normal
Hanamkonda	1097.20	1029.30	775.70	7%	41.45%	Excess
Hyderabad	756.20	891.60	733.60	-15%	3.08%	Normal
J. Bhupalpally	1328.90	1533.20	1057.10	-13%	25.71%	Excess
Jagtial	1143.40	1609.30	897.80	-29%	27.36%	Excess
Jangaon	835.70	1230.20	773.40	-32%	8.06%	Normal
Jogulamba Gadwal	400.60	664.20	534.60	-40%	-25.07%	Deficient
Kamareddy	1043.60	1282.70	867.10	-19%	20.36%	Excess
Karimnagar	974.30	1359.80	784.40	-28%	24.21%	Excess
Khammam	708.80	979.90	900.20	-28%	-21.26%	Deficient
K.Asifabad	1090.80	1864.90	1051.60	-42%	3.73%	Normal
M. Malkajgiri	782.50	987.50	648.30	-21%	20.70%	Excess
Mahabubabad	923.00	1299.90	976.60	-29%	-5.49%	Normal
Mahabubnagar	597.10	920.30	612.10	-35%	-2.45%	Normal
Mancherial	1091.30	1648.80	1028.40	-34%	6.12%	Normal
Medak	953.90	1085.10	859.70	-12%	10.96%	Normal
Mulugu	1331.00	1868.10	1068.20	-29%	24.60%	Excess
Nagarkurnool	498.50	744.20	596.50	-33%	-16.43%	Normal
Nalgonda	378.30	628.70	648.90	-40%	-41.70%	Deficient
Narayanpet	579.60	868.20	542.30	-33%	6.88%	Excess
Nirmal	1235.00	1666.50	970.10	-26%	27.31%	Excess
Nizamabad	1211.80	1653.00	908.60	-27%	33.37%	Excess
Peddapalle	990.80	1459.10	963.80	-32%	2.80%	Normal
RajannaSircilla	1080.10	1323.70	778.40	-18%	38.76%	Excess
Rangareddy	548.20	806.80	657.50	-32%	-16.62%	Normal
Sangareddy	804.80	969.70	795.00	-17%	1.23%	Normal
Siddipet	730.00	953.40	708.60	-23%	3.02%	Normal
Suryapet	572.50	797.90	735.30	-28%	-22.14%	Deficient
Vikarabad	758.50	949.90	762.50	-20%	-0.52%	Normal
Wanaparthy	540.10	806.30	648.20	-33%	-16.68%	Normal
Warangal	1084.90	1356.60	999.70	-20%	8.52%	Excess
Y.Bhuvanagiri	616.10	747.30	655.70	-18%	-6.04%	Normal
State	**871.89**	**1181.81**	**818.78**	**-26%**	**6.49%**	**Normal**

Source: India Meteorological Department, GO. 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.

3.2.3.1 Rainfall Departure of June, 2023 to October, 2023 from Normal

During the period June, 2023 to October, 2023, the state has received excess rainfall (6.49 % above normal). **Fig. 3.11 & 3.12** gives the district wise departure of June 2023 to October2023 rainfall from normal rainfall of the same period. It ranges from-41.70 % in Nalgonda to 68 % in Hanumakonda district. Out of 33 districts, 12 districts received excess rainfall (+20% to +59% above normal), 18 districts received normal rainfall (-19% to +19%) and 4 district received deficient rainfall (-20% to-59% below normal) during the period (**Table3.4**).

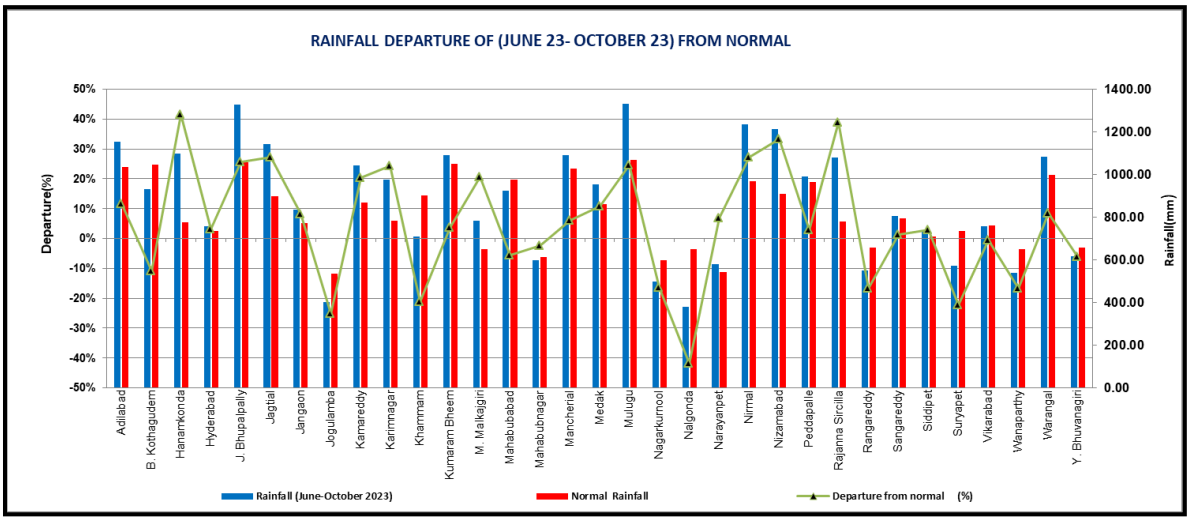


Fig.3.11: Rainfall Departure of June, 2023 - October,2023 from Normal

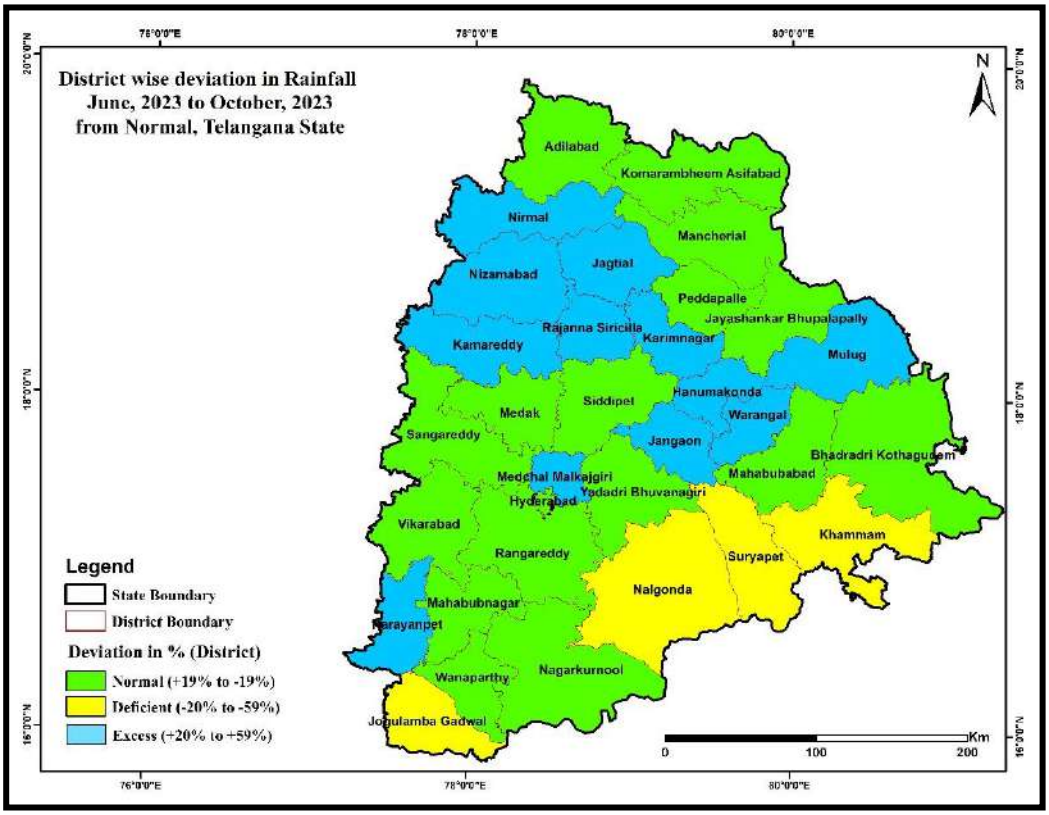


Fig.3.12: Rainfall deviation June, 2023 – October, 2023 from Normal

3.2.3.2 Rainfall Departure of June 2023 – October 2023 from June 2022 – October 2022:

State received 626 mm of rainfall during the period June 2023 to October 2023, which is 26% less than the rainfall (871.89 mm) received during the period June 2022 to October 2022. **Fig.3.13 & 3.14** gives district wise departure of June 2023 - October 2023 from June 2022 -October 2022 rainfall. The departure in percentage ranges from -42% in Komarambheem Asifabad district to 7% in Hanumakonda district.

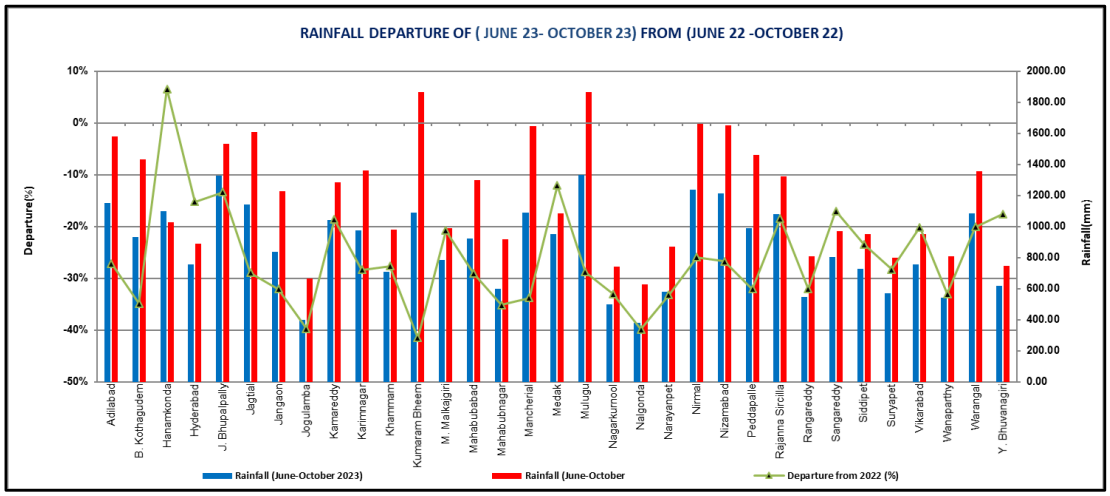


Fig.3.13: Rainfall Departure of June 2023-October 2023 from June 2022-October 2022

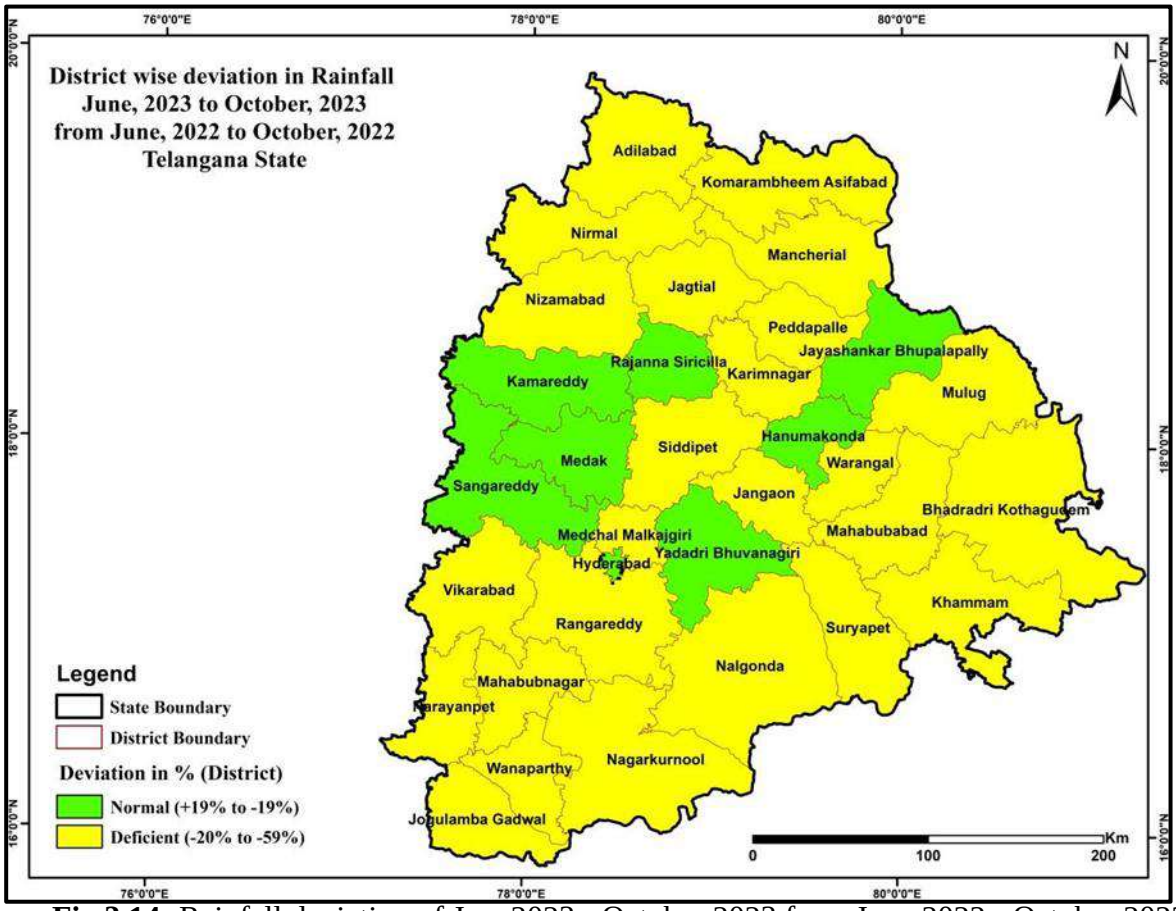


Fig.3.14: Rainfall deviation of June2023 - October 2023 from June 2022 - October 2022

3.2.4 January, 2024

The rainfall data collected and compiled from weekly and monthly weather reports from India Meteorological Department were used to analyze the rainfall for the period June 2023 -December 2023. **Table-3.5** gives the district-wise rainfall data for the period June-December 2022 & 2023, normal and the departure of June-December 2023 rainfall with other periods.

Table 3.5: Salient Features of Rainfall and its Variability in Telangana State.

District	Rainfall (June 23-December 23)	Rainfall (June 22 to December 22)	Normal Rainfall	Departure from 2022 (%)	Departure from Normal (%)	Status
Adilabad	1182.8	1586.7	1049.7	-25%	13%	Normal
B. Kothagudem	1152.4	1433	1088	-20%	6%	Normal
Hanumakonda	1126.3	1029.7	807	9%	40%	Excess
Hyderabad	783.5	904.8	760.5	-13%	3%	Normal
J. Bhupalpally	1352.8	1533.4	1081.7	-12%	25%	Excess
Jagtial	1148.1	1609.4	920.8	-29%	25%	Excess
Jangaon	865.9	1232.3	798.6	-30%	8%	Normal
Jogulamba Gadwal	422	694.2	550.5	-39%	-23%	Deficit
Kamareddy	1067.4	1282.8	892.4	-17%	20%	Excess
Karimnagar	989.6	1360.1	813.3	-27%	22%	Excess
Khammam	845.6	990.9	945.3	-15%	-11%	Normal
Kumaram Bheem	1102.1	1885.4	1069.2	-42%	3%	Normal
M. Malkajgiri	806.1	999	676.8	-19%	19%	Normal
Mahabubabad	997.9	1304.8	1008.1	-24%	-1%	Normal
Mahabubnagar	609.2	928	633.2	-34%	-4%	Normal
Mancherial	1099.9	1652.1	1049	-33%	5%	Normal
Medak	998	1085.3	889.4	-8%	12%	Normal
Mulugu	1433.2	1870.4	1097.5	-23%	31%	Excess
Nagarkurnool	503.2	758.2	624.9	-34%	-19%	Normal
Nalgonda	428.7	650.2	694	-34%	-38%	Deficit
Narayanpet	584.1	872	564.6	-33%	3%	Normal
Nirmal	1269.7	1666.5	988.9	-24%	28%	Excess
Nizamabad	1239.1	1653	930.1	-25%	33%	Excess
Peddapalle	998.7	1461	985.6	-32%	1%	Normal
Rajanna Sircilla	1090.3	1324	802.4	-18%	36%	Excess
Rangareddy	570.5	821.1	685.6	-31%	-17%	Normal
Sangareddy	838.5	970.4	818	-14%	3%	Normal
Siddipet	748.1	954.1	737.7	-22%	1%	Normal
Suryapet	656.3	815.9	772.7	-20%	-15%	Normal
Vikarabad	774.6	952.4	783.3	-19%	-1%	Normal
Wanaparthy	559.8	822.5	673.5	-32%	-17%	Normal
Warangal	1140.3	1358.9	1030.2	-16%	11%	Normal
Y. Bhuvanagiri	640.8	763.8	691.6	-16%	-7%	Normal
State Mean	909.9	1188.7	845.9	-23%	8%	Normal

Source: India Meteorological Department, GO. 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.

3.2.4.1 Rainfall Departure of June, 2023 to December, 2023 from Normal

During the period June, 2023 to December, 2023, the state has received excess rainfall (8% above normal). **Fig. 3.15 & 3.16** gives the district wise departure of June 2023 to December 2023 rainfall from normal rainfall of the same period. It ranges from -38 % in Nalgonda to 40 % in Hanumakonda district. Out of 33 districts, 9 districts received excess rainfall (+20% to +59% above normal), 22 districts received normal rainfall (-19% to +19%) and 2 district received deficient rainfall (-20% to-59% below normal) during the period (**Table 3.5**).

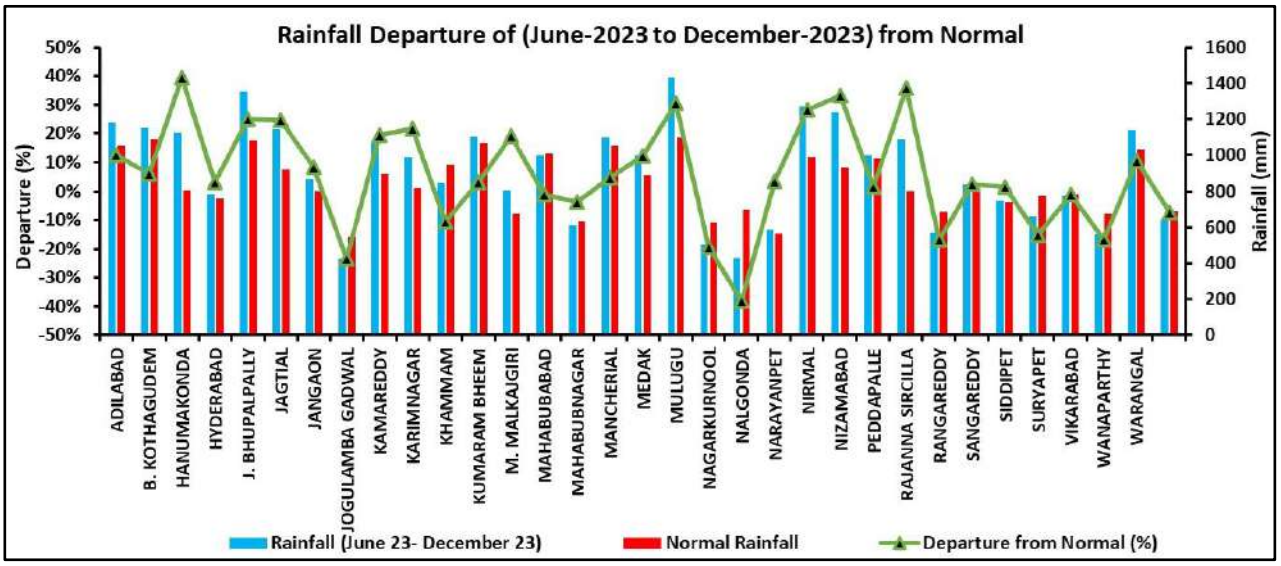


Fig.3.15: Rainfall Departure of June,2023 - December, 2023 from Normal

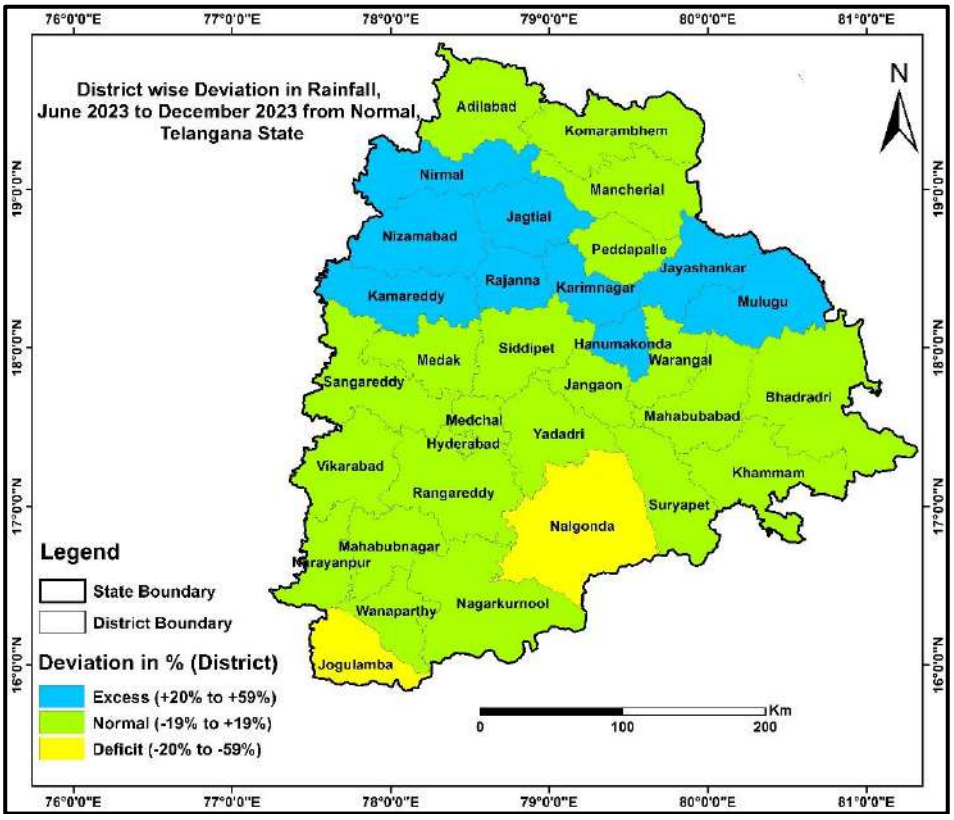


Fig.3.16: Rainfall deviation June, 2023 –December, 2023 from Normal

3.2.4.2 Rainfall Departure of June 2023 - December 2023 from June 2022 - December 2022:

State received 909 mm of rainfall during the period June 2023 to December 2023, which is -23% less than the rainfall (1188.7 mm) received during the period June 2022 to December 2022. **Fig.3.17 & 3.18** gives district wise departure of June 2023 to December 2023 from June 2022 to December 2022 rainfall. The departure in percentage ranges from -42 % in Komaram Bheem Asifabad district to 9% in Hanumakonda district.

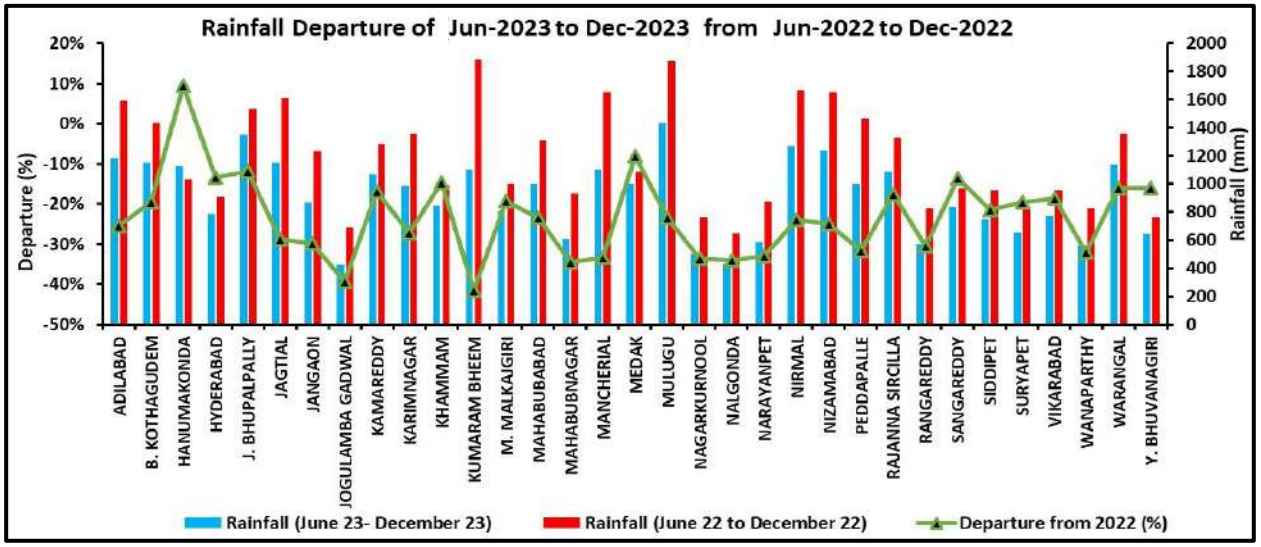


Fig.3.17: Rainfall Departure of June 2023-December 2023 from June 2022-December 2022

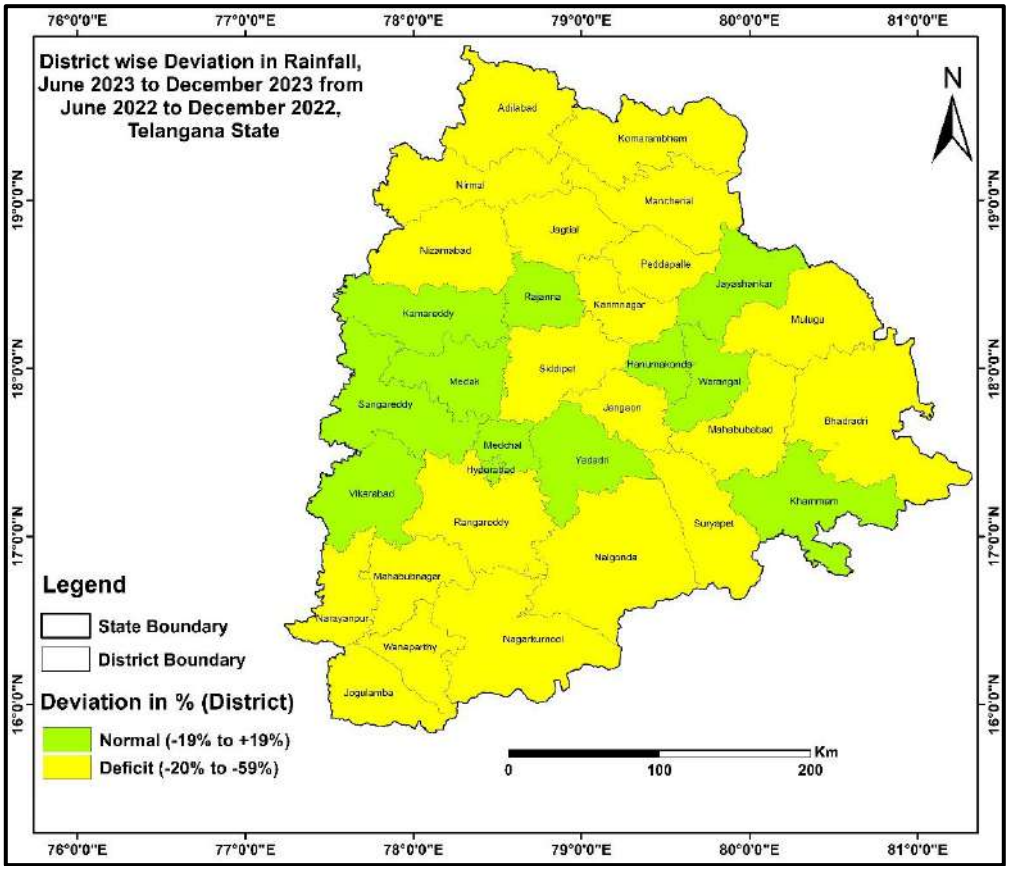


Fig. 3.18: Rainfall deviation June, 2023 –December 2023 from June, 2022 –December 2022

4. GEOLOGY

Telangana state is characterized by wide range of geological formations from Archaean to Recent age (Fig.4.1). Nearly 81 % of the state area is underlain by hard 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 Gondwanas, Tertiaries and Sub-Recent to Recent Unconsolidated Alluvium.

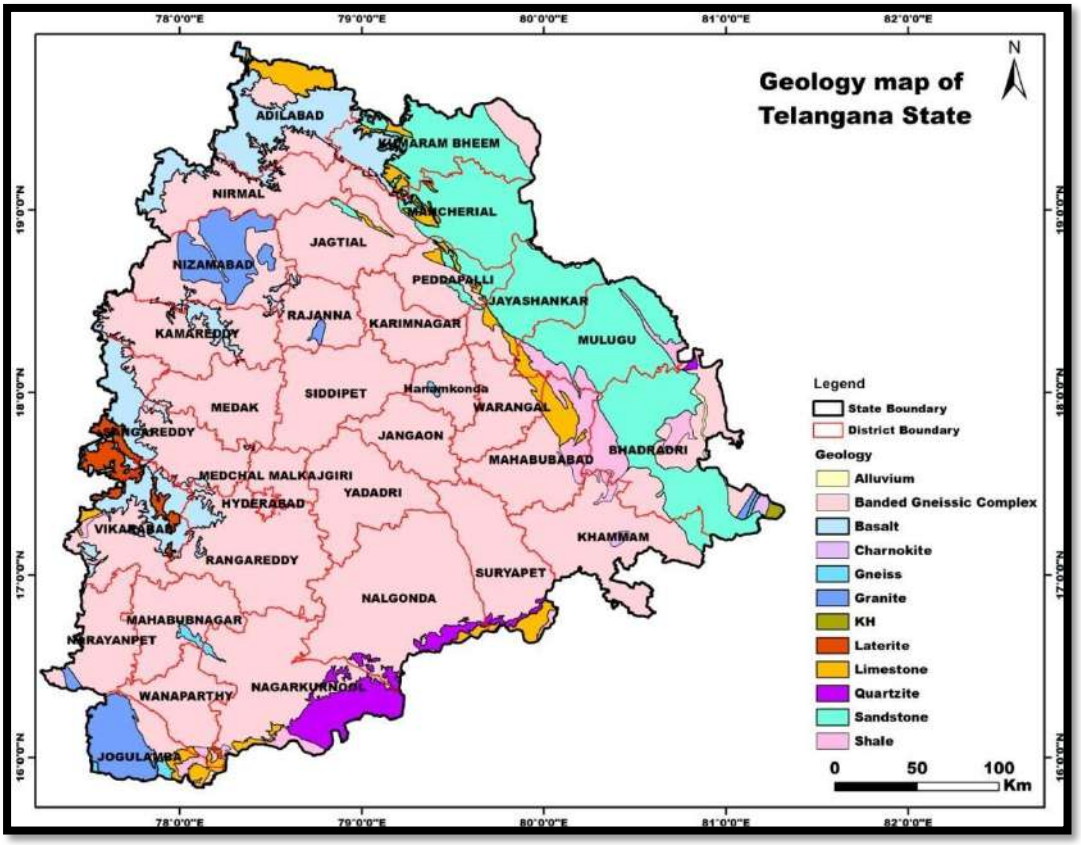


Fig.4.1: Principal Aquifers of Telangana State.

4.1 Archaean and Lower Protorozoic

Peninsular Gneisses of Archaean age are dominant rock types in Telangana state. These are intruded by Closepet granite and dolerite dykes. Dharwars, comprising amphibolites, gneisses, schists, and quartzites occur as narrow isolated bands within granites in Mahabubnagar,Nalgonda, Khammam, Warangal, Karimnagar and Adilabad districts.

4.2 Middle to Upper protorozoic

The group includes Cuddapahs, Pakhals, Pengangas, Kurnools and Sullava is comprising shales, limestones, dolomites, sandstones and conglomerates.The Cuddapah Super Group of rocks and Kurnool group of rocks occur in parts of Nalgonda and Mahabubnagar districts. The Pengangas, which are considered as equivalent of Pakhals, are exposed in Adilabad district. Bheema group of rocks consisting of flaggy massive and argillaceous limestones occur along

western border of Rangareddy district. Sullavais sandstones overlie Pakhals and Penganga rocks consisting shales, limestones, sandstones and conglomerates occur in Adilabad, Karimnagar and Warangal districts.

4.3 Gondwana Super Group

Fresh water fluvial sediments of Gondwana Super group rocks (Upper Carboniferous to Lower Cretaceous), comprising lower group of rocks occur along NW-SE trending Pranhita-Godavari valley extending in Adilabad, Karimnagar and Warnagal districts. Lower Gondwanas are well developed in Godavari valley and sub-divided into Talchirs, Barakars, Barren measures and Kamthis consisting mainly conglomerates, sandstones, shales occassionaly clays in parts of Khammam district. The upper Gondwana is sub-divided into Maleru, Kota, Gangapur and Chikiala formations consisting of sandstones, conglomerates and clays.

4.4 Deccan Traps (Basalt)

Horizontal to sub-horizontal disposed lava flows of the Deccan traps covering ~8210 Km^2occur in parts of erstwhile Adilabad, Nizamabad, Medak, Ranga Reddy and Mahbubnagar districts. The thickness of individual flow varies between a few metres to as much as 30 m with total thickness to more than 200 m at places. They overlie Archaean group of rocks except in Ranga reddy district where they overlie Bhima Group of rocks. Inter-trappean beds comprising limestone, chert and sandstone occur between trap flows near Vikarabad and Adilabad.

4.5 Quaternary Depostis

Sub-recent deposits represented by laterite capping occur in Medak and Rangareddy districts at places with thickness up to 30 m. They cover about 916 Km^2area in the state (Medak: 609 Km^2 and Rangareddy 307 Km^2).

5. GROUND WATER RESOURCES (2023)

The Dynamic Ground Water Resource potential of the State has been estimated as per the methodology given by the Ground Water Estimation GEC 2015.

As per the estimates (March, 2023), the Net Annual Ground Water Availability is about 20920 MCM. The current Annual Ground Water Extraction for all uses is 8085 MCM (Domestic andIndustrial extraction: 840 MCM & Irrigation extraction: 7244 MCM). The Annual Extractable Groundwater Resource for future needs is 12832 MCM. The overall Stage of Groundwater Extraction ranges from 15% (Komaram Bheem Asifabad) to 94% (Hyderabad)

Out of 612 mandals, 11 mandals fall under over exploited, 10 mandals under critical, 61 mandals under semi-critical and 530 mandals under safe category. Out of 33 districts, 1 district falls under critical and 32 under safe category. The categorization of district is depicted in **Fig.5.1** and the major highlights of the GWRA-2023 statistics is given in Table 5.1.

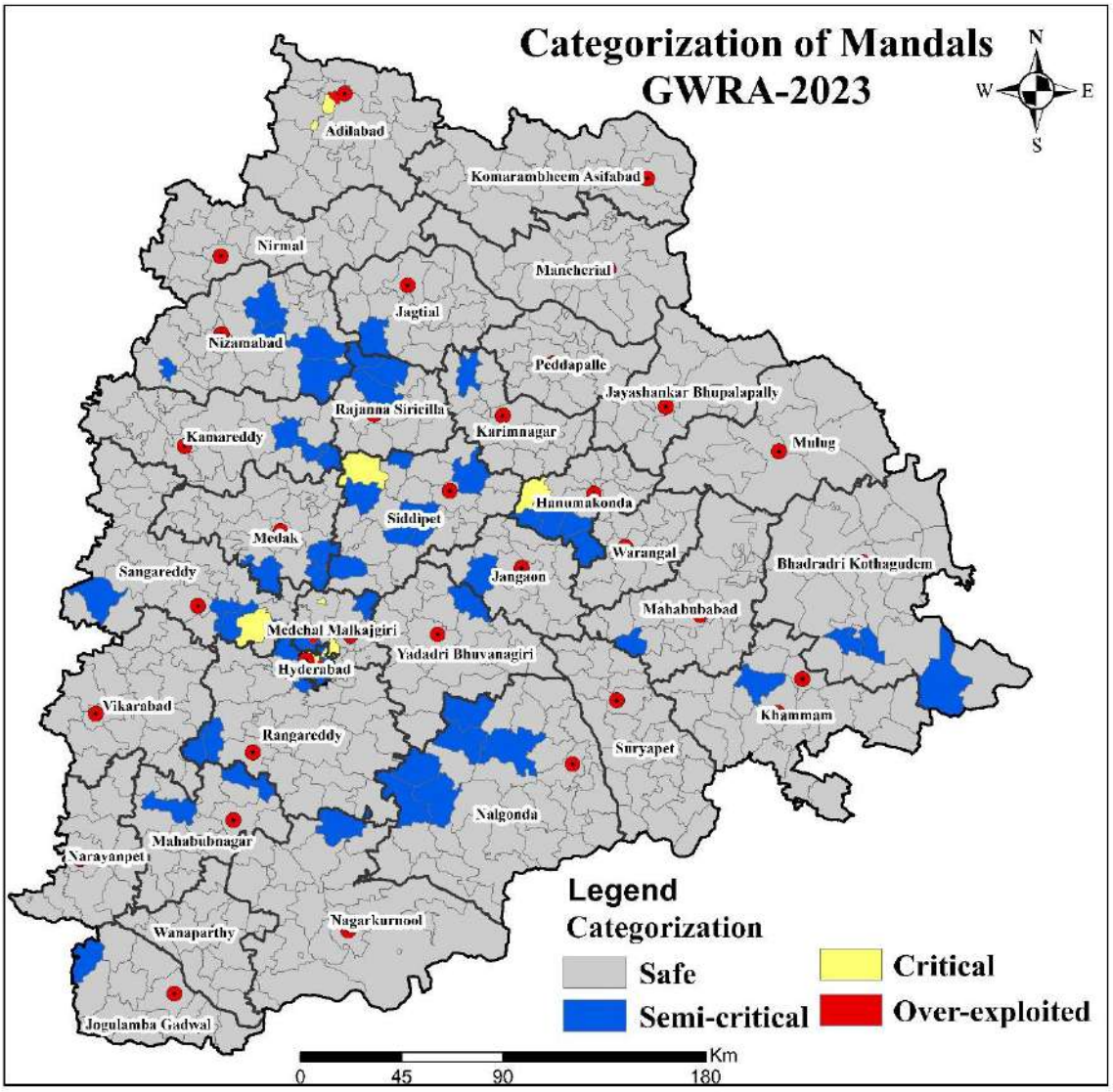


Fig.5.1: Categorization of Mandals, Telangana state.

6. GROUND WATER REGIME MONITORING

Ground water level monitoring is a scientific surveillance system to establish the periodic and long term changes in ground water regime. The water level data over a period of time provides information on changes in ground water levels with progressive ground water development. Monitoring of a network of ground water monitoring wells provides periodical information on ground water regime scenario in different hydrogeological environments in the area.

From Ground water occurrence point of view, litho units of the state are grouped into following 3 groups viz.,

i) Consolidated formation
ii) Semi-consolidated formation
iii) Unconsolidated formation

6.1 Consolidated formations

Crystalline rocks of Archaean age, metasedimentary rocks of Cuddapahs, Kurnools and basaltic lava flows of Deccan traps are included in these formations. The crystalline rocks which occupy ~81 % of area, generally lack primary porosity and secondary porosity is developed due to weathering, fracturing, development of solution cavities and channels and interconnection of vesicles. In these rocks, depth of weathering varies from 3 to 20 m bgl and majority of fractures occur within 100 m depth. In these rocks dug wells/ dug cum bore wells and bore wells are the most prevalent abstraction structures. Ground water yield from these rocks varies from <1 lps to 5 lps.

Pakhals, Penganga and Sullavais are relatively poor to moderate potential aquifers and basalts are hard and compact and possess meagre primary porosity (by virtue of interconnected vesicles). Fractures in basalts are developed due to columnar joints and tectonic activities. Yield of ground water in these rocks varies from <1 to 3 lps and potential zones exist down to 38-200 m depth.

6.2 Semi-consolidated formations

Semi-consolidated formations are represented by rocks belonging to Gondwana formations. The Talchirs, Barakaras and Kamthis formations yield more ground water (up to 60 lps). At some place auto flows conditions also are encountered.

6.3 Unconsolidated formations

Unconsolidated formations represented by river alluvium occur along the major rivers Godavari and Krishna and their tributaries in the state.

6.4 Monitoring Methodology

Ground water regime is monitored through a network of dug wells and piezometers known as Ground Water Monitoring Stations (GWMS). The dug wells, which are tapping shallow aquifers are owned by government and non-government agencies and individual users, tap shallow aquifers. Piezometers (basically bore wells/tube wells) constructed exclusively for ground water regime monitoring under Hydrology Project tap both shallow and deeper aquifers. Some of the exploratory wells/ observatory wells drilled under exploratory drilling programme of CGWB tapping deeper aquifers are converted to piezometers for regular monitoring. The network of Ground Water Monitoring Stations (GWMS) are monitored 4 times a year by Central Ground Water Board during the following periods (Table 6.1).

Table: 6.1 Groundwater monitoring period

Period	Date
January	1st to 10th of the month
May (Pre-monsoon)	21st to 30th of the month
August (Mid-monsoon)	21st to 30th of the month
November (Post-monsoon)	1st to 10th of the month

6.4.1 Participatory Ground water Monitoring

To observe micro-level changes in ground water regime, weekly measurements are initiated in phases involving local people as observers under participatory ground water monitoring programme. Participatory observers are identified and engaged since May, 2005, where GWMS are existing and as on 31st March, 2023, 105 nos of GWMS are monitored though participatory approach (**Table-6.1**).

6.4.2 Chemical Quality Monitoring

The chemical quality of ground water is monitored (dug wells/Piezometers) once in the month of May (pre-monsoon season) of every year to observe the effect of geogenic as well as anthropogenic contamination on ground water in different hydrogeological environments over a period of time.

6.5 Maintenance of Database on Ground Water Monitoring Wells

The database on water levels and chemical quality is maintained over a period of time since 1969 in various database softwares developed by CGWB such as GWDES and GEMS. . The database is maintained in Oracle database using GEMS (Ground water Estimation and Management System) software, which is adopted by all ground water agencies in the country. Currently, the

department switches to online water level and quality database, WIMS (Water Information and Management System).

6.6 Distribution of Ground Water Monitoring Wells

The distribution and density of monitoring wells district wise, basin wise and aquifer system wiseare summarized in Table-6.2.

6.6.1 District wise Distribution of Ground Water Monitoring Wells

Total 1281 GWMS are monitored in the state (Dug wells: 274 and Piezometer wells: 1007) and 99 participatory observers present in the Telangana State (**Table-6.2** and **Fig.1.1**).

Table-6.2: Distribution of GWMS, Telangana State (As on March, 2024).

S. No.	District	Area (Km^2)	No of GWM Stations			No of Participatory observers	Density of Network stations (Sq. km. per well)		
			DW	Pz	Total		Dug wells	Piezo meters	Combined stations
1	**Adilabad**	3995.93	16	39	55	4	249.7	102.5	72.7
2	**Bhadradi Kothagudem**	6996.54	15	58	73	8	466.4	120.6	95.8
3	**Hanamkonda**	1294.45	4	14	18	0	323.6	92.5	71.9
4	**Hyderabad**	182.64	8	20	28	5	22.8	9.1	6.5
5	**Jagitial**	2852.78	8	16	24	0	356.6	178.3	118.9
6	**Jangaon**	2104.73	9	33	42	2	233.9	63.8	50.1
7	**Jayshankar Bhupalpally**	2975.14	3	11	14	0	991.7	270.5	212.5
8	**Jogulamba Gadwal**	2618.3	3	14	17	1	872.8	187.0	154.0
9	**Kamareddy**	3696.14	12	27	39	4	308.0	136.9	94.8
10	**Karimnagar**	2125.08	5	21	26	2	425.0	101.2	81.7
11	**Khammam**	4479.56	12	57	69	5	373.3	78.6	64.9
12	**Komarambheem Asifabad**	4525	10	32	42	1	452.5	141.4	107.7
13	**Mahabubabad**	3558.81	8	13	21	6	444.9	273.8	169.5
14	**Mahabubnagar**	2745.61	3	23	26	2	915.2	119.4	105.6
15	**Mancherial**	3907.06	10	23	33	2	390.7	169.9	118.4
16	**Medak**	2771.56	5	33	38	2	554.3	84.0	72.9
17	**Medchal Malkajgiri**	1086.32	3	36	39	1	362.1	30.2	27.9
18	**Mulugu**	4192.07	14	7	21	4	299.4	598.9	199.6
19	**Nagarkurnool**	6400.16	2	45	47	0	3200.1	142.2	136.2
20	**Nalgonda**	7234.07	17	64	81	6	425.5	113.0	89.3
21	**Narayanpet**	2386.32	2	10	12	2	1193.2	238.6	198.9
22	**Nirmal**	3729.45	8	25	33	1	466.2	149.2	113.0
23	**Nizamabad**	4184.13	5	37	42	3	836.8	113.1	99.6
24	**Peddapalle**	2207.21	6	14	20	2	367.9	157.7	110.4
25	**Rajanna Sircilla**	1899.02	1	20	21	1	1899.0	95.0	90.4
26	**Rangareddy**	4997.54	13	82	95	1	384.4	60.9	52.6
27	**Sangareddy**	4464.09	6	59	65	4	744.0	75.7	68.7
28	**Siddipet**	3636.77	5	48	53	2	727.4	75.8	68.6
29	**Suryapet**	3591.34	11	23	34	5	326.5	156.1	105.6
30	**Vikarabad**	3615.02	29	36	65	16	124.7	100.4	55.6
31	**Wanaparthy**	2171.13	1	25	26	1	2171.1	86.8	83.5
32	**Warangal**	2139.77	7	13	20	4	305.7	164.6	107.0
33	**Yadadri Bhuvanagiri**	3432.65	13	29	42	2	264.1	118.4	81.7
	TOTAL	**112196.4**	**274**	**1007**	**1281**	**99**	**409.5**	**111.4**	**87.6**

6.6.2 Aquifer wise Distribution of Ground Water Monitoring Wells

District-wise and aquifer-wise distribution of monitoring wells (GWMS) is given in **Table-6.2.** Majority of GWMS (74%) are located in Granitic rocks followed by Sandstone (11%),and basalt rocks and other formations (7%).

Table-6.2: District-wise and Principal Aquifer-wise Distribution of monitoring stations, Telangana state (as on January, 2024).

District	BGC	BS	GN	GR	LS	LT	QZ	SH	ST	Grand Total
Adilabad	14	29			12					55
Bhadradri Kothagudem	16			1				9	47	73
Hanamkonda	18									18
Hyderabad	28									28
Jagtial	24									24
Jangaon	42									42
Jayashankar Bhupalapally	5								9	14
Jogulamba Gadwal	5			6	5			1		17
Kamareddy	38	1								39
Karimnagar	26									26
Khammam	65							2	2	69
Komarambheem Asifabad		8			2				32	42
Mahabubabad	20				1					21
Mahabubnagar	24		2							26
Mancherial	11				1				21	33
Medak	38									38
Medchal Malkajgiri	39									39
Mulugu								3	18	21
Nagarkurnool	45		1				1			47
Nalgonda	75						6			81
Narayanpet	12									12
Nirmal	28	5								33
Nizamabad	17			25						42
Peddapalli	14								6	20
Rajanna Sircilla	21									21
Rangareddy	88	7								95
Sangareddy	40	18				7				65
Siddipet	53									53
Suryapet	34									34
Vikarabad	28	24			1	12				65
Wanaparthy	21				5					26
Warangal	20									20
Yadadri Bhuvanagiri	42									42
Grand Total	**951**	**92**	**3**	**32**	**27**	**19**	**7**	**15**	**135**	**1281**

Note: BGC-Banded Gneissic complex, BS-Basalt, Gn-Gneiss, Gr-Granite, LS-Limestone, LT-Laterite,Qz- Quartzite, SH-Shale, ST-Sandstone).

7. GROUND WATER SCENARIO: ANALYSIS OF WATER LEVELS

The ground water levels observed over a period of time provide valuable information on behaviour of the ground water regime, which is constantly subjected to changes due to recharge and discharge phenomena. Balance between recharge and discharge results in decline or rise in the ground water storage. When the recharge exceeds discharge there will be a rise in the ground water storage and vice versa. The decline in water level may be due to increase in draft (for different purposes) or decrease in precipitation (less recharge to ground water). On the other hand a rise in water level may be due to an increase in rainfall and/or due to changes in irrigation practices. The dug wells are tapping the phreatic aquifer and, mostly limited to a depth of 20 m. While the depth of piezometers which are tapping both the phreatic and deeper aquifers varies from 20 to 100 mbgl. Hence the water level recorded in the piezometers may not be the same as that of dug wells for a particular period though both the structures are in the same place. In this report the water level data collected from shallow aquifers (tapping weathered zone and first fracture zone) are presented in detail. Water levels tapping deeper fractures are discussed separately. The data from GWMS for the year 2023-24 were analysed and for every set of measurements, write up and maps were prepared and are presented here under various paragraphs. The purpose of water leveldata analysis is

i) Four measurements of depth to water level give an overall idea regarding the ground water level in the state during the year of measurement.
ii) The fluctuation in comparison to the same month in the previous year gives an idea about the change in the ground water level for a particular period with respect to that of the level during the same month in the previous year. This gives an idea about the change in the amount of draft and rainfall between the two years.
iii) The water level fluctuation during the pre-monsoon period in comparison to previous year gives an idea about the seasonal fluctuation, which ultimately reflects the change in dynamic ground water resources.
iv) The water level fluctuation during a particular month of measurement with reference to the decadal mean for the same months gives an idea of the behaviour of the ground water level on long-term basis.

The district wise status of ground water monitoring wells of Telangana State with respect to May, August, November of 2023 and January of 2024 is presented in Annexure-I to IV

7.1 Depth to Water Levels (Unconfined & Confined/Semi-Confined)

7.1.1 Depth to Water Levels (May, 2023)

The depth to water level data of 1198 wells has been used for analysis. Distribution of wells in different depth ranges is depicted in pie diagram (**Fig.7.1**). District wise minimum and maximum of water level ranges given as bar diagram (**Fig.7.2**) and depth to water level map is given in **Fig.7.3**.

Analysis of depth to water level data (**Annexure - V**) shows that water levels range between ground Level (Bhadradri Kothagduem and Wanaparthy district) to 97.48 m bgl (Adilabad district). Water level of less than 2 m bgl is recorded in 7% of wells, between 2 to 5 m bgl in 29% of wells, between 5 to 10 m bgl in 38% of wells, between 10 to 20 m bgl in 20% of wells and more than 20 m bgl in 4% wells. Depth to water level map of May, 2023 (**Fig.7.3**) shows that, shallow water level of less than 2 m bgl is noticed in 1% area (82 wells), mainly observed as isolated patches in Bhadradri Kothagudem, Khammam, Mulugu, Jayshankar Bhupalapally, Wanaparthy and Mancherial districts. Water level between 2 to 5 m bgl is covered in 25 % of area (349 wells) predominantly in Bhadradri Kothagudem, Suryapet, Khammam, Mahabubabad, Warangal, Mulugu, Jayashankar Bhupalapally, Nalgonda, Pedapally, Mancherial, Jagtial, Hanamkonda, Narayanpet, Mahabubnagar and Nagarkurnool districts and water level of 5 to 10 m bgl in 51% of area (455 wells) in majority part of State. Water level of 10 to 20 m bgl is covered in 20 % of the area (239 wells) of the state, mainly in Rangareddy, Vikarabad, Hyderabad, Sangareddy, Medchal Malkajgiri, Medak, Siddipet, Mahabubnagar, Nagarkurnool, Jogulamba Gadwal, Nizamabad, Nirmal, Komarambheem Asifabad and Adilabad districts. Deeper water levels of more than 20 m are observed in 3% (73 wells) area in parts of Rangareddy, Vikarabad, Hyderabad, Sangareddy, Medak, Siddipet, Medchal Malkajgiri, Adilabad, Komarambheem Asifabad, Nizamabad and Nirmal districts.

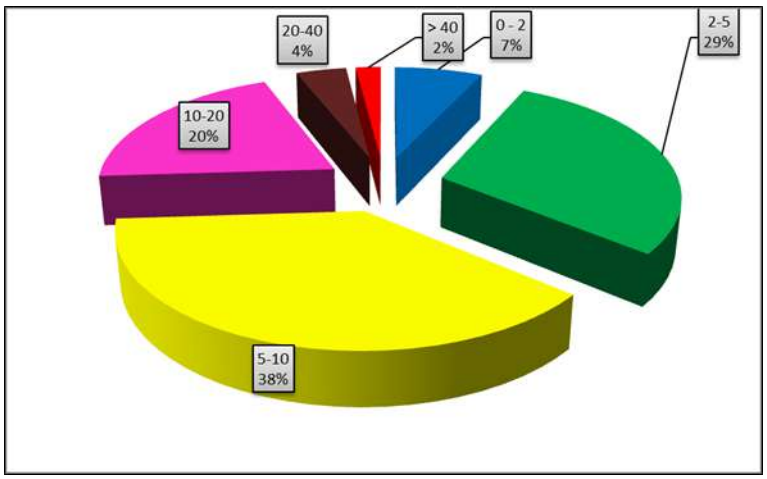


Fig.7.1: Percentage of wells in different depth ranges of ground water level May, 2023

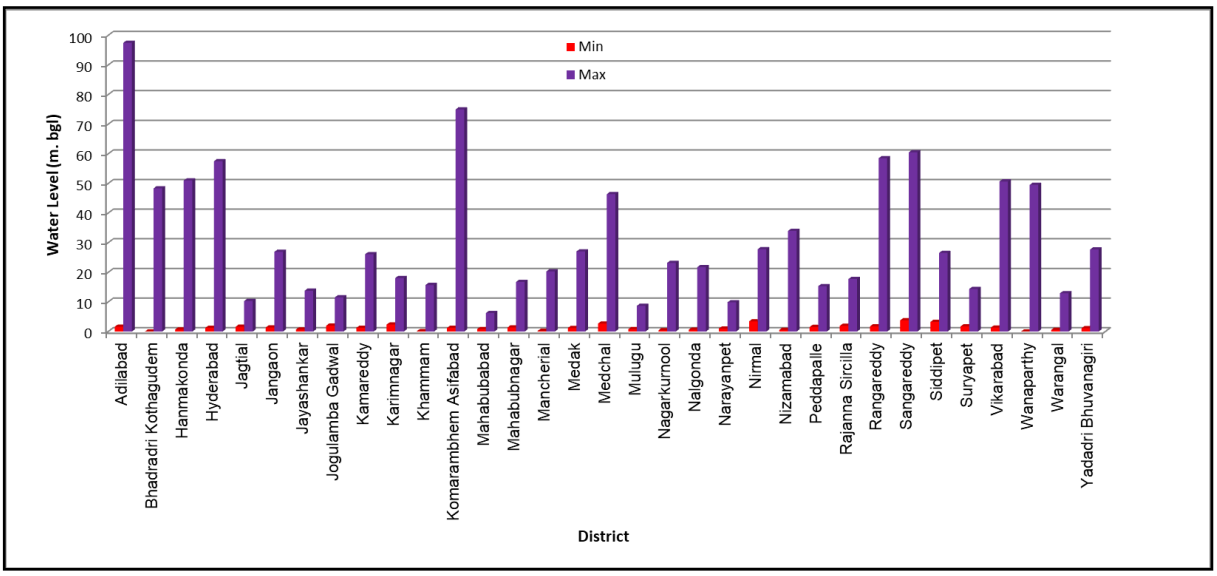


Fig.7.2: District wise minimum and maximum water levels, May 2023

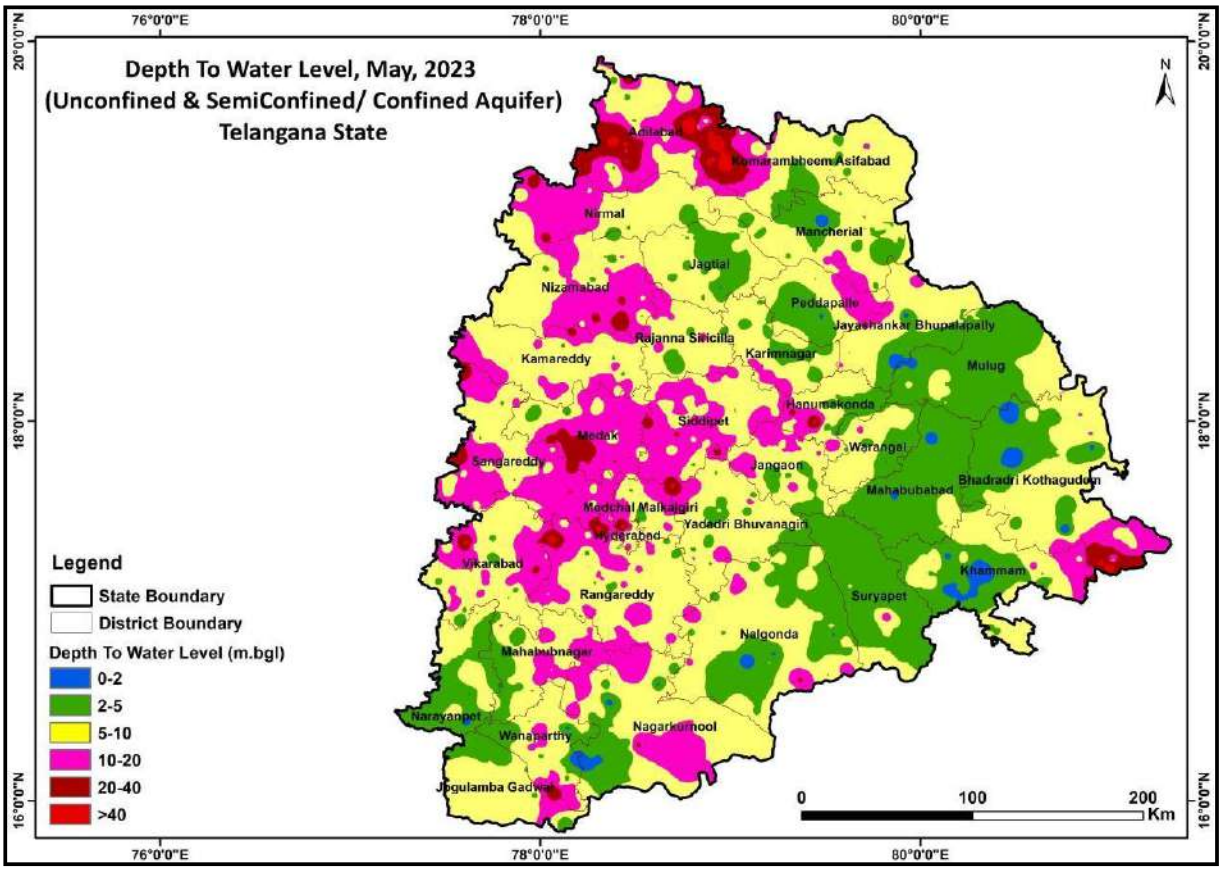


Fig.7.3: Depth to water level May, 2023 in Telangana State

7.1.2 Depth to Water Levels (August, 2023)

The depth to water level data of 1189 (unconfined and confined/semi-confined aquifers) are used for analysis. Distribution of wells in different depth ranges is depicted as pie diagram in **Fig.7.4**. District wise minimum and maximum of water level ranges given as bar diagram in **Fig.7.5** and depth to water level map is given in **Fig.7.6**

Analysis of depth to water level data of unconfined and confined/semi-confined aquifers **(Annexure - VI**) shows that water levels range between ground level (B. Kothagudem district and R. Sircilla) to 51.5 m bgl (Vikarabad district). Water level of less than 2 m bgl is recorded in 25% of wells, between 2 to 5 m bgl in 33% of wells, between 5 to 10 m bgl in 29% of wells, between 10 to 20 m bgl in 10% of wells, between 20 to 40 m bgl in 3% of wells and more than 40 m bgl in 1% wells. Depth to water level map of August, 2023 **(Fig.7.6)** shows that, shallow water level of less than 2 m bgl is noticed in 11% of State area (298 wells), mainly observed in eastern and northeastern part of the State i.e., Bhadradri Kothagudem, Khammam, Mulugu, Mahabubabad, Warangal, Jayashankar Bhupalapally and Jagtial district. Water level between 2 to 5 m bgl is noticed in 44 % of State area (391 wells), predominantly in eastern, central, northern and southwestern part of state i.e., in Nalgonda, Yadadri Bhuvanagiri, Jayashankar Bhupalapally, Jangaon, Hanamakonda, Suryapet, Karimnagar, Nirmal, Mancherial, Rajanna Sircilla, Kamareddy and Narayanpet district. Water level between 5 to 10 m bgl observed in 36% of State area (342 wells), 10 to 20 m bgl in 8 % of State area (119 wells) and of the State area. Deeper water levels of more than 20 m bgl are observed in 1% area as isolated patches in parts of Rangareddy, Vikarabad, Medak, Siddipet, Komarambheem Asifabad and B. Kothagudem districts.

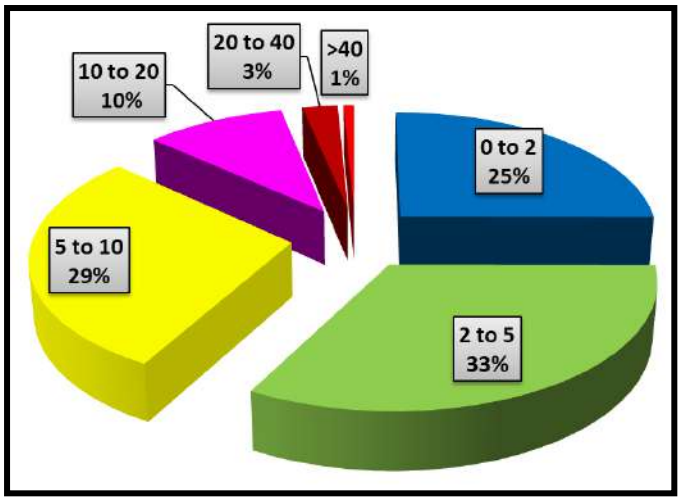


Fig.7.4: Percentage of wells in different depth ranges of DTWL

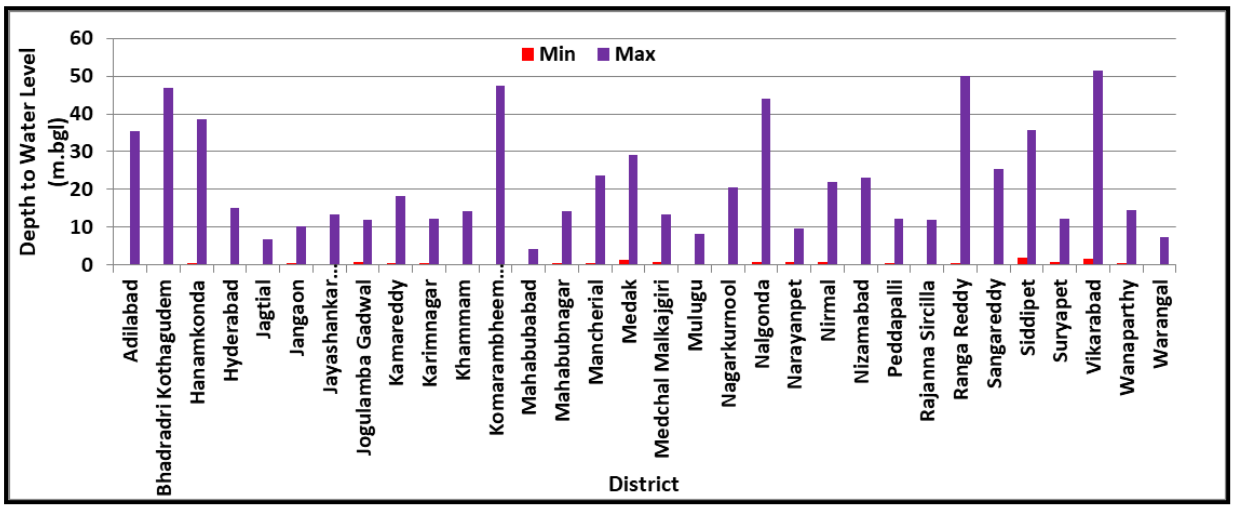


Fig.7.5: District wise minimum and maximum water levels, August 2023

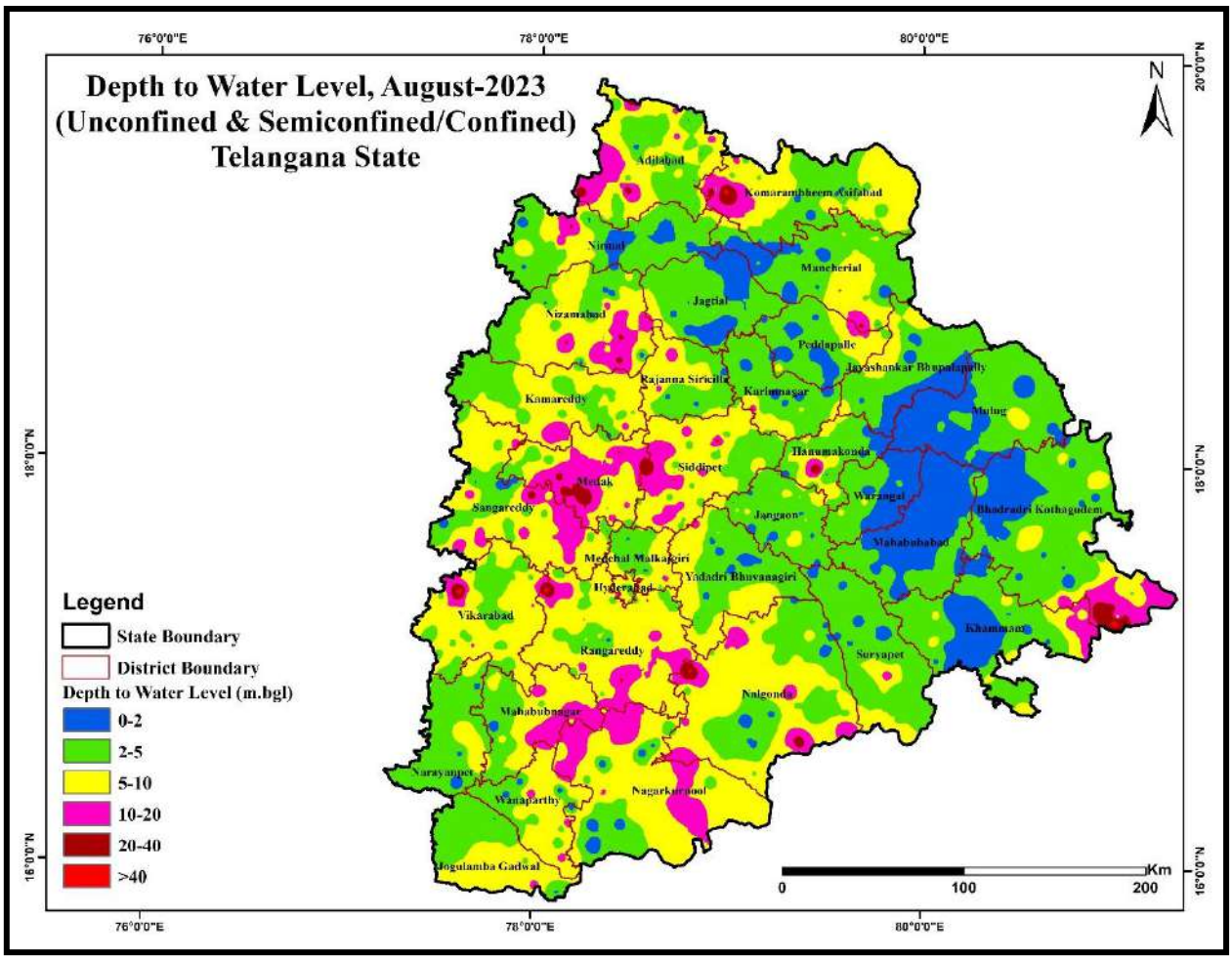


Fig.7.6: Depth to water level during August 2023 in Telangana State

7.1.3 Depth to Water Levels (November, 2023)

The depth to water level data of 1191 (unconfined and confined/semi-confined aquifers) are used for analysis. Distribution of wells in different depth ranges is depicted as pie diagram in **Fig.7.7**. District wise minimum and maximum of water level ranges given as bar diagram in **Fig.7.8** and depth to water level map is given in **Fig.7.9**.

Analysis of depth to water level data of unconfined and confined/semi-confined aquifers **(Annexure - VII**) shows that water levels range between ground level (B. Kothagudem district) to 59.59 m bgl (Hanamkonda district). Water level of less than 2 m bgl is recorded in 10% of wells, between 2 to 5 m bgl in 37% of wells, between 5 to 10 m bgl in 33% of wells, between 10 to 20 m bgl in 16% of wells, between 20 to 40 m bgl in 3% of wells and more than 40 m bgl in 1% wells. Depth to water level map of November, 2023 **(Fig.7.9)** shows that, shallow water level of less than 2 m bgl is noticed in 1% of State area (115 wells), mainly observed in parts of Bhadradri Kothagudem, Khammam, Mulugu, and Mahabubabad district. Water level between 2 to 5 m bgl is noticed in 36 % of State area (441 wells), predominantly in eastern, north eastern and southwestern part of state i.e., in Suryapet, Khammam, Bhadradri Kothagudem, Mahabubabad, Warangal, Mulugu, Jayashankar Bhupalapally, Peddapalli, Karimnagar, Rajanna Sircilla, Jagtial, Mancherial, Narayanpet and Wanaparthy district. Water level between 5 to 10 m bgl observed in 48% of State area (398 wells), 10 to 20 m bgl in 13% of State area (189 wells) of the State area. Deeper water levels of more than 20 m bgl are observed in 1% area as isolated patches in parts of Adilabad, K. Asifabad, Nirmal, B. Kothagudem, Ranga Reddy, Vikarabad, Medchal Malkajgiri and Nagarkurnool district.

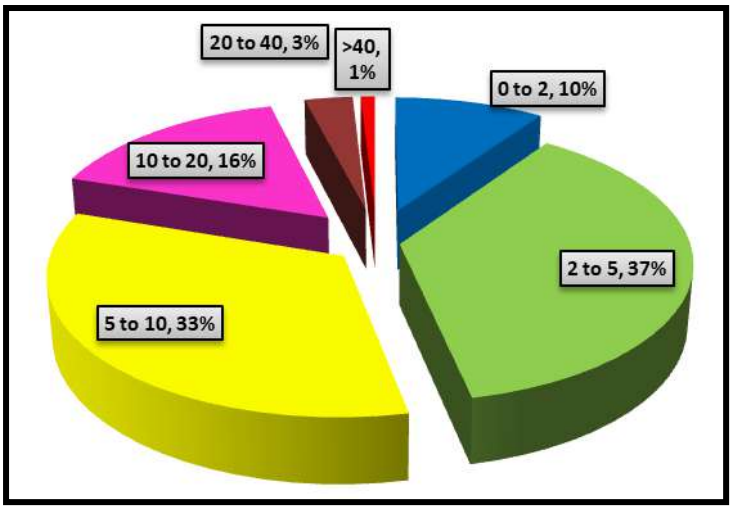


Fig.7.7: Percentage of wells in different depth ranges of DTWL

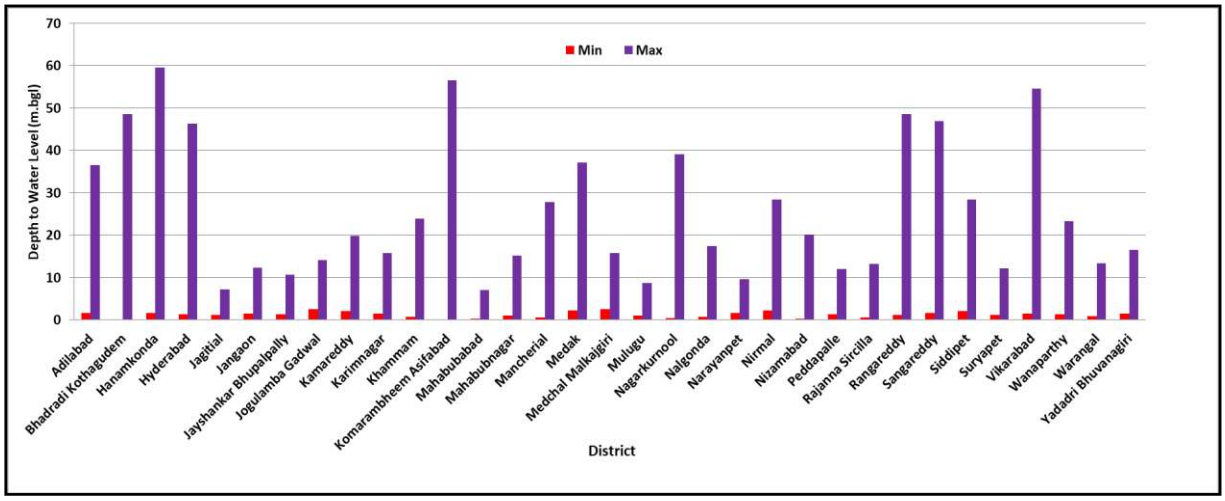


Fig.7.8: District wise minimum and maximum water levels November, 2023

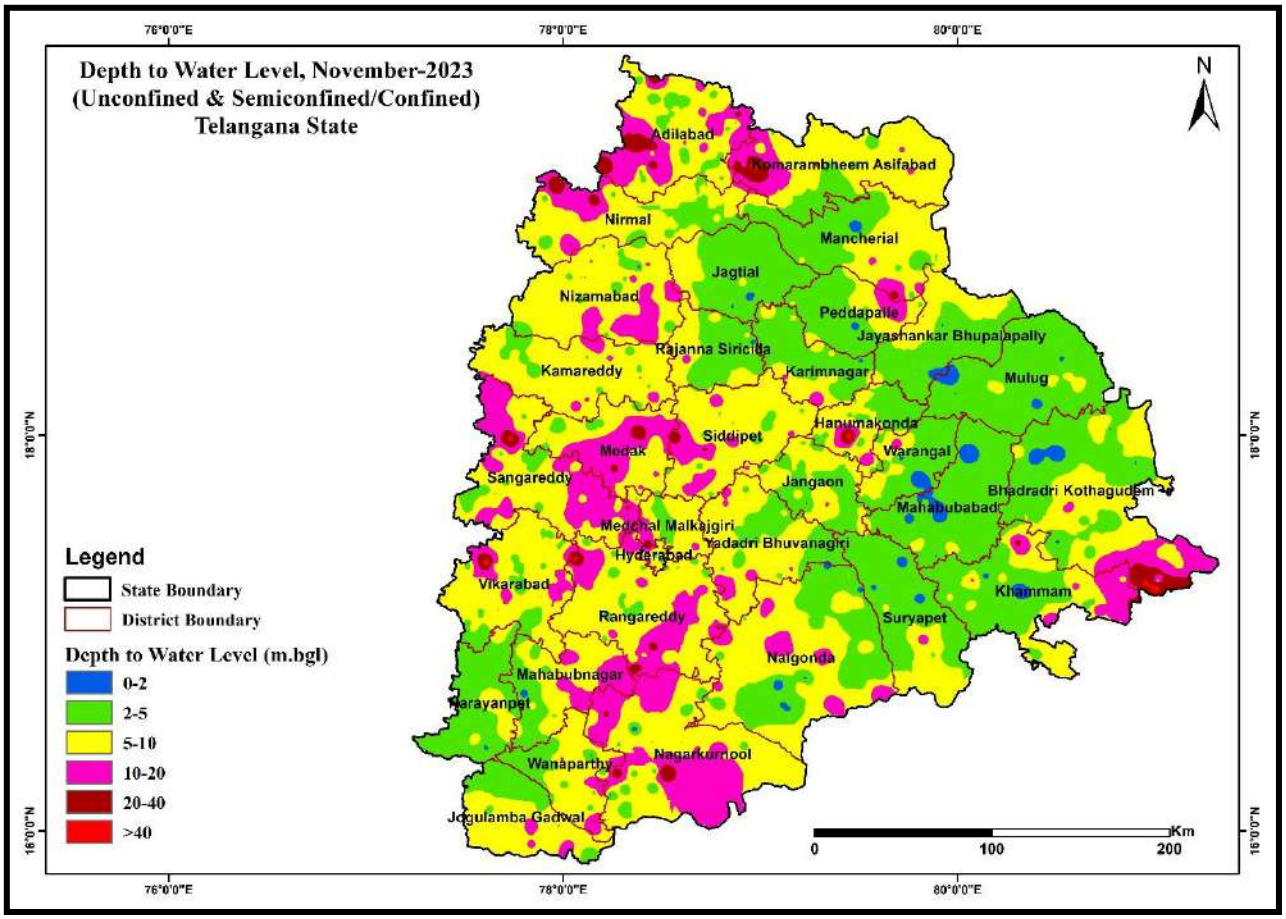


Fig.7.9: Depth to water level during November, 2023 in Telangana State

7.1.4. Depth to Water Levels (January, 2024)

The depth to water level data of 1137 (unconfined and confined/semi-confined aquifers) are used for analysis. Distribution of wells in different depth ranges is depicted as pie diagram in **Fig.7.10**. District wise minimum and maximum of water level ranges given as bar diagram in **Fig.7.11** and depth to water level map is given in **Fig.7.12**.

Analysis of depth to water level data of unconfined and confined/semi-confined aquifers **(Annexure - VIII**) shows that water levels range between ground level 0.27 m bgl (Wanaparthy district) to 66.43 m bgl (Hanamkonda district). Water level of less than 2 m bgl is recorded in 6% of wells, between 2 to 5 m bgl in 31% of wells, between 5 to 10 m bgl in 38% of wells, between 10 to 20 m bgl in 21% of wells, between 20 to 40 m bgl in 3% of wells and more than 40 m bgl in 1% wells. Depth to water level map of January, 2024 **(Fig.7.12)** shows that, shallow water level of less than 2 m bgl is noticed in <1% of State area (70 wells), mainly observed in parts of Bhadradri Kothagudem, Khammam, Mulugu, Jagtial and Mahabubabad district. Water level between 2 to 5 m bgl is noticed in 28 % of State area (350 wells), predominantly in eastern, north eastern and southwestern part of state i.e., in Suryapet, Khammam, Bhadradri Kothagudem, Mahabubabad, Warangal, Mulugu, Jayashankar Bhupalapally, Peddapalli, Rajanna Sircilla, Jagtial, Mancherial, Narayanpet and Wanaparthy district. Water level between 5 to 10 m bgl observed in 49% of State area (429 wells) and 10 to 20 m bgl in 21% of State area (234 wells). Deeper water levels of more than 20 m bgl are observed in 2% area as isolated patches in parts of Adilabad, K. Asifabad, Nirmal, B. Kothagudem, Nizamabad, Ranga Reddy, Vikarabad, Medchal Malkajgiri, Nalgonda and Nagarkurnool district.

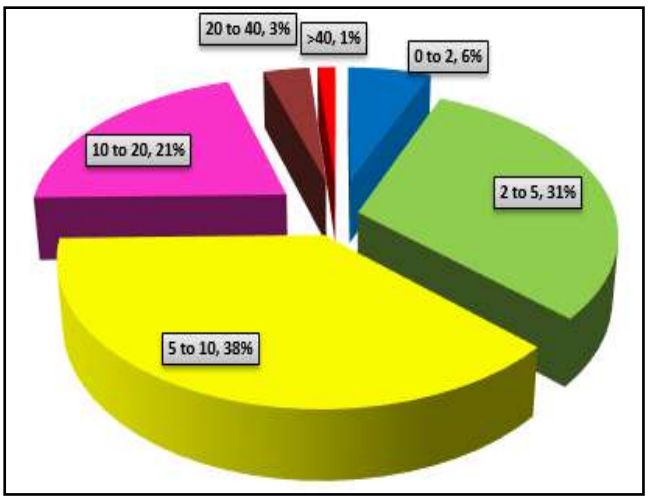


Fig.7.10: Percentage of wells in different depth ranges of DTWL

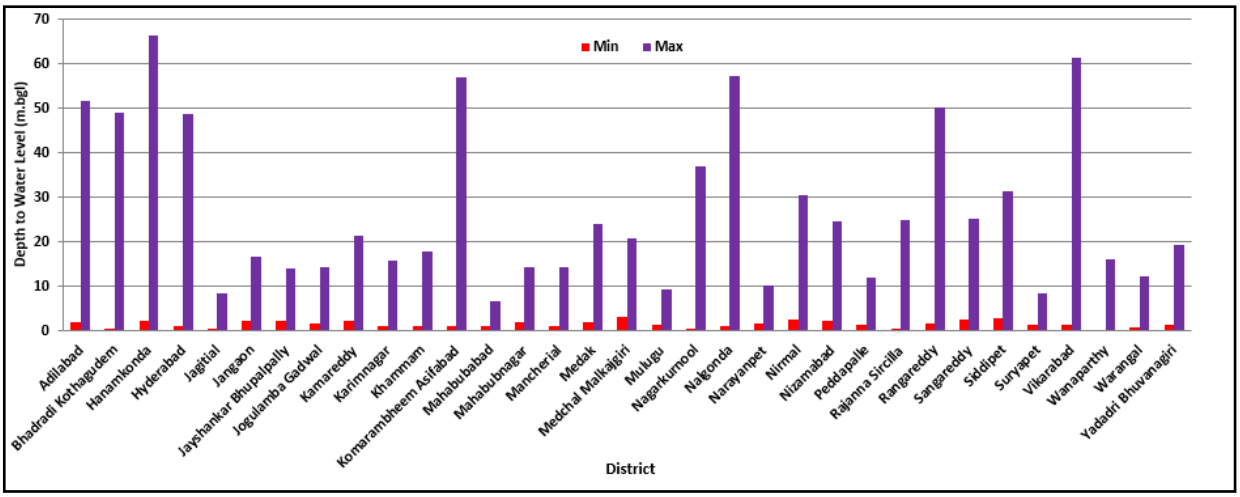


Fig.7.11: District wise minimum and maximum water levels January, 2024

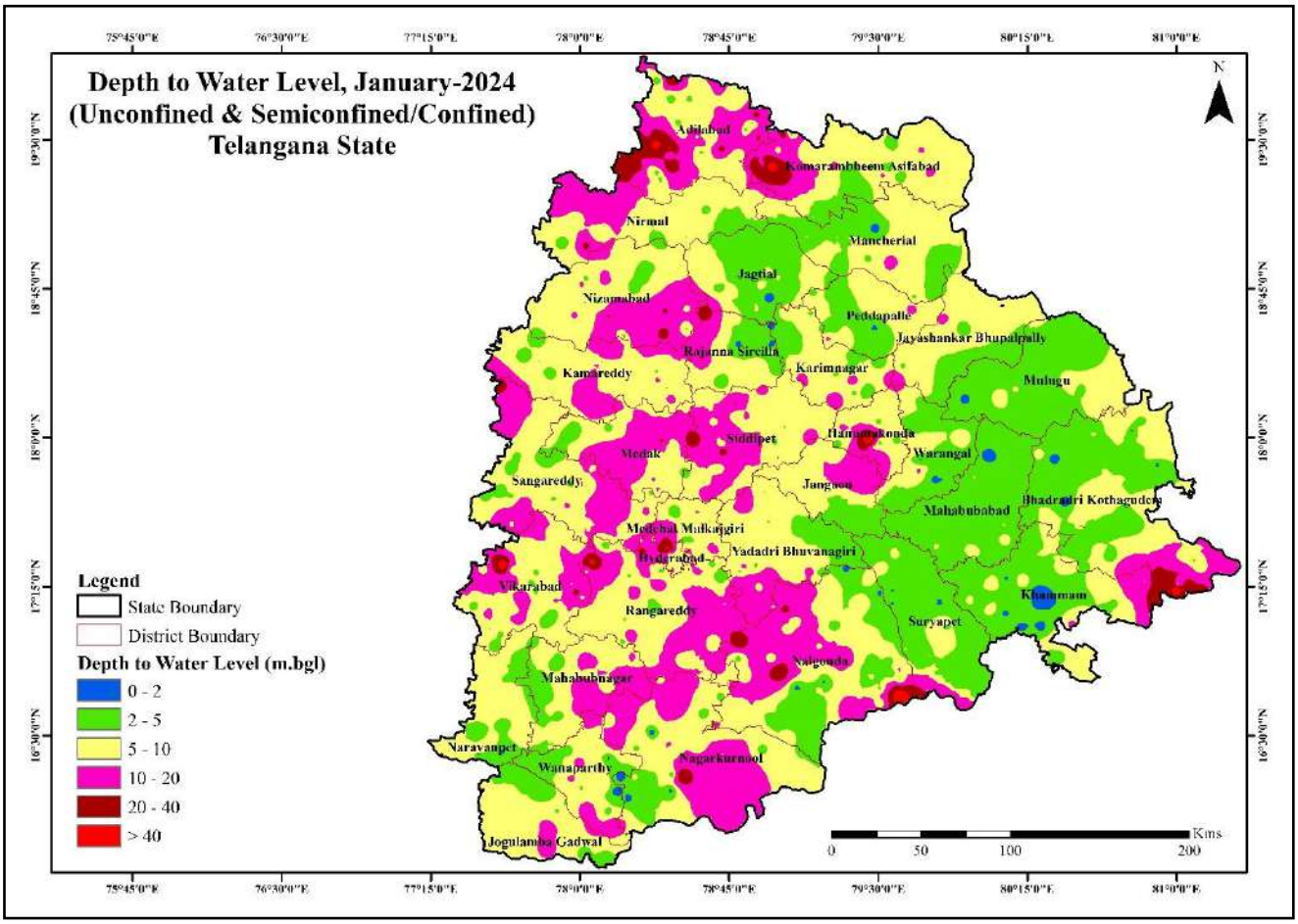


Fig.7.12: Depth to water level during January, 2024 in Telangana State

7.2 Piezometric Head (Confined/Semi-confined)

7.2.1 Piezometric Head (May, 2023)

The Piezometric head data of 561 confined /semiconfined aquifers used for analysis. Distribution of piezometric heads in different depth ranges is depicted as pie diagram in **Fig.7.13**. District wise minimum and maximum of water level ranges given as bar diagram in **Fig.7.14** and depth to water level map is given in **Fig.7.15**.

Analysis of depth to water level data **(Annexure - IX**) shows that water levels range between ground level (B. Kothagudem district) to 75 m bgl (K.B.Asifabad district). Water level of less than 2 m bgl is recorded in 6% of wells, between 2 to 5 m bgl in 25% of wells, between 5 to 10 m bgl in 35% of wells, between 10 to 20 m bgl in 24% of wells, between 20 to 40 m bgl in 6% of wells and more than 40 m bgl in 3% wells. Depth to water level map of May, 2023 **(Fig.7.15)** shows that, shallow water level of less than 2 m bgl is noticed in 1 % of State area observed in Warangal, Khammam, Mahabubabad, Nalgonda, Mahabubnagar, Nalgonda, Khammam and Nagarkurnool district. Water level between 2 to 5 m bgl is noticed in 20 % of State area predominantly in southern, south-eastern and northeastern parts of State i.e., Yadadri Bhuvanagiri, Suryapet, Bhadradri Kothagudem, Mahabubabad, Warangal, Karimnagar, Peddapalle, Jagtial, Wanaparthy and Nagarkurnool district. Water level between 5 to 10 m bgl observed in 48% and 10 to 20 m bgl in 26 % of State area (in 42 wells). Deeper water levels of more than 20 m is observed in 6% of State area in parts of Bhadradri Kothagudem, Vikarabad, Komarambheem Asifabad, Medak, Medchal Malkajgiri and Adilabad district.

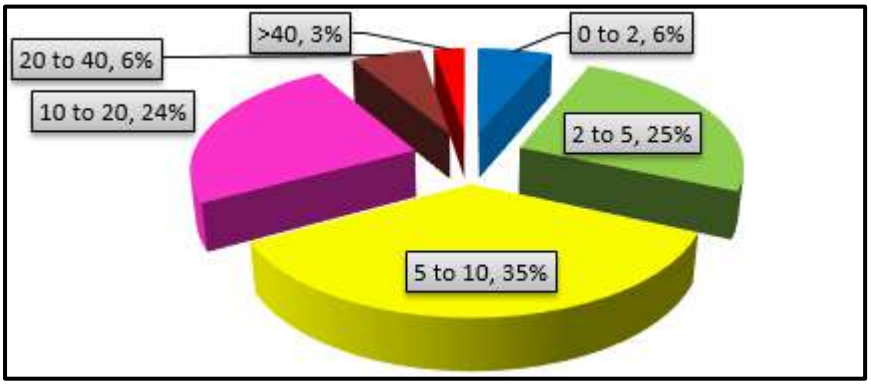


Fig.7.13: Percentage of wells (Confined/Semiconfined) in different ranges of Piezometric Head, May 2023

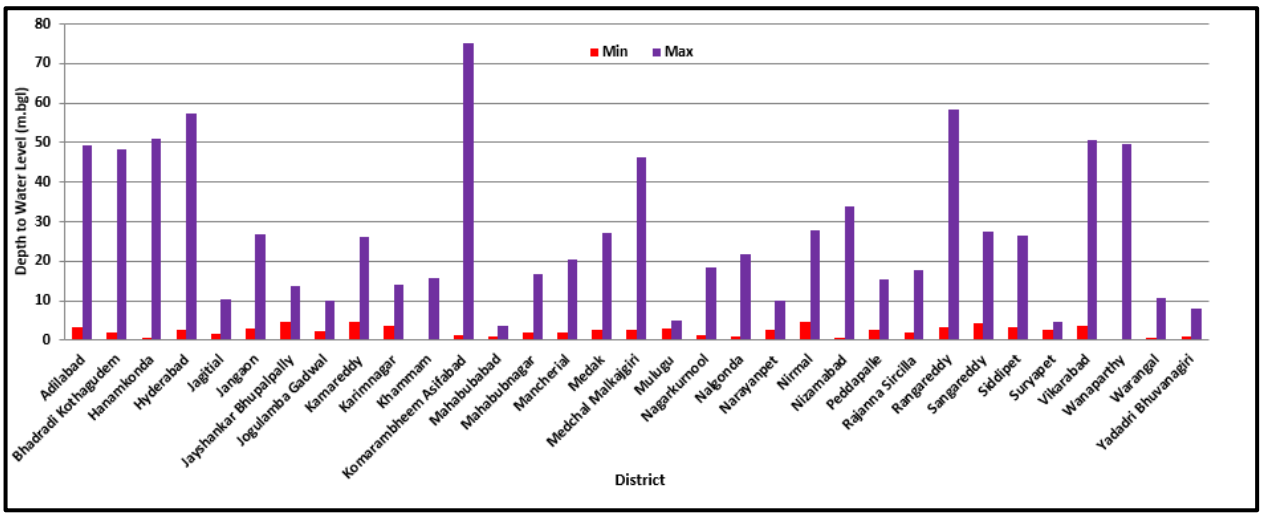


Fig.7.14: District wise minimum and maximum Piezometric heads of Confined/Semi-confined Aquifer, May 2023

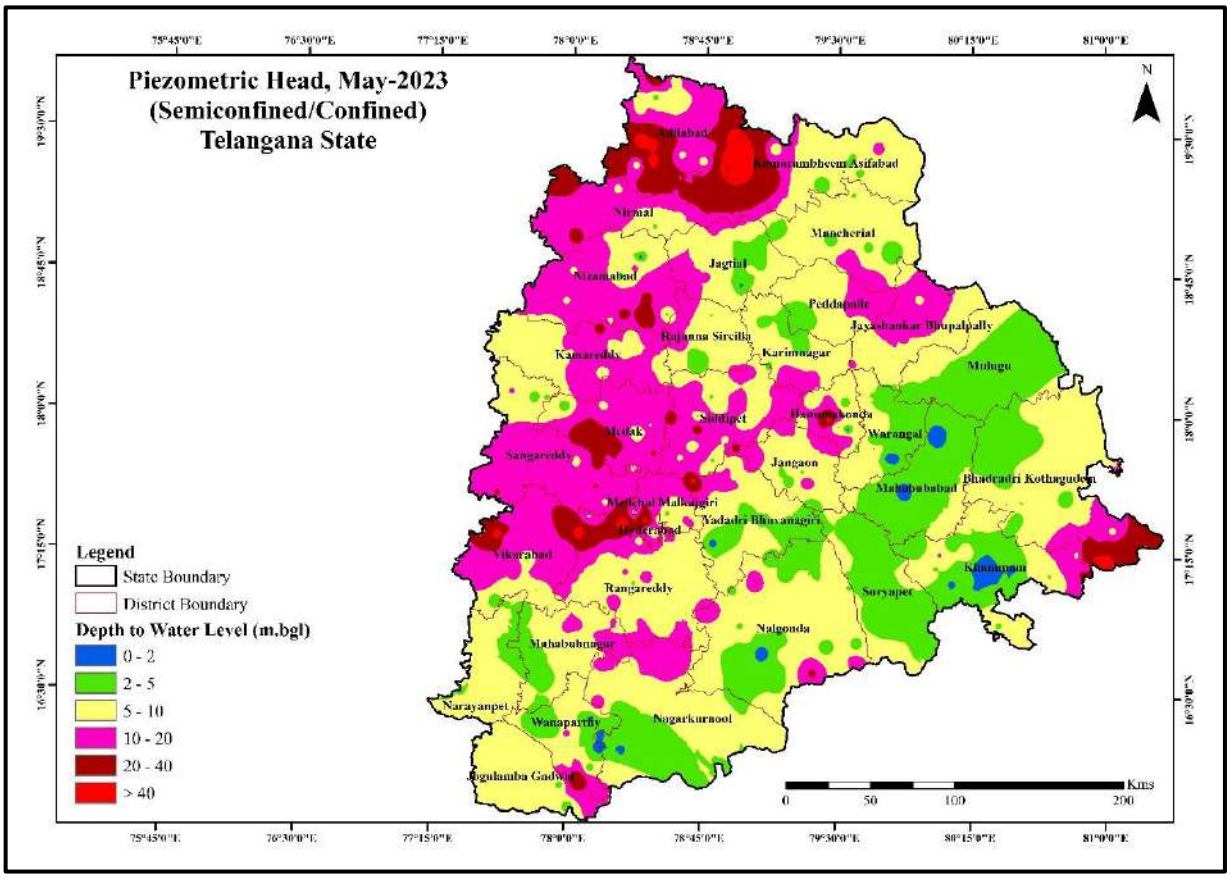


Fig.7.15: Piezometric head of Confined/Semi-confined Aquifer, May 2023 in Telangana State

7.2.2 Piezometric Head (August, 2023)

The Piezometric head data of 562 confined /semiconfined aquifers used for analysis. Distribution of piezometric heads in different depth ranges is depicted as pie diagram in **Fig.7.16**. District wise minimum and maximum of water level ranges given as bar diagram in **Fig.7.17** and depth to water level map is given in **Fig.7.18**.

Analysis of depth to water level data **(Annexure - X**) shows that water levels range between ground level (B. Kothagudem district) to 51.5 m bgl (Vikarabad district). Water level of less than 2 m bgl is recorded in 20% of wells, between 2 to 5 m bgl in 31% of wells, between 5 to 10 m bgl in 31% of wells, between 10 to 20 m bgl in 13% of wells, between 20 to 40 m bgl in 4% of wells and more than 40 m bgl in 1% wells. Depth to water level map of August, 2023 **(Fig.7.18)** shows that, shallow water level of less than 2 m bgl is noticed in 7 % of State area (in 110 wells) mainly observed in eastern part of State i.e., Bhadradri Kothagudem, Khammam and Mahabubabad district. Water level between 2 to 5 m bgl is noticed in 35 % of State area (in 172 wells) predominantly in eastern, northeastern and southwestern parts of State i.e., Yadadri Bhuvanagiri, Suryapet, Khammam, Bhadradri Kothagudem, Mahabubabad, Warangal, Jangaon, Karimnagar, R. Sircilla, Peddapally, Jagtial, Narayanpet, J. gadwall, Wanaparthy and Nagarkurnool district. Water level between 5 to 10 m bgl observed in 43% and 10 to 20 m bgl in 13 % of State area (in 52 wells). Deeper water levels of more than 20 m is observed in 2% of State area as isolated patches in parts of Bhadradri Kothagudem, Nalgonda, Vikarabad, Komarambheem Asifabad, Medak, Vikarabad and Rangareddy district.

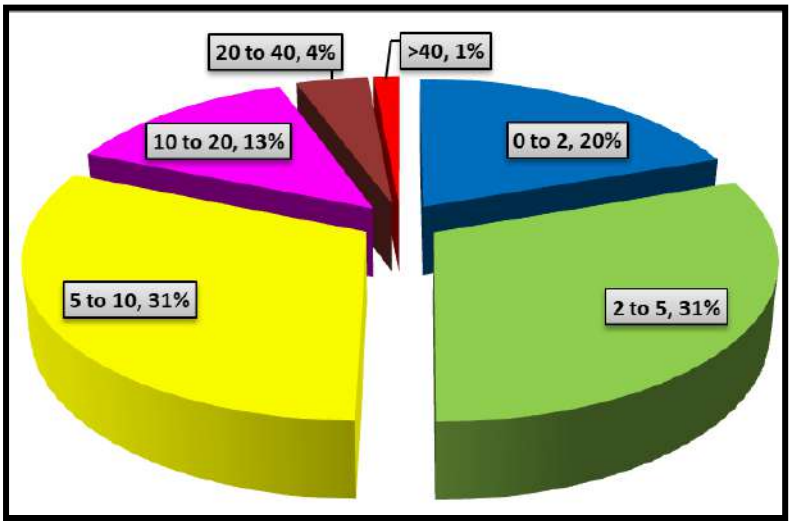


Fig.7.16: Percentage of wells (Confined/Semiconfined) in different ranges of Piezometric Head, August 2023

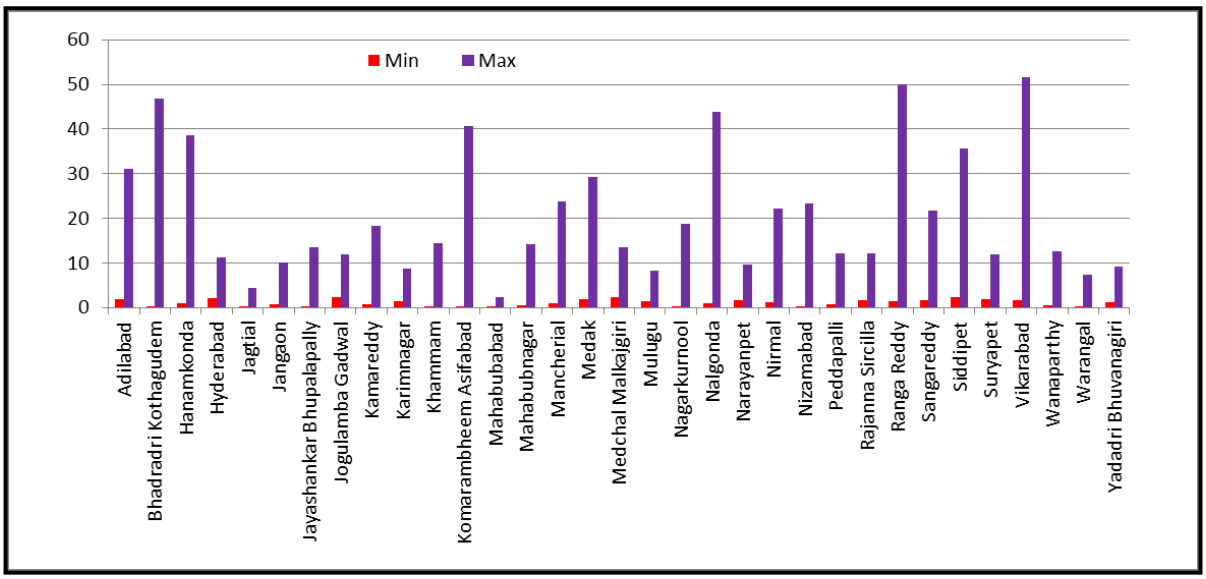


Fig.7.17: District wise minimum and maximum Piezometric heads of Confined/Semi-confined Aquifer, August 2023

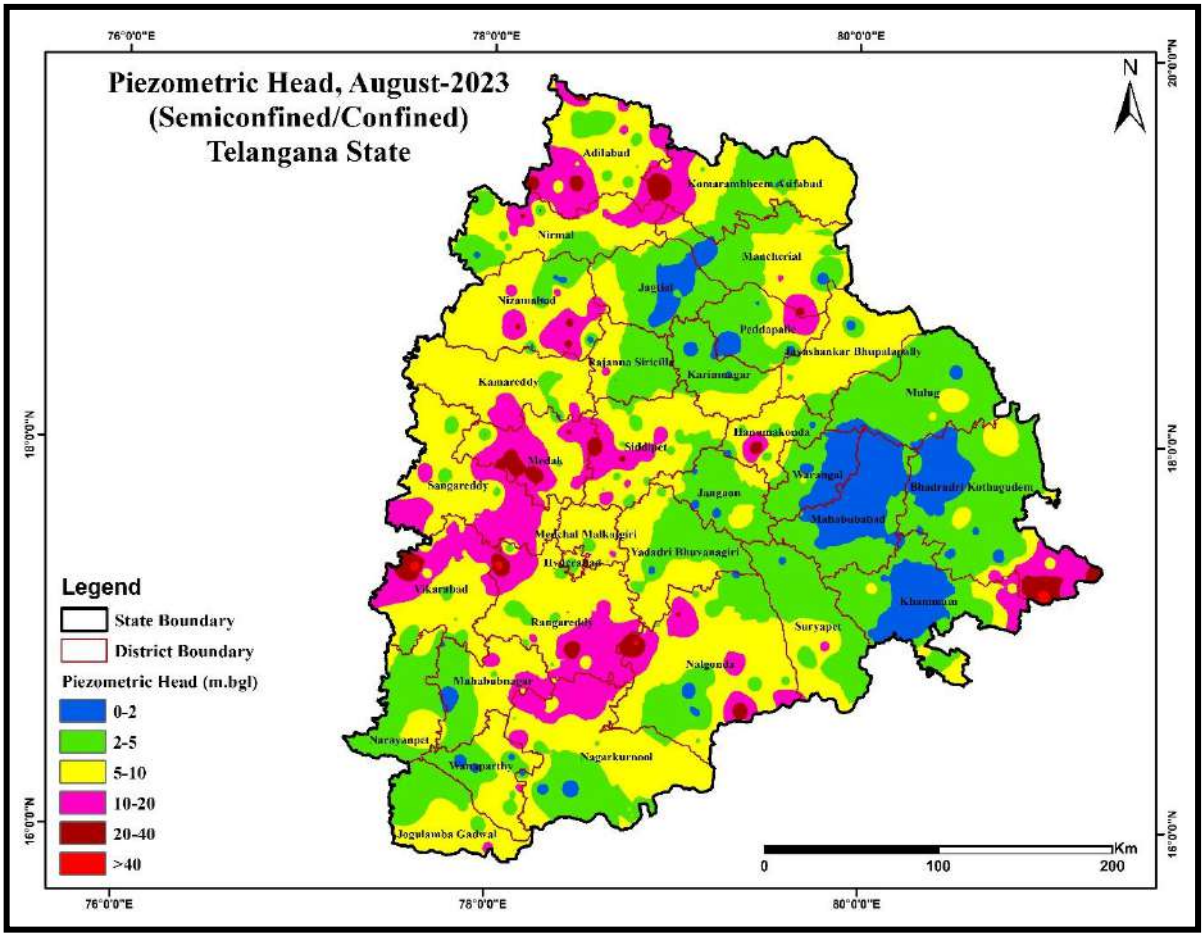


Fig.7.18: Piezometric head of Confined/Semi-confined Aquifer, August 2023 in Telangana State

7.2.3. Piezometric Head (November, 2023)

The Piezometric head data of 561 confined /semiconfined aquifers used for analysis. Distribution of piezometric heads in different depth ranges is depicted as pie diagram in **Fig.7.19**. District wise minimum and maximum of water level ranges given as bar diagram in **Fig.7.20** and depth to water level map is given in **Fig.7.21**.

Analysis of depth to water level data **(Annexure - XI**) shows that water levels range between 0.28 (Nizamabad district) to 59.59 m bgl (Hanamkonda district). Water level of less than 2 m bgl is recorded in 10% of wells, between 2 to 5 m bgl in 29% of wells, between 5 to 10 m bgl in 34% of wells, between 10 to 20 m bgl in 21% of wells, between 20 to 40 m bgl in 5% of wells and more than 40 m bgl in 2% wells. Depth to water level map of November, 2023 **(Fig.7.21)** shows that, shallow water level of less than 2 m bgl is noticed in 1 % of State area (in 55 wells) mainly observed as isolated patches in parts of Bhadradri Kothagudem, Mahabubabad, Warangal, Mulug, Nalgonda, Khammam and Mahabubnagar districts. Water level between 2 to 5 m bgl is noticed in 25 % of State area (in 162 wells) predominantly in eastern, northeastern and southwestern parts of State i.e., Yadadri Bhuvanagiri, Suryapet, Khammam, Bhadradri Kothagudem, Mahabubabad, Warangal, Jangaon, Karimnagar, R. Sircilla, Peddapally, Jagtial, Narayanpet, J. Gadwal, Wanaparthy and Nagarkurnool district. Water level between 5 to 10 m bgl observed in 52% (191 wells) and 10 to 20 m bgl in 20 % of State area (in 117 wells). Deeper water levels of more than 20 m is observed in 2% of State area as isolated patches in parts of Bhadradri Kothagudem, Vikarabad, Komarambheem Asifabad, Adilabad, Nirmal, Medak and Rangareddy district.

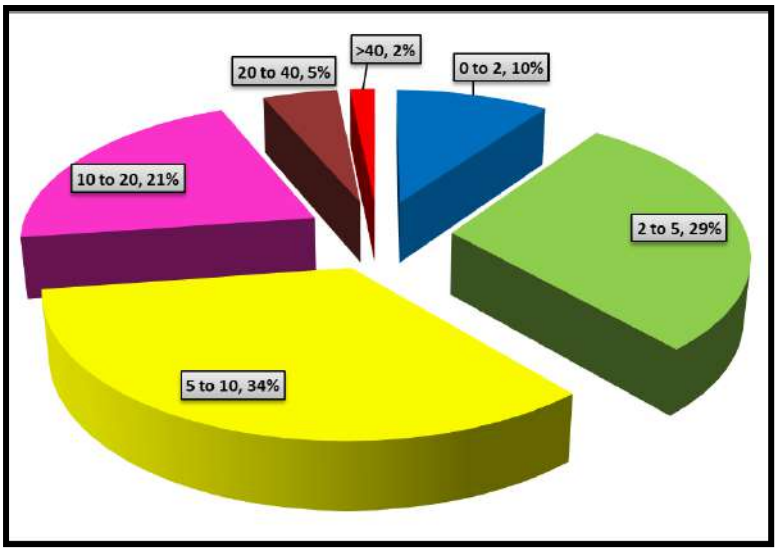


Fig.7.19: Percentage of wells (Confined/Semiconfined) in different ranges of Piezometric Head, November 2023

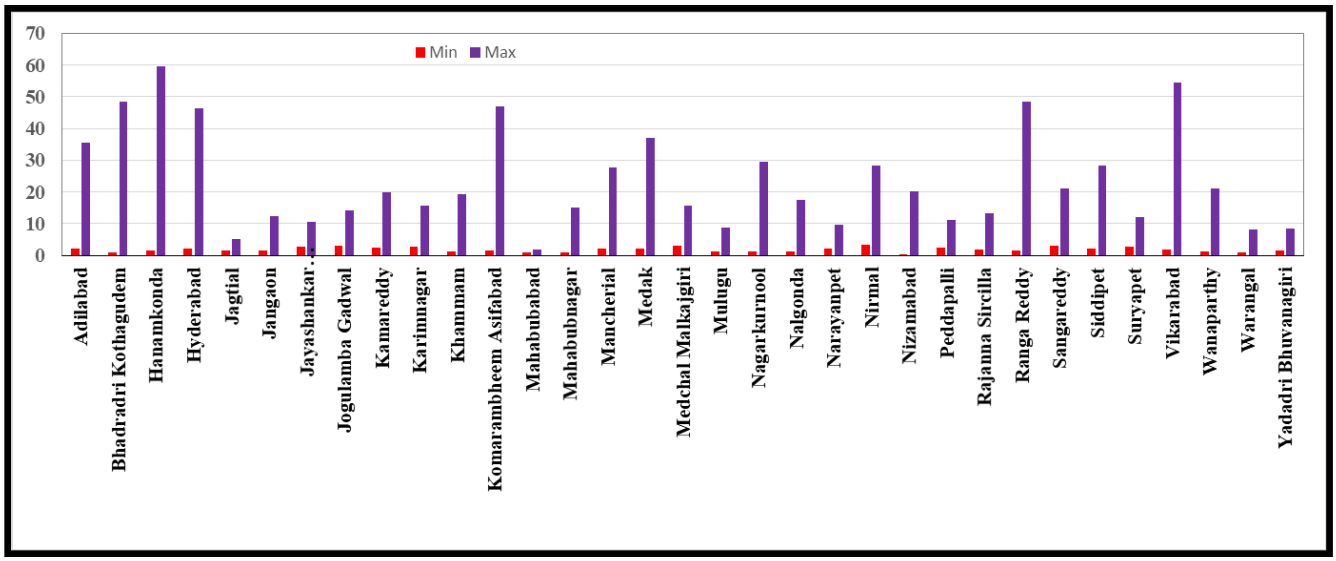


Fig.7.20: District wise minimum and maximum Piezometric heads of Confined/Semi-confined Aquifer, November 2023

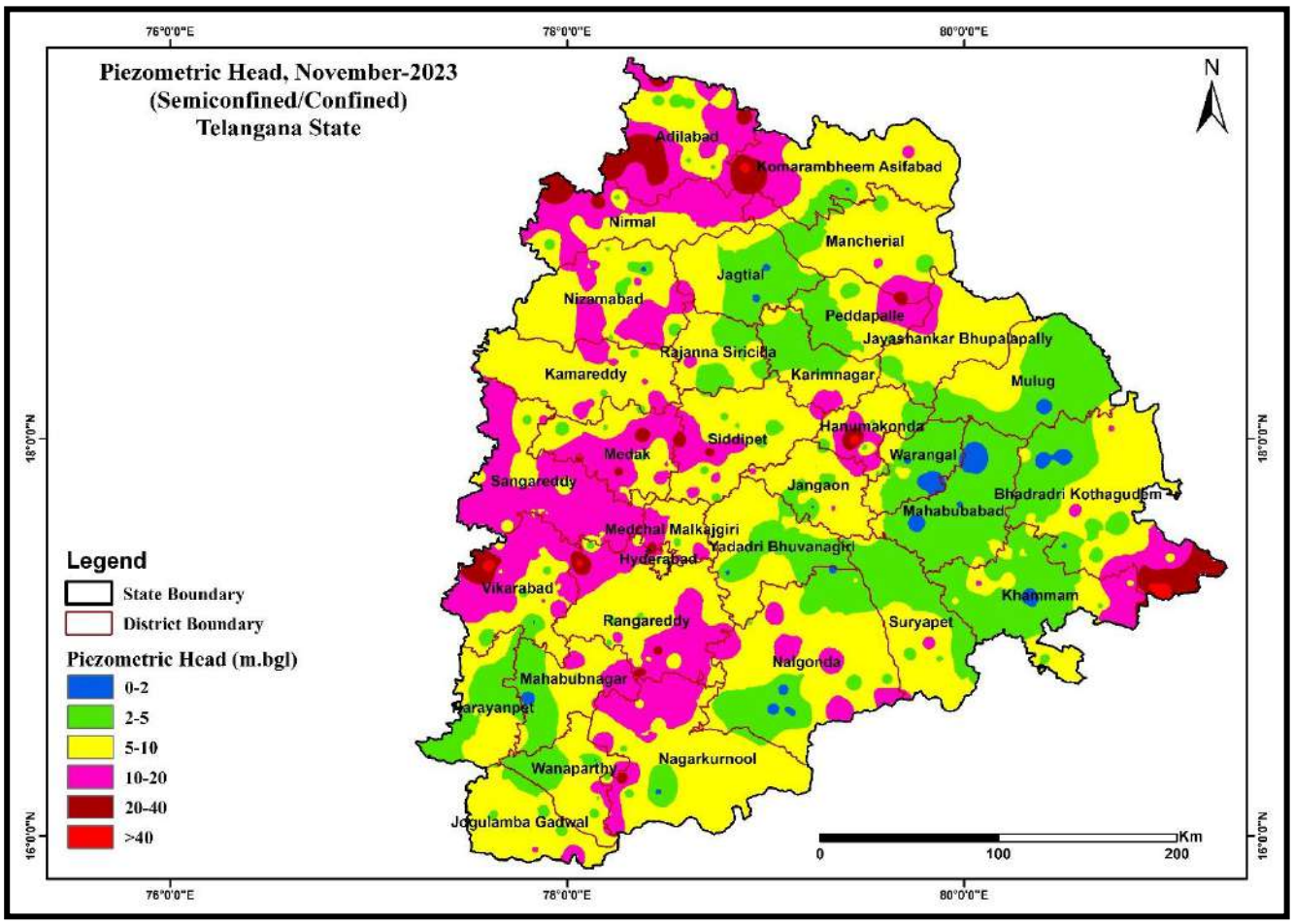


Fig.7.21: Piezometric head of Confined/Semi-confined Aquifer, November 2023 in Telangana State

7.2.4 Piezometric Head (January, 2024)

The Piezometric head data of 538 confined /semiconfined aquifers used for analysis. Distribution of piezometric heads in different depth ranges is depicted as pie diagram in **Fig.7.22**. District wise minimum and maximum of water level ranges given as bar diagram in **Fig.7.23** and depth to water level map is given in **Fig.7.24**.

Analysis of depth to water level data **(Annexure - XII**) shows that water levels range between 0.27 (Wanaparthy district) to 66.43 m bgl (Hanamkonda district). Water level of less than 2 m bgl is recorded in 6% of wells, between 2 to 5 m bgl in 23% of wells, between 5 to 10 m bgl in 37% of wells, between 10 to 20 m bgl in 25% of wells, between 20 to 40 m bgl in 5% of wells and more than 40 m bgl in 3% wells. Depth to water level map of January, 2024 **(Fig.7.24)** shows that, shallow water level of less than 2 m bgl is noticed in 1 % of State area (in 34 wells) mainly observed as isolated patches in parts of Bhadradri Kothagudem, Mahabubabad, Warangal, Wanaparthy Nagarkurnool, Nalgonda, Khammam and Jagtial districts. Water level between 2 to 5 m bgl is noticed in 19 % of State area (in 126 wells) predominantly in eastern, northeastern and southwestern parts of State i.e., Suryapet, Khammam, Bhadradri Kothagudem, Mahabubabad, Mulugu Warangal, Karimnagar, R. Sircilla, Jagtial, Narayanpet, Mahabubnagar, Mancherial, Wanaparthy and Nagarkurnool district. Water level between 5 to 10 m bgl observed in 47% (200 wells) and 10 to 20 m bgl in 29 % of State area (in 137 wells). Deeper water levels of more than 20 m is observed in 4% of State area as isolated patches in parts of Bhadradri Kothagudem, Vikarabad, Komarambheem Asifabad, Adilabad, Nalgonda, Siddipet, Medchal Malkajgiri, Hanamkonda and Rangareddy district.

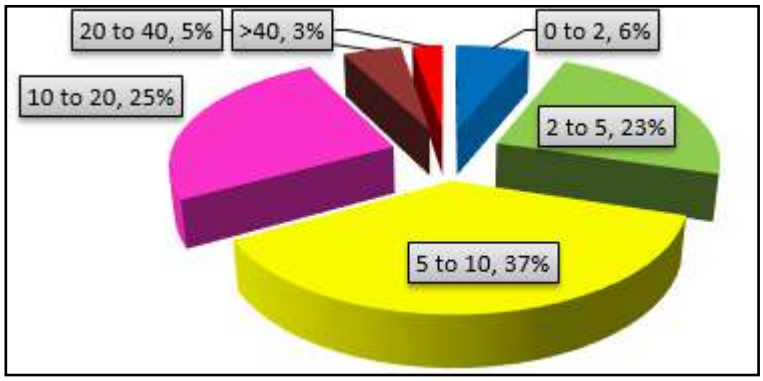


Fig.7.22: Percentage of wells (Confined/Semiconfined) in different ranges of Piezometric Head, January 2024

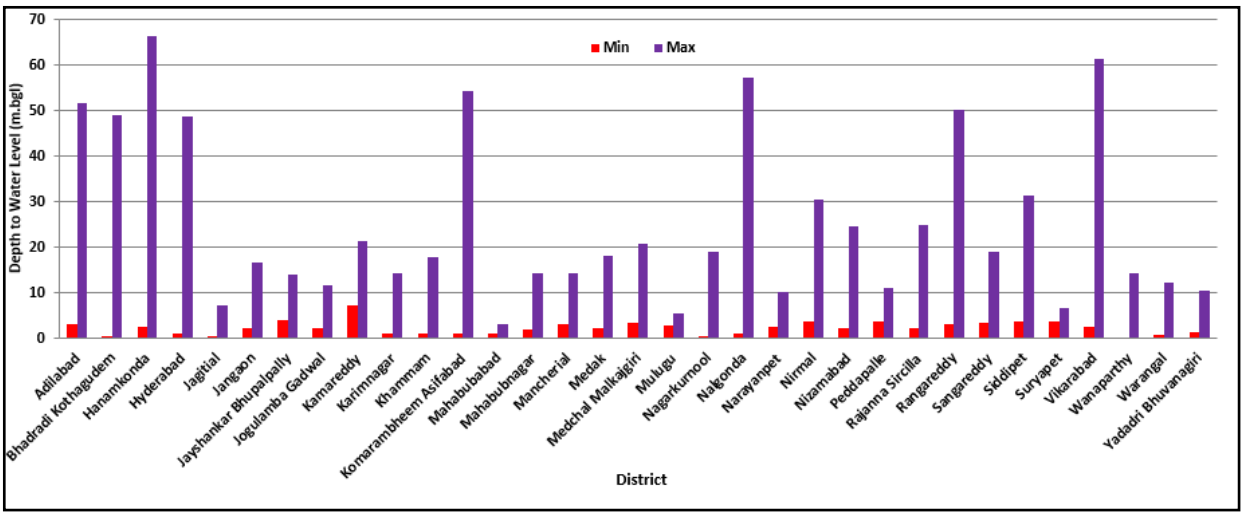


Fig.7.23: District wise minimum and maximum Piezometric heads of Confined/Semi-confined Aquifer, January 2024

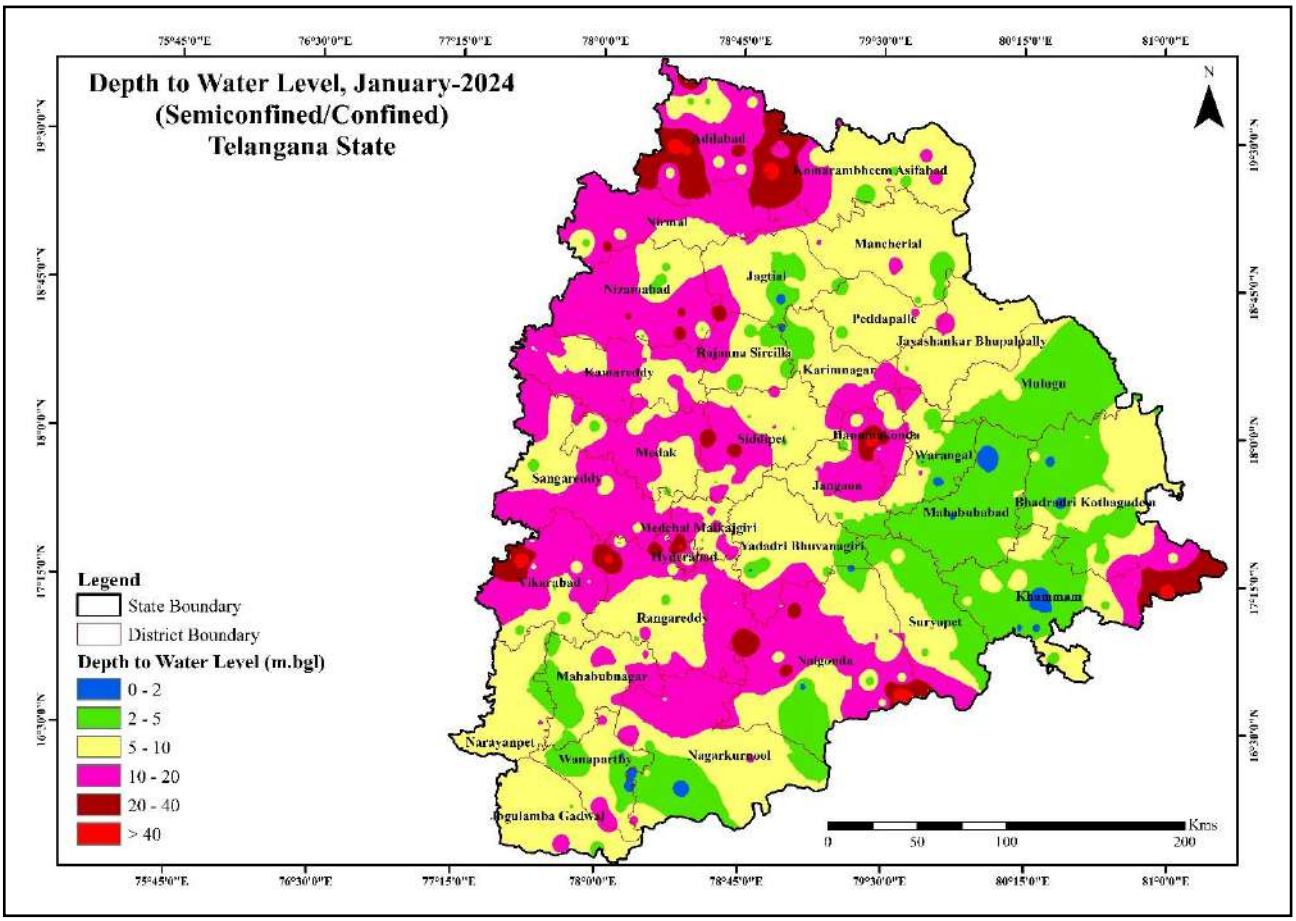


Fig.7.24: Piezometric head of Confined/Semi-confined Aquifer, January 2024 in Telangana State

7.3 Water Level Fluctuation with pre-monsoon water level

7.3.1 Seasonal Fluctuation: May 2023 to August 2023

Water level fluctuation of May 2023 with August 2023 is presented in **Annexure - XIII.** Analyzing data of 1146 wells shows that water level rise is recorded in 84% of wells (in 961 wells) and water level fall is recorded in 16% of wells (in 185 wells). Percentage of wells showing fluctuation from May 2023 to August 2023 is represented in bar diagram **(Fig.7.25)**. Map representing water level fluctuations from May 2023 to August 2023 are given in **Fig.7.26**.

Rise in water level:

In the state about 87% of the area (in 961 wells) experienced rise in water levels compared with pre-monsoon period (May 2022). Out of 961 wells that have registered rise in water level, 41% of wells have recorded less than 2 m rise, 28% of wells in the range of 2 to 4 m and the remaining 31% of wells recorded more than 4 m rise. Rise in water level of less than 2 m is mainly observed in parts of Komarambheem Asifabad, Mancherial, Mulugu, Bhadradri Kothagudem, Khammam, Suryapet, Nalgonda, Mahabubnagar, Jogulamba Gadwal, Narayanpet and Nagarkurool district. Water level rise of 2 to 4 m is predominantly observed in Jayashankar Bhupalapally, Mulugu, Bhadradri Kothagudem, Mahabubabad, Vikarabad, Yadadri Bhuvanagiri, Warangal, Hanumakonda, Karimnagar, Peddapalle, Nizamabad, jagtial, Kamareddy Sangareddy, Medak and Siddipet district. Rise in water level of more than 4 m is significantly observed in Adilabad, Nirmal, K. Asifabad, Nizamabad, Sangareddy, Vikarabad, Ranga Reddy, Medchal Malkajgiri, Jangaon, Hanumakonda, Karimnagar and Wanaparthy district.

Fall in water level:

In the state, 13% of the area (in 185 wells) experienced fall in water levels compared to the pre-monsoon period (May 2022). Out of the 185 wells, 68% of wells have recorded less than 2 m fall in parts of Nalgonda, Suryapet, Nagarkurnool, Rangareddy and Narayanpet district. 15% of wells are in the range of 2 to 4 m and observed as isolated patches in Nalgonda, Suryapet, Rangareddy, Wanaparthy, Rangareddy, Siddipet and Sangareddy district. 17 % of wells are in range of > 4m and observed as small specks in parts Nalgonda, Nagarkurnool, Siddipet, Wanaparthy and Rangareddy district.

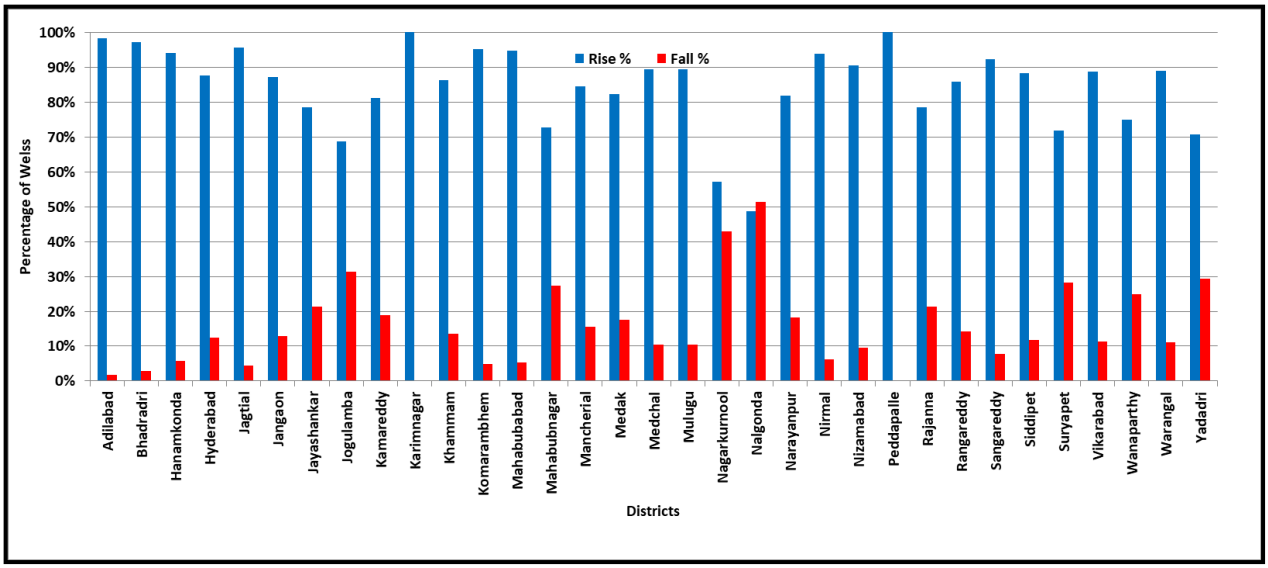


Fig. 7.25: Percentage of wells showing fluctuations May 2023 to August 2023

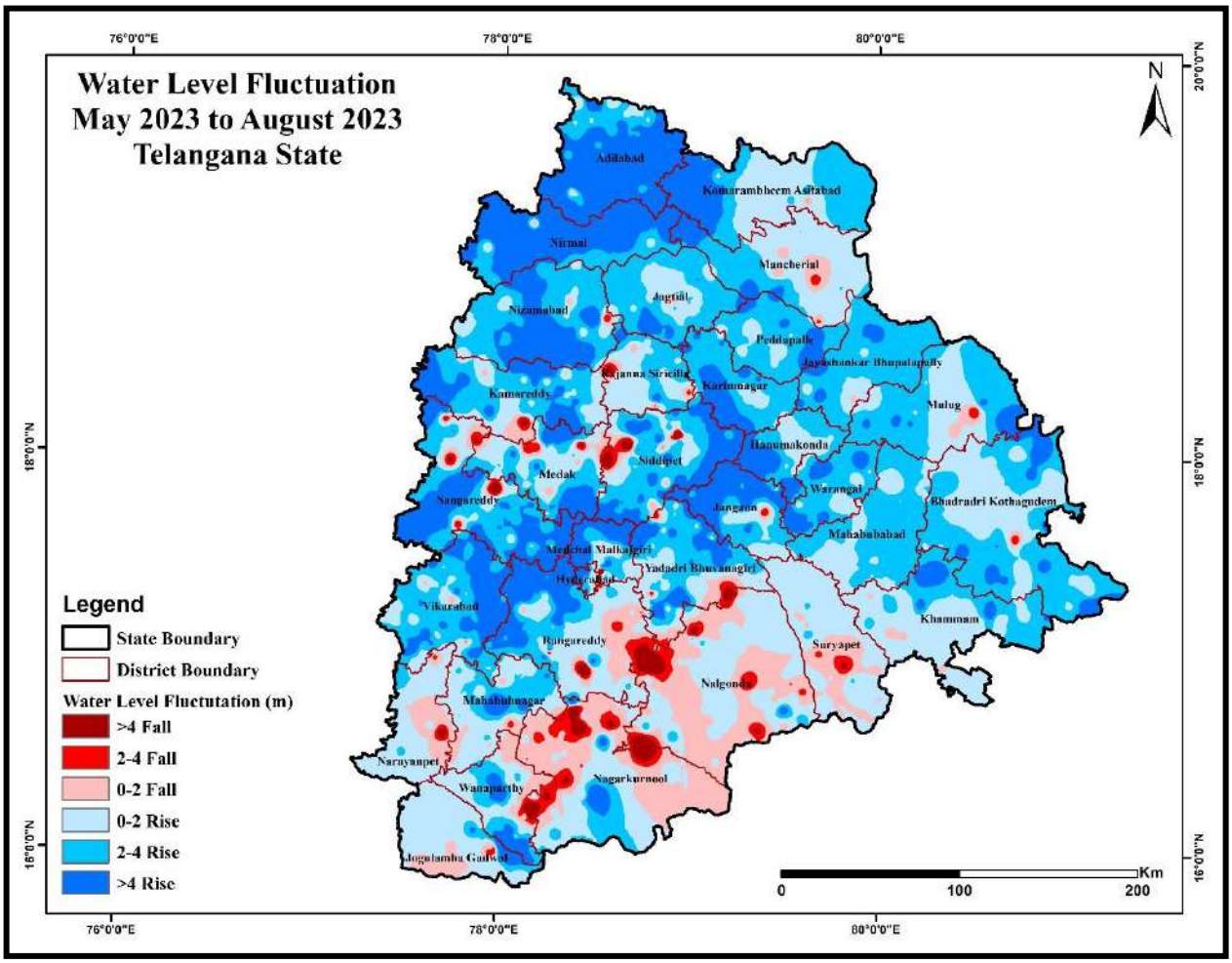


Fig. 7.26: Water Level Fluctuations May 2023 to August 2023

7.3.2 Seasonal Fluctuation: May 2023 to November 2023

Water level fluctuation of May 2023 with November 2023 is presented in **Annexure - XIV.** Analyzing data of 1147 wells shows that water level rise is recorded in 69% of wells (in 794 wells) and water level fall is recorded in 31% of wells (in 353 wells). Percentage of wells showing fluctuation from May 2023 to November 2023 is represented in bar diagram **(Fig.7.27)**. Map representing water level fluctuations from May 2023 to November 2023 are given in **Fig.7.28**.

Rise in water level:

In the state about 76% of the area (in 794 wells) experienced rise in water levels compared with monsoon period (November, 2022). Out of the 794 wells that have registered rise in water level, 52 % of wells have recorded less than 2 m rise, 25% of wells in the range of 2 to 4 m and the remaining 23% of wells recorded more than 4 m rise. Rise in water level of 0 to 2 m is observed throughout the state. Water level rise of 2 to 4 m is predominantly observed in parts of Nirmal, Adilabad, Komarambheem Asifabad, Mancherial, Nizamabad, Kamareddy, Sangareddy, Vikarabad, Medak, Siddipet, Medchal Malkajgiri, Jangaon, Hanumakonda, Warangal, Jayashankar bhupalapally, Mulugu, Bhadradri Kothagudem, Jogulamba Gadwal and Wanaparthy district. Rise in water level of more than 4 m is observed in Nirmal, Adilabad, Komarambheem Asifabad, Nizamabad, Kamareddy, Sangareddy, Vikarabad, Medak, Siddipet, Medchal Malkajgiri, Jangaon, Hanumakonda, Jogulamba Gadwal and Wanaparthy district.

Fall in water level:

In the state, 24% of the area (in 353 wells) experienced fall in water levels compared to the pre-monsoon period (May 2023). Out of the 353 wells, 70% of wells have recorded less than 2 m fall in parts of Nalgonda, Khammam, Suryapet, J. Gadwal, Rangareddy and Mancherial district. 17% of wells are in the range of 2 to 4 m and observed as isolated patches in Nalgonda, Wanaparthy, Rangareddy, Medak, J. Gadwal, Khammam and Sangareddy district. 13 % of wells are in range of > 4m and observed as small specks in parts Nalgonda, Sangareddy, Mancherial, Khammam, Nagarkurnool, Medak, Wanaparthy and Rangareddy district.

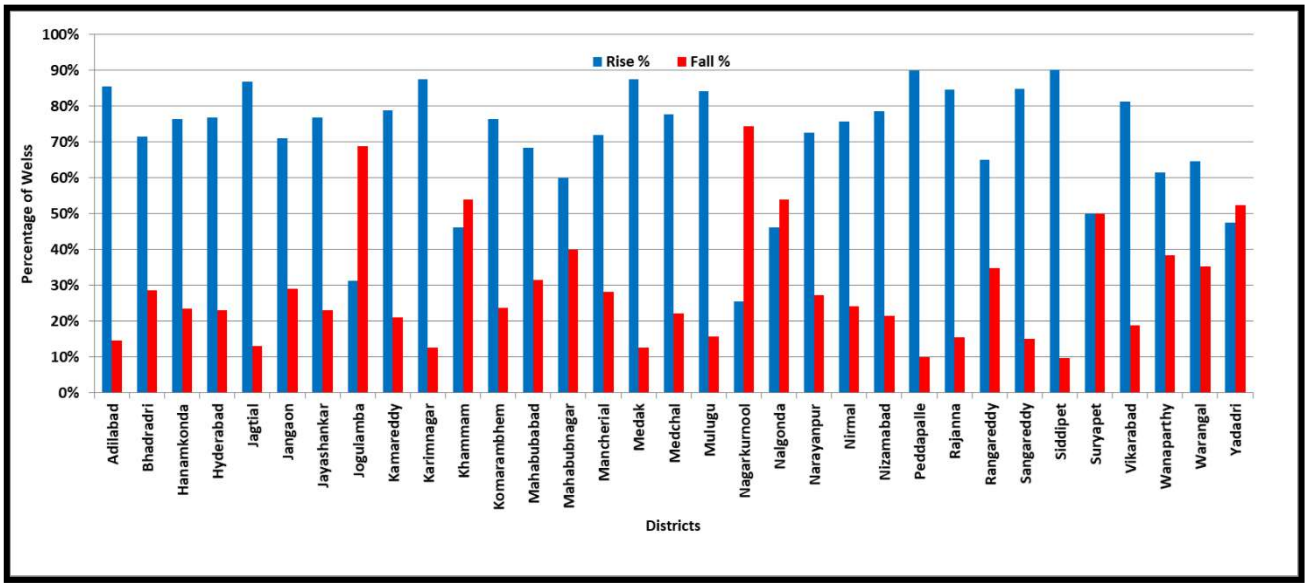


Fig. 7.27: Percentage of wells showing fluctuations May 2023 to November 2023

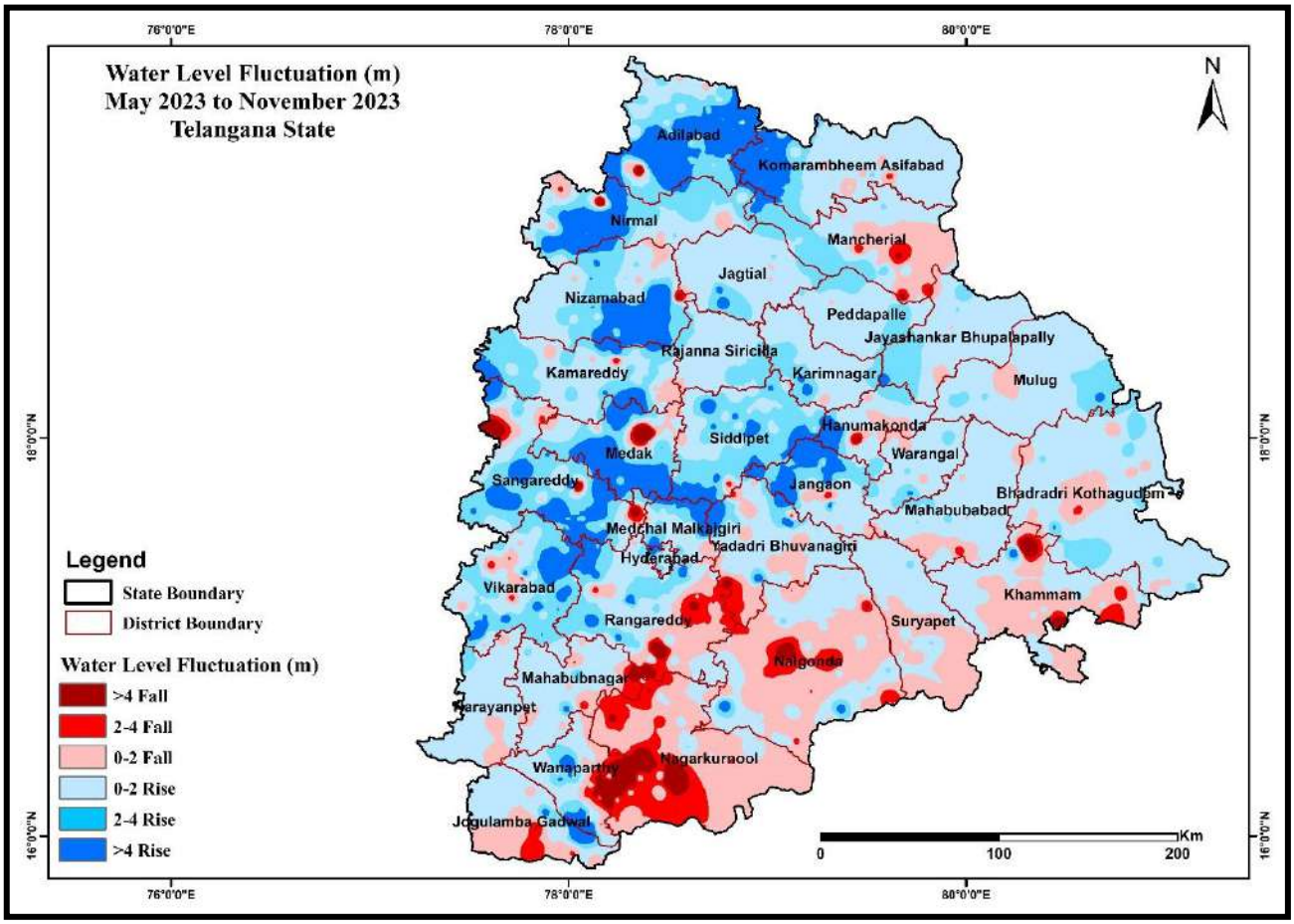


Fig. 7.28: Water Level Fluctuations May 2023 to November 2023

7.3.3 Seasonal Fluctuation: May 2023 to January 2024

Water level fluctuation of May 2023 with January 2024 is presented in **Annexure - XV.** Analyzing data of 1103 wells shows that water level rise is recorded in 53% of wells (in 584 wells) and water level fall is recorded in 47% of wells (in 519 wells). Percentage of wells showing fluctuation from May 2023 with January 2024 is represented in bar diagram **(Fig.7.29)**. Map representing water level fluctuations from May 2023 with January 2024 are given in **Fig.7.30**.

Rise in water level:

In the state about 55% of the area (in 584 wells) experienced rise in water levels compared with pre-monsoon period (May 2023). Out of the 584 wells that have registered rise in water level, 60 % of wells have recorded less than 2 m rise, 19% of wells in the range of 2 to 4 m and the remaining 21% of wells recorded more than 4 m rise. Rise in water level of 0 to 2 m is observed throughout the state. Water level rise of 2 to 4 m is predominantly observed in parts of Nirmal, Adilabad, Mancherial, Nizamabad, Kamareddy, Sangareddy, Vikarabad, Medak, Siddipet, Medchal Malkajgiri, Jangaon, Hanumakonda, Peddapalle, Bhadradri Kothagudem, Jogulamba Gadwal and Wanaparthy district. Rise in water level of more than 4 m is observed in Nirmal, Adilabad, Komarambheem Asifabad, Nizamabad, Kamareddy, Sangareddy, Medak, Siddipet, Medchal Malkajgiri, Jangaon, Hanumakonda, Jogulamba Gadwal, Peddapalle, Mancherial and Wanaparthy district

Fall in water level:

In the state, 45% of the area (in 519 wells) experienced fall in water levels compared to the pre-monsoon period (May 2023). Out of the 519 wells, 70% of wells have recorded less than 2 m fall in parts of Narayanpet, Komarambheem Asifabad, Nagarkurnool, Nalgonda, Suryapet, J. Gadwal, Mahabubnagar and Mancherial district. 15% of wells are in the range of 2 to 4 m and observed as isolated patches in Nagarkurnool, Nalgonda, Kamareddy, Rangareddy, Siddipet Medak, J. Gadwal and Sangareddy district. 15 % of wells are in range of > 4m and observed as small specks in parts Nagarkurnool, Nalgonda, Kamareddy, Suryapet, Rangareddy, Siddipet Medak, J. Gadwal, Vikarabad, Hanumakonda, Y.Bhuvanagiri and Sangareddy district.

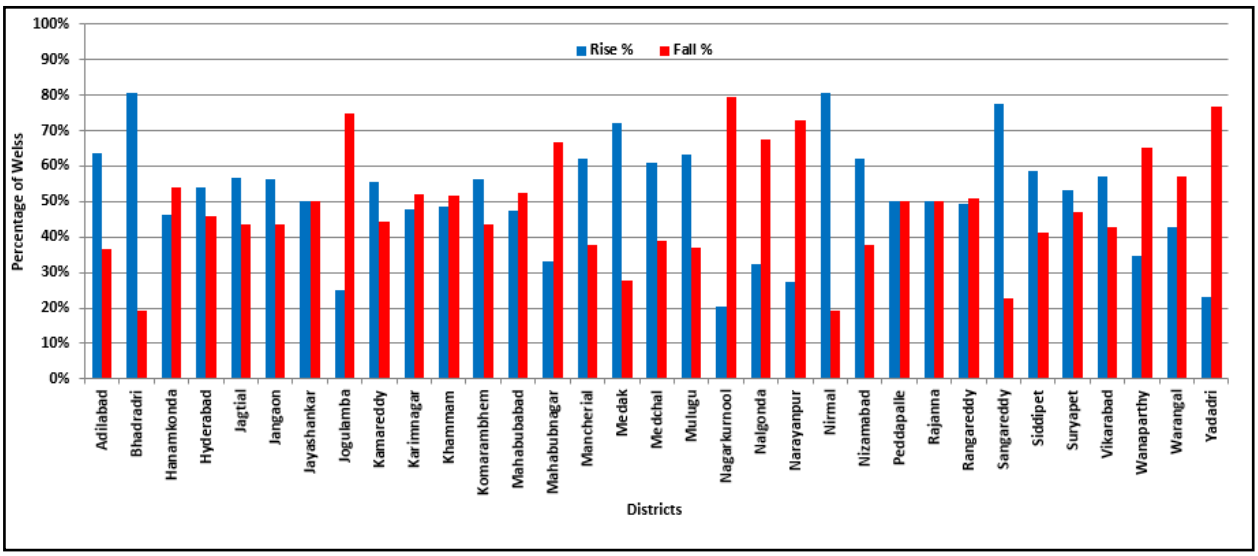


Fig. 7.29: Percentage of wells showing fluctuations May 2023 to January 2024

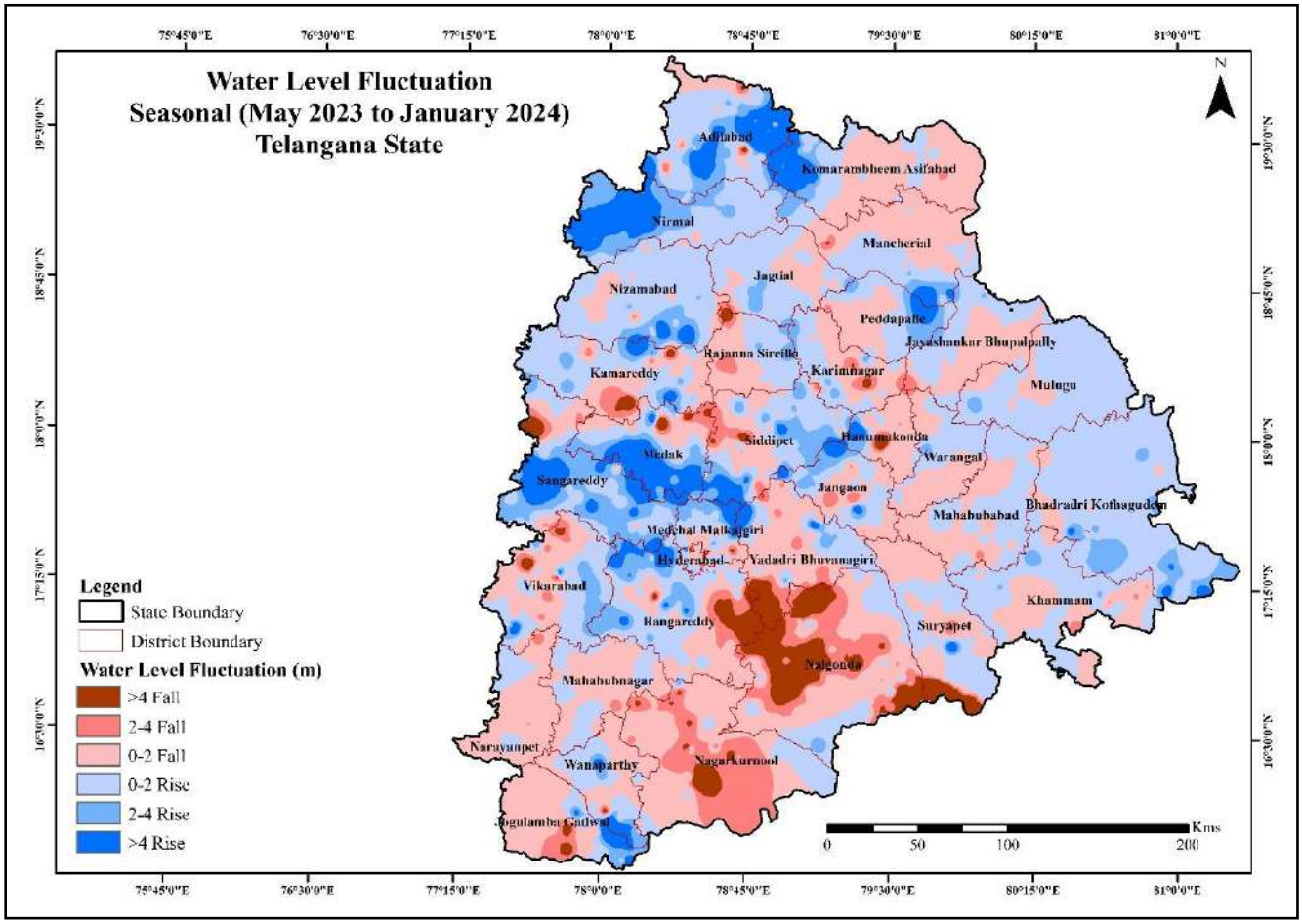


Fig. 7.30: Water Level Fluctuations May 2023 to January 2024

7.4 Annual Water Level Fluctuations

7.4.1 Water Level Fluctuations from May, 2022 to May, 2023

Water level fluctuation of May, 2022 with May, 2023 is presented in **Annexure - XVI.** Analysing data of 768 wells shows that water level rise is recorded in 64% of wells (493) and water level fall is recorded in 36% of wells (275). Percentage of wells showing fluctuation from May, 2022 to May, 2023 is represented in bar diagram **(Fig.7.31)**. Map representing water level fluctuations from May, 2022 to May, 2023 is given in **Fig.7.32**

Rise in water level:

In the state, about 70% of the area (493 wells) experienced rise in water levels compared with pre-monsoon period (May, 2022). Out of the 493 wells that have registered rise in water level, 71% of wells have recorded less than 2 m rise, 16% of wells in the range of 2 to 4 m and the remaining 13% of wells recorded more than 4 m rise. Rise in water level of less than 2 m is mainly observed throughout the state. Water level rise of 2 to 4 m is predominantly observed in parts of Nagarkurnool, Peddapalli, Warangal, Vikarabad, Sangareddy, Medak, Kamareddy, Nirmal, Yadadri Bhuvangiri districts. Rise in water level of more than 4 m is observed in parts of Vikarabad, Rangareddy, Sangareddy, Mahabubnagar, Medchal Malkajgiri, Nagarkurnool, Peddapalle and Nalgonda districts.

Fall in water level:

In the state, 30% of the area (275 wells) experienced fall in water levels compared to the pre-monsoon period (May, 2022). Out of the 275 wells, 75% of wells have recorded less than 2m fall in Hyderabad, B.Kothagudem, Nalgonda, Vikarabad, Nirmal, Adilabad, K.Asifabad, Jagtial, Jogulamba Gadwal, Wanaparthy, Jangaon, Suryapet, Yadadri Bhuvanagiri and Rajanna Sircilla districts. 15% of wells are in the range of 2 to 4 m and mainly observed in parts of Adilabad, K.Asifabad, Nirmal, Joglumba Gadwal, Jangaon, Jayashankar Bhupalapally and Wanaparthy districts. 10 % of wells are in range of > 4m and observed in parts of Adilabad, K.Asifabad, Siddipet, Jangaon, Nirmal, Joglumba Gadwal and Wanaparthy districts.

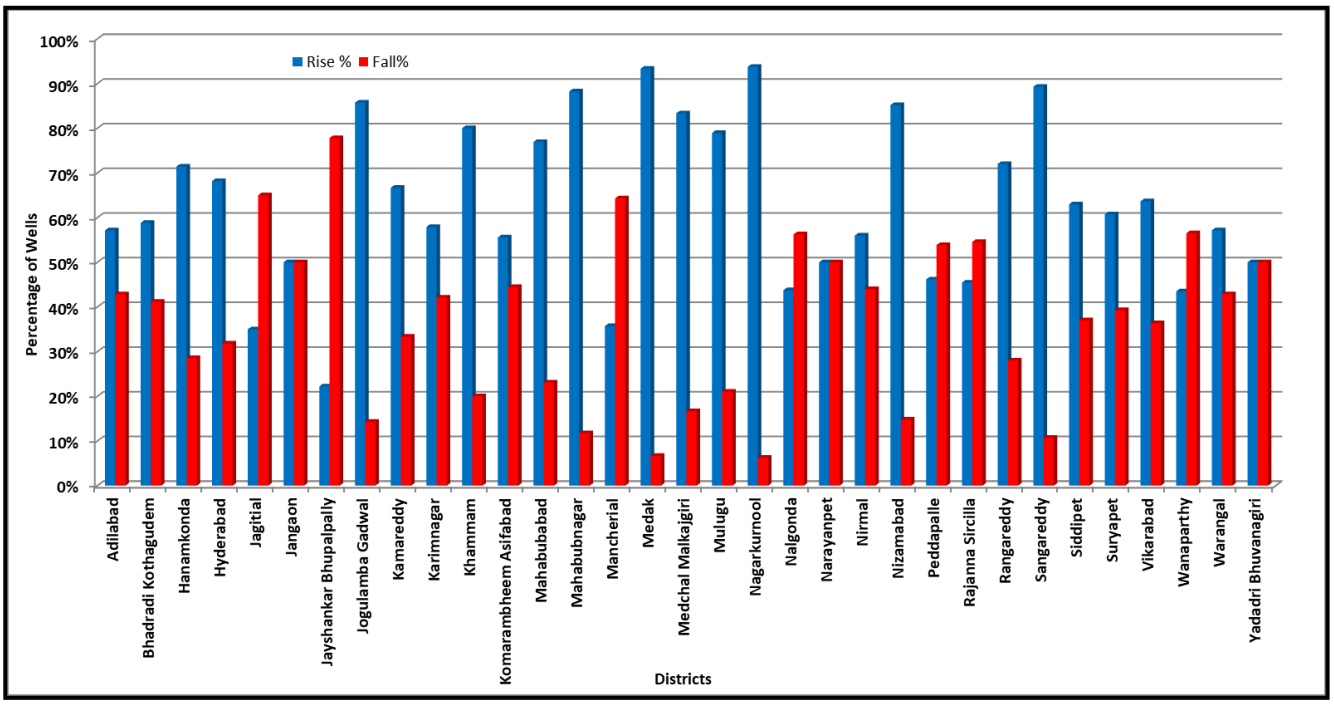


Fig. 7.31: Percentage of wells showing fluctuations May, 2022 to May, 2023

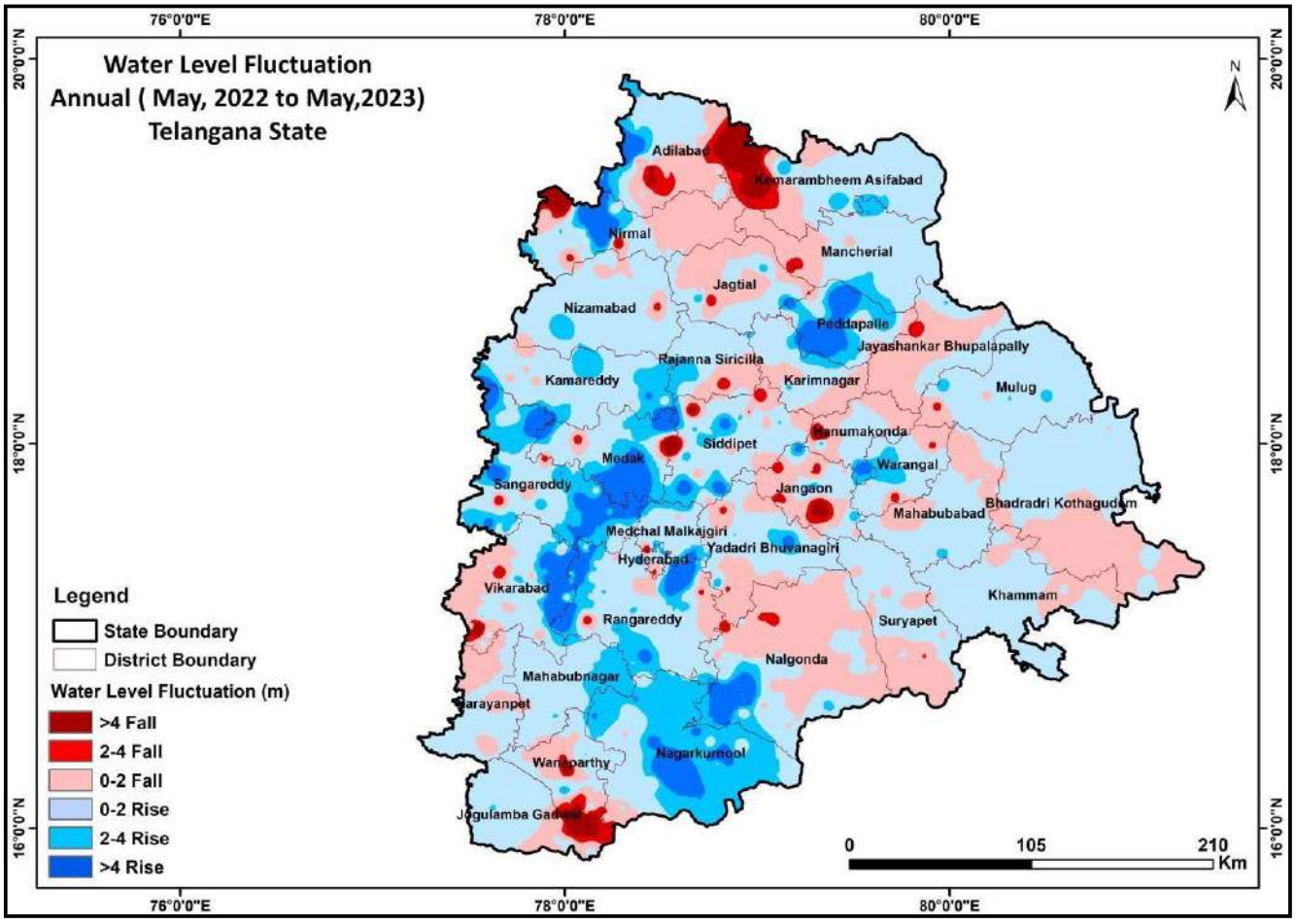


Fig. 7.32: Water Level Fluctuations May, 2022 to May, 2023

7.4.2 Water Level Fluctuations from August, 2022 to August, 2023

Water level fluctuation of August, 2023 with August, 2022 is presented in **Annexure - XVII.** Analyzing data of 972 wells shows that water level fall is recorded in 73% of wells (in 717 wells) and water level rise is recorded in 27% of wells (in 255 wells). Percentage of wells showing fluctuation from August 2022 to August 2023 is represented in bar diagram **(Fig.7.33)**. Map representing water level fluctuations from August 2022 to August 2023 is given in **Fig.7.34**.

Rise in water level:

In the state about 17% of the area (in 255 wells) experienced rise in water levels compared with monsoon period (August, 2022). Out of the 255 wells that have registered rise in water level, 76 % of wells have recorded less than 2 m rise, 11% of wells in the range of 2 to 4 m and the remaining 13% of wells recorded more than 4 m rise. Rise in water level of 0 to 2 m is mainly observed in parts of Nirmal, Adilabad, Nizamabad, Sangareddy, Rangareddy, Medak, Jogulamba Gadwal, Vikarabad, Nagarkurnool, Yadadri Bhuvanagiri, Mahabubabad, Mulugu, Kayashankar Bhupalapally, Mulugu and Jagtial district. Water level rise of 2 to 4 m is predominantly observed in parts of Jogulamba Gadwal, Nagarkurnool, Rangareddy, Sangareddy, Medchal Malkajgiri, Adilabad, Siddipet, Nizamabad, and Nirmal district. Rise in water level of more than 4 m is observed in parts of Medak, Sangareddy, Adilabad, Jogulamba Gadwal, Rangareddy districts.

Fall in water level:

In the state about 83% of the area (717 wells) experienced fall in water levels compared to the monsoon period (August 2022). Out of 717 wells, 63% of wells have recorded less than 2 m fall throughout the State. 20% of wells are in the range of 2 to 4 m and observed in parts of in Nalgonda, Suryapet, Khammam, Jangaon, Vikarabad, Rangareddy, Mahabubnagar, Narayanpet, Siddipet, Sangareddy, Medak, Kamareddy, Rajanna Sircilla, Nizamabad, Adilabad, K.Asifabad, Mancherial, Mulugu and Khammam district. 18 % of wells show 4 m fall beyond and observed as patches in parts of Ranga Reddy, Nalgonda, Medak, Sangareddy, Siddipet, Rajanna Sircilla, Nizamabad, K. Asifabad, Peddapalli, and Jayashankar Bhupalapally district. This fall in water level is due to 25% less rainfall in the month of June, 2023 to August, 2023 as compared to June, 2022 to August, 2022. This less rainfall is attributed to El Nino effect.

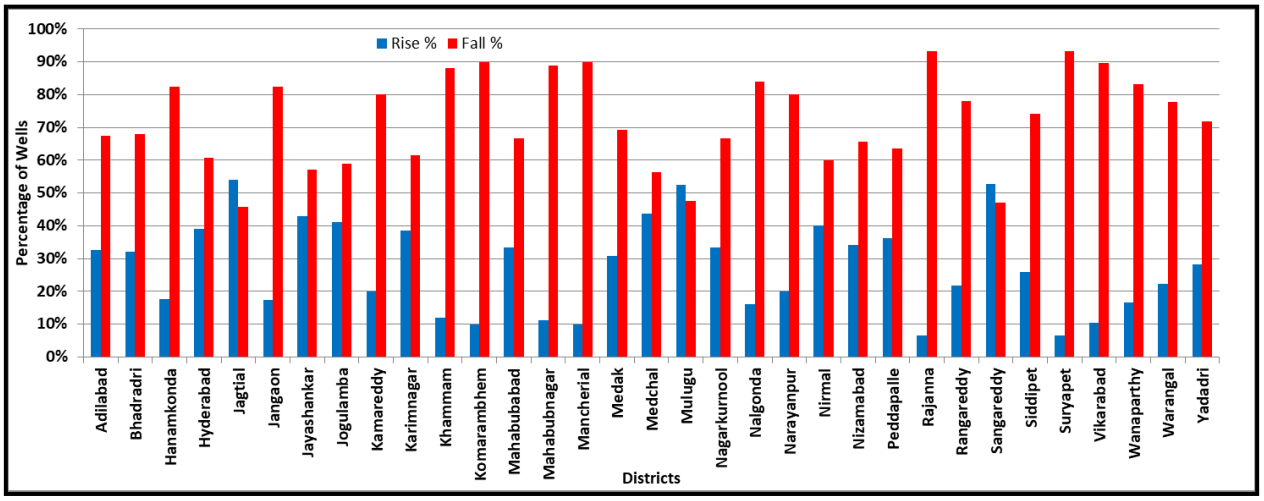


Fig. 7.33: Percentage of wells showing fluctuations August 2022 to August 2023

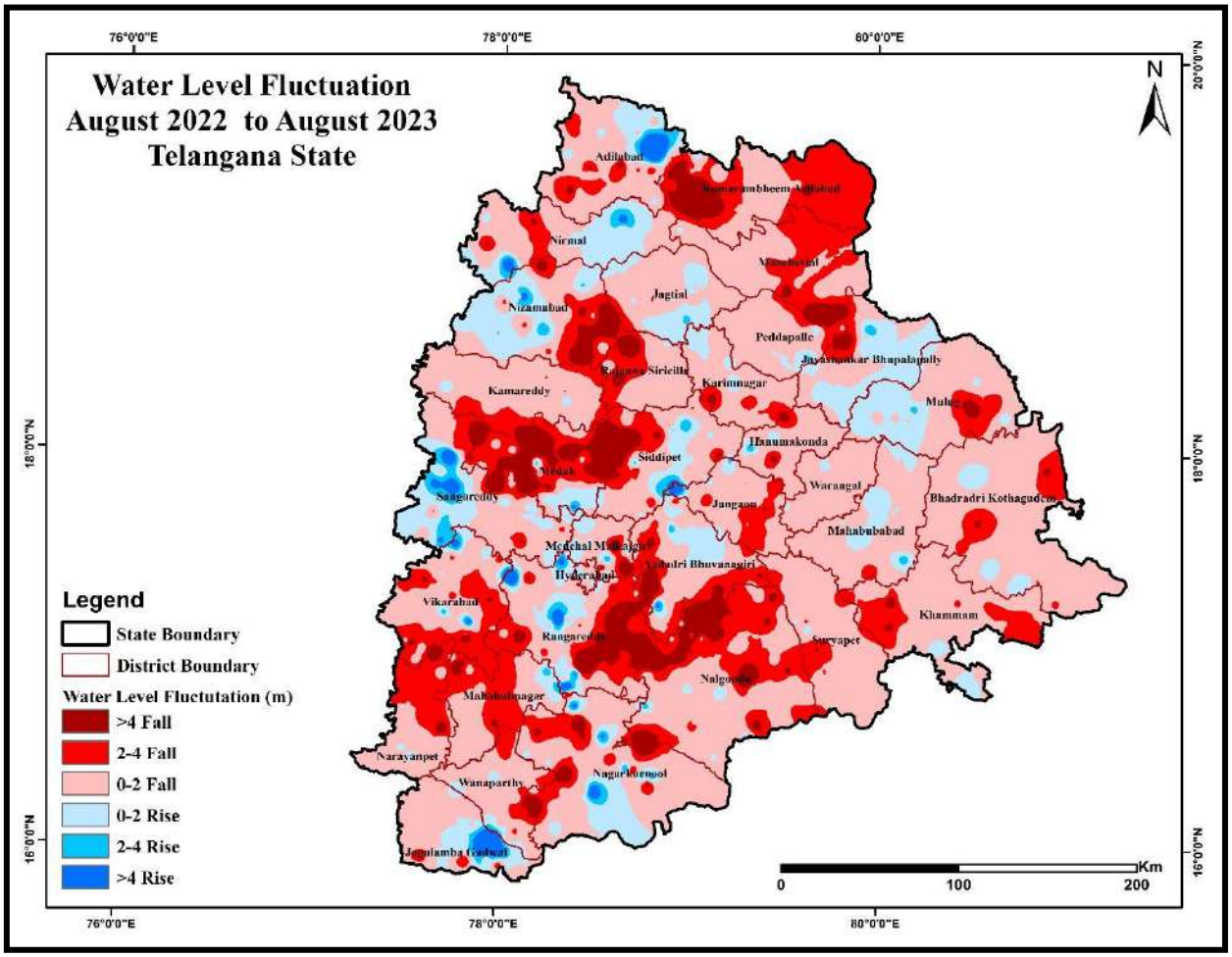


Fig. 7.34: Water Level Fluctuations August 2022 to August 2023

7.4.3 Water Level Fluctuations from November, 2022 to November, 2023

Water level fluctuation of November, 2023 with November, 2022 is presented in **Annexure - XVIII.** Analyzing data of 927 wells shows that water level fall is recorded in 9% of wells (in 83 wells) and water level rise is recorded in 91% of wells (in 844 wells). Percentage of wells showing fluctuation from November 2022 to November 2023 is represented in bar diagram **(Fig.7.35)**. Map representing water level fluctuations from November 2022 to November 2023 is given in **Fig.7.36**.

Rise in water level:

In the state about 3% of the area (in 83 wells) experienced rise in water levels compared November, 2022. Out of the 83 wells that have registered rise in water level, 63 % of wells have recorded less than 2 m rise, 20% of wells in the range of 2 to 4 m and the remaining 17% of wells recorded more than 4 m rise. Rise in water level of 0 to 2 m is observed in patches in Adilabad, K. Asifabad, J Bhupalapally, Mulugu, J Gadwal, Wanaparthy and Sangareddy districts. Water level rise of more than 2 in parts of Adilabad, K. Asifabad, J Bhupalapally, Mulugu, J Gadwal, Wanaparthy and Sangareddy districts.

Fall in water level:

In the state about 97% of the area (844 wells) experienced fall in water levels compared to the November 2022. Out of 844 wells, 51% of wells have recorded less than 2 m fall throughout the State. 28% of wells are in the range of 2 to 4 m and observed in parts of in Nalgonda, Suryapet, Khammam, Jangaon, Vikarabad, Rangareddy, Mahabubnagar, Narayanpet, Siddipet, Sangareddy, Medak, Kamareddy, Rajanna Sircilla, Nizamabad, Adilabad, K.Asifabad, Mancherial, Mulugu and Yadadri Bhuvangiri district. 21 % of wells show 4 m fall beyond and observed as patches in parts of Nalgonda, Suryapet, Khammam, Jangaon, Vikarabad, Rangareddy, Mahabubnagar, Narayanpet, Siddipet, Sangareddy, Medak, Kamareddy, Rajanna Sircilla, Nizamabad, Adilabad, K.Asifabad, Mancherial, Mulugu and Yadadri Bhuvangiri district. This fall in water level is due to 26% less rainfall in the month of June, 2023 to October, 2023 as compared to June, 2022 to October, 2022. This less rainfall is attributed to El Nino effect.

The monsoon in 2023 witnessed significant fluctuations in rainfall pattern across the state. The evident decline in annual ground water level decline during November 2023 in Telangana can be attributed to a substantial -26% deficit rainfall when comparing 2023 to 2022. This drastic reduction in rainfall has far-reaching implications, leading to a further depletion of groundwater resources.

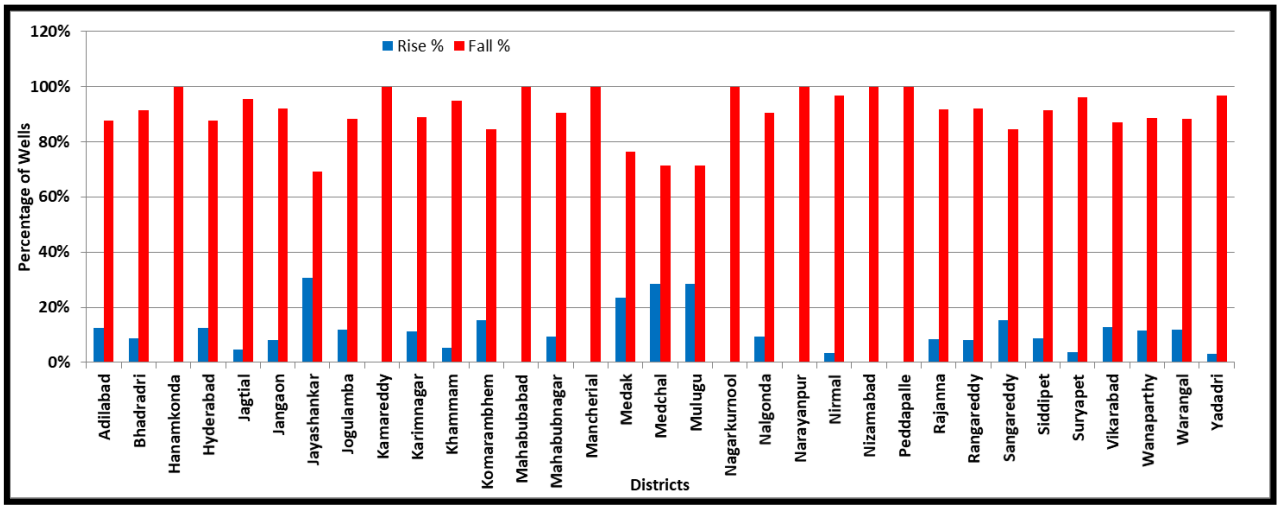


Fig. 7.35: Percentage of wells showing fluctuations November 2022 to November 2023

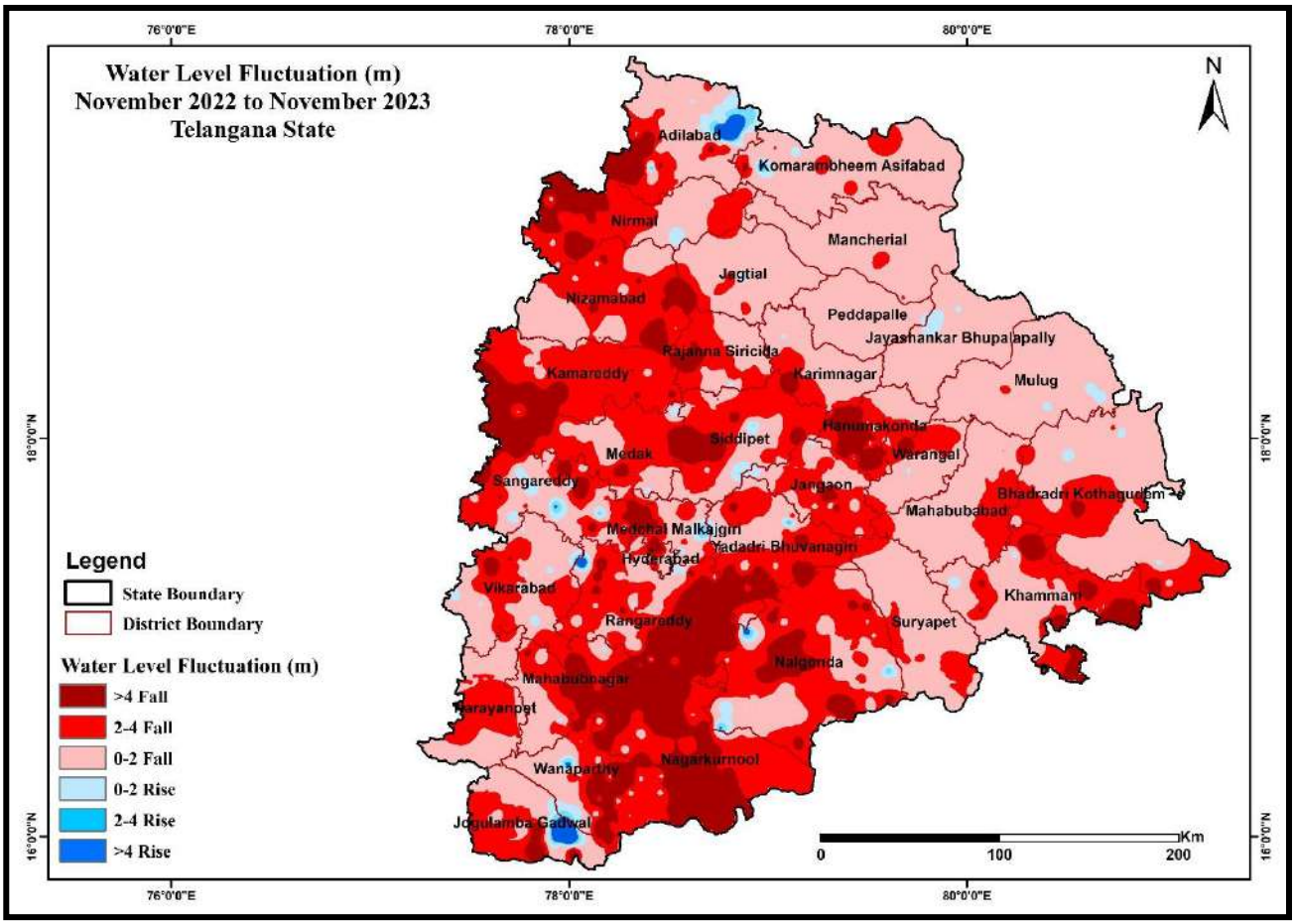


Fig. 7.36: Water Level Fluctuations November 2022 to November 2023

7.4.4 Water Level Fluctuations from January, 2023 to January, 2024

Water level fluctuation of January, 2023 to January, 2024 is presented in **Annexure - XIX.** Analyzing data of 977 wells shows that water level fall is recorded in 87% of wells (in 847 wells) and water level rise is recorded in 13% of wells (in 130 wells). Percentage of wells showing fluctuation from January, 2023 to January, 2024 is represented in bar diagram **(Fig.7.37)**. Map representing water level fluctuations from January, 2023 to January, 2024 is given in **Fig.7.38**.

Rise in water level:

In the state about 10% of the area (in 130 wells) experienced rise in water levels compared May, 2023. Out of the 130 wells that have registered rise in water level, 67 % of wells have recorded less than 2 m rise, 14% of wells in the range of 2 to 4 m and the remaining 19% of wells recorded more than 4 m rise. Rise in water level of 0 to 2 m is observed in patches in Nirmal, Jagtial, Mancherial, J Bhupalapally, Mulugu, J Gadwal, Wanaparthy and Sangareddy districts. Water level rise of more than 2 in parts of Nirmal, Jagtial, Mancherial, Siddipet, Nagarkurnool, Vikarabad, J Gadwal, Nalgonda, Wanaparthy, Rangareddy and Sangareddy districts.

Fall in water level:

In the state about 90% of the area (847 wells) experienced fall in water levels compared to May, 2023. Out of 847 wells, 60% of wells have recorded less than 2 m fall throughout the State. 21% of wells are in the range of 2 to 4 m and observed in parts of in Nalgonda, Suryapet, Khammam, Jangaon, Hanumakonda, Karimnagar, Vikarabad, Rangareddy, Narayanpet, J.Gadwal, Siddipet, Medak, Kamareddy, Rajanna Sircilla, Nizamabad, Adilabad, K.Asifabad, and Yadadri Bhuvangiri district. 19 % of wells show 4 m fall beyond and observed as patches in parts of Nalgonda, Suryapet, Jangaon, Vikarabad, Rangareddy, Mahabubnagar, Nagarkurnool, Medchal Malkajgiri, Siddipet, Sangareddy, Medak, Kamareddy, Rajanna Sircilla, Nizamabad, Adilabad, K.Asifabad, Jangaon, Hanumakonda, Karimnagar and Yadadri Bhuvangiri district.

This fall in water level is due to 23% less rainfall in the month of June, 2023 to October, 2023 as compared to June, 2022 to October, 2022. The monsoon in 2023 witnessed significant fluctuations in rainfall pattern across the state. The evident decline in annual ground water level decline during January 2024 in Telangana can be attributed to a substantial -23% deficit rainfall when comparing 2023 to 2022. This drastic reduction in rainfall has far-reaching implications, leading to a further depletion of groundwater resources.

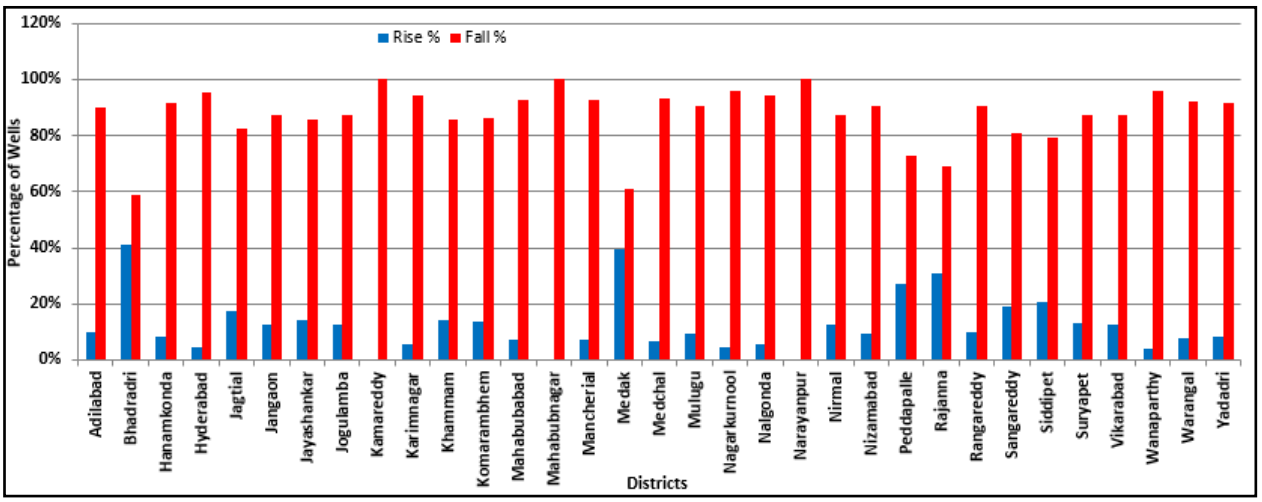


Fig. 7.37: Percentage of wells showing fluctuations January 2023 to January 2024

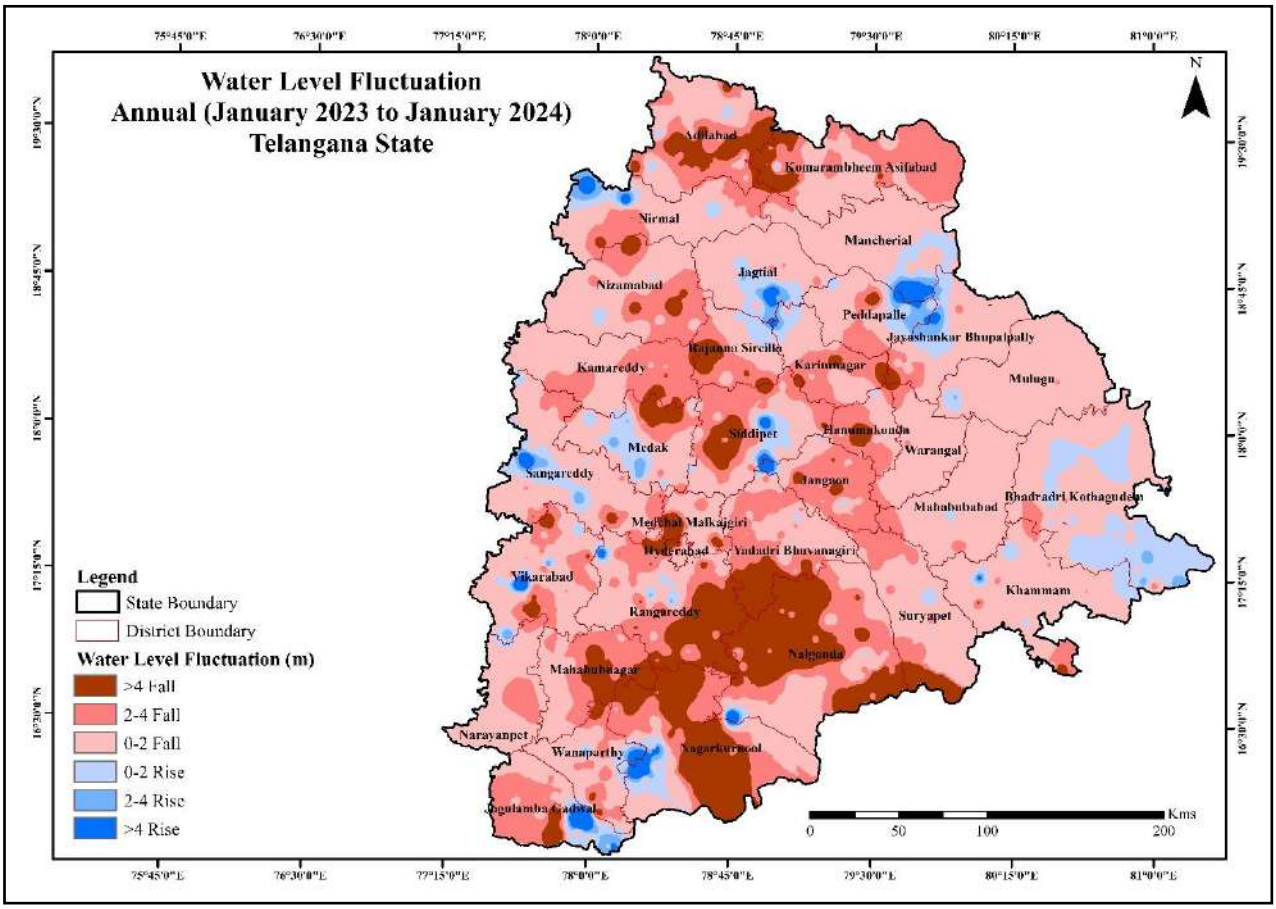


Fig. 7.38: Water Level Fluctuations January 2023 to January 2024

7.5 Decadal Water Level Fluctuations

7.5.1 Water Level Fluctuations from Decadal Mean of May (2013-22) to May-2023

Water level fluctuation of May, 2023 from Decadal Mean of May (2013-2022) is presented in **Annexure-XX**. Percentage of wells showing fluctuation from Decadal Mean of May (2013-2022) to May, 2023 is represented as bar diagram in **Fig.7.39** and map representing water level fluctuation from Mean of May (2013-2022) is given in **Fig. 7.40**. Analysis of data of 452 wellsshows that water level rise is recorded in 85 % wells (386 wells) and water level fall is recorded in 15% wells (66 wells).

Rise in water level

In the state about 90% of the area experienced rise in water levels compared with decadal mean. Out of 386 wells, water level rise of less than 2 m is recorded in 37% wells, in the range of 2 to 4 m in 27% wells and rise of more than 4 m is recorded in 30% wells. Rise in water level of less than 2 m is observed in most of the districts, significantly in Komarambheem Asifabad, Mancherial, Mulugu, Bharadri Kothagudem, Khammam, Suryapet, Nalgonda, Mulugu and Jagtial districts. Water level rise of 2 to 4 m is recorded mainly in Mahabubabad, Warangal, Mulugu, Jayashankar Bhupalapally, Karimnagar, Peddapalle, Rajanna Sircilla, Nizamabad, Kamareddy, Vikarabad, Narayanpet, Jogulamba gadwall, Wanaparthy, Medchal Malkajgiri, Hyderabad districts. Rise of water level more than 4 m is mainly observed in Mahabubnagar, Nagarkurnool, Sangareddy, Medak, Kamareddy, yadadri Bhuvanagiri, Jangaon, Medchal Malkajgiri, Hanamkonda and Suryapet districts. Rise in water level in 90% area of the state can be attributed to Excess rain fall (46% above normal) received during June, 2022 to May 2023. Districts with large excess rainfall like Jagtial, Jangaon, Karimnagar, Komarambheem Asifabad, Mancherial, Mulugu, Nirmal, Nizamabad, Rajanna Sircilla and excess rainfall in 21 district showed significant rise in water level.

Fall in water level

In the state about 15% of the area experienced fall in water levels compared with decadal mean (2013-2022). Out of the 66 wells that have registered fall in water levels, 76% have recorded less than 2 m fall, 8% in the range of 2 to 4 m and 17% beyond 4 m fall. Fall in water level of less than 2 m is observed mainly in some parts of Bhadradri Kothagudem, Peddapalle, Adilabad, Jogulamba Gadwal, Nirmal, Siddipet, Medchal Malkajgiri, Nalgonda and Suryapet district. Fall of 2 to 4 m is recorded as isolated patches in Bhadradri Kothagudem, Wanaparthy, Jogulamba Gadwal, Siddipet, Adilabad, Nirmal, Peddapalle and Vikarabad district.

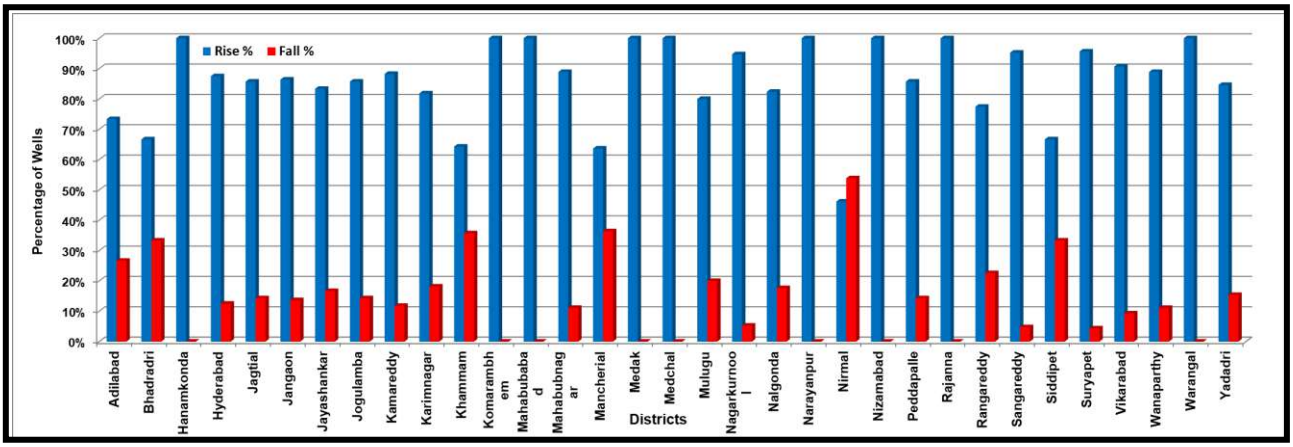


Fig.7.39: Percentage of wells showing fluctuation - Decadal Mean (May 2013-2022) to May, 2023

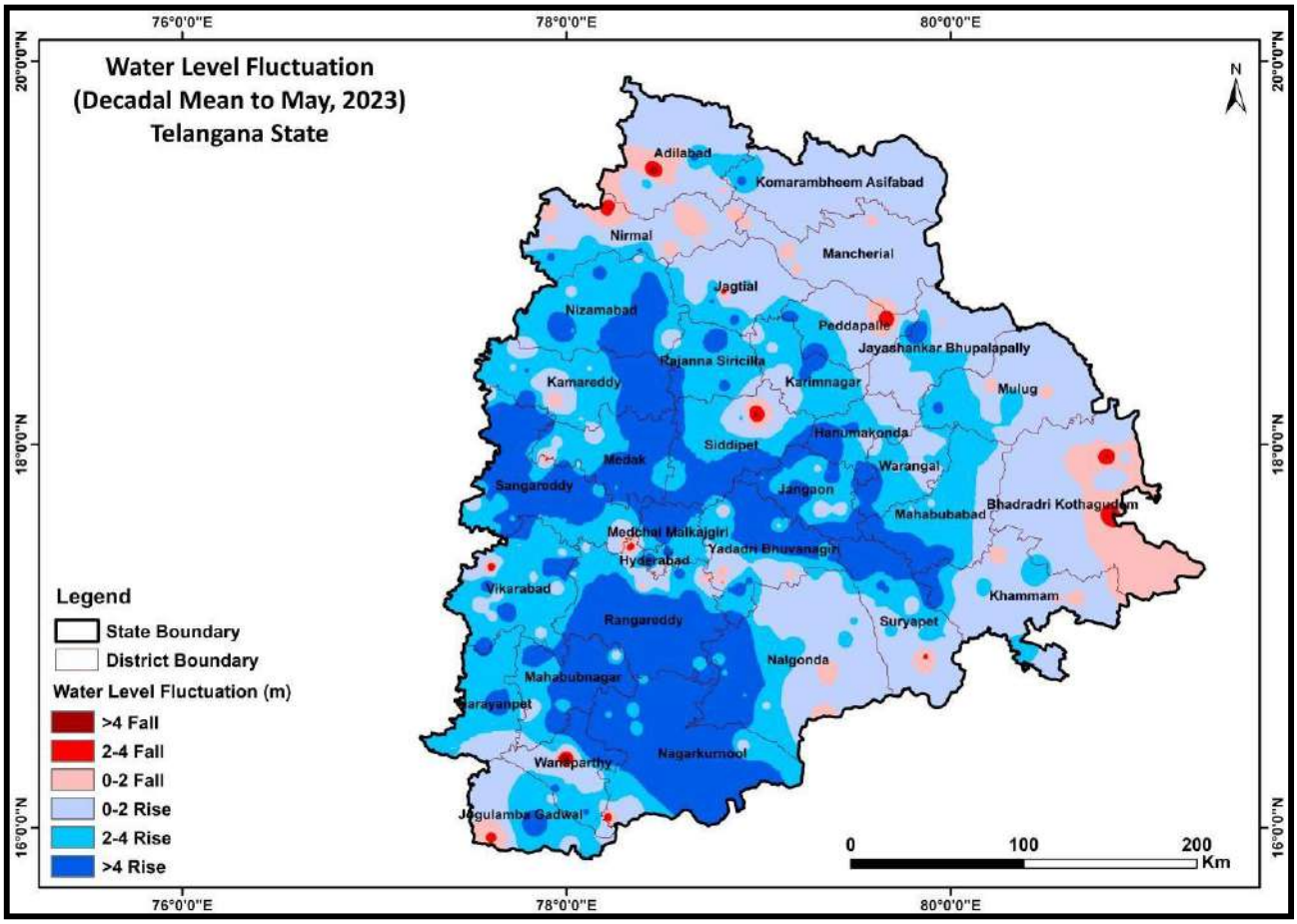


Fig. 7.40: Water Level Fluctuations - Decadal Mean of May (2013-2022) to May, 2023

7.5.2 Water Level Fluctuations from Decadal mean of August (2013-22)to August-2023

Water level fluctuation of August 2023 from Decadal Mean of August (2013-2022) is presented in **Annexure-XXI**. Percentage of wells showing fluctuation from Decadal Mean of August (2013-2022) to August 2023 is represented as bar diagram in **Fig.7.41** and map representing water level fluctuation from Mean of August (2013-2022) is given in **Fig. 7.42**. Analysis of data of 921 wells shows that water level rise is recorded in 63 % wells (in 579 wells) and water level fall is recorded in 37% wells (in 342 wells).

Rise in water level

In the state about 76% of the area experienced rise in water levels when compared with decadal mean. Out of 579 wells, water level rise of less than 2 m is recorded in 48% wells, in the range of 2 to 4 m in 20% wells and rise of more than 4 m is recorded in 32% wells. Rise in water level of less than 2 m is observed throughout the State. Water level rise of 2 to 4 m is recorded mainly in parts of Nagarkurnool, Suryapet, Nizamabad, Rajanna Sircilla, Karimnagar, Jagtial, Yadadri Bhuvanagiri, sangareddy, Medchal Malkajgiri, Rangareddy, Mahabubnagar, Jangaon, Warangal, Mahababad and Peddapalli district. Rise in water level of more than 4 m is mainly observed in Central, Western and Southern part of the State i.e., Rangareddy, Mahabubnagar, Nagarkurnool, Narayanpet Sangareddy, Medchal Malkajgiri, Medak, Yadadri Bhuvanagiri, Jangaon and Rajanna Sircilla districts.

Fall in water level

In the state about 24% of the area experienced fall in water levels when compared with decadal mean (2013-2022). Out of 342 wells that have registered fall in water levels, 83% have recorded less than 2 m fall, 11% in the range of 2 to 4 m and 6% beyond 4 m fall. Fall in water level of less than 2 m is observed mainly in parts of Adilabad, Komarambheem Asifabad, Mancherial, Mulugu, Bhadradri Kothagudem, Khammam, Nalgonda, Siddipet, Rajanna Sircilla and Jogulamba Gadwal districts. Fall of 2 to 4 m is recorded as small specks in parts of Siddipet, Rajanna Sircilla, Mancherial, Rangareddy and Vikarabad districts.

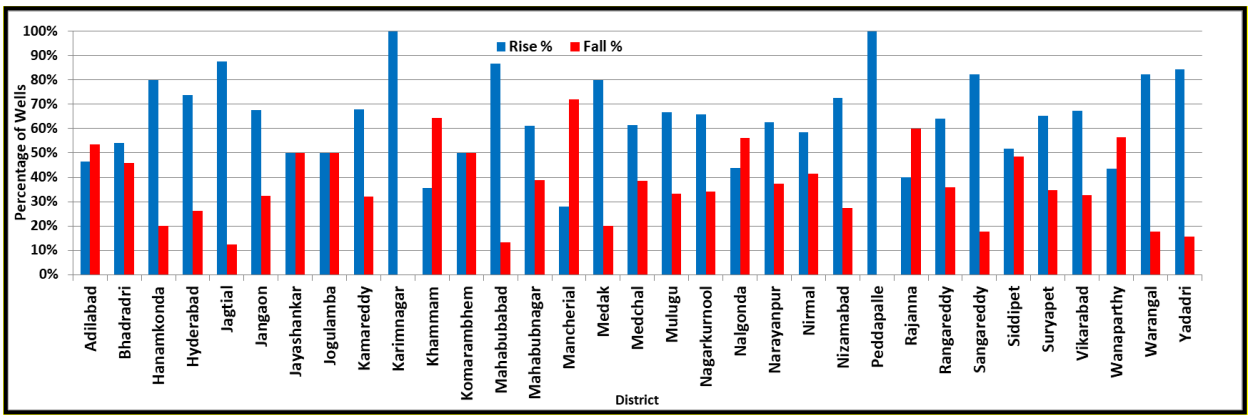


Fig.7.41: Percentage of wells showing fluctuation - Decadal Mean (August 2013-2022) to August 2023

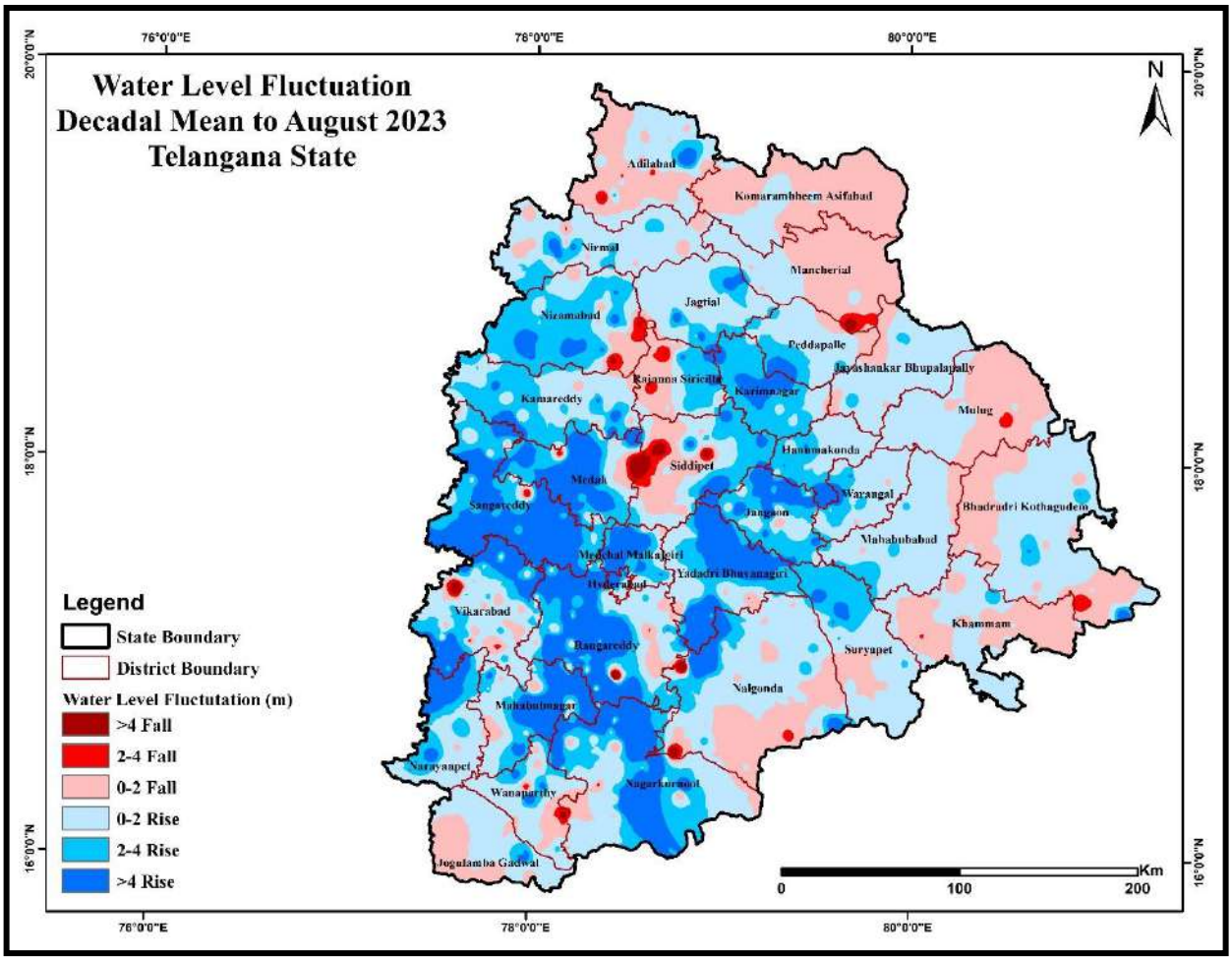


Fig. 7.42: Water Level Fluctuations - Decadal Mean of August (2013-2022) to August 2023

7.5.3. Water Level Fluctuations from Decadal Mean of November (2013-22) to November - 2023

Water level fluctuation of November 2023 from Decadal Mean of November (2013-2022) is presented in **Annexure-XXII**. Percentage of wells showing fluctuation from Decadal Mean of November (2013-2022) to November 2023 is represented as bar diagram in **Fig.7.43** and map representing water level fluctuation from Mean of November (2013-2022) is given in **Fig. 7.44**. Analysis of data of 616 wells shows that water level rise is recorded in 51 % wells (in 315 wells) and water level fall is recorded in 49% wells (in 301 wells).

Rise in water level

In the state about 47% of the area experienced rise in water levels when compared with decadal mean. Out of 315 wells, water level rise of less than 2 m is recorded in 50% wells, in the range of 2 to 4 m in 24% wells and rise of more than 4 m is recorded in 26% wells. Rise in water level of less than 2 m is observed throughout the State. Water level rise of 2 to 4 m is recorded mainly in parts of Nagarkurnool, Suryapet, Nizamabad, Rajanna Sircilla, Karimnagar, Jagtial, Yadadri Bhuvanagiri, Sangareddy, Medak, Siddipet, Medchal Malkajgiri, Rangareddy, Mahabubnagar, Jangaon, Warangal, Mahababad and Peddapalli district. Rise in water level of more than 4 m is mainly observed in Central, Western and Southern part of the State i.e., Rangareddy, Mahabubnagar, Nagarkurnool, Sangareddy, Medchal Malkajgiri, Medak, Siddipet, Yadadri Bhuvanagiri, Jangaon and Rajanna Sircilla districts.

Fall in water level

In the state about 53% of the area experienced fall in water levels when compared with decadal mean (2013-2022). Out of 301 wells that have registered fall in water levels, 74% have recorded less than 2 m fall, 15% in the range of 2 to 4 m and 11% beyond 4 m fall. Fall in water level of less than 2 m is observed mainly in parts of Adilabad, Komarambheem Asifabad, Mancherial, Mulugu, Bhadradri Kothagudem, Khammam, Nalgonda, Jayashankar Bhupalpally, Hanumakonda, Suryapet, Nagarkurnool, Wanaparthy and Jogulamba Gadwal districts. Fall of 2 to 4 m is recorded as small specks in parts of Bhadradri Kothagudem, Khammam, Sangareddy, Nagarkurnool, Nalgonda, Hanumakonda, Nagarkurnool, M. Malkajgiri, Warangal and Vikarabad districts. Fall in water level of more than 4 m is mainly observed in Bhadradri Kothagudem, Khammam, Sangareddy, Nagarkurnool, Nalgonda, Hanumakonda, Nagarkurnool, M. Malkajgiri, Warangal and Vikarabad districts.

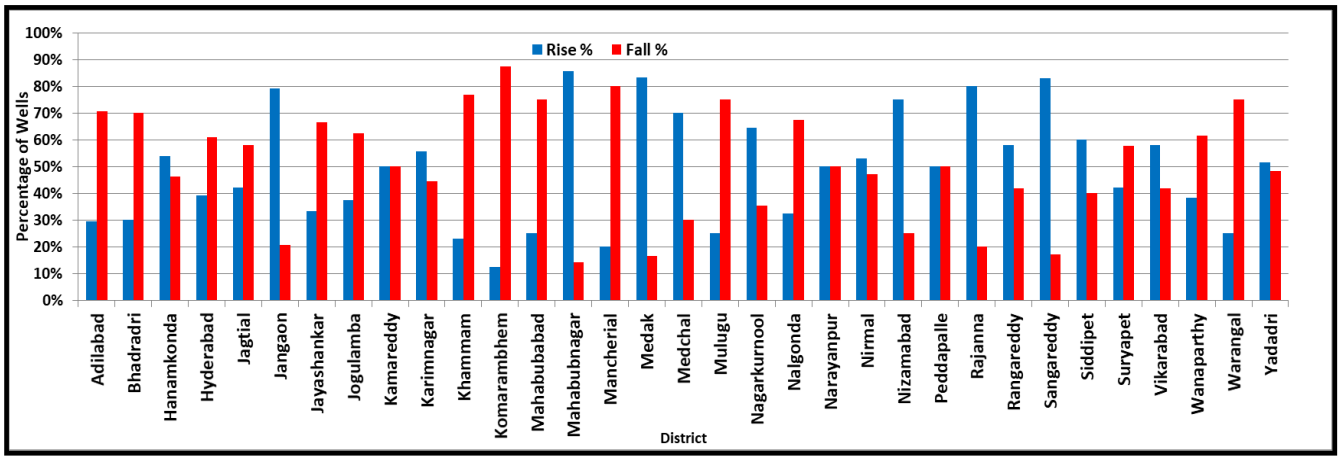


Fig.7.43: Percentage of wells showing fluctuation - Decadal Mean (Novembeer 2013-2022) to November 2023

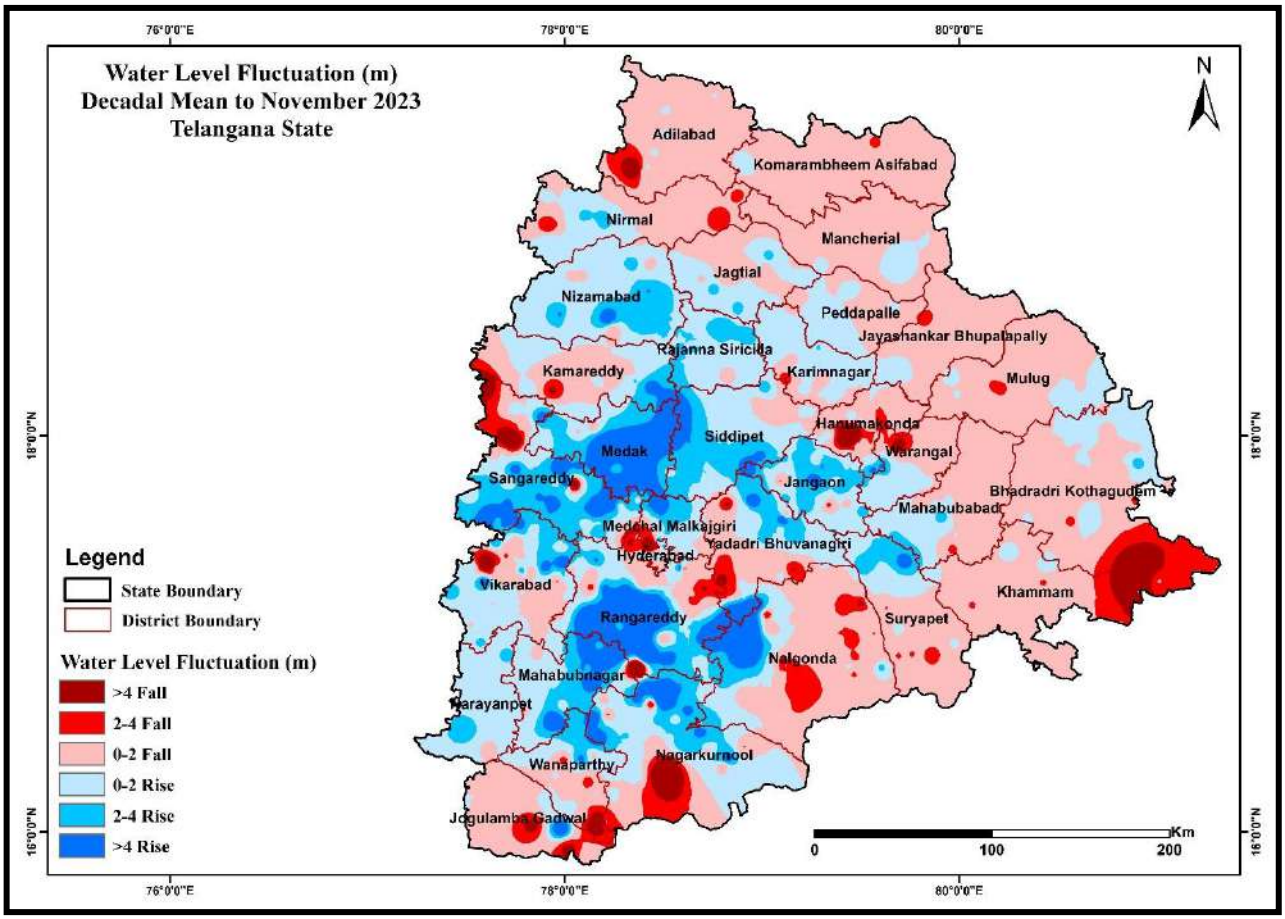


Fig. 7.44: Water Level Fluctuations - Decadal Mean of November (2013-2022) to November 2023

7.5.4 Water Level Fluctuations from Decadal Mean of January (2014-23) to January - 2024

Water level fluctuation of January 2024 from Decadal Mean of January (2014-2023) is presented in **Annexure-XXIII**. Percentage of wells showing fluctuation from Decadal Mean January (2014-2023) to January 2024 is represented as bar diagram in **Fig.7.45** and map representing water level fluctuation from Mean of January (2014-2023) is given in **Fig.7.46**. Analysis of data of 583 wells shows that water level rise is recorded in 52 % wells (in 302 wells) and water level fall is recorded in 48% wells (in 281 wells).

Rise in water level

In the state about 49% of the area experienced rise in water levels when compared with decadal mean. Out of 302 wells, water level rise of less than 2 m is recorded in 54% wells, in the range of 2 to 4 m in 24% wells and rise of more than 4 m is recorded in 23% wells. Rise in water level of less than 2 m is predominantly observed in Nirmal, Jagtial, Nizamabad, Mulugu, B. Kothagudem, Mahabubabad, Jangaon, Suryapet, Narayanpet, Kamareddy, Rajanna Sircilla, Siddipet, Nagarkurnool, Jangaon, Y. Bhuvanagiri and Mahabubnagar. Water level rise of 2 to 4 m is recorded mainly in parts of Rajanna Sircilla, Nirmal, Medak, Sangareddy, Jangaon, Y. Bhuvanagiri, Medchal Malkajgiri, Rangareddy, J. Gadwal, Wanaparthy and Mahabubnagar district. Rise in water level of more than 4 m is mainly observed in Central, Western and Southern part of the State i.e., Rangareddy, Mahabubnagar, Nagarkurnool, Sangareddy, Medchal Malkajgiri, Medak, Siddipet, Yadadri Bhuvanagiri, Nalgonda, Medchal Malkajgiri and J. Gadwal districts.

Fall in water level

In the state about 51% of the area experienced fall in water levels when compared with decadal mean (2014-2023). Out of 281 wells that have registered fall in water levels, 68% have recorded less than 2 m fall, 18% in the range of 2 to 4 m and 14% beyond 4 m fall. Fall in water level of less than 2 m is observed mainly in parts of Adilabad, Komarambheem Asifabad, Mancherial, Mulugu, Peddapalle, Khammam, Nalgonda, Jayashankar Bhupalpally, Hanumakonda, Suryapet, Nagarkurnool, Wanaparthy, Vikarabad, Karimnagar, Rangareddy and Jogulamba Gadwal districts. Fall of 2 to 4 m is recorded as small specks in parts of Bhadradri Kothagudem, Khammam, Suryapet, Nizamabad, Nagarkurnool, Nalgonda, Hanumakonda, Nagarkurnool, M. Malkajgiri, Y. Bhuvanagiri, Rangareddy, Wanaparthy and Vikarabad districts. Fall in water level of more than 4 m is mainly observed in Bhadradri Kothagudem, Khammam, Nagarkurnool, Nalgonda, Hanumakonda, Nagarkurnool, M. Malkajgiri, Wanaparthy, Nizamabad, Y. Bhuvanagiri, and Vikarabad districts.

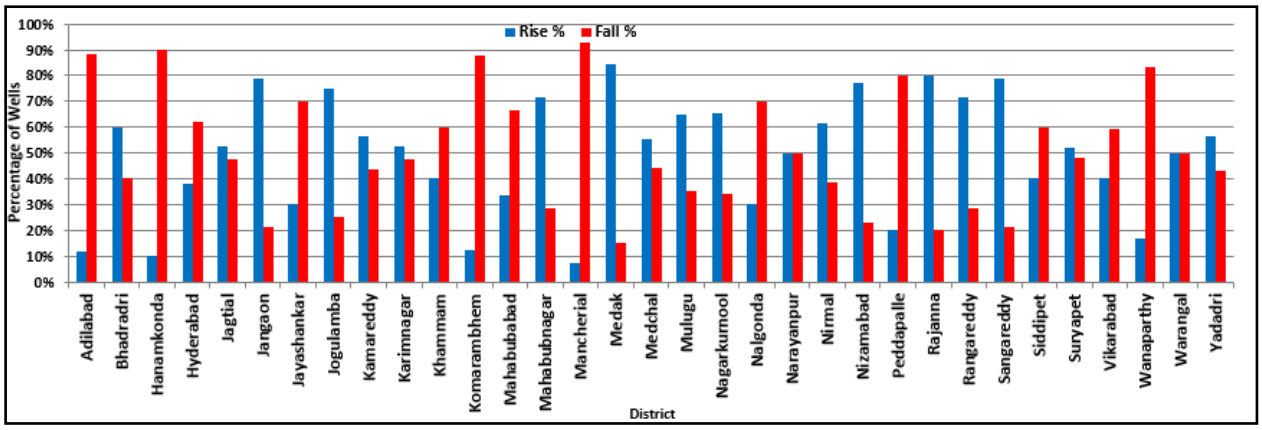


Fig.7.45: Percentage of wells showing fluctuation - Decadal Mean January (2014-2023) to January 2024

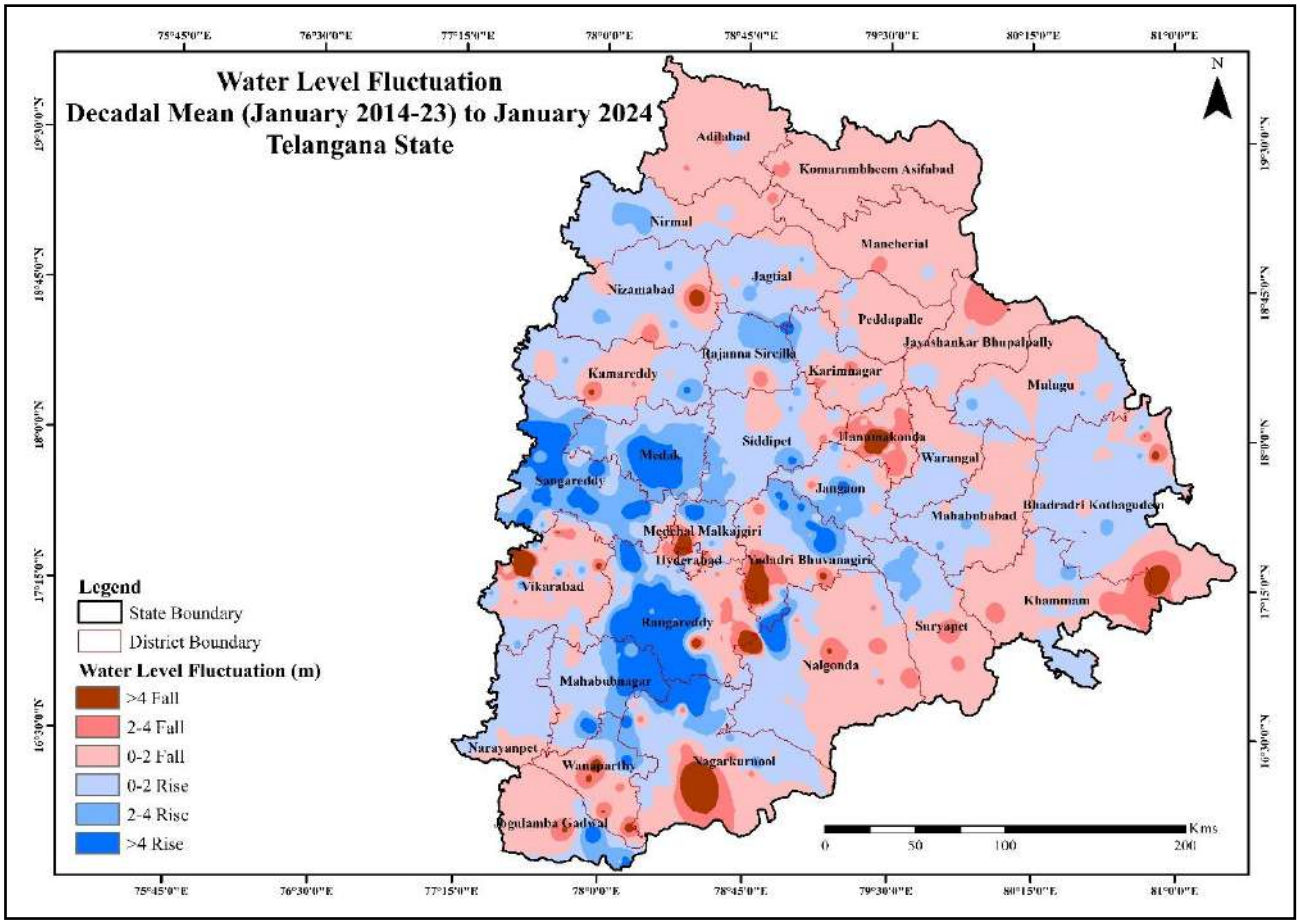


Fig. 7.46: Water Level Fluctuations - Decadal Mean of January (2014-2023) to January 2024

7.6 Aquifer wise water levels

Aquifer wise water level analysis shows that during pre-monsoon season, in Banded Gneissic Complex, which has the largest number of monitoring wells, minimum, maximum and average are 0 m, 58.5 m and 7.72 m respectively. During the post-monsoon season, minimum, maximum and average are 0.27 m, 56.57 m and 6.56 m respectively.During pre-monsoonseason and post-monsoon season, deepest water level is noticed in Basaltic formation 97.48 mbgl and 59.59 mbgl respectively. Aquifer wise water level scenario is presented in **Table-7.3.**

Table-7.3: Aquifer wise distribution of water levels, Telangana State.

Principal Aquifer	May, 2023 DTWL			November, 2022 DTWL		
	Min	Max	Average	Min	Max	Average
Banded Gneissic Complex	0 (Ground Level)	58.5	7.72	0.27	56.57	6.56
Basalt	1.6	97.48	17.71	1.68	59.59	12.61
Gneiss	5.26	10.15	8.46	5.39	12.87	10.34
Granite	1.94	25.8	8.35	1.96	14.12	6.84
Laterite	7.25	17.87	11.65	3	13.95	7.67
Limestone	1.2	49.5	10.67	0.9	35.57	7.79
Quartzite	4.77	21.75	11.24	5.78	16.4	11.8
Sandstone	0.22	48.32	8.59	0.58	48.52	7.86
Shale	2.4	6.4	4.94	1.32	7.7	3.96

7.7 Long-term Water Level trends- Hydrographs:

A total 20 hydrographs long term data has been utilised for long term water level trend analysis and the summary is presented in **Table-7.4** and the hydrographs are presented in **Fig.7.47 (a to t)**. Out of 20 hydrograph 12 hydrographs show rising trend in both seasons, 5 wells show falling trend in both seasons and the rest shows mix trends for both the seasons.

Table-7.1: Representative Hydrograph Stations showing rising and falling trends

S. No.	Fig No.	Location	District	Pre (m/yr.)		Post (m/yr.)	
				Rise	Fall	Rise	Fall
1	7.47a	Boath	Adilabad		0.1587		0.0079
2	7.47b	Yellandu	B.Kothagudem	0.0393		0.2149	
3	7.47c	Chinthagattu	Hanamkonda		0.0706		0.0465
4	7.47d	Falaknuma	Hyderabad		0.2574		0.181
5	7.47e	Kataram	J.Bhupalapally		0.0819	0.137	
6	7.47f	Alampur	Jogulamba Gadwal	0.1669		0.1423	
7	7.47g	Bichkonda	Kamareddy	0.4867		0.2641	

8	7.47h	Chigurumamidi	Karimnagar	0.0663		0.6402	
9	7.47i	Madharam	Khammam		0.0202	0.0186	
10	7.47j	Jainoor	K.Asifabad		0.0463		0.0534
11	7.47k	Dandepalli	Mancherial		0.0789		0.041
12	7.47l	Kulcharam	Medak	0.6403		0.7808	
13	7.47m	Miyapur	Medchal	0.0254		0.0238	
14	7.47n	Chelvai	Mulugu	0.1332		0.4593	
15	7.47o	Nakrekal	Nalgonda	0.0893		0.2986	
16	7.47p	Ramagundam	Peddapalle		0.4554	0.1274	
17	7.47q	Maheswaram	Rangareddy	0.7579		0.6554	
18	7.47r	Sirgapur	Sangareddy	0.3518		0.0841	
19	7.47s	Peddamul	Vikarabad	0.2343		0.3059	
20	7.47t	Turkapalli	Y.Bhuvanagiri	0.0227		0.0721	

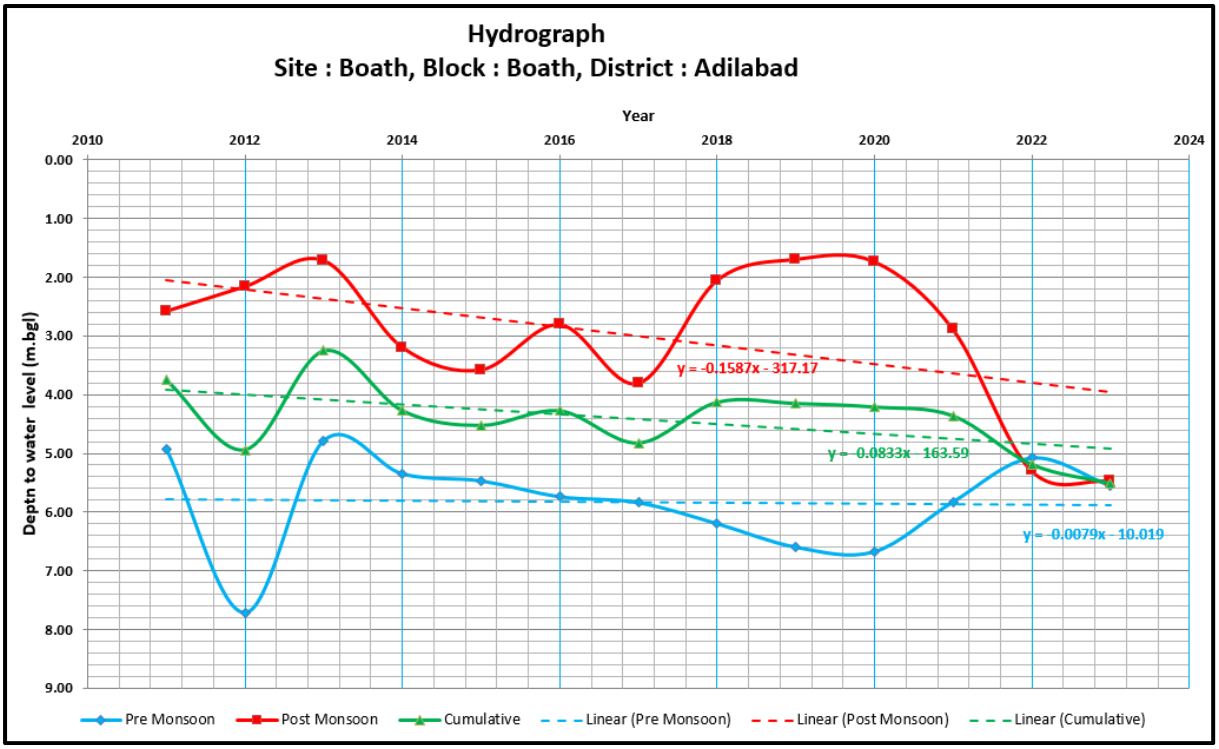


Fig: 7.47a

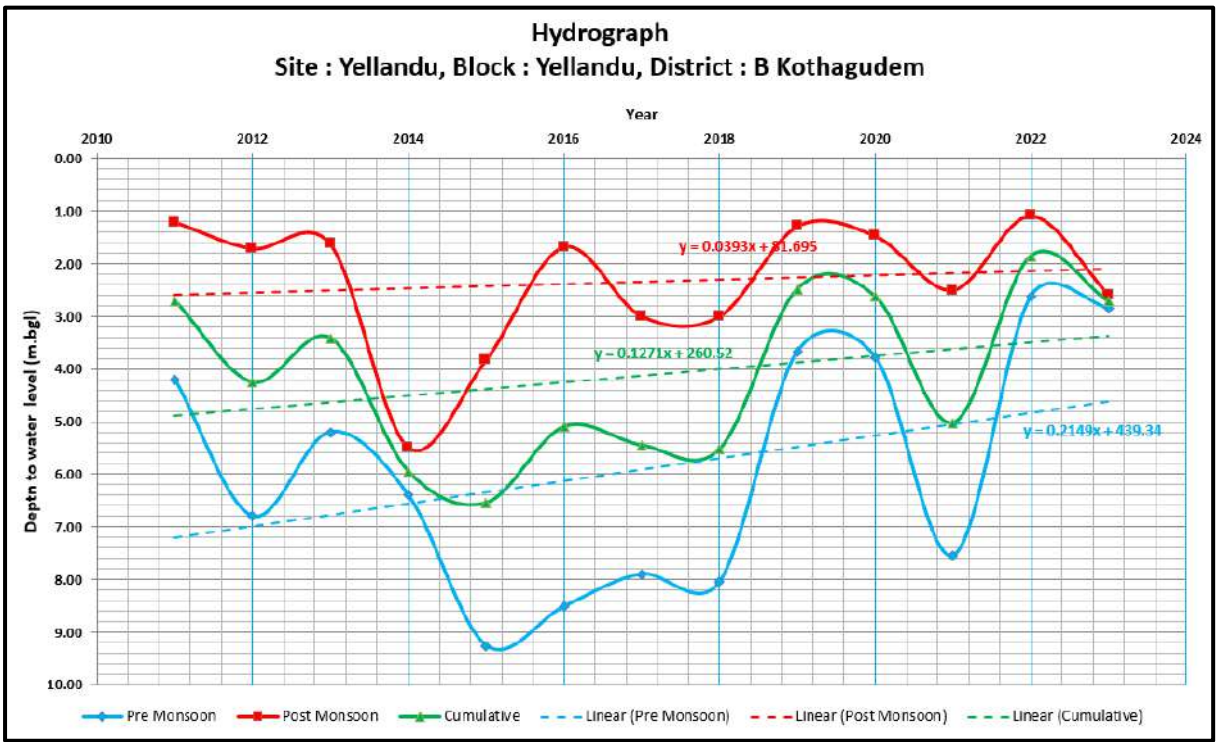


Fig: 7.47b

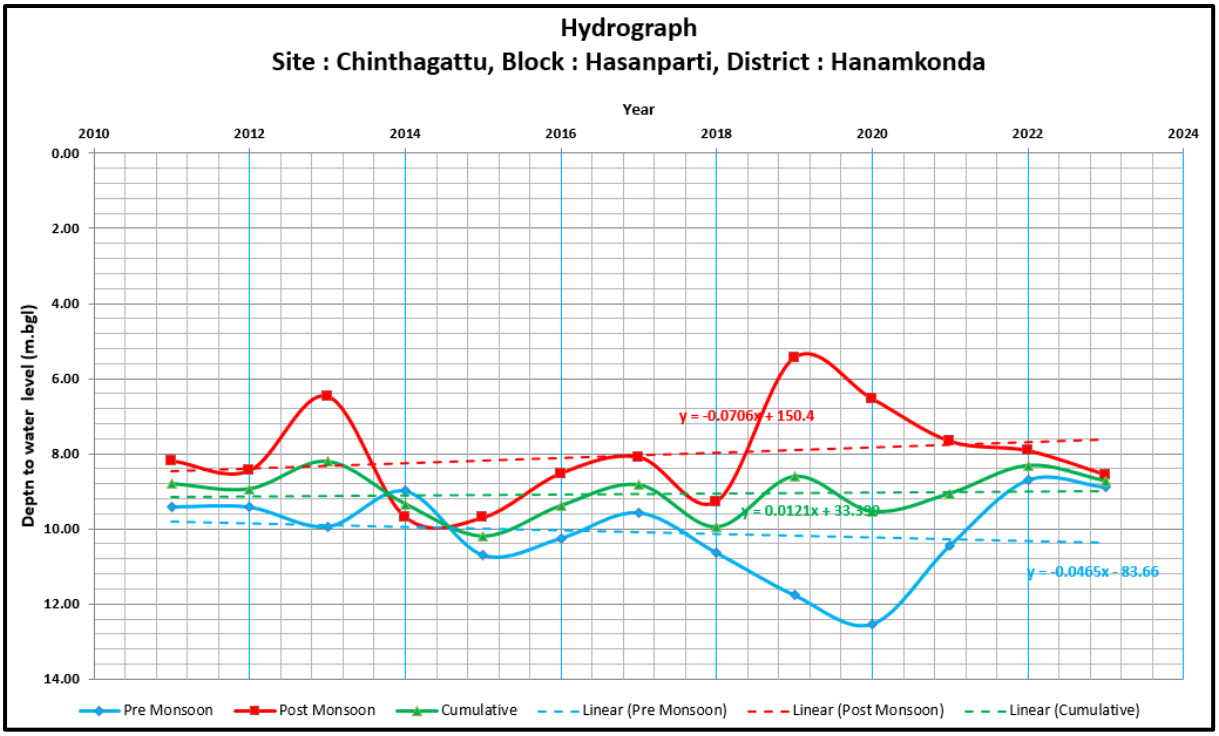


Fig: 7.47c

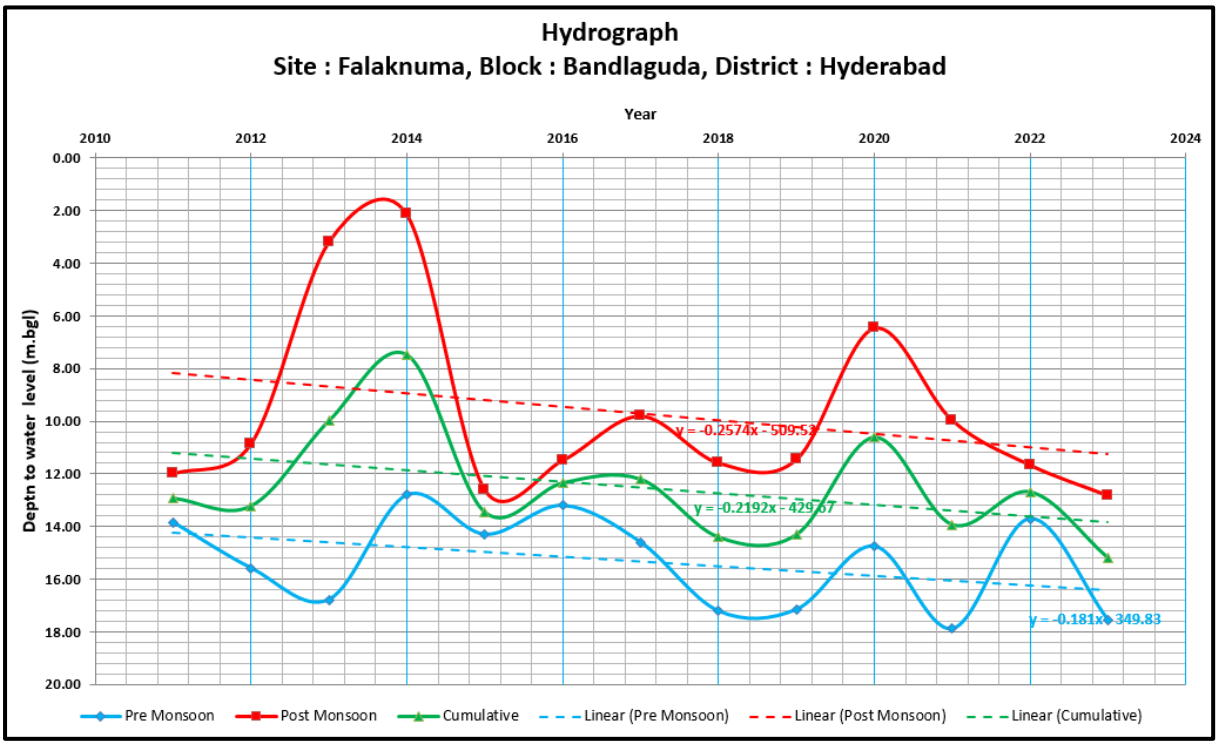
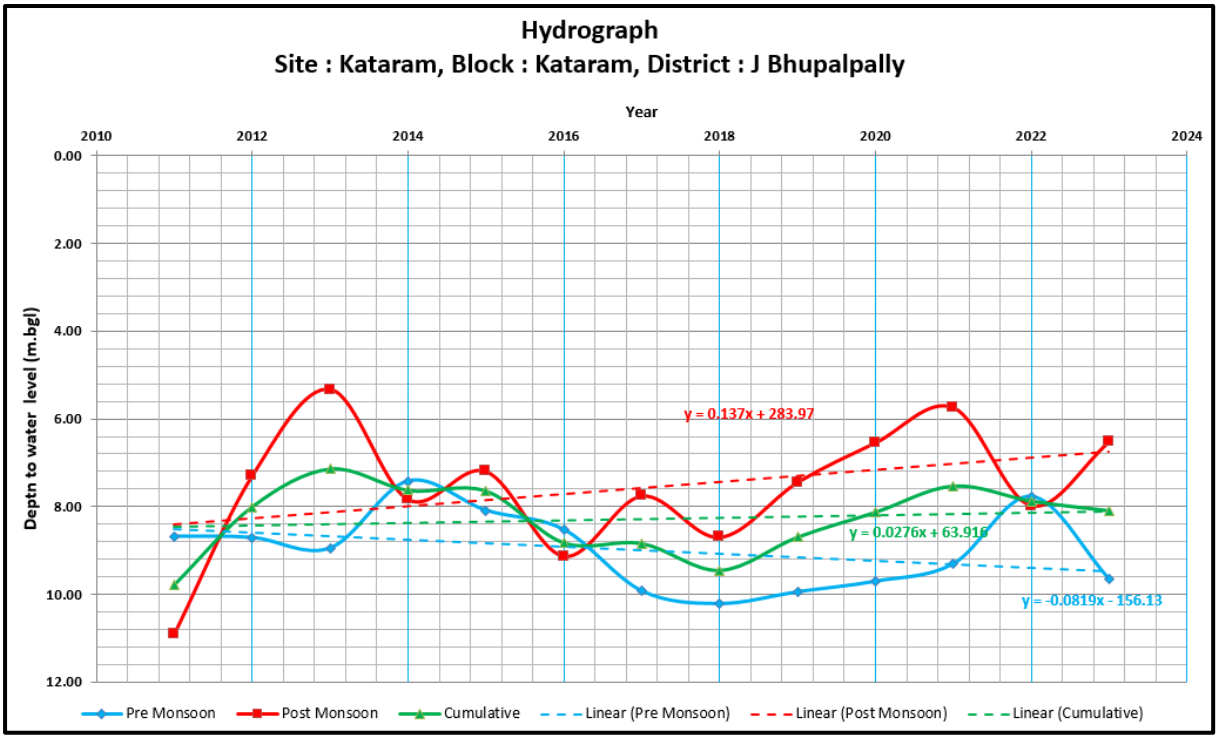


Fig: 7.47d



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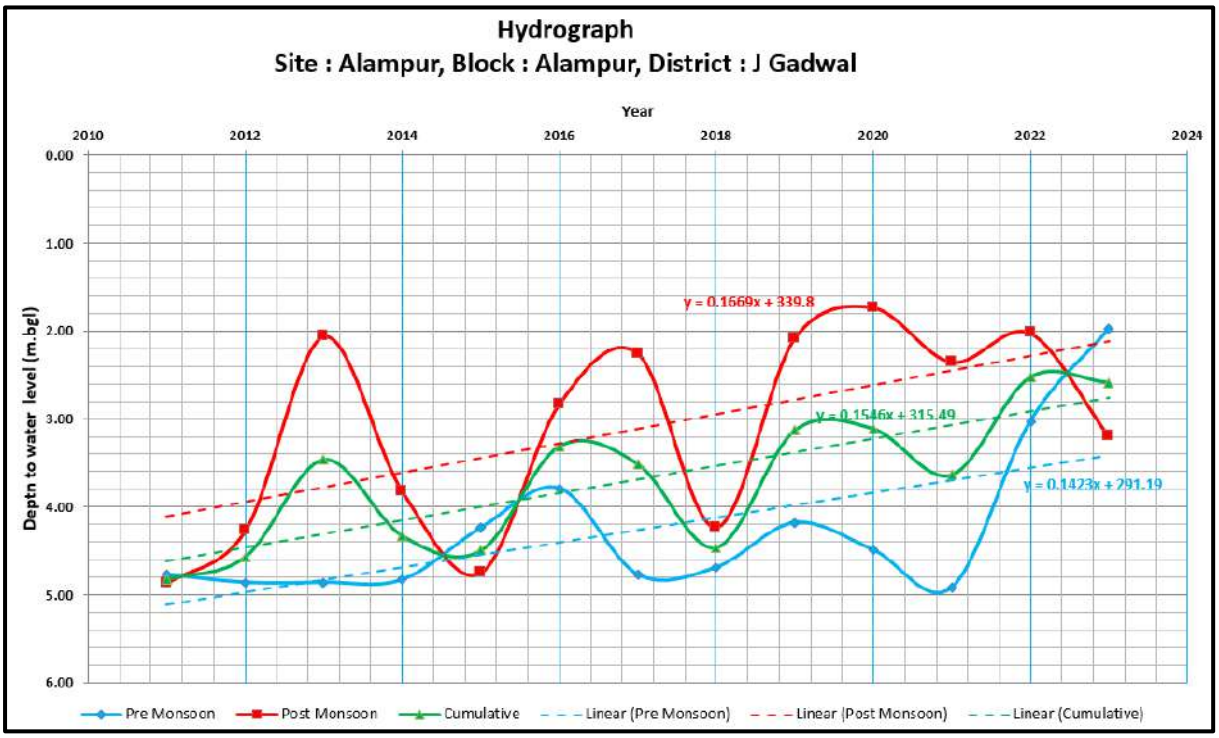
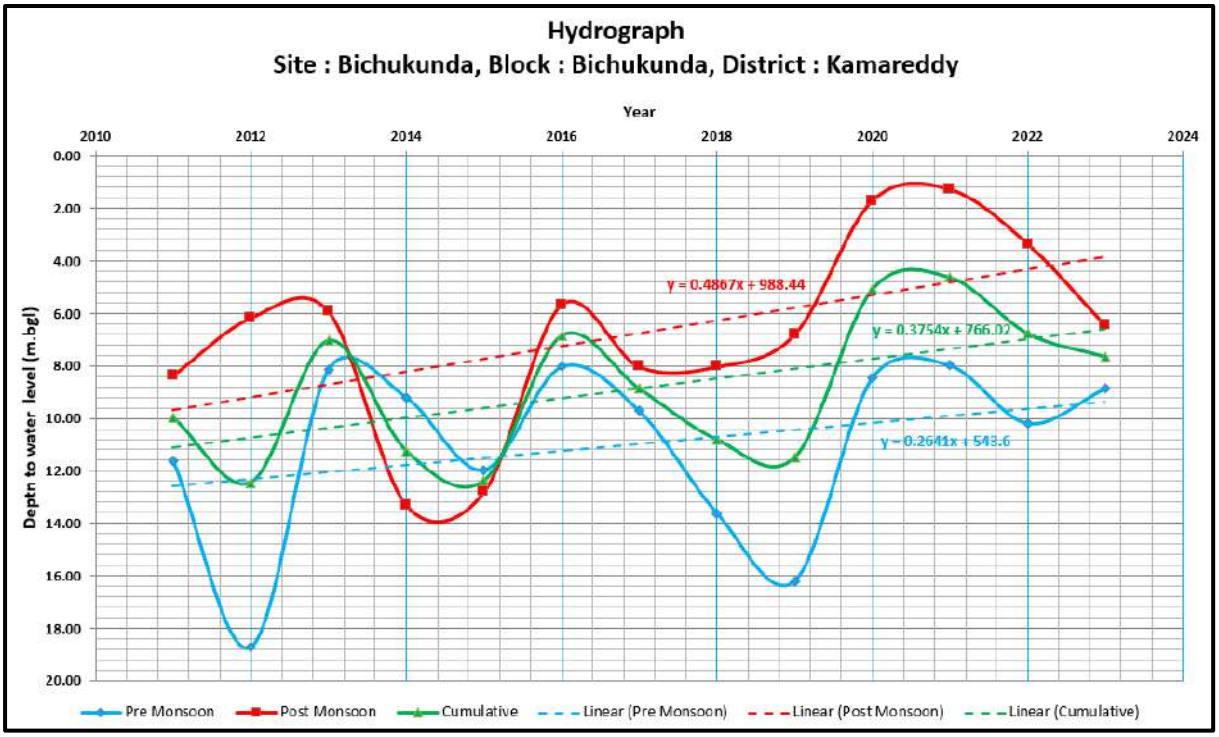


Fig: 7.47f



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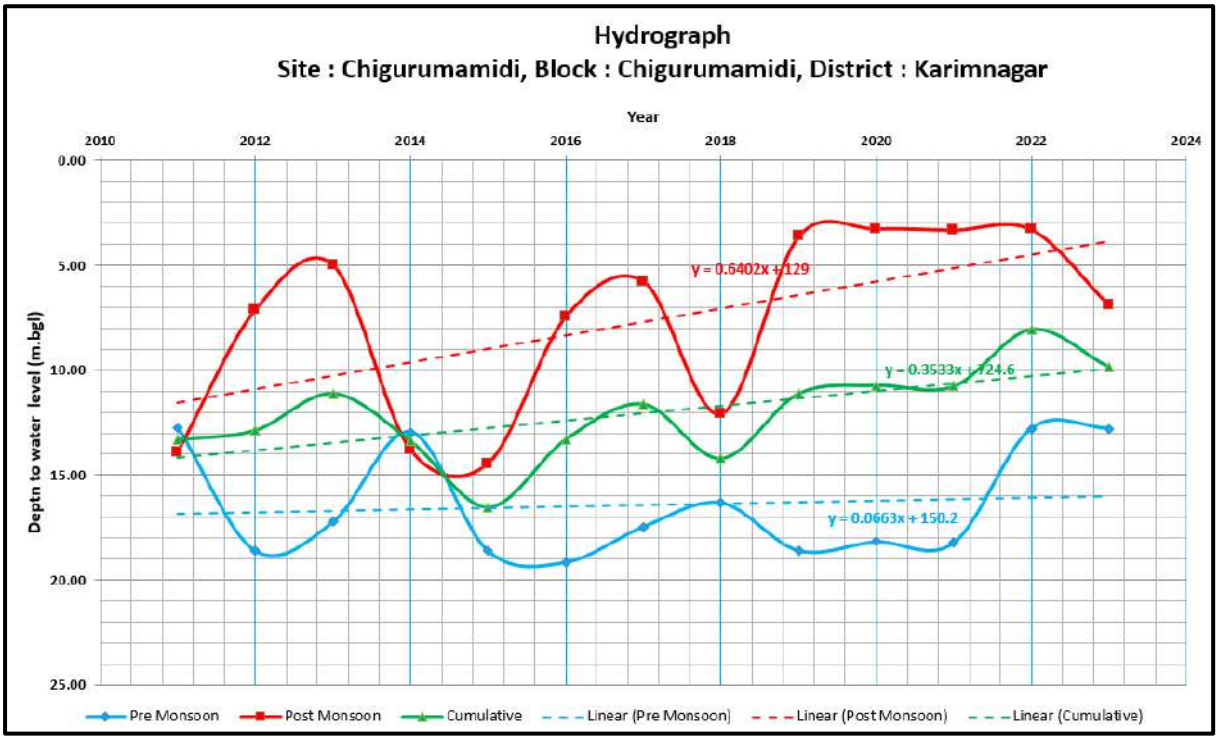


Fig: 7.47h

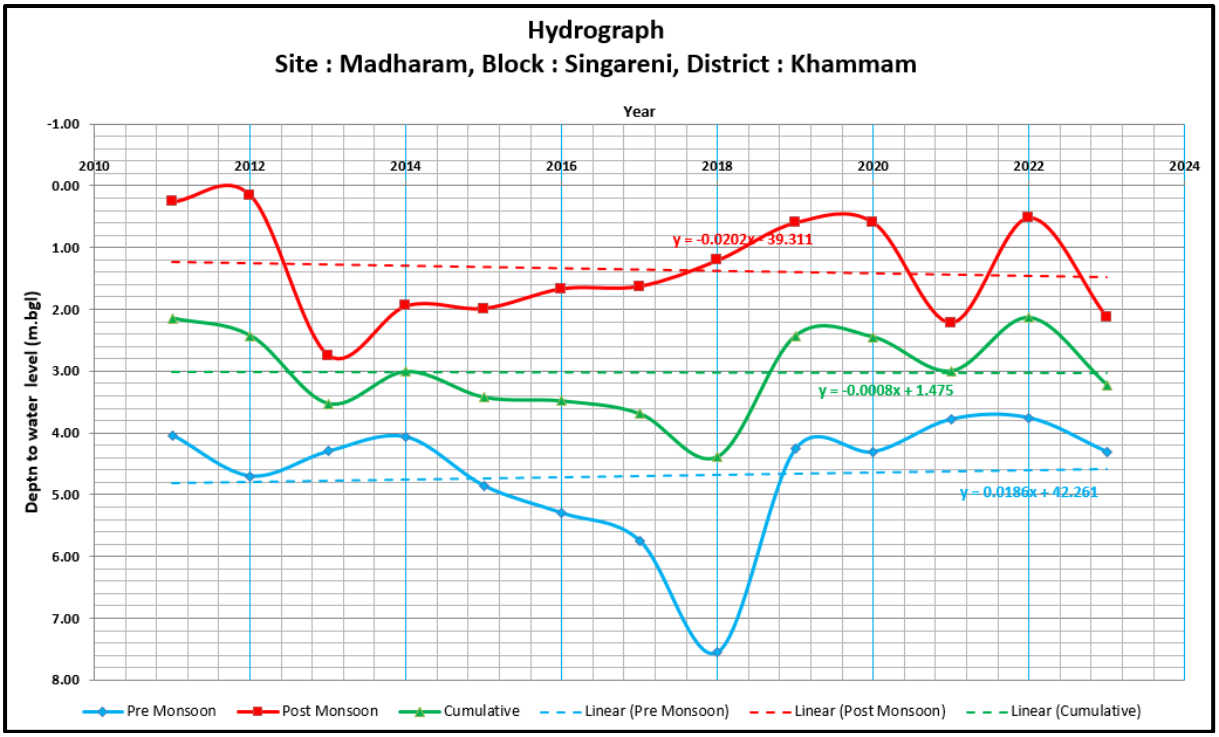


Fig: 7.47i

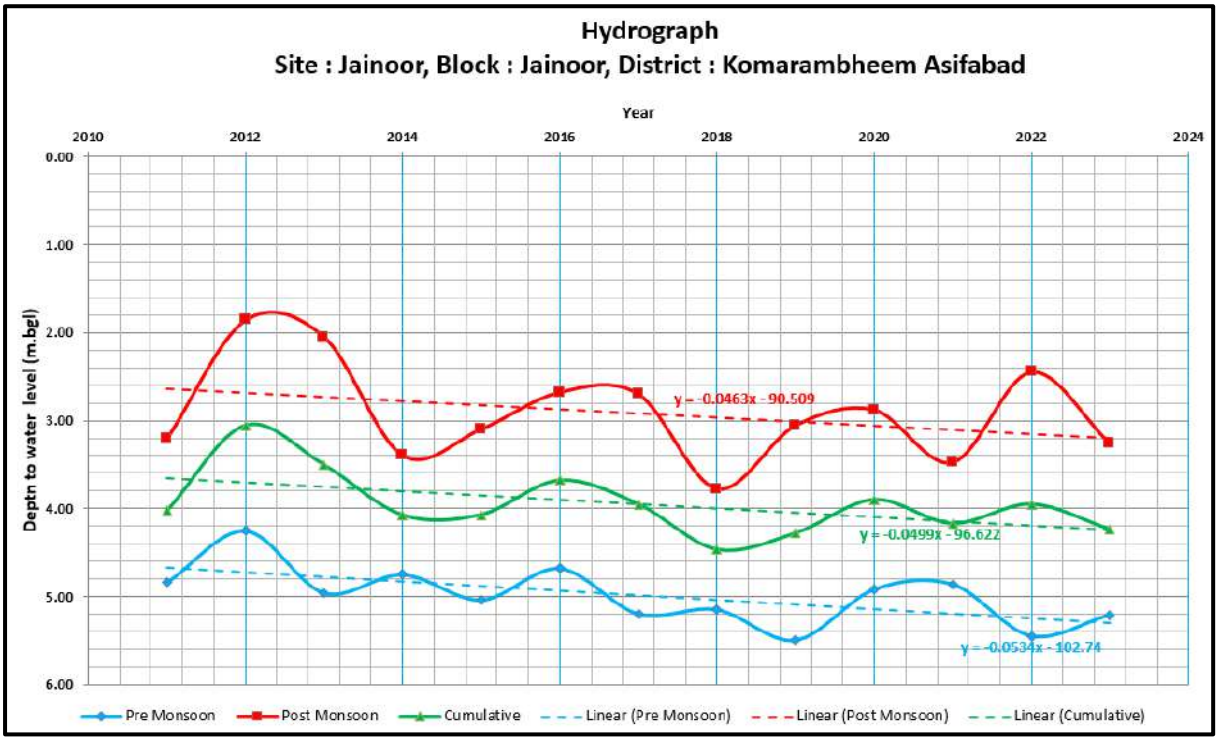


Fig: 7.47j

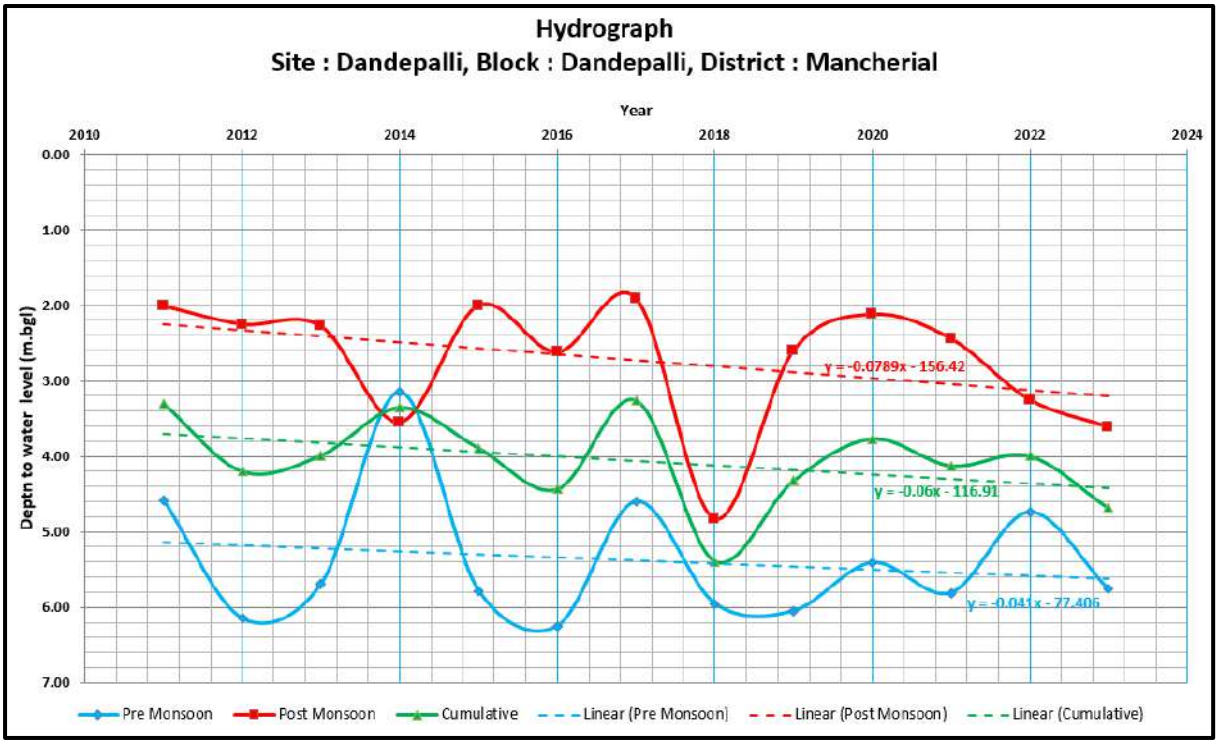


Fig: 7.47k

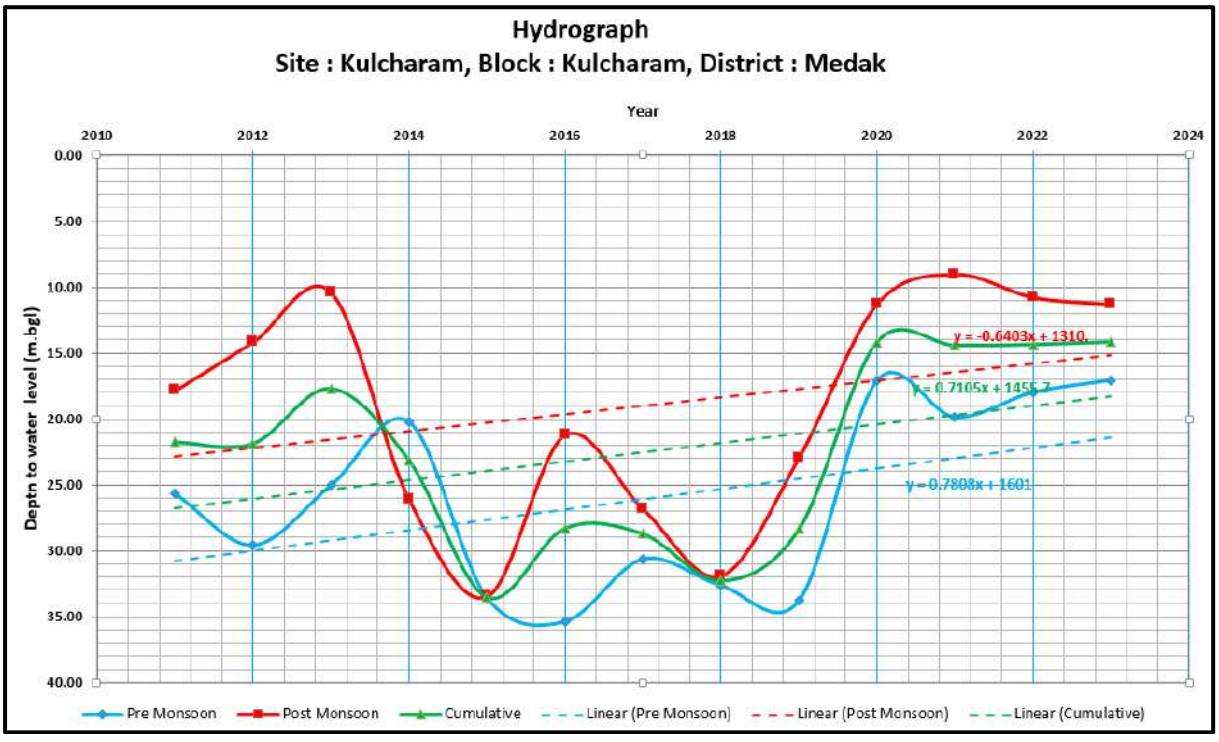
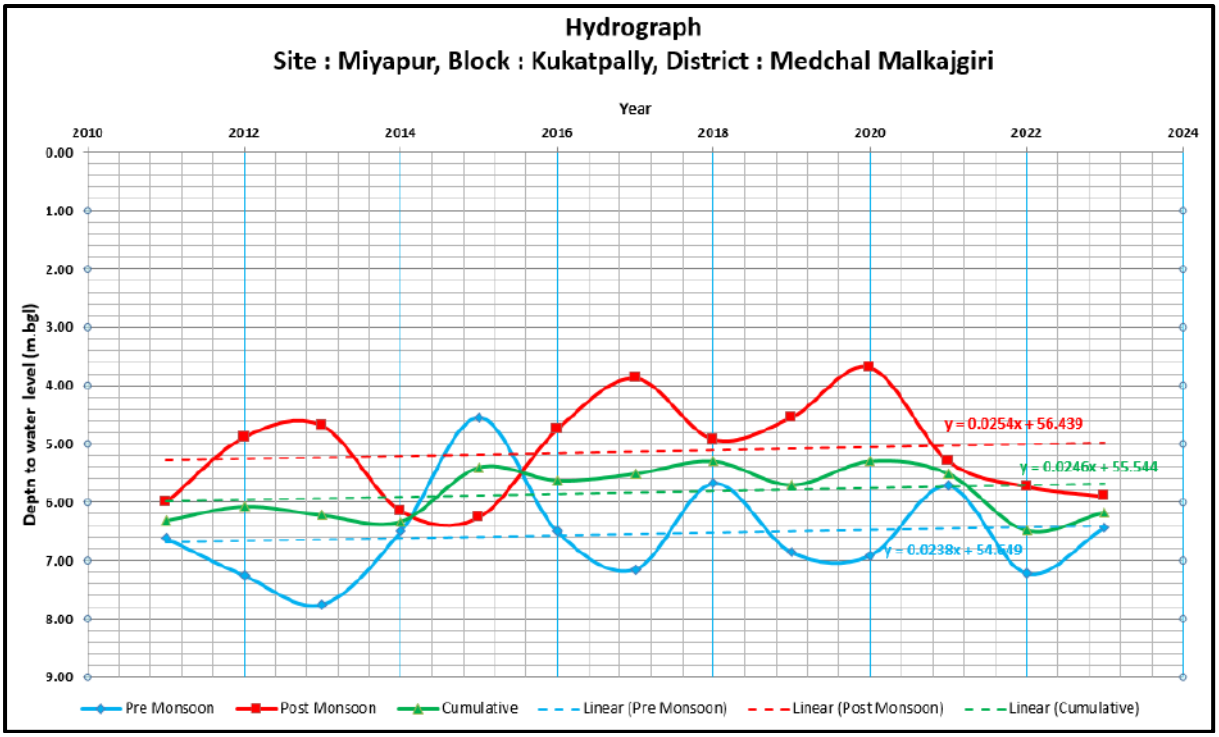


Fig: 7.47l



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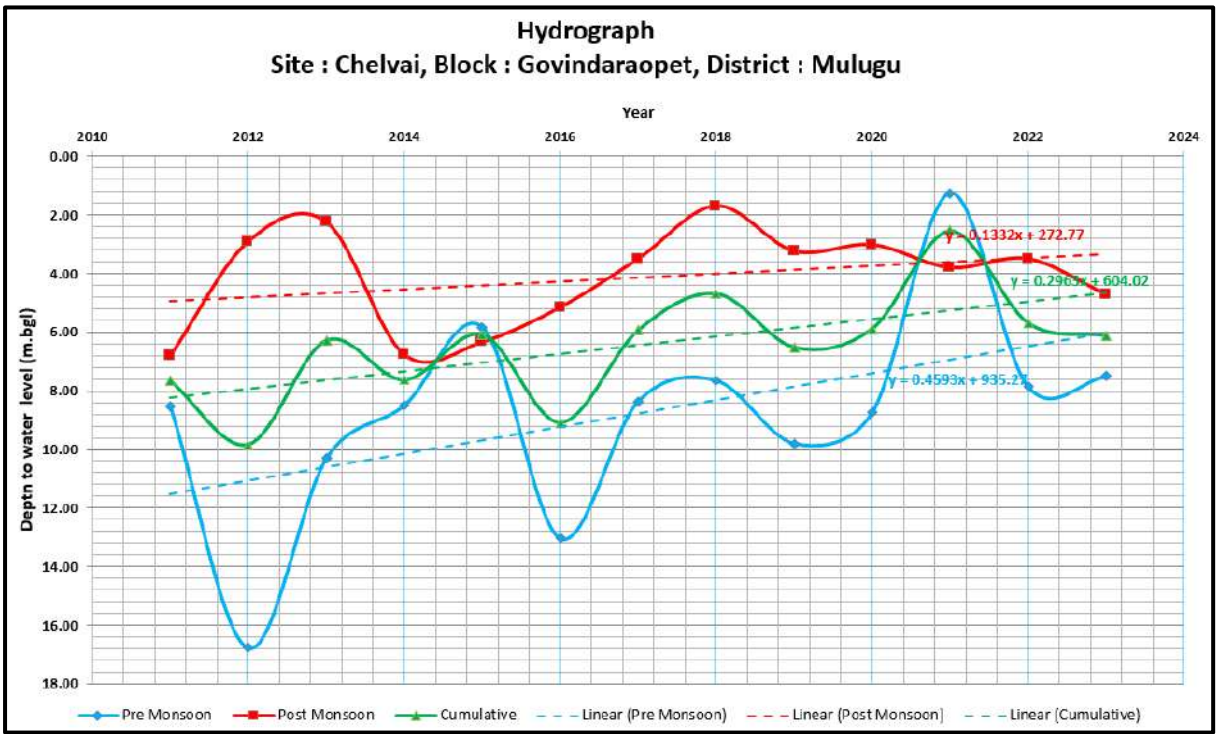

Fig: 7.47n

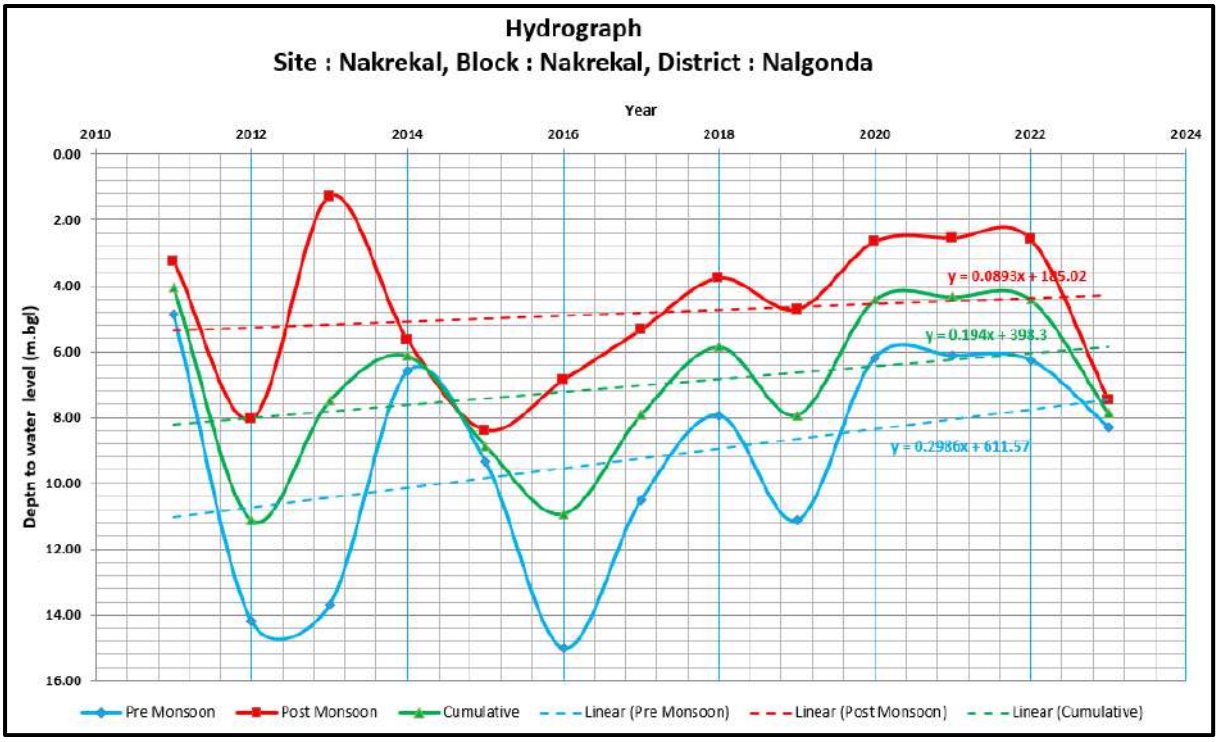

Fig: 7.47o

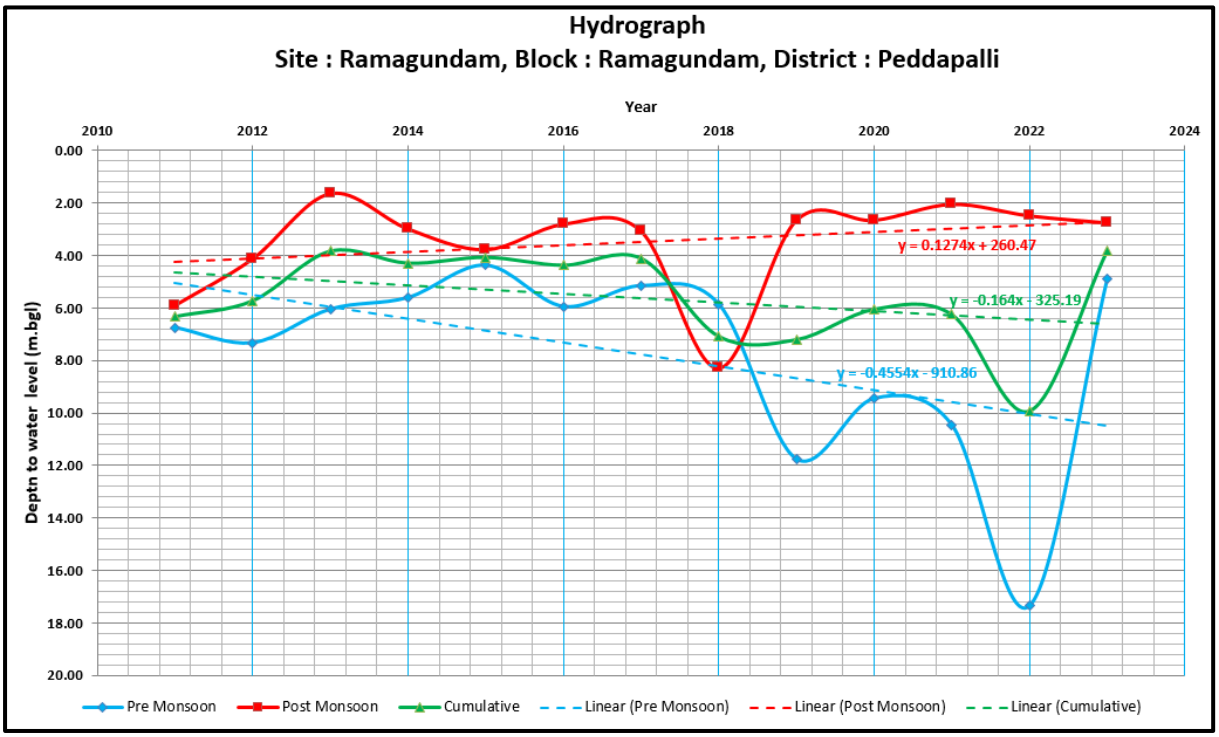

Fig: 7.47p

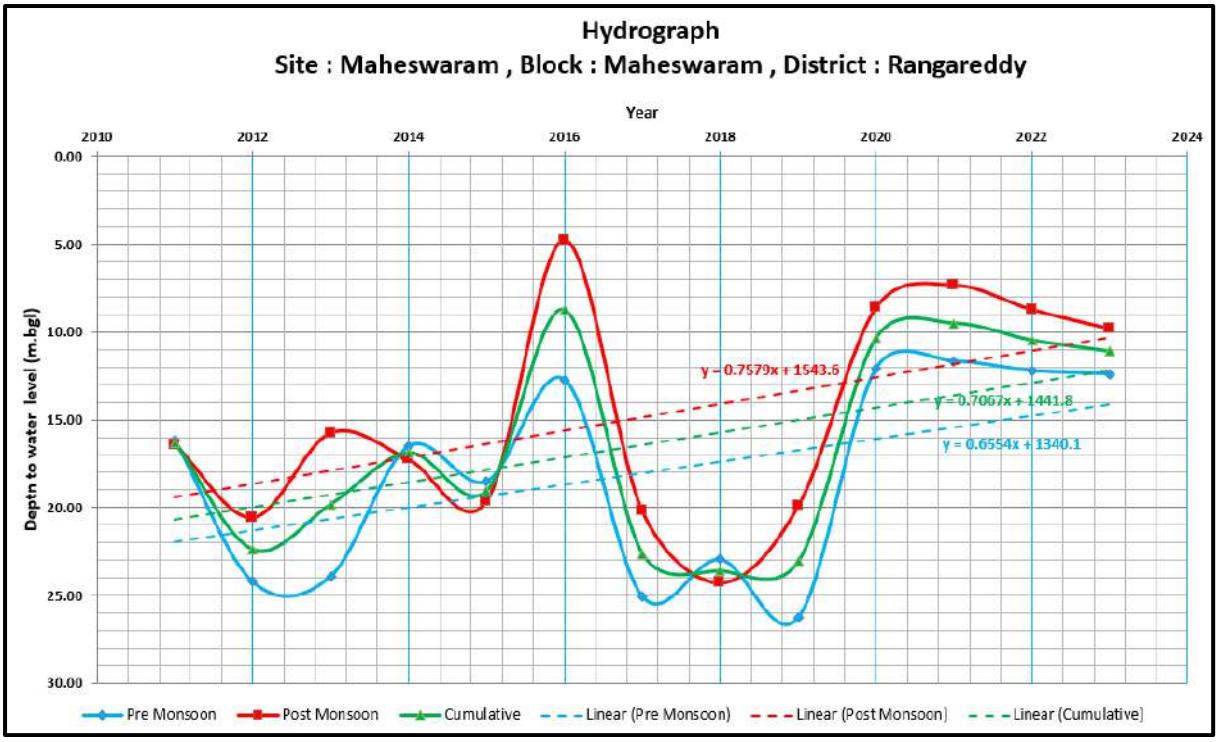

Fig: 7.47q

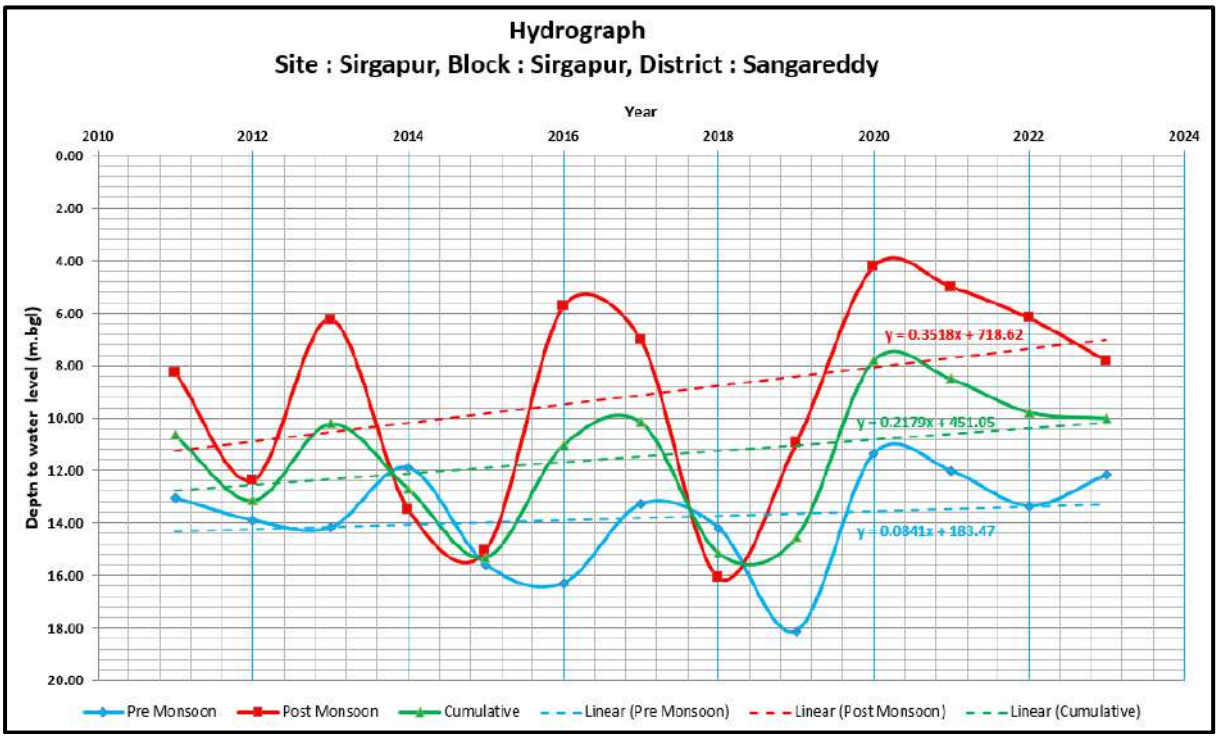

Fig: 7.47r

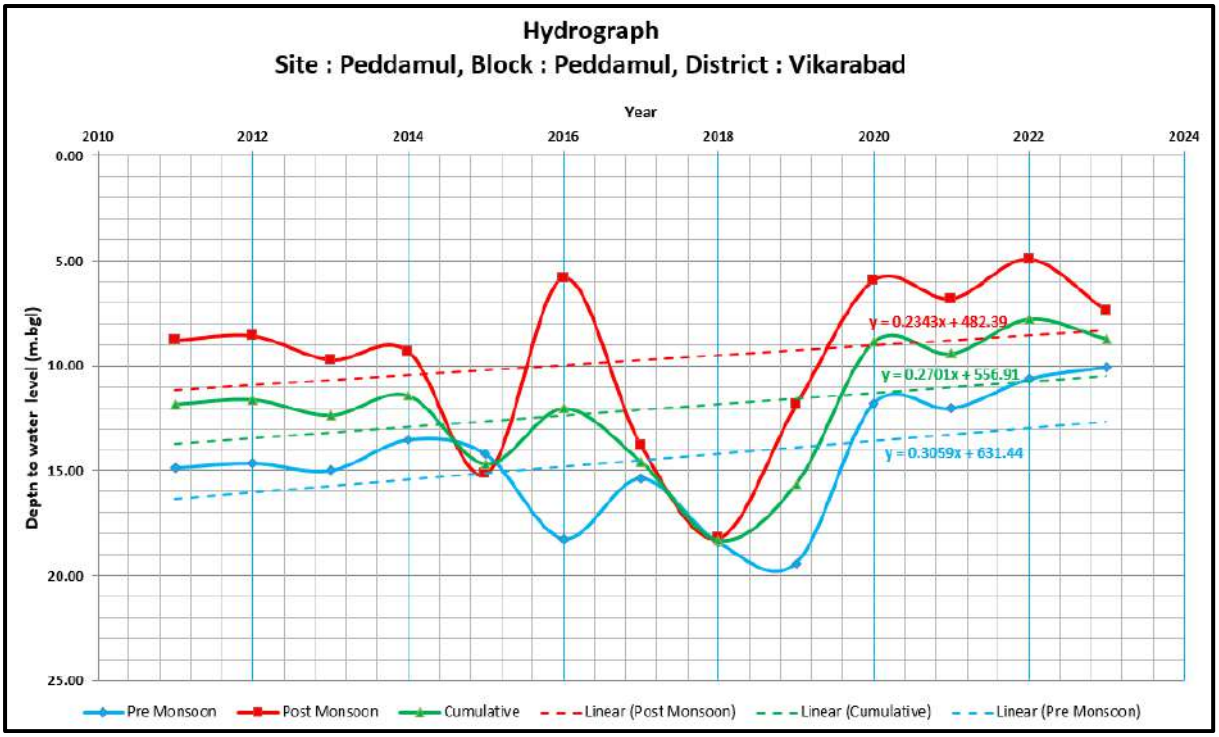

Fig: 7.47s

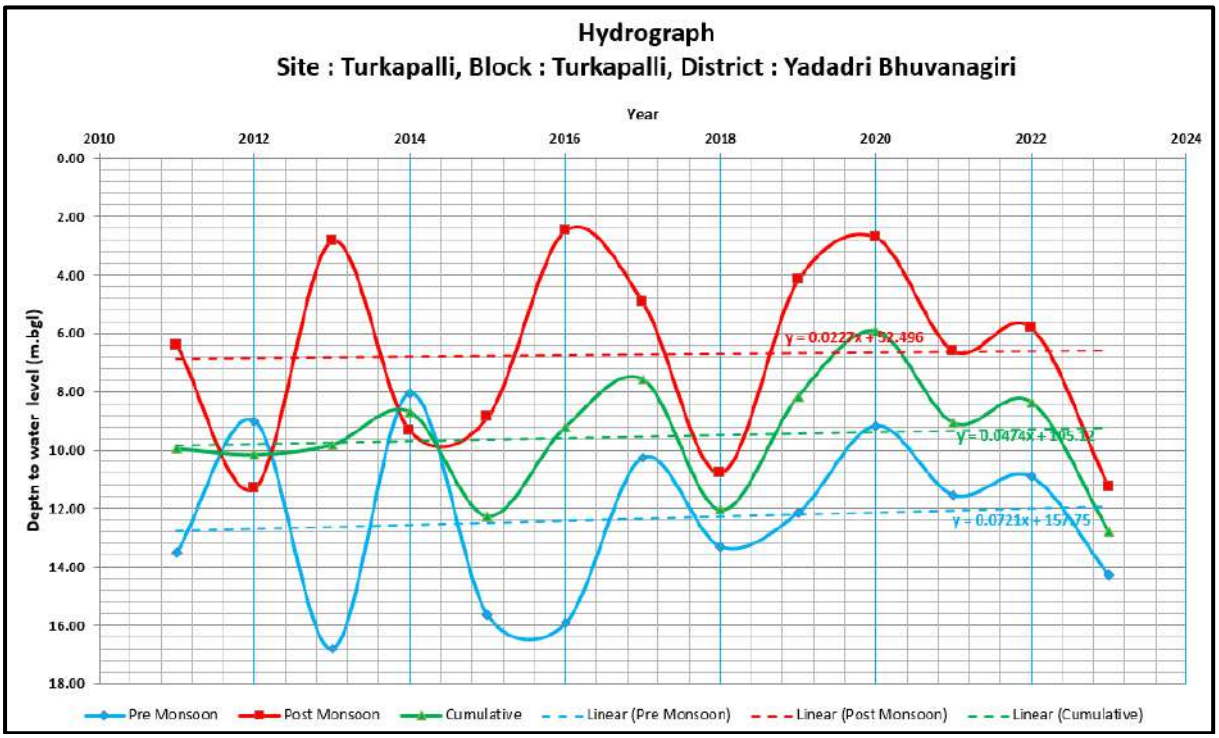

Fig: 7.47t

7.8 Long term water level trends

Long term water level trend map has been prepared based on Ground water level data from 2012-2023 for, pre-monsoon **(Fig 7.48)** and post-monsoon **(Fig 7.49)** periods. During the pre-monsoon period, about 21% of the area recorded falling trend in the range of 0-2.0 m/yr and >2 m/yr is seen in parts of Adilabad, Nirmal, Nizamabad, Kamareddy, Sangareddy, Vikarabad, Mancherial, Peddapalle, Mulugu, Jayashankar Bhupalapally, Nagarkurnool, Mechal Malkajgiri, Siddipet and Bhadradri Kothagudem districts. 79% of the area recorded rising trend in the range of 0-4.0 m/yr (majority in range of 0-2m/yr rise).

During the post-monsoon period, about 11% of the area recorded falling trend in the range of 0->2.0 m/yr is seen in parts of Adilabad, Komarambheem Asifabad, Sangareddy, Vikarabad, Peddapalle, J Gadwal, Suryapet and Bhadradri Kothagudem districts. 89% of the area shows rising trend in the range of 0-4.0 m/yr. Rise of 0-2 m/ yr is predominant throughout the state.

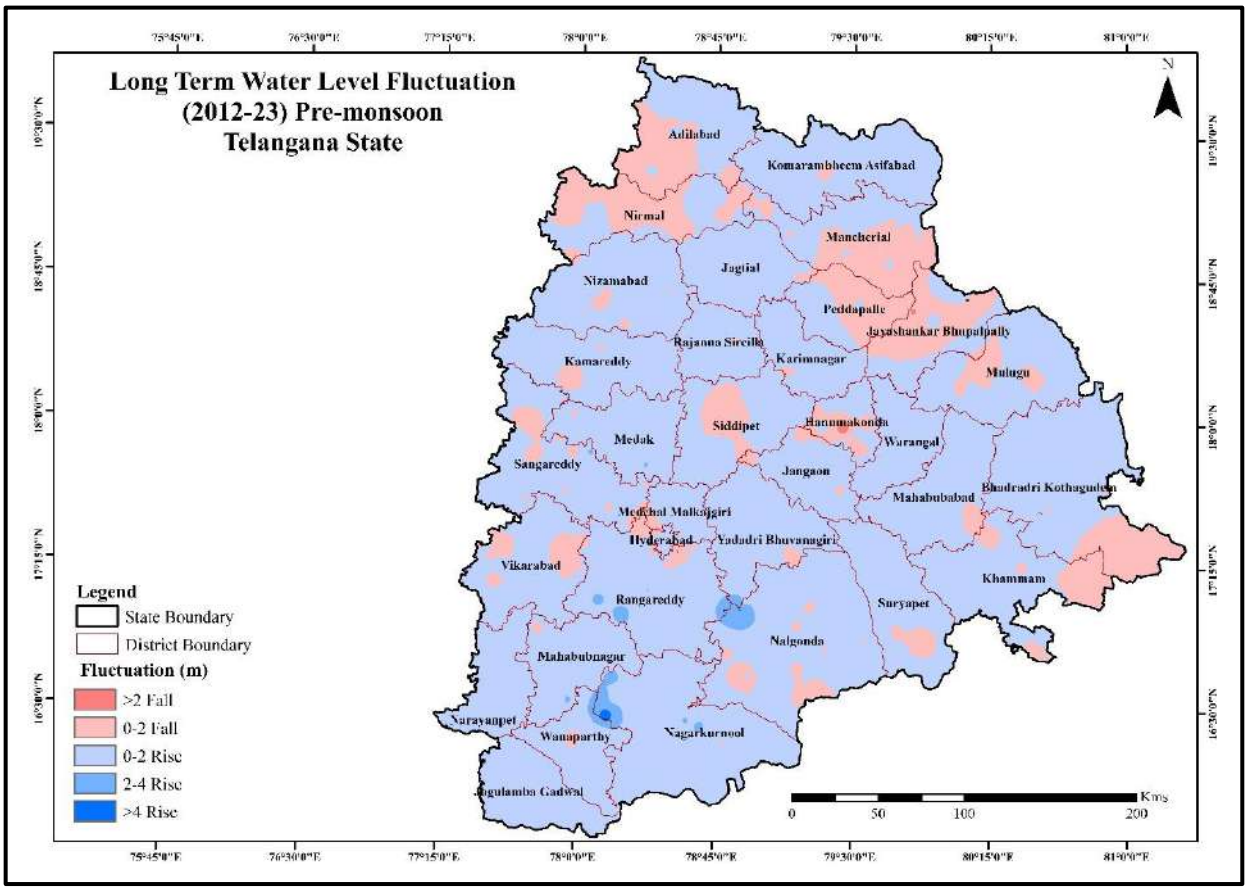

Fig 7.48 Long term water level trend - Pre-monsoon (2012-23)

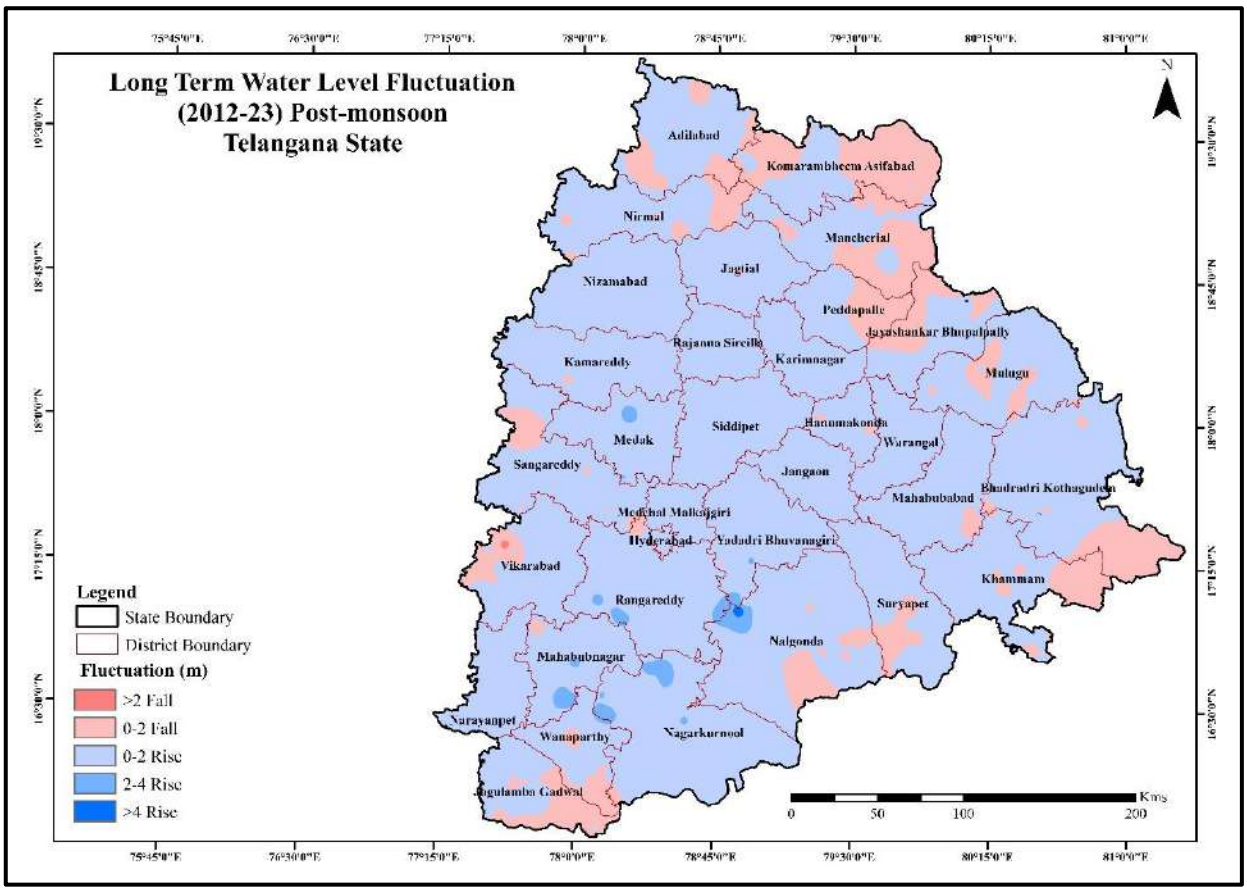

Fig 7.49: Long term water level trend – Post-monsoon (2012-23)

7.9 Ground water level dynamics and rainfall relationship:

The seasonal and annual ground water level dynamics is majorly influenced by the present and previous year rainfall conditions, topography, geology and other aquifer parameters. However, rainfall plays a major controlling parameter. The seasonal and annual ground water level scenario of Telangana State for the period 2023-2024 is discussed in Chapter no-7 of this report in detail.

The Seasonal water level dynamics in Telangana State show during May 2023 that majority of the State covered with water level 5 to 10 mbgl (51% of the area) followed by 2 to 5 mbgl (25% of the area) whereas 23% of the areas were covered with water level more than10 mbgl and over all very minor area is occupied by the water level below 2 mbgl (1 % of the area). During August 2023 and November 2023, the significant changes in the ground water level is observed. During August 2023 (November 2023) majority of the State area is covered by the water level between 2 to 5 mbgl with 44% (36%) of the area and 5 to 10 mbgl by 36% (49%) of the area. Deeper water level (more than 10 mbgl) conditions were occupied by the 9% (14%) area of the State. The seasonal analysis shows significant reduction in recharge as compared to the pre and post monsoon conditions. The Annual Ground Water Level status of Telangana State observed with significant fluctuations as compared to water level scenario of 2022. May 2023 showed over all rising water level (70% of the area) conditions whereas as during August 2023 (83% of the area) and November 2023 (97% of the area) showing majorly falling water level as compared with August 2022 and November 2022 status. The decadal water level fluctuations observed for May 2023, August 2023 and November 2023 with 85% & 76% of the area rise in water level and 53% of the area fall in water level, respectively.

The rainfall analysis showed significant variability at seasonal to annual time scales with wide range of spatial distribution. At seasonal time scales, the State rainfall during May 2023, 11% above rainfall as compared 2022 rainfall and 46% above compared to normal rainfall (climatic average), during August 2023, -27% below rainfall compared to August 2022 and 8% above compared to normal rainfall, during November 2023 the rainfall was -26% below rainfall as compared to 2022 and 6.5% above from normal rainfall. The annual rainfall in 2022 was 1268 mm whereas annual rainfall in 2023 was 1231 mm which is -3% lower rainfall was received in 2023 as compared with 2022. The seasonal and annual rainfall variation coupled with fluctuations in rainfall patterns in compared with rainfall received during previous year 2022 have had a significant impact on groundwater level dynamics.

8. Conclusion

The groundwater scenario in Telangana for 2023 reflects a generally positive trend, driven by favorable rainfall and consistent monitoring efforts. With 36% above-average rainfall, primarily from the Southwest monsoon, groundwater levels rose significantly across the state. The state's varied aquifers showed different responses, with shallow water levels in sandstone regions and deeper levels in areas with gneissic and basalt formations.

Key observations include:

Water Level Fluctuations: Groundwater levels rose in 76% of the monitored area from May to November 2023, attributed to excess rainfall. The seasonal comparison showed an overall increase in water levels, particularly in the northwestern and central districts.

Aquifer Dynamics: The water levels in confined/semi-confined aquifers also demonstrated fluctuations, with deeper levels more prevalent in certain districts. However, shallow levels were noticed in isolated patches.

Long-Term Trends: From 2012-2023, most regions showed a rising trend in groundwater levels, especially during the post-monsoon period, with only 21% of the area recording a falling trend during the pre-monsoon season.

Sustainable Management: The data from 1281 monitoring wells, along with hydrograph analysis, underscores the importance of a data-driven approach to groundwater management. The rising trends observed in long-term hydrographs suggest effective groundwater recharge and sustainable usage.

Overall, Telangana's groundwater levels have shown a positive response to increased rainfall and ongoing monitoring initiatives. Continued efforts in managing surface water and groundwater recharge will be crucial for sustaining this trend, especially considering the projected increase in surface water command areas in the state.

ANNEXURE-I : DISTRICT WISE STATUS OF GROUND WATER MONITORING WELLS, TELANGANA STATE, MAY 2023																							
S. No.	**District**	**No of Stations to be monitored**			**No of Stations where WL data Recorded**			**No of Stations Monitored as Dry**			**No of Stations not Monitored due to Various Reasons**			**No of Stations Abandoned**			**No of Stations Established**			**No of Stations as on May, 2023**		
		DW	**Pz**	**Total**	**DW**	**Pz**	**Total**	**DW**	**Pz**	**Total**	**DW**	**Pz**	**Total**	**DW**	**Pz**	**Total**	**DW**	**Pz**	**Total**	**DW**	**Pz**	**Total**
1	Adilabad	11	40	51	11	38	49	0	0	0	0	2	2	0	0	0	5	0	5	16	40	56
2	Bhadradi Kothagudem	14	58	72	14	55	69	1	0	1	0	3	3	0	0	0	1	0	1	15	58	73
3	Hanamkonda	4	14	18	4	14	18	0	0	0	0	0	0	0	0	0	0	0	0	4	14	18
4	Hyderabad	5	20	25	5	19	24	0	0	0	0	1	1	0	0	0	3	0	3	8	20	28
5	Jagitial	9	16	25	7	16	23	0	0	0	2	0	2	0	0	0	0	0	0	9	16	25
6	Jangaon	9	33	42	9	33	42	0	0	0	0	0	0	0	0	0	0	0	0	9	33	42
7	Jayshankar Bhupalpally	3	11	14	3	11	14	0	0	0	0	0	0	0	0	0	0	0	0	3	11	14
8	Jogulamba Gadwal	3	14	17	3	13	16	0	1	1	0	1	1	0	0	0	0	0	0	3	14	17
9	Kamareddy	12	13	25	12	13	25	1	0	1	0	0	0	0	0	0	0	14	14	12	27	39
10	Karimnagar	4	19	23	4	19	23	0	0	0	0	0	0	0	0	0	1	2	3	5	21	26
11	Khammam	12	56	68	12	53	65	0	0	0	0	3	3	0	0	0	0	2	2	12	58	70
12	Komarambheem Asifabad	7	32	39	7	32	39	1	0	1	0	0	0	0	0	0	3	0	3	10	32	42
13	Mahabubabad	8	13	21	8	13	21	0	0	0	0	0	0	0	0	0	0	0	0	8	13	21
14	Mahabubnagar	3	23	26	3	23	26	0	0	0	0	0	0	0	0	0	0	0	0	3	23	26
15	Mancherial	9	23	32	9	23	32	1	0	1	0	0	0	0	0	0	1	0	1	10	23	33
16	Medak	4	34	38	4	32	36	1	0	1	0	2	2	0	0	0	1	0	1	5	34	39
17	Medchal Malkajgiri	4	16	20	4	14	18	1	0	1	0	2	2	0	0	0	0	3	3	4	19	23
18	Mulugu	14	7	21	14	7	21	2	0	2	0	0	0	0	0	0	0	0	0	14	7	21
19	Nagarkurnool	2	45	47	2	42	44	0	0	0	0	3	3	0	0	0	0	0	0	2	45	47
20	Nalgonda	13	67	80	13	65	78	0	0	0	0	2	2	0	0	0	4	0	4	17	67	84
21	Narayanpet	2	10	12	2	9	11	0	0	0	0	1	1	0	0	0	0	0	0	2	10	12
22	Nirmal	10	25	35	10	25	35	2	0	2	0	0	0	0	0	0	0	0	0	10	25	35
23	Nizamabad	5	37	42	5	37	42	1	0	1	0	0	0	0	0	0	1	0	1	6	37	43
24	Peddapalle	4	14	18	4	14	18	0	0	0	0	0	0	0	0	0	2	0	2	6	14	20
25	Rajanna Sircilla	1	20	21	1	15	16	0	0	0	0	5	5	0	0	0	0	0	0	1	20	21
26	Rangareddy	12	61	73	12	57	69	2	0	2	0	4	4	0	0	0	1	0	1	13	61	74
27	Sangareddy	6	54	60	6	49	55	2	0	2	0	5	5	0	0	0	0	0	0	6	54	60
28	Siddipet	5	48	53	5	48	53	0	0	0	0	0	0	0	0	0	0	0	0	5	48	53
29	Suryapet	10	24	34	10	23	33	0	1	1	0	1	1	0	0	0	1	0	1	11	24	35
30	Vikarabad	30	36	66	30	36	66	0	0	0	0	0	0	0	0	0	0	0	0	30	36	66
31	Wanaparthy	1	25	26	1	25	26	0	0	0	0	0	0	0	0	0	0	0	0	1	25	26
32	Warangal	6	14	20	6	14	20	0	0	0	0	0	0	0	0	0	0	0	0	6	14	20
33	Yadadri Bhuvanagiri	13	30	43	13	29	42	0	0	0	0	1	1	0	0	0	0	0	0	13	30	43
	Total	**255**	**952**	**1207**	**253**	**916**	**1169**	**15**	**2**	**17**	**2**	**36**	**38**	**0**	**0**	**0**	**24**	**21**	**45**	**279**	**973**	**1252**

S. No.	ANNEXURE-II : DISTRICT WISE STATUS OF GROUND WATER MONITORING WELLS, TELANGANA STATE : AUGUST-2023																					
		No of Stations to be monitored			No of Stations where WL data Recorded			No of Stations Monitored as Dry			No of Stations not Monitored due to Various Reasons			No of Stations Abandoned			No of Stations Established			No of Stations as on August, 2023		
	District	DW	Pz	Total	DW	Pz	Total	DW	Pz	Total	DW	Pz	Total	DW	Pz	Total	DW	Pz	Total	DW	Pz	Total
1		16	40	56	16	40	56	0	0	0	0	0	0	0	0	0	0	0	0	16	40	56
2	Bhadradi Kothagudem	15	58	73	15	56	71	0	0	0	0	2	2	0	0	0	0	0	0	15	58	73
3	Hanamkonda	4	14	18	4	13	17	0	0	0	0	1	1	0	0	0	0	0	0	4	14	18
4	Hyderabad	8	20	28	7	18	25	0	0	0	1	2	3	0	0	0	0	0	0	8	20	28
5	Jagitial	9	16	25	8	16	24	0	0	0	1	0	1	0	0	0	0	0	0	9	16	25
6	Jangaon	9	33	42	9	31	40	0	0	0	0	2	2	0	0	0	0	0	0	9	33	42
7	Jayshankar Bhupalpally	3	11	14	3	11	14	0	0	0	0	0	0	0	0	0	0	0	0	3	11	14
8	Jogulamba Gadwal	3	14	17	3	14	17	0	0	0	0	0	0	0	0	0	0	0	0	3	14	17
9	Kamareddy	12	27	39	12	26	38	0	0	0	0	0	0	0	0	0	0	0	0	12	27	39
10	Karimnagar	5	21	26	5	15	20	0	0	0	0	6	6	0	0	0	0	0	0	5	21	26
11	Khammam	12	58	70	12	57	69	0	0	0	0	1	1	0	0	0	0	0	0	12	58	70
12	Komarambheem Asifabad	10	32	42	10	32	42	0	0	0	0	0	0	0	0	0	0	0	0	10	32	42
13	Mahabubabad	8	13	21	8	11	19	0	0	0	0	2	2	0	0	0	0	0	0	8	13	21
14	Mahabubnagar	3	23	26	3	19	22	0	0	0	0	4	4	0	0	0	0	0	0	3	23	26
15	Mancherial	10	23	33	10	23	33	0	0	0	0	0	0	0	0	0	0	0	0	10	23	33
16	Medak	5	34	39	5	30	35	0	0	0	0	4	4	0	0	0	0	0	0	5	34	39
17	Medchal Malkajgiri	4	19	23	3	18	21	0	0	0	1	1	2	0	0	0	0	0	0	4	19	23
18	Mulugu	14	7	21	14	7	21	0	0	0	0	0	0	0	0	0	0	0	0	14	7	21
19	Nagarkurnool	2	45	47	2	43	45	0	0	0	0	2	2	0	0	0	0	0	0	2	45	47
20	Nalgonda	17	67	84	16	63	79	0	0	0	1	4	5	0	0	0	0	0	0	17	67	84
21	Narayanpet	2	10	12	2	10	12	0	0	0	0	0	0	0	0	0	0	0	0	2	10	12
22	Nirmal	10	25	35	8	25	33	0	0	0	2	0	2	0	0	0	0	0	0	10	25	35
23	Nizamabad	6	37	43	5	38	43	0	0	0	1	0	1	0	0	0	0	0	0	6	37	43
24	Peddapalle	6	14	20	6	14	20	0	0	0	0	0	0	0	0	0	0	0	0	6	14	20
25	Rajanna Sircilla	1	20	21	1	18	19	0	0	0	0	2	2	0	0	0	0	0	0	1	20	21
26	Rangareddy	13	61	74	13	55	68	0	0	0	0	6	6	0	0	0	0	0	0	13	61	74
27	Sangareddy	6	54	60	6	50	56	0	0	0	0	4	4	0	0	0	0	0	0	6	54	60
28	Siddipet	5	48	53	5	46	51	0	0	0	0	2	2	0	0	0	0	0	0	5	48	53
29	Suryapet	11	24	35	11	22	33	0	0	0	0	2	2	0	0	0	0	0	0	11	24	35
30	Vikarabad	30	36	66	27	35	62	0	0	0	3	1	4	0	0	0	0	0	0	30	36	66
31	Wanaparthy	1	25	26	1	23	24	0	0	0	0	2	2	0	0	0	0	0	0	1	25	26
32	Warangal	6	14	20	7	11	18	0	0	0	0	2	2	0	0	0	0	0	0	6	14	20
33	Yadadri Bhuvanagiri	13	30	43	12	30	42	0	0	0	1	0	1	0	0	0	0	0	0	13	30	43
	TOTAL	**279**	**973**	**1252**	**269**	**920**	**1189**	**0**	**0**	**0**	**11**	**52**	**63**	**0**	**0**	**0**	**0**	**0**	**0**	**279**	**973**	**1252**

	ANNEXURE-III : DISTRICT WISE STATUS OF GROUND WATER MONITORING WELLS, TELANGANA STATE : NOVEMBER-2023																					
S. No.	District	No of Stations to be monitored			No of Stations where WL data Recorded			No of Stations Monitored as Dry			No of Stations not Monitored due to Various Reasons			No of Stations Abandoned			No of Stations Established			No of Stations as on November, 2023		
		DW	Pz	Total	DW	Pz	Total	DW	Pz	Total	DW	Pz	Total	DW	Pz	Total	DW	Pz	Total	DW	Pz	Total
1		16	40	56	16	40	56	0	0	0	0	0	0	0	0	0	0	0	0	16	40	56
2	Bhadradi Kothagudem	15	58	73	14	57	71	1	0	1	0	1	1	0	0	0	0	0	0	15	58	73
3	Hanamkonda	4	14	18	4	13	17	0	0	0	0	1	1	0	0	0	0	0	0	4	14	18
4	Hyderabad	8	20	28	7	19	26	0	0	0	1	1	2	0	0	0	0	0	0	8	20	28
5	Jagitial	9	16	25	8	16	24	0	0	0	0	0	0	1	0	1	0	0	0	8	16	24
6	Jangaon	9	33	42	9	30	39	0	0	0	0	3	3	0	0	0	0	0	0	9	33	42
7	Jayshankar Bhupalpally	3	11	14	3	10	13	0	0	0	0	1	1	0	0	0	0	0	0	3	11	14
8	Jogulamba Gadwal	3	14	17	3	14	17	0	0	0	0	0	0	0	0	0	0	0	0	3	14	17
9	Kamareddy	12	27	39	12	27	39	0	0	0	0	0	0	0	0	0	0	0	0	12	27	39
10	Karimnagar	5	21	26	5	19	24	0	0	0	0	2	2	0	0	0	0	0	0	5	21	26
11	Khammam	12	58	70	10	57	67	1	0	1	1	0	1	0	1	1	0	0	0	12	57	69
12	Komarambheem Asifabad	10	32	42	10	31	41	0	0	0	0	1	1	0	0	0	0	0	0	10	32	42
13	Mahabubabad	8	13	21	8	11	19	0	0	0	0	2	2	0	0	0	0	0	0	8	13	21
14	Mahabubnagar	3	23	26	3	22	25	0	0	0	0	1	1	0		0	0	0	0	3	23	26
15	Mancherial	10	23	33	10	23	33	0	0	0	0	0	0	0	0	0	0	0	0	10	23	33
16	Medak	5	34	39	4	28	32	1	0	1	0	5	5	0	1	1	0	0	0	5	33	38
17	Medchal Malkajgiri	4	19	23	4	17	21	0	0	0	0	2	2	0	0	0	0	0	0	4	19	23
18	Mulugu	14	7	21	14	7	21	0	0	0	0	0	0	0	0	0	0	0	0	14	7	21
19	Nagarkurnool	2	45	47	2	44	46	0	0	0	0	1	1	0	0	0	0	0	0	2	45	47
20	Nalgonda	17	67	84	16	63	79	0	0	0	1	1	2	0	3	3	0	0	0	17	64	81
21	Narayanpet	2	10	12	2	10	12	0	0	0	0	0	0	0	0	0	0	0	0	2	10	12
22	Nirmal	10	25	35	8	25	33	0	0	0	0	0	0	2	0	2	0	0	0	8	25	33
23	Nizamabad	6	37	43	5	37	42	0	0	0	0	0	0	1	0	1	0	0	0	5	37	42
24	Peddapalle	6	14	20	6	14	20	0	0	0	0	0	0	0	0	0	0	0	0	6	14	20
25	Rajanna Sircilla	1	20	21	1	15	16	0	0	0	0	5	5	0	0	0	0	0	0	1	20	21
26	Rangareddy	13	61	74	12	55	67	0	0	0	1	5	6	0	1	1	0	0	0	13	60	73
27	Sangareddy	6	54	60	6	53	59	0	0	0	0	0	0	0	1	1	0	0	0	6	53	59
28	Siddipet	5	48	53	4	47	51	0	0	0	1	1	2	0	0	0	0	0	0	5	48	53
29	Suryapet	11	24	35	11	22	33	0	0	0	0	1	1	0	1	1	0	0	0	11	23	34
30	Vikarabad	30	36	66	29	35	64	0	0	0	1	1	2	0	0	0	0	0	0	30	36	66
31	Wanaparthy	1	25	26	1	25	26	0	0	0	0	0	0	0	0	0	0	0	0	1	25	26
32	Warangal	6	14	20	7	10	17	0	0	0	0	3	3	0	0	0	0	0	0	6	14	20
33	Yadadri Bhuvanagiri	13	30	43	12	29	41	1	0	1	0	0	0	0	1	1	0	0	0	13	29	42
	TOTAL	**279**	**973**	**1252**	**266**	**925**	**1191**	**4**	**0**	**4**	**6**	**38**	**44**	**4**	**9**	**13**	**0**	**0**	**0**	**275**	**964**	**1239**

	ANNEXURE-IV : DISTRICT WISE STATUS OF GROUND WATER MONITORING WELLS, TELANGANA STATE : JANUARY-2024																					
S. No.	District	No of Stations to be monitored			No of Stations where WL data Recorded			No of Stations Monitored as Dry			No of Stations not Monitored due to Various Reasons			No of Stations Abandoned			No of Stations Established			No of Stations as on January, 2024		
		DW	Pz	Total	DW	Pz	Total	DW	Pz	Total	DW	Pz	Total	DW	Pz	Total	DW	Pz	Total	DW	Pz	Total
1	Adilabad	16	39	55	16	37	53	0	0	0	0	2	2	0	0	0	0	0	0	16	39	55
2	Bhadradi Kothagudem	15	58	73	14	50	64	1	0	1	0	8	8	0	0	0	0	0	0	15	58	73
3	Hanamkonda	4	14	18	4	9	13	0	0	0	0	0	0	0	0	0	0	0	0	4	14	18
4	Hyderabad	8	20	28	6	18	24	0	0	0	1	2	3	0	0	0	0	0	0	8	20	28
5	Jagitial	8	16	24	8	16	24	0	0	0	0	0	0	0	0	0	0	0	0	8	16	24
6	Jangaon	9	33	42	8	24	32	0	0	0	0	0	0	0	0	0	0	0	0	9	33	42
7	Jayshankar Bhupalpally	3	11	14	3	11	14	0	0	0	0	0	0	0	0	0	0	0	0	3	11	14
8	Jogulamba Gadwal	3	14	17	3	14	17	0	0	0	0	0	0	0	0	0	0	0	0	3	14	17
9	Kamareddy	12	27	39	11	26	37	0	0	0	0	0	0	0	0	0	0	0	0	12	27	39
10	Karimnagar	5	21	26	5	20	25	0	0	0	0	1	1	0	0	0	0	0	0	5	21	26
11	Khammam	12	57	69	12	56	68	0	0	0	0	1	1	0	0	0	0	0	0	12	57	69
12	Komarambheem Asifabad	10	32	42	10	30	40	0	0	0	0	2	2	0	0	0	0	0	0	10	32	42
13	Mahabubabad	8	13	21	8	11	19	0	0	0	0	2	2	0	0	0	0	0	0	8	13	21
14	Mahabubnagar	3	23	26	3	21	24	0	0	0	0	1	1	0	0	0	0	0	0	3	23	26
15	Mancherial	10	23	33	10	20	30	0	0	0	0	3	3	0	0	0	0	0	0	10	23	33
16	Medak	5	33	38	4	33	37	1	0	1	0	0	0	0	0	0	0	0	0	5	33	38
17	Medchal Malkajgiri	3	36	39	3	17	20	0	0	0	0	2	2	0	0	0	0	17	17	3	36	39
18	Mulugu	14	7	21	14	7	21	0	0	0	0	0	0	0	0	0	0	0	0	14	7	21
19	Nagarkurnool	2	45	47	2	45	47	0	0	0	0	0	0	0	0	0	0	0	0	2	45	47
20	Nalgonda	17	64	81	13	62	75	1	0	1	3	1	4	0	0	0	0	0	0	17	64	81
21	Narayanpet	2	10	12	2	10	12	0	0	0	0	0	0	0	0	0	0	0	0	2	10	12
22	Nirmal	8	25	33	7	19	26	0	0	0	0	0	0	0	0	0	0	0	0	8	25	33
23	Nizamabad	5	37	42	4	25	29	0	0	0	1	1	2	0	0	0	0	0	0	5	37	42
24	Peddapalle	6	14	20	6	14	20	0	0	0	0	0	0	0	0	0	0	0	0	6	14	20
25	Rajanna Sircilla	1	20	21	1	18	19	0	0	0	0	1	1	0	0	0	0	0	0	1	20	21
26	Rangareddy	13	82	95	11	55	66	1	0	1	1	3	4	0	1	1	0	21	21	13	82	95
27	Sangareddy	6	59	65	5	51	56	1	0	1	0	2	2	0	0	0	0	5	5	6	59	65
28	Siddipet	5	48	53	4	47	51	0	0	0	0	1	1	0	0	0	0	0	0	5	48	53
29	Suryapet	11	23	34	11	22	33	0	0	0	0	1	1	0	0	0	0	0	0	11	23	34
30	Vikarabad	29	36	65	29	34	63	0	0	0	0	2	2	0	0	0	0	0	0	29	36	65
31	Wanaparthy	1	25	26	1	23	24	0	0	0	0	1	1	0	0	0	0	0	0	1	25	26
32	Warangal	7	13	20	6	8	14	0	0	0	0	1	1	0	0	0	0	0	0	7	13	20
33	Yadadri Bhuvanagiri	13	29	42	12	28	40	0	0	0	0	0	0	0	0	0	0	0	0	13	29	42
	TOTAL	**274**	**1007**	**1281**	**256**	**881**	**1137**	**5**	**0**	**5**	**6**	**38**	**44**	**0**	**1**	**1**	**0**	**43**	**43**	**274**	**1007**	**1281**

ANNEXURE-V: DEPTH TO WATER LEVEL FOR UNCONFINED, CONFINED/SEMICONFINED AQUIFERS: TELANGANA STATE

DISTRIBUTION OF PERCENTAGE OF OBSERVATION WELLS (UNCONFINED, CONFINED/ SEMICONFINED AQUIFERS) (MAY, 2023)

Sl. No	District	No of Wells Analysed	Depth to Water Level (m bgl)		No and Percentage of Wells Showing Depth to Water Level (m bgl)											
					0- 2		2 - 5		5 - 10		10 - 20		20 - 40		> 40	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
1	Adilabad	54	1.63	97.48	1	2%	10	19%	20	37%	12	22%	4	7%	7	13%
2	Bhadradri Kothagudem	69	0.00	48.32	10	14%	16	23%	29	42%	7	10%	3	4%	4	6%
3	Hanmakonda	18	0.70	51	1	6%	6	33%	8	44%	0	0%	2	11%	1	6%
4	Hyderabad	27	1.26	57.5	1	4%	8	30%	10	37%	6	22%	1	4%	1	4%
5	Jagtial	23	1.60	10.32	2	9%	10	43%	10	43%	1	4%	0	0%	0	0%
6	Jangaon	42	1.40	26.9	2	5%	15	36%	14	33%	9	21%	2	5%	0	0%
7	Jayashankar	14	0.70	13.77	2	14%	2	14%	4	29%	6	43%	0	0%	0	0%
8	Jogulamba Gadwal	16	1.98	11.54	1	6%	7	44%	7	44%	1	6%	0	0%	0	0%
9	Kamareddy	38	1.27	26.07	1	3%	6	16%	17	45%	13	34%	1	3%	0	0%
10	Karimnagar	26	2.35	18.07	0	0%	11	42%	11	42%	4	15%	0	0%	0	0%
11	Khammam	67	0.12	15.7	13	19%	29	43%	21	31%	4	6%	0	0%	0	0%
12	Komarambhem Asifabad	41	1.23	75	5	12%	6	15%	17	41%	9	22%	1	2%	3	7%
13	Mahabubabad	21	0.84	6.24	3	14%	15	71%	3	14%	0	0%	0	0%	0	0%
14	Mahabubnagar	26	1.36	16.76	2	8%	5	19%	12	46%	7	27%	0	0%	0	0%
15	Mancherial	32	0.22	20.28	1	3%	13	41%	12	38%	5	16%	1	3%	0	0%
16	Medak	36	1.21	27.05	1	3%	6	17%	8	22%	13	36%	8	22%	0	0%
17	Medchal	20	2.70	46.36	0	0%	4	20%	6	30%	9	45%	0	0%	1	5%
18	Mulugu	19	0.80	8.7	1	5%	12	63%	6	32%	0	0%	0	0%	0	0%
19	Nagarkurnool	44	0.45	23.18	6	14%	12	27%	16	36%	9	20%	1	2%	0	0%
20	Nalgonda	82	0.62	21.75	7	9%	32	39%	35	43%	7	9%	1	1%	0	0%
21	Narayanpet	11	1.02	9.89	3	27%	3	27%	5	45%	0	0%	0	0%	0	0%
22	Nirmal	33	3.46	27.79	0	0%	7	21%	12	36%	12	36%	2	6%	0	0%
23	Nizamabad	42	0.59	33.97	2	5%	9	21%	15	36%	13	31%	3	7%	0	0%
24	Peddapalle	20	1.53	15.3	1	5%	7	35%	8	40%	4	20%	0	0%	0	0%
25	Rajanna Sircilla	16	1.91	17.72	1	6%	7	44%	4	25%	4	25%	0	0%	0	0%
26	Rangareddy	68	1.76	58.5	1	1%	16	24%	31	46%	16	24%	2	3%	2	3%
27	Sangareddy	53	3.79	60.5	0	0%	7	13%	18	34%	21	40%	6	11%	1	2%
28	Siddipet	53	3.24	26.53	0	0%	7	13%	23	43%	16	30%	7	13%	0	0%
29	Suryapet	33	1.74	14.38	2	6%	28	85%	2	6%	1	3%	0	0%	0	0%
30	Vikarabad	66	1.33	50.66	1	2%	11	17%	31	47%	19	29%	3	5%	1	2%
31	Wanaparthy	26	0.00	49.5	5	19%	6	23%	8	31%	4	15%	2	8%	1	4%
32	Warangal	20	0.58	12.9	4	20%	4	20%	10	50%	2	10%	0	0%	0	0%
33	Yadadri Bhuvanagiri	42	1.10	27.7	2	5%	12	29%	22	52%	5	12%	1	2%	0	0%
	Total	**1198**	**0.00**	**97.48**	**82**	**7%**	**349**	**29%**	**455**	**38%**	**239**	**20%**	**51**	**4%**	**22**	**2%**

ANNEXURE-VI: DEPTH TO WATER LEVEL FOR UNCONFINED, CONFINED/SEMICONFINED AQUIFERS: TELANGANA STATE																	
DISTRIBUTION OF PERCENTAGE OF OBSERVATION WELLS (UNCONFINED, CONFINED/ SEMICONFINED AQUIFERS) (AUGUST, 2023)																	
Sl. No	**District**	**No of Wells Analysed**	**Depth to Water Table (m bgl)**		**No and Percentage of Wells Showing Depth to Water Level (m bgl)**												
					0- 2		**2 - 5**		**5 - 10**		**10 - 20**		**20 - 40**		**> 40**		
			Min	**Max**	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**	
1	Adilabad	56	0.24	35.37	17	30%	13	23%	16	29%	6	11%	4	7%	0	0%	
2	Bhadradri Kothagudem	71	0	46.85	26	37%	24	34%	10	14%	6	8%	2	3%	3	4%	
3	Hanamkonda	17	0.62	38.58	6	35%	6	35%	4	24%	0	0%	1	6%	0	0%	
4	Hyderabad	25	0.2	15.21	2	8%	10	40%	9	36%	4	16%	0	0%	0	0%	
5	Jagtial	24	0.3	6.68	11	46%	10	42%	3	13%	0	0%	0	0%	0	0%	
6	Jangaon	40	0.6	10.16	16	40%	14	35%	9	23%	1	3%	0	0%	0	0%	
7	Jayashankar Bhupalapally	14	0.08	13.4	5	36%	3	21%	4	29%	2	14%	0	0%	0	0%	
8	Jogulamba Gadwal	17	0.89	11.81	3	18%	7	41%	6	35%	1	6%	0	0%	0	0%	
9	Kamareddy	38	0.44	18.31	4	11%	15	39%	16	42%	3	8%	0	0%	0	0%	
10	Karimnagar	20	0.44	12.3	7	35%	9	45%	3	15%	1	5%	0	0%	0	0%	
11	Khammam	69	0.13	14.33	29	42%	28	41%	11	16%	1	1%	0	0%	0	0%	
12	Komaram Bheem Asifabad	42	0.1	47.48	10	24%	13	31%	16	38%	1	2%	0	0%	2	5%	
13	Mahabubabad	19	0.18	4.08	12	63%	7	37%	0	0%	0	0%	0	0%	0	0%	
14	Mahabubnagar	22	0.51	14.19	3	14%	6	27%	8	36%	5	23%	0	0%	0	0%	
15	Mancherial	33	0.62	23.82	13	39%	11	33%	6	18%	2	6%	1	3%	0	0%	
16	Medak	35	1.43	29.18	2	6%	9	26%	12	34%	5	14%	7	20%	0	0%	
17	Medchal Malkajgiri	21	0.76	13.4	4	19%	6	29%	8	38%	3	14%	0	0%	0	0%	
18	Mulugu	21	0.11	8.22	13	62%	5	24%	3	14%	0	0%	0	0%	0	0%	
19	Nagarkurnool	45	0.06	20.62	11	24%	7	16%	15	33%	11	24%	1	2%	0	0%	
20	Nalgonda	79	0.63	43.95	9	11%	29	37%	29	37%	7	9%	4	5%	1	1%	
21	Narayanpet	12	0.77	9.56	4	33%	2	17%	6	50%	0	0%	0	0%	0	0%	
22	Nirmal	33	0.73	22.07	13	39%	14	42%	4	12%	1	3%	1	3%	0	0%	
23	Nizamabad	43	0.1	23.22	12	28%	7	16%	16	37%	5	12%	3	7%	0	0%	
24	Peddapalle	20	0.4	12.17	9	45%	7	35%	3	15%	1	5%	0	0%	0	0%	
25	Rajanna Sircilla	19	0	12.07	4	21%	8	42%	3	16%	4	21%	0	0%	0	0%	
26	Rangareddy	68	0.43	50.05	7	10%	17	25%	29	43%	12	18%	1	1%	2	3%	
27	Sangareddy	56	0.26	25.5	9	16%	13	23%	20	36%	12	21%	2	4%	0	0%	
28	Siddipet	51	1.89	35.73	1	2%	20	39%	16	31%	11	22%	3	6%	0	0%	
29	Suryapet	33	0.83	12.09	6	18%	22	67%	3	9%	2	6%	0	0%	0	0%	
30	Vikarabad	62	1.61	51.5	4	6%	27	44%	25	40%	5	8%	0	0%	1	2%	
31	Wanaparthy	24	0.36	14.55	6	25%	3	13%	10	42%	5	21%	0	0%	0	0%	
32	Warangal	18	0.15	7.22	11	61%	5	28%	2	11%	0	0%	0	0%	0	0%	
33	Yadadri Bhuvanagiri	42	0.58	14.2	9	21%	14	33%	17	40%	2	5%	0	0%	0	0%	
	Total	**1189**	**0**	**51.5**	**298**	**25%**	**391**	**33%**	**342**	**29%**	**119**	**10%**	**30**	**3%**	**9**	**1%**	

ANNEXURE-VII: DEPTH TO WATER LEVEL FOR UNCONFINED, CONFINED/SEMICONFINED AQUIFERS: TELANGANA STATE																	
DISTRIBUTION OF PERCENTAGE OF OBSERVATION WELLS (UNCONFINED, CONFINED/ SEMICONFINED AQUIFERS) (NOVEMBER, 2023)																	
Sl. No	**District**	**No of Wells Analysed**	**Depth to Water Table (m bgl)**		**No and Percentage of Wells Showing Depth to Water Level (m bgl)**												
					0- 2		**2 - 5**		**5 - 10**		**10 - 20**		**20 - 40**		**> 40**		
			Min	**Max**	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**	
1	Adilabad	56	1.71	36.48	3	5%	21	38%	15	27%	9	16%	8	14%	0	0%	
2	Bhadradri Kothagudem	71		48.52	16	23%	20	28%	19	27%	9	13%	3	4%	4	6%	
3	Hanamkonda	17	1.67	59.59	3	18%	8	47%	4	24%	1	6%	0	0%	1	6%	
4	Hyderabad	26	1.32	46.23	2	8%	10	38%	9	35%	4	15%	0	0%	1	4%	
5	Jagtial	24	1.14	7.15	5	21%	13	54%	6	25%	0	0%	0	0%	0	0%	
6	Jangaon	39	1.45	12.32	1	3%	19	49%	17	44%	2	5%	0	0%	0	0%	
7	Jayashankar Bhupalapally	13	1.4	10.62	3	23%	5	38%	4	31%	1	8%	0	0%	0	0%	
8	Jogulamba Gadwal	17	2.48	14.07	0	0%	9	53%	5	29%	3	18%	0	0%	0	0%	
9	Kamareddy	39	2.06	19.78	0	0%	12	31%	20	51%	7	18%	0	0%	0	0%	
10	Karimnagar	24	1.46	15.8	4	17%	10	42%	8	33%	2	8%	0	0%	0	0%	
11	Khammam	67	0.71	23.95	7	10%	39	58%	12	18%	8	12%	1	1%	0	0%	
12	Komaram Bheem Asifabad	41		56.57	4	10%	10	24%	17	41%	8	20%	0	0%	2	5%	
13	Mahabubabad	19	0.27	7.05	7	37%	9	47%	3	16%	0	0%	0	0%	0	0%	
14	Mahabubnagar	25	1.04	15.23	1	4%	9	36%	8	32%	7	28%	0	0%	0	0%	
15	Mancherial	33	0.58	27.82	3	9%	17	52%	9	27%	3	9%	1	3%	0	0%	
16	Medak	32	2.24	37.18	0	0%	8	25%	12	38%	9	28%	3	9%	0	0%	
17	Medchal Malkajgiri	21	2.57	15.73	0	0%	8	38%	10	48%	3	14%	0	0%	0	0%	
18	Mulugu	21	1	8.66	6	29%	11	52%	4	19%	0	0%	0	0%	0	0%	
19	Nagarkurnool	46	0.48	39.08	7	15%	8	17%	13	28%	12	26%	6	13%	0	0%	
20	Nalgonda	79	0.81	17.48	9	11%	28	35%	27	34%	15	19%	0	0%	0	0%	
21	Narayanpet	12	1.71	9.67	2	17%	4	33%	6	50%	0	0%	0	0%	0	0%	
22	Nirmal	33	2.28	28.47	0	0%	11	33%	16	48%	2	6%	4	12%	0	0%	
23	Nizamabad	42	0.28	20.11	2	5%	13	31%	14	33%	12	29%	1	2%	0	0%	
24	Peddapalle	20	1.29	11.95	2	10%	12	60%	3	15%	3	15%	0	0%	0	0%	
25	Rajanna Sircilla	16	0.65	13.2	3	19%	8	50%	4	25%	1	6%	0	0%	0	0%	
26	Rangareddy	67	1.21	48.51	5	7%	15	22%	29	43%	15	22%	2	3%	1	1%	
27	Sangareddy	59	1.68	46.83	2	3%	14	24%	20	34%	20	34%	2	3%	1	2%	
28	Siddipet	51	2.13	28.43	0	0%	14	27%	24	47%	11	22%	2	4%	0	0%	
29	Suryapet	33	1.21	12.17	4	12%	25	76%	2	6%	2	6%	0	0%	0	0%	
30	Vikarabad	64	1.47	54.5	4	6%	22	34%	28	44%	8	13%	1	2%	1	2%	
31	Wanaparthy	26	1.36	23.28	3	12%	7	27%	11	42%	2	8%	3	12%	0	0%	
32	Warangal	17	0.85	13.35	4	24%	9	53%	3	18%	1	6%	0	0%	0	0%	
33	Yadadri Bhuvanagiri	41	1.53	16.51	3	7%	13	32%	16	39%	9	22%	0	0%	0	0%	
	Total	**1191**	**0.27**	**59.59**	**115**	**10%**	**441**	**37%**	**398**	**33%**	**189**	**16%**	**37**	**3%**	**9**	**1%**	

ANNEXURE-VIII: DEPTH TO WATER LEVEL FOR UNCONFINED, CONFINED/SEMICONFINED AQUIFERS: TELANGANA STATE																
DISTRIBUTION OF PERCENTAGE OF OBSERVATION WELLS (UNCONFINED, CONFINED/ SEMICONFINED AQUIFERS) (JANUARY, 2024)																
Sl. No	**District**	**No of Wells Analysed**	**Depth to Water Table (m bgl)**		**No and Percentage of Wells Showing Depth to Water Table (m bgl) in Range of**											
					0.0 - 2.0		**2.0 - 5.0**		**5.0- 10.0**		**10.0 - 20.0**		**20.0 - 40.0**		**> 40.0**	
			Min	**Max**	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**
1	Adilabad	53	2.02	51.56	0	0%	14	26%	20	38%	8	15%	7	13%	4	8%
2	Bhadradi Kothagudem	64	0.53	48.98	8	13%	22	34%	24	38%	3	5%	5	8%	2	3%
3	Hanamkonda	13	2.38	66.43	0	0%	6	46%	4	31%	2	15%	0	0%	1	8%
4	Hyderabad	24	1.18	48.58	2	8%	4	17%	10	42%	6	25%	0	0%	2	8%
5	Jagitial	24	0.59	8.39	4	17%	12	50%	8	33%	0	0%	0	0%	0	0%
6	Jangaon	32	2.34	16.74	0	0%	11	34%	19	59%	2	6%	0	0%	0	0%
7	Jayshankar Bhupalpally	14	2.23	13.95	0	0%	4	29%	4	29%	6	43%	0	0%	0	0%
8	Jogulamba Gadwal	17	1.68	14.41	1	6%	8	47%	6	35%	2	12%	0	0%	0	0%
9	Kamareddy	37	2.33	21.4	0	0%	6	16%	21	57%	8	22%	2	5%	0	0%
10	Karimnagar	25	1.24	15.79	1	4%	11	44%	10	40%	3	12%	0	0%	0	0%
11	Khammam	68	1.02	17.99	14	21%	33	49%	17	25%	4	6%	0	0%	0	0%
12	Komarambheem Asifabad	40	1.04	57.05	3	8%	10	25%	13	33%	11	28%	1	3%	2	5%
13	Mahabubabad	19	1.17	6.82	2	11%	11	58%	6	32%	0	0%	0	0%	0	0%
14	Mahabubnagar	24	1.93	14.48	1	4%	4	17%	10	42%	9	38%	0	0%	0	0%
15	Mancherial	30	1.15	14.39	1	3%	12	40%	14	47%	3	10%	0	0%	0	0%
16	Medak	37	1.96	24.13	1	3%	3	8%	17	46%	15	41%	1	3%	0	0%
17	Medchal Malkajgiri	20	3.1	20.89	0	0%	4	20%	8	40%	7	35%	1	5%	0	0%
18	Mulugu	21	1.36	9.25	2	10%	11	52%	8	38%	0	0%	0	0%	0	0%
19	Nagarkurnool	47	0.42	36.87	5	11%	9	19%	16	34%	15	32%	2	4%	0	0%
20	Nalgonda	75	1.03	57.21	6	8%	24	32%	23	31%	14	19%	6	8%	2	3%
21	Narayanpet	12	1.62	10.33	1	8%	4	33%	5	42%	2	17%	0	0%	0	0%
22	Nirmal	26	2.5	30.58	0	0%	9	35%	11	42%	4	15%	2	8%	0	0%
23	Nizamabad	29	2.44	24.6	0	0%	10	34%	8	28%	9	31%	2	7%	0	0%
24	Peddapalle	20	1.46	11.99	1	5%	9	45%	6	30%	4	20%	0	0%	0	0%
25	Rajanna Sircilla	19	0.42	25.05	2	11%	5	26%	8	42%	2	11%	2	11%	0	0%
26	Rangareddy	66	1.73	50.05	2	3%	16	24%	24	36%	22	33%	1	2%	1	2%
27	Sangareddy	56	2.53	25.22	0	0%	16	29%	17	30%	22	39%	1	2%	0	0%
28	Siddipet	51	2.9	31.48	0	0%	6	12%	23	45%	19	37%	3	6%	0	0%
29	Suryapet	33	1.39	8.4	4	12%	20	61%	9	27%	0	0%	0	0%	0	0%
30	Vikarabad	63	1.41	61.3	1	2%	14	22%	33	52%	11	17%	3	5%	1	2%
31	Wanaparthy	24	0.27	16.15	3	13%	6	25%	6	25%	9	38%	0	0%	0	0%
32	Warangal	14	0.98	12.23	4	29%	5	36%	4	29%	1	7%	0	0%	0	0%
33	Yadadri Bhuvanagiri	40	1.52	19.28	1	3%	11	28%	17	43%	11	28%	0	0%	0	0%
	TOTAL	**1137**	**0.27**	**66.43**	**70**	**6%**	**350**	**31%**	**429**	**38%**	**234**	**21%**	**39**	**3%**	**15**	**1%**

ANNEXURE-IX: DEPTH TO WATER LEVEL: TELANGANA STATE

DISTRIBUTION OF PERCENTAGE OF CONFINED/SEMI-CONFINED AQUIFERS (May 2023)

Sl. No	District	No of Wells Analysed	Depth to Water Table (m bgl)		No and Percentage of Wells Showing Depth to Water Level (m bgl)											
					0.0 - 2.0		2.0 - 5.0		5.0- 10.0		10.0 - 20.0		20.0 - 40.0		> 40.0	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
1	Adilabad	28	3.32	49.35	0	0%	2	7%	11	39%	6	21%	3	11%	6	21%
2	Bhadradri Kothagudem	46	1.95	48.32	2	4%	12	26%	19	41%	6	13%	3	7%	4	9%
3	Hanamkonda	11	0.7	51	1	9%	3	27%	5	45%	0	0%	1	9%	1	9%
4	Hyderabad	8	2.66	57.5	0	0%	1	13%	4	50%	1	13%	1	13%	1	13%
5	Jagtial	5	1.6	10.32	1	20%	1	20%	2	40%	1	20%	0	0%	0	0%
6	Jangaon	18	2.93	26.9	0	0%	6	33%	6	33%	5	28%	1	6%	0	0%
7	Jayashankar Bhupalapally	9	4.8	13.77	0	0%	1	11%	2	22%	6	67%	0	0%	0	0%
8	Jogulamba Gadwal	8	2.4	9.95	0	0%	2	25%	6	75%	0	0%	0	0%	0	0%
9	Kamareddy	21	4.55	26.07	0	0%	2	10%	7	33%	11	52%	1	5%	0	0%
10	Karimnagar	9	3.58	14.21	0	0%	3	33%	4	44%	2	22%	0	0%	0	0%
11	Khammam	40	0.12	15.7	6	15%	17	43%	15	38%	2	5%	0	0%	0	0%
12	Komaram Bheem Asifabad	28	1.23	75	3	11%	4	14%	13	46%	5	18%	1	4%	2	7%
13	Mahabubabad	4	0.84	3.68	2	50%	2	50%	0	0%	0	0%	0	0%	0	0%
14	Mahabubnagar	13	2.05	16.76	0	0%	3	23%	7	54%	3	23%	0	0%	0	0%
15	Mancherial	17	2.07	20.28	0	0%	8	47%	3	18%	5	29%	1	6%	0	0%
16	Medak	18	2.77	27.05	0	0%	1	6%	4	22%	8	44%	5	28%	0	0%
17	Medchal Malkajgiri	12	2.7	46.36	0	0%	2	17%	4	33%	5	42%	0	0%	1	8%
18	Mulugu	5	3.03	4.9	0	0%	5	100%	0	0%	0	0%	0	0%	0	0%
19	Nagarkurnool	20	1.2	18.31	3	15%	5	25%	6	30%	6	30%	0	0%	0	0%
20	Nalgonda	36	1.07	21.75	4	11%	14	39%	12	33%	5	14%	1	3%	0	0%
21	Narayanpet	3	2.79	9.89	0	0%	2	67%	1	33%	0	0%	0	0%	0	0%
22	Nirmal	13	4.62	27.79	0	0%	2	15%	1	8%	8	62%	2	15%	0	0%
23	Nizamabad	24	0.59	33.97	1	4%	4	17%	9	38%	7	29%	3	13%	0	0%
24	Peddapalle	7	2.71	15.3	0	0%	2	29%	4	57%	1	14%	0	0%	0	0%
25	Rajanna Sircilla	7	1.91	17.72	1	14%	3	43%	1	14%	2	29%	0	0%	0	0%
26	Rangareddy	34	3.33	58.5	0	0%	6	18%	19	56%	5	15%	2	6%	2	6%
27	Sangareddy	22	4.17	27.64	0	0%	3	14%	6	27%	9	41%	4	18%	0	0%
28	Siddipet	31	3.24	26.53	0	0%	6	19%	10	32%	10	32%	5	16%	0	0%
29	Suryapet	5	2.48	4.72	0	0%	5	100%	0	0%	0	0%	0	0%	0	0%
30	Vikarabad	23	3.73	50.66	0	0%	4	17%	4	17%	13	57%	1	4%	1	4%
31	Wanaparthy	16	0.1	49.5	3	19%	4	25%	5	31%	3	19%	0	0%	1	6%
32	Warangal	10	0.58	10.79	3	30%	2	20%	4	40%	1	10%	0	0%	0	0%
33	Yadadri Bhuvanagiri	10	1.1	7.96	1	10%	5	50%	4	40%	0	0%	0	0%	0	0%
	TOTAL	**561**	**0.1**	**75**	**31**	**6%**	**142**	**25%**	**198**	**35%**	**136**	**24%**	**35**	**6%**	**19**	**3%**

ANNEXURE-X: DEPTH TO WATER LEVEL: TELANGANA STATE																	
DISTRIBUTION OF PERCENTAGE OF CONFINED/SEMI-CONFINED AQUIFERS (AUGUST, 2023)																	
Sl. No	District	No of Wells Analysed	Depth to Water Table (m bgl)		No and Percentage of Wells Showing Depth to Water Level (m bgl)												
					0- 2		2 - 5		5 - 10		10 - 20		20 - 40		> 40		
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	
1	Adilabad	29	1.74	31.17	3	10%	5	17%	13	45%	5	17%	3	10%	0	0%	
2	Bhadradri Kothagudem	51	0.02	46.85	19	37%	16	31%	6	12%	5	10%	2	4%	3	6%	
3	Hanamkonda	10	0.93	38.58	3	30%	4	40%	2	20%	0	0%	1	10%	0	0%	
4	Hyderabad	7	2.06	11.3	0	0%	4	57%	2	29%	1	14%	0	0%	0	0%	
5	Jagtial	5	0.3	4.46	3	60%	2	40%	0	0%	0	0%	0	0%	0	0%	
6	Jangaon	17	0.6	10.16	5	29%	8	47%	3	18%	1	6%	0	0%	0	0%	
7	Jayashankar Bhupalapally	9	0.1	13.4	1	11%	2	22%	4	44%	2	22%	0	0%	0	0%	
8	Jogulamba Gadwal	8	2.28	11.81	0	0%	4	50%	3	38%	1	13%	0	0%	0	0%	
9	Kamareddy	20	0.59	18.31	1	5%	5	25%	11	55%	3	15%	0	0%	0	0%	
10	Karimnagar	7	1.4	8.6	3	43%	2	29%	2	29%	0	0%	0	0%	0	0%	
11	Khammam	42	0.13	14.33	16	38%	18	43%	7	17%	1	2%	0	0%	0	0%	
12	Komaram Bheem Asifabad	28	0.1	40.53	5	18%	9	32%	12	43%	1	4%	0	0%	1	4%	
13	Mahabubabad	4	0.28	2.22	3	75%	1	25%	0	0%	0	0%	0	0%	0	0%	
14	Mahabubnagar	12	0.51	14.19	2	17%	5	42%	3	25%	2	17%	0	0%	0	0%	
15	Mancherial	17	0.82	23.82	4	24%	5	29%	5	29%	2	12%	1	6%	0	0%	
16	Medak	18	1.73	29.18	1	6%	1	6%	8	44%	3	17%	5	28%	0	0%	
17	Medchal Malkajgiri	11	2.23	13.4	0	0%	4	36%	4	36%	3	27%	0	0%	0	0%	
18	Mulugu	5	1.43	8.22	1	20%	2	40%	2	40%	0	0%	0	0%	0	0%	
19	Nagarkurnool	22	0.33	18.63	4	18%	4	18%	6	27%	8	36%	0	0%	0	0%	
20	Nalgonda	35	0.86	43.95	5	14%	12	34%	11	31%	3	9%	3	9%	1	3%	
21	Narayanpet	3	1.51	9.56	1	33%	0	0%	2	67%	0	0%	0	0%	0	0%	
22	Nirmal	13	1.1	22.07	3	23%	6	46%	2	15%	1	8%	1	8%	0	0%	
23	Nizamabad	25	0.1	23.22	6	24%	4	16%	8	32%	4	16%	3	12%	0	0%	
24	Peddapalle	7	0.7	12.17	3	43%	3	43%	0	0%	1	14%	0	0%	0	0%	
25	Rajanna Sircilla	9	1.58	12.07	1	11%	6	67%	1	11%	1	11%	0	0%	0	0%	
26	Rangareddy	32	1.37	50.05	2	6%	7	22%	15	47%	5	16%	1	3%	2	6%	
27	Sangareddy	21	1.57	21.63	1	5%	4	19%	8	38%	7	33%	1	5%	0	0%	
28	Siddipet	30	2.2	35.73	0	0%	10	33%	10	33%	8	27%	2	7%	0	0%	
29	Suryapet	6	1.81	11.85	1	17%	4	67%	0	0%	1	17%	0	0%	0	0%	
30	Vikarabad	23	1.61	51.5	2	9%	6	26%	11	48%	3	13%	0	0%	1	4%	
31	Wanaparthy	15	0.36	12.61	4	27%	2	13%	7	47%	2	13%	0	0%	0	0%	
32	Warangal	9	0.15	7.22	6	67%	2	22%	1	11%	0	0%	0	0%	0	0%	
33	Yadadri Bhuvanagiri	12	1.05	9.23	1	8%	5	42%	6	50%	0	0%	0	0%	0	0%	
	Total	**562**	**0.02**	**51.5**	**110**	**20%**	**172**	**31%**	**175**	**31%**	**74**	**13%**	**23**	**4%**	**8**	**1%**	

ANNEXURE-XI: DEPTH TO WATER LEVEL: TELANGANA STATE																	
DISTRIBUTION OF PERCENTAGE OF CONFINED/SEMI-CONFINED AQUIFERS (NOVEMBER, 2023)																	
Sl. No	District	No of Wells Analysed	Depth to Water Table (m bgl)		No and Percentage of Wells Showing Depth to Water Level (m bgl)												
					0- 2		2 - 5		5 - 10		10 - 20		20 - 40		> 40		
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	
1	Adilabad	29	2.18	35.57	0	0%	6	21%	10	34%	6	21%	7	24%	0	0%	
2	Bhadradri Kothagudem	52	0.89	48.52	14	27%	13	25%	10	19%	8	15%	3	6%	4	8%	
3	Hanamkonda	10	1.67	59.59	2	20%	4	40%	2	20%	1	10%	0	0%	1	10%	
4	Hyderabad	8	2.25	46.23	0	0%	2	25%	3	38%	2	25%	0	0%	1	13%	
5	Jagtial	5	1.43	5.13	2	40%	2	40%	1	20%	0	0%	0	0%	0	0%	
6	Jangaon	16	1.45	12.32	1	6%	4	25%	9	56%	2	13%	0	0%	0	0%	
7	Jayashankar Bhupalapally	8	2.73	10.62	0	0%	3	38%	4	50%	1	13%	0	0%	0	0%	
8	Jogulamba Gadwal	8	2.98	14.07	0	0%	3	38%	3	38%	2	25%	0	0%	0	0%	
9	Kamareddy	21	2.51	19.78	0	0%	3	14%	11	52%	7	33%	0	0%	0	0%	
10	Karimnagar	7	2.67	15.8	0	0%	4	57%	2	29%	1	14%	0	0%	0	0%	
11	Khammam	41	1.2	19.27	3	7%	24	59%	9	22%	5	12%	0	0%	0	0%	
12	Komaram Bheem Asifabad	27	1.58	47.05	3	11%	4	15%	14	52%	5	19%	0	0%	1	4%	
13	Mahabubabad	3	0.9	1.97	3	100%	0	0%	0	0%	0	0%	0	0%	0	0%	
14	Mahabubnagar	13	1.04	15.23	1	8%	6	46%	2	15%	4	31%	0	0%	0	0%	
15	Mancherial	17	2.11	27.82	0	0%	5	29%	8	47%	3	18%	1	6%	0	0%	
16	Medak	17	2.24	37.18	0	0%	3	18%	6	35%	6	35%	2	12%	0	0%	
17	Medchal Malkajgiri	11	3.08	15.73	0	0%	2	18%	7	64%	2	18%	0	0%	0	0%	
18	Mulugu	5	1.39	8.66	1	20%	3	60%	1	20%	0	0%	0	0%	0	0%	
19	Nagarkurnool	22	1.34	29.4	4	18%	2	9%	5	23%	9	41%	2	9%	0	0%	
20	Nalgonda	36	1.31	17.48	6	17%	9	25%	13	36%	8	22%	0	0%	0	0%	
21	Narayanpet	3	2.27	9.62	0	0%	1	33%	2	67%	0	0%	0	0%	0	0%	
22	Nirmal	13	3.27	28.47	0	0%	3	23%	4	31%	2	15%	4	31%	0	0%	
23	Nizamabad	24	0.28	20.11	2	8%	7	29%	7	29%	7	29%	1	4%	0	0%	
24	Peddapalle	7	2.62	11.15	0	0%	4	57%	2	29%	1	14%	0	0%	0	0%	
25	Rajanna Sircilla	8	1.92	13.2	1	13%	5	63%	1	13%	1	13%	0	0%	0	0%	
26	Rangareddy	31	1.69	48.51	1	3%	6	19%	16	52%	5	16%	2	6%	1	3%	
27	Sangareddy	23	3.18	21.23	0	0%	2	9%	7	30%	13	57%	1	4%	0	0%	
28	Siddipet	31	2.13	28.43	0	0%	10	32%	12	39%	7	23%	2	6%	0	0%	
29	Suryapet	6	2.81	12.17	0	0%	5	83%	0	0%	1	17%	0	0%	0	0%	
30	Vikarabad	23	1.74	54.5	3	13%	5	22%	6	26%	8	35%	0	0%	1	4%	
31	Wanaparthy	17	1.36	21.06	3	18%	4	24%	8	47%	0	0%	2	12%	0	0%	
32	Warangal	8	0.85	8.15	3	38%	4	50%	1	13%	0	0%	0	0%	0	0%	
33	Yadadri Bhuvanagiri	11	1.53	8.57	2	18%	4	36%	5	45%	0	0%	0	0%	0	0%	
	Total	**561**	**0.28**	**59.59**	**55**	**10%**	**162**	**29%**	**191**	**34%**	**117**	**21%**	**27**	**5%**	**9**	**2%**	

ANNEXURE-XII: DEPTH TO WATER LEVEL: TELANGANA STATE

DISTRIBUTION OF PERCENTAGE OF CONFINED/SEMI-CONFINED AQUIFERS (JANUARY, 2024)

Sl. No	District	No of Wells Analysed	Depth to Water Table (m bgl)		No and Percentage of Wells Showing Depth to Water Level (m bgl)											
					0- 2		2 - 5		5 - 10		10 - 20		20 - 40		> 40	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
1	Adilabad	26	3.06	51.56	0	0%	3	12%	9	35%	5	19%	5	19%	4	15%
2	Bhadradri Kothagudem	45	0.53	48.98	6	13%	13	29%	17	38%	2	4%	5	11%	2	4%
3	Hanamkonda	6	2.66	66.43	0	0%	1	17%	4	67%	0	0%	0	0%	1	17%
4	Hyderabad	8	1.23	48.58	1	13%	0	0%	4	50%	1	13%	0	0%	2	25%
5	Jagtial	5	0.59	7.27	1	20%	1	20%	3	60%	0	0%	0	0%	0	0%
6	Jangaon	14	2.34	16.74	0	0%	2	14%	11	79%	1	7%	0	0%	0	0%
7	Jayashankar Bhupalapally	9	4.08	13.95	0	0%	1	11%	2	22%	6	67%	0	0%	0	0%
8	Jogulamba Gadwal	8	2.34	11.56	0	0%	3	38%	4	50%	1	13%	0	0%	0	0%
9	Kamareddy	21	7.4	21.4	0	0%	0	0%	12	57%	7	33%	2	10%	0	0%
10	Karimnagar	8	1.24	14.32	1	13%	2	25%	4	50%	1	13%	0	0%	0	0%
11	Khammam	41	1.02	17.99	7	17%	20	49%	13	32%	1	2%	0	0%	0	0%
12	Komaram Bheem Asifabad	26	1.04	54.29	2	8%	5	19%	10	38%	7	27%	1	4%	1	4%
13	Mahabubabad	4	1.17	3.28	2	50%	2	50%	0	0%	0	0%	0	0%	0	0%
14	Mahabubnagar	12	1.93	14.48	1	8%	2	17%	4	33%	5	42%	0	0%	0	0%
15	Mancherial	15	3.15	14.39	0	0%	5	33%	7	47%	3	20%	0	0%	0	0%
16	Medak	19	2.36	18.2	0	0%	1	5%	9	47%	9	47%	0	0%	0	0%
17	Medchal Malkajgiri	12	3.6	20.89	0	0%	1	8%	5	42%	5	42%	1	8%	0	0%
18	Mulugu	5	2.82	5.43	0	0%	4	80%	1	20%	0	0%	0	0%	0	0%
19	Nagarkurnool	22	0.48	19.15	3	14%	3	14%	5	23%	11	50%	0	0%	0	0%
20	Nalgonda	34	1.03	57.21	3	9%	8	24%	11	32%	6	18%	4	12%	2	6%
21	Narayanpet	3	2.69	10.29	0	0%	1	33%	1	33%	1	33%	0	0%	0	0%
22	Nirmal	11	3.75	30.58	0	0%	1	9%	4	36%	4	36%	2	18%	0	0%
23	Nizamabad	19	2.44	24.6	0	0%	5	26%	5	26%	7	37%	2	11%	0	0%
24	Peddapalle	7	3.64	11.17	0	0%	2	29%	4	57%	1	14%	0	0%	0	0%
25	Rajanna Sircilla	10	2.41	25.05	0	0%	4	40%	4	40%	1	10%	1	10%	0	0%
26	Rangareddy	33	3.2	50.05	0	0%	7	21%	14	42%	10	30%	1	3%	1	3%
27	Sangareddy	22	3.43	18.99	0	0%	4	18%	5	23%	13	59%	0	0%	0	0%
28	Siddipet	31	3.76	31.48	0	0%	5	16%	10	32%	14	45%	2	6%	0	0%
29	Suryapet	6	3.89	6.73	0	0%	4	67%	2	33%	0	0%	0	0%	0	0%
30	Vikarabad	22	2.59	61.3	0	0%	6	27%	6	27%	8	36%	1	5%	1	5%
31	Wanaparthy	16	0.27	14.47	3	19%	4	25%	4	25%	5	31%	0	0%	0	0%
32	Warangal	7	0.98	12.23	3	43%	2	29%	1	14%	1	14%	0	0%	0	0%
33	Yadadri Bhuvanagiri	11	1.52	10.41	1	9%	4	36%	5	45%	1	9%	0	0%	0	0%
	Total	**538**	**0.27**	**66.43**	**34**	**6%**	**126**	**23%**	**200**	**37%**	**137**	**25%**	**27**	**5%**	**14**	**3%**

ANNEXURE-XIII: DISTRICT WISE FLUCTUATION AND FREQUENCY DISTRIBUTION FROM DIFFERENT RANGES FROM ONE PERIOD TO OTHER																							
MAY, 2023 TO AUGUST, 2023																							
Sl. No	District	No of Wells Analysed	Range of Fluctuation (m)				No of Wells / Percentage Showing Fluctuation												Total No. of Wells			
			Rise		Fall		Rise						Fall									
							0 to 2		2 to 4		> 4		0 to 2		2 to 4		> 4					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	Rise	Fall	Rise	Fall
1	Adilabad	55	0.25	37.34	-1.48	-1.48	12	22%	13	24%	29	54%	1	100%	0	0%	0	0%	54	1	98%	2%
2	Bhadradri	68	0	15.17	-1.73	-0.02	31	47%	21	32%	14	21%	2	100%	0	0%	0	0%	66	2	97%	3%
3	Hanamkonda	17	0.2	20.42	-0.28	-0.28	7	44%	5	31%	4	25%	1	100%	0	0%	0	0%	16	1	94%	6%
4	Hyderabad	24	0.41	26.22	-11.42	-0.56	10	48%	5	24%	6	29%	2	67%	0	0%	1	33%	21	3	88%	13%
5	Jagtial	23	0.36	8.16	-1.04	-1.04	9	41%	8	36%	5	23%	1	100%	0	0%	0	0%	22	1	96%	4%
6	Jangaon	39	0.15	16.91	-1.89	-0.19	10	29%	10	29%	14	41%	5	100%	0	0%	0	0%	34	5	87%	13%
7	Jayashankar	14	1.35	9.56	-1.54	-0.04	2	18%	4	36%	5	45%	3	100%	0	0%	0	0%	11	3	79%	21%
8	Jogulamba Gadwal	16	0.12	5.17	-0.53	-0.01	10	91%	0	0%	1	9%	5	100%	0	0%	0	0%	11	5	69%	31%
9	Kamareddy	37	0.5	21.01	-7.03	-0.02	9	30%	9	30%	12	40%	6	86%	0	0%	1	14%	30	7	81%	19%
10	Karimnagar	20	0.25	8.73			8	40%	5	25%	7	35%	0	0%	0	0%	0	0%	20		100	0%
11	Khammam	66	0.16	8.76	-2.33	-0.02	36	63%	15	26%	6	11%	8	89%	1	11%	0	0%	57	9	86%	14%
12	Komaram Bheem	41	0.24	59.62	-2.65	-0.11	18	46%	11	28%	10	26%	1	50%	1	50%	0	0%	39	2	95%	5%
13	Mahabubabad	19	0.36	3.64	-0.47	-0.47	8	44%	10	56%	0	0%	1	100%	0	0%	0	0%	18	1	95%	5%
14	Mahabubnagar	22	0.01	5.43	-3.04	-0.49	8	50%	6	38%	2	13%	4	67%	2	33%	0	0%	16	6	73%	27%
15	Mancherial	32	0.29	6.3	-3.54	-0.54	8	30%	13	48%	6	22%	1	20%	4	80%	0	0%	27	5	84%	16%
16	Medak	34	0.15	9.87	-6.88	-0.14	8	29%	9	32%	11	39%	2	33%	2	33%	2	33%	28	6	82%	18%
17	Medchal Malkajgiri	19	0.47	38.3	-1.84	-0.23	6	35%	4	24%	7	41%	2	100%	0	0%	0	0%	17	2	89%	11%
18	Mulugu	19	0.69	6.4	-4.58	-2.33	6	35%	5	29%	6	35%	0	0%	1	50%	1	50%	17	2	89%	11%
19	Nagarkurnool	42	0.17	13.91	-8.88	-0.11	18	75%	4	17%	2	8%	11	61%	4	22%	3	17%	24	18	57%	43%
20	Nalgonda	78	0.15	3.27	-26.24	-0.06	33	87%	5	13%	0	0%	27	68%	4	10%	9	23%	38	40	49%	51%
21	Narayanpet	11	0.25	2.26	-3.11	-0.02	7	78%	2	22%	0	0%	1	50%	1	50%	0	0%	9	2	82%	18%
22	Nirmal	32	1.27	24.82	-2.27	-0.43	2	7%	8	27%	20	67%	1	50%	1	50%	0	0%	30	2	94%	6%
23	Nizamabad	42	0.4	11.46	-4.14	-0.17	8	21%	15	39%	15	39%	2	50%	1	25%	1	25%	38	4	90%	10%
24	Peddapalle	20	0.6	7.79			7	35%	7	35%	6	30%	0	0%	0	0%	0	0%	20		100	0%
25	Rajanna Sircilla	14	1.3	10.44	-1.38	-0.76	7	64%	2	18%	2	18%	3	100%	0	0%	0	0%	11	3	79%	21%
26	Rangareddy	63	0.03	9.96	-12.02	-0.25	29	54%	11	20%	14	26%	4	44%	3	33%	2	22%	54	9	86%	14%
27	Sangareddy	51	0.69	26.514	-10.92	-0.43	9	19%	11	23%	27	57%	2	50%	0	0%	2	50%	47	4	92%	8%
28	Siddipet	51	0.71	17.29	-21.42	-1.42	8	18%	16	36%	21	47%	2	33%	1	17%	3	50%	45	6	88%	12%
29	Suryapet	32	0.15	4.5	-2.61	-0.18	18	78%	4	17%	1	4%	7	78%	2	22%	0	0%	23	9	72%	28%
30	Vikarabad	62	0.2	23.1	-4.03	-0.09	15	27%	17	31%	23	42%	6	86%	0	0%	1	14%	55	7	89%	11%
31	Wanaparthy	24	0.36	42.04	-12.61	-0.03	10	56%	3	17%	5	28%	4	67%	0	0%	2	33%	18	6	75%	25%
32	Warangal	18	0.33	9.04	-0.25	-0.01	7	44%	3	19%	6	38%	2	100%	0	0%	0	0%	16	2	89%	11%
33	Yadadri Bhuvanagiri	41	0.14	23.67	-6.23	-0.08	12	41%	7	24%	10	34%	8	67%	0	0%	4	33%	29	12	71%	29%
	Total	**1146**	**0.00**	**59.62**	**-26.24**	**-0.01**	**396**	**41%**	**268**	**28%**	**297**	**31%**	**125**	**68%**	**28**	**15%**	**32**	**17%**	**961**	**185**	**84%**	**16%**

ANNEXURE-XIV: DISTRICT WISE FLUCTUATION AND FREQUENCY DISTRIBUTION FROM DIFFERENT RANGES FROM ONE PERIOD TO OTHER

May, 2023 To November, 2023

Sl. No	District	No of Wells Analysed	Range of Fluctuation (m)				No of Wells / Percentage Showing Fluctuation												Total No. of Wells			
			Rise		Fall		Rise						Fall									
							0 to 2		2 to 4		> 4		0 to 2		2 to 4		> 4					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	Rise	Fall	Rise%	Fall%
1	Adilabad	55	0.08	8.25	-9.93	-0.08	16	34%	12	26%	19	40%	7	88%	0	0%	1	13%	47	8	85%	15%
2	Bhadradri Kothagudem	63	0.03	4.55	-5.41	-0.2	26	58%	17	38%	2	4%	11	61%	6	33%	1	6%	45	18	71%	29%
3	Hanamkonda	17	0.07	7.49	-8.59	-0.28	7	54%	5	38%	1	8%	3	75%	0	0%	1	25%	13	4	76%	24%
4	Hyderabad	26	0.07	6.16	-2.67	-0.22	11	55%	3	15%	6	30%	5	83%	1	17%	0	0%	20	6	77%	23%
5	Jagtial	23	0.04	6.22	-0.97	-0.05	14	70%	4	20%	2	10%	3	100%	0	0%	0	0%	20	3	87%	13%
6	Jangaon	38	0.38	15.83	-3.65	-0.51	11	41%	4	15%	12	44%	6	55%	5	45%	0	0%	27	11	71%	29%
7	Jayashankar Bhupalapally	13	1.1	5.92	-1.2	-0.04	2	20%	6	60%	2	20%	3	100%	0	0%	0	0%	10	3	77%	23%
8	Jogulamba Gadwal	16	0.28	5.52	-4.44	-0.08	4	80%	0	0%	1	20%	8	73%	1	9%	2	18%	5	11	31%	69%
9	Kamareddy	38	0.45	8.82	-4.62	-0.53	15	50%	7	23%	8	27%	7	88%	0	0%	1	13%	30	8	79%	21%
10	Karimnagar	24	0.04	5.88	-1.59	-0.09	14	67%	5	24%	2	10%	3	0%	0	0%	0	0%	21	3	88%	13%
11	Khammam	65	0.01	6.55	-6.25	-0.1	27	90%	2	7%	1	3%	28	80%	1	3%	6	17%	30	35	46%	54%
12	Komaram Bheem Asifabad	38	0.18	7.24	-3.82	-0.21	20	69%	2	7%	7	24%	5	56%	4	44%	0	0%	29	9	76%	24%
13	Mahabubabad	19	0.11	3.44	-3.39	-0.08	9	69%	4	31%	0	0%	3	50%	3	50%	0	0%	13	6	68%	32%
14	Mahabubnagar	25	0.25	5.42	-2.9	-0.07	9	60%	4	27%	2	13%	7	70%	3	30%	0	0%	15	10	60%	40%
15	Mancherial	32	0.09	4.76	-7.54	-0.36	10	43%	11	48%	2	9%	4	44%	1	11%	4	44%	23	9	72%	28%
16	Medak	32	0.53	11.37	-6.28	-0.13	5	18%	8	29%	15	54%	3	75%	0	0%	1	25%	28	4	88%	13%
17	Medchal Malkajgiri	18	0.32	8.66	-2.13	-0.38	6	43%	5	36%	3	21%	3	75%	1	25%	0	0%	14	4	78%	22%
18	Mulugu	19	0.13	4.73	-3.76	-0.15	9	56%	6	38%	1	6%	2	67%	1	33%	0	0%	16	3	84%	16%
19	Nagarkurnool	43	0.01	3.65	-14.61	-0.06	10	91%	1	9%	0	0%	22	69%	4	13%	6	19%	11	32	26%	74%
20	Nalgonda	78	0.02	6.6	-7.8	-0.09	29	81%	5	14%	2	6%	26	62%	10	24%	6	14%	36	42	46%	54%
21	Narayanpet	11	0.14	1.06	-2.03	-0.65	8	100%	0	0%	0	0%	2	67%	1	33%	0	0%	8	3	73%	27%
22	Nirmal	33	0.16	11.86	-8.67	-0.18	6	24%	8	32%	11	44%	6	75%	0	0%	2	25%	25	8	76%	24%
23	Nizamabad	42	0.09	13.86	-6.63	-0.05	12	36%	6	18%	15	45%	8	89%	0	0%	1	11%	33	9	79%	21%
24	Peddapalle	20	0.09	4.93	-0.17	-0.05	10	56%	6	33%	2	11%	2	0%	0	0%	0	0%	18	2	90%	10%
25	Rajanna Sircilla	13	0.09	3.64	-0.69	-0.35	8	73%	3	27%	0	0%	2	100%	0	0%	0	0%	11	2	85%	15%
26	Rangareddy	63	0.14	13.28	-12.99	-0.07	21	51%	11	27%	9	22%	13	59%	5	23%	4	18%	41	22	65%	35%
27	Sangareddy	53	0.41	15.47	-15.84	-0.52	14	31%	12	27%	19	42%	3	38%	1	13%	4	50%	45	8	85%	15%
28	Siddipet	51	0.1	9.75	-3.31	-0.09	17	37%	15	33%	14	30%	3	60%	2	40%	0	0%	46	5	90%	10%
29	Suryapet	32	0.5	2.57	-2.19	-0.02	14	88%	2	13%	0	0%	15	94%	1	6%	0	0%	16	16	50%	50%
30	Vikarabad	64	0.07	6.56	-4.31	-0.14	21	40%	15	29%	16	31%	8	67%	3	25%	1	8%	52	12	81%	19%
31	Wanaparthy	26	0.11	9.85	-2.06	-0.28	8	50%	2	13%	6	38%	6	60%	2	20%	2	20%	16	10	62%	38%
32	Warangal	17	0.21	4.59	-1.24	-0.25	6	55%	4	36%	1	9%	6	100%	0	0%	0	0%	11	6	65%	35%
33	Yadadri Bhuvanagiri	40	0.17	13.86	-8.31	-0.17	13	68%	3	16%	3	16%	14	67%	5	24%	2	10%	19	21	48%	53%
	Total	**1147**	**0.03**	**13.86**	**-12.99**	**-0.02**	**412**	**52%**	**198**	**25%**	**184**	**23%**	**247**	**70%**	**61**	**17%**	**45**	**13 %**	**794**	**353**	**69%**	**31%**

ANNEXURE XV: DISTRICT WISE FLUCTUATION AND FREQUENCY DISTRIBUTION FROM DIFFERENT RANGES FROM ONE PERIOD TO OTHER

May 2023 to January 2024

Sl. No	District	No of Wells Analysed	Range of Fluctuation (m)				No of Wells / Percentage Showing Fluctuation												Total No. of Wells			
			Rise		Fall		Rise						Fall									
							0 to 2		2 to 4		> 4		0 to 2		2 to 4		> 4					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	Rise	Fall	Rise %	Fall %
1	Adilabad	52	0.01	78.23	-6.73	-0.04	17	52%	7	21%	9	27%	14	74%	2	11%	3	16%	33	19	63%	37%
2	Bhadradri Kothagudem	62	0.06	10.26	-4.21	-0.02	34	68%	11	22%	5	10%	9	75%	2	17%	1	8%	50	12	81%	19%
3	Hanamkonda	13	0.15	15.63	-15.43	-0.21	3	50%	2	33%	1	17%	5	71%	1	14%	1	14%	6	7	46%	54%
4	Hyderabad	24	0.08	8.92	-11.97	-0.07	10	77%	2	15%	1	8%	8	73%	1	9%	2	18%	13	11	54%	46%
5	Jagtial	23	0.28	4.53	-1.39	-0.09	10	77%	2	15%	1	8%	10	100%	0	0%	0	0%	13	10	57%	43%
6	Jangaon	32	0.01	10.16	-4.38	-0.03	9	50%	4	22%	5	28%	7	50%	4	29%	3	21%	18	14	56%	44%
7	Jayashankar Bhupalapally	14	0.17	2.61	-4.79	-0.83	4	57%	3	43%	0	0%	3	43%	3	43%	1	14%	7	7	50%	50%
8	Jogulamba Gadwal	16	0.06	8.2	-5.94	-0.17	2	50%	0	0%	2	50%	9	75%	1	8%	2	17%	4	12	25%	75%
9	Kamareddy	36	0.11	10.17	-9.62	-0.1	11	55%	4	20%	5	25%	8	50%	5	31%	3	19%	20	16	56%	44%
10	Karimnagar	25	0.01	4.04	-7.38	-0.07	6	50%	5	42%	1	8%	9	0%	2	0%	2	0%	12	13	48%	52%
11	Khammam	66	0.11	3.93	-5.93	-0.02	28	88%	4	13%	0	0%	29	85%	4	12%	1	3%	32	34	48%	52%
12	Komarambheem Asifabad	39	0	54.89	-5.31	-0.01	18	82%	1	5%	3	14%	13	76%	3	18%	1	6%	22	17	56%	44%
13	Mahabubabad	19	0.03	1.95	-3.21	-0.13	9	100%	0	0%	0	0%	9	90%	1	10%	0	0%	9	10	47%	53%
14	Mahabubnagar	24	0.13	2.28	-2.77	-0.11	7	88%	1	13%	0	0%	13	81%	3	19%	0	0%	8	16	33%	67%
15	Mancherial	29	0.11	16.3	-6.2	-0.45	13	72%	3	17%	2	11%	8	73%	2	18%	1	9%	18	11	62%	38%
16	Medak	36	0.15	14.9	-10.69	-0.23	10	38%	3	12%	13	50%	7	70%	0	0%	3	30%	26	10	72%	28%
17	Medchal Malkajgiri	18	0.4	38.01	-5.92	-0.26	6	55%	2	18%	3	27%	3	43%	3	43%	1	14%	11	7	61%	39%
18	Mulugu	19	0.11	3.98	-1.81	-0.08	11	92%	1	8%	0	0%	7	100%	0	0%	0	0%	12	7	63%	37%
19	Nagarkurnool	44	0.07	4.22	-13.69	-0.52	8	89%	0	0%	1	11%	22	63%	5	14%	8	23%	9	35	20%	80%
20	Nalgonda	74	0.02	2.67	-45.02	-0.02	20	83%	4	17%	0	0%	21	42%	12	24%	17	34%	24	50	32%	68%
21	Narayanpet	11	0.01	0.77	-4.43	-0.1	3	100%	0	0%	0	0%	6	75%	1	13%	1	13%	3	8	27%	73%
22	Nirmal	26	0.5	18.89	-13.95	-0.05	7	33%	5	24%	9	43%	4	80%	0	0%	1	20%	21	5	81%	19%
23	Nizamabad	29	0.23	10.84	-2.41	-0.03	12	67%	3	17%	3	17%	10	91%	1	9%	0	0%	18	11	62%	38%
24	Peddapalli	20	0.07	4.86	-2.97	-0.18	4	40%	2	20%	4	40%	9	0%	1	0%	0	0%	10	10	50%	50%
25	Rajanna Sircilla	14	0.22	2.48	-7.33	-0.27	4	57%	3	43%	0	0%	3	43%	3	43%	1	14%	7	7	50%	50%
26	Ranga Reddy	63	0.23	32.86	-7.93	-0.02	13	42%	7	23%	11	35%	26	81%	2	6%	4	13%	31	32	49%	51%
27	Sangareddy	53	0.13	13.44	-9.38	-0.01	13	32%	12	29%	16	39%	8	67%	1	8%	3	25%	41	12	77%	23%
28	Siddipet	51	0.03	9.9	-13.63	-0.51	13	43%	7	23%	10	33%	14	67%	2	10%	5	24%	30	21	59%	41%
29	Suryapet	32	0	7.97	-6.43	-0.38	16	94%	0	0%	1	6%	14	93%	0	0%	1	7%	17	15	53%	47%
30	Vikarabad	63	0.11	12.08	-13.55	-0.01	21	58%	7	19%	8	22%	19	70%	4	15%	4	15%	36	27	57%	43%
31	Wanaparthy	23	0.5	35.32	-5.76	-0.05	2	25%	3	38%	3	38%	14	93%	0	0%	1	7%	8	15	35%	65%
32	Warangal	14	0.26	4.52	-1.44	-0.09	5	83%	0	0%	1	17%	8	100%	0	0%	0	0%	6	8	43%	57%
33	Yadadri Bhuvanagiri	39	0.34	12.15	-10.55	-0.23	4	44%	3	33%	2	22%	16	53%	9	30%	5	17%	9	30	23%	77%
	TOTAL	**1103**	**0**	**78.23**	**-45.02**	**-0.01**	**353**	**60%**	**111**	**19%**	**120**	**21%**	**365**	**70%**	**78**	**15%**	**76**	**15%**	**584**	**519**	**53%**	**47%**

ANNEXURE-XVI: DISTRICT WISE FLUCTUATION AND FREQUENCY DISTRIBUTION FROM DIFFERENT RANGES FROM ONE PERIOD TO OTHER

MAY, 2022 TO MAY, 2023

Sl. No	District	No of Wells Analysed	Range of Fluctuation (m)				No of Wells / Percentage Showing Fluctuation												Total No. of Wells			
			Rise		Fall		Rise						Fall									
							0 to 2		2 to 4		> 4		0 to 2		2 to 4		> 4					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	Rise	Fall	Rise%	Fall%
1	Adilabad	28	0.2	1.79	-6.29	-0.01	15	94%	0	0%	1	6%	8	67%	1	8%	3	25%	16	12	43%	43%
2	Bhadradi Kothagudem	34	0.0	1.6	-4.09	-0.08	20	100%	0	0%	0	0%	12	86%	1	7%	1	7%	20	14	41%	41%
3	Hanamkonda	14	0.1	10.8	-11.5	-0.10	7	70%	2	20%	1	10%	3	75%	0	0%	1	25%	10	4	29%	29%
4	Hyderabad	22	0.0	11.4	-12.66	-0.02	9	60%	1	7%	5	33%	4	57%	2	29%	1	14%	15	7	32%	32%
5	Jagitial	20	0.5	4.6	-4.81	-0.05	4	57%	2	29%	1	14%	11	85%	1	8%	1	8%	7	13	65%	65%
6	Jangaon	32	0.1	5.8	-9.14	-0.16	10	63%	5	31%	1	6%	10	63%	2	13%	4	25%	16	16	50%	50%
7	Jayshankar Bhupalpally	9	1.5	2.2	-3.76	-0.05	1	-	1	-	0	-	5	71%	2	29%	0	0%	2	7	78%	78%
8	Jogulamba Gadwal	14	0.0	2.4	-1.45	-0.03	11	92%	1	8%	0	0%	2	100%	0	0%	0	0%	12	2	14%	14%
9	Kamareddy	18	0.6	4.6	-0.95	-0.02	8	67%	3	25%	1	8%	6	100%	0	0%	0	0%	12	6	33%	33%
10	Karimnagar	19	0.0	4.4	-2.39	-0.01	8	73%	2	18%	1	9%	7	88%	1	13%	0	0%	11	8	42%	42%
11	Khammam	40	0.0	3.3	-1.26	-0.06	30	94%	2	6%	0	0%	8	100%	0	0%	0	0%	32	8	20%	20%
12	Komarambheem Asifabad	9	0.2	4.3	-4.15	-0.04	3	60%	1	20%	1	20%	2	50%	0	0%	2	50%	5	4	44%	44%
13	Mahabubabad	13	0.0	2.8	-2.6	-0.01	9	90%	1	10%	0	0%	2	67%	1	33%	0	0%	10	3	23%	23%
14	Mahabubnagar	17	0.1	3.1	-0.98	-0.03	11	73%	4	27%	0	0%	2	100%	0	0%	0	0%	15	2	12%	12%
15	Mancherial	14	0.0	4.6	-6.24	-0.28	4	80%	0	0%	1	20%	8	89%	0	0%	1	11%	5	9	64%	64%
16	Medak	15	0.2	6.19	-3.44	-3.44	8	57%	1	7%	5	36%	0	0%	1	100%	0	0%	14	1	7%	7%
17	Medchal Malkajgiri	12	0.2	4.2	-3.9	-0.83	6	60%	3	30%	1	10%	1	50%	1	50%	0	0%	10	2	17%	17%
18	Mulugu	19	0.0	4.9	-3.15	-0.08	11	73%	3	20%	1	7%	3	75%	1	25%	0	0%	15	4	21%	21%
19	Nagarkurnool	32	0.1	10.7	-1.13	-0.30	13	43%	10	33%	7	23%	2	100%	0	0%	0	0%	30	2	6%	6%
20	Nalgonda	48	0.0	6.6	-2.94	-0.09	17	81%	2	10%	2	10%	22	81%	5	19%	0	0%	21	27	56%	56%
21	Narayanpet	8	0.5	1.5	-1.26	-0.22	4	100%	0	0%	0	0%	4	100%	0	0%	0	0%	4	4	50%	50%
22	Nirmal	25	0.0	14.67	-16.27	-0.10	9	64%	1	7%	4	29%	7	64%	1	9%	3	27%	14	11	44%	44%
23	Nizamabad	27	0.0	3.1	-3.28	-0.08	20	87%	3	13%	0	0%	3	75%	1	25%	0	0%	23	4	15%	15%
24	Peddapalle	13	0.3	12.44	-2.33	-0.25	2	33%	0	0%	4	67%	6	86%	1	14%	0	0%	6	7	54%	54%
25	Rajanna Sircilla	11	0.0	4.0	-3.57	-0.05	2	40%	3	60%	0	0%	5	83%	1	17%	0	0%	5	6	55%	55%
26	Rangareddy	50	0.0	19.36	-3.77	-0.19	23	64%	8	22%	5	14%	9	64%	5	36%	0	0%	36	14	28%	28%
27	Sangareddy	28	0.5	14.2	-4.73	-1.89	13	52%	5	20%	7	28%	1	33%	1	33%	1	33%	25	3	11%	11%
28	Siddipet	27	0.4	8.0	-11.73	-0.22	8	47%	6	35%	3	18%	6	60%	1	10%	3	30%	17	10	37%	37%
29	Suryapet	28	0.0	1.9	-2.28	-0.16	17	100%	0	0%	0	0%	9	82%	2	18%	0	0%	17	11	39%	39%
30	Vikarabad	55	0.0	15.42	-13.27	-0.02	25	71%	3	9%	7	20%	15	75%	3	15%	2	10%	35	20	36%	36%
31	Wanaparthy	23	0.2	4.7	-7.22	-0.03	8	80%	1	10%	1	10%	7	54%	1	8%	5	38%	10	13	57%	57%
32	Warangal	14	0.4	3.4	-3.44	-0.05	4	50%	4	50%	0	0%	4	67%	2	33%	0	0%	8	6	43%	43%
33	Yadadri Bhuvanagiri	30	0.0	5.8	-3.38	-0.05	10	67%	3	20%	2	13%	12	80%	3	20%	0	0%	15	15	50%	50%
Total		**768**	**0.01**	**53.4**	**-16.27**	**-0.01**	**350**	**71%**	**81**	**16%**	**62**	**13%**	**206**	**75%**	**41**	**15%**	**28**	**10%**	**493**	**275**	**64%**	**36%**

ANNEXURE-XVII: DISTRICT WISE FLUCTUATION AND FREQUENCY DISTRIBUTION FROM DIFFERENT RANGES FROM ONE PERIOD TO OTHER

AUGUST, 2022 TO AUGUST, 2023

Sl. No	District	No of Wells Analysed	Range of Fluctuation (m)				No of Wells / Percentage Showing Fluctuation												Total No. of Wells			
			Rise		Fall		Rise						Fall									
							0 to 2		2 to 4		> 4		0 to 2		2 to 4		> 4					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	Rise	Fall	Rise%	Fall%
1	Adilabad	40	0.05	3.38	-6.21	-0.05	11	85%	1	8%	1	8%	17	63%	6	22%	4	15%	13	27	33%	68%
2	Bhadradri Kothagudem	25	0.33	1.86	-6.45	-0.05	8	100%	0	0%	0	0%	13	76%	1	6%	3	18%	8	17	32%	68%
3	Hanamkonda	17	0.21	3.98	-6.29	-0.66	2	67%	1	33%	0	0%	11	79%	1	7%	2	14%	3	14	18%	82%
4	Hyderabad	23	0.07	4.44	-2.26	-0.02	8	89%	0	0%	1	11%	13	93%	1	7%	0	0%	9	14	39%	61%
5	Jagtial	24	0.03	2.9	-5.15	-0.03	12	92%	1	8%	0	0%	9	82%	1	9%	1	9%	13	11	54%	46%
6	Jangaon	40	0.15	12.5	-4.74	-0.04	5	71%	1	14%	1	14%	24	73%	5	15%	4	12%	7	33	18%	83%
7	Jayashankar Bhupalapally	14	0.32	4.71	-10.08	-0.18	3	50%	1	17%	2	33%	4	50%	2	25%	2	25%	6	8	43%	57%
8	Jogulamba Gadwal	17	0.02	1.26	-4.19	-0.3	6	86%	0	0%	1	14%	6	60%	3	30%	1	10%	7	10	41%	59%
9	Kamareddy	25	0.01	2.38	-3.56	-0.13	4	80%	1	20%	0	0%	13	65%	7	35%	0	0%	5	20	20%	80%
10	Karimnagar	13	0.01	1.78	-5.89	-0.01	5	100%	0	0%	0	0%	5	0%	1	0%	2	0%	5	8	38%	62%
11	Khammam	50	0.04	1.25	-6.8	-0.05	6	100%	0	0%	0	0%	29	66%	9	20%	6	14%	6	44	12%	88%
12	Komaram Bheem Asifabad	20	1.4	7.38	-7.55	-0.41	1	50%	0	0%	1	50%	11	61%	3	17%	4	22%	2	18	10%	90%
13	Mahabubabad	15	0.23	3.18	-2.93	-0.01	4	80%	1	20%	0	0%	9	90%	1	10%	0	0%	5	10	33%	67%
14	Mahabubnagar	18	0.86	3.09	-8.77	-0.14	1	50%	1	50%	0	0%	10	63%	4	25%	2	13%	2	16	11%	89%
15	Mancherial	30	0.01	0.72	-5.56	-0.08	3	100%	0	0%	0	0%	18	67%	5	19%	4	15%	3	27	10%	90%
16	Medak	26	0.13	6.68	-5.12	-0.32	5	63%	2	25%	1	13%	6	33%	3	17%	9	50%	8	18	31%	69%
17	Medchal Malkajgiri	16	0.33	4.44	-13.4	-0.14	6	86%	0	0%	1	14%	5	56%	0	0%	4	44%	7	9	44%	56%
18	Mulugu	21	0.09	4.43	-6.2	-0.23	9	82%	1	9%	1	9%	6	60%	1	10%	3	30%	11	10	52%	48%
19	Nagarkurnool	45	0	8.93	-11.18	-0.1	9	60%	2	13%	4	27%	16	53%	7	23%	7	23%	15	30	33%	67%
20	Nalgonda	75	0.14	2.82	-16.79	-0.08	11	92%	1	8%	0	0%	37	59%	12	19%	14	22%	12	63	16%	84%
21	Narayanpet	10	0.11	0.3	-7.93	-0.26	2	100%	0	0%	0	0%	5	63%	1	13%	2	25%	2	8	20%	80%
22	Nirmal	30	0.02	8.01	-4.84	-0.29	8	67%	2	17%	2	17%	13	72%	3	17%	2	11%	12	18	40%	60%
23	Nizamabad	35	0.01	8.58	-10.37	-0.32	8	67%	2	17%	2	17%	11	48%	4	17%	8	35%	12	23	34%	66%
24	Peddapalle	11	0.19	3.48	-1.34	-0.37	2	50%	2	50%	0	0%	7	0%	0	0%	0	0%	4	7	36%	64%
25	Rajanna Sircilla	15	0.06	0.06	-8.81	-0.27	1	100%	0	0%	0	0%	11	79%	1	7%	2	14%	1	14	7%	93%
26	Rangareddy	64	0.04	17.42	-8.5	-0.05	8	57%	1	7%	5	36%	30	60%	9	18%	11	22%	14	50	22%	78%
27	Sangareddy	53	0	10.74	-14.1	-0.1	20	71%	3	11%	5	18%	16	64%	4	16%	5	20%	28	25	53%	47%
28	Siddipet	31	0.26	4.25	-5.34	-0.2	4	50%	3	38%	1	13%	12	52%	6	26%	5	22%	8	23	26%	74%
29	Suryapet	30	0.83	1.92	-5.09	-0.08	2	100%	0	0%	0	0%	21	75%	5	18%	2	7%	2	28	7%	93%
30	Vikarabad	58	0.9	6.96	-7.4	-0.21	3	50%	1	17%	2	33%	22	42%	24	46%	6	12%	6	52	10%	90%
31	Wanaparthy	24	0	0.92	-11.61	-0.01	4	100%	0	0%	0	0%	15		3	15%	2	10%	4	20	17%	83%
32	Warangal	18	0	0.56	-2	-0.06	4	100%	0	0%	0	0%	13	93%	1	7%	0	0%	4	14	22%	78%
33	Yadadri Bhuvanagiri	39	0.08	5.87	-11.32	-0.02	8	73%	0	0%	3	27%	13	46%	6	21%	9	32%	11	28	28%	72%
	Total	**972**	**0.00**	**17.42**	**-16.79**	**-0.01**	**193**	**76%**	**28**	**11%**	**34**	**13%**	**451**	**63%**	**140**	**20%**	**126**	**18%**	**255**	**717**	**26%**	**74%**

ANNEXURE-XVIII: DISTRICT WISE FLUCTUATION AND FREQUENCY DISTRIBUTION FROM DIFFERENT RANGES FROM ONE PERIOD TO OTHER

November 2022 To November, 2023

Sl. No	District	No of Wells Analysed	Range of Fluctuation (m)				No of Wells / Percentage Showing Fluctuation												Total No. of Wells			
			Rise		Fall		Rise						Fall									
							0 to 2		2 to 4		> 4		0 to 2		2 to 4		> 4					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	Rise	Fall	Rise	Fall
1	Adilabad	40	0.06	9.82	-15.66	-0.07	3	60%	0	0%	2	40%	27	77%	2	6%	6	17%	5	35	13%	88%
2	Bhadradri	58	0.05	1.25	-11.18	-0.02	5	100%	0	0%	0	0%	29	55%	16	30%	8	15%	5	53	9%	91%
3	Hanamkonda	12			-3.99	-0.1	0	0%	0	0%	0	0%	7	58%	3	25%	2	17%	0	12	0%	100
4	Hyderabad	24	0.1	3.2	-15.73	-0.32	2	67%	1	33%	0	0%	16	76%	3	14%	2	10%	3	21	13%	88%
5	Jagtial	22	1.82	1.82	-4.95	-0.06	1	100%	0	0%	0	0%	17	81%	2	10%	2	10%	1	21	5%	95%
6	Jangaon	37	1.34	4.05	-7	-0.18	1	33%	1	33%	1	33%	17	50%	11	32%	6	18%	3	34	8%	92%
7	Jayashankar	13	0.47	2.8	-3.01	-0.31	2	50%	2	50%	0	0%	8	89%	1	11%	0	0%	4	9	31%	69%
8	Jogulamba Gadwal	17	2.25	4.45	-10.15	-0.02	0	0%	1	50%	1	50%	9	60%	3	20%	3	20%	2	15	12%	88%
9	Kamareddy	21			-5.48	-0.32	0	0%	0	0%	0	0%	5	24%	10	48%	6	29%	0	21	0%	100
10	Karimnagar	18	0.18	0.23	-8.66	-0.15	2	100%	0	0%	0	0%	11	0%	4	0%	1	0%	2	16	11%	89%
11	Khammam	58	0.39	1.52	-12.52	-0.12	3	100%	0	0%	0	0%	35	64%	9	16%	11	20%	3	55	5%	95%
12	Komaram Bheem	13	0.44	5.63	-9.15	-0.27	1	50%	0	0%	1	50%	6	55%	4	36%	1	9%	2	11	15%	85%
13	Mahabubabad	2			-2.67	-2.14	0	0%	0	0%	0	0%	0	0%	2	100	0	0%	0	2	0%	100
14	Mahabubnagar	21	0.71	3.25	-6.39	-0.55	1	50%	1	50%	0	0%	6	32%	6	32%	7	37%	2	19	10%	90%
15	Mancherial	25			-4.96	-0.21	0	0%	0	0%	0	0%	22	88%	2	8%	1	4%	0	25	0%	100
16	Medak	17	0.09	2.46	-7.83	-0.54	2	50%	2	50%	0	0%	6	46%	6	46%	1	8%	4	13	24%	76%
17	Medchal Malkajgiri	14	0.07	6.06	-4.26	-0.17	1	25%	0	0%	3	75%	4	40%	4	40%	2	20%	4	10	29%	71%
18	Mulugu	21	0.01	0.28	-3.36	-0.11	6	100%	0	0%	0	0%	13	87%	2	13%	0	0%	6	15	29%	71%
19	Nagarkurnool	46			-14.27	-0.47	0	0%	0	0%	0	0%	13	28%	11	24%	22	48%	0	46	0%	100
20	Nalgonda	63	1.2	16.56	-11.78	-0.08	2	33%	2	33%	2	33%	24	42%	16	28%	17	30%	6	57	10%	90%
21	Narayanpet	9			-4.51	-0.46	0	0%	0	0%	0	0%	4	44%	4	44%	1	11%	0	9	0%	100
22	Nirmal	30	1.66	1.66	-4.13	-0.43	1	100%	0	0%	0	0%	12	41%	8	28%	9	31%	1	29	3%	97%
23	Nizamabad	33			-13.72	-0.18	0	0%	0	0%	0	0%	15	45%	13	39%	5	15%	0	33	0%	100
24	Peddapalle	10			-1.41	-0.27	0	0%	0	0%	0	0%	10	0%	0	0%	0	0%	0	10	0%	100
25	Rajanna Sircilla	12	1.16	1.16	-10.49	-0.85	1	100%	0	0%	0	0%	8	73%	2	18%	1	9%	1	11	8%	92%
26	Rangareddy	62	1.02	10.22	-3.92	-0.07	2	40%	2	40%	1	20%	20	35%	16	28%	21	37%	5	57	8%	92%
27	Sangareddy	52	0.05	4.79	-3.28	-0.35	5	63%	2	25%	1	13%	18	41%	13	30%	13	30%	8	44	15%	85%
28	Siddipet	23	2.27	2.34	-9.99	-0.57	0	0%	2	100	0	0%	5	24%	9	43%	7	33%	2	21	9%	91%
29	Suryapet	26	0.65	0.65	-3.67	-0.35	1	100%	0	0%	0	0%	15	60%	10	40%	0	0%	1	25	4%	96%
30	Vikarabad	54	0.22	2.35	-7.61	-0.25	6	86%	1	14%	0	0%	21	45%	20	43%	6	13%	7	47	13%	87%
31	Wanaparthy	26	0.12	5.92	-7.38	-0.37	2	67%	0	0%	1	33%	14	0%	4	17%	5	22%	3	23	12%	88%
32	Warangal	17	0.12	0.75	-7.9	-0.27	2	100%	0	0%	0	0%	11	73%	3	20%	1	7%	2	15	12%	88%
33	Yadadri Bhuvanagiri	31	4.98	4.98	-11.03	-0.78	0	0%	0	0%	1	100 %	6	20%	14	47%	10	33%	1	30	3%	97%
	Total	**927**	**0.05**	**10.22**	**-15.73**	**-0.02**	**52**	**63%**	**17**	**20%**	**14**	**17%**	**434**	**51%**	**233**	**28%**	**177**	**21%**	**83**	**844**	**9%**	**91%**

ANNEXURE-XIX: DISTRICT WISE FLUCTUATION AND FREQUENCY DISTRIBUTION FROM DIFFERENT RANGES FROM ONE PERIOD TO OTHER

January 2023 to January 2024

Sl. No	District	No of Wells Analysed	Range of Fluctuation (m)				No of Wells / Percentage Showing Fluctuation															
			Rise		Fall		Rise						Fall						Total No. of Wells			
							0 to 2		2 to 4		> 4		0 to 2		2 to 4		> 4					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	Rise	Fall	Rise	Fall
1	Adilabad	41	0.38	1.78	-17.94	-0.05	4	100%	0	0%	0	0%	23	62%	5	14%	9	24%	4	37	10%	90%
2	Bhadradri Kothagudem	61	0.01	7.09	-6.74	-0.03	22	88%	1	4%	2	8%	30	83%	3	8%	3	8%	25	36	41%	59%
3	Hanamkonda	12	0.95	0.95	-17.81	-0.22	1	0%	0	0%	0	0%	6	55%	4	36%	1	9%	1	11	8%	92%
4	Hyderabad	22	0.14	0.14	-36.98	-0.11	1	100%	0	0%	0	0%	16	76%	1	5%	4	19%	1	21	5%	95%
5	Jagtial	23	0.8	22.92	-3.25	-0.11	2	50%	0	0%	2	50%	16	84%	3	16%	0	0%	4	19	17%	83%
6	Jangaon	32	0	20.11	-6.7	-0.17	2	50%	1	25%	1	25%	12	43%	9	32%	7	25%	4	28	13%	88%
7	Jayashankar Bhupalapally	14	0.56	19.25	-7.74	-0.98	1	50%	0	0%	1	50%	7	58%	1	8%	4	33%	2	12	14%	86%
8	Jogulamba Gadwal	16	8.5	40.45	-9.57	-0.43	0	0%	0	0%	2	100%	8	57%	4	29%	2	14%	2	14	13%	88%
9	Kamareddy	22	0	0	-5.34	-1.09	0	0%	0	0%	0	0%	10	45%	9	41%	3	14%	0	22	0%	100%
10	Karimnagar	18	5.81	5.81	-7.62	-0.31	0	0%	0	0%	1	100%	12	0%	4	0%	1	0%	1	17	6%	94%
11	Khammam	63	0.08	5.41	-5.31	-0.08	8	89%	0	0%	1	11%	46	85%	4	7%	4	7%	9	54	14%	86%
12	Komarambheem Asifabad	29	0.31	2.85	-51.84	-0.43	2	50%	2	50%	0	0%	15	60%	5	20%	5	20%	4	25	14%	86%
13	Mahabubabad	14	1.08	1.08	-2.93	-0.19	1	0%	0	0%	0	0%	11	85%	2	15%	0	0%	1	13	7%	93%
14	Mahabubnagar	20	0	0	-6.23	-0.59	0	0%	0	0%	0	0%	9	45%	6	30%	5	25%	0	20	0%	100%
15	Mancherial	27	4.42	28.11	-8.28	-0.13	0	0%	0	0%	2	0%	23	92%	1	4%	1	4%	2	25	7%	93%
16	Medak	28	0.56	3.91	-13.23	-0.16	5	45%	6	55%	0	0%	9	53%	6	35%	2	12%	11	17	39%	61%
17	Medchal Malkajgiri	15	0.01	0.01	-10.66	-0.11	1	100%	0	0%	0	0%	11	79%	2	14%	1	7%	1	14	7%	93%
18	Mulugu	21	0.05	2.48	-2.36	-0.12	1	50%	1	50%	0	0%	18	95%	1	5%	0	0%	2	19	10%	90%
19	Nagarkurnool	47	10.13	37.48	-11.6	-0.06	0	0%	0	0%	2	0%	16	36%	9	20%	20	44%	2	45	4%	96%
20	Nalgonda	70	0.04	11.29	-44.39	-0.06	3	75%	0	0%	1	25%	25	38%	15	23%	26	39%	4	66	6%	94%
21	Narayanpet	9	0	0	-4.02	-0.47	0	0%	0	0%	0	0%	5	56%	3	33%	1	11%	0	9	0%	100%
22	Nirmal	24	1.76	15.77	-5.57	-0.14	1	33%	0	0%	2	67%	11	52%	7	33%	3	14%	3	21	13%	88%
23	Nizamabad	21	0.52	1.71	-6.7	-0.52	2	0%	0	0%	0	0%	10	53%	5	26%	4	21%	2	19	10%	90%
24	Peddapalli	11	0.26	1.77	-7.81	-0.3	3	0%	0	0%	0	0%	7	0%	0	0%	1	0%	3	8	27%	73%
25	Rajanna Sircilla	13	0	0.2	-12.71	-0.19	4	100%	0	0%	0	0%	7	78%	0	0%	2	22%	4	9	31%	69%
26	Ranga Reddy	62	0.24	7.79	-9.39	-0.08	2	33%	3	50%	1	17%	23	41%	16	29%	17	30%	6	56	10%	90%
27	Sangareddy	52	0.21	11.07	-6.95	-0.08	6	60%	2	20%	2	20%	30	71%	6	14%	6	14%	10	42	19%	81%
28	Siddipet	29	0	23.69	-14.8	-0.1	4	67%	0	0%	2	33%	11	48%	5	22%	7	30%	6	23	21%	79%
29	Suryapet	31	0.02	1.46	-5	-0.05	4	100%	0	0%	0	0%	17	63%	9	33%	1	4%	4	27	13%	87%
30	Vikarabad	56	0	20.29	-13.57	-0.09	4	57%	0	0%	3	43%	31	63%	11	22%	7	14%	7	49	13%	88%
31	Wanaparthy	24	3.4	3.4	-5.72	-0.14	0	0%	1	100%	0	0%	12	0%	6	26%	5	22%	1	23	4%	96%
32	Warangal	13	0.06	0.06	-2.3	-0.48	1	100%	0	0%	0	0%	11	92%	1	8%	0	0%	1	12	8%	92%
33	Yadadri Bhuvanagiri	37	0.05	2.2	-12.39	-0.58	2	67%	1	33%	0	0%	12	35%	12	35%	10	29%	3	34	8%	92%
	TOTAL	**977**	**0**	**40.45**	**-51.84**	**-0.03**	**87**	**67%**	**18**	**14%**	**25**	**19%**	**510**	**60%**	**175**	**21%**	**162**	**19%**	**130**	**847**	**13%**	**87%**

ANNEXURE-XX: DISTRICT WISE FLUCTUATION AND FREQUENCY DISTRIBUTION FROM DIFFERENT RANGES, TELANGANA

DECADAL MEAN (MAY, 2013 TO MAY, 2022) TO MAY, 2023

Sl. No	District	No of Wells Analysed	Range of Fluctuation (m)				No of Wells / Percentage Showing Fluctuation												Total No. of Wells			
			Rise		Fall		Rise						Fall									
							0 to 2		2 to 4		> 4		0 to 2		2 to 4		> 4					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	Rise	Fall	Rise%	Fall%
1	Adilabad	15	0.07	4.89	-5.7	-0.14	8	73%	1	9%	2	18%	3	75%	0	0%	1	25%	11	4	73%	27%
2	Bhadradri Kothagudem	12	0.12	1.94	-4.52	-0.44	8	100%	0	0%	0	0%	2	50%	0	0%	2	50%	8	4	67%	33%
3	Hanamkonda	5	0.27	9.76	-	-	2	40%	0	0%	3	60%	0	0%	0	0%	0	0%	5	0	100%	0%
4	Hyderabad	8	0.47	9.48	-1.78	-1.78	3	43%	1	14%	3	43%	1	100%	0	0%	0	0%	7	1	88%	13%
5	Jagtial	14	0.25	5.77	-5.5	-0.81	8	67%	1	8%	3	25%	1	50%	0	0%	1	50%	12	2	86%	14%
6	Jangaon	22	1.18	8.28	-2.86	-0.23	1	5%	8	42%	10	53%	2	67%	1	33%	0	0%	19	3	86%	14%
7	Jayashankar Bhupalapally	6	0.05	12.07	-0.24	-0.24	4	80%	0	0%	1	20%	1	100%	0	0%	0	0%	5	1	83%	17%
8	Jogulamba Gadwal	7	0.08	5.97	-2.29	-2.29	3	50%	2	33%	1	17%	0	0%	1	100%	0	0%	6	1	86%	14%
9	Kamareddy	17	0.58	7.37	-1.96	-0.27	3	20%	4	27%	8	53%	2	100%	0	0%	0	0%	15	2	88%	12%
10	Karimnagar	11	0.66	6.23	-0.5	-0.21	4	44%	3	33%	2	22%	2	100%	0	0%	0	0%	9	2	82%	18%
11	Khammam	14	0.56	8.42	-0.99	-0.15	5	56%	3	33%	1	11%	5	100%	0	0%	0	0%	9	5	64%	36%
12	Komarambhem Asifabad	5	0.27	4.76	-	-	4	80%	0	0%	1	20%	0	0%	0	0%	0	0%	5	0	100%	0%
13	Mahabubabad	10	1.87	5.42	-	-	2	20%	6	60%	2	20%	0	0%	0	0%	0	0%	10	0	100%	0%
14	Mahabubnagar	9	1.02	7.83	-0.15	-0.15	2	25%	2	25%	4	50%	1	100%	0	0%	0	0%	8	1	89%	11%
15	Mancherial	11	0.04	1.67	-0.65	-0.07	7	100%	0	0%	0	0%	4	100%	0	0%	0	0%	7	4	64%	36%
16	Medak	7	0.29	5.73	-	-	2	29%	2	29%	3	43%	0	0%	0	0%	0	0%	7	0	100%	0%
17	Medchal	4	0.8	11.93	-	-	1	25%	1	25%	2	50%	0	0%	0	0%	0	0%	4	0	100%	0%
18	Mulugu	10	0.93	5.25	-0.96	-0.28	2	25%	4	50%	2	25%	2	100%	0	0%	0	0%	8	2	80%	20%
19	Nagarkurnool	19	0.91	17.74	-4.02	-4.02	3	17%	5	28%	10	56%	0	0%	0	0%	1	100%	18	1	95%	5%
20	Nalgonda	34	0.03	11.34	-1.02	-0.15	17	61%	6	21%	5	18%	6	100%	0	0%	0	0%	28	6	82%	18%
21	Narayanpur	3	1.51	5.22	-	-	1	33%	1	33%	1	33%	0	0%	0	0%	0	0%	3	0	100%	0%
22	Nirmal	13	0.03	5.03	-4.61	-0.27	3	50%	1	17%	2	33%	6	86%	0	0%	1	14%	6	7	46%	54%
23	Nizamabad	16	0.29	7.41	-	-	3	19%	6	38%	7	44%	0	0%	0	0%	0	0%	16	0	100%	0%
24	Peddapalle	7	0.03	6.54	-3.99	-3.99	4	67%	1	17%	1	17%	0	0%	1	100%	0	0%	6	1	86%	14%
25	Rajanna	6	2.14	6.21	-	-	0	0%	4	67%	2	33%	0	0%	0	0%	0	0%	6	0	100%	0%
26	Rangareddy	31	0.55	17.04	-4.15	-0.08	3	13%	3	13%	18	75%	6	86%	0	0%	1	14%	24	7	77%	23%
27	Sangareddy	21	0.38	14.46	-2.78	-2.78	5	25%	6	30%	9	45%	0	0%	1	100%	0	0%	20	1	95%	5%
28	Siddipet	3	2.2	5.18	-4.58	-4.58	0	0%	1	50%	1	50%	0	0%	0	0%	1	100%	2	1	67%	33%
29	Suryapet	23	0.08	8.03	-2.45	-2.45	11	50%	5	23%	6	27%	0	0%	1	100%	0	0%	22	1	96%	4%
30	Vikarabad	43	0.37	16.84	-5.24	-0.07	10	26%	19	49%	10	26%	3	75%	0	0%	1	25%	39	4	91%	9%
31	Wanaparthy	9	0.25	5.58	-6.98	-6.98	3	38%	2	25%	3	38%	0	0%	0	0%	1	100%	8	1	89%	11%
32	Warangal	11	0.04	3.36	-	-	5	45%	6	55%	0	0%	0	0%	0	0%	0	0%	11	0	100%	0%
33	Yadadri Bhuvanagiri	26	0.42	10.65	-6.72	-0.88	7	32%	1	5%	14	64%	3	75%	0	0%	1	25%	22	4	85%	15%
Total		**452**	**0.03**	**17.74**	**-6.98**	**-0.07**	**144**	**37%**	**105**	**27%**	**137**	**35%**	**50**	**76%**	**5**	**8%**	**11**	**17%**	**386**	**66**	**85%**	**15%**

ANNEXURE-XXI: DISTRICT WISE FLUCTUATION AND FREQUENCY DISTRIBUTION FROM DIFFERENT RANGES, TELANGANA

Decadal Mean (August, 2013 to August, 2022) to August, 2023

Sl. No	District	No of Wells Analysed	Range of Fluctuation (m)				No of Wells / Percentage Showing Fluctuation												Total No. of Wells			
			Rise		Fall		Rise						Fall									
							0 to 2		2 to 4		> 4		0 to 2		2 to 4		> 4		Rise	Fall	Rise %	Fall %
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%				
1	Adilabad	41	0.06	11.16	-5.26	-0.03	15	79%	3	16%	1	5%	18	82%	3	14%	1	5%	19	22	46%	54%
2	Bhadradri Kothagudem	50	0.02	6.57	-4.74	-0.02	20	74%	3	11%	4	15%	20	87%	2	9%	1	4%	27	23	54%	46%
3	Hanamkonda	15	0.29	9.95	-0.69	-0.33	4	33%	2	17%	6	50%	3	100%	0	0%	0	0%	12	3	80%	20%
4	Hyderabad	23	0.05	12.33	-3.99	-0.02	8	47%	2	12%	7	41%	5	83%	1	17%	0	0%	17	6	74%	26%
5	Jagtial	24	0.09	7.35	-1.41	-0.06	16	76%	2	10%	3	14%	3	100%	0	0%	0	0%	21	3	88%	13%
6	Jangaon	40	0.05	13.12	-1.95	-0.02	6	22%	7	26%	14	52%	13	100%	0	0%	0	0%	27	13	68%	33%
7	Jayashankar Bhupalapally	14	0.18	6.28	-5.78	-0.18	4	57%	1	14%	2	29%	5	71%	1	14%	1	14%	7	7	50%	50%
8	Jogulamba Gadwal	16	0.07	11.68	-2.1	-0.17	7	88%	0	0%	1	13%	7	88%	1	13%	0	0%	8	8	50%	50%
9	Kamareddy	25	0.08	7.54	-1.07	-0.2	9	53%	3	18%	5	29%	8	100%	0	0%	0	0%	17	8	68%	32%
10	Karimnagar	13	0.16	4.59			4	31%	7	54%	2	15%	0	0%	0	0%	0	0%	13		100%	0%
11	Khammam	31	0.17	3.8	-2.38	-0.01	10	91%	1	9%	0	0%	19	95%	1	5%	0	0%	11	20	35%	65%
12	Komaram Bheem Asifabad	14	0	3.69	-1.57	-0.29	6	86%	1	14%	0	0%	7	100%	0	0%	0	0%	7	7	50%	50%
13	Mahabubabad	15	0.12	3.67	-0.35	-0.01	10	77%	3	23%	0	0%	2	100%	0	0%	0	0%	13	2	87%	13%
14	Mahabubnagar	18	0.12	13.22	-1.93	-0.05	4	36%	0	0%	7	64%	7	100%	0	0%	0	0%	11	7	61%	39%
15	Mancherial	25	0.01	1.87	-10.51	-0.01	7	100%	0	0%	0	0%	16	89%	1	6%	1	6%	7	18	28%	72%
16	Medak	20	0.14	14.5	-3.49	-0.57	4	25%	3	19%	9	56%	3	75%	1	25%	0	0%	16	4	80%	20%
17	Medchal Malkajgiri	13	0.38	11.11	-2.06	-0.07	4	50%	1	13%	3	38%	4	80%	1	20%	0	0%	8	5	62%	38%
18	Mulugu	21	0.13	1.52	-4.27	-0.04	14	100%	0	0%	0	0%	5	71%	0	0%	2	29%	14	7	67%	33%
19	NagarKurnool	44	0.11	18.2	-5.2	-0.05	8	28%	4	14%	17	59%	11	73%	3	20%	1	7%	29	15	66%	34%
20	Nalgonda	64	0.05	7.48	-10.19	-0.04	17	61%	7	25%	4	14%	29	81%	5	14%	2	6%	28	36	44%	56%
21	Narayanpet	8	0.41	5.86	-0.55	-0.01	2	40%	2	40%	1	20%	3	0%	0	0%	0	0%	5	3	63%	38%
22	Nirmal	29	0.23	7.43	-2.42	-0.19	8	47%	4	24%	5	29%	11	92%	1	8%	0	0%	17	12	59%	41%
23	Nizamabad	33	0.14	9.62	-5.19	-0.23	7	29%	8	33%	9	38%	3	33%	4	44%	2	22%	24	9	73%	27%
24	Peddapalle	11	0.09	4.16			7	64%	3	27%	1	9%	0	0%	0	0%	0	0%	11		100%	0%
25	Rajanna Sircilla	15	1.81	5.83	-4.41	-0.14	1	17%	3	50%	2	33%	7	0%	1	0%	1	0%	6	9	40%	60%
26	Rangareddy	64	0.18	19.95	-9.6	-0.02	13	32%	9	22%	19	46%	18	78%	3	13%	2	9%	41	23	64%	36%
27	Sangareddy	51	0.88	21.61	-5.2	-0.06	7	17%	12	29%	23	55%	6	67%	1	11%	2	22%	42	9	82%	18%
28	Siddipet	31	0.16	7.35	-13.85	-0.27	6	38%	5	31%	5	31%	12	0%	0	0%	3	0%	16	15	52%	48%
29	Suryapet	26	0	5.36	-1.43	-0.06	10	59%	3	18%	4	24%	9	100%	0	0%	0	0%	17	9	65%	35%
30	Vikarabad	55	0.1	12.55	-12.81	-0.14	12	32%	13	35%	12	32%	13	72%	4	22%	1	6%	37	18	67%	33%
31	Wanaparthy	23	0.05	5.71	-5.81	-0.14	7	70%	1	10%	2	20%	10	77%	1	8%	2	15%	10	13	43%	57%
32	Warangal	17	0.12	4.79	-0.42	-0.17	11	79%	1	7%	2	14%	3	0%	0	0%	0	0%	14	3	82%	18%
33	Yadadri Bhuvanagiri	32	0.19	13.23	-3.09	-0.31	8	30%	4	15%	15	56%	3	60%	2	40%	0	0%	27	5	84%	16%
	Total	**921**	**0**	**21.61**	**-13.85**	**-0.01**	**276**	**48%**	**118**	**20%**	**185**	**32%**	**283**	**83%**	**37**	**11%**	**22**	**6%**	**579**	**342**	**63%**	**37%**

ANNEXURE-XXII: DISTRICT WISE FLUCTUATION AND FREQUENCY DISTRIBUTION FROM DIFFERENT RANGES, TELANGANA

Decadal Mean (November, 2013 to November, 2022) to November, 2023

Sl. No	District	No of Wells Analysed	Range of Fluctuation (m)				No of Wells / Percentage Showing Fluctuation												Total No. of Wells			
			Rise		Fall		Rise						Fall									
							0 to 2		2 to 4		> 4		0 to 2		2 to 4		> 4		Rise	Fall	Rise %	Fall %
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%				
1	Adilabad	17	0.09	0.82	-12.6	-0.03	5	100%	0	0%	0	0%	11	92%	0	0%	1	8%	5	12	29%	71%
2	Bhadradri Kothagudem	20	0.21	3.21	-9.79	-0.32	4	67%	2	33%	0	0%	9	64%	3	21%	2	14%	6	14	30%	70%
3	Hanamkonda	13	0.52	5.46	-6.92	-0.4	5	71%	0	0%	2	29%	5	83%	0	0%	1	17%	7	6	54%	46%
4	Hyderabad	23	0.37	7.27	-2.96	-0.36	2	22%	5	56%	2	22%	10	71%	2	14%	2	14%	9	14	39%	61%
5	Jagtial	19	0.33	3.71	-1.6	-0.04	5	63%	3	38%	0	0%	11	100%	0	0%	0	0%	8	11	42%	58%
6	Jangaon	24	0.63	7.5	-3.28	-0.62	6	32%	7	37%	6	32%	3	60%	2	40%	0	0%	19	5	79%	21%
7	Jayashankar Bhupalapally	9	0.14	1.03	-2.92	-0.24	3	100%	0	0%	0	0%	4	67%	2	33%	0	0%	3	6	33%	67%
8	Jogulamba Gadwal	8	0.52	8.83	-6.05	-0.38	2	67%	0	0%	1	33%	3	60%	0	0%	2	40%	3	5	38%	63%
9	Kamareddy	18	0.23	5.75	-4.85	-0.14	5	56%	3	33%	1	11%	8	89%	0	0%	1	11%	9	9	50%	50%
10	Karimnagar	18	0.13	2.21	-4.55	-0.01	8	80%	2	20%	0	0%	7	0%	0	0%	1	0%	10	8	56%	44%
11	Khammam	13	0.26	0.87	-2.29	-0.17	3	100%	0	0%	0	0%	8	80%	2	20%	0	0%	3	10	23%	77%
12	Komaram Bheem Asifabad	8	1.94	1.94	-2.14	-0.3	1	100%	0	0%	0	0%	6	86%	1	14%	0	0%	1	7	13%	88%
13	Mahabubabad	12	0.08	3.27	-2.51	-0.13	2	67%	1	33%	0	0%	7	78%	2	22%	0	0%	3	9	25%	75%
14	Mahabubnagar	14	0.07	8.34	-0.69	-0.34	4	33%	5	42%	3	25%	2	100%	0	0%	0	0%	12	2	86%	14%
15	Mancherial	15	0.06	1.19	-1.9	-0.04	3	100%	0	0%	0	0%	12	100%	0	0%	0	0%	3	12	20%	80%
16	Medak	12	1.55	9.93	-0.92	-0.4	2	20%	2	20%	6	60%	2	100%	0	0%	0	0%	10	2	83%	17%
17	Medchal Malkajgiri	10	0.24	6.56	-4.11	-0.46	3	43%	3	43%	1	14%	2	67%	0	0%	1	33%	7	3	70%	30%
18	Mulugu	20	0.04	1.97	-5.12	-0.03	5	100%	0	0%	0	0%	14	93%	0	0%	1	7%	5	15	25%	75%
19	NagarKurnool	31	0.77	13.99	-14.74	-0.17	6	30%	4	20%	10	50%	6	55%	3	27%	2	18%	20	11	65%	35%
20	Nalgonda	37	0.27	8.01	-8.04	-0.29	5	42%	3	25%	4	33%	14	56%	9	36%	2	8%	12	25	32%	68%
21	Narayanpet	4	2.65	2.92	-0.44	-0.06	0	0%	2	100%	0	0%	2	0%	0	0%	0	0%	2	2	50%	50%
22	Nirmal	17	0.05	3.53	-4.26	-0.01	6	67%	3	33%	0	0%	5	63%	2	25%	1	13%	9	8	53%	47%
23	Nizamabad	20	0.2	7.29	-2.02	-0.29	8	53%	4	27%	3	20%	4	80%	1	20%	0	0%	15	5	75%	25%
24	Peddapalle	10	0.06	1.07	-1.04	-0.68	5	100%	0	0%	0	0%	5	0%	0	0%	0	0%	5	5	50%	50%
25	Rajanna Sircilla	5	0.13	2.69	-0.48	-0.48	2	50%	2	50%	0	0%	1	0%	0	0%	0	0%	4	1	80%	20%
26	Rangareddy	43	0.21	12.1	-6.07	-0.28	8	32%	1	4%	16	64%	11	61%	2	11%	5	28%	25	18	58%	42%
27	Sangareddy	41	0.16	10.3	-15.68	-0.02	11	32%	10	29%	13	38%	4	57%	0	0%	3	43%	34	7	83%	17%
28	Siddipet	10	0.33	4.63	-1.16	-0.64	4	67%	1	17%	1	17%	4	0%	0	0%	0	0%	6	4	60%	40%
29	Suryapet	26	0.16	5.69	-3.32	-0.12	9	82%	0	0%	2	18%	10	67%	5	33%	0	0%	11	15	42%	58%
30	Vikarabad	43	0.13	10.62	-15.71	-0.03	10	40%	9	36%	6	24%	12	67%	5	28%	1	6%	25	18	58%	42%
31	Wanaparthy	13	0.16	5.07	-13.61	-0.36	4	80%	0	0%	1	20%	5	63%	2	25%	1	13%	5	8	38%	62%
32	Warangal	12	0.14	0.77	-7.1	-0.06	3	100%	0	0%	0	0%	8	0%	0	0%	1	0%	3	9	25%	75%
33	Yadadri Bhuvanagiri	31	0.20	8.49	-6.47	-0.05	8	50%	4	25%	4	25%	7	47%	3	20%	5	33%	16	15	52%	48%
	Total	**616**	**0.09**	**13.99**	**-15.79**	**-0.01**	**157**	**50%**	**76**	**24%**	**82**	**26%**	**222**	**74%**	**46**	**15%**	**33**	**11%**	315	301	**51%**	**49%**

ANNEXURE-XXIII: DISTRICT WISE FLUCTUATION AND FREQUENCY DISTRIBUTION FROM DIFFERENT RANGES FROM ONE PERIOD TO OTHER																						
Decadal Mean (January 2014-23) to January 2024																						
Sl. No	District	No of Wells Analysed	Range of Fluctuation (m)				No of Wells / Percentage Showing Fluctuation															
			Rise		Fall		Rise						Fall						Total No. of Wells			
							0 to 2		2 to 4		> 4		0 to 2		2 to 4		> 4					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	Rise	Fall	Rise %	Fall %
1	Adilabad	17	0.26	1.72	-3.16	-0.10	2	100%	0	0%	0	0%	13	87%	2	13%	0	0%	2	15	12%	88%
2	Bhadradri Kothagudem	20	0.10	3.37	-6.46	-0.20	8	67%	4	33%	0	0%	4	50%	0	0%	4	50%	12	8	60%	40%
3	Hanamkonda	10	0.73	0.73	-33.06	-0.02	1	100%	0	0%	0	0%	6	67%	2	22%	1	11%	1	9	10%	90%
4	Hyderabad	21	0.12	6.57	-20.64	-0.18	4	50%	1	13%	3	38%	9	69%	1	8%	3	23%	8	13	38%	62%
5	Jagtial	19	0.00	5.31	-1.37	-0.12	7	70%	2	20%	1	10%	9	100%	0	0%	0	0%	10	9	53%	47%
6	Jangaon	19	0.25	7.06	-3.74	-1.41	7	47%	7	47%	1	7%	1	25%	3	75%	0	0%	15	4	79%	21%
7	Jayashankar Bhupalapally	10	0.61	7.16	-6.22	-1.20	2	67%	0	0%	1	33%	2	29%	2	29%	3	43%	3	7	30%	70%
8	Jogulamba Gadwal	8	0.12	8.03	-4.35	-0.38	2	33%	2	33%	2	33%	1	50%	0	0%	1	50%	6	2	75%	25%
9	Kamareddy	16	0.05	4.74	-4.55	-0.22	7	78%	1	11%	1	11%	5	71%	1	14%	1	14%	9	7	56%	44%
10	Karimnagar	19	0.34	6.55	-4.52	-0.09	8	80%	1	10%	1	10%	5	0%	3	0%	1	0%	10	9	53%	47%
11	Khammam	15	0.17	3.36	-3.03	-0.01	5	83%	1	17%	0	0%	7	78%	2	22%	0	0%	6	9	40%	60%
12	Komarambheem Asifabad	8	0.80	0.80	-5.77	-0.57	1	100%	0	0%	0	0%	6	86%	0	0%	1	14%	1	7	13%	88%
13	Mahabubabad	12	0.21	3.01	-1.87	-0.05	2	50%	2	50%	0	0%	8	100%	0	0%	0	0%	4	8	33%	67%
14	Mahabubnagar	14	0.48	7.39	-1.64	-0.58	3	30%	3	30%	4	40%	4	100%	0	0%	0	0%	10	4	71%	29%
15	Mancherial	14	0.29	0.29	-2.38	-0.04	1	100%	0	0%	0	0%	10	77%	3	23%	0	0%	1	13	7%	93%
16	Medak	13	0.00	8.77	-0.28	-0.28	3	27%	3	27%	5	45%	2	100%	0	0%	0	0%	11	2	85%	15%
17	Medchal Malkajgiri	9	0.10	9.08	-4.31	-0.67	2	40%	1	20%	2	40%	2	50%	1	25%	1	25%	5	4	56%	44%
18	Mulugu	20	0.01	3.47	-1.50	-0.59	11	85%	2	15%	0	0%	7	100%	0	0%	0	0%	13	7	65%	35%
19	Nagarkurnool	32	0.11	17.88	-17.47	-0.13	9	43%	5	24%	7	33%	4	36%	5	45%	2	18%	21	11	66%	34%
20	Nalgonda	33	0.24	36.57	-21.62	-0.05	7	70%	2	20%	1	10%	15	65%	5	22%	3	13%	10	23	30%	70%
21	Narayanpet	4	0.01	1.63	-0.22	-0.06	2	100%	0	0%	0	0%	2	0%	0	0%	0	0%	2	2	50%	50%
22	Nirmal	13	0.15	3.01	-2.46	-0.48	6	75%	2	25%	0	0%	4	80%	1	20%	0	0%	8	5	62%	38%
23	Nizamabad	13	0.08	2.65	-5.89	-2.66	5	50%	5	50%	0	0%	0	0%	2	67%	1	33%	10	3	77%	23%
24	Peddapalli	10	0.98	1.68	-3.28	-0.01	2	100%	0	0%	0	0%	7	0%	1	0%	0	0%	2	8	20%	80%
25	Rajanna Sircilla	5	0.79	3.10	-3.48	-3.48	1	25%	3	75%	0	0%	0	0%	1	0%	0	0%	4	1	80%	20%
26	Ranga Reddy	42	0.02	14.16	-6.98	-0.20	10	33%	5	17%	15	50%	7	58%	2	17%	3	25%	30	12	71%	29%
27	Sangareddy	38	0.04	16.99	-2.30	-0.30	12	40%	7	23%	11	37%	7	88%	1	13%	0	0%	30	8	79%	21%
28	Siddipet	10	1.25	4.75	-3.72	-0.41	1	25%	2	50%	1	25%	4	0%	2	0%	0	0%	4	6	40%	60%
29	Suryapet	25	0.02	3.67	-6.25	-0.12	9	69%	4	31%	0	0%	9	75%	2	17%	1	8%	13	12	52%	48%
30	Vikarabad	42	0.04	6.22	-38.49	-0.01	8	47%	5	29%	4	24%	15	60%	6	24%	4	16%	17	25	40%	60%
31	Wanaparthy	12	2.01	5.73	-6.89	-0.14	0	0%	1	50%	1	50%	5	50%	1	10%	4	40%	2	10	17%	83%
32	Warangal	10	0.25	1.48	-1.11	-0.19	5	100%	0	0%	0	0%	5	0%	0	0%	0	0%	5	5	50%	50%
33	Yadadri Bhuvanagiri	30	0.31	9.74	-11.68	-0.15	9	53%	0	0%	8	47%	6	46%	1	8%	6	46%	17	13	57%	43%
	TOTAL	**583**	**0.00**	**36.57**	**-38.49**	**-0.01**	**162**	**54%**	**71**	**24%**	**69**	**23%**	**191**	**68%**	**50**	**18%**	**40**	**14%**	**302**	**281**	**52%**	**48%**

WATER FOR THE FUTURE

CENTRAL GROUND WATER BOARD

Ministry of Water Resources,

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