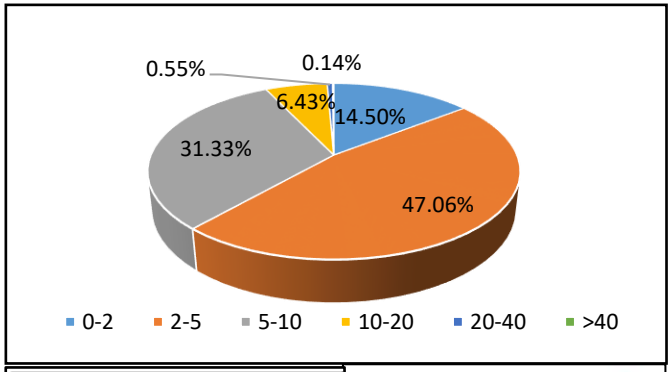

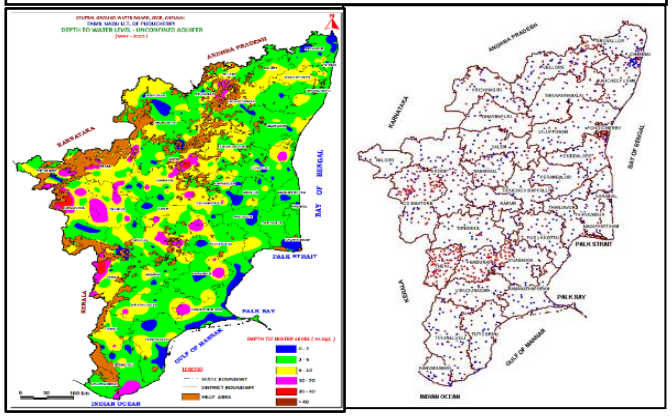

GROUND WATER LEVEL BULLETIN
May 2025
TAMILNADU & UT OF PUDUCHERY

ABSTRACT

Ground water level Scenario during May – 2025 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.

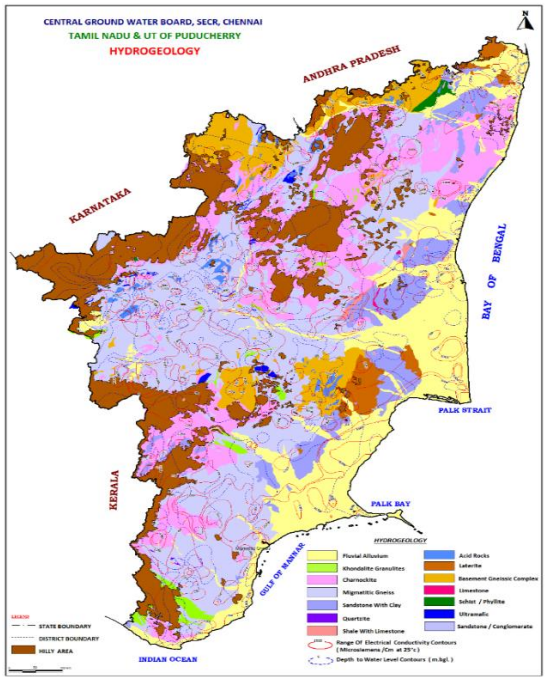

Figure1: Map showing major aquifers and administrative divisions of Tamil Nadu and UT of Puducherry

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 ground water 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 May 2025 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**

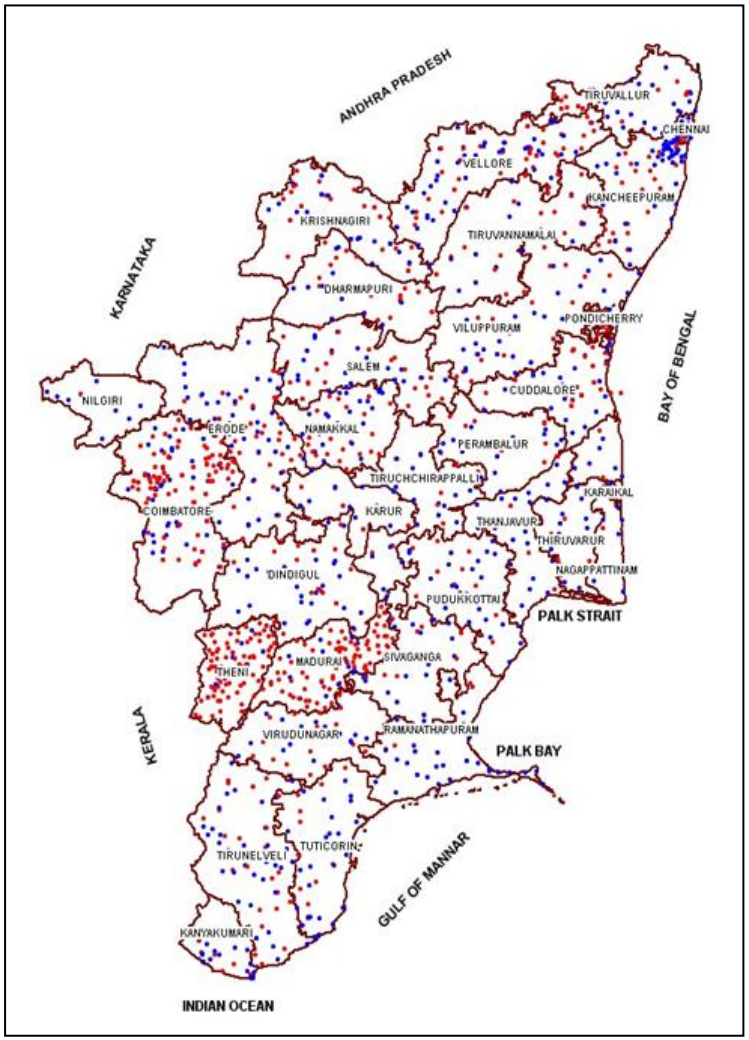

Figure-2: Maps showing locations of monitoring wells (NHNS) in Tamil Nadu and UT of Puducherry

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 01.04.2025 to 30.04.2025. Figure.3 shows the district-wise rainfall distribution for the period 1st April 2025 to 30h April 2025. District-wise distribution of Rainfall from 1st April 2025 to 30h April 2025.is given in Table-2.

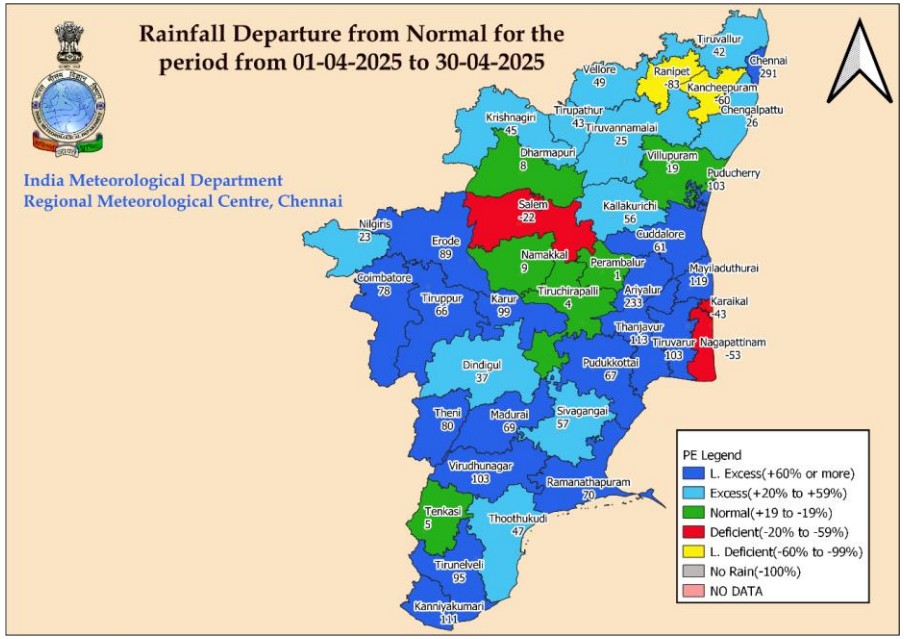

Figure-3: Rain fall distribution (01.04.2025 to 30.04.2025) from normal rainfall

Table-2:District-wise distribution of Rainfall from 01.01.2025 to 12.02.2025

RAINFALL STATEMENT			
	Seasonal rainfall for the period from 01-04-2025 to 30-04-2025		
Districts	Actual (mm)	Normal *(mm)*	Departure (%)
Ariyalur	56.6	17.10	+233
Chengalpattu	17.9	14.2	+26
Chennai	39.5	10.1	+291
Coimbatore	101.8	57.2	+78
Cuddalore	26.5	16.5	+61
Dharmapuri	50.2	46.5	+8
Dindigul	79.9	58.1	+37
Erode	90.5	47.9	+89
Kallakurichi	29.5	18.9	+56
Kanchipuram	7	17.4	-60
Kanyakumari	221.1	104.8	+111
Karaikal	12.3	21.7	-43
Karur	64.3	32.3	+99
Krishnagiri	58	39.9	+45
Madurai	80.1	47.5	+69
Mayiladuthurai	35.9	16.4	+119
Nagapattinam	10.7	22.9	-53
Namakkal	47.2	43.3	+9
Nilgiris	82.5	67.5	+23
Perambalur	24.7	24.5	+1
Puducherry	27.2	13.4	+103
Pudukottai	38.7	23.2	+67
Ramanathapuram	72.2	42.6	+70
Ranipet	3.3	19.6	-83
Salem	38	48.5	-22
Sivagangai	61.6	39.3	+57
Thenkasi	74.3	70.7	+5
Thanjavur	57.4	27	+113
Theni	120.2	66.8	+80

RAINFALL STATEMENT			
	Seasonal rainfall for the period from 01-04-2025 to 30-04-2025		
Tirunelveli	100.8	51.8	+95
Tirupathur	40.5	28.4	+43
Tiruppur	72.4	43.5	66
Tiruvallur	23.7	16.7	+42
Tiruvannamalai	26.8	21.4	+25
Tiruvarur	61.2	30.1	+103
Toothukudi	64.6	43.8	+47
Tiruchirapalli	29.4	28.3	+4
Vellore	39.1	26.2	+49
Villupuram	19.3	16.2	+19
Virudhunagar	105	51.8	+103
Tamilnadu Subdivision	59.1	38.8	+52
Puducherry&Karaikal	21.9	16.3	+34
Tamilnadu State	59.2	38.8	+52

Largely deficient	Deficient	Normal	Excess	Large Excess	No rain
-60% to -99%	-20% to -59%	-19% to +19%	+20% to +59%	≥ 60%	-100%

5.0 GROUND WATER LEVEL SCENARIO (May 2025)

5.1 Shallow Aquifer (Unconfined)

5.1.1 Depth to Water Level

The depth to water level of 731 wells is used for the analysis. Analysis of depth to water level data of 731 wells shows water levels ranged from 0.42m bgl Dindigul district) to 41.46 m bgl (Namakkal District) in Tamil Nadu and UT of Puducherry. Water level of less than 2 m bgl is recorded in 14.50 % of wells, between 2 to 5 m bgl in 47.06% of wells, between 5 to 10 m bgl in 31.33 % of wells, between 10 to 20 m bgl in 6.43 % of wells, between 20-40 m bgl and more than 40 m bgl are less than 1% of wells.

Overall, 93 % of the wells monitored in the state and UT are in <10 m bgl range and spreaded over entire Tamil nadu. 6.43 % of wells show depth to water level between 10 to 20 m bgl noted mainly in Coimbatore, Erode, Namakkal and Trichy districts. Less than 1 % of wells show depth to water level more than 20 m bgl in Erode, Theni, Coimbatore and Namakkal districts. Depth to water level of less than 2 m bgl has been recorded in 14.50 % of wells analysed and noted in all over the State except Kancheepuram, Tiruppur, Tiruvarur and UT of Puducherry. Depth to water level in the range of 2 to 5 m bgl has been recorded in 47.06 % 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 31.33 % of wells analysed and noted in all over the State except Karaikal region of UT of Puducherry and Tiruvarur & Nagapattinam districts.

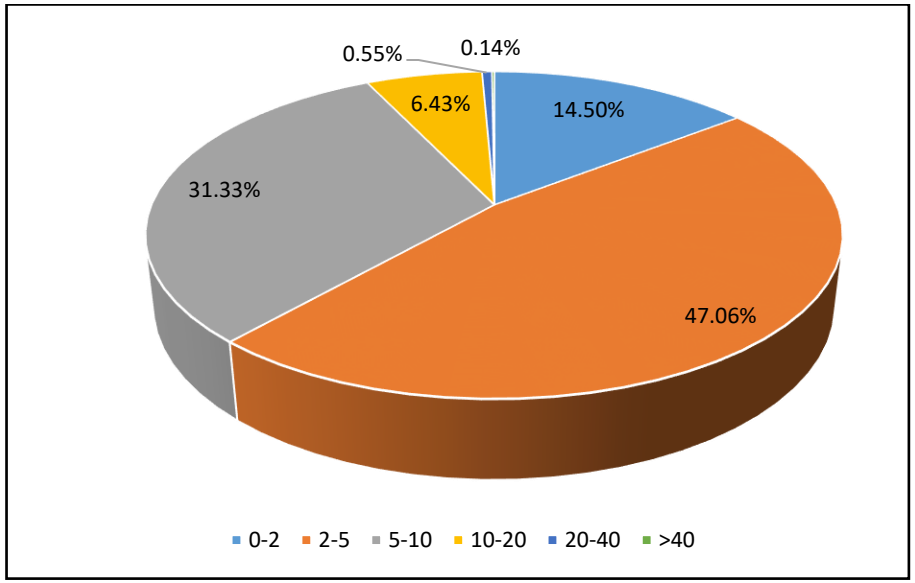

Figure-4: Percentage of wells in different water level ranges in unconfined aquifer.

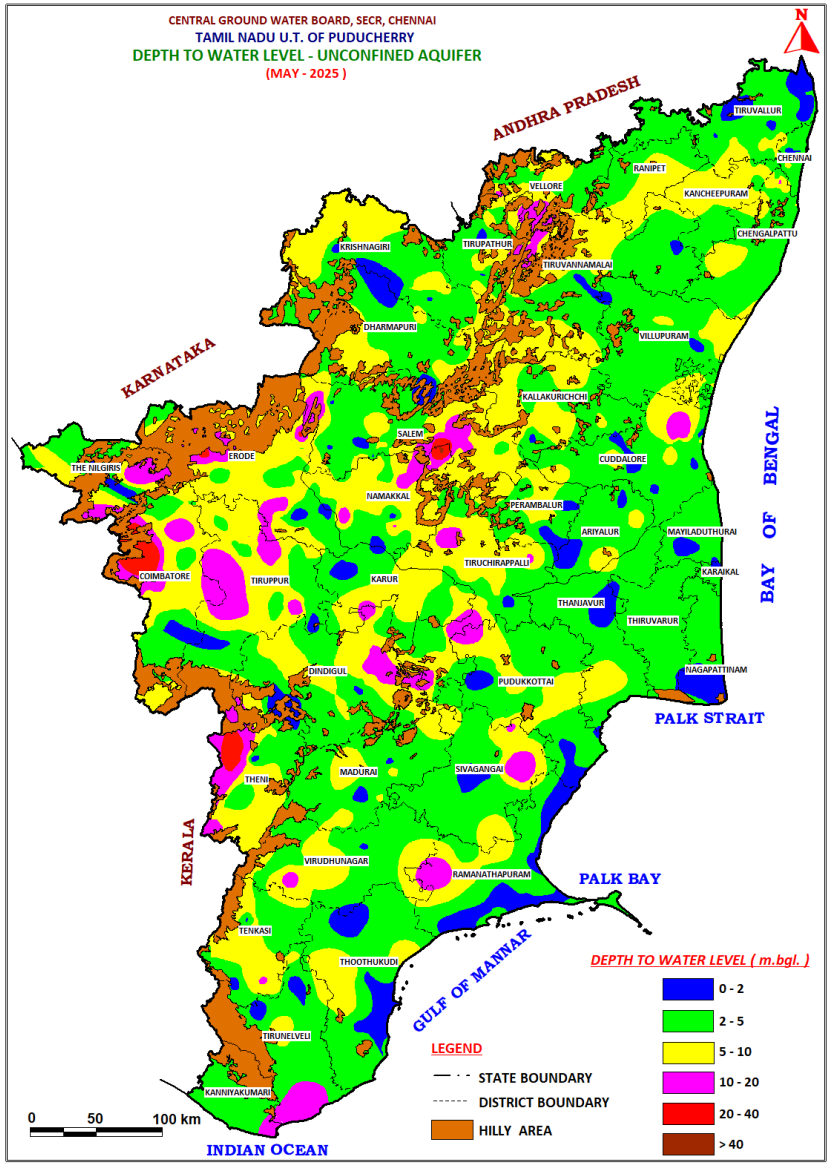

Figure-5: Depth to water level of unconfined aquifer during May 2025

5.1.2 ANNUAL FLUCTUATION IN WATER LEVEL

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

Rise in Water Levels:

Out of 683 wells, water level rise of less than 2 m is recorded in 44.36% wells, 2 to 4 m in 15.81 % wells and more than 4 m in 8.93 % of the wells. Water level rise of less than 2 m is seen in all the districts. Water level rise of 2 to 4 m is observed in all the districts except Ariyalur, Chennai, Nagapattinam and Karaikal region. Rise of more than 4 m is significantly observed in Salem, Dharmapuri and Namakkal districts.

Fall in Water Levels:

Out of 683 wells, water level fall of less than 2 m is recorded in 22.69 % wells, 2 to 4 m in 5.27 % wells and more than 4 m in 2.93 % of the wells. Water level fall of less than 2 m is seen in all the districts except Tiruvannamalai and Tiruppur district. Water level fall of 2 to 4 m is observed mainly in districts such as Erode and Salem, Trichy. Rise of more than 4 m is significantly observed in Namakkal, Virudhunagar and Erode districts.

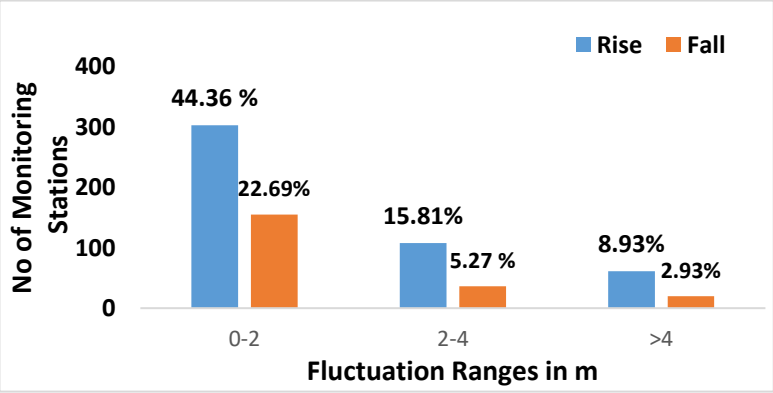

Figure-6: Percentage of wells showing rise and fall in WL in unconfined aquifer (May 2024 & May 2025)

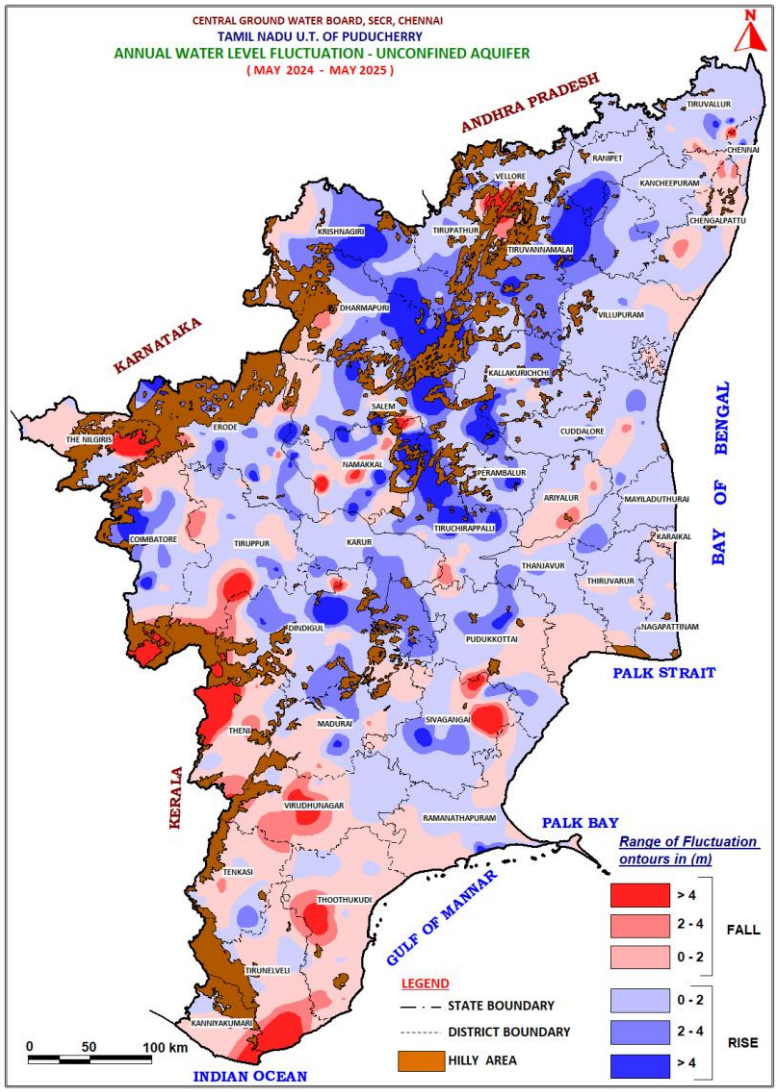

Figure-7 Annual water level fluctuation in unconfined aquifer (May 2024 & May 2025)

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

Rise in Water Levels:

Out of 685 wells, water level rise of less than 2 m is recorded in 39.74% wells, 2 to 4 m in 8.76 % wells and more than 4 m in 4.23 % of the wells. Water level rise of less than 2 m is seen in all the districts, except UT of Puducherry. Water level rise of 2 to 4 m is noted in all the districts except Ariyalur, Chennai, Dindigul, Nagapattinam, Pudukkottai and Tiruppur districts. Rise of more than 4 m is significantly observed in Coimbatore, Dharmapuri and Tirunelveli districts.

Fall in Water Levels:

Out of 685 wells, water level fall of less than 2 m is recorded in 34.89 % wells, 2 to 4 m in 7.88 % wells and more than 4 m in 4.53 % of the wells. Water level fall of less than 2 m is seen in all the districts except Tiruvarur. Water level fall of 2 to 4 m is observed in all the districts except in districts such as Ariyalur, Chennai, Karaikal & Pondicherry regions of UT of Puducherry. Fall of more than 4 m is significantly observed in Erode, Namakkal and Trichy districts.

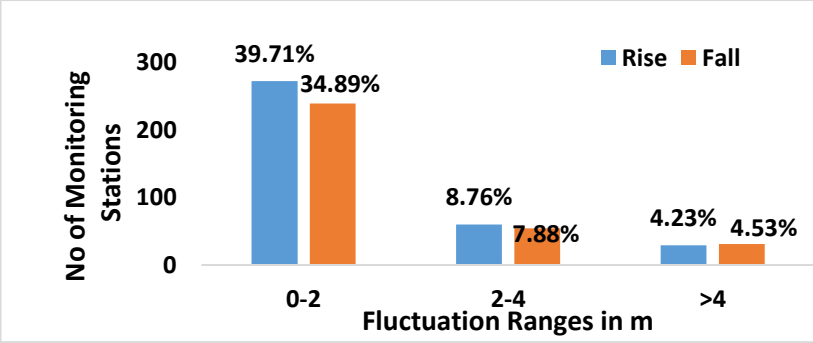

Figure-8: Percentage of wells showing rise and fall in WL in unconfined aquifer (May 2023 & May 2025)

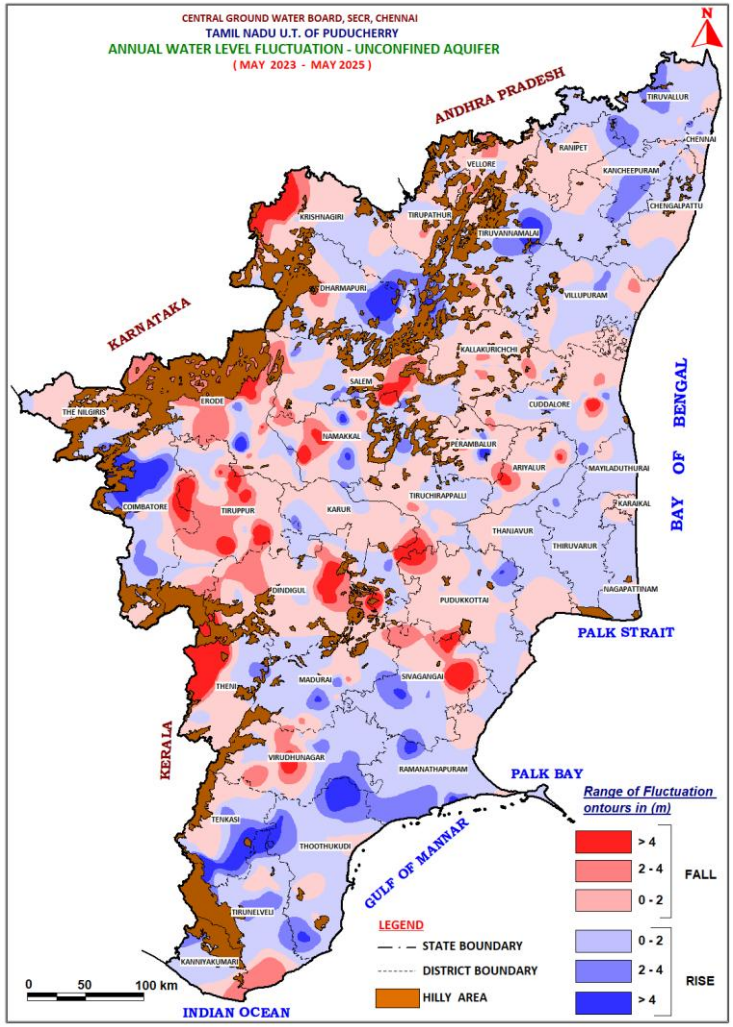

Figure-9: Annual water level fluctuation in unconfined aquifer (May 2023 & May 2025)

Annual Fluctuation of Water Level in Unconfined Aquifer (May 2022 to May 2025)

Rise in Water Levels:

Out of 693 wells, water level rise of less than 2 m is recorded in 36.36 % wells, 2 to 4 m in 5.48% wells and more than 4 m in 3.90 % of the wells. Water level rise of less than 2 m is seen in all the districts, except in Tiruppur. Water level rise of 2 to 4 m is observed mainly in districts such as Erode, Namakkal and Salem districts. Rise of more than 4 m is significantly observed in Coimbatore, Dharmapuri and Namakkal districts.

Fall in Water Levels:

Out of 693 wells, water level fall of less than 2 m is recorded in 35.50 % wells, 2 to 4 m in 12.84 % wells and more than 4 m in 5.92 % of the wells. Water level fall of less than 2 m is seen in all the districts except in Tiruvarur. Water level fall of 2 to 4 m is observed all the districts except in Chennai, Krishnagiri, Ramanathapuram and Karaikal region. Fall of more than 4 m is significantly observed in Erode, Salem, Cuddalore and Namakkal districts.

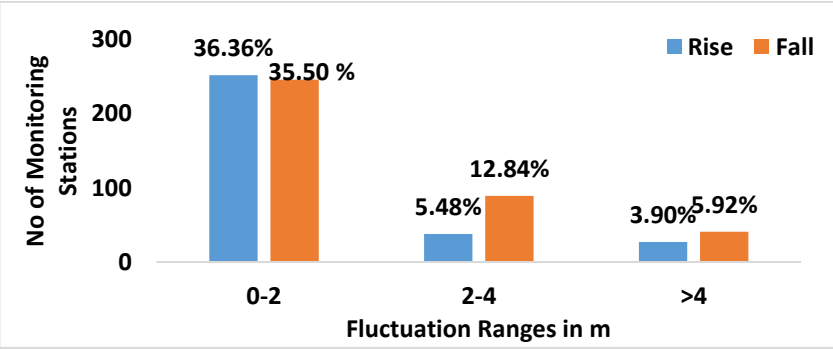

Figure-10: Percentage of wells showing rise and fall in WL in unconfined aquifer (May 2022 & May 2025)

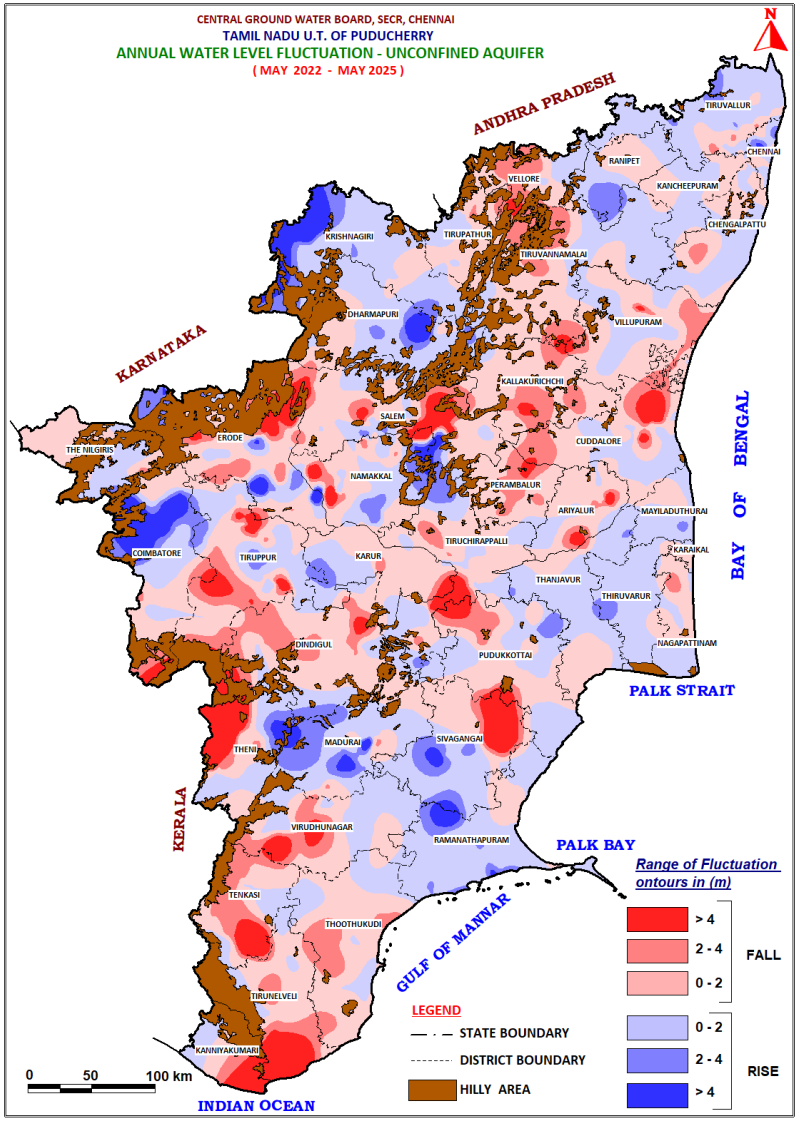

Figure-11: Annual water level fluctuation in unconfined aquifer (May 2022 & May 2025)

5.1.3 Decadal Fluctuation

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

Rise in Water Levels:

Out of 728 wells, water level rise of less than 2 m is recorded in 43.82 % wells, 2 to 4 m in 17.72 % wells and more than 4 m in 14.70 % of the wells. Water level rise of less than 2 m is seen in all the districts except UT of Puducherry. Water level rise of 2 to 4 m is observed mainly in districts such as Namakkal, Salem, Trichy and Erode and rise of more than 4 m is significantly observed in Dharmapuri, Namakkal and Salem districts.

Fall in Water Levels:

Out of the 728 wells ,fall in water levels less than 2 m is recorded in 18.54 % wells while 3.16 % in the range of 2 to 4 m and 2 % wells registered water level fall of more than 4 m. Fall of less than 2 m is observed in all districts except Dharmapuri and Tiruvarur districts. Fall of 2 to 4 m, recorded mainly in Namakkal, Coimbatore, Kancheepuram and Trichy districts. Fall beyond 4 m is recorded mainly in Erode, Sivaganga and Virudhunagar districts.

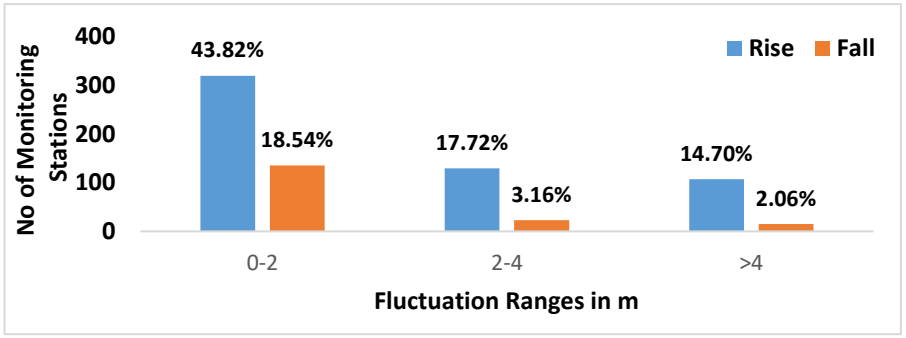

Figure-12: Percentage of wells showing rise and fall in WL in unconfined Aquifer (Decadal Mean May (2015-2024) to May 2025

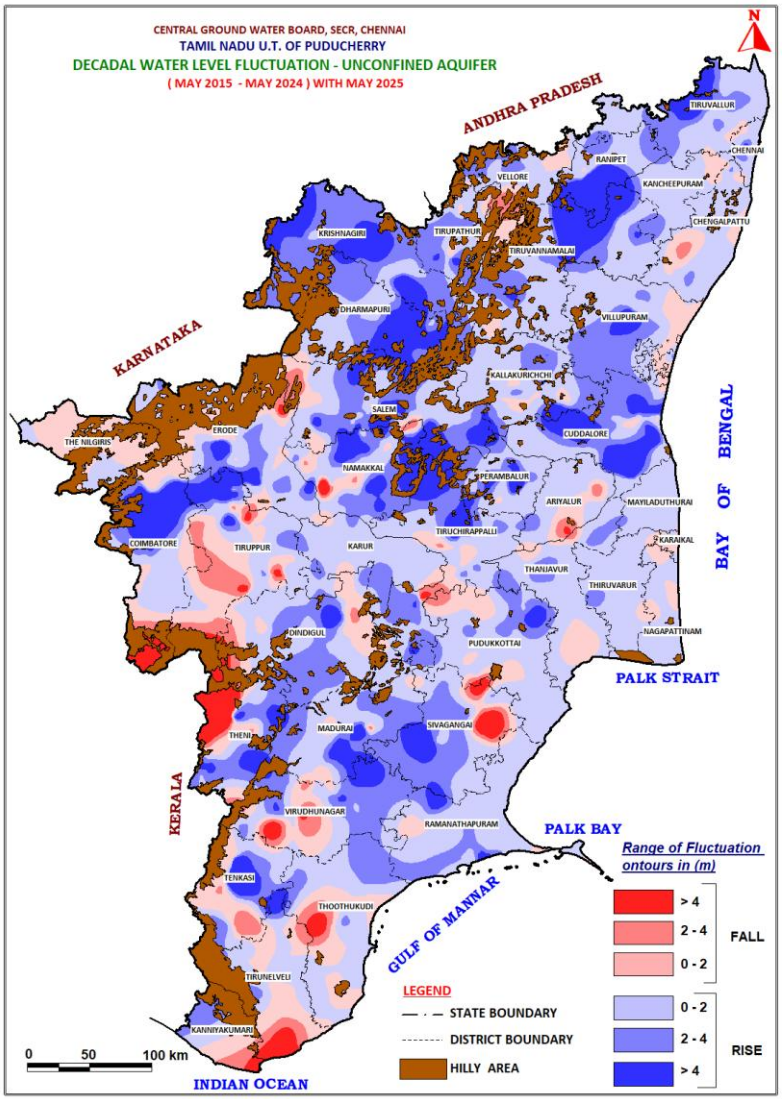

Figure-13: Decadal water level fluctuation in unconfined Aquifer (Decadal Mean May 2015-2024 to May 2025)

6.0 RECOMMENDATIONS

In order to enhance the groundwater scenario of Tamil Nadu state & UT of Puducherry utmost effort should be made to harvest the rainwater received during monsoon days and use it either for ground water recharge or for domestic use. Periodic maintenance of the Rainwater harvesting / Recharges structures is also recommended to maintain the efficiency.

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 Tamil Nadu state & UT of Puducherry, District Recharge Plan and NAQUIM reports of CGWB helps in selecting sites for artificial recharge structures.

Point recharge structures are recommended to recharge deeper aquifers.

Efficient micro irrigation practices can save up to 40% of water.

Use of Grey water after treatment, 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

7.0 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 pre-monsoon May, August, November and post- monsoon January . Additionally, a yearly assessment of ground water quality is performed in May. As on May 2025, the South Eastern Coastal Region of Central Ground Water Board supervises 731 dug wells and 720 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 0.42m bgl (Dindigul district) to 41.46 m bgl (Namakkal District) in Tamil Nadu and UT of Puducherry. Overall, 93 % of the wells monitored in the state and UT are in <10 m bgl range and spread over entire Tamil Nadu ,6.43 % 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 14.50% of wells analysed, depth to water level in the range of 2 to 5 m bgl has been recorded in 47.06 % of wells analysed while depth to water level in the range of 5 to 10 m bgl has been recorded in 31.33 % of wells analysed .