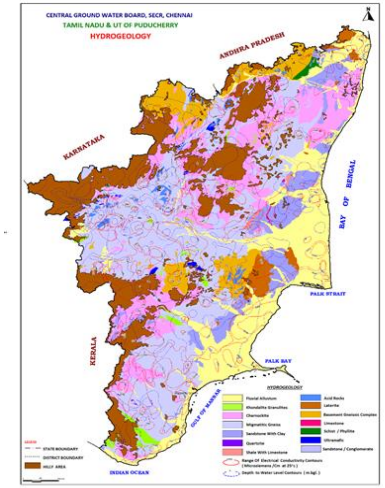

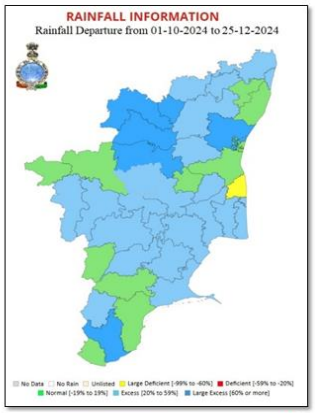

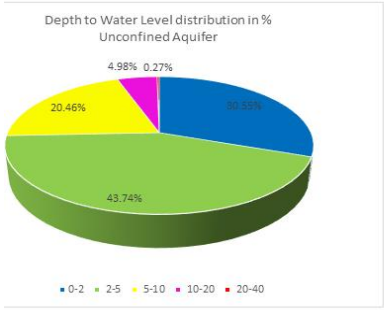

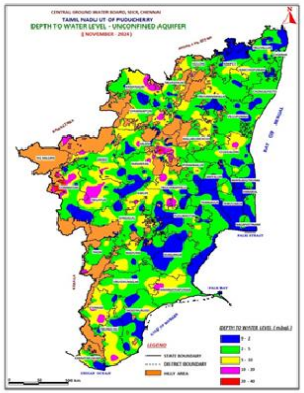

GROUND WATER LEVEL BULLETIN

NOVEMBER 2024

TAMILNADU & UT OF PUDUCHERY

ABSTRACT

Ground water level Scenario during November - 2024 highlighting the findings, status of ground water level in different aquifers and its annual and decadal comparison

CGWB, SOUTH EASTERN COASTAL REGION, CHENNAI

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 pumping 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, May, August and November. The regime monitoring started in the year 1969 by Central Groundwater Board.

2.0 STUDY AREA

The state of Tamil Nadu has a geographical area of 1,30,058 sq. km. and is situated between N. Latitudes 08°00" and 13°30' and E. Longitudes 76°15' and 80°18'. The state is bounded by the Bay of Bengal in the east, the Indian Ocean in the south, the state of Kerala in the west and the states of Karnataka and Andhra Pradesh in the north. For administrative purposes, the state is divided into 38 districts, 317 Taluks, 1202 Firkas and 16744 Revenue Villages. A major part of the Union Territory of Puducherry comprising Puducherry and Karaikal regions occurs as small enclaves in Tamil Nadu. Figure.1 Shows the major aquifer units of the State.

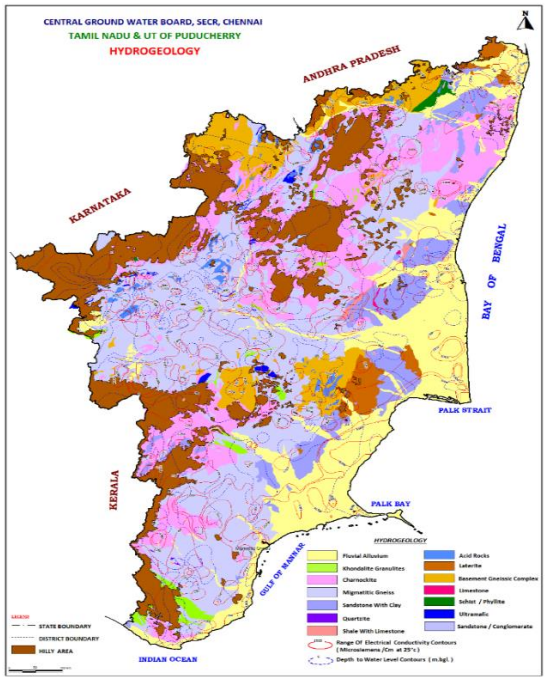

Figure-1: Map showing major aquifers and administrative divisions of Tamil Nadu and UT of Puducherry

The state of Tamil Nadu is divided into four physiographic units viz. (i) Coastal Plains, (ii) Eastern Ghats, (iii) Central Plateau and (iv) Western Ghats. The coastal plains stretch over a distance of about 998 km. from Pulicat Lake to Cape Comorin, ranging in elevation between 2 and 30 m above mean sea level. The coastal plains are further sub-divided into (a) the Coromandel Coast comprising parts of the districts of Tiruvallur, Kancheepuram and Cuddalore, (b) the alluvial plain of Cauvery delta extending over Nagappattinam, Thanjavur Thiruvarur districts and (c) the dry southern plains comprising parts of Pudukkottai, Ramanathapuram, Tuticorin, Tirunelveli and Kanyakumari districts.

The chain of flat-topped hills of Javadis, the Shevroy, the Kalrayan and the Pachamalai hills, which are joining Cardamom hills in the south, form the Eastern Ghats. These hills rise steeply above plateau level to 1160 m above mean sea level in the Javadi hills and to 1645 m above mean sea level in the Shevroy hills.

Between the Eastern and Western Ghats lies the plateau area known as the "Central Plateau" comprising the districts of Erode and Coimbatore with elevations between 150 and 610 m above mean sea level thereby giving rise to an undulating topography. West of the region lies the broad Palghat gap between the Nilgiri and Anaimalai Hills. Between Cauvery River and the Palghat gap lies an extensive low plateau rising gradually from 120 to 180 m above mean sea level, along the tributaries of the Cauvery River, to 365 to 455 m above mean sea level in the west.

The plateau is fringed on the west by a group of high hills known as the Western Ghats, comprising the western part of the Nilgiri, Madurai and Kanyakumari districts. On the other side of the Palghat gap, the high mountains of the Peninsula dominate. These are the Nilgiri in the north, Anaimalai Hills, Palani and Cardamom hills in the south, with a summit level of 1830 to 2440 m above mean sea level rising sharply from the plateau.

3.0 GROUND WATER LEVEL MONITORING

Central Ground Water Board, South Eastern Coastal Region, is monitoring changes in groundwater regime Tamil Nadu State and UT of Puducherry on quarterly basis continuously. This is facilitated by a network of monitoring stations in the State located in diverse hydrogeological and geomorphic units. The number of operational wells after completion of November 2024 monitoring stands at 1488 which include 749 dug wells and 739 Piezometers. The district-wise breakup of the water level monitoring stations is given in **Table-1**

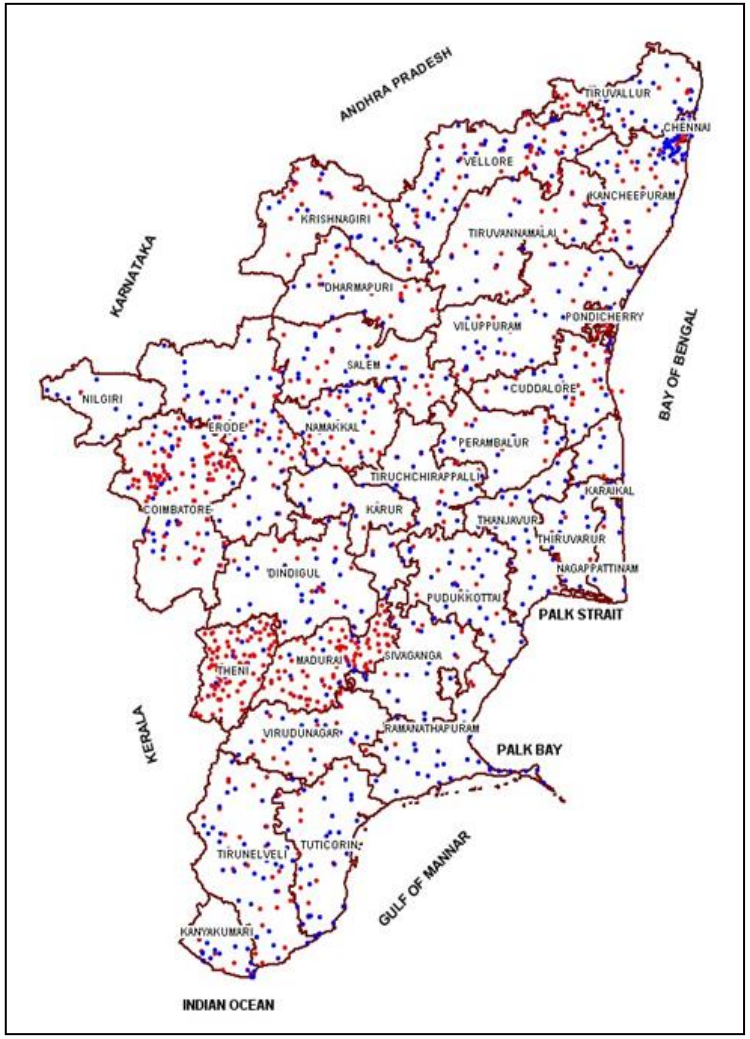

Figure- 2: Map showing locations of monitoring wells (NHNS) in Tamil Nadu and UT of Puducherry

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

SR. No.	District	DW	PZ	Total
1	Ariyalur	9	15	24
2	Chengalpattu	25	22	47
3	Chennai	10	8	18
4	Kancheepuram	22	24	46
5	Coimbatore	23	62	85
6	Cuddalore	30	81	111
7	Dharmapuri	22	19	41
8	Dindigul	27	15	42
9	Erode	58	53	111
10	Kallakurichi	17	8	25
11	Villupuram	17	20	37
12	Kanyakumari	13	9	22
13	Karur	12	14	26
14	Krishnagiri	17	33	50
15	Madurai	17	34	51
16	Mayiladuthurai	5	3	8
17	Nagapattinam	11	9	20
18	Namakkal	43	30	73
19	Nilgiris	8	2	10
20	Perambalur	16	5	21
21	Pudukkottai	18	21	39
22	Ramanathapuram	24	5	29
23	Ranipet	10	7	17
24	Tirupattur	11	1	12
25	Vellore	11	21	32
26	Salem	42	14	56
27	Sivaganga	11	6	17
28	Thanjavur	15	4	19
29	Theni	13	35	48
30	Tirunelveli	22	37	59
31	Tenkasi	8	9	17
32	Tiruppur	10	0	10
33	Tiruvallur	36	14	50
34	Tiruvannamalai	19	26	45
35	Tiruvarur	6	3	9
36	Toothukudi	24	15	39
37	Trichy	42	21	63
38	Virudhunagar	16	17	33
	Puducherry (UT)			
1	Karaikal	4	5	9
2	Puducherry	5	12	17
	Total	749	739	1488

4.0 RAINFALL

The rainfall data collected and compiled from weekly and monthly weather reports from India Meteorological Department were used to analyse the rainfall for the period October 2024 to December 2024. Figure.3 shows the district-wise rainfall distribution for the period 1st October 2024 to 30th December 2024. District-wise distribution of Rainfall from 1st October 2024 to 30th December 2024is given in Table-2.

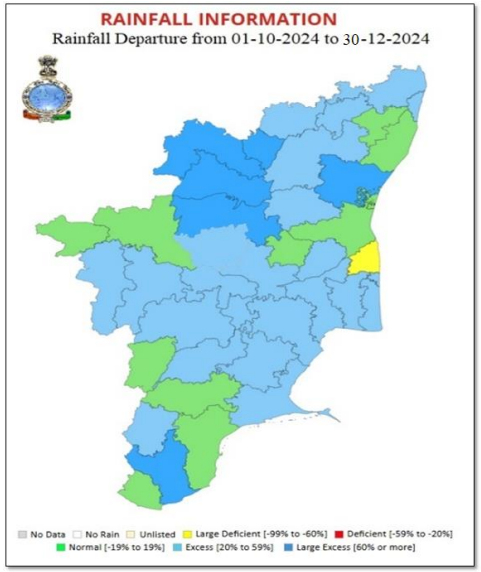

Figure-3: Rainfall distribution (October 2024 to December 2024) from normal rainfall

Table-2: District-wise distribution of Rainfall from October 2024 to December 2024

S. No.	MET. SUBDIVISION/ UT	PERIOD:	01-10-2024 to 30-12-2024		
	STATE/DISTRICT (NAME)	ACTUAL (mm)	NORMAL (mm)	% DEP	CAT
	TAMILNADU	585.5	440.3	33%	E
1	ARIYALUR	617.1	499.7	23%	E
2	CHENGALPATTU	724.2	705.6	3%	N
3	CHENNAI	1077.6	806.9	34%	E
4	COIMBATORE	503.4	337.3	49%	E
5	CUDDALORE	780.4	698.5	12%	N
6	DHARMAPURI	507.3	313.8	62%	LE
7	DINDIGUL	596.6	459	30%	E
8	ERODE	328	306.7	7%	N
9	KALLAKURICHI	644.6	452.7	42%	E
10	KANCHEEPURAM	643.1	587.5	9%	N
11	KANYAKUMARI	536.8	530.8	1%	N
12	KARUR	423.8	312.5	36%	E
13	KRISHNAGIRI	518.7	278	87%	LE
14	MADURAI	534.5	369.7	45%	E
15	MAYILADUTHURAI	924.2	886	4%	N
16	NAGAPATTINAM	1215.6	932.6	30%	E
17	NAMAKKAL	406.7	269.8	51%	E
18	NILGIRIS	495.6	499.4	-1%	N
19	PERAMBALUR	492.7	430.5	14%	N
20	PUDUKKOTTAI	552.5	384.8	44%	E
21	RAMANATHAPURAM	645	530.4	22%	E
22	RANIPET	608	404.2	50%	E
23	SALEM	539.8	330.5	63%	LE
24	SIVAGANGA	610.4	422.1	45%	E
25	TENKASI	560.7	464.4	21%	E
26	THANJAVUR	742.7	577.8	29%	E
27	THENI	402.7	363.4	11%	N
28	TIRUNELVELI	825.1	513.5	61%	LE
29	TIRUPATTUR	494	265.3	86%	LE
30	TIRUPPUR	440	305.3	44%	E
31	TIRUVALLUR	843.6	620.6	36%	E
32	TIRUVANNAMALAI	667.8	447.2	49%	E
33	TIRUVARUR	893.1	723.7	23%	E
34	TOOTHUKUDI	405.4	440.8	-8%	N
35	TRICHY	540.3	378.1	43%	E
36	VELLORE	515.7	373.8	38%	E
37	VILLUPURAM	877.4	527.5	66%	LE
38	VIRUDHUNAGAR	458.6	397.4	15%	N
	PUDUCHERRY (UT)	1000.5	858.5	17%	N
1	KARAIKAL	1376	1012.5	36%	E
2	PUDUCHERRY	878.6	829.5	6%	N

5.0 GROUND WATER LEVEL SCENARIO (NOVEMBER 2024)

5.1 Shallow Aquifer (Unconfined)

5.1.1 Depth to Water Level

The depth to water level of 743 wells is used for the analysis. Analysis of depth to water level data of 743 wells shows water levels ranged from 0.02m bgl (Ariyalur district) to 37.35 m bgl (Namakkal District) in Tamil Nadu and UT of Puducherry. Water level of less than 2 m bgl is recorded in 30.55 % of wells, between 2 to 5 m bgl in 43.74% of wells, between 5 to 10 m bgl in 20.46% of wells, between 10 to 20 m bgl in 4.98 % of wells, between 20-40 m bgl is less than 1% of wells.

Overall, 94 % of the wells monitored in the state and UT are in <10 m bgl range and spreaded over entire Tamil nadu. 4.98 % of wells show depth to water level between 10 to 20 m bgl noted mainly in Coimbatore, Erode, Namakkal, Salem, Velllore and Trichy districts. Less than 1 % of wells show depth to water level more than 20 m bgl in Coimbatore and Namakkal

districts. Depth to water level of less than 2 m bgl has been recorded in 30.55% of wells analysed and noted in all over the State except UT of Puducherry. Depth to water level in the range of 2 to 5 m bgl has been recorded in 43.74% of wells analysed and noted in all the districts. Depth to water level in the range of 5 to 10 m bgl has been recorded in 20.46% of wells analysed and noted in all over the State except Karaikal region of UT of Puducherry and Chennai, Perambalur, Sivaganga & Tiruvallur districts.

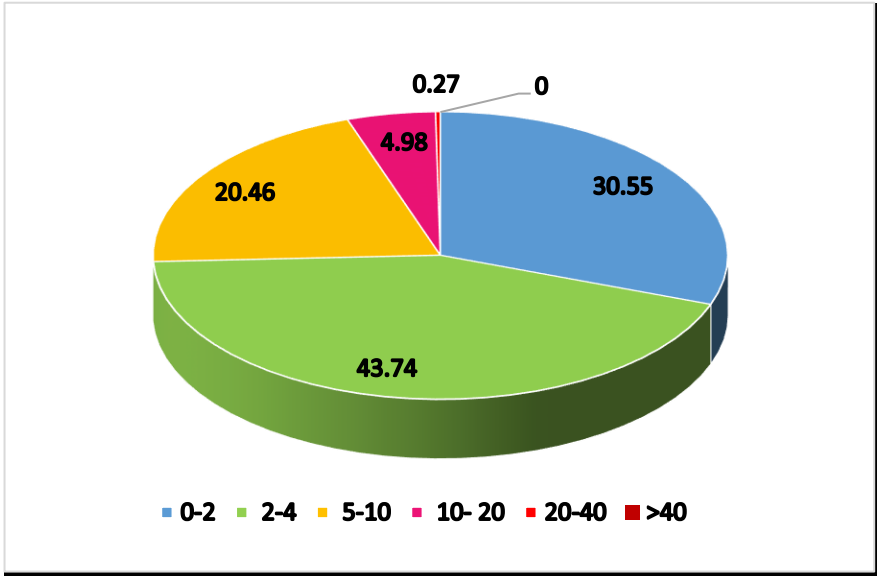

Figure-4: Percentage of wells in different water level ranges in unconfined aquifer.

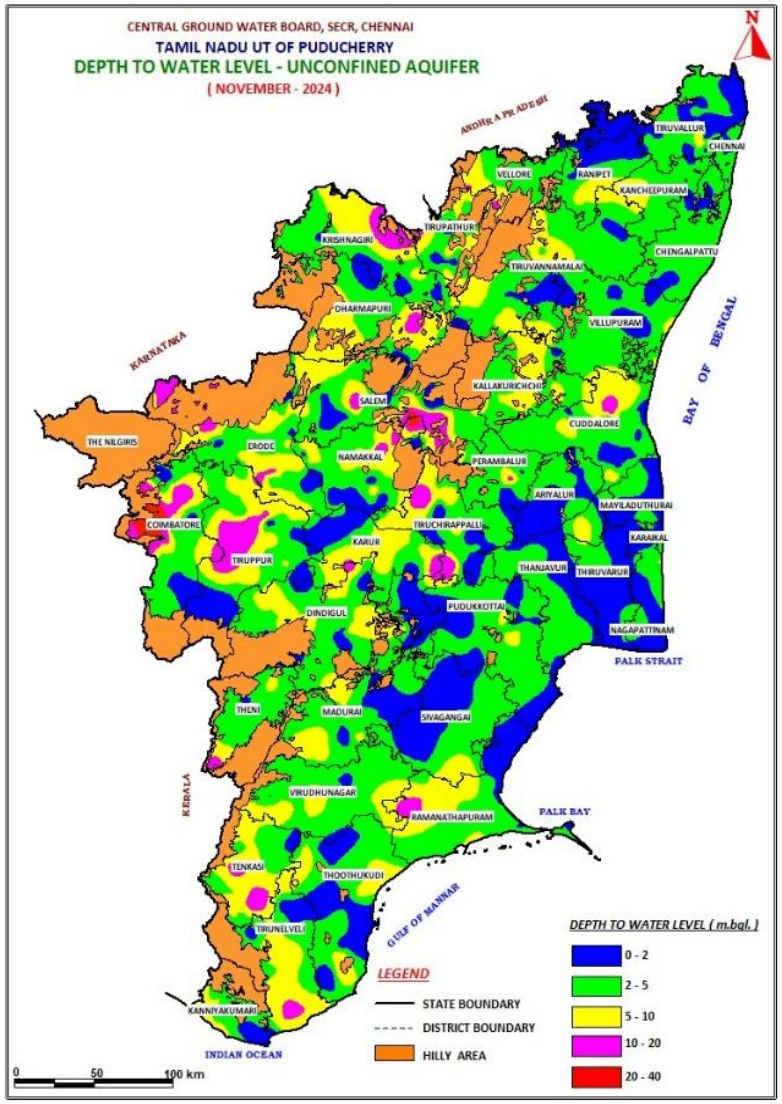

Figure-5: Depth to water level of unconfined aquifer during November 2024.

5.1.2 SEASONAL FLUCTUATION IN WATER LEVEL

Seasonal Fluctuation of Water Level in Unconfined Aquifer (May 2024 & November 2024)

Rise in Water Levels:

Out of 754 wells, water level rise of less than 2 m is recorded in 38% wells, 2 to 4 m in 21% wells and more than 4 m in 14% of the wells. Water level rise of less than 2 m is seen in all the districts, significantly in Chennai, Chengalpattu, Cuddalore, Dindigul, Erode, Kancheepuram, Namakkal, Salem, Tiruvallur, Vellore and Villupuram districts. Water level rise of 2 to 4 m is observed mainly in districts such as, Erode, Kancheepuram, Salem, Tiruvallur, Trichy and vellore districts. Rise of more than 4 m is significantly observed in Erode, Namakkal, Salem and Trichy districts.

Fall in Water Levels:

Out of 754 wells, water level fall of less than 2 m is recorded in 18% wells, 2 to 4 m in 5% wells and more than 4 m in 5% of the wells. Water level fall of less than 2 m is seen in all the districts, significantly in Cuddalore, Kanyakumari, Ramanathapuram, Tirunelveli and Tuticorin districts. Water level fall of 2 to 4 m is observed mainly in districts such as, Tirunelveli and Pudukkottai districts. Rise of more than 4 m is significantly observed in Erode, Namakkal, Tirunelveli and Tuticorin districts.

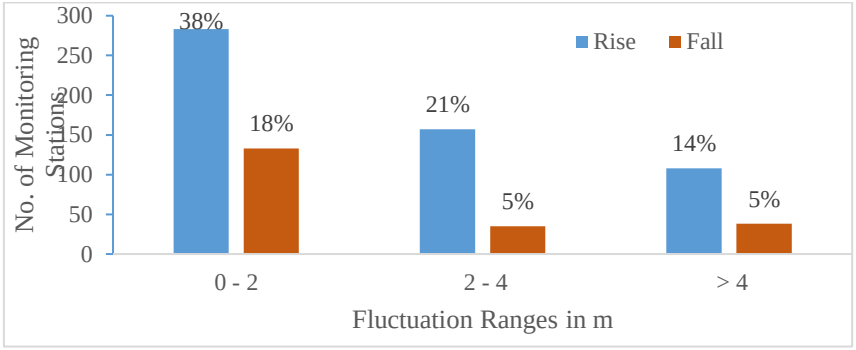

Figure-6: Percentage of wells showing rise and fall in WL in unconfined aquifer (May 2024 & November 2024)

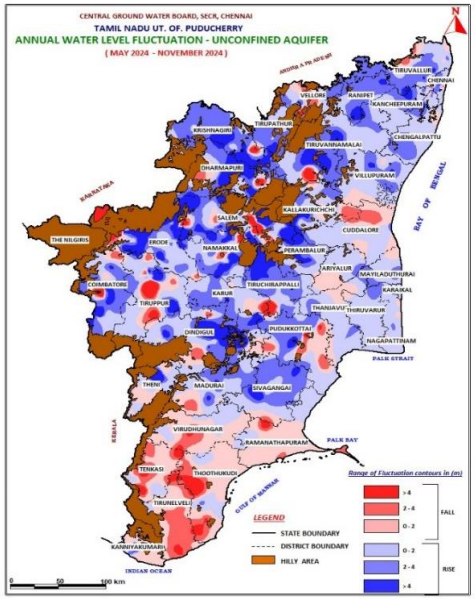

Figure-7: Seasonal water level fluctuation in unconfined Aquifer (May 2024 & November 2024)

5.1.3 ANNUAL FLUCTUATION IN WATER LEVEL

Annual Fluctuation of Water Level in Unconfined Aquifer (November 2023 to November 2024)

Rise in Water Levels:

Out of 704 wells, water level rise of less than 2 m is recorded in 44.6% wells, 2 to 4 m in 11.1% wells and more than 4 m in 5.8% of the wells. Water level rise of less than 2 m is seen in all the districts, significantly in Dindigul, Villupuram, Cuddalore, Kancheepuram, Salem, Vellore, Ramanathapuram, Erode, Tiruvallur, Namakkal and Trichy districts. Water level rise of 2 to 4 m is observed mainly in districts such as Krishnagiri, Tirunelveli, Dindigul, Namakkal, Coimbatore and Erode districts. Rise of more than 4 m is significantly observed in Erode, Coimbatore and Trichy districts.

Fall in Water Levels:

Out of 704 wells, water level fall of less than 2 m is recorded in 31% wells, 2 to 4 m in 3.6% wells and more than 4 m in 4% of the wells. Water level fall of less than 2 m is seen in all the districts, significantly in Kancheepuram, Erode, Villupuram, Tiruvallur, Vellore, Tirunelveli, Namakkal and Salem districts. Water level fall of 2 to 4 m is observed mainly in districts such as, Villupuram and Namakkal districts. Rise of more than 4 m is significantly observed in Erode, Salem and Tirunelveli districts.

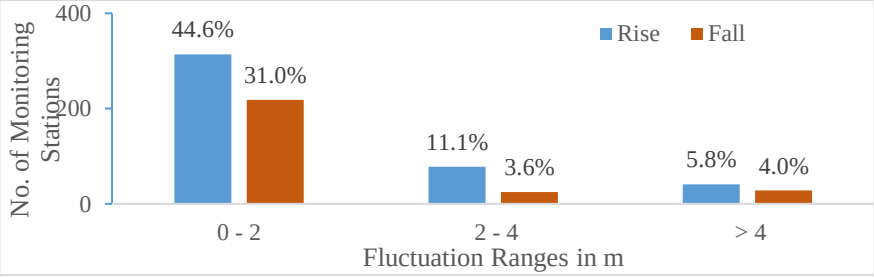

Figure-8: Percentage of wells showing rise and fall in WL in unconfined aquifer (November 2023 & November 2024)

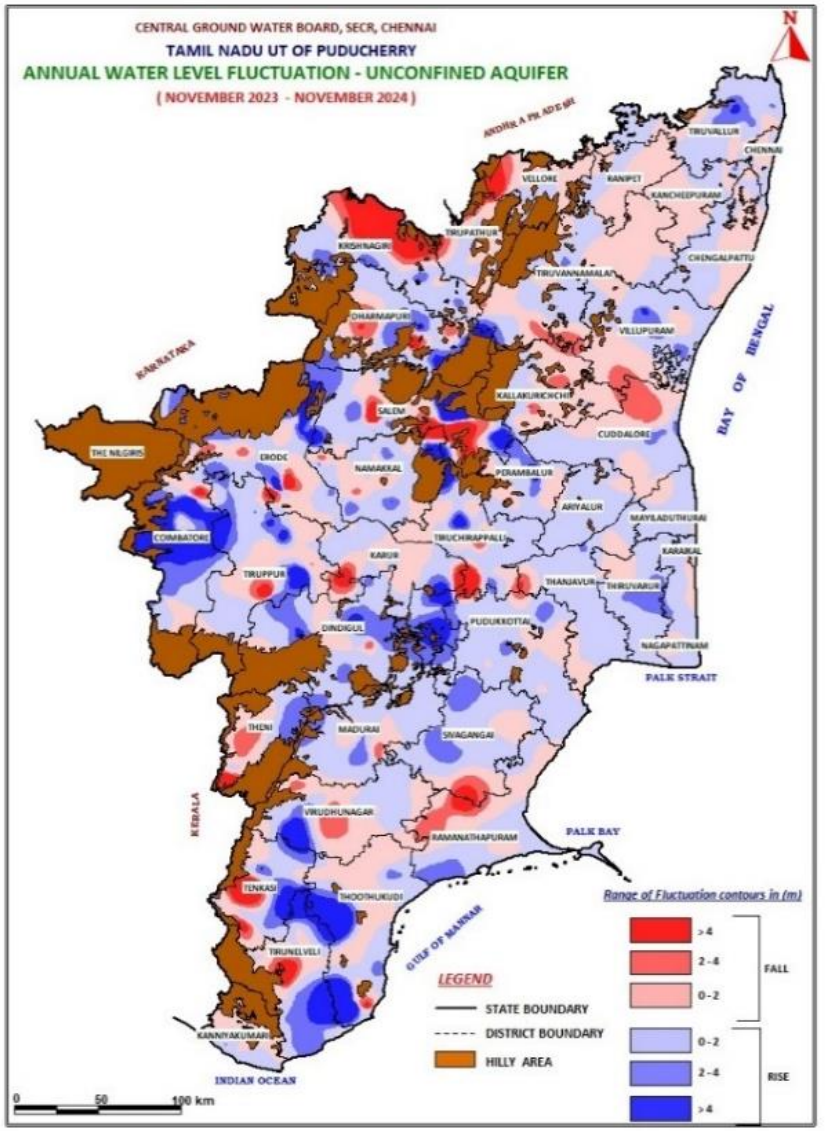

Figure-9: Annual water level fluctuation in unconfined aquifer (November 2023 & November 2024)

Annual Fluctuation of Water Level in Unconfined Aquifer (November 2022 to November 2024)

Rise in Water Levels:

Out of 717 wells, water level rise of less than 2 m is recorded in 30% wells, 2 to 4 m in 4% wells and more than 4 m in 3% of the wells. Water level rise of less than 2 m is seen in all the districts, significantly in Tiruvallur, Trichy, Namakkal, Kancheepuram, Nagapattinam districts. Water level rise of 2 to 4 m is observed mainly in Erode, Trichy, Tiruvallur, Coimbatore districts. Rise of more than 4 m is significantly observed in Trichy, Erode, Coimbatore, Namakkal districts.

Fall in Water Levels:

Out of 717 wells, water level fall of less than 2 m is recorded in 44% wells, 2 to 4 m in 13% wells and more than 4 m in 7% of the wells. Water level fall of less than 2 m is seen in all the districts, significantly in Erode, Kancheepuram, Salem, Villupuram, Cuddalore, Namakkal, Ramanathapuram, Vellore, Pudukkottai, Tiruvallur, Tirunelveli, Tuticorin districts. Water level fall of 2 to 4 m is observed mainly in districts such as, Cuddalore, Namakkal, Villupuram, Erode, Kancheepuram districts. Fall of more than 4 m is significantly observed in Erode, Dharmapuri, Namakkal, Villupuram, Salem districts.

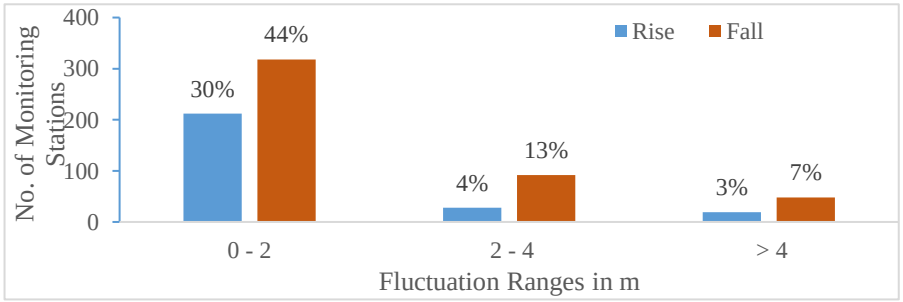

Figure-10: Percentage of wells showing rise and fall in WL in unconfined aquifer (November 2022 & November 2024)

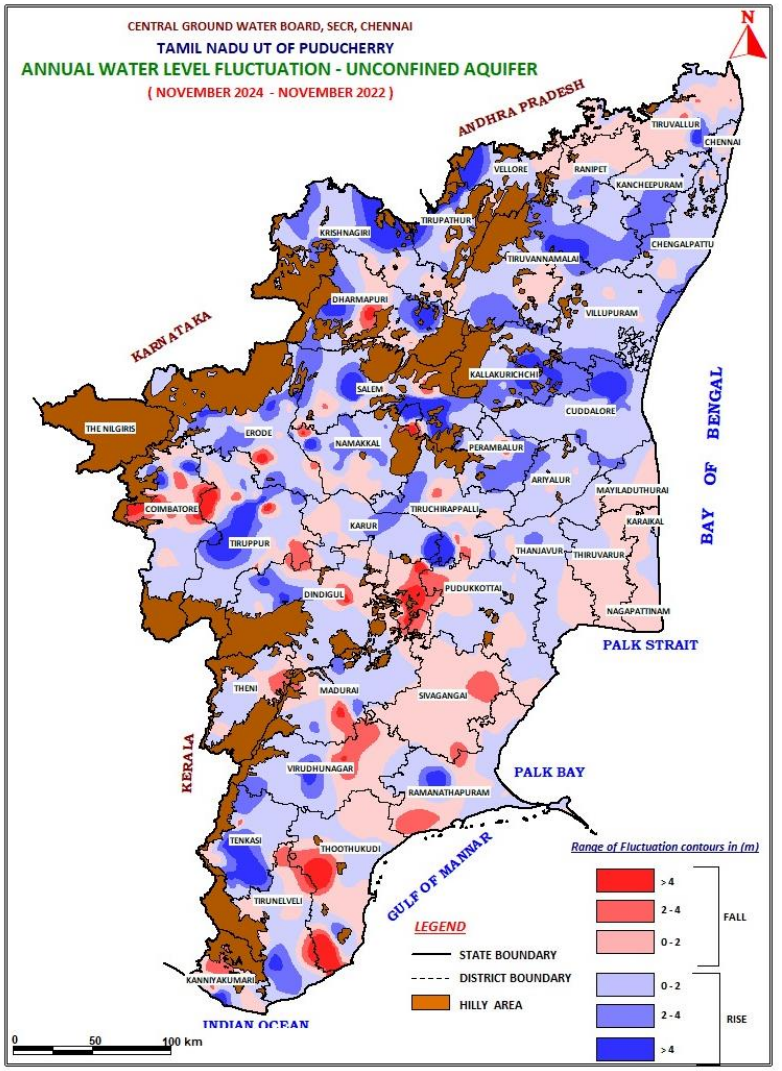

Figure-11: Annual water level fluctuation in unconfined aquifer (November 2022 & November 2024)

Annual Fluctuation of Water Level in Unconfined Aquifer (November 2021 to November 2024)

Rise in Water Levels:

Out of 696 wells, water level rise of less than 2 m is recorded in 22% wells, 2 to 4 m in 6% wells and more than 4 m in 6% of the wells. Water level rise of less than 2 m is seen in all the districts, significantly in Namakkal, Dindigul, Krishnagiri, Coimbatore, Salem, Vellore, Erode districts. Water level rise of 2 to 4 m is observed mainly in districts such as Salem, Namakkal, Krishnagiri and Coimbatore districts. Rise of more than 4 m is significantly observed in Dharmapuri, Erode, Coimbatore and Trichy districts.

Fall in Water Levels:

Out of 696 wells, water level fall of less than 2 m is recorded in 42% wells, 2 to 4 m in 17% wells and more than 4 m in 7% of the wells. Water level fall of less than 2 m is seen in all the districts, significantly in Erode, Kancheepuram, Tiruvallur, Trichy, Ramanathapuram, Salem districts. Water level fall of 2 to 4 m is observed mainly in districts such as, Cuddalore, Villupuram, Erode, Kancheepuram districts. Fall of more than 4 m is significantly observed in Namakkal, Villupuram, Tirunelveli districts.

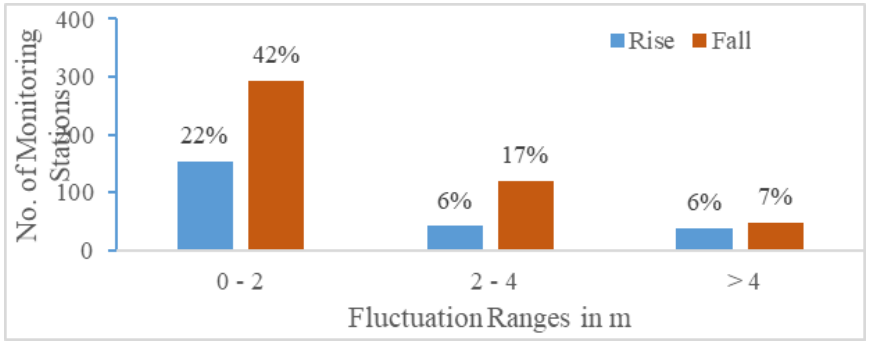

Figure-12: Percentage of wells showing rise and fall in WL in unconfined aquifer (November 2021 & November 2024)

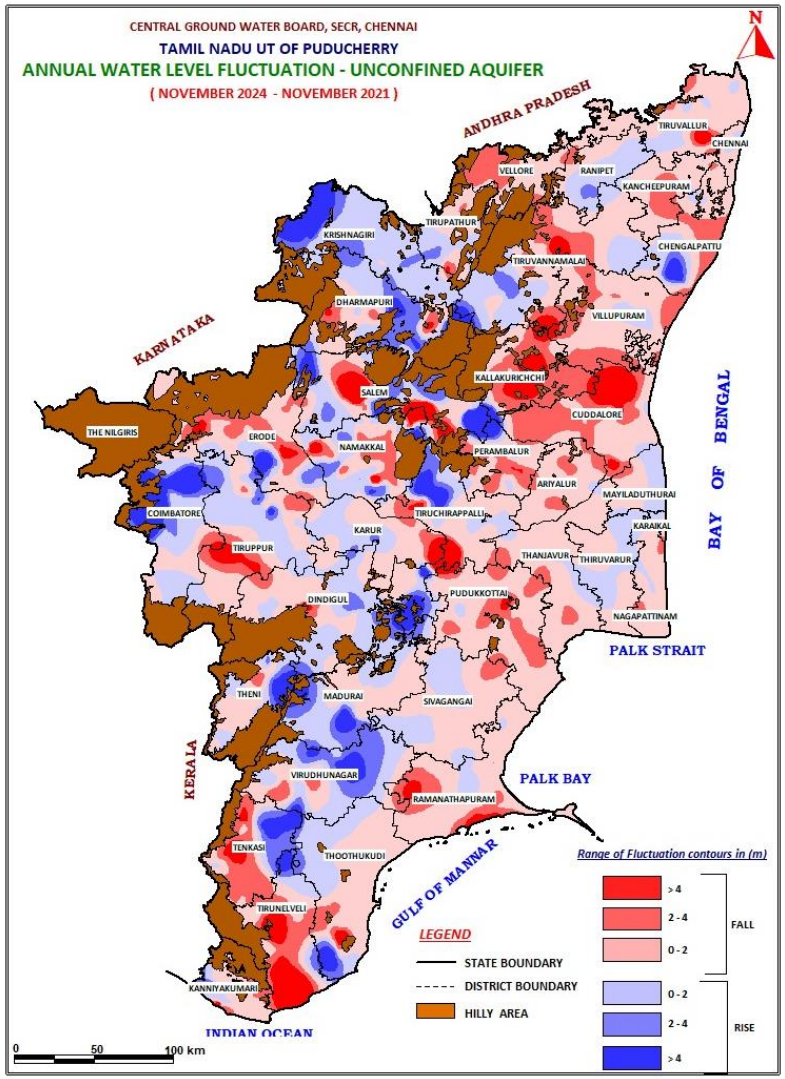

Figure-13: Annual water level fluctuation in unconfined aquifer (November 2021 & November 2024)

5.1.4 Decadal Fluctuation

Decadal Fluctuation of Water Level in Unconfined Aquifer (Decadal Mean November (2014-2023) to November 2024

Rise in Water Levels:

Out of 746 wells, water level rise of less than 2 m is recorded in 43% wells, 2 to 4 m in 13% wells and more than 4 m in 11% of the wells. Water level rise of less than 2 m is seen in all the districts, significantly in Erode, Trichy and Tiruvallur Districts. Water level rise of 2 to 4 m is observed mainly in Namakkal, Dindigul and Salem districts and rise of more than 4 m is significantly observed in Trichy, Coimbatore and Salem districts.

Fall in Water Levels:

Out of the 746 wells that have registered fall in water levels, 28% have recorded less than 2 m while 3% in the range of 2 to 4 m and remaining 2% wells registered water level fall of more than 4 m. Fall of less than 2 m is observed in all districts mainly in Cuddalore, Chengalpat, Kanchepuram and Ramanathapuram districts. Fall of 2 to 4 m, recorded in Erode, Villupuram and Tirunelveli districts. Fall beyond 4 m is recorded mainly in Erode, Tirunelveli and Salem districts.

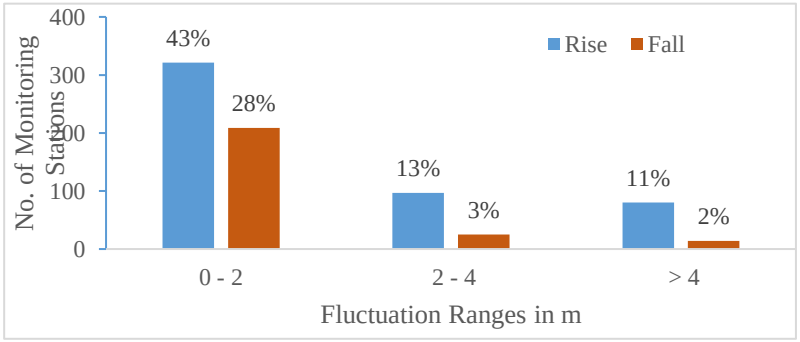

Figure-14: Percentage of wells showing rise and fall in WL in unconfined Aquifer (Decadal Mean November (2014-2023) to November 2024)

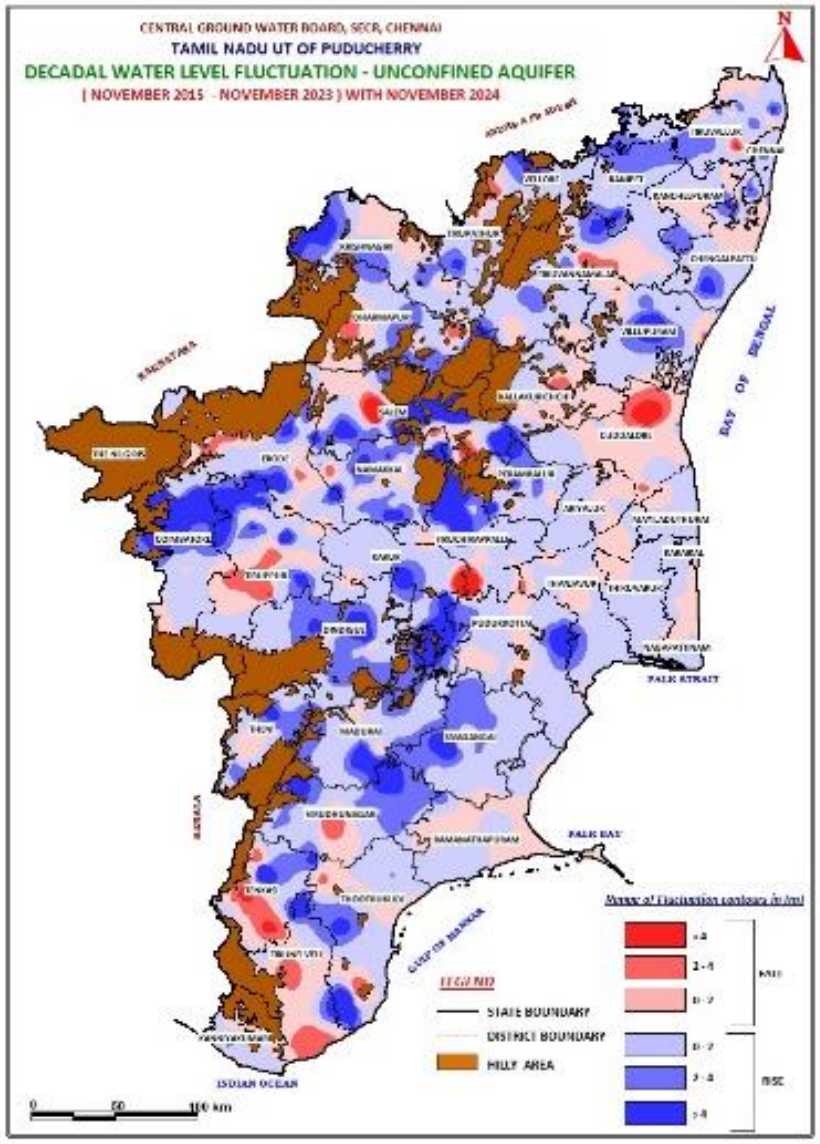

Figure-15: Decadal water level fluctuation in unconfined Aquifer (Decadal Mean November (2014-2023) to November 2024)

5.2 Deeper Aquifer (Semi-Confined / Confined)

5.2.1 Depth to Piezometric Level

Depth To Piezometric Level in Confined/Semi-Confined Aquifer (November 2024)

Analysis of piezometric level data of 700 wells shows piezometric levels vary between 0.11 m bgl (Madurai district) to 118.90 m bgl (Erode District) in Tamil Nadu and UT of Puducherry. Piezometric level of less than 2 m bgl is recorded in 15.71% of wells, between 2 to 5 m bgl in 32.71% of wells, between 5 to 10 m bgl in 25% of wells, between 10 to 20 m bgl in 13.28 % of wells, between 20-40 m bgl in 5.86% of wells and piezometric level more than 40 m bgl is registered in 7.43 % of wells.

Depth to piezometric surface of less than 2 m bgl has been recorded in in all the districts except Dharmapuri, Ramanathapuram, Sivaganga, Thanjavur, Tiruvarur and Virudhunagar districts and UT of Puducherry, 2 to 5 m bgl has been noted in all the districts except in the districts of Ariyalur, Ramanathapuram and Tiruppur, 5 to 10 m bgl has been noted in all the districts except in the districts such as Ariyalur, Chennai, Nilgiris, Tiruppur, Tiruvarur and UT of Puducherry, 10 to 20 mbgl noted in all the district except Chennai, Kancheepuram, Perambalur, Sivaganga, Thiruvannamalai, Tiruvarur and Villupuram districts, 20 to 40mbgl noted in all the districts except Ariyalur, Chennai, Dharmapuri, Erode, Kancheepuram, Perambalur, Thanjavur, Tirunelveli, Vellore, more than 40 mbgl noted in Ariyalur, Coimbatore, Cuddalore, Dharmapuri, Dindigul, Erode, Karur, Pudukkottai, Tirunelveli

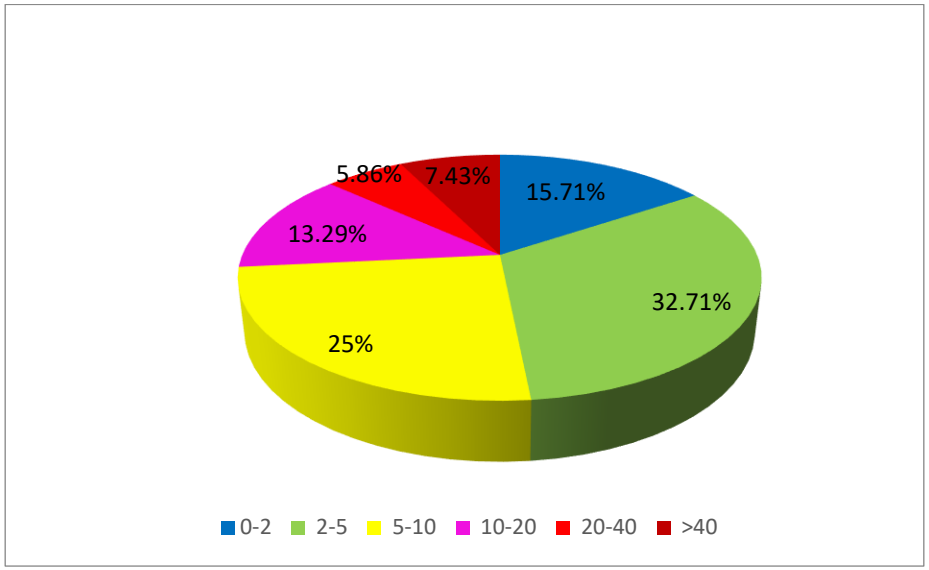

Figure-16: Percentage of wells in different Piezometric level ranges in confined aquifer.

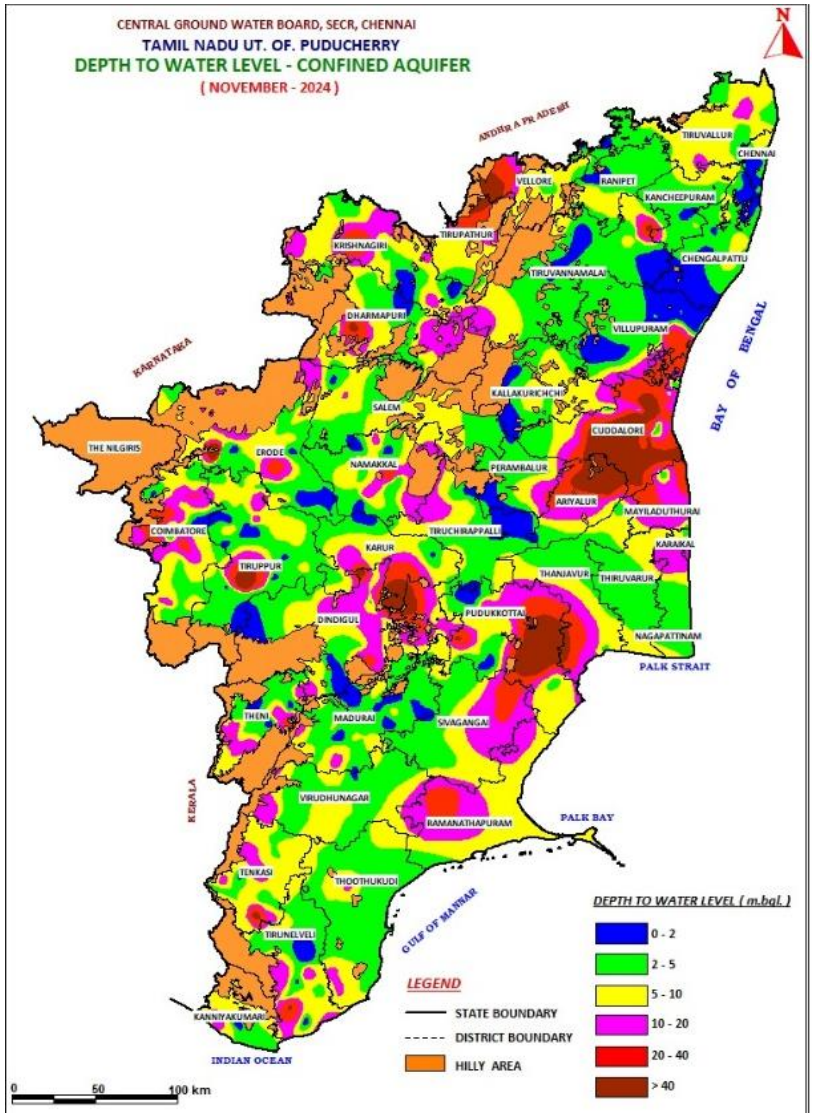

Figure-17: Depth to Piezometric level of confined aquifer during November 2024.

5.2.2 Seasonal Fluctuation in Piezometric Level

Seasonal Fluctuation of Piezometric Level in Confined/ Semi- Confined Aquifer (May 2024 to November 2024)

Rise in Piezometric Levels:

Out of 645 wells, piezometric level rise of less than 2 m is recorded in 33% wells, 2 to 4 m in 21% wells and more than 4 m in 20% of the wells. piezometric level rise of less than 2 m is seen in all the districts, significantly in Erode, Coimbatore, Madurai, Kancheepuram, Theni districts. Water level rise of 2 to 4 m is observed mainly in districts such as, Erode, Kancheepuram, Namakkal, Cuddalore, Coimbatore and Villupuram districts. Rise of more than 4 m is significantly observed in Erode, Coimbatore, Cuddalore and Krishnagiri districts.

Fall in Piezometric Levels:

Out of 645 wells, piezometric level fall of less than 2 m is recorded in 16% wells, 2 to 4 m in 5% wells and more than 4 m in 5% of the wells. piezometric level fall of less than 2 m is seen in all the districts, significantly in Tirunelveli, Cuddalore, Theni, Virudhunagar districts. Water level fall of 2 to 4 m is observed mainly in districts such as, Tirunelveli, Tuticorin districts. fall of more than 4 m is significantly observed in Tirunelveli, Cuddalore, Tiruvallur and Krishnagiri districts.

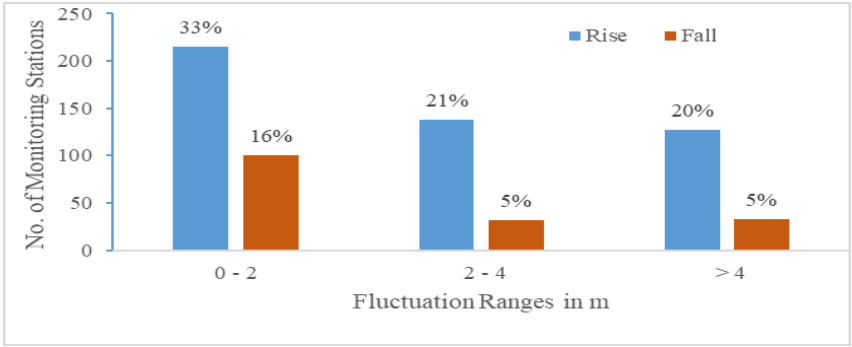

Figure-18: Percentage of wells showing rise and fall in piezometric level in confined aquifer (May 2024 & November 2024)

5.2.3 Annual Fluctuation in Piezometric Level

Annual Fluctuation of Piezometric Level in Confined /Semi- confined Aquifer (November 2023 to November 2024)

Rise in Piezometric Levels:

Out of 526 wells, piezometric level rise of less than 2 m is recorded in 30% wells, 2 to 4 m in 15% wells and more than 4 m in 15% of the wells. piezometric level rise of less than 2 m is seen in all the districts, significantly in Coimbatore, Cuddalore, Erode, Namakkal, Madurai and Theni districts. Water level rise of 2 to 4 m is observed mainly in districts such as, Erode, Coimbatore, Cuddalore districts. Rise of more than 4 m is significantly observed in Coimbatore and Cuddalore districts.

Fall in Piezometric Levels:

Out of 526 wells, piezometric level fall of less than 2 m is recorded in 26% wells, 2 to 4 m in 6% wells and more than 4 m in 8% of the wells. piezometric level fall of less than 2 m is seen in all the districts, significantly in Cuddalore, Erode, Madurai, Namakkal districts. Water level fall of 2 to 4 m is observed mainly in districts such as, Coimbatore, Krishnagiri and Madurai districts. fall of more than 4 m is significantly observed in Cuddalore, Theni districts.

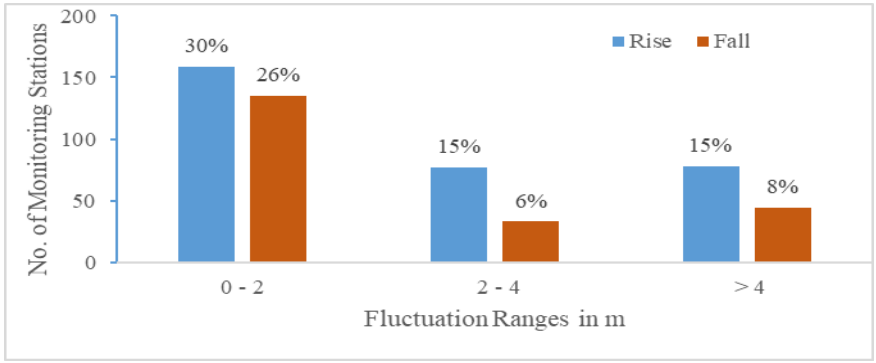

Figure-19: Percentage of wells showing rise and fall in piezometric level in confined aquifer (November 2023 & November 2024)

Annual Fluctuation of Piezometric Level in Confined /Semi- confined Aquifer (November 2022 to November 2024)

Rise in Piezometric Levels:

Out of 508 wells, piezometric level rise of less than 2 m is recorded in 20% wells, 2 to 4 m in 5% wells and more than 4 m in 8% of the wells. piezometric level rise of less than 2 m is seen in all the districts, significantly in Coimbatore, Erode, Madurai, Tirunelveli, Kanyakumari districts. Water level rise of 2 to 4 m is observed mainly in districts such as Coimbatore, Theni, Erode, Virudhunagar districts. Rise of more than 4 m is significantly observed in Theni, Cuddalore, Coimbatore, Tirunelveli districts.

Fall in Piezometric Levels:

Out of 508 wells, piezometric level fall of less than 2 m is recorded in 34% wells, 2 to 4 m in 15% wells and more than 4 m in 19% of the wells. piezometric level fall of less than 2 m is seen in all the districts, significantly in Erode, Coimbatore, Madurai, Tirunelveli, Cuddalore districts. Water level fall of 2 to 4 m is observed mainly in districts such as, Cuddalore, Erode, Theni, Coimbatore districts. fall of more than 4 m is significantly observed in Cuddalore, Erode, Coimbatore, Pudukkottai districts.

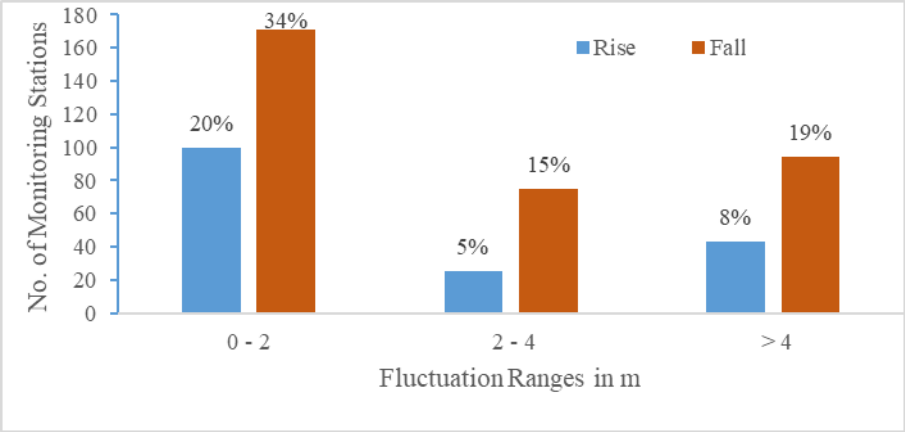

Figure-20: Percentage of wells showing rise and fall in piezometric level in confined aquifer (November 2022 & November 2024)

Annual Fluctuation of Piezometric Level in Confined /Semi- confined Aquifer (November 2021 to November 2024)

Rise in Piezometric Levels:

Out of 449 wells, piezometric level rise of less than 2 m is recorded in 18% wells, 2 to 4 m in 7% wells and more than 4 m in 18% of the wells. piezometric level rise of less than 2 m is seen in all the districts, significantly in Coimbatore, Madurai, Theni, Erode, Virudhunagar, Kancheepuram districts. Water level rise of 2 to 4 m is observed mainly in districts such as Madurai, Coimbatore, Virudhunagar, Krishnagiri districts. Rise of more than 4 m is significantly observed in Theni, Coimbatore, Krishnagiri, Dindigul districts.

Fall in Piezometric Levels:

Out of 449 wells, piezometric level fall of less than 2 m is recorded in 25% wells, 2 to 4 m in 14% wells and more than 4 m in 18% of the wells. piezometric level fall of less than 2 m is seen in all the districts, significantly in Erode, Coimbatore, Madurai, Tirunelveli, Dindigul districts. Water level fall of 2 to 4 m is observed mainly in districts such as, Erode, Coimbatore, Tirunelveli, Tiruvannamalai, Namakkal districts. fall of more than 4 m is significantly observed in Cuddalore, Coimbatore, Pudukkottai, Erode, Tirunelveli districts.

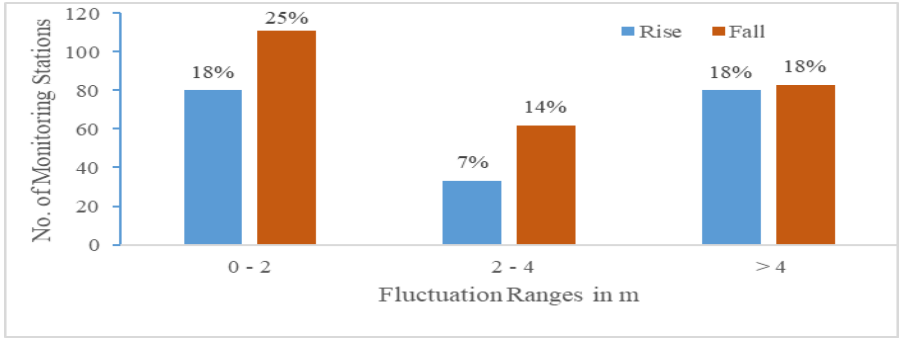

Figure-21: Percentage of wells showing rise and fall in piezometric level in confined aquifer (November 2021 & November 2024)

5.2.4 Decadal Fluctuation in Piezometric Level

Decadal Fluctuation of Piezometric Level in Confined / Semi- confined Aquifer (Decadal Mean November (2014-2023) to November 2024)

Rise in Piezometric Levels:

Out of 560 wells, piezometric level rise of less than 2 m is recorded in 27% wells, 2 to 4 m in 15% wells and more than 4 m in 24% of the wells. piezometric level rise of less than 2 m is seen in all the districts, significantly in Erode, Coimbatore, Madurai, Cuddalore, Tirunelveli, Kancheepuram districts. Water level rise of 2 to 4 m is observed mainly in districts such as Madurai, Coimbatore, Theni, Erode districts. Rise of more than 4 m is significantly observed in Theni, Coimbatore, Erode, Cuddalore, Dindigul districts.

Fall in Piezometric Levels:

Out of 560 wells, piezometric level fall of less than 2 m is recorded in 17% wells, 2 to 4 m in 8% wells and more than 4 m in 9% of the wells. piezometric level fall of less than 2 m is seen in all the districts, significantly in Erode, Tirunelveli, Coimbatore, Tiruvannamalai, Tiruvallur, Nagapattinam, districts. Water level fall of 2 to 4 m is observed mainly in districts such as, Coimbatore, Tirunelveli, Cuddalore, Erode districts. fall of more than 4 m is significantly observed in Cuddalore, Pudukkottai, Nagapattinam districts and Puducherry.

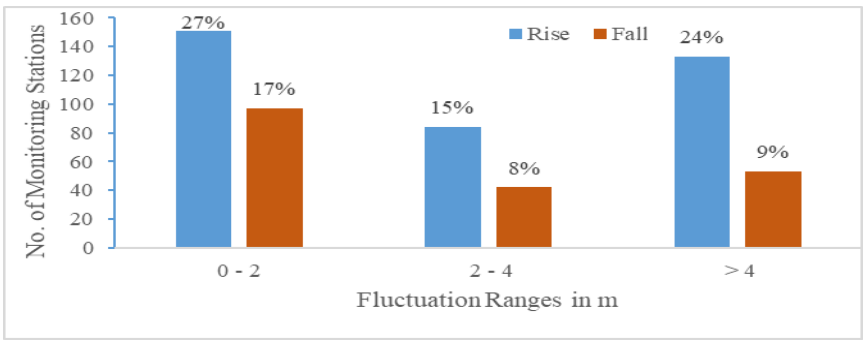

Figure-22: Percentage of wells showing rise and fall in piezometric level in confined Aquifer (Decadal Mean November (2014-2023) to November 2024)

6.0 SUMMARY

As a component of the National Ground Water Monitoring Program, the CGWB, SECR, Chennai conducts monitoring of the ground water conditions on a quarterly basis: in January, pre-monsoon May, August, and post-monsoon November. Additionally, a yearly assessment of ground water quality is performed in May. As on November 2024, the South Eastern Coastal Region of Central Ground Water Board supervises 749 dug wells and 739 piezometers. This comprehensive effort aims to portray the variations in the state's ground water conditions across different aquifers.

A perusal of the water level data reveals that the depth to water level of Unconfined Aquifer ranged from 0.02m bgl (Ariyalur district) to 37.35 m bgl (Namakkal District) in Tamil Nadu and UT of Puducherry.

Overall, 94 % of the wells monitored in the state and UT are in <10 m bgl range and spread over entire Tamil nadu ,4.98 % of wells show depth to water level between 10 to 20 m bgl. Less than 1 % of wells show depth to water level more than 20 m bgl Depth to water level of less than 2 m bgl has been recorded in 30.55% of wells analysed, depth to water level in the range of 2 to 5 m bgl has been recorded in 43.74 % of wells analysed while depth to water level in the range of 5 to 10 m bgl has been recorded in 20.46 % of wells analysed

The depth to piezometric surface ranged from 0.11 m bgl (Madurai district) to 118.90 m bgl (Erode District) in Tamil Nadu and UT of Puducherry during November 2024.73 % of wells have recorded depth to piezometric surface of less than 10 mbgl while 13.28 % of wells show depth to piezometric surface between 10 to 20 mbgl .5.86 % have recorded piezometric surface between 20 to 40mbgl and 7.43 % have recorded more than 40 mbgl Depth to piezometric surface of less than 2 m bgl has been recorded in 15.71 % of wells analysed Depth to piezometric surface in the range of 2 to 5 m bgl has been recorded in 32.71 % of wells analysed .Depth to piezometric surface in the range of 5 to 10 m bgl has been recorded in 25 % of wells analysed

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