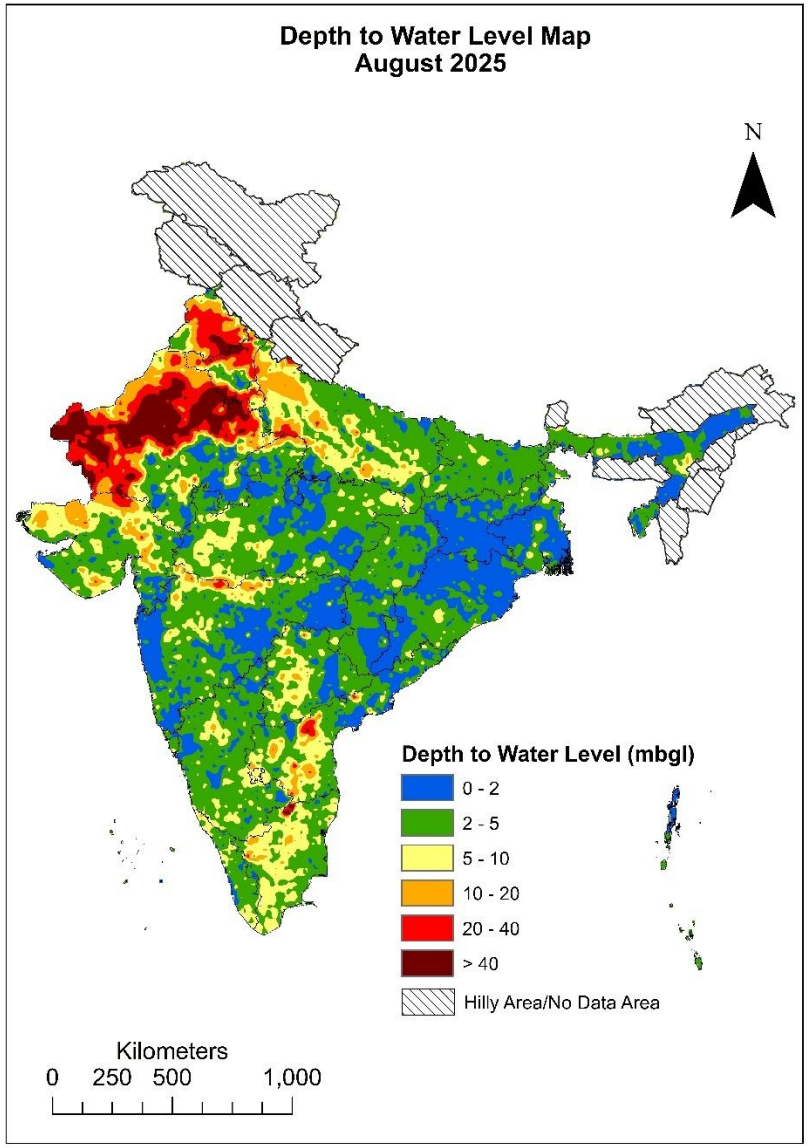
GROUND WATER LEVEL BULLETIN

AUGUST 2025



ABSTRACT

Groundwater level scenario during August 2025 highlighting the findings, status of ground water level in different aquifers and its seasonal, annual and decadal comparison.

National Data Centre
Central Ground Water Board, Faridabad

1.0 INTRODUCTION

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

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

Groundwater levels are being measured by Central Ground Water Board four times a year during January, March/April/May, August and November. The regime monitoring started in the year 1969 by Central Groundwater Board. Currently, a network of 27163 observation wells called National Hydrograph Network Stations (NHNS) located all over the country is being monitored.

2.0 HYDROGEOLOGICAL SETUP OF COUNTRY

India's hydrogeological setup is characterized by diverse aquifer systems across its varied geography. The Indo-Gangetic Plain features extensive, productive alluvial aquifers, while Peninsular India has less permeable hard rock aquifers in the Deccan Plateau and sedimentary basins. Arid regions like Rajasthan and Gujarat experience scanty rainfall and feature less productive, shallow aquifers. The hydrogeological map of India is depicted in Figure -1 and the geographical distribution of hydrogeological units along with their Groundwater potential is given in Table 1.

Table1. Aquifer System in the Country

System	Coverage	Groundwater potential
Unconsolidated formations - alluvial	Indo-Gangetic, Brahmaputra plains	Highly productive system down to 600 m depth.
	Coastal Areas	Reasonably extensive aquifers but risk of saline water intrusion
	Arid areas	Scanty rainfall. Salinity hazards. Groundwater availability at great depths.
Consolidated/semi-consolidated formations - sedimentary, basalts & crystalline rocks	Peninsular Areas	Groundwater available in fractures and in weathered zones with varying yield at shallower depths (20-40 m) in some areas and deeper depths (100-200 m) in other areas.
Hilly	Hilly states	Low storage capacity due to quick runoff

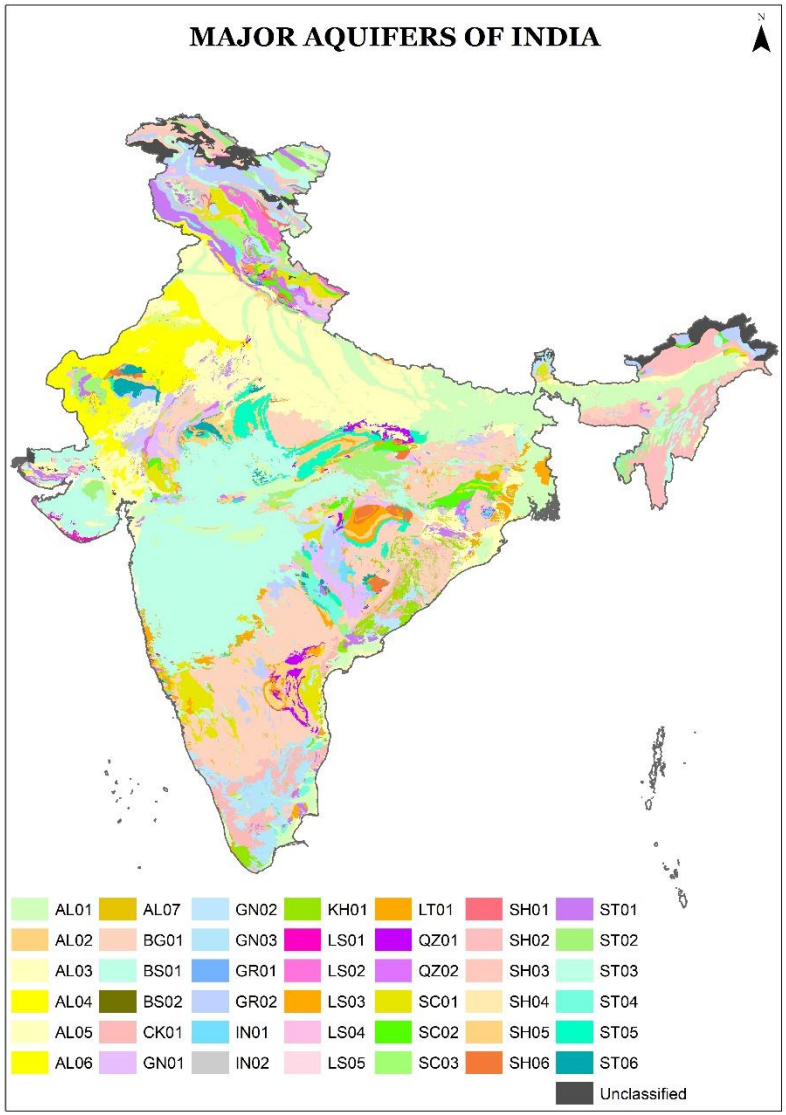


Figure 1: Map showing major aquifers and geomorphic divisions

3.0 GROUND WATER LEVEL MONITORING

Central Ground Water Board is monitoring changes in groundwater regime in the country on quarterly basis continuously. This is facilitated by a network of monitoring stations in the country located in diverse hydrogeological and geomorphic units. The number of operational wells till March 2025 was 26351 which include 16431 dug wells, 8680 piezometers, 966 Handpumps and 274 Springs. The state-wise breakup of the water level monitoring stations is given in Table 2.

Table 2. State-wise water level monitoring stations

State/ UT	DW	Piezometers	Handpump	Spring	Total
Andhra Pradesh	656	790	0	0	1446
Arunachal Pradesh	26	4	0	8	38
Assam	383	91	8	5	487
Bihar	977	117	0	0	1094
Chhattisgarh	1006	269	0	0	1275
Delhi	22	115	0	0	137
Goa	81	54	0	0	135
Gujarat	781	500	0	0	1281
Haryana	150	345	0	0	495
Himachal Pradesh	129	66	0	27	222
Jammu & Kashmir	270	87	0	26	383
Jharkhand	466	147	0	0	613
Karnataka	1316	946	0	0	2262
Kerala	1379	271	0	24	1674
Madhya Pradesh	1378	476	0	0	1854
Maharashtra	1857	318	0	0	2175
Manipur	4	0	0	2	6
Meghalaya	70	13	0	21	104
Mizoram	7	0	0	20	27
Nagaland	80	1	0	20	101
Odisha	1489	291	0	0	1780
Punjab	115	346	0	0	461
Rajasthan	647	842	0	0	1489
Sikkim	0	4	0	0	4
Tamil Nadu	766	713	0	0	1479
Telangana	270	1001	0	0	1271
Tripura	104	13	0	10	127
Uttar Pradesh	1082	453	0	0	1535
Uttarakhand	35	12	196	111	354
West Bengal	725	352	762	0	1839
Andaman & Nicobar	111	2	0	0	113
Chandigarh	1	23	0	0	24
DNH and DD	40	4	0	0	44
Puducherry	8	14	0	0	22
Total	**16431**	**8680**	**966**	**274**	**26351**

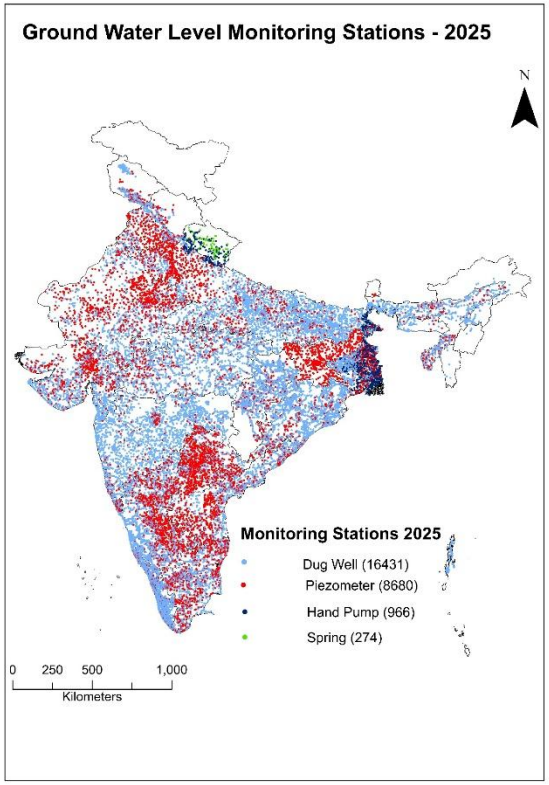


Figure 2: Location of groundwater monitoring stations

4.0 RAINFALL

The state-wise rainfall data was collected from the India Meteorological Department (IMD) to analyze the rainfall patterns during the monsoon period between 01.06.2025 to 31.08.2025. Table 3 presents the normal rainfall and actual rainfall for each state during this period, along with the departures from normal rainfall.

Observations show that in 2025, the SW Monsoon rainfall till August had a 6% positive departure from the normal rainfall.

State-wise rainfall (mm) distribution from 01.06.2025 to 31.08.2025

S.No	STATES	ACTUAL	NORMAL	% DEP.	CAT.
1	A & N Island	1336.0	1202.2	11%	Normal
2	Andhra Pradesh	394.3	369.5	7%	Normal
3	Arunachal Pradesh	835.1	1327.1	-37%	Deficient
4	Assam	809.1	1198.8	-33%	Deficient
5	Bihar	551.3	775.7	-29%	Deficient
6	Chandigarh	706.3	713.5	-1%	Normal
7	Chhattisgarh	900.0	921.2	-2%	Normal
8	DNH & DD	2070.3	1880.6	10%	Normal
9	Delhi	603.1	439.2	37%	Excess
10	Goa	2785.0	2689.3	4%	Normal
11	Gujarat	669.3	594.8	13%	Normal
12	Haryana	439.2	349.9	26%	Excess
13	Himachal Pradesh	834.9	613.8	36%	Excess
14	Jammu & Kashmir	576.8	453.4	27%	Excess
15	Jharkhand	1012.2	798.9	27%	Excess
16	Karnataka	778.9	670.2	16%	Normal
17	Kerala	1546.4	1746.9	-11%	Normal
18	Ladakh	81.3	16.7	387%	Large Excess
19	Lakshadweep	766.7	856.9	-11%	Normal
20	Madhya Pradesh	944.3	782.6	21%	Excess
21	Maharashtra	881.9	814.2	8%	Normal
22	Manipur	729.0	834.8	-13%	Normal
23	Meghalaya	1272.8	2207.8	-42%	Deficient
24	Mizoram	1172.3	1264.2	-7%	Normal
25	Nagaland	930.5	830.9	12%	Normal
26	Odisha	870.9	914.5	-5%	Normal
27	Puducherry	340.1	287.7	18%	Normal
28	Punjab	470.4	362.1	30%	Excess
29	Rajasthan	596.2	372.1	60%	Large Excess
30	Sikkim	1130.5	1331.3	-15%	Normal
31	Tamilnadu	214.2	209.7	2%	Normal
32	Telangana	695.6	576.0	21%	Excess
33	Tripura	1133.9	1135.9	0%	Normal
34	Uttar Pradesh	578.4	593.1	-2%	Normal
35	Uttarakhand	1164.9	980.3	19%	Normal
36	West Bengal	1095.9	1047.6	5%	Normal
The country as a whole		**743.1**	**700.7**	6%	Normal

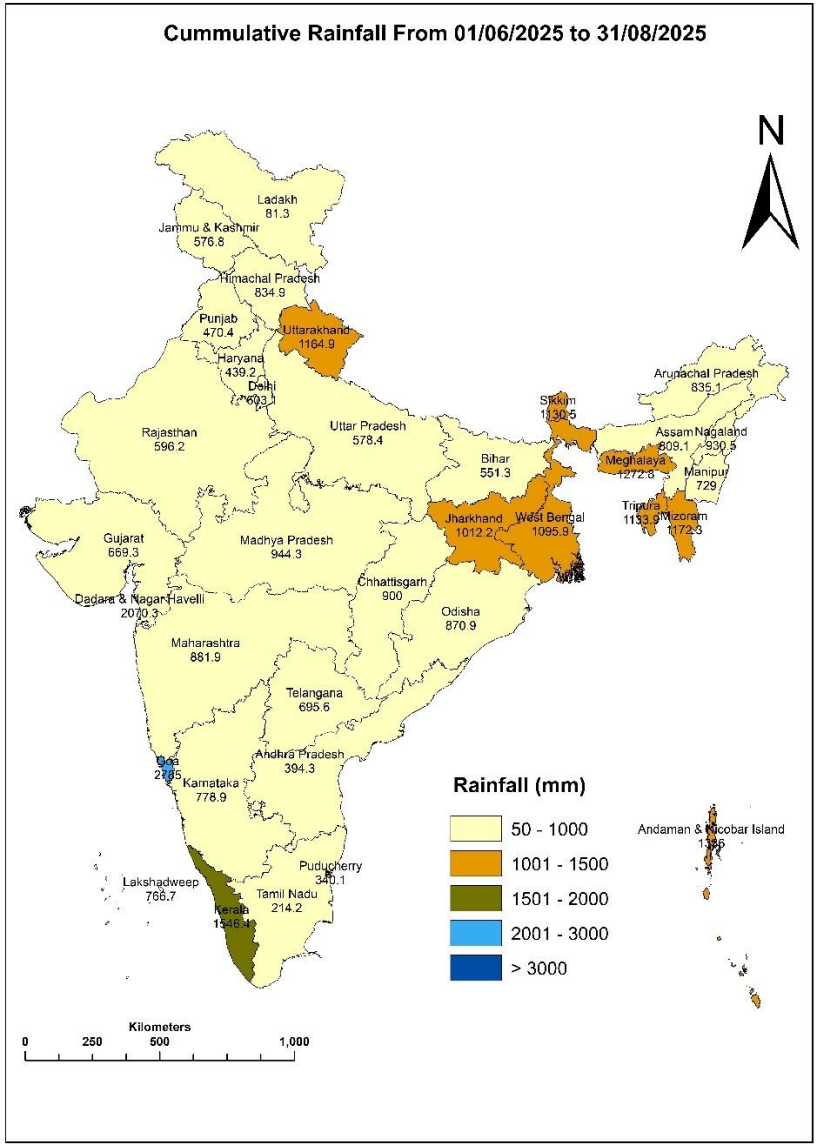


Figure 3: State-wise cumulative rainfall in the monsoon period from 01.06.2025 to 31.08.2025

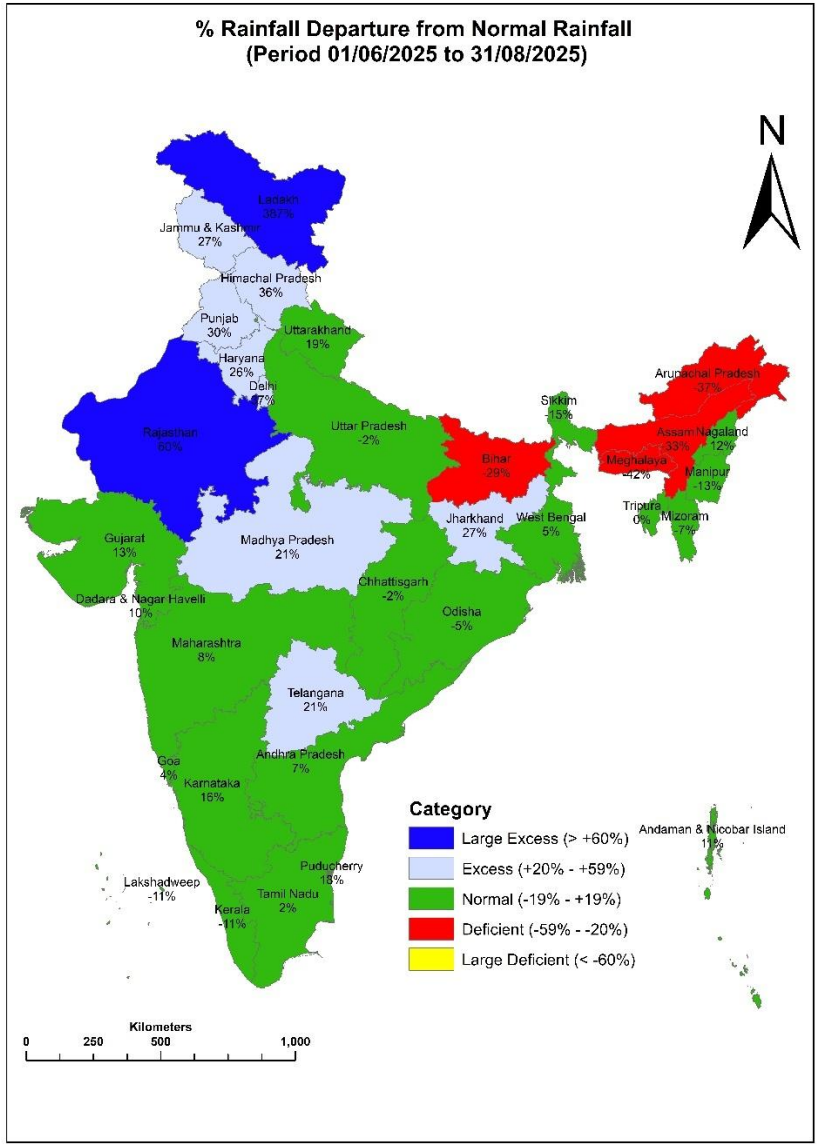


Figure 4: State-wise deviation of monsoon rainfall from normal till August 2025

5.0 GROUND WATER LEVEL SCENARIO (AUGUST 2025)

5.1 DEPTH TO WATER LEVEL

Depth To Water Level in Unconfined Aquifer (August 2025)

The groundwater level data for August 2025 indicates that out of the total 18404 wells analysed, 40.5% wells are showing water level less than 2 m bgl (meter below ground level), 33.2% wells are showing water level in the depth range of 2 to 5 m bgl, 15.8% wells are showing water level in the depth range of 5 to10 m bgl, 5.7% wells are showing water level in the depth range of 10 to 20 m bgl, 2.8% wells are showing water level in the depth range of 20 to 40 m bgl and the remaining 2.0% wells are showing water level more than 40 m bgl. (Fig. 5).

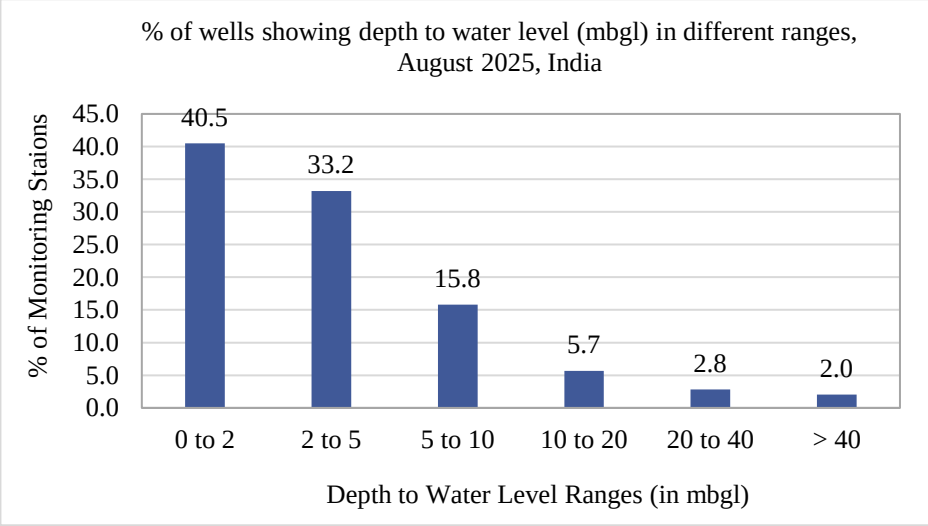


Figure 5**:** Number of wells showing depth to water level (mbgl) in different ranges, August 2024 in unconfined aquifers, India

Groundwater level data of August 2025 for the country reveals that the general depth to water level of the country ranges from 0-5 m bgl. A very shallow water level of less than 5 m bgl is observed in almost all states in patches except Haryana, Punjab, Rajasthan, Chandigarh and Delhi. In major parts of north-western and western states, especially in the states of Delhi, Haryana, Punjab and Rajasthan, depth to water level is generally deeper and ranges from about 20 to more than 40 m bgl (Fig. 6).

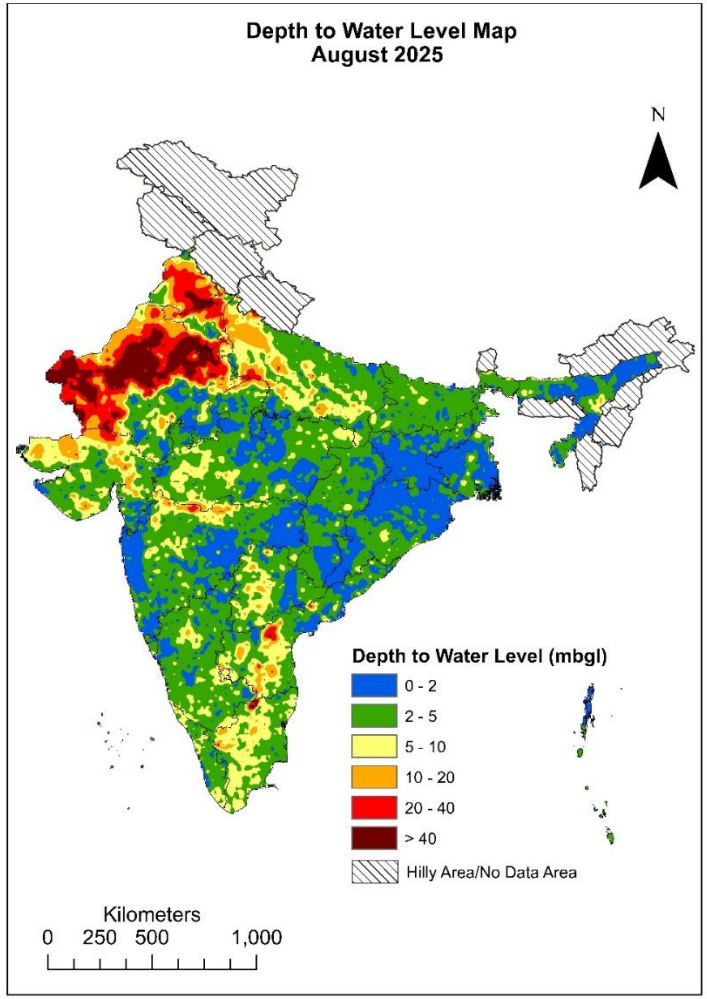


Figure 6: Depth to water level of unconfined aquifer during August 2025

5.2 ANNUAL FLUCTUATION IN WATER LEVEL

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

The groundwater level fluctuation analysis done in 15925 wells. The water level fluctuation from August 2024 to August 2025 shows that 8995 (56.5%) are showing rise and 6753 (42.4%) are showing fall in water level. The remaining 177 (1.1%) stations analysed do not show any change in water level. (Fig. 7).

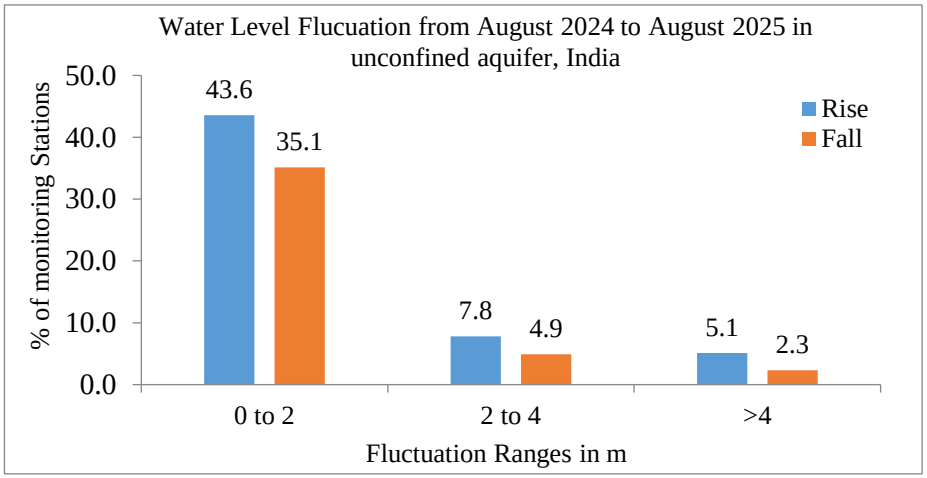


Figure 7: Annual Water Level Fluctuation & Frequency Distribution of Different Ranges from August 2023 to August 2024 in unconfined aquifer, India

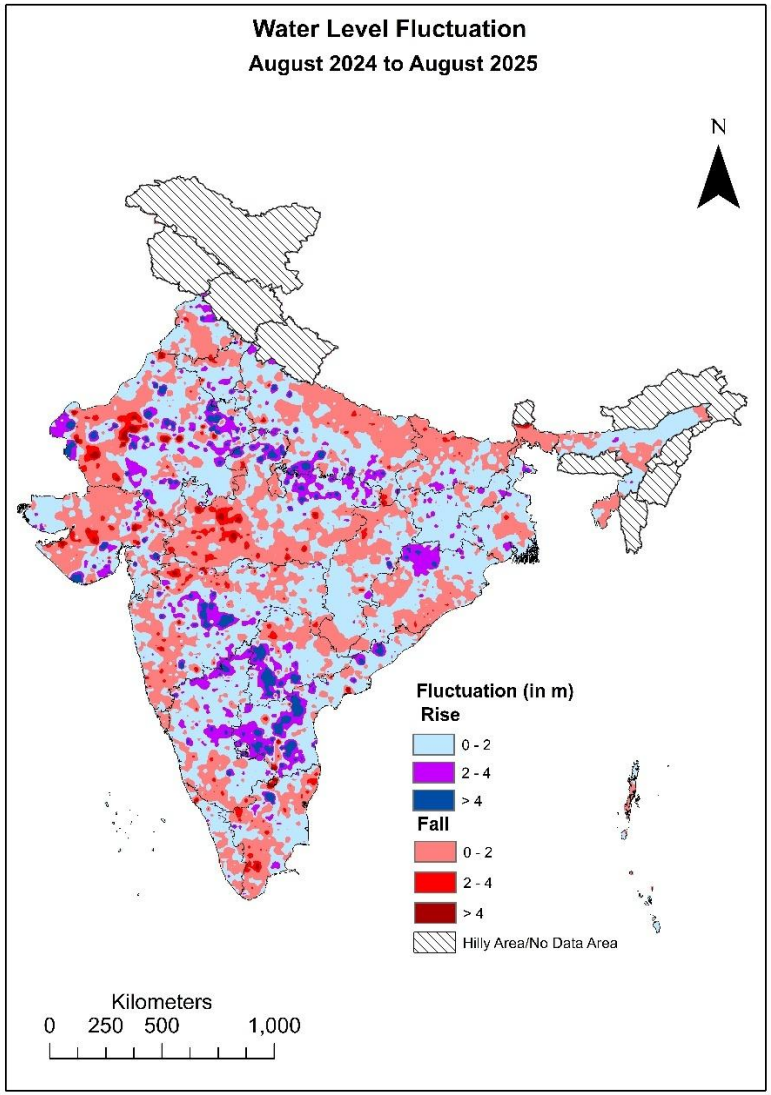


Figure 8: Annual water level fluctuation in unconfined aquifer (August 2024 to August 2025)

Rise in Water Levels:
About 43.6% wells are showing rise in the water level in the range of less than 2 m. Approximately 7.8% of the wells exhibit a rise in water level within the 2 to 4 m range, and 5.1% of the wells show a rise in water level exceeding 4 m. A rise in water level is observed in patches in almost all states. The prominent rise in water level is observed in patches in the states of Andhra Pradesh, Assam, Himachal Pradesh, Jharkhand, Nagaland, Telangana, Uttarakhand, Delhi and Puducherry.

Fall in Water Levels:
About, 35.1% wells are showing decline in water level in less than 2 m range. About 4.9% wells are showing decline in water level in 2 to 4 m range and 2.3% wells are showing decline in water level more than 4 m range. Fluctuation is mainly in the range of 0 to 2 m. A comparison of depth to water level of August 2024 to August 2025 also reveals that fall in the water level is prominently observed parts of the states such as Western Rajasthan, Gujarat, the Western part of Maharashtra, Madhya Pradesh, Goa and Tripura. (Fig. 8).

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

The groundwater level fluctuation analysis done in 14905 wells. The water level fluctuation of August 2023 compared to August 2025 shows that, 9686 (65%) are showing rise and 5133 (34.4%) are showing fall in water level. The remaining 86 (0.6%) stations analysed do not show any change in water level. (Fig. 9).

Rise in Water Levels:
About 41.2% wells are showing rise in the water level in the range of less than 2 m. About 14.1% wells are showing rise in water level in 2 to 4 m range and 9.7% wells showing rise in water level more than 4 m range. The rise in water level is observed in almost all states except Chandigarh, Punjab and Uttarakhand.

Fall in Water Levels:
About, 34.4% of the total analysed wells are showing a declining water level, out of which, 25.9% wells are showing decline in water level in less than 2 m range. About 5.3% wells are showing decline in water level in 2 to 4 m range and 3.2% wells are showing decline in water level more than 4 m range. Fluctuation is mainly in the range of 0 to 2 m. A comparison of depth to water level of August 2023 to August 2025 also reveals that a fall in water level is observed in scattered patterns in the country, with prominent observations in Chandigarh, Punjab, the Northern part of Uttar Pradesh and Bihar and some patches in the Central Part of the country.

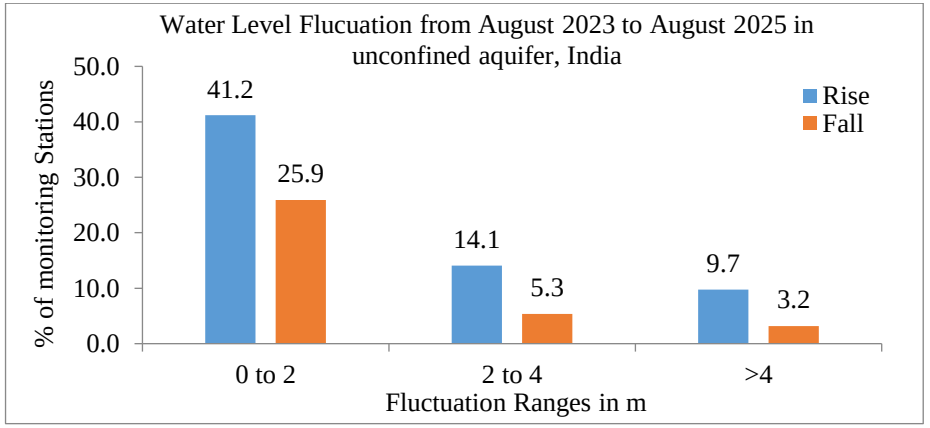


Figure 9: Annual Water Level Fluctuation & Frequency Distribution of Different Ranges from August 2023 to August 2025 in an unconfined aquifer, India

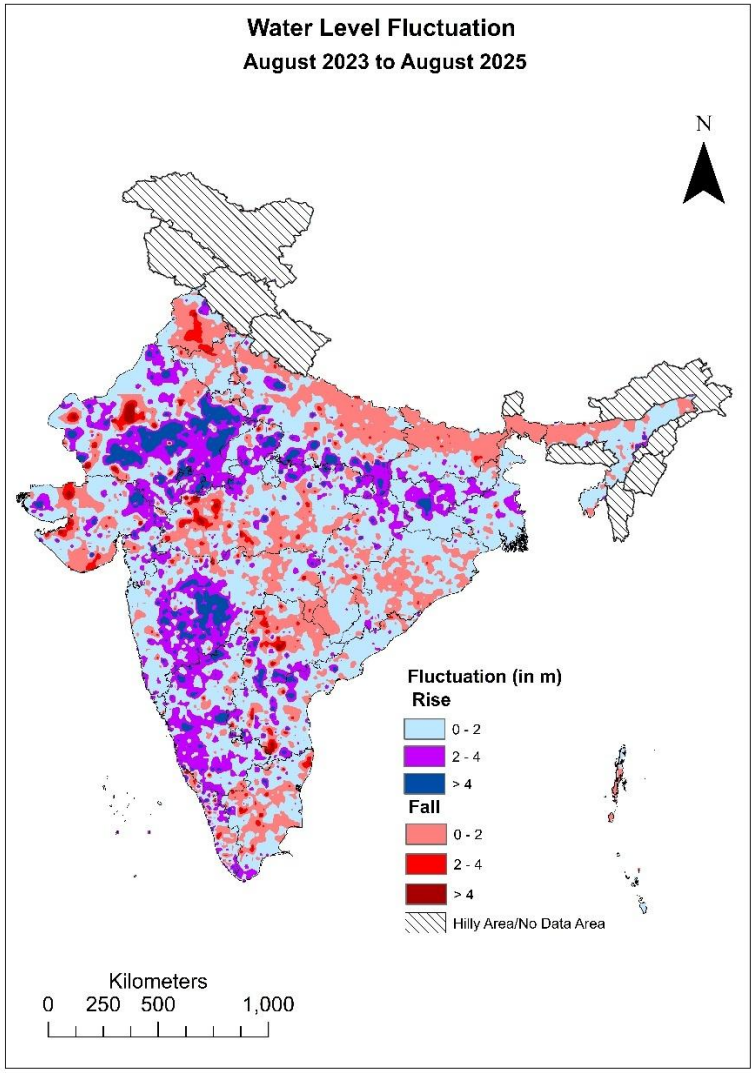


Figure 10: Annual water level fluctuation in unconfined aquifer (August 2023 to August 2025)

5.3 SEASONAL FLUCTUATION IN WATER LEVEL

Seasonal Fluctuation of Water Level in Unconfined Aquifer (Pre-monsoon 2025 to August 2025)

The groundwater level fluctuation analysis done in 16313 wells. A comparison of depth to water level of August 2025 with Pre-monsoon 2025 indicate that, 14185 (86.9%) are showing rise and 2065 (12.7%) are showing fall in water level. Remaining 63 (0.4%) stations analyzed do not show any change in water level. (Fig. 11).

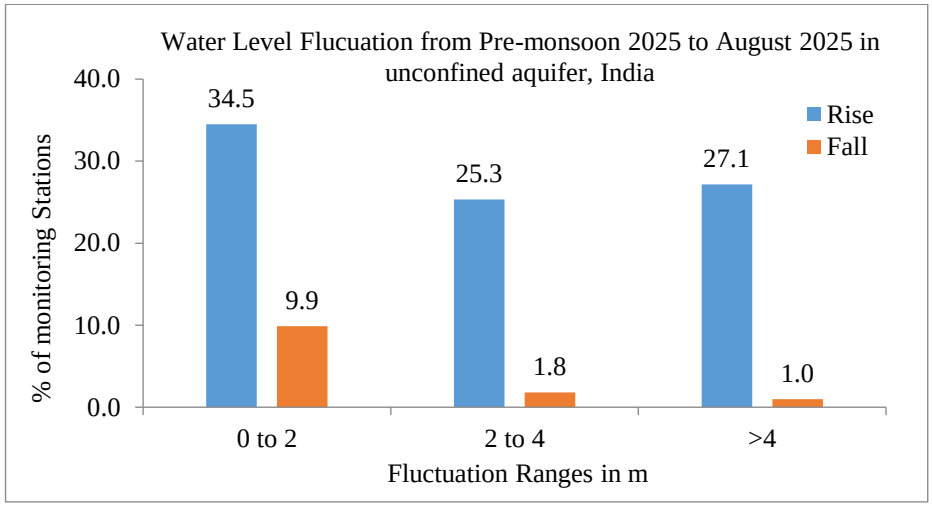


Figure 11: Seasonal Water Level Fluctuation from Pre-monsoon 2025 to August 2025 in unconfined aquifer, India

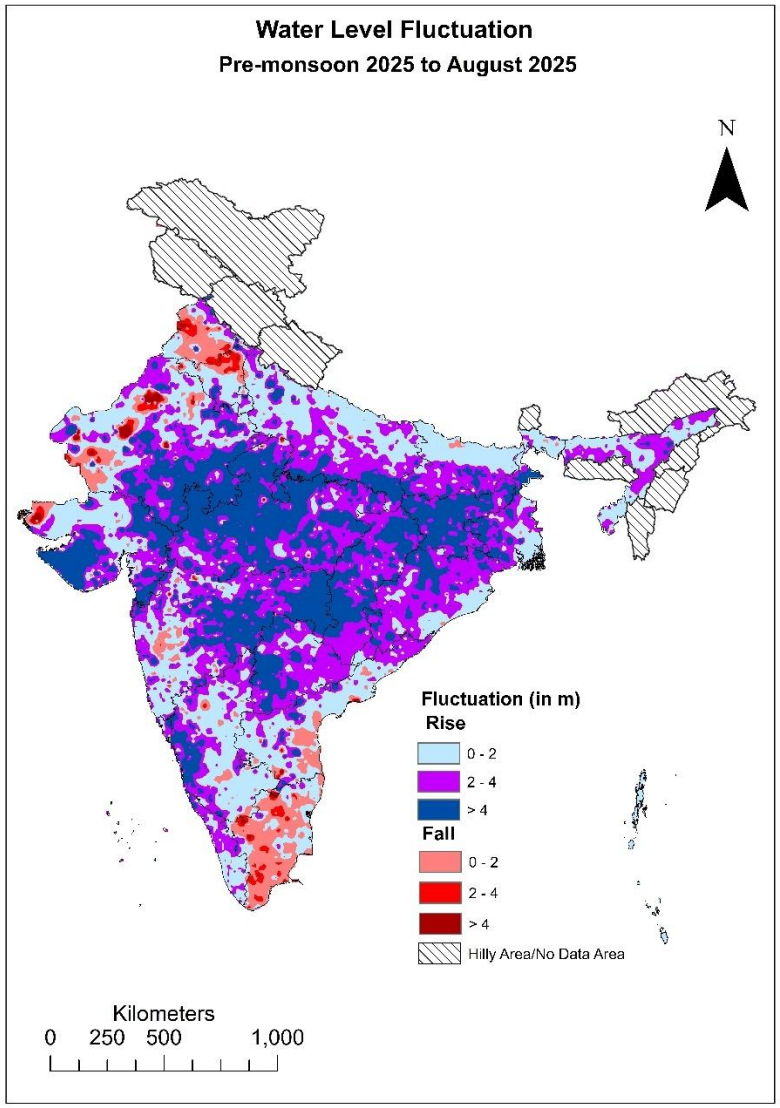


Figure 12: Seasonal Water Level Fluctuation with Pre-monsoon 2024 and August 2024 in unconfined aquifer, India

Rise in Water Levels:

About 34.5% wells are showing rise of water level less than 2 m. About 25.3% wells are showing rise in water level in the range of 2 to 4 m and about 27.1% wells are showing rise in water level in the range of more than 4 m. Rise in water level is prominently observed in all the states except Punjab and Tamil Nadu.

Fall in Water Levels:

About 9.9% wells are showing decline in water in the range of 0 to 2 m. 1.8% wells are showing decline in water level in 2 to 4 m range and the remaining 1.0% are in the range of more than 4 m. Fall is mostly in the range of 0 to 2 m observed in patches in states like Punjab and Tamil Nadu (Fig. 12).

5.4 DECADAL FLUCTUATION IN WATER LEVEL

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

The groundwater level fluctuation analysis done in 13580 wells. A comparison of depth to water level of August 2025 with decadal mean of August (2015-2024) indicate that, 9511 (70%) are showing rise and 4035 (29.7%) are showing fall in water level. Remaining 34 (0.3%) stations analysed do not show any change in water level. (Fig. 13).

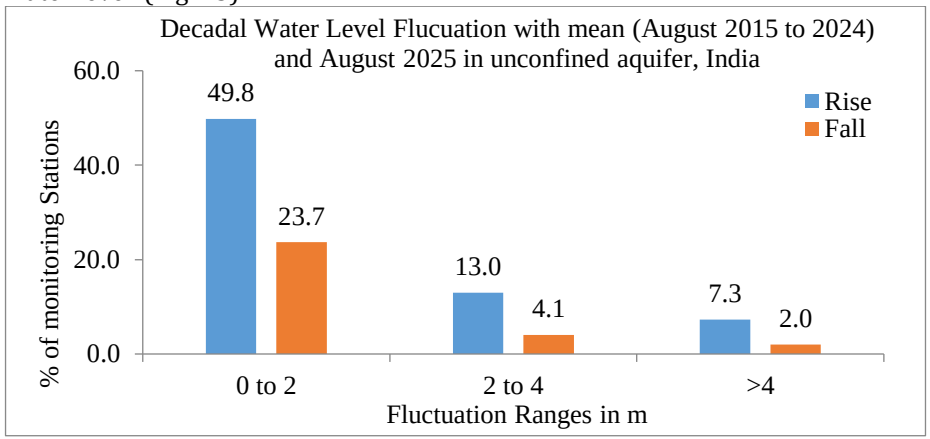


Figure 13: Decadal Water Level Fluctuation with mean (August 2015 to 2024) and August 2025 in unconfined aquifer, India

Rise in Water Levels:
About 49.8% wells are showing rise of water level less than 2 m. About 13.0% wells are showing rise in water level in the range of 2 to 4 m and about 7.3% wells are showing rise in water level in the range of more than 4 m. Rise in water level is prominently observed in the scattered pattern in almost all the states except Arunachal Pradesh, Bihar, Chandigarh and Punjab.

Fall in Water Levels:
About 23.7% wells are showing decline in water in the range of 0 to 2 m. 4.1% wells are showing decline in water level in 2 to 4 m range and the remaining 2.0% are in the range of more than 4 m. Fall is mostly in the range of 0 to 2 m observed in patches in northern states like Punjab, Haryana, Western Part of Rajasthan and Eastern Uttar Pradesh, Bihar, Assam, Odisha and Western part of Madhya Pradesh. (Fig. 14).

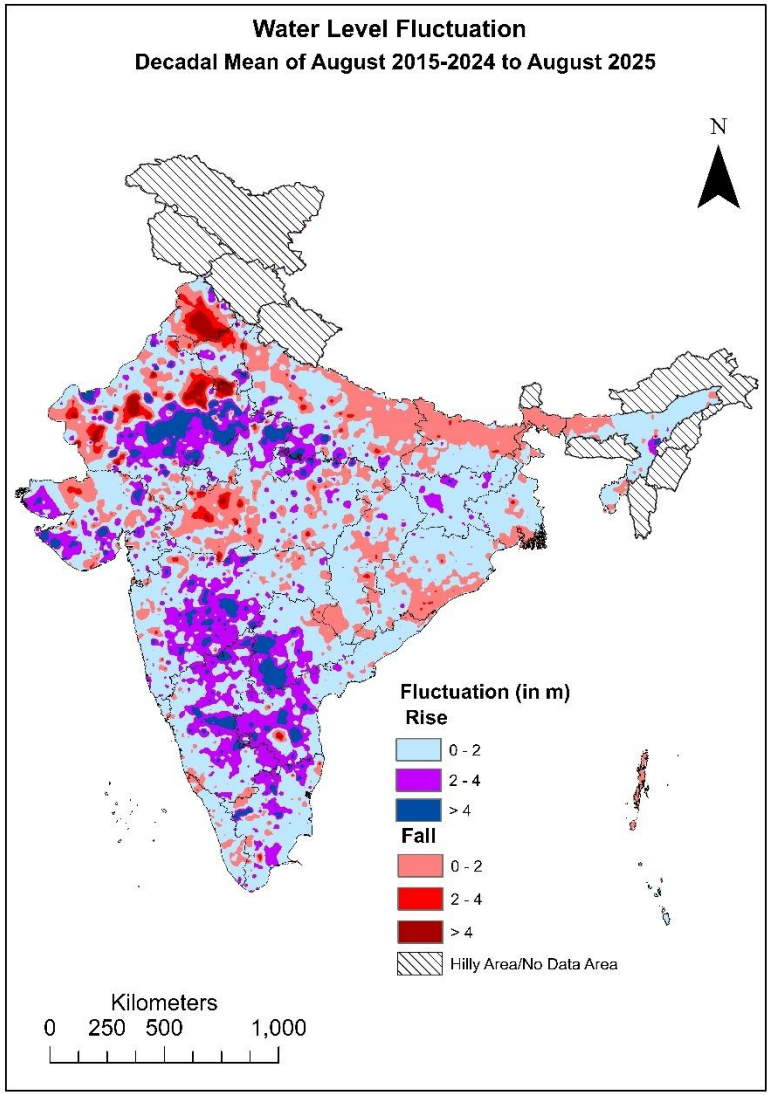


Figure 14: Decadal Water Level Fluctuation with mean (August 2014 to 2023) and August 2024 in unconfined aquifer, India

6. SUMMARY

As a component of the National Ground Water Monitoring Programme, the CGWB conducts monitoring of the groundwater conditions on a quarterly basis: in January, pre-monsoon May, post-monsoon August, and November. As of March 2025, the Central Ground Water Board supervises total 26351 monitoring stations. This comprehensive effort aims to portray the variations in the country's ground water conditions across different aquifers.

In August 2025, around 89% of the country's monitoring stations exhibited a depth to water level within 10 meters below ground level. Deeper water levels of more than 20 m are observed in around 5% of stations of the country covering mainly the western states, especially Western Rajasthan, Punjab, Haryana and Chandigarh.

The deeper groundwater level in the states like Western Rajasthan, Punjab, Haryana and Chandigarh during August 2025 has been significantly influenced by the over extraction of groundwater compared to the recharge during the monsoon period.

Annual water level comparison with the previous year August 2024 to August 2025 has shown that about 56.5% of total analyzed stations of the country experienced rise in annual water level fluctuation because of the higher rainfall in 2025 compared to 2024 in Monsoon period.

About 70% of analyzed stations of the unconfined aquifer experienced a rise of water level in decadal mean water level fluctuation of 2015-2024 with respect to August 2025.

Rain water is the primary source for recharging the aquifers. August 2025 witnessed significant fluctuations in rainfall patterns across the country. The evident rise in annual groundwater level during August 2025 in the country can be attributed to a substantial 6% excess rainfall from normal till August 2025

7.RECOMMENDATIONS

1. **Recommendations on Management of depletion in Ground Water Levels**
   Based on the nature of aquifer, ground water levels and recharge/discharge characteristics and demand/ supply scenario the ground water management aspects are to be planned. The following practices can be taken into consideration for ground water management planning.
   - **Focus on Western States with Deeper Water levels:** In Rajasthan, Punjab, Haryana, and Chandigarh, it is essential to harvest monsoon rainwater and utilize it for artificial recharge. Regular maintenance of recharge structures is recommended to maintain efficiency.
   - **Master Plan for Site Selection:** The MASTER PLAN FOR ARTIFICIAL RECHARGE TO GROUND WATER IN INDIA-2020 should be referenced to identify optimal sites for artificial recharge structures.
   - **Urban Recharge:** In urban areas with reduced natural recharge, rooftop rainwater harvesting structures would be effective for groundwater recharge and storage.
2. **Efficient Water Use Practices**
   - **Micro-Irrigation:** Promote efficient micro-irrigation practices, especially for water-intensive crops such as paddy and sugarcane.
   - **Crop Diversification:** Encourage farmers to shift from water-intensive crops to less water-demanding varieties suitable for local climatic conditions.
   - **Water-Efficient Fixtures:** Advocate for the adoption of water-efficient fixtures and low-flow plumbing systems in residential and commercial buildings. Technologies include low-flow faucets, aerators, showerheads, and toilets.
3. **Community-Based Water Management**
   - **Water Budgeting:** Implement water budgeting by Village Panchayats to promote responsible water usage.
   - **Participatory Groundwater Management:** Foster community involvement in groundwater management at the grassroots level to create a sense of ownership and accountability.
4. **Re-Use of Treated Water**

- **Treated Sewage Water:** Encourage the reuse of treated sewage water after secondary or tertiary treatment for groundwater recharge, ensuring compliance with water quality standards.

5. **Reviving Traditional Water Bodies**
   - **Restoration Projects:** Restore traditional water bodies such as ponds, lakes, and historical water harvesting structures to support natural recharge processes.
6. **Policy and Incentives**
   - **Incentives for Conservation:** Provide financial incentives to industries and farmers adopting water-saving technologies and sustainable water management practices.
   - **Regulatory Measures:** Enforce groundwater extraction regulations, especially in over-exploited regions, to prevent unsustainable depletion.

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