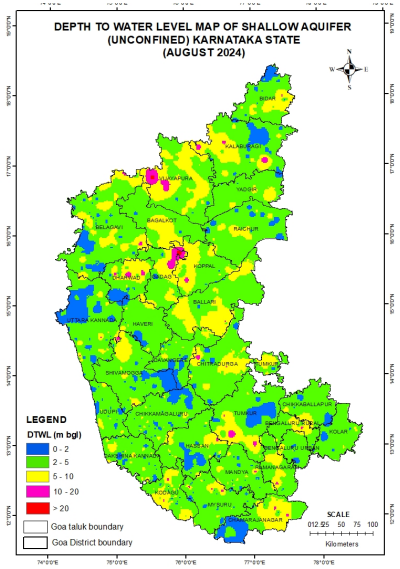
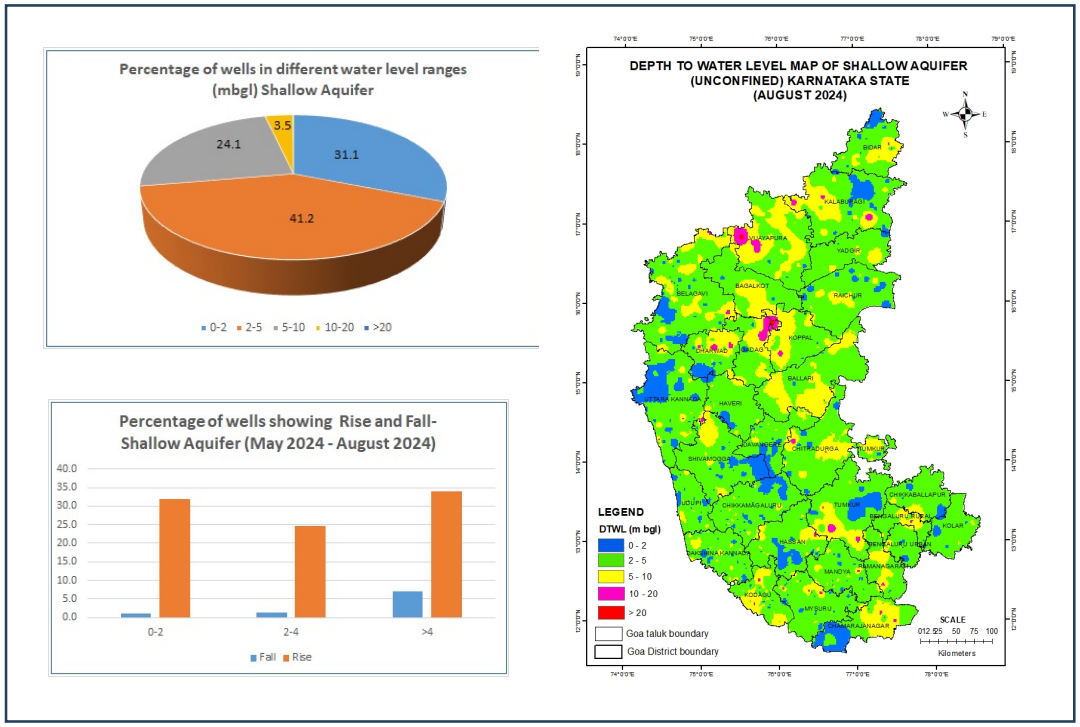
सरकारी उपयोग के लिए
For Official use
तकनीकी रिपोर्ट श्रृंखला
Technical Report Series
SWR/RP/PGWMR/24-25/16

GROUND WATER LEVEL BULLETIN AUGUST 2024 - KARNATAKA STATE



भारत सरकार /Government of India
जल शक्ति मंत्रालय/ Ministry of Jal Shakthi
जल संसाधन, नदी विकास और गंगा संरक्षण विभाग/Department of Water Resources, RD & GR
केन्द्रीय भूजल बोर्ड /Central Ground Water Board
दक्षिण पश्चिम क्षेत्र /South Western Region
बेंगलुरु /Bengaluru

November 2024



GROUND WATER LEVEL BULLETIN AUGUST 2024 - KARNATAKA STATE

Abstract

This Bulletin gives the overall rainfall scenario during part of the SW monsoon season and the ground water level scenario during August - 2024 highlighting the findings, status of ground water level in different aquifers and its seasonal, annual and decadal comparison.

The depth to water level in shallow aquifer over major part of the State during August 2024 lies within 10 m bgl in 96.4 % of wells analysed, while 4.6 % of wells show depth to water level more than 10 m bgl. Whereas in deeper aquifer, 49.30% of wells have recorded depth water level within 10 m bgl and 50.70% of wells show depth to water level of more than 10 m bgl.

Fluctuation in water level of August 2024 with August 2023 in shallow aquifer indicates that in majority of the area rise has been recorded in 79.90% of wells occupying western, north western and south western parts of the State and fall in water levels is observed in 20.10% wells analysed mostly located in north-eastern, central and south eastern parts of the State. Whereas in deeper aquifer, majority of wells i.e., 58% recorded fall, observed in entire eastern and central stretch of the State and 42% of wells analyzed shows rise in water level in western stretch of the State including Coastal and Malnad areas.

The decadal water level fluctuation in shallow aquifer for August 2014-2023 & August 2024 shows rise in 64.80% of wells analysed occupying all parts of the State, while 35.2% recorded fall in water levels occupying mostly west-central, south eastern and north western parts of the State. Whereas in deeper aquifer, rise in the water level is recorded in 58% of wells analysed spread across almost entire State, while 42% recorded fall restricted to northern, north-western, central-eastern and south eastern parts of the State.

South Western Region, Bangalore

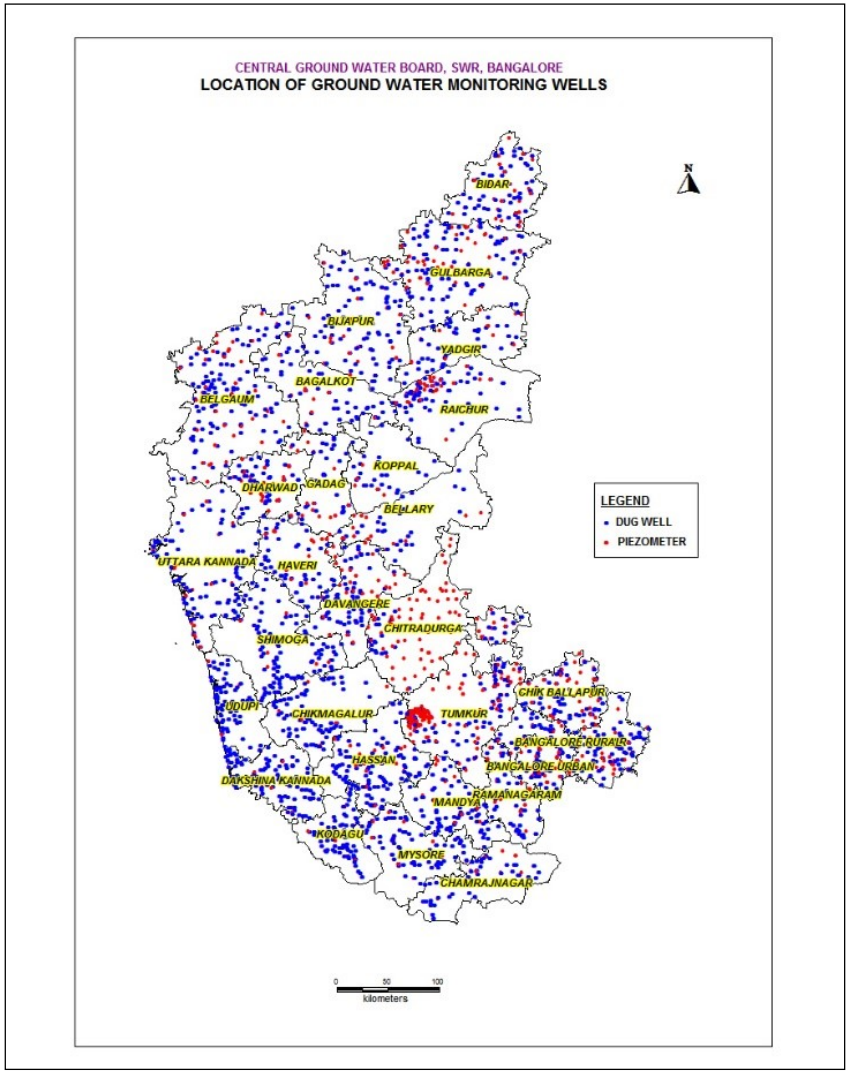
GROUND WATER LEVEL BULLETIN AUGUST 2024 - KARNATAKA STATE

Contents

1. Introduction:

The state of Karnataka has a geographical area of 1, 91, 761 sq. km. and is situated between N. Latitudes 11°31" and 18°45' and E. Longitudes 74°12' and 78°40'. For administrative purposes, the state is divided into 31 districts and 234 taluks. Physiographically the state is categorized into four units namely Northern plain, Southern Plain, Coastal area and Hilly region. Karnataka state is drained by the rivers Krishna, Cauvery, Godavari, West flowing minor rivers, Palar, Pennar and Ponnaiyar. The state of Karnataka is underlain by geological formations ranging in age from Archaean to Recent. Major portion of the State is covered by Peninsular Gneisses, Granites and Dharwarian Schists of Archaean age. Substantial area in the northern part of Karnataka is underlain by basalts, which form a continuation of the Deccan Traps occurring in Maharashtra. The sedimentaries comprising Bhima and Kaladgis occupy a small area in the northern districts. The recent alluvium is restricted to a narrow belt in the coastal area and along stream courses

Monitoring of ground water levels was carried out at 2111 ground water monitoring wells in the State of Karnataka during the month of August 2024. Among the wells monitored, **1258** are dug wells and **853** are piezometers. The data indicated that the water level in the major part of the State is within the range of 0-10 m bgl (5-10m: 24.1% & 2-5m: 41.5%, 0-2m: 31.1). The deepest water level observed in dug wells is 21.52 m bgl. About 3.6% percentage of dugwells has recorded water levels deeper than 10 m bgl.



2. Rainfall distribution in karnataka state, During Monsoon Months of June, July & August 2024

In Karnataka State, the year is generally divided into four seasons. These are: dry season (Jan-Feb), pre-monsoon season (Mar-May), Monsoon season (Jun-Sep) and post monsoon season (Oct-Dec). The monsoon season is characterised by squally weather resulting in heavy rains often accompanied by hail. The Indian summer monsoon, the harbinger of hope for the farmers, normally sets in the state by the first week of June and covers the entire state in about two weeks' time. It starts withdrawing by the end of September and totally goes out of the state by the middle of October. Bulk of the annual rainfall is contributed by the summer monsoon. It is replaced by the winter monsoon, which is relatively dry. Significant rainfall occurs due to passing depressions/cyclones. The rainfall in various districts/regions/taluks has been classified as Excess (E), Normal (N) and Deficit (D) as per following criteria.

Excess : 120% of normal or more
Normal : 81% to 119% of normal
Deficit : 80% of normal or less

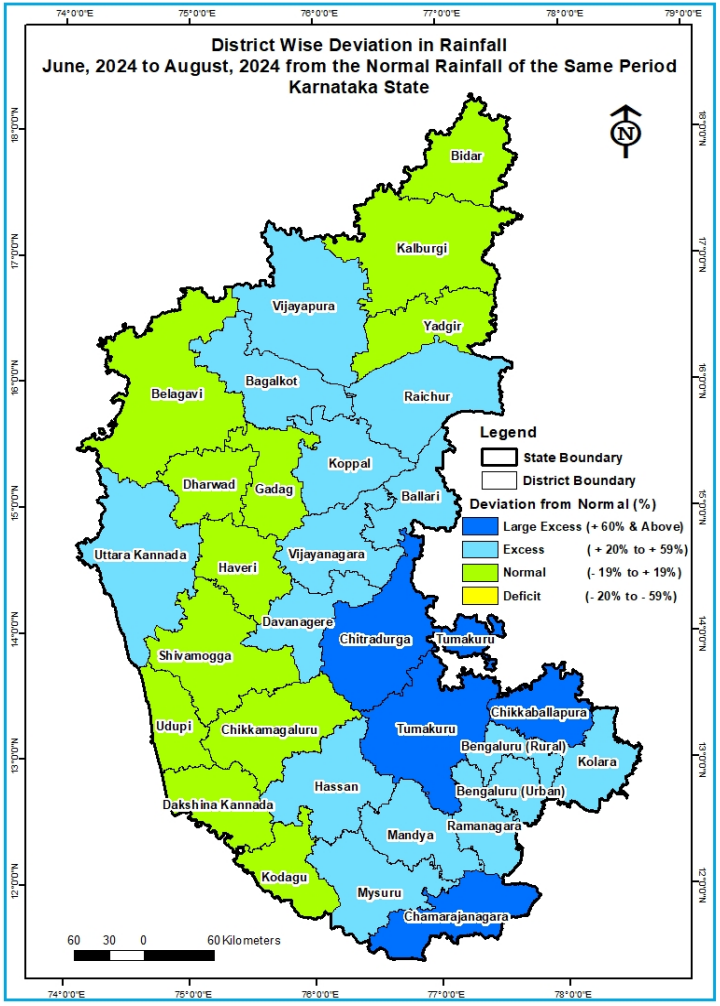
Based on the above classification, districts falling under the above-mentioned three of Karnataka and as well as for the State as a whole for monsoon season during 2024 **has been presented below.**

The rainfall data collected and compiled from Karnataka State Natural Disaster Management Cooperation (KSNDMC), GoK for the period June 2024 - August 2024. Table 4.1 gives the district-wise rainfall data for the period June to August 2023 & 2024, normal and the departure of June - August 2024 rainfall with other periods.

2.1 Monsoon Months of June, July & August - 2024

In general the showers are received during June- August are considered for the analysis. During the period (June to August 2024), the State had received an total rainfall of 604 mm, which is 10 percent more than the normal of 549 mm. Rainfall was Larger excess in 4 district, Excess in 15 district and normal in 12 districts (Table 1). Map showing the district-wise rainfall distribution in Karnataka State for the period of June to August 2024 period is given as Fig.1.1

Fig1.1: Rainfall Deviation (June 2024 to August 2024) from Normal Rainfall



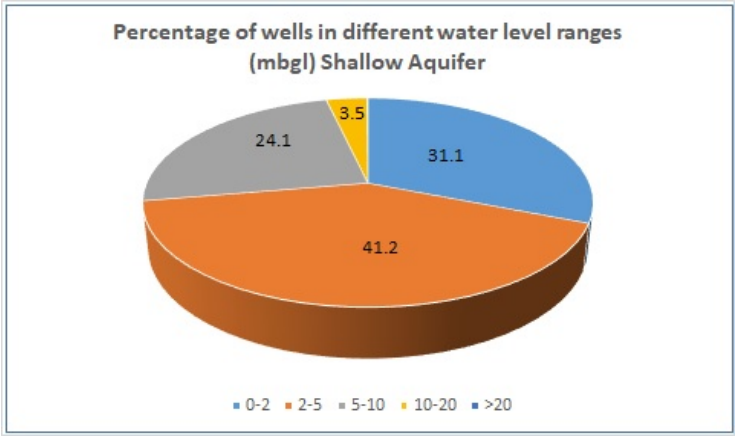
S. No.	District	June - August 2024 Actual (mm)	June - August 2023 Actual (mm)	June - August 2024 Normal (mm)	%DEP From 2023	%DEP From Normal	Category
1	Bagalkote	317	148.7	226	113	40	Excess
2	Ballari	357	126.4	231	182	55	Excess
3	Belagavi	412	407.3	476	1	-13	Normal
4	Bengaluru Rural	348	202.2	274	72	27	Excess
5	Bengaluru Urban	379	170.5	288	122	32	Excess
6	Bidar	441	399.6	482	10	-9	Normal
7	Chamarajanagara	314	130.7	194	140	62	Large Excess
8	Chikkaballapura	1209	139.6	723	766	67	Large Excess
9	Chikkamagaluru	1453	722.1	1278	101	14	Normal
10	Chitradurga	280	135.2	175	107	60	Large Excess
11	Dakshina Kannada	3265	2074	3052	57	7	Normal
12	Davanagere	445	241.8	286	84	56	Excess
13	Dharwad	439	337.5	394	30	11	Normal
14	Gadag	281	195.5	240	44	17	Normal
15	Hassan	892	377.3	616	136	45	Excess
16	Haveri	431	304.2	410	42	5	Normal
17	Kalaburagi	463	354.7	401	31	15	Normal
18	Kodagu	2148	1023.7	1965	110	9	Normal
19	Kolar	334	169.5	239	97	40	Excess
20	Koppala	307	182.4	238	68	29	Excess
21	Mandya	292	131	187	123	56	Excess
22	Mysuru	429	203.9	310	110	38	Excess
23	Raichur	362	230.5	290	57	25	Excess
24	Ramanagara	327	134.1	261	144	25	Excess
25	Shivamogga	1946	1100.3	1792	77	9	Normal
26	Tumakuru	417	170.3	213	145	96	Large Excess
27	Udupi	3886	2642.8	3618	47	7	Normal
28	Uttara Kannada	3120	1943.5	2391	61	30	Excess
29	Vijayanagar	365	178.1	264	105	38	Excess
30	Vijayapura	350	207.4	248	69	41	Excess
31	Yadgir	400	312.1	357	28	12	Normal
	State	604	495	549	22	10	Normal

Table.1: District-Wise Cumulative Rainfall and Percentage Departure, During Monsoon Period 2024

3. Depth to water level of shallow aquifer (unconfined) of August-2024:

During August 2024 the depth to water level of shallow aquifer vary widely from 0.01 to 21.52. Salient features of the depth to water level of Shallow aquifer (Unconfined) during **August 2024** are given below.

1. A perusal of the water level data reveals that the depth to water level ranged from 0.01m bgl (Kalburgi district) to 21.52m bgl (Gadag district).
2. The salient feature of the analysis is that the depth to water level over major part of the State lies within 10 m bgl in 96.4 % of wells analysed, while 4.6 % of wells show depth to water level more than 10 m bgl.
3. Depth to water level of less than 2 m bgl has been recorded in around 31.1% of wells analysed and noted all over the districts except Bangalore Rural in Karnataka state.
4. Depth to water level in the range of 2 to 5 m bgl has been recorded in 41.2 % of wells analysed and noted in all the districts.
5. Depth to water level in the range of 5 to 10 m bgl has been recorded in 24.1% of wells analysed and noted in almost all districts.
6. Depth to water level in the range of 10 to 20 m bgl has been recorded in 3.5% of wells analysed and observed in all districts except Bagalkot, Bellary, Chikballapura, Chickmagalur, Davanagere, Hassan, Kolar, Raichur, Udupi and Yadgir Districts.
7. Depth to water level in the range of 20 to 40 m bgl has been recorded in 0.1 % of wells analysed and observed in Gadag district.



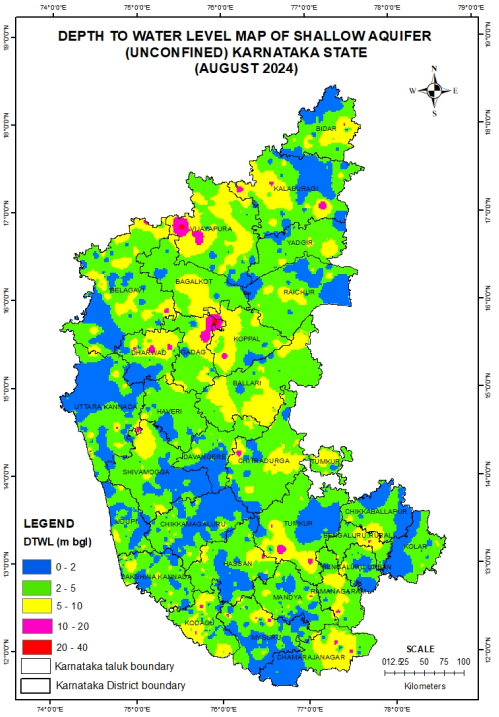
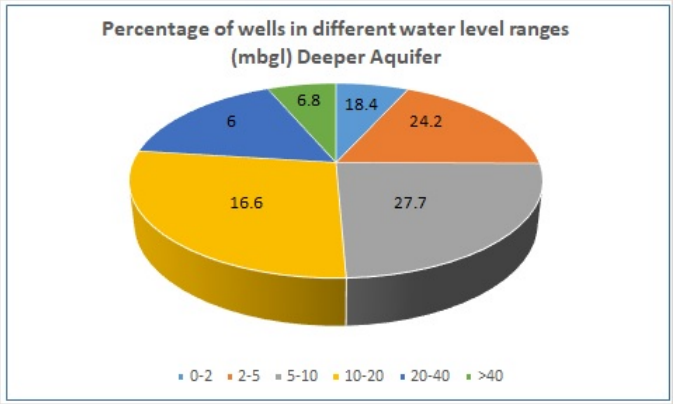


Plate- I: Depth to Water Level Map of Shallow Aquifer (Unconfined) of Karnataka State - August-2024

4. Depth to water level of deeper aquifer (semi-confined/confined) of August-2024:

Depth to Water level of Deeper aquifer (Semi-confined/Confined) has been recorded from piezometers spread all over the State in hard rock areas. Salient features of the depth to water level of Deeper aquifer (Semi-confined/Confined) during August 2024 are given below;

1. The depth to Water level of Deeper aquifer (Semi-confined/Confined) ranged from 0.08 m bgl (Dakshin Kannada district) to 132.3m bgl (Tumkur district) in Karnataka. 49.3% of wells have recorded depth to Water level of Deeper aquifer (Semi-confined/Confined) within 10 m bgl and 50.7% of wells show depth to Water level of Deeper aquifer (Semi-confined) in more than 10 m bgl.
2. Depth to Water level of Deeper aquifer (Semi-confined/Confined) of less than 2 m bgl has been recorded in 6.8% of wells analysed and this has been noted in all the districts except Bangalore Rural, Bangalore Urban, Chamrajnagara, Chikballapura, Gadag, Hassan, Kodagu, Kolar, Raichur, of Bellary, Bidar, Chitradurga, Belagavi, Mysore, Ramanagara, Udupi, Vijayapura Districts and in the range of 2 to 5 m bgl has been recorded in 18.4% of wells analysed and noted in almost all districts except Bangalore Rural Kalaburgi, Mandya, Ramnagara and Udupi districts.
3. Depth to Water level of Deeper aquifer (Semi-confined/Confined) in the range of 5 to 10 m bgl has been recorded in 24.2% of wells analysed and noted in almost all districts & in the range of 10 to 20 m bgl has been observed in 27.7% of wells analysed and reported in all districts except Shimoga, Udupi and Uttar Kannada.
4. Depth to Water level of Deeper aquifer (Semi-confined/Confined) in the range of 20 to 40 m bgl has been noted in 16.6% of wells analysed and noted in almost all districts except Chikmagalur, Dakshin Kannada, Haveri, Kalburgi, Mysore, Raichur, Shimoga, Udupi Uttar Kannada and Yadgir districts.
5. Depth to Water level of Deeper aquifer (Semi-confined/Confined) in the range of more than 40 m bgl has been noted in 6% of wells analysed and is observed as isolated patch of Bagalkote, Bangalore Urban, Bangalore Rural, Belgaum, Bidar, Chamrajnagara, Chikballapura, Chitradurga, Davanagere, Dharwad, Kalaburgi, Kolar, Tumkur and Vijayapura districts.



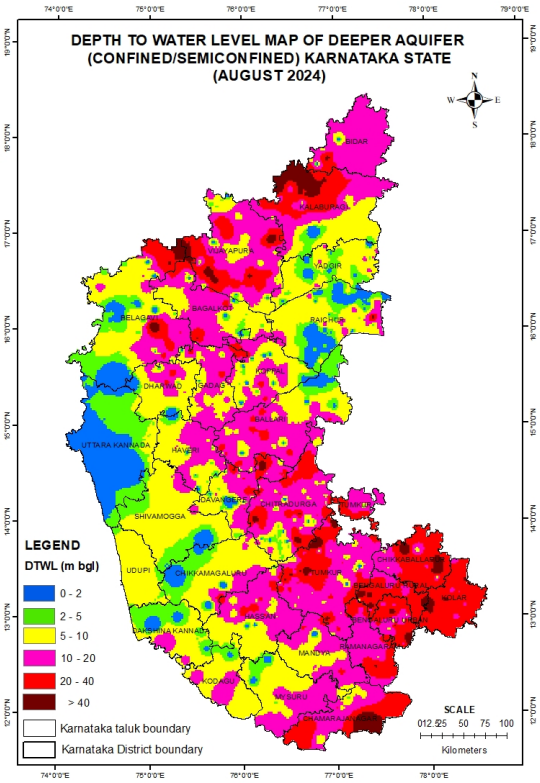
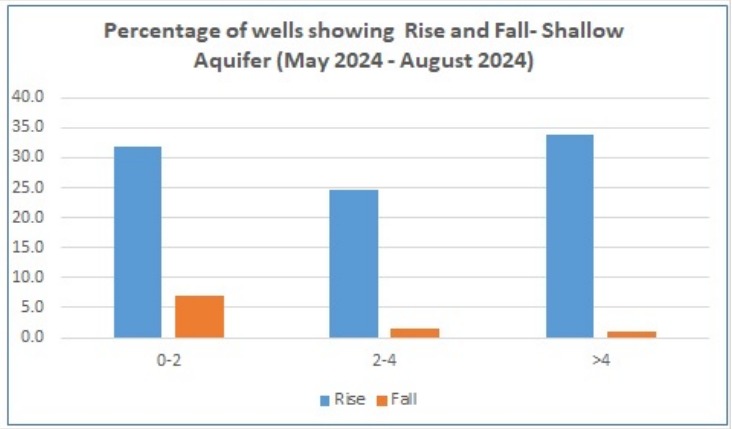


Plate II: Depth to Water Level Map of Deeper Aquifer (Semi-confined/ confined) of Karnataka State - August-2024

5. Change in seasonal water level of shallow aquifer (unconfined) - May 2024 to August 2024:

A comparison of water level shows that a rise in the water level is recorded in 90.4% of wells analyzed while 9.6% recorded fall. The Map showing fluctuation in water level of Shallow aquifer (Unconfined) of May 2024 with respect to August 2024 has been given in **Plate III**.

1. Rise in the water level in the range of 0-2 m has been observed in 31.9% of wells analysed and observed in all over the State.
2. Rise in the water level in the range of 2-4 m has been observed in 24.6 % of wells analysed and observed in all over the State except Bengaluru Rural District.
3. Rise in water level more than 4m has been observed in 33.9% of wells analysed in all over the State except Bengaluru Rural & Bangalore Urban, Chikballapura, Gadag, Kolar, Koppala and Ramanagara districts.
4. The fall in water level in the range of 0-2 m has been observed in 7.1% of wells analysed and noted in all the districts except Davangere, Gadag, Shimoga and Udupi districts.
5. The fall in water level in the range of 2-4 m is observed in Belgaum, Bidar, Chamrajnagara, Chikmagalur, Chitradurga, Kalaburgi, Mysore, Ramanagara, Shimoga, Udupi and Vijayapura districts.
6. The fall in water level more than 4 m has been observed in 1.1% of wells analysed and reported in Bagalkot, Belgavi, Bangalore Urban, Chikmagalurau, Shimoga, Tumkur and Vijayapura districts.



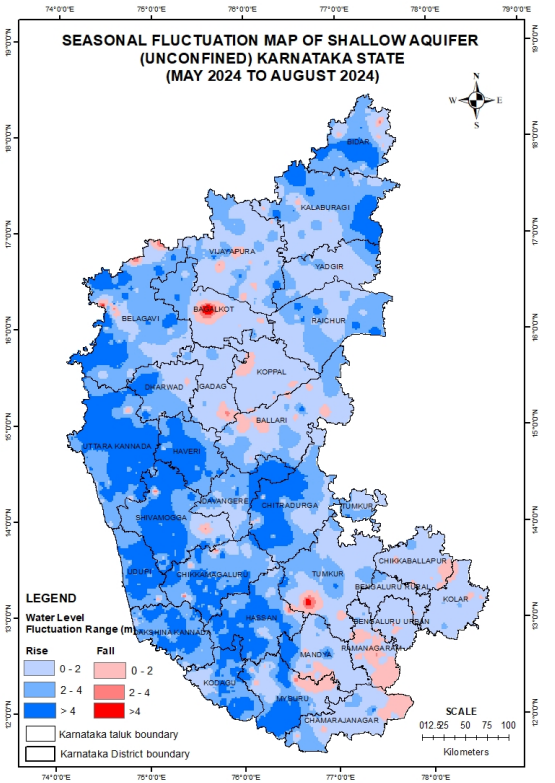
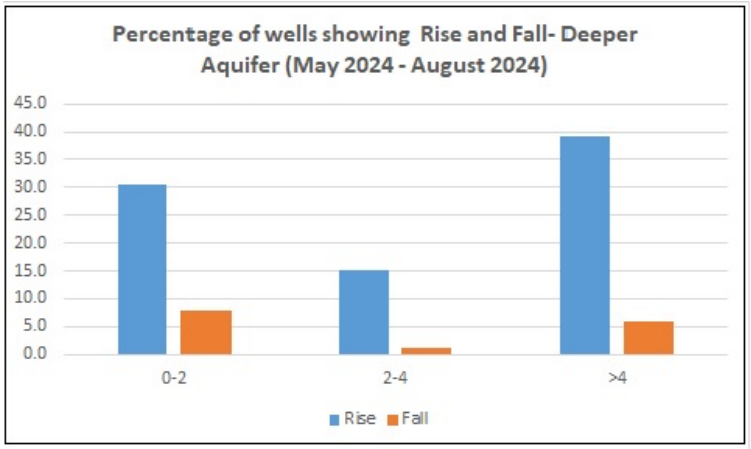


Plate III: Seasonal Fluctuation Map of Shallow Aquifer (Unconfined) of Karnataka State - May 2024 to August 2024.

6. Change in seasonal water level of deeper aquifer (semi-confined/confined) - May 2024 to August 2024:

A comparison of water level shows that a rise in the water level is recorded in 84.9% of wells analysed, while 15.1% recorded fall. The Map showing fluctuation in water level of Deeper aquifer (Semi-confined/Confined) of August 2024 with respect to May 2024 has been plotted in **Plate IV**. A perusal of the plate shows that a general fall in the range of >4 m is noticed in major part of the area.

1. Rise in the water level in the range of 0-2 m has been observed in 30.6% of wells analyzed and observed in all over the District except, Dakshina Kannada, Kolar, Kalburga and Shivamoga, districts.
2. Rise in the water level in the range of 2-4 m has been observed in 15% of wells analyzed and noted in all the districts.
3. Rise in water level more than 4m has been observed in 39.2% of wells analysed and noted in all the Districts.
4. The fall in water level in the range of 0-2 m has been observed in 7.9% of wells analyzed and noted in all the districts except Bidar, Chamrajnagara, Chickmagalurau, Dakshin Kannada, Davanagere, Kalaburgi, Shimoga, Udupi Districts.
5. The fall in water level in the range of 2-4 m has been observed in 1.2% of wells analysed and noted in Chickballapura, Chitradurga, Kalaburgi, Tumkur, Vijayapura & Yadgiri Districts.
6. The fall in water level more than 4 m has been observed in 6 % of wells analysed and noted in the districts except Belgaum , Dakshin Kannada, Gadag, Haveri, Kodagu, Mandya, Mysore, Shimoga, Udupi, Uttar kannada districts.



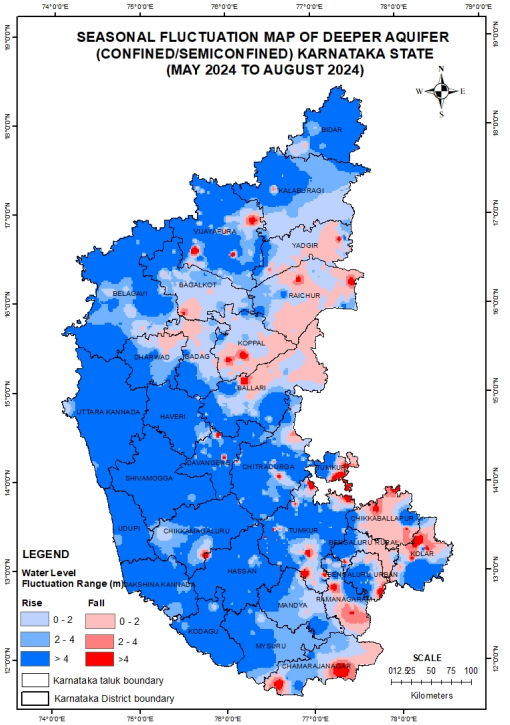
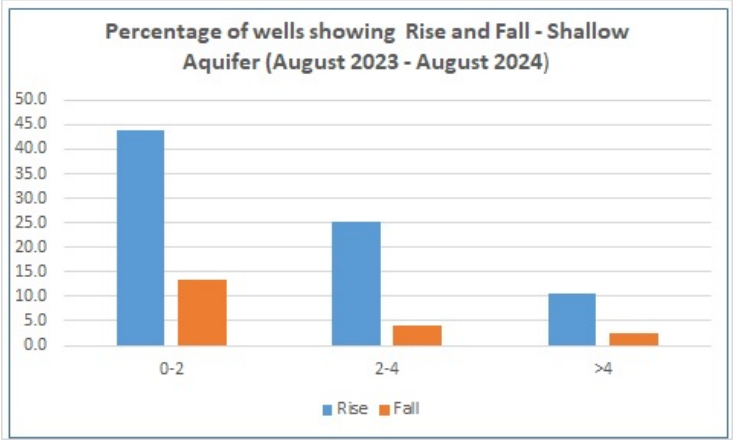


Plate IV: Seasonal Fluctuation Map of Deeper Aquifer (Semi-confined/ confined) of Karnataka State - May 2024 to August 2024.

7. Change in annual water level of shallow aquifer (unconfined) - August 2023 - August 2024:

A comparison of water level shows that a rise in the water level is recorded in 79.9% of wells analysed, while 20.1% recorded fall. The Map showing fluctuation in water level of current monitoring period with August 2023 has been given in **Plate V**. A perusal of the plate shows that a general rise in the range of 0 – 2 m is noticed in major part of the area.

1. Rise in the water level in the range of 0-2 m has been observed in 43.9% of wells analysed and observed in all over the District.
2. Rise in the water level in the range of 2-4 m has been observed in 25.2% of wells analysed and noted in all districts except Bangalore Rural, Chikballapura, Gadag, Kalaburgi, Koppal districts.
3. Rise in water level more than 4m has been observed in 11% of wells analysed and noted in all districts except Bengaluru Urban, Bangalore Rural, Bidar, Chikballapura, Kalaburagi, Kolar, Koppal and Ramnagara districts.
4. The fall in water level in the range of 0-2 m has been observed in 13.3% of wells analysed and noted in all the districts except Chikballapura, Chickmagalur, Dakshin Kannada, Haveri districts.
5. The fall in water level in the range of 2-4 m has been observed in 4.2% of wells analysed and noted in all the districts except Bagalkot, Bengaluru Rural and Bengaluru Urban, Chikmagaluru, Gadag, Haveri, Mysore Districts.
6. The fall in water level more than 4 m has been observed in 2.6% of wells analysed and noted in all Districts except Bagalkot, Bengaluru Rural, Chikkaballapura, Davanagere, Dharwad, Hassan, Haveri, Raichur, Ramanagara, Shimoga, Udupi, Vijayanagara and Yadgir districts.



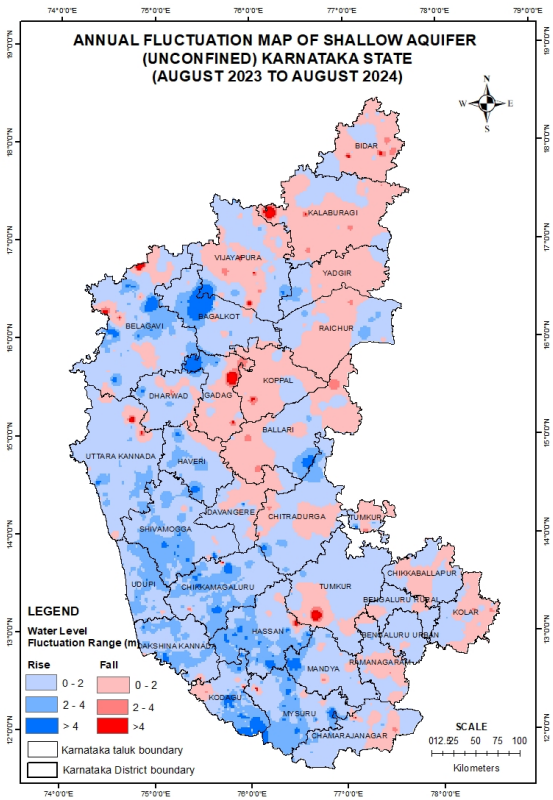
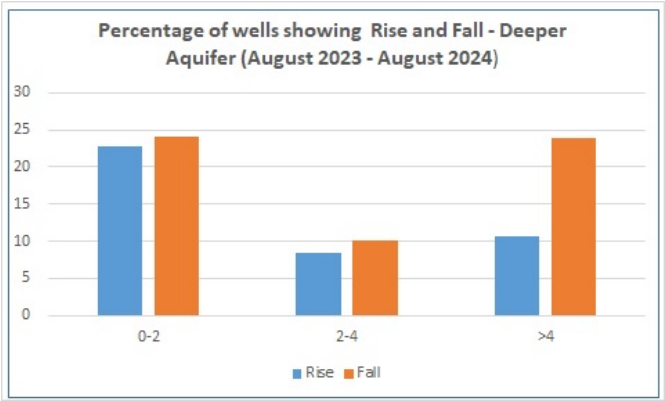


Plate V: Annual Fluctuation Map of Shallow Aquifer (Unconfined) of Karnataka State August-2023 to August-2024

8. Change in annual water level of deeper aquifer (semi-confined/ confined) – August 2023 - August 2024:

A comparison of water level shows that a rise in the water level is recorded in 42% of wells analyzed, while 58% recorded fall. The fluctuation map of August 2024 with respect to August 2023 has been plotted in **Plate VI**. A perusal of the plate shows that a general fall in the range of more than 4 m is noticed in major part of the area.

1. Rise in the water level in the range of 0-2 m has been observed in 23% of wells analyzed and observed in all over the District except Bangalore Rural, Kolar and Mysore districts.
2. Rise in the water level in the range of 2-4 m has been observed in 8% of wells analyzed and noted in all districts except Bellary, Bangalore Urban, Chikballapura, Kalburgi, Kodagu, Kolar, Mandya and Ramanagara Districts.
3. Rise in water level more than 4m has been observed in 11% of wells analysed and noted in all districts except Bellary, Bengaluru Rural, Bidar, Dharwad, Gadag, Ramanagara, Shivamogga and Udupi districts.
4. The fall in water level in the range of 0-2 m has been observed in 24% of wells analysed and reported in all the districts except Dakshin Kannada, Kalaburgi, Mysore, Shimoga, Udupi, Uttar kannada districts.
5. The fall in water level in the range of 2-4 m has been observed in 10% of wells analysed and and noted in all the district except Chikkamagaluru, Dakshina Kannada, Dharwad, Kodagu, Mandya, Mysore, Shimoga, Udupi, Uttar Kannada and Vijayapura Districts.
6. The fall in water level more than 4 m has been observed in 24% of wells analysed and noted in all districts except Bellary, Chikmagaluru, akshina Kannada, Gadag, Shimoga, Kodagu, Udupi & Uttara Kannada districts.



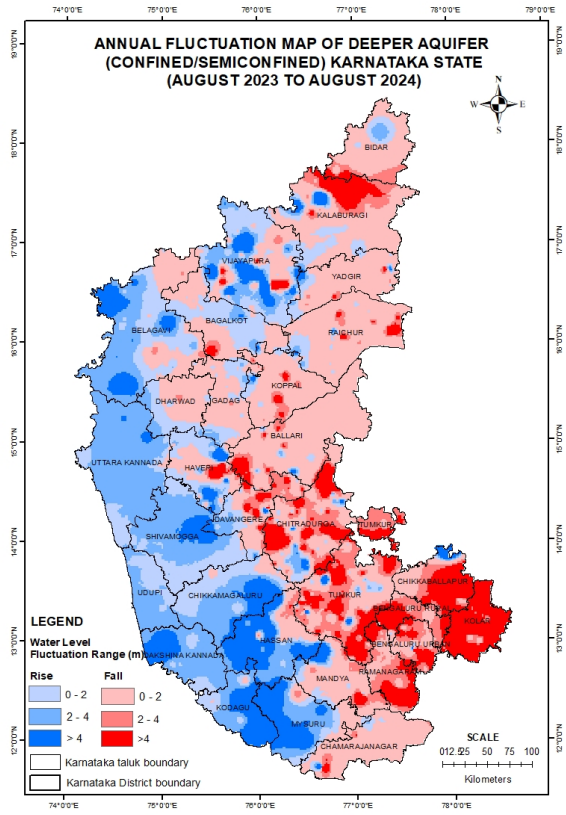
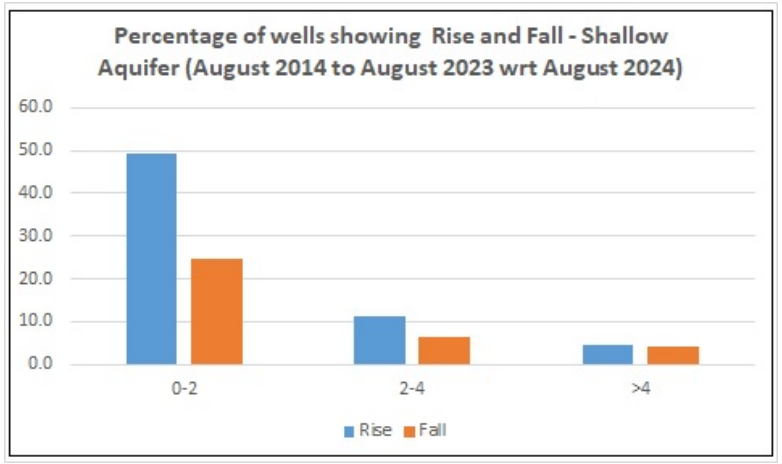


Plate VI: Annual Fluctuation Map of Deeper Aquifer (Semi-confined/confined) of Karnataka State - August-2023 to August 2024

9. Decadal water level fluctuation of Shallow Aquifer (Unconfined) - Decadal mean August 2014-2023 & August 2024 of Karnataka State:

The fluctuation in water level has been plotted in **Plate VII**. A comparison of water level shows that a rise in the water level is recorded in 64.8% of wells analysed, while 35.2% recorded fall. Salient features of the comparison of water levels are given below.

1. Rise in the water level in the range of 0-2 m has been observed in 49.1% of wells analysed, noted all over the State.
2. Rise in the water level more than 2-4 m has been observed in 11.4% of wells analysed, noted all over the State except Bellary and Yadgir District.
3. Rise in the water level more than 4 m has been observed in 4.4% of wells analysed and noted in all over the State except Bangalore Rural district.
4. The fall in water level in the range of 0-2 m has been observed in 24.8% of wells analysed and noted in all over the state except Bellary, Bangalore Urban, Chikballpura, Dakshin kannada, Davanagere, Kolar, Koppal, Ramnagara, Shimoga, Udupi, Uttar Kannada, Vijayanagara and Yadgir districts.
5. The fall in water level in the range of 2-4 m has been observed in 6.2% of wells analysed and noted in all over the State except Chamrajnagara, Chikkaballapura, Dharwad and Haveri districts.
6. The fall in water level more than 4 m has been observed in 4.2% of wells analysed and noted in all over the State except Bagalkot, Bengaluru Rural, Davanagere, Hassan, Haveri, Kolar and Yadgir districts.



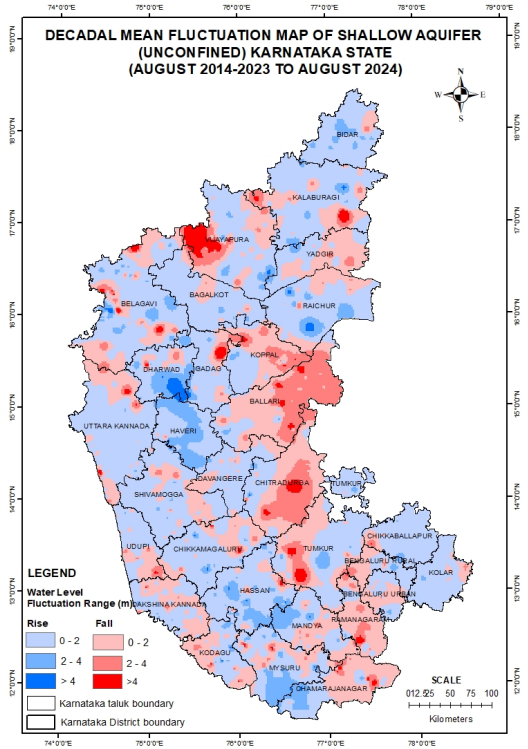


Plate VII: Decadal Mean Fluctuation Map of Shallow Aquifer (Unconfined) of Karnataka State - August-2014-23 to August 2024

10. Decadal mean water levels of deeper aquifer (semi-confined/confined) for the period – August 2014-2023 & August 2024:

The analysis has done for **168** number of wells remaining **615** number of wells are not analysed due to non-availability of continuous 10 years data of deeper aquifer, so that long-term changes in water levels between decadal mean August (2014-2023) and August 2024 of Deeper Aquifer (Semi-Confined/Confined) has not been analysed. The fluctuation in water level has been plotted in **Plate VIII**. A comparison of water level shows that a rise in the water level is recorded in 58% of wells analysed, while 42% recorded fall.

1. Rise in the water level in the range of 0-2 m has been observed in 26% of wells analysed, noted all over the State except Bagalkot, Chitradurga, Davanagere, Dharwad, Gadag, Hassan,Koppal, Mysuru, Udupi, Vijayanagara districts.

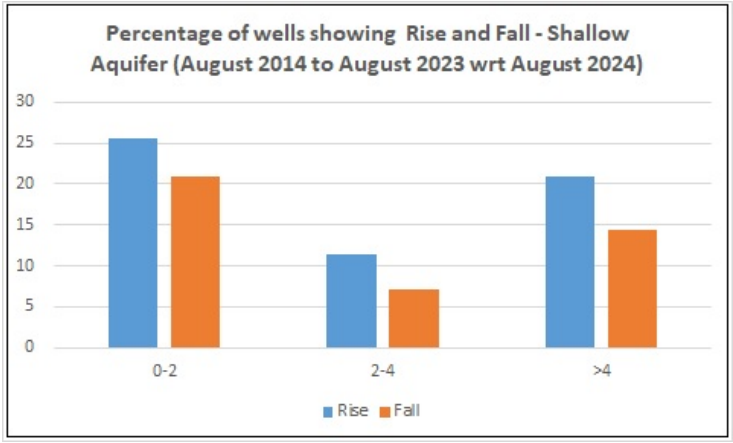
2. Rise in the water level more than 2-4 m has been observed in 11% of wells analysed, noted in Belgaum, Chikmagalur, Davanagere, Hassan, Haveri, Kolar, Koppal, Mandya, Mysore, Uttar Kannada and Vijayanagara districts.

3. Rise in the water level more than 4 m has been observed in 21% of wells analysed and noted in all over the state except Bidar, Chitradurga, Davanagere, Dharwad, Gadag, Haveri, Kalburgi, Koppal, Mandya, Mandya, Raichur, Udupi, Uttarkannada and Yadgir districts.

4. The fall in water level in the range of 0-2 m has been observed in 21% of wells analysed and noted in all over the state except Bagalkot, Chamrajnagara, Dharwad, Hassan, Haveri, Koppal, Raichur, Tumkur, Udupi, Uttar kannada and Vijayanagara districts.

5. The fall in water level in the range of 2-4 m has been observed in 7.2% of wells analysed and noted in Bangalore Rural, Bangalore Urban, Chikballapura, Dakshna Kannada, Davanagere, Dharwad, Kodagu, Mandya, Mysuru, Ramanagara, Udupi and Vijayanagara districts.

6. The fall in water level more than 4 m has been observed in 14% of wells analysed and noted in Bagalkot, Bengaluru Urban, Bidar, Chikballapura, Chikmagalura, Davanagere, Hassan, Kalburgi, Kolar, Ramnagara, Tumkur, Vijayanagara and Vijayapura districts.



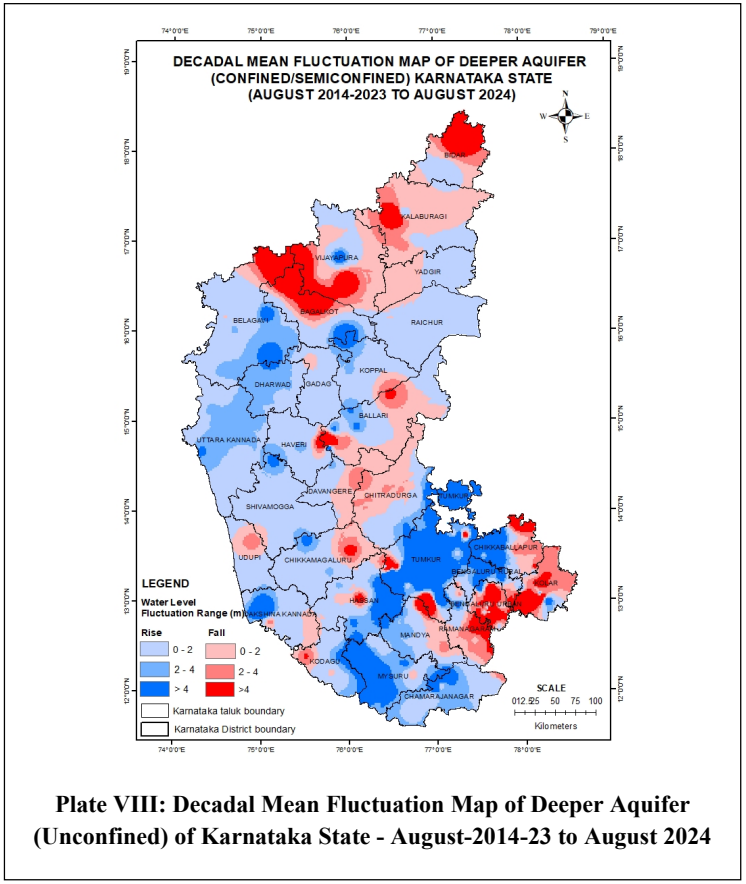


Plate VIII: Decadal Mean Fluctuation Map of Deeper Aquifer (Unconfined) of Karnataka State - August-2014-23 to August 2024

11. Conclusions:

The behavior of ground water table during August 2024 in Karnataka State has been studied by analyzing the water level of the dug wells and bore/tube wells. The data on water levels was analyzed in detail and salient features are as under.

1. Depth to water level of Shallow aquifer (Unconfined) over major part of the State covering is within 10 m bgl in nearly 96.4% of wells analyzed, while 4.6% of wells show depth to water level more than 10 m bgl.
2. In case of deeper aquifer (Semi-confined/Confined) 49.3% of wells have recorded depth to water level within 10 m bgl, while 50.7% of wells show depth to water level more than 10m bgl.
3. Comparison of August 2024 shallow aquifer water level with May 2024 indicates rise in 90.4 % of the analyzed wells and fall in 9.6% of wells.
4. Comparison of water level of deeper aquifer (Semi-confined/Confined) of August 2024 with May 2024 indicated rise in 84.9% of wells analyzed and fall in 15.1% of wells analyzed.
5. 79.9% of wells have recorded rise in annual fluctuation (August 2023- August 2024) and 20.1% of wells have recorded fall in water levels of Shallow aquifer (Unconfined)
6. 42% of wells have recorded rise in annual fluctuation in water levels of Deeper aquifer (Semi-confined/Confined) and 58% of wells have recorded fall in annual fluctuation in water levels during August 2023- August 2024.
7. 64.8% of wells have recorded rise in water levels and 35.2% of wells recorded fall in water levels of Shallow aquifer (Unconfined) during August 2024 in comparison to decadal mean August 2014-23 to August 2024.
8. 58% of wells have recorded rise in water levels and 42% of wells recorded fall in water levels of Deeper aquifer (Semi-confined/Confined) during August 2024 in comparison to decadal mean August 2014-23 to August 2024.

12. Summary

- The State had received a total rainfall of 604 mm during June to August 2024 i.e., the part of the SW monsoon season spanning from June to September 2024, which is 10 percent more than the normal of 549 mm. Rainfall was in larger excess in 4 districts, excess in 15 districts, normal in 12 districts. The benefit of this larger excess, excess and normal rainfall is evident in shallow aquifer. In Karnataka state 79.90% of wells indicate rise in water level during August 2024 compared to August 2023 and 64.8% of wells show rise when compared to the decadal mean water level. But the influence of water level is less in deeper aquifers.
- The depth to water level in shallow aquifer over major part of the State during August 2024 lies within 10 m bgl in 96.4 % of wells analysed, while 4.6 % of wells show depth to water level more than 10 m bgl. Whereas in deeper aquifer, 49.30% of wells have recorded depth water level within 10 m bgl and 50.70% of wells show depth to water level of more than 10 m bgl.
- Fluctuation in water level of August 2024 with August 2023 in shallow aquifer indicates that in majority of the area rise has been recorded in 79.90% of wells occupying western, north western and south western parts of the State and fall in water levels is observed in 20.10% wells analysed mostly located in north-eastern, central and south eastern parts of the State. Whereas in deeper aquifer, majority of wells i.e., 58% recorded fall, observed in entire eastern and central stretch of the State and 42% of wells analyzed shows rise in water level in western stretch of the State including Coastal and Malnad areas.
- The decadal water level fluctuation in shallow aquifer for August 2014-2023 & August 2024 shows rise in 64.80% of wells analysed occupying all parts of the State, while 35.2% recorded fall in water levels occupying mostly west-central, south eastern and north western parts of the State. Whereas in deeper aquifer, rise in the water level is recorded in 58% of wells analysed spread across almost entire State, while 42% recorded fall restricted to northern, north-western, central-eastern and south eastern parts of the State.

13. Recommendations

- In order to enhance the groundwater scenario of Karnataka state utmost effort should be made to harvest the rainwater received during monsoon season and use it for artificial recharge. Periodic maintenance of the structures is also recommended to maintain the efficiency of the structure. Abandoned bore wells/dug well can be used to recharge the aquifer utilizing the surplus surface runoff available during rainy days. Master plan for artificial recharge of Karnataka and Goa as well as NAQUIM reports of all taluks and District Recharge Plans of 18 districts prepared by CGWB can be utilised in selecting sites for artificial recharge structures.
- Point recharge structures are recommended to recharge deeper aquifers.
- Efficient micro irrigation practices needs to be propagated and practiced especially in water intensive crops like like paddy, banana, sugarcane, arecanut, coconut.
- Tank Filling Schemes targeting 37000 tanks (Small, Medium, Major, TP and ZP tanks) by surface water / treated water. Desilting of tanks upto 1 m.
- Borewell Recharge Scheme targeting approx. 11 lakh Irrigation BW's and Drinking Water Supply BW's.
- Kalyani / Dugwell Recharge Scheme.
- Farm Ponds in approx. 17 lakh farm holdings of > 2 ha.
- Water Budgeting by Village Panchayat's, Participatory approach of ground water management at grass root level, so as to have sense of ownership
- Re-Use of sewage treated water after secondary/tertiary treatment for recharge of ground water ensuring that the treated water quality meeths the standards.
- Opting for water efficient fixtures and low flow plumbing fixtures reduce the stress on groundwater. Low flow technology is normally used in faucets, aerator, shower heads and toilets.